# Lino Lakes
# 2040 Comprehensive Plan

**Adopted November 9, 2020**











CITY OF LINO LAKES
2040 COMP PLAN

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# Chapter 1: Introduction



## Introduction

This chapter of the Comprehensive Plan builds a foundation for the chapters to follow, by describing the community and its regional context, and setting forth the vision of Lino Lakes' future that guides the entire plan.

This 2040 Plan for Lino Lakes is an update of the 2030 Comprehensive Plan, extending the vision and plans for an additional ten years and updating as necessary. It is intended to meet the city's obligations under the Metropolitan Land Planning Act to review comprehensive plans every ten years and to amend it as necessary to ensure conformity with metropolitan system plans for transit, highways and airport; wastewater services; and parks and open space.

# About Lino Lakes

## Location

The City of Lino Lakes is located in the southeastern corner of Anoka County, the northernmost county in the Twin Cities metropolitan area (Figure 1-1). Lino Lakes is comprised of 33.1 square miles and is approximately 16 miles north of the St. Paul Central Business District (CBD) and 20 miles from the Minneapolis CBD. Lino Lakes is bordered by the City of Columbus to the north and the City of Hugo to the east. The City of Circle Pines and the City of Blaine combine to create the city's western border. To the south, Lino Lakes is bounded by White Bear Township, and the Cities of Shoreview and North Oaks. The City of Centerville, which encompasses 2.5 square miles, is located completely within Lino Lakes. Lino Lakes is accessible from both downtown Minneapolis and St. Paul, offering connections to both via Interstate 35W and Interstate 35E, which run through the city.

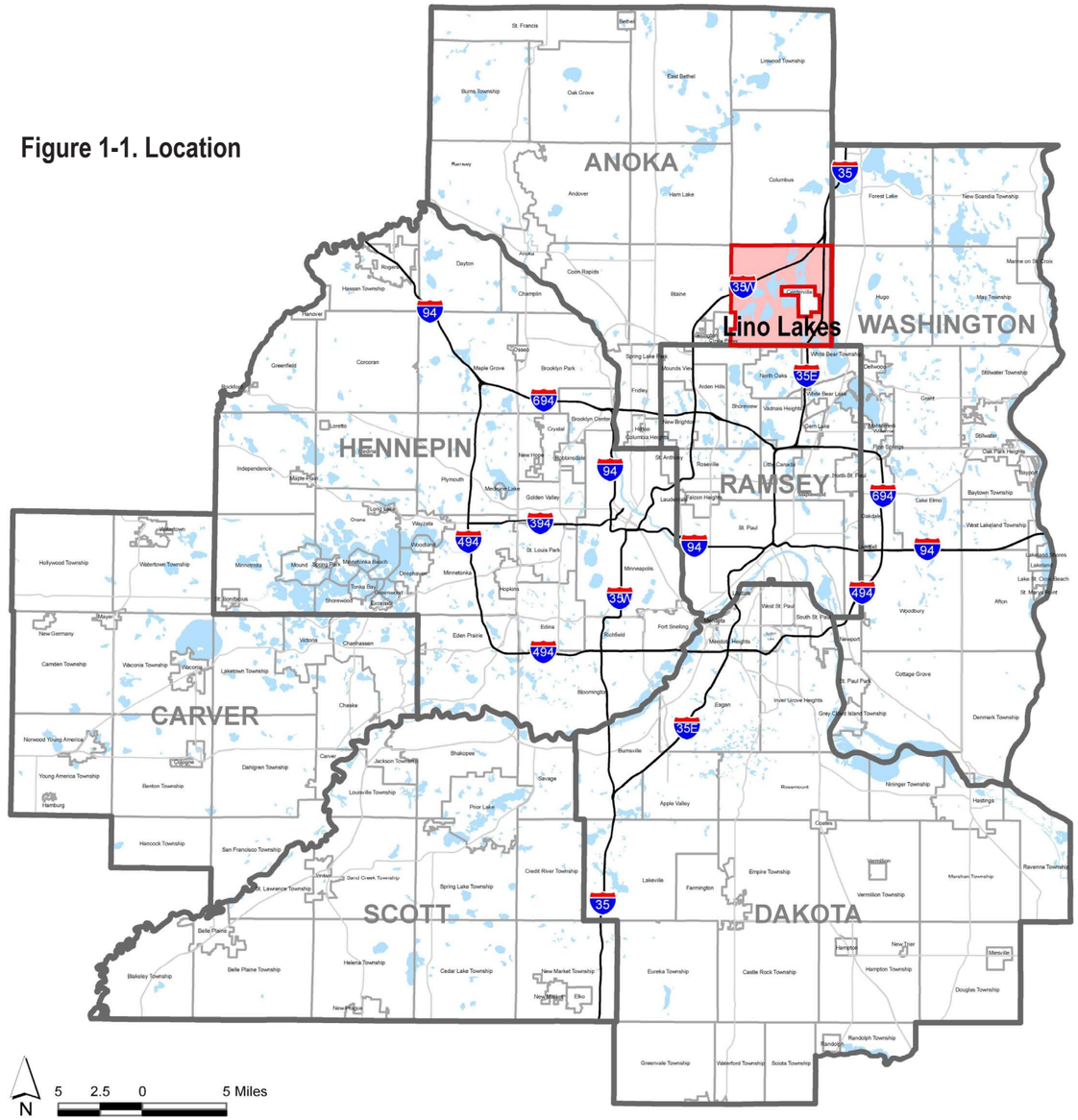
## History

In the 1950's, neighboring villages started annexing land away from Centerville Township. To protect the boundaries and allow for the financing of public improvements, the residents of the township voted to incorporate into a village. Several names were suggested for the new village, and most contained the word "lakes". Although there is no consensus on the origin of the word "lino", a Lino post office operated for about 10 years in the late 1800s. The town board decided to name the new village "Lino Lakes".

On May 11, 1955, the Village of Lino Lakes was incorporated. It covered the original Centerville Township, with the exception of the Village of Centerville, and was comprised of 21,000 acres of land and 1,800 citizens. In 1972, the State Legislature passed a law changing all Minnesota villages to cities. The City of Lino Lakes adopted a Home Rule Charter on January 12, 1982.

Between 1955 and 1995, Lino Lakes transitioned from a rural village to a growing city, increasing in population from 1,800 to 13,100. The city experienced a steady increase in residential development, but little significant commercial and industrial development. Since 1995, commercial and industrial development began to follow the population growth and to take advantage of the city's prime location on the regional transportation network. By 2014, there were an estimated 3,944 jobs in Lino Lakes. By 2017 (the last official estimate) the population had increased to 21,117 people in 6,639 households.

**Figure 1-1. Location**



## Environment

Lino Lakes' residents place a high value on its lakes and open spaces. Lakes, wetlands and protected open space occupy approximately 45% of the city's area and provide Lino Lakes with a character and ambiance unequaled within the region.

The Rice Creek Chain of Lakes is the most significant and defining natural feature of the city's landscape. This large natural amenity, much of which is protected in a regional park, attracts residents and sets the city apart from surrounding municipalities. It also shapes development by dividing the community and presenting challenges for providing infrastructure such as sewer and water and roadway connections.

Lino Lakes' city plans have long recognized the need to integrate the protection of the natural environment with all aspects of community development. The city has collaborated with the Rice Creek Watershed District to develop a unique and unprecedented city-wide, watershed-based Resource Management Plan (RMP). While the RMP is primarily focused on wetlands and water resources, it also identifies important upland natural resource areas and provides the framework for a unified approach to natural resources management when combined with the city's Comprehensive Plan, particularly the Land Use Plan, the Local Water Management Plan, and the Parks, Greenways and Trails.

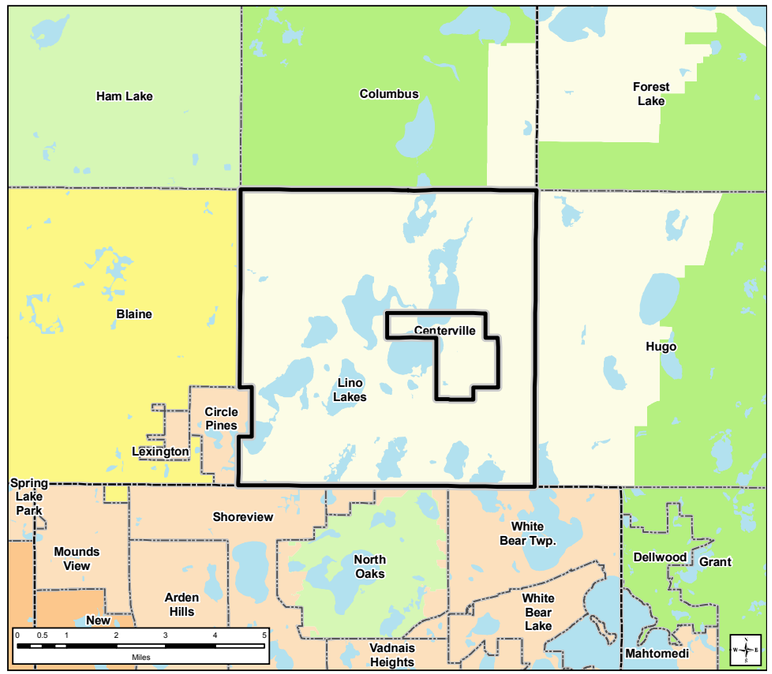
# Regional Planning Context

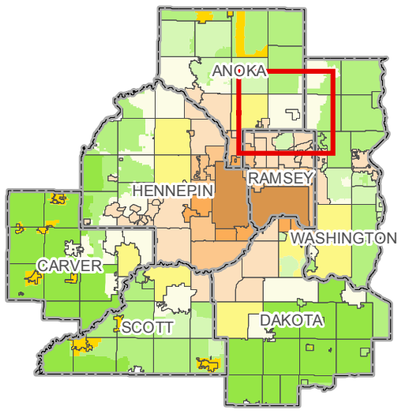
In 1967 the Minnesota Legislature created the Metropolitan Council to plan and coordinate the orderly development of the seven-county metropolitan area. The 1976 Metropolitan Land Planning Act requires every municipality and county within the metropolitan area to prepare and submit a comprehensive plan for review by the Metropolitan Council. The Council reviews local plans for conformance to metropolitan systems plans (transit, highways and airport; wastewater services; and parks and open space), consistency with Council policies, and compatibility with adjacent and affected governmental units. Updates of local plans are triggered by updates to the systems plans and the issuance of "systems statements" to local governments by the Metropolitan Council. Systems Statements were issued in September of 2015. Updated local comprehensive plans are due to the Metropolitan Council for review by December 31, 2018.

## Community Designation

In its Regional Development Guide, "*Thrive MSP 2040",* the Metropolitan Council groups local jurisdictions with similar characteristics for the application of regional policies into "community designations." The Council uses community designations to guide regional growth and development; establish land use expectations including overall development densities and patterns; and outline the respective roles of the Council and individual communities, along with strategies for planning for forecasted growth. Lino Lakes has been designated Emerging Suburban Edge (Figure 1-2). Emerging Suburban Edge communities include cities, townships and portions of both that are in the early stages of transitioning from rural communities into urbanized levels of development. Emerging Suburban Edge communities offer both connections to urban amenities and the proximity to open spaces that characterizes a rural lifestyle. Emerging Suburban Edge communities are expected to plan for forecasted population and household growth through 2040 and beyond at overall average net densities of at least three to five units per acre for new development and redevelopment. Higher density developments should be targeted to areas with better access to regional sewer and transportation infrastructure, connections to local commercial activity center, transit facilities and recreational amenities.

**Figure 1-2. Community Designation**




**Community Designation**

- Urban Center - Core City
- Urban Center
- Urban
- Suburban
- Suburban Edge
- Emerging Suburban Edge
- Rural Center
- Diversified Rural
- Rural Residential
- Agricultural
- Outside Council planning authority
- County Boundaries
- City and Township Boundaries
- Lakes and Major Rivers

## Growth Forecasts

To be consistent with the regional systems plans, communities are required to base their planning work on the growth forecasts prepared by the Metropolitan Council. Table 1-1 and Figure 1-3 shows the growth forecasts used throughout this 2040 Comprehensive Plan for Lino Lakes.

The 2040 population and household forecasts are similar to the 2030 forecasts contained in the 2030 Comprehensive Plan. Growth has lagged the forecasts that were prepared in 2004, prior to the Great Recession of 2007-2009 which slowed development throughout the region in the late 2000's and early 2010's.

The 2030 Comprehensive Plan anticipated that Lino Lake's population would increase to 22,500 by 2010, to 26,300 by 2020 and to 30,700 by 2030. The new forecasts anticipate the city reaching 31,100 population by 2040. The most recent estimate (21,117 in 2017) seems consistent with the projected slower rate of growth.

The 2040 employment forecasts have been reduced from the 2030 forecasts of the 2030 Comprehensive Plan. The 2030 Plan anticipated that Lino Lake's employment would increase to 4,100 by 2010, to 6,200 by 2020 and to 8,000 by 2030. The new forecasts anticipate the city reaching 6,000 jobs by 2040. The most recent estimate (4,245 in 2016) reflects the slow growth since the recession. Slower employment growth is expected to accompany slower population growth, especially employment in businesses providing goods and services to local residents.

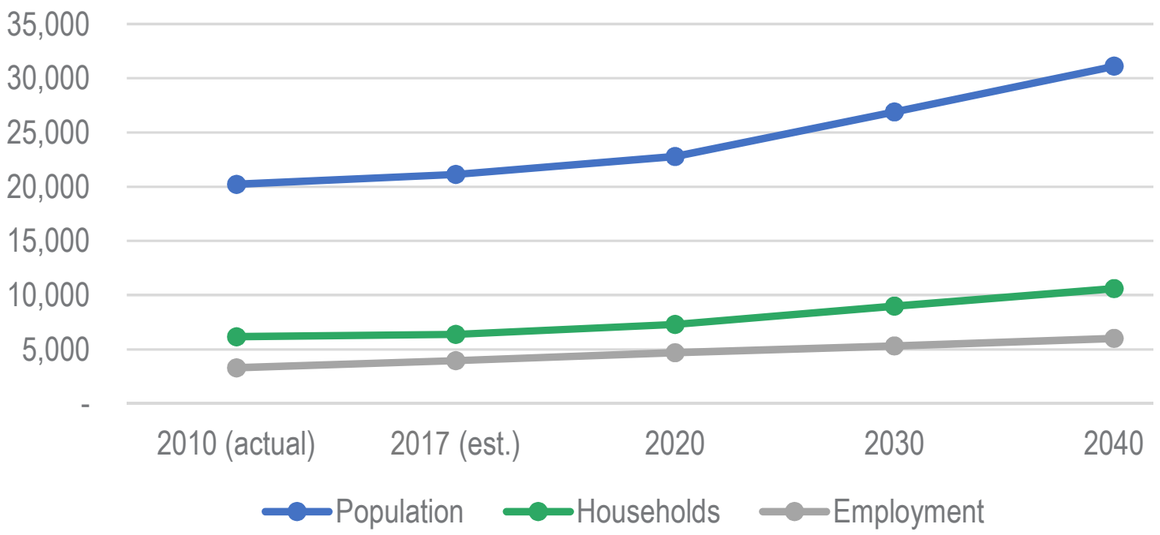
The plan update provides an opportunity to assess how well the current plan is serving the community's needs and to make adjustments as needed. Because the 2030 Comprehensive Plan provided for about the same amount of growth that must be accommodated by the 2040 Plan, major changes to accommodate new growth are not required. Table 1-1 and Figure 1-3 show the official forecasts on which the plan is based.

**Table 1-1. Lino Lakes Growth Forecasts**

| | 2010 (actual) | 2017 (est.) | 2020 | 2030 | 2040 |
|---|---|---|---|---|---|
| **Population** | 20,216 | 21,117 | 22,300 | 26,100 | 31,100 |
| **Households** | 6,174 | 6,639 | 7,000 | 8,600 | 10,600 |
| **Employment** | 3,313 | 4,321 | 4,700 | 5,300 | 6,000 |

Source: Metropolitan Council, Thrive MSP 2040

**Figure 1-3. Lino Lakes Growth Forecasts**




Source: Metropolitan Council, Thrive 2040

# The Planning Process

## "SPOTLIGHT on 2030" Vision and Comprehensive Plan

As part of developing the 2030 Comprehensive Plan, beginning in 2006 Lino Lakes conducted an extensive process to articulate its vision for the city's future. The "SPOTLIGHT on 2030" process included an extensive public Quality of Life survey and the selection of a Citizen Visioning Committee which guided and participated in the citizen-driven process. Community Forums were held to generate public input and to identify the core elements to be addressed in the SPOTLIGHT on 2030 Vision Plan. The two issues of predominant importance expressed in the survey and visioning forums can be summarized as:

- Ensure quality land use, growth management, and preservation of the community's unique natural resources and amenities.
- Sustain and increase the overall quality of both the community and the lives of its residents.

Four vision elements emerged as the priority areas of emphasis that must be addressed in order for citizens' desires for the future to become reality. The order of the Vision Elements does not imply priority; all are of equal importance and must be dealt with competently in the city's plans and pursued through resolute community support and city leadership. The four vision elements are:

- Community, Residential and Neighborhood Development
- Economic and Commercial Development
- Roads and Transportation
- Community Amenities and Natural Resources

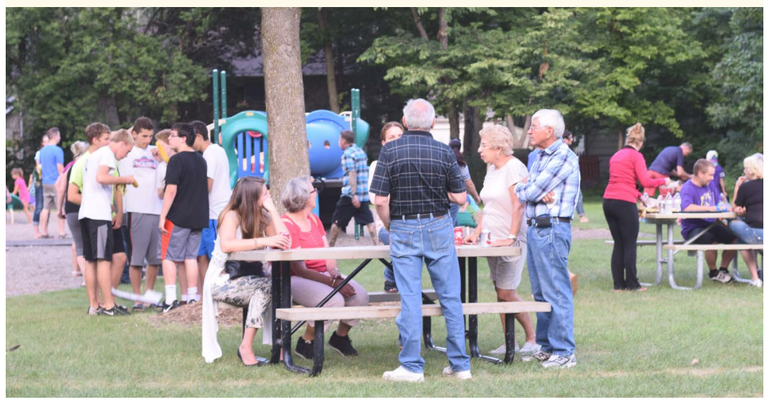
Issue Project Teams, comprised of members of the Citizen Visioning Committee and additional volunteers from the community, prepared a vision statement, goals, rationale and proposed strategies addressing each core vision element. Once the visioning process was complete, members of the Citizen Comprehensive Plan Advisory Panel further refined the goals and strategies for use in the Comprehensive Plan.

The SPOTLIGHT on 2030 Vision Plan segued into the efforts to develop the Comprehensive Plan in 2007. The Citizen Advisory Panel was the main "working group" that worked with city staff and a consultant team to prepare the 2030 Comprehensive Plan. It was composed of members from the Visioning Committee, the members of the Planning & Zoning Board, representatives from other city advisory panels, and at-large citizens. The group held nineteen meetings between March 2007 and January 2009. Each Element vision statement and related goals and strategies were incorporated into the appropriate Comprehensive Plan chapter.

### SPOTLIGHT on 2030 Vision

*Ensure quality land use, growth management, and preservation of the community's unique natural resources and amenities.*

*Sustain and increase the overall quality of both the community and the lives of its residents.*



## 2040 Comprehensive Plan Update

The 2040 Comprehensive Plan builds on the 2030 Plan, using the extensive visioning and community involvement from that effort and supplementing it with new outreach to involve the community in updating the plan and extending it into the future. The city's Planning & Zoning Board and other established advisory bodies provided guidance to staff and consultants on the plan development and made recommendations to the City Council.

The planning process began with a kick-off meeting attended by City Council and members of the various advisory boards. They participated in a "SWOT" analysis to identify the city's strengths, weaknesses, opportunities, and threats. They reviewed and affirmed the "Spotlight on 2030" vision.

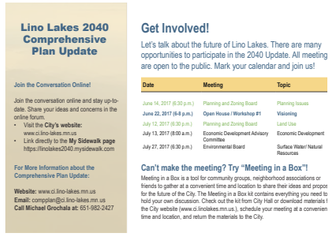
The city provided multiple avenues for citizens to weigh in on the Comprehensive Plan Update, using traditional methods (meetings, print media) and newer technologies that have become more widespread in the last ten years (such as social media, on-line surveys and electronic document distribution via websites.) Figure 1-4 summarizes the opportunities for community involvement in the Plan Update, prior to and not including the open house and formal public hearing on the draft plan, which will occur prior to its adoption.

**Figure 1-4. Community Involvement, 2040 Comprehensive Plan Update**

| | |
|---|---|
| **City Council and Advisory Boards** | Kick-Off, City Council and Advisory Boards (May 15, 2017)<br>Planning & Zoning Board (10 meetings)<br>Park Board (3 meetings)<br>Economic Development Advisory Committee (2 meetings)<br>Environmental Board (4 meetings)<br>City Council Meetings (10 meetings) |
| **Other Public Meetings/ Events** | Open House 1 (June 22, 2017)<br>Blue Heron Days (August 19, 2017)<br>Open House 2 (April 3, 2018)<br>Meeting-in-a-Box Opportunities |
| **Print Media** | Post Card (May, 2017)<br>Newsletter 1 (June, 2017<br>Newsletter 2 (August, 2017)<br>Newsletter 3 (November, 2017)<br>Newsletter 4 (March, 2018) |
| **Electronic Media** | City of Lino Lakes Web Page<br>My Sidewalk Social Media Site<br>Community Visioning Survey<br>(May/June 2017) |







Lino Lakes 2040 Comprehensive Plan Update

Join the Conversation Online!

Join the conversation online and stay up-to-date. Share your ideas and concerns in the online forum.

- Visit the **City's website:** www.ci.lino-lakes.mn.us
- Link directly to the **My Sidewalk page** https://linolakes2040.mysidewalk.com

For More Information about the Comprehensive Plan Update:

**Website:** www.ci.lino-lakes.mn.us
**Email:** compplan@ci.lino-lakes.mn.us
**Call Michael Grochala at:** 651-982-2427

**Get Involved!**

Let's talk about the future of Lino Lakes. There are many opportunities to participate in the 2040 Update. All meeting are open to the public. Mark your calendar and join us!

| Date | Meeting | Topic |
|---|---|---|
| June 14, 2017 (6:30 p.m.) | Planning and Zoning Board | Planning Issues |
| June 22, 2017 (5-8 p.m.) | Open House / Workshop #1 | Visioning |
| July 12, 2017 (6:30 p.m.) | Planning and Zoning Board | Land Use |
| July 13, 2017 (8:00 a.m.) | Economic Development Advisory Committee | Economic Development |
| July 27, 2017 (6:30 p.m.) | Environmental Board | Surface Water/ Natural Resources |

**Can't make the meeting? Try "Meeting in a Box"!**

Meeting in a Box is a tool for community groups, neighborhood associations or friends to gather at a convenient time and location to share their ideas and propos for the future of the City. The Meeting in a Box kit contains everything you need to hold your own discussion. Check out the kit from City Hall or download materials f the City website (www.ci.linolakes.mn.us.), schedule your meeting at a convenien time and location, and return the materials to the City.



A Community Visioning Survey was conducted from May 15 through June 23, 2017 using the online survey site "Survey Monkey." Participants were invited to respond through the city's website, a postcard and a newsletter mailed to all residents and businesses, and at the June 22, 2017 Open House. Paper survey forms were made available to residents unable to respond online. A total of 476 people participated in the survey. Most of the questions were open-ended, with up to three responses allowed from each participant. Participants were asked their vision for the city's future:

"Think about Lino Lakes as you would like to be able to describe it to someone 20 years from now. What would you hope to be able to say about the Lino Lakes of the future?"




*Word Cloud results from the Community Survey: KEY THEMES*

Participants gave almost 1,200 answers to this question, with some strong common themes:

- Safe
- Community—strong, vibrant, close sense of community
- Friendly, especially family friendly
- Natural beauty is preserved
- Great parks and trails
- Great schools
- Clean, especially clean water
- More businesses to help tax base
- More retail shops and restaurants

When asked what things they would change about Lino Lakes, many of the same themes emerged. Lino Lakes resident clearly value these things and want to see more of them:

- More businesses to help tax base
- More restaurants and stores (except liquor)
- Repair/ maintain roads
- Slower development
- More/ upgraded parks
- More sidewalks and trails
- More sense of community and events, possibly a community center
- Improve/ invest in schools

Survey participants were also asked to rank the importance of ten distinct issues facing the city over the next 20 years. A ranking of 1 was most important, 10 the least important.

**Table 1-2. Community Survey, Issue Ranking, 1-10**

| Most Important Issues: | Rating Average |
|---|---|
| Improving the roadway system | 3.53 |
| Developing more parks and trails | 3.91 |
| Maintenance of infrastructure | 3.94 |
| Attracting new commercial/industrial tax base | 4.61 |
| Attracting new jobs | 4.92 |
| **Least Important Issues:** | **Rating Average** |
| Attracting more commercial development | 4.94 |
| Improving the supply of move up housing | 6.79 |
| Improving the supply of empty nester housing | 6.88 |
| Improving the supply of senior housing | 7.30 |
| Improving the supply of entry level housing | 7.37 |




## Community Vision

The vision is foundation of the Comprehensive Plan. While rooted in the reality of the community's past and present, the Vision is an aspirational statement that describes how the community will look, feel and function in the next 20 years. It defines the character, values and priorities of the Lino Lakes community. The Vision provides a framework that permeates the plan and informs supporting policy and strategy decisions. The appropriateness and success of future actions and programs will be measured by how well they support the Vision. The goals, policies and strategies to support the Vision are included in the related chapters of the Plan that follow.

### The Lino Lakes Vision

In the year 2040, Lino Lakes is a city of approximately 30,000 residents. It is a friendly, aesthetically pleasing, and well-planned community that enjoys a rural ambience, carefully preserved and accessible natural resources and environmental amenities, quality park and recreation facilities, good schools, well maintained roads and infrastructure, and safe neighborhoods that offer a variety of housing to meet the needs of all ages and lifestyles.

The predominantly residential city has provided for a well-planned mix of retail, dining and entertainment activities that integrate into and serve the commercial needs of neighborhoods. The city also enjoys a strong and diversified tax base, achieved through a balance of economic and commercial activities, which are located in designated areas of the city. These activities provide a mix of office, light industrial, high tech, professional and financial businesses, employment and service opportunities.

Lino Lakes' city government is fiscally responsible and a good steward of the community's many municipal assets. It provides efficient and cost-effective services from its highly-professional and service-oriented employees. Citizen participation and input are sought to identify and address problems and challenges through well-reasoned solutions. The city has a reputation for innovation and for sustain positive working relationship among all elements of the community. Volunteerism and a strong sense of community and civic responsibility enrich the city and the quality of life enjoyed by its residents.

# Chapter 2: Community Background



## Introduction

This chapter summarizes background information helpful for understanding the natural environment, the built environment and the people of Lino Lakes. The information presented here is a snapshot of the community using data collected from a variety of sources including the 2030 Comprehensive Plan, the United States Census Bureaus' Decennial Census and Community Surveys, the Metropolitan Council and from the city's own Geographic Information System (GIS).

# Natural Resources

## Natural History and Landscape

Lino Lakes is located within the Anoka Sandplain ecological subsection of central Minnesota. The Anoka Sandplain is a 1,875 square mile glacial outwash plain that includes portions of 13 Minnesota counties, and includes most of Anoka, Isanti, and Sherburne counties. The Anoka Sandplain was created and shaped by the last major glacial episode in Minnesota – the Wisconsin glaciation – between 35,000 and 10,000 years ago.

Lino Lakes is located within the historic lake bottom of Glacial Lake Fridley which formed from glacial ice-melt water circa 12,000 years ago. The release of glacial melt water from Glacial Lake Fridley created deep, broad, irregular troughs within the glacial lake bottom. These troughs formed the Rice Creek Chain of Lakes and associated wetland complexes of present day, as well as numerous other lake chains to the northwest and southeast of Lino Lakes.

The glacial history of Lino Lakes resulted in complex patterns of surficial geology, hydrology, and soil associations that remain as important influences on development, agricultural patterns and natural resources conservation opportunities within the city. The upland soils of Lino Lakes are typically sandy, moderately to well drained, and nutrient poor. Wetland soils are typically shallow to deep organic peat deposits over sand or saturated sands, which occur within complex networks of braided depressions throughout the city's landscape. The southeastern most edge of the city includes a small portion of a glacial till. The upland and wetland soils of this landscape inclusion are comprised of fine-textured silt loams, loams, and clays that are poorly drained. Topography throughout the city is generally flat to slightly undulating, and the regional groundwater table is typically shallow below the soil surface.

Native vegetation patterns of Lino Lakes were described at the time of Minnesota's Original Land Survey (circa 1850), and prior to European settlement of Minnesota. Native vegetation communities within the city prior to European settlement were primarily comprised of oak barrens and savannas, aspen/oak forests and woodlands, dry, mesic, and wet prairies, rich fens, poor fens, bogs, tamarack swamps, a network of shallow lakes and associated marshes, and inclusions of mesic hardwood forest. (See Figure 2-1, Presettlement Vegetation.) Large-scale natural processes dramatically influenced the formation, establishment, and succession of natural vegetation patterns and natural communities within the landscape over thousands of years prior to European settlement. These natural processes include: surface and sub-surface hydrology, flooding, drought, herbivory, wildlife migration, plant dispersal, plant community succession, and occasional to frequent wildfires. Over the past 150 years, the natural landscape and associated landscape processes have been widely altered to accommodate agricultural land uses, development, and other anthropocentric uses of the landscape.

## Natural Resource Inventories & Assessments

The natural resources and the natural environment of Lino Lakes represent valuable amenities within the city. In response to mounting development pressure, significant efforts have been made to inventory and assess the extent and quality of the city's remaining natural resources and to evaluate opportunities for natural resources conservation, restoration, and stewardship. Several important studies, models, plans, and city documents have emerged and are summarized here. These products have been based on analyses of existing extent and quality of natural resources within the city, compliance with local, State, and Federal environmental regulatory requirements, and the City's desire to incorporate natural resources enhancement and stewardship into future development plans to achieve a sustainable and contiguous parks, trails, and open space network throughout the city. Many of the recent plans and documents build upon past studies, with the intent that the current conditions of the natural resources within the city are identified and can be used to implement land use regulations appropriately.

### Minnesota County Biological Survey

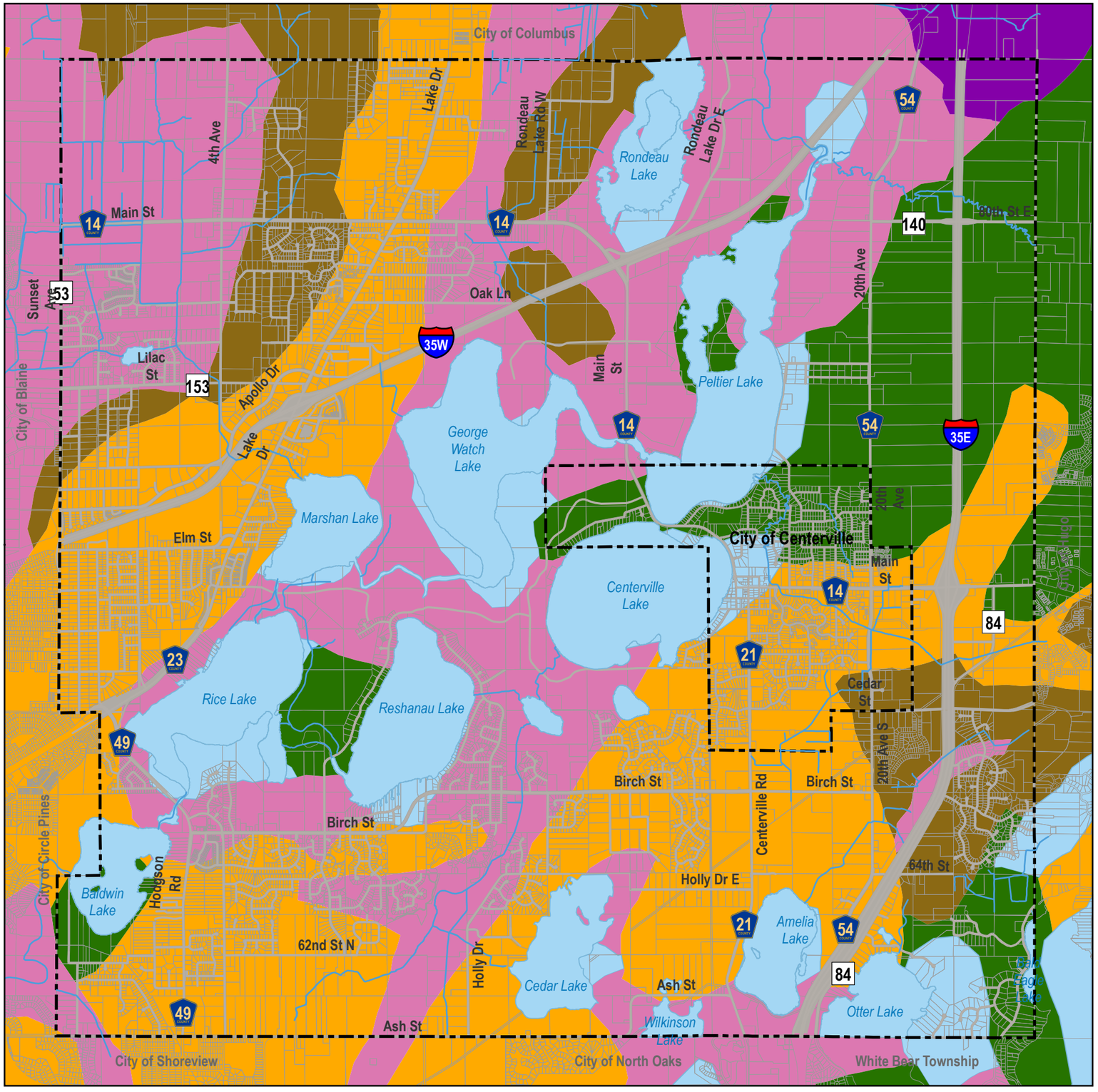
In 1988, the Minnesota Department of Natural Resources' County Biological Survey (MCBS) conducted a broad-scale assessment and biological inventory of Anoka County's most significant remaining natural communities and rare plant and animal populations. Potential high-quality areas were remotely identified and prioritized for further field assessment on a county-wide scale. Within Lino Lakes, the County Biological Survey identified 23 natural community remnants, 12 rare animal populations or rare animal nesting sites, and one rare plant population. Although the MCBS was not able to comprehensively survey all areas within Lino Lakes, the County Biological Survey was the best available and highest quality natural resources information for Lino Lakes and surrounding communities for more than a decade after its completion.

### Assessment of Existing Ecological Conditions and Restoration and Management Opportunities

In 1998, the city conducted a city-wide assessment of existing ecological conditions and restoration and management opportunities within Lino Lakes. Data collection and interpretation was based primarily on remote-sensing of available low-altitude aerial photography with only limited field checking. This inventory, assessment, and analysis process resulted in the identification of numerous contiguous natural and semi-natural potential habitat corridors within the city. The results of the inventory were published in 1999 and served as the foundation for the city's Handbook for Environmental Planning and Conservation Development.

### Lino Lakes Handbook for Environmental Planning and Conservation Development

In 1998 and 1999, the city developed the Lino Lakes Handbook for Environmental Planning and Conservation Development (Handbook). The final Handbook (published in December 1999) provided detailed guidance to enable the city to establish a viable conservation development program, and included: a natural resources based planning model and framework, an overview of Lino Lakes existing ecological resources, priority areas for ecological protection within the city, action steps for protection of ecological systems, potential open space and greenway corridors, a framework for ecological restoration and management, and principles of and guidelines for conservation development.







# Figure 2-1
# Presettlement Vegetation

## Legend

- Aspen-Oak Land
- Conifer Bogs and Swamps
- Big Woods - Hardwoods (oak, maple, basswood, hickory)
- Oak openings and barrens
- Wet Prairie
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

### Minnesota Land Cover Classification System (MLCCS) and Natural Resources Inventory

From 2000 to 2001, the city participated in a detailed land cover classification and natural resources inventory of the city, using the newly established Minnesota Land Cover Classification System (MLCCS). The MLCCS survey of Lino Lakes documented all existing developed, agricultural, semi-natural, and natural land cover types within the city (see Figure 2-2). The MLCCS assessment and resulting natural resources inventory identified and mapped 1,978 natural community remnants and semi-natural landscapes of various ecological quality throughout the city. Furthermore, the MLCCS inventory identified 11 additional rare plant populations that had not previously been documented within Lino Lakes, as well as dozens of potential natural rare species habitats that were flagged for future field checking. The MLCCS assessment determined the ecological quality of remnant natural areas and classified each natural area into high, moderate and low-quality areas.

### Rare Wildlife and Plant Habitat Models

Using available natural resources inventory data and land cover information, and known habitat affinities of rare animals, city staff developed a GIS based wildlife model to assess potential habitats for rare animal populations known to occur within the city. This predictive model identifies potential habitats for a state threatened reptile, the Blanding's Turtle (Emydoidea blandingii).

The city also assisted with the development of a predictive model to assess potential habitats that could support rare plant populations within the city. The model parameters were based on environmental data collected with historic and recent records of rare plant population records documented within Lino Lakes and adjacent communities on the Anoka Sandplain (e.g. Blaine, Ham Lake, and Columbus). The model analyzes available MLCCS land cover and natural resources inventory data, as well as soils, wetlands, hydrology data, and recent aerial photographs to determine natural and semi-natural habitats with a high likelihood of supporting undocumented rare plant species populations.

The results of these models are used to review proposed development plans and conservation projects, and to identify areas within the city that may require additional field survey and assessment for the presence of rare wildlife or plant populations.

### Lino Lakes Greenway System Plan

In 2004, the city updated its Comprehensive Parks, Natural Open Space/ Greenways, and Trail System Plan (Greenway System Plan). The planning process incorporated updated and detailed natural resources information and environmental analysis to develop a greenway system plan that incorporated important natural resources into a contiguous network of recreational and habitat corridors throughout the city. This program has resulted in the design and implementation of residential conservation developments within the city that achieve ecological restoration, open space reservation, recreational, and economic development goals of the city. Please see Chapter 10, Parks, Greenways and Trails for more information on how this plan has been updated for the 2040 Comprehensive Plan.

### I-35E Corridor Alternative Urban Areawide Review (AUAR)

The I-35E Corridor Alternative Urban Areawide Review (AUAR) was a proactive, citizen-driven environmental review process that comprehensively assessed the environmental impacts of development in a 4,600-acre growth area in the city. The AUAR was completed in 2005 and the AUAR area is shown by Figure 2-3. The overarching goal of the project was to balance development with natural resource conservation. The result of the AUAR process was a Mitigation Plan that documents the actions the city will take to mitigate environmental impacts. The AUAR and mitigation plan are updated every 5 years.

### Lino Lakes & Rice Creek Watershed District Resource Management Plan (RMP)/Comprehensive Wetland Protection and Management Plan

In 2008, as part of the integrated comprehensive planning process, the City of Lino Lakes and the Rice Creek Watershed District prepared a Resource Management Plan to provide a watershed-based approach to wetland management. This process included an analysis of the city's future land use plan to determine the impacts of future growth on the area's aquatic resources. A key component of the plan was to establish a Wetland Management Corridor. This corridor includes high priority wetlands (see Figure 2-4), natural open space (uplands), greenway connections and marginally suitable development areas. The plan identifies several strategies to mitigate development impacts, particularly within the Wetland Management Corridor. This study was approved by the Board of Water and Soil Resources as a Comprehensive Wetland Management Plan in 2008.

### Lino Lakes Special Area Management Plan (SAMP)

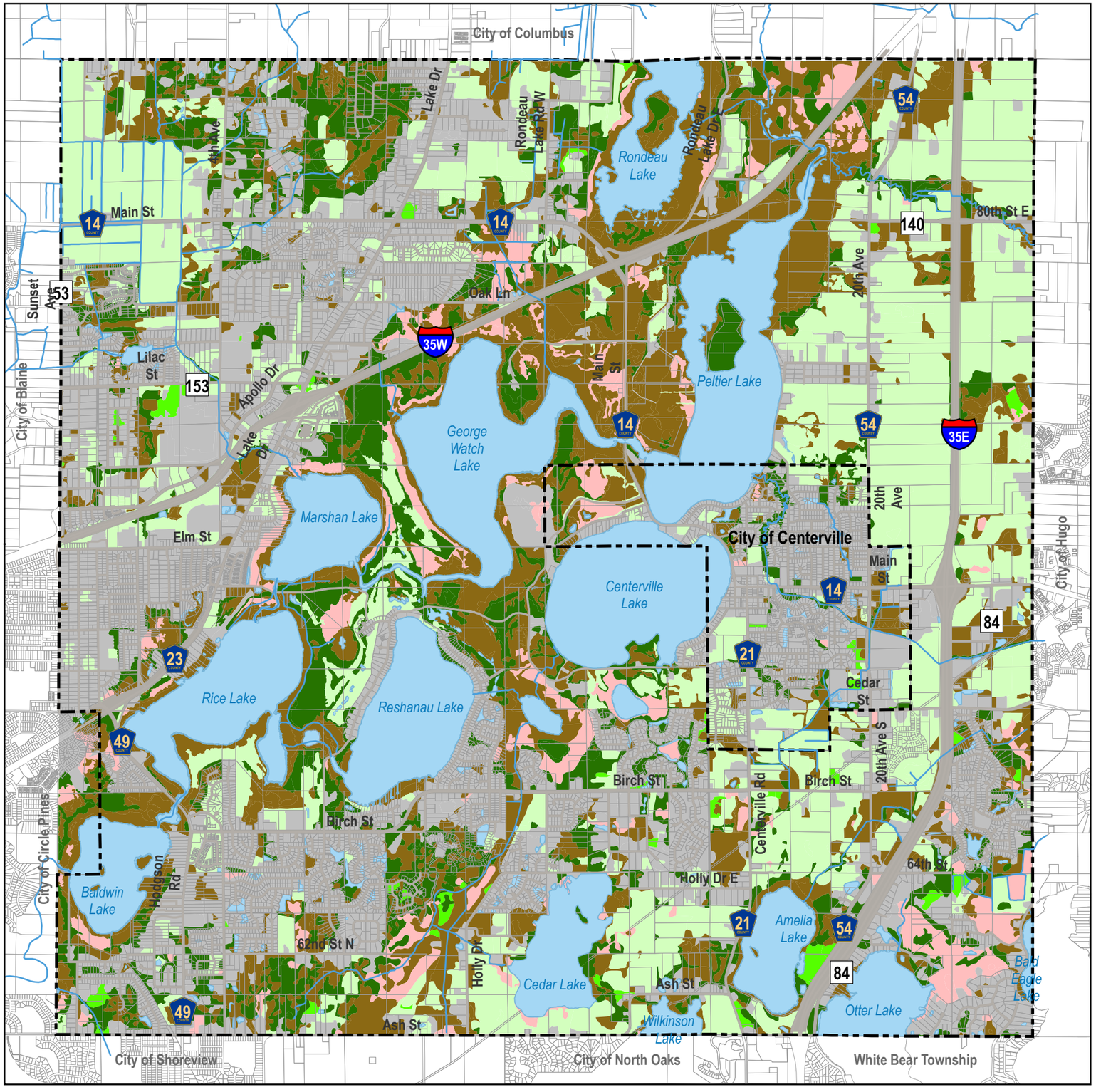
In 2010, Lino Lakes developed this plan with the intent that it could be used to expedite US Army Corps of Engineer's Section 404 Permits within the city. The purpose of the SAMP was to provide a watershed-based and conservation-based framework for aquatic resource management, particularly as development and redevelopment occur within the city. The study included an inventory of wetlands and other land cover within the city using MLCCS process. The function of the wetlands was also assessed to identify high priority wetlands and potential wetland restoration sites. These data were used to determine criteria for the SAMP that would maintain wetland function.

### Natural Resources Revolving Fund Plan

In 2017, the City of Lino Lakes undertook a study to evaluate the potential for establishing wetland banks at several locations throughout the city. The study identified six sites (shown on Figure 2-5) for potential wetland banks. The goal of the plan is to establish a self-funding mechanism to acquire, protect, and enhance high value ecological areas within the city. The wetland banks would provide local opportunities to mitigate wetland impacts for both public and private projects in Lino Lakes. The proceeds will provide for ongoing stewardship and expansion of the greenway system.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 2-2
# Minnesota Land Cover Classification System (MLCCS)




## Legend

- Artificial Surfaces and Associated Areas
- Planted or Cultivated Vegetation
- Forests
- Woodland
- Shrubland
- Herbaceous
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

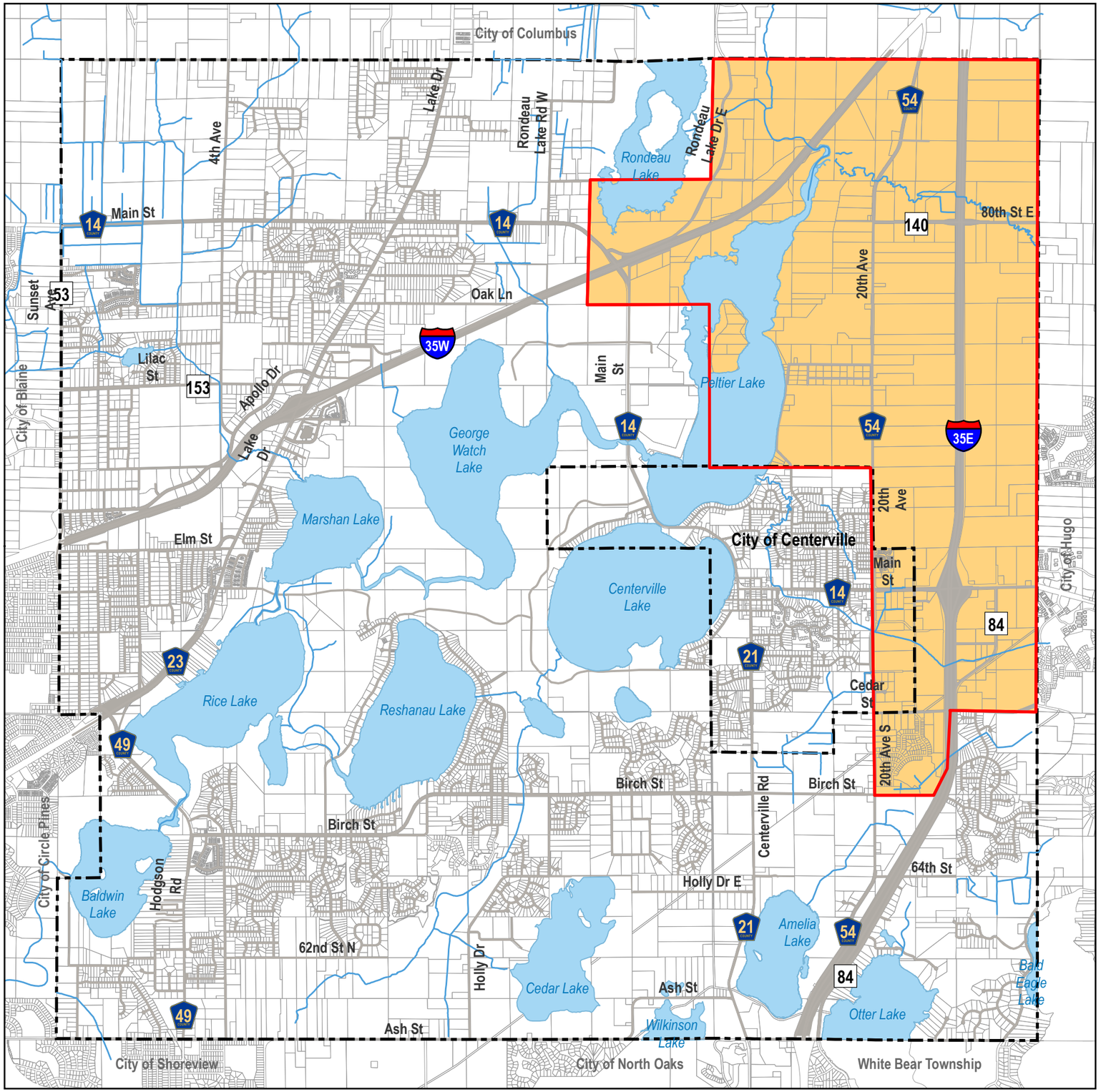
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 2-3
# I-35E Corridor AUAR Area



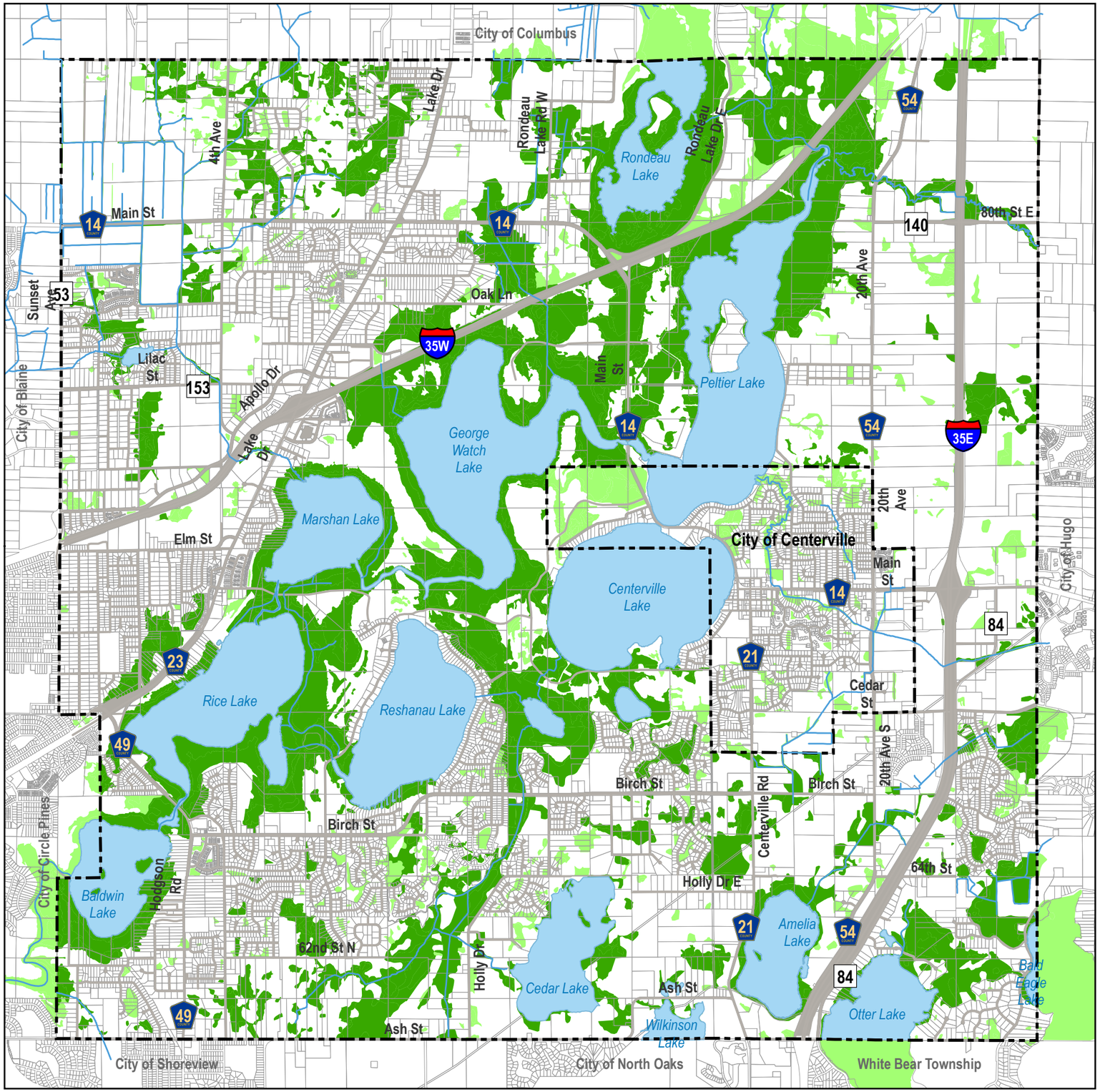

## Legend

- AUAR Area
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 2-4
# High Priority Wetlands

## Legend

- High Priority Wetlands
- Wetlands
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

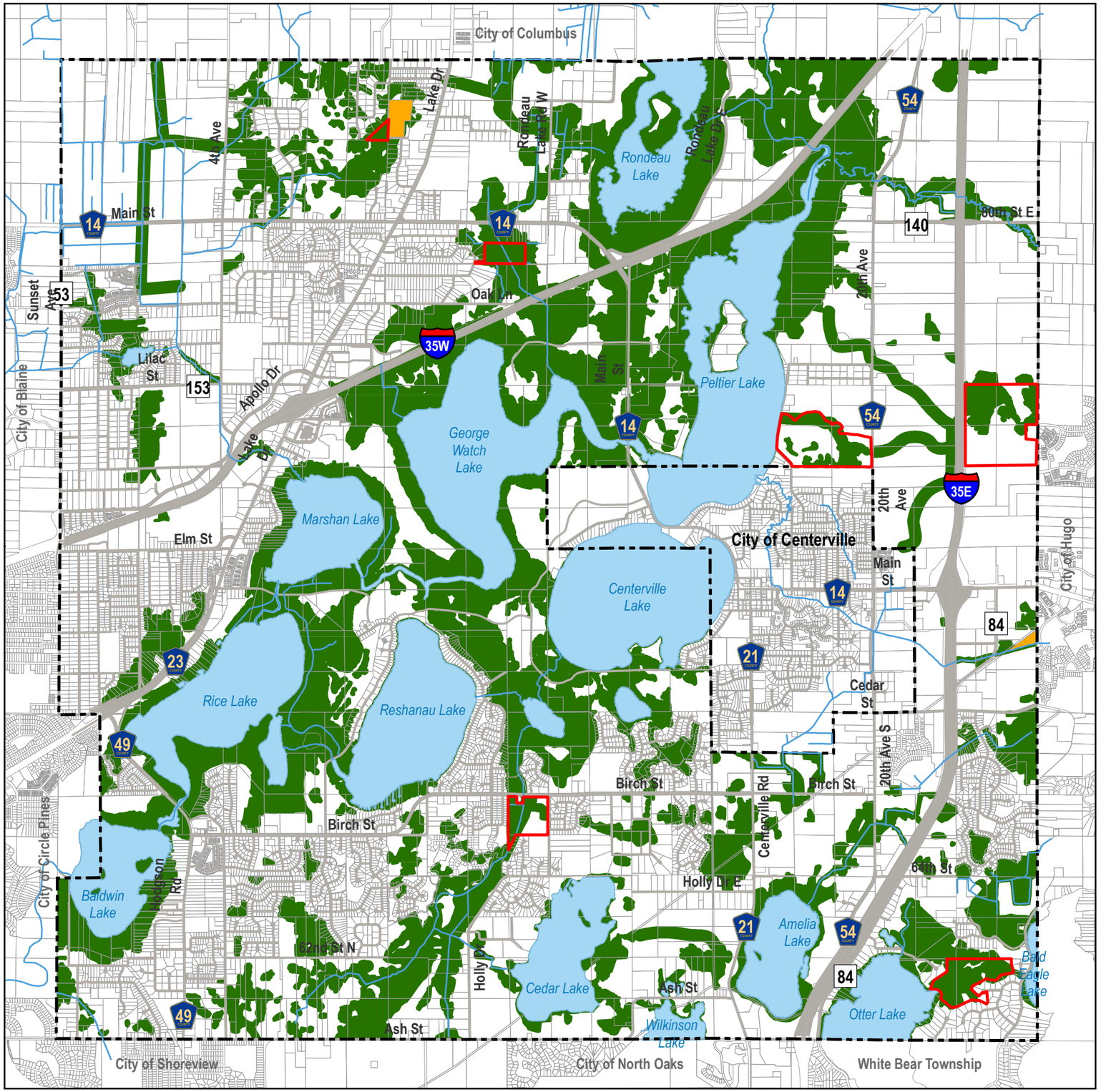
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 2-5
# Wetland Bank Areas




## Legend

- Existing Wetland Bank
- Potential Wetland Bank Site
- Greenway System
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

# Lino Lakes' People

## Population and Households

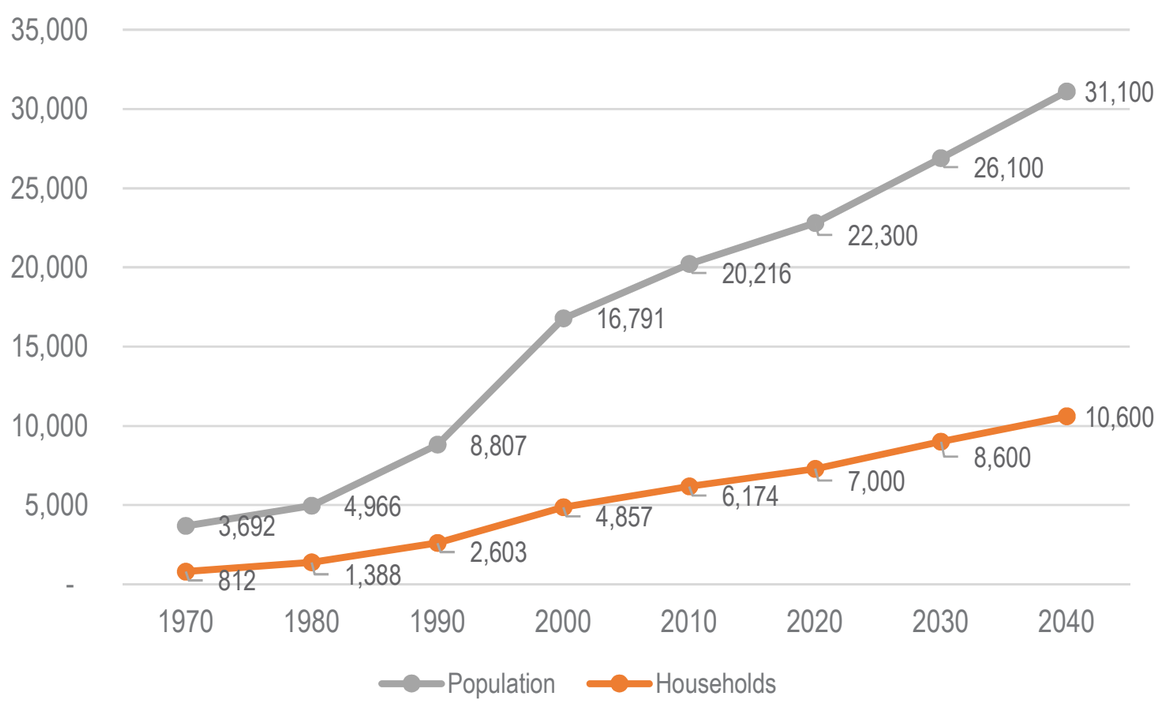
In 1970, Lino Lakes was a mostly rural community of 3,692 people in 812 households. By 2017 (the last official estimate) the city had 21,117 people living in 6,639 households, plus 1,433 people living in group quarters (primarily the State of Minnesota Lino Lakes Correctional Facility.) The city experienced its most rapid growth in the 1990's, when the population nearly doubled. Growth slowed to a steadier pace in the 2000's and 2010's, influenced by the Great Recession. The Metropolitan Council is forecasting that 3,800 people and 1,600 households will be added to the city between 2020 and 2030, and an additional 4,900 people and 2,000 households will be added between 2030 and 2040.

**Table 2-1. Lino Lakes Population and Households, Growth and Forecasts**

| Year | Population | Households | Group Quarters Population | Population in Households |
|---|---|---|---|---|
| **1970** | 3,692 | 812 | 252 | 3,440 |
| **1980** | 4,966 | 1,388 | 234 | 4,732 |
| **1990** | 8,807 | 2,603 | 358 | 8,449 |
| **2000** | 16,791 | 4,857 | 1,231 | 15,560 |
| **2010** | 20,216 | 6,174 | 1,405 | 18,811 |
| **2020** | 22,300 | 7,000 | 1,766 | 22,300 |
| **2030** | 26,100 | 8,600 | 1,766 | 26,100 |
| **2040** | 31,100 | 10,600 | 1,766 | 31,100 |

Source: US Census and Metropolitan Council

**Figure 2-6. Lino Lakes Population and Households**



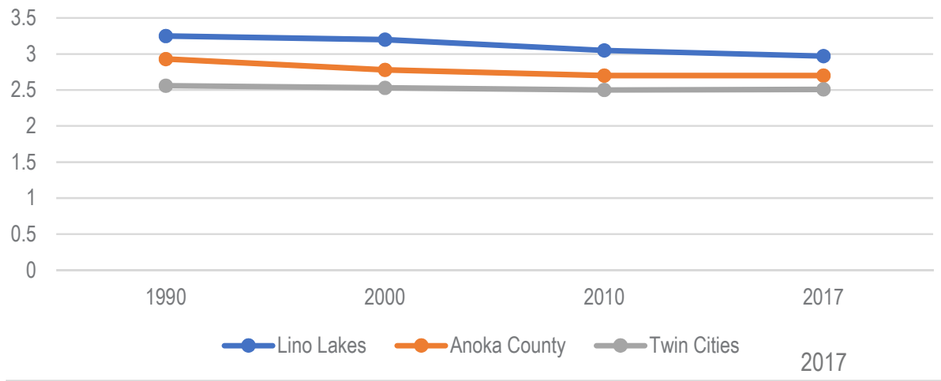
Lino Lakes households are generally larger on average than in Anoka County and in the 7-County Twin Cities Region, as show on Table 2-2 and Figure 2-7. This is a reflection of the city's housing stock, which is dominated by single family homes attractive to families with children. At the time of the 2010 Census, almost half the city's households included children. There is a trend toward smaller households and as the population ages Lino Lakes will have more empty nesters and other families without children, and more people living alone.

**Table 2-2. Household Size**

| Year | Lino Lakes | Anoka County | Twin Cities Region (7-County) |
|---|---|---|---|
| **1990** | 3.25 | 2.93 | 2.56 |
| **2000** | 3.2 | 2.78 | 2.53 |
| **2010** | 3.05 | 2.7 | 2.5 |
| **2017** | 2.97 | 2.7 | 2.51 |

Source: US Census and Metropolitan Council Research

**Figure 2-7. Household Size**




These trends are already showing up in data from the last Decennial Census. Table 2-3 and Figures 2-8 and 2-9 show the composition of Lino Lakes households at the 2000 and 2010 Census. In 2000, families (one or more persons related by blood, marriage or adoption) with children were 57% of Lino Lakes households. Only 29% were families without children. In 2010, families with children were 48% of households and 36% were families without children.

**Table 2-3. Lino Lakes Households by Type**

| | 2000 | 2010 |
|---|---|---|
| **Families without children** | 1,388 | 2,236 |
| **Lived alone** | 488 | 740 |
| **Married families with children** | 2,497 | 2,503 |
| **Non-family households** | 206 | 251 |
| **Unmarried families with children** | 278 | 444 |
| **Total** | 4,857 | 6,174 |

Source: Decennial Census

**Figure 2-8. Lino Lakes Households 2000 Census**

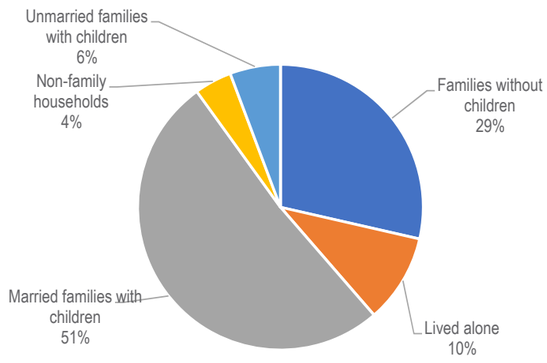
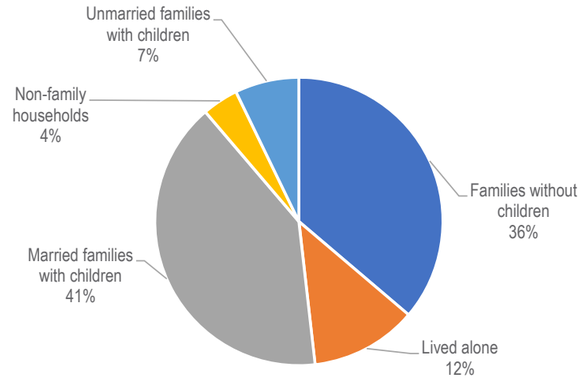



**Figure 2-9. Lino Lakes Households 2010 Census**



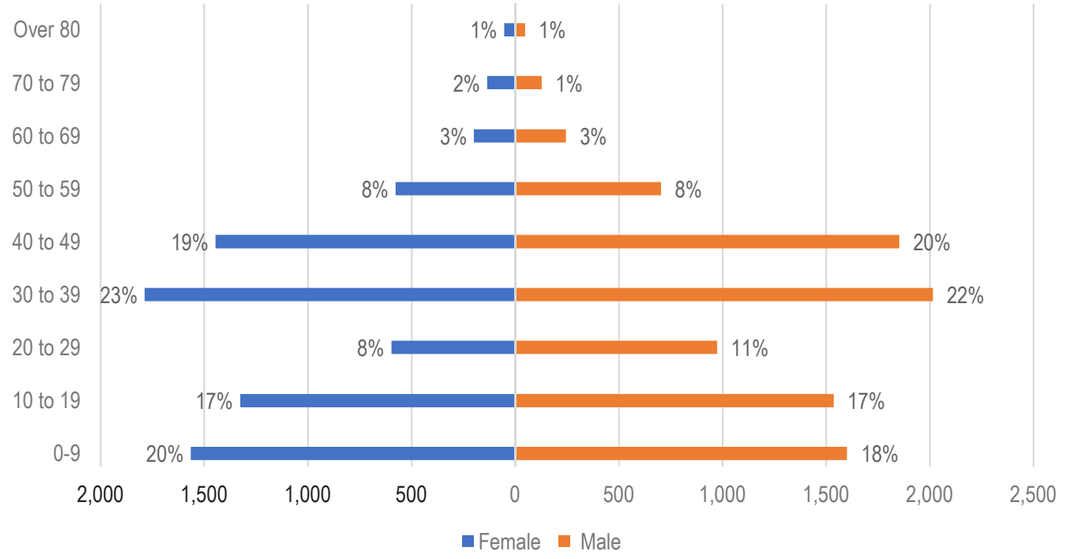
## Age and Gender

The population of the region, and of Lino Lakes, is aging as the large Baby-Boomer generation moves into their retirement years. The aging of the city's population is already evident in the comparison of population pyramids from 2000 and 2017 (Figures 2-10 and 2-11). In 2000, the largest population groups were age 30 to 45. In 2017, the largest population groups were age 40 to 60. The oldest age groups also show significant increases in this same time period.

The age and gender distribution of Lino Lakes' population is also influenced by the type of housing available in the community. Because the city's housing stock is primarily single family homes, the age groups that represent families with children are the largest. There are relatively fewer people in the oldest age groups and in the groups representing young adults who are in the early stages of forming their households and growing their families. These groups are less likely to prefer single family detached homes.

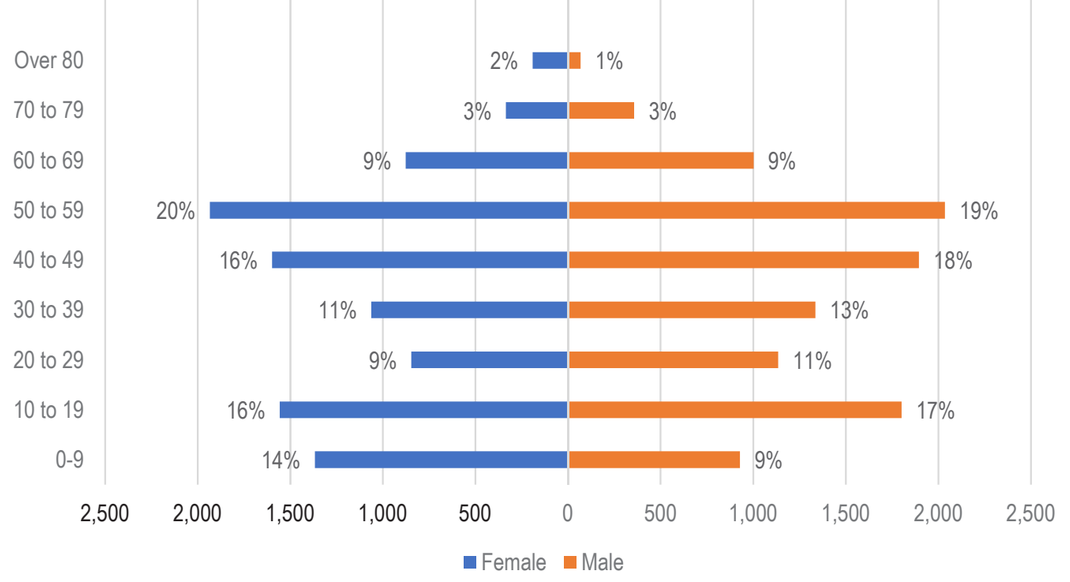
Over the next 20 years, the aging of Lino Lakes' population will continue, and if current residents remain in place the city will see a significant increase in the 60-plus age groups. Older residents will affect the demand for various types of housing as well as for goods and services in the community. If they are not able to satisfy their needs in Lino Lakes, they may leave the community.

**Figure 2-10. Lino Lakes Population by Age and Gender, 2000**




Source: Decennial Census

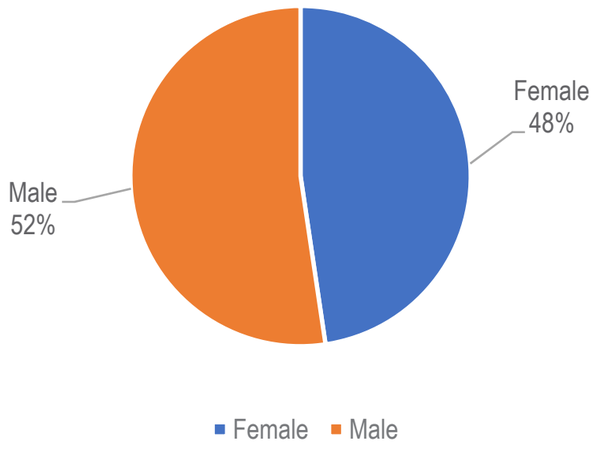
**Figure 2-11. Lino Lakes Population by Age and Gender, 2017**




Source: American Community Survey Summary File 2013-2017

In Lino Lakes, males outnumber females. Typically, population by gender would show an approximately equal distribution of male and female residents. The larger share of males can be explained by the presence of the Lino Lakes Correctional Facility which houses a population of over 1,300, mostly young, men.

**Figure 2-12. Lino Lakes Population by Age, 2015**




Source: American Community Survey Summary File 2011-2017

## Race and Ethnicity

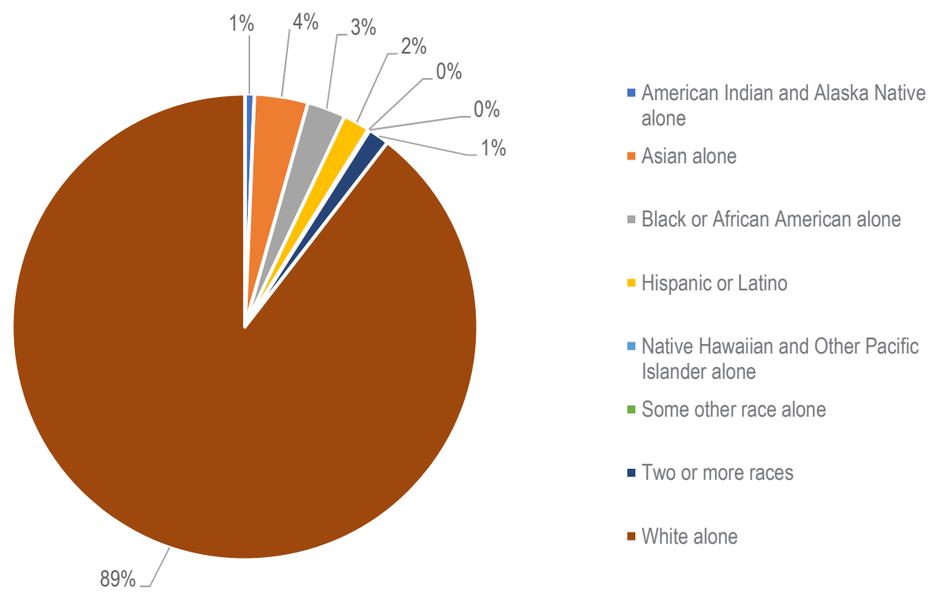
Lino Lakes residents overwhelmingly (89.5%) identified as White alone in the 2010 Census. The next largest racial/ethnic group identified themselves as Asian alone (3.7%). Lino Lakes is less diverse than Anoka County and the 7-County Twin Cities region, where 85.2% and 76.3%, respectively identified as White alone in the 2010 Census. However, Lino Lakes is becoming slightly more diverse. The 2000 Census found the city's population to be 93.7% White.

**Table 2-4. Population by Race and Ethnicity, 2010 Census**

| | City of Lino Lakes | | Anoka County | | Twin Cities Region (7-County) | |
|---|---|---|---|---|---|---|
| | Population | Percent | Population | Percent | Population | Percent |
| American Indian and Alaska Native alone | 134 | 0.7% | 1,994 | 0.6% | 17,452 | 0.6% |
| Asian alone | 750 | 3.7% | 12,796 | 3.9% | 182,496 | 6.4% |
| Black or African American alone | 540 | 2.7% | 14,282 | 4.3% | 234,334 | 8.2% |
| Hispanic or Latino | 373 | 1.8% | 12,020 | 3.6% | 167,558 | 5.9% |
| Native Hawaiian and Other Pacific Islander alone | 15 | 0.1% | 7,354 | 2.2% | 68,809 | 2.4% |
| Some other race alone | 10 | 0.0% | 378 | 0.1% | 4,609 | 0.2% |
| Two or more races | 296 | 1.5% | 91 | 0.0% | 1,091 | 0.0% |
| White alone | 18,098 | 89.5% | 281,929 | 85.2% | 2,173,218 | 76.3% |
| Total | 20,216 | 100.0% | 330,844 | 100.0% | 2,849,567 | 100.0% |

Source: Decennial Census

**Figure 2-13. Lino Lakes Population by Race and Ethnicity 2010 Census**



## Education and Income

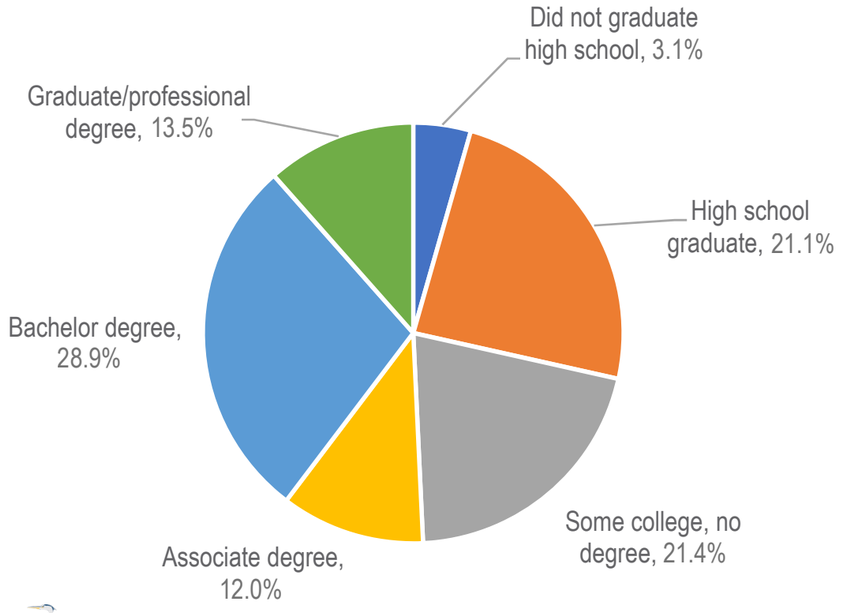
Lino Lakes residents are generally well educated, having attained higher levels of education compared to all Anoka County residents. Compared to the 7-County Twin Cities Region, they are more likely to have graduated from High School, but are slightly less likely to have gone to college and attained a graduate or professional degree.

### Table 2-5. Highest Level of Education, 2017

| | Lino Lakes | Anoka County | Twin Cities Region (7-County) |
|---|---|---|---|
| Did not graduate high school | 3.1% | 6.3% | 6.8% |
| High school graduate | 21.1% | 28.4% | 20.5% |
| Some college, no degree | 21.4% | 23.7% | 20.0% |
| Associate degree | 12.0% | 12.9% | 9.9% |
| Bachelor degree | 28.9% | 20.2% | 27.8% |
| Graduate/professional degree | 13.5% | 8.5% | 15.0% |

Source: American Community Survey 5Yr Summary File 2013-2017

### Figure 2-14. Highest Level of Education Lino Lakes, 2017



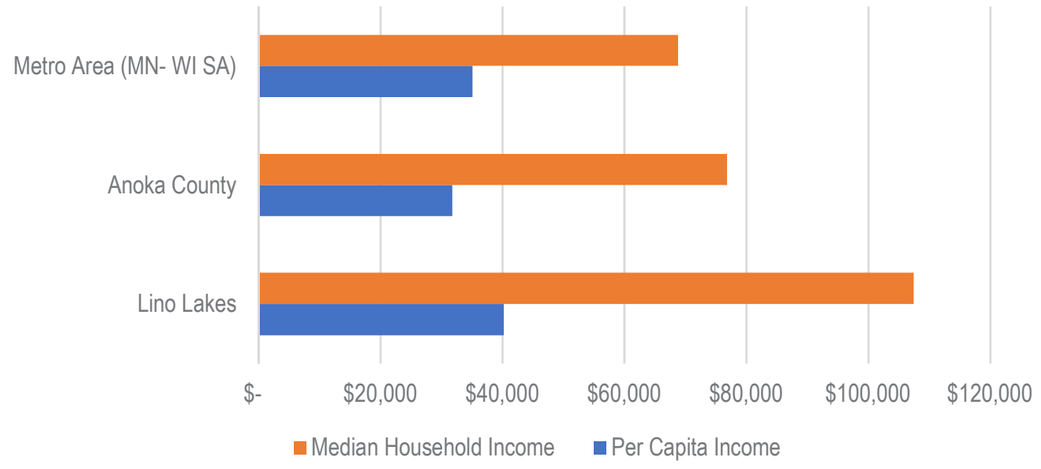

The median household income of Lino Lakes' households in 2017 was significantly higher than for Anoka County and for the Metropolitan Area (the larger MN-WI Statistical Area) as a whole. While the median household income is 146% of that of the region, the per capita income is only 115% of the Region's per capita income.

### Table 2-6. 2015 Income

| | Lino Lakes | Anoka County | Metro Area (MN- WI SA) |
|---|---|---|---|
| Per Capita Income | $ 40,243 | $ 34,321 | $ 37,866 |
| Median Household Income | $107,438 | $ 76,796 | $ 73,735 |

Source: American Community Survey 5Yr Summary File 2011-2017

### Figure 2-15. Income, 2017



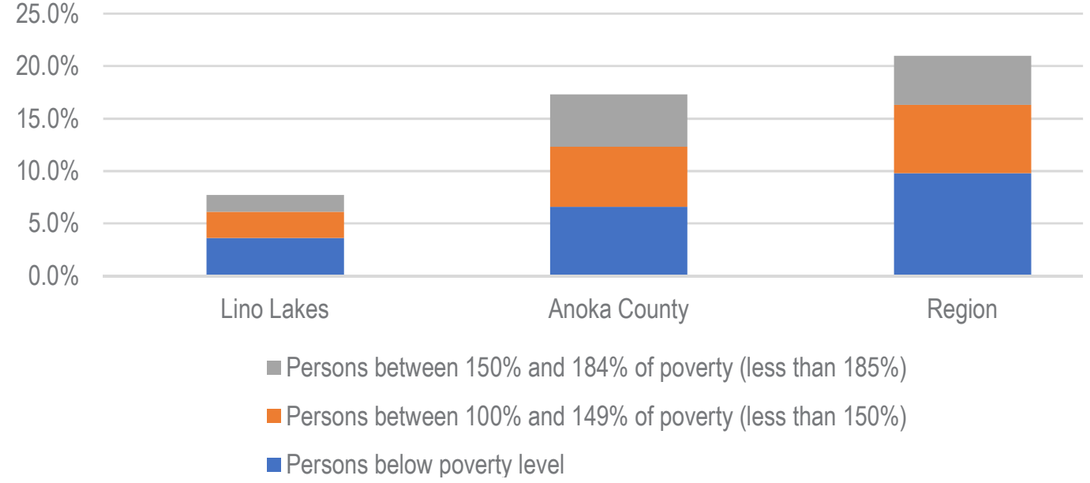
Fewer Lino Lakes' residents had incomes below the federal poverty level in 2017 than in Anoka County and the Metropolitan Area. There are also many fewer Lino Lakes residents living at near-poverty level incomes. The federal poverty level for the Lower 48 United States in 2017 was $12,060 for an individual and $24,600 for a family of four. The poverty level is updated every year as a measure of economic need and is often used as an eligibility criteria for various government programs.

### Table 2-7. Income and Poverty Level, 2017

| | Lino Lakes | Anoka County | Region |
|---|---|---|---|
| **Persons below poverty level** | 3.6% | 6.6% | 9.8% |
| **Persons between 100% and 149% of poverty (less than 150%)** | 2.5% | 5.7% | 6.5% |
| **Persons between 150% and 184% of poverty (less than 185%)** | 1.6% | 5.0% | 4.7% |

Source: American Community Survey 5Yr Summary File 2013-2017

### Figure 2-16. Income and Poverty Level 2017



# The Built Environment

## Existing Land Use Inventory

Table 2-8 summarizes the Lino Lakes' 2017 existing land uses, corresponding to the Existing Land Use Map (Figure 2-17.) The city covers approximately 33.2 square miles, or 21,268 acres of land and water. Open water covers about 15% of the city's area. Of the remaining land area, approximately one third is covered by wetlands. The net land area (not including the open water or wetlands) is about 63% of the city's total area. The lakes and wetlands shape the man-made land uses in the city.

The dominant land uses of Lino Lakes' uplands are agriculture and rural residential uses, together representing about 48% of the net land area. Much of the city's new development will occur in these areas as the city grows. The next largest area is occupied by single family residential use at 13.5% with parks (city and county combined) occupying 9.2% of the upland area.

Public and semi-public uses include city government facilities, schools, churches and the state correctional facility, occupying 3.5% of the city's upland area.

The city's business parks and commercial areas cover a relatively small area (about 3%, commercial and industrial combined). The presence of I-35E and I-35W in the community will help attract more such development in the future, and also contribute to the relatively large amount of land area devoted to road rights-of-way (about 12.8%).

**Table 2-8. 2017 Existing Land Use**

| Use | Gross Acres | Percent | Net Acres | Percent |
|---|---|---|---|---|
| Agricultural | 3,920 | 18.4% | 3,102 | 23.3% |
| Rural Residential | 4,127 | 19.4% | 3,321 | 24.9% |
| Single Family Residential | 1,945 | 9.1% | 1,803 | 13.5% |
| Multi Family Residential | 165 | 0.8% | 133 | 1.0% |
| Commercial | 170 | 0.8% | 153 | 1.1% |
| Industrial | 262 | 1.2% | 254 | 1.9% |
| Utility | 185 | 0.9% | 89 | 0.7% |
| County Park and Recreation | 2,896 | 13.6% | 1,131 | 8.5% |
| City Park and Recreation | 203 | 1.0% | 163 | 1.2% |
| Open Space and Conservation | 829 | 3.9% | 251 | 1.9% |
| Public/Semi-Public | 555 | 2.6% | 472 | 3.5% |
| Private Airfield | 68 | 0.3% | 56 | 0.4% |
| Vacant Commercial | 220 | 1.0% | 187 | 1.4% |
| Vacant Industrial | 56 | 0.3% | 54 | 0.4% |
| Vacant Residential | 172 | 0.8% | 137 | 1.0% |
| Vacant Rural Residential | 529 | 2.5% | 328 | 2.5% |
| Right-of-Way | 1,706 | 8.0% | 1,706 | 12.8% |
| Open Water | 3,261 | 15.3% | NA | NA |
| City Total | 21,268 | 100% | 13,341 | 100% |

The city's existing land use inventory uses the following category definitions:

### Table 2.9 Existing Land Use Descriptions

| Use | |
|---|---|
| **Agricultural** | Agricultural purposes, including farming, dairying, pasturage, horticulture, floriculture, viticulture, and animal and poultry husbandry and accessory uses, including farmstead |
| **Rural Residential** | Residential purposes, including mainly single family homes at very low densities (>1 acre and < 40 acres, supported by subsurface sewage treatment systems) |
| **Single Family Residential** | Residential purposes, including mainly single family homes. Typically, < 1 acre in size and serviced by public sanitary sewer facilities |
| **Multi Family Residential** | Residential purposes, including duplexes, triplexes, townhomes, apartment buildings and condominiums. May include common open space adjacent to within or adjacent to a residential development. Excludes open space protected by conservation easement or publicly owned |
| **Commercial** | General commercial and highway-oriented businesses such as restaurants, convenience stores, office, and service uses |
| **Industrial** | Primarily manufacturing and/or processing of products; could include light or heavy industrial land use, or large warehouse facilities |
| **Utility** | Public or private land occupied by a power plant or substation, electric transmission line, oil or gas pipeline, water tower, municipal well, reservoir, pumping station, water treatment facility, communications tower or satellite, or similar use |
| **County Park and Recreation** | County land primarily for public active or passive recreation activities that contain playfields/ground or exercise equipment, natural resources, or other similar areas designated as a regional park |
| **City Park and Recreation** | City land primarily for public active or passive recreation activities that contain playfields/ground or exercise equipment, or other similar areas |
| **Open Space and Conservation** | Land on which development is not permitted, primarily used for resource protection, supporting unorganized public recreational activities, may contain trails, picnic areas, public fishing; etc., or preservation of unaltered land in its natural state for environmental or aesthetic purposes |
| **Public/Semi-Public** | Designated for specific public or semi-public purpose, such as schools, churches, cemetery and government buildings |
| **Private Airfield** | Area for private aviation use |
| **Vacant Commercial** | Land that is zoned for commercial use with utilities but is currently unoccupied |
| **Vacant Industrial** | Land that is zoned for industrial use with utilities but is currently unoccupied |
| **Vacant Residential** | Land that is zoned for residential use with utilities but is currently unoccupied |
| **Vacant Rural Residential** | Land that is currently unoccupied, unsewered and not used for agricultural purposes |
| **Right-of-Way** | Public or private vehicular, transit, and/or pedestrian rights-of-way |
| **Open Water** | Permanently flooded open water, rivers and streams, not including wetlands or periodically flooded areas as designated |
| **Net Acres / Net Land Area** | Gross land area not including Open Water, subtracting wetlands as identified by the RMP |











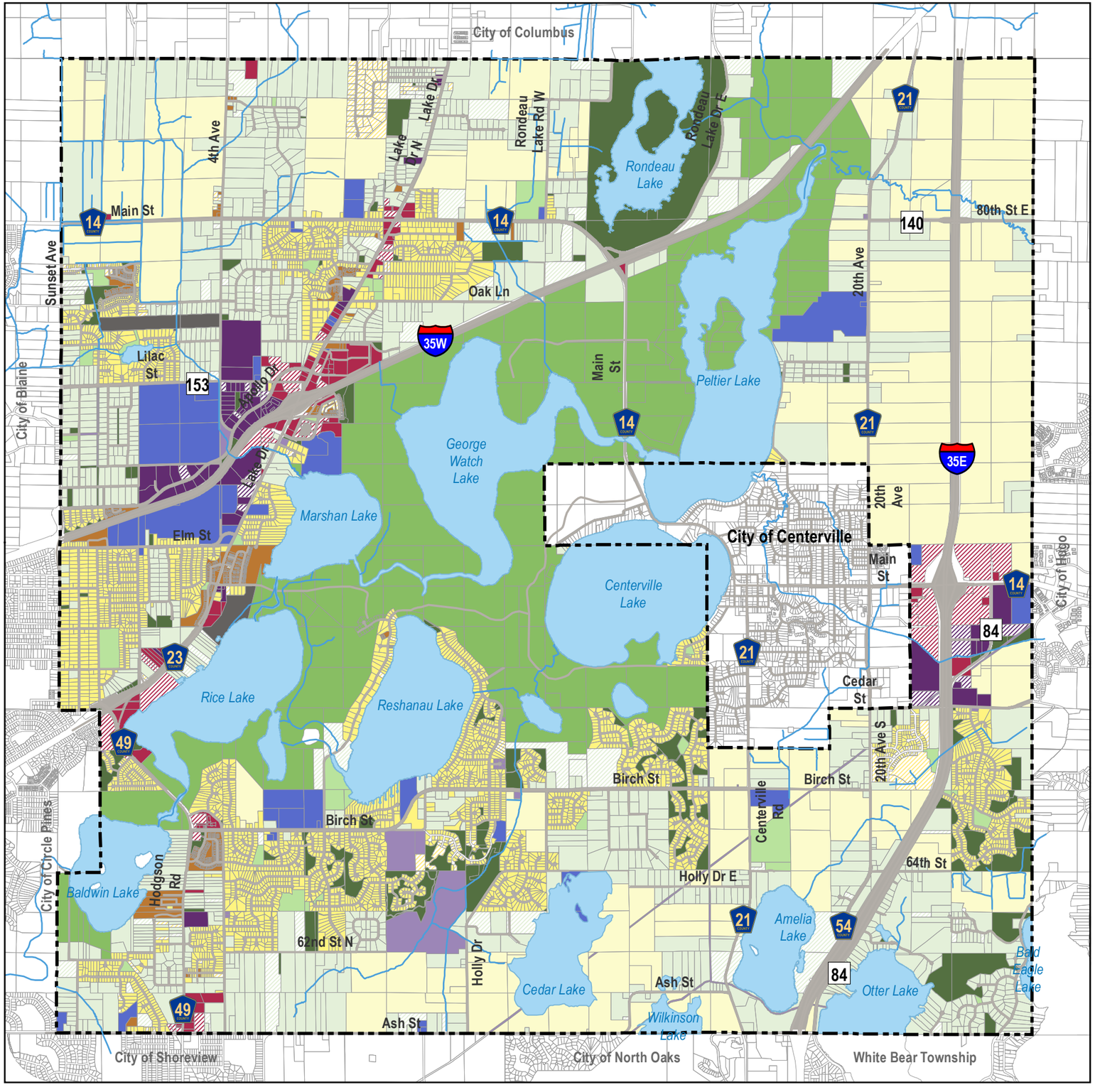







CITY OF LINO LAKES 2040 COMP PLAN

# Figure 2-17
# 2017 Existing Land Use




## Legend

- Agricultural
- Rural Residential
- Single-Family Residential
- Multi-Family Residential
- Commercial
- Industrial
- Utility
- County Park and Recreation
- City Park and Recreation
- Open Space and Conservation
- Public/Semi-Public
- Private Airfield
- Vacant-Commercial
- Vacant-Industrial
- Vacant-Residential
- Vacant-Rural Residential
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 2/6/2018 **2-17**

Table 2-10 and Figures 2-18 and 2-19 show new housing construction in Lino Lakes since 2000. The trends are consistent with the city's growth discussed earlier in this chapter, and reflect the slowdown of development due to the Great Recession. Permits have increase in the last couple of years but have yet to rebound to pre-recession levels.

### Table 2-10. Lino Lakes Housing Permits, 2000-2016

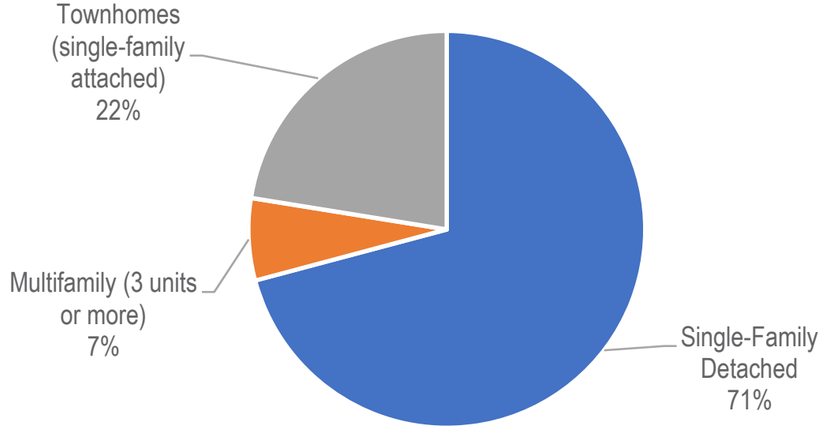
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Single-Family Detached** | 224 | 186 | 202 | 120 | 128 | 72 | 41 | 55 | 23 | 16 | 31 | 28 | 26 | 24 | 27 | 41 | 68 | 95 | 1,407 |
| **Multifamily (3 units or more)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 39 | 0 | 0 | 133 |
| **Townhomes (single-family attached)** | 17 | 24 | 16 | 1 | 62 | 124 | 50 | 37 | 8 | 14 | 0 | 6 | 2 | 6 | 6 | 6 | 32 | 35 | 446 |
| **Total** | 241 | 210 | 218 | 121 | 190 | 196 | 91 | 152 | 31 | 30 | 31 | 34 | 28 | 64 | 33 | 86 | 100 | 130 | 1,986 |

Source: Metropolitan Council & City of Lino Lakes

### Figure 2-18. Lino Lakes Housing Permits, 2000-2017




### Figure 2-19. Lino Lakes Housing Permits, 2000-2017



## Commercial/Industrial Development Trends

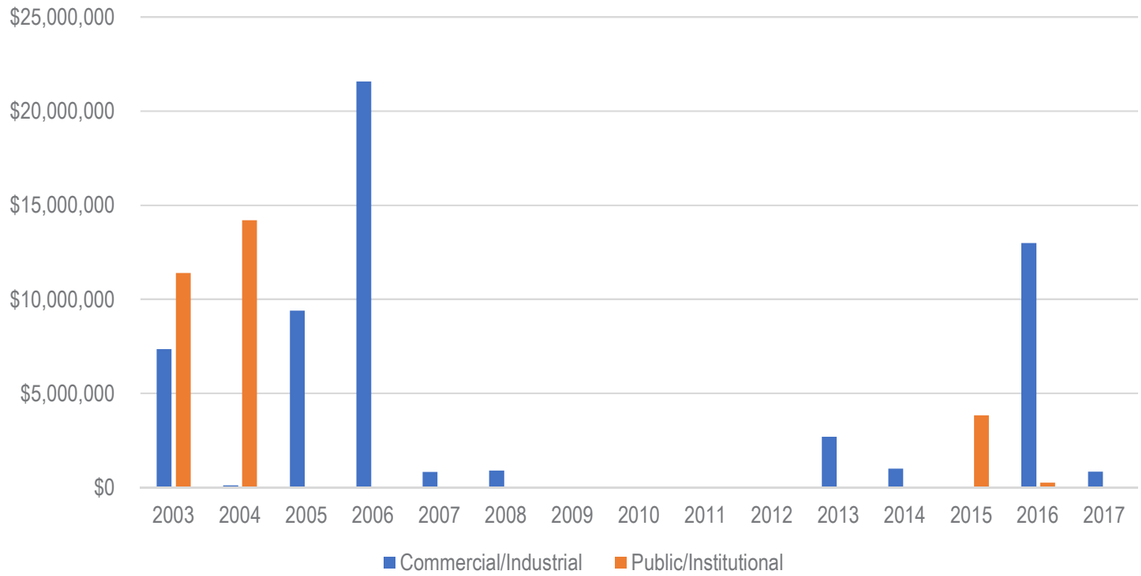
Similar to the trend in housing construction, non-residential building permits show the effects of the Great Recession. Commercial, industrial and public & institutional building permit values were strong in the early 2000's, but permitting stopped during the recession. As the economy has improved, the city has issued more permits. Permit values in 2016 were the highest since 2006, before the recession.

**Table 2-11. Lino Lakes Commercial/Industrial & Public/Institutional Permit Value**

| Year | Commercial/Industrial | Public/Institutional |
|---|---|---|
| 2003 | $7,342,434 | $11,407,096 |
| 2004 | $1,185,000 | $14,200,200 |
| 2005 | $9,410,808 | $0 |
| 2006 | $21,577,439 | $0 |
| 2007 | $827,625 | $0 |
| 2008 | $900,000 | $0 |
| 2009 | $0 | $0 |
| 2010 | $0 | $0 |
| 2011 | $0 | $0 |
| 2012 | $0 | $0 |
| 2013 | $2,705,422 | $0 |
| 2014 | $1,015,000 | $0 |
| 2015 | $0 | $3,847,000 |
| 2016 | $12,980,841 | $260,493 |
| 2017 | $844,771 | $0 |

Source: City of Lino Lakes

**Figure 2-20. Lino Lakes Commercial / Industrial & Public / Institutional Permit Values**



# Chapter 3: Land Use




## Introduction

The Land Use Plan builds on the city's vision and establishes a policy framework in which future development will occur and how the city will accommodate forecasted household and employment growth.

The Land Use Plan was prepared in conjunction with the city's resource management plans, including the Rice Creek Watershed District/Lino Lakes Resource Management Plan (RMP), the city's Parks, Greenways and Trails and the city's Local Water Management Plan. This chapter provides a guide for managing future development and growth by determining future land uses, development intensity, and areas for environmental protection. It incorporates growth management tools for the city to ensure that adequate infrastructure is in place to accommodate new growth. While growth in the city is inevitable due to market forces, its location in the Twin Cities metropolitan area, and regional policy, the Comprehensive Plan will ensure that growth can be accommodated in an orderly fashion, while enhancing the existing environmental, social and economic resources found in Lino Lakes.

Growth in Lino Lakes is shaped by a variety of community features, including the Rice Creek Chain of Lakes Regional Park Reserve, Interstates I-35W and I-35E, regional sewer interceptors, and an abundance of wetlands and other natural resource areas scattered throughout the city. The Rice Creek Chain of Lakes Regional Park Reserve runs the entire length of the city, from the southwest to the northeast corner. This area provides important ecological and recreational benefits to the community. However; it also divides the city in two; connectivity between the eastern and western

areas of the city is an issue. The Park Reserve will shape growth, as it represents a large portion of the city's land area that will be permanently preserved as open space. Additionally, because the Park Reserve divides the city in two halves, development patterns and growth pressure may differ on either side of the Park Reserve. In addition to the Park Reserve, the presence of Interstates I-35W and I-35E will also affect the city's growth, as demand for available commercial and industrial land with convenient transportation access increases. In particular, a potential future interchange on I-35E will facilitate development in the northeast quadrant of the city.

Growth in Lino Lakes will also be shaped by the location of regional sewer interceptors. The city contains three general growth areas based on sewer interceptors in the northwest, northeast, and southern half of the city. Development patterns extend from each growth area. Lastly, the large number of wetlands within the city will shape growth by limiting the amount of developable land within the city. Protection and management of these resources was a critical component of the Comprehensive Plan process.

Lino Lakes will add a significant number of households by 2040. To identify areas to accommodate 2040 growth, the city performed a detailed analysis of the existing land uses and the areas already designated for development by the 2030 Land Use Plan, to determine how much land is available to accommodate the 2040 forecasts. The analysis showed that the city already has sufficient land planned for urban development to accommodate the expected growth. Therefore, this plan includes few changes from the 2030 Plan.

In addition to guiding Lino Lakes' future growth, the Land Use Plan also relates to growth and development in the region as a whole. As part of the seven-county metropolitan area, Lino Lakes must accommodate its share of the region's growth. The Comprehensive Plan must demonstrate the city's capacity to absorb this growth and that the regional infrastructure, including the transportation and sewer systems, will be used efficiently.



# Goals and Policies

The vision statement, as described in Chapter 1, defines what Lino Lakes should look like in the future. The goals and policies guide the Land Use Plan to help achieve that vision for community, residential and neighborhood development. The goals and policies that follow were established in the 2030 Comprehensive Plan and reaffirmed as part of the 2040 Comprehensive Plan process.

### Goal 1: Create a unified vision and future for the city, promote a well-planned community, prevent fragmented development, address the impacts of development and redevelopment on natural resources, aesthetics and view corridors, and provide balanced land use and connectivity that ensures the integration of both sides of the regional park.

**Policies:**

a. Create a housing development plan that defines the types and locations of housing development required to meet the community's projected needs.
b. Work closely with neighboring communities to ensure an integrated plan that is consistent with the Metropolitan Council's requirements and compatible with adjacent jurisdictions.
c. Ensure that the fully integrated Comprehensive Plan is kept current to provide a rationale for all decisions.
d. Create and maintain a staging plan to manage growth and guide the orderly and cost-effective provision of infrastructure at a rate that is consistent with forecasted growth.
e. Provide clearly defined incentives to achieve significant and discernible public values not achievable under conventional development standards. These public values include, but are not limited to:
    1. Preserving open space, providing park dedication and trails, and/or providing stormwater management areas, in excess of minimum standards to implement the Greenway System, as amended, and Rice Creek Watershed District's Lino Lakes Resource Management Plan, as amended
    2. Using "Green" building and low impact development techniques
    3. Restoring/enhancing ecological systems
    4. Ensuring long term natural resource stewardship funding
    5. Managing stormwater using natural filtration and other ecologically based approaches
    6. Providing life-cycle and affordable housing
    7. Diversifying the tax base to lessen the tax burden on residential properties
    8. Providing infrastructure that benefits community beyond the project site that would otherwise not be financially feasible
f. Identify and define incentives offered to developers for achieving specific public values not achievable under conventional development standards. These incentives may include, but are not limited to:
    1. Density transfer/bonuses
    2. Reduced street and right-of-way widths
    3. Trunk utility and stormwater management fee credits
    4. Staging plan flexibility
    5. Streamlined city approval process
    6. Financial incentives when consistent with city policy
g. Encourage master planning to accomplish the objectives of the Comprehensive Plan including, but not limited to, implementing the Greenway System, as amended, implementing Rice Creek Watershed District's Lino Lakes Resource Management Plan, as amended, providing life-cycle housing, and diversifying the city's tax base.
h. Ensure that each development project bears its proportionate share of infrastructure improvement costs to the fullest extent possible.

### Goal 2: Ensure that zoning and subdivision ordinances and official maps are consistent with the intent and specific direction provided within the Comprehensive Plan.

**Policies:**

a. Ensure developers meet the standards specified within the land use plan and official controls, including zoning and subdivision ordinances and official maps.
b. Streamline the current permitting and development processes to facilitate the type of development and redevelopment desired.
c. Coordinate the plans for housing with plans for light industrial and commercial businesses to balance land uses, serve the quality of life needs of the residential areas, foster a positive business climate for light industrial and commercial business, and expand and balance the community's tax base.
d. Ensure compatibility of adjacent land uses.

### Goal 3: Ensure housing development is compatible with existing and adjacent land uses and provides accessibility to key community features and natural amenities.

**Policies:**

a. Link trails to parks, lakes, and schools.
b. Ensure commercial development areas are appropriately dispersed throughout the city.
c. Encourage pedestrian activity in residential areas by providing sidewalks and trails as well as connections to existing and future pedestrian or transit facilities.

### Goal 4: Maintain safe neighborhoods and community areas.

**Policies:**

a. Maintain and ensure strong community support for the city's fire and police departments.
b. Encourage community involvement in Crime Prevention Programs.
c. Develop neighborhoods with mixed housing styles that promote diversity and attract all age groups

### Goal 5: Increase commercial/residential development in appropriate and designated areas in the City of Lino Lakes.

**Policies:**

a. Ensure commercial and residential development is dispersed throughout the city.
b. Ensure the Comprehensive Plan and official controls allow for a variety of development types, including higher density residential.
c. Encourage developers to take advantage of opportunities provided by gateway and nodal development design standards especially within designated redevelopment areas.

### Goal 6: Promote community involvement in the development process and city affairs.

**Policies:**

a. Provide opportunities for and encourage citizens to participate in public forums.
b. Improve the current public participation process to elicit more citizen involvement.

### Goal 7: Sustain Lino Lakes' Natural Resources which make it such a desirable place to live.

**Policies:**

a. Protect and preserve the natural resources throughout the city.
b. Continue to promote the use of Planned Unit Developments (PUD) as the city's preferred development process to implement the Greenway System.

### Goal 8: Promote a unified community identity.

**Policies:**

a. Promote the Town Center area as the economic and social center of the community to promote pride and "sense of community" in Lino Lakes.
b. Create, strengthen and maintain the appearance of the city's gateways and key transportation corridors through streetscapes, design standards, trails, lighting, signage and other tools.

### Goal 9: Coordinate transportation with land use planning.

**Policies:**

a. Analyze the traffic generation characteristics of proposed land uses to avoid exceeding the capacity of local, county, and regional roadways.
b. Consider the impacts to neighborhoods when planning new or upgrading existing roadways.
c. Ensure that the land use and transportation plans are coordinated and used to make sound development decisions.
d. Land use planning surrounding the Lino Airpark and the Seaplane Base should be compatible with the air base operations with respect to noise, building height, and flight operations.
e. Encourage shared parking facilities for commercial, industrial, and planned unit development projects to reduce impervious surface, minimize land consumption, and minimize traffic.

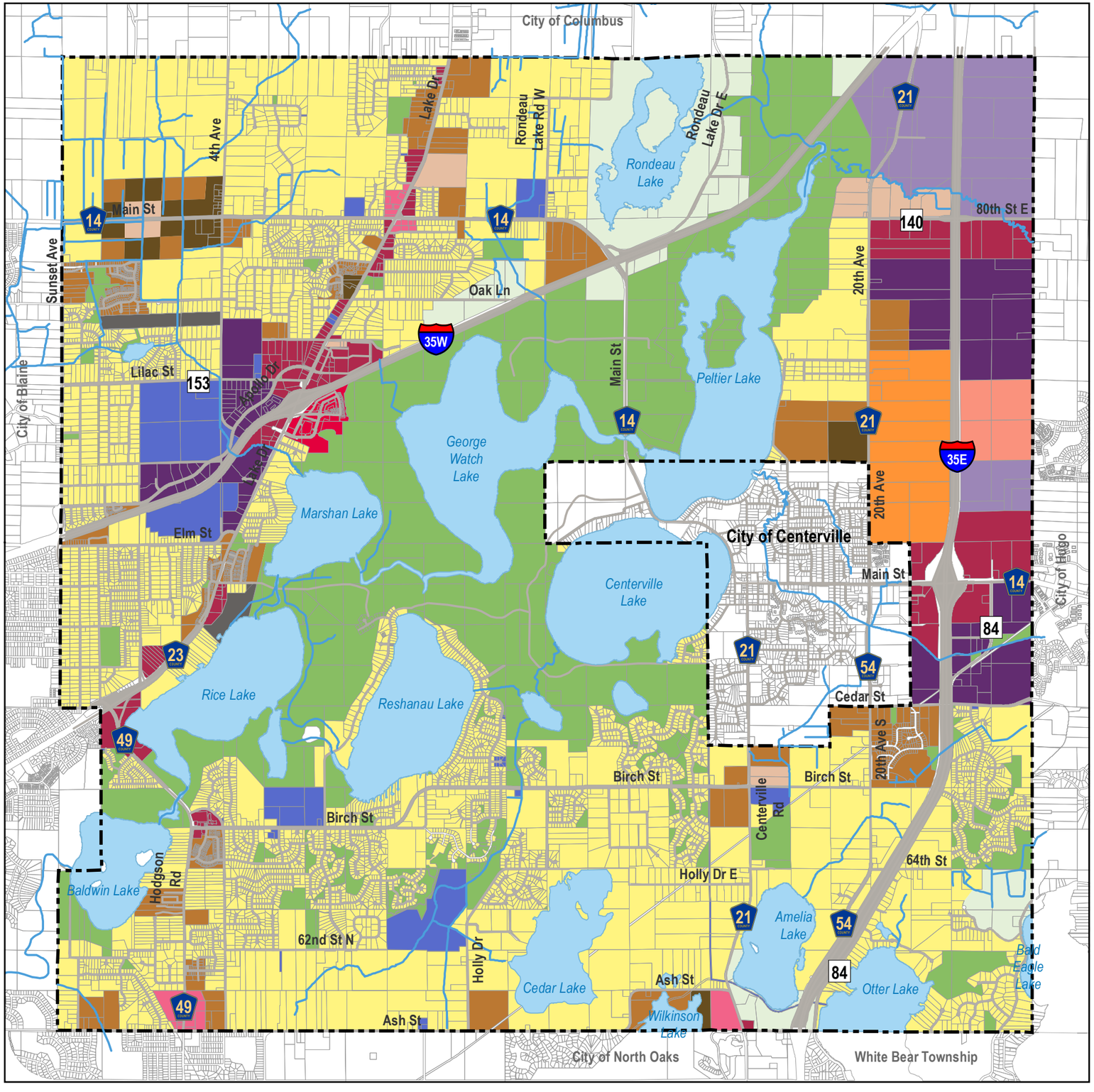
## Future Land Use Maps

The Future Land Use Plan maps designate the planned future use of all land, public and private, within the City of Lino Lakes. The designations reflect several factors:

- the need to accommodate the city's forecasted growth;
- existing and future availability of services needed for growth, such as sewer, water, transportation and parks and open space; and
- natural resource information on the location of environmentally sensitive areas and areas most suitable for development.

This plan includes two Future Land Use Plan Maps. The first, the Full Build Out Future Land Use Map (Figure 3-1), shows the planned uses for the entire city, if and when the services needed for urban development are built to their maximum extent. The second, the 2040 Future Land Use Map (Figure 3-2), plans for the city's growth and the services needed for an expanded population in the next 20 years. Areas not expected to develop before 2040 are designated "urban reserve." The two maps allow the city to carefully plan for and stage development and public infrastructure investments, while still considering the impact on and future needs of the urban reserve area.

While establishing the importance of the future land use maps, it is important to acknowledge the realities of land development. Future development may involve assembling several land parcels. Site layouts may need some flexibility to ensure efficient design and safety, especially internal circulation. In addition, natural features do not follow linear property boundaries. Because of these and other factors, the map boundaries should be considered somewhat flexible in order to accommodate development or redevelopment proposals. For example, the city may consider averaging different land use densities across the project site for a project that includes areas mapped for several residential land uses.




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 3-1
# Full Build Out Land Use

## Legend

- Permanent Rural
- Low Density Residential
- Low Density Mixed Residential
- Medium Density Residential
- High Density Residential
- Planned Residential / Commercial
- Office Residential
- Signature Gateway District
- Commercial
- Town Center
- Business Campus
- Industrial
- Civic and Institutional
- Parks and Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

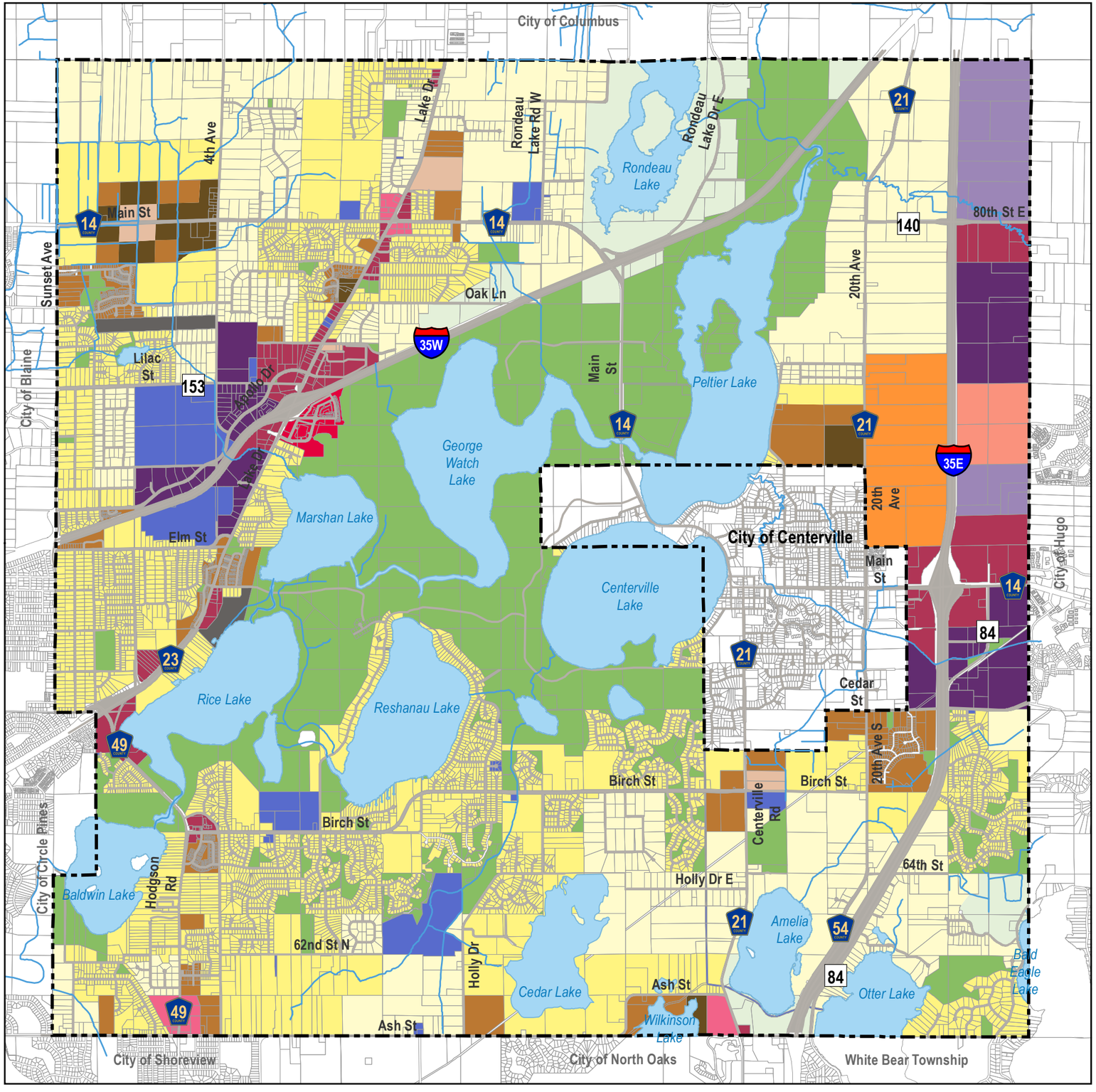
3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 3-2
# 2040 Future Land Use




## Legend

- Permanent Rural
- Urban Reserve
- Low Density Residential
- Low Density Mixed Residential
- Medium Density Residential
- High Density Residential
- Planned Residential / Commercial
- Office Residential
- Signature Gateway District
- Commercial
- Town Center
- Business Campus
- Industrial
- Civic and Institutional
- Parks and Open Space
- Private Airfield
- Right-of-Way
- Open Water
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

Tables 3-1 and 3-2 summarize the acres of land planned for the various land use types on the Full Build and 2040 Land Use Plan Maps.

### Table 3-1. Full Build Future Land Use

| Land Use Designation | Gross Acres | % Gross Acres | Net Acres (Without Wetlands) | % Net Acres (Without Wetlands) | Net Acres (Without Wetlands and Open Water) | % Net Acres (Without Wetlands and Open Water) |
|---|---|---|---|---|---|---|
| Permanent Rural | 694 | 3.3% | 235 | 1.4% | 235 | 1.8% |
| Low Density Residential | 7,556 | 35.5% | 6,047 | 36.4% | 6,047 | 45.3% |
| Low Density Mixed Residential | 376 | 1.8% | 366 | 2.2% | 366 | 2.7% |
| Medium Density Residential | 975 | 4.6% | 826 | 5.0% | 826 | 6.2% |
| High Density Residential | 190 | 0.9% | 153 | 0.9% | 153 | 1.1% |
| Planned Residential/Commercial | 178 | 0.8% | 166 | 1.0% | 166 | 1.2% |
| Office Residential | 139 | 0.7% | 92 | 0.6% | 92 | 0.7% |
| Signature Gateway District | 79 | 0.4% | 77 | 0.5% | 77 | 0.6% |
| Commercial | 591 | 2.8% | 531 | 3.2% | 531 | 4.0% |
| Town Center | 46 | 0.2% | 45 | 0.3% | 45 | 0.3% |
| Business Campus | 627 | 2.9% | 520 | 3.1% | 520 | 3.9% |
| Industrial | 750 | 3.5% | 696 | 4.2% | 696 | 5.2% |
| Civic and Institutional | 485 | 2.3% | 356 | 2.1% | 356 | 2.7% |
| Parks and Open Space | 3,547 | 16.7% | 1,465 | 8.8% | 1,465 | 11.0% |
| Private Airfield | 68 | 0.3% | 55 | 0.3% | 55 | 0.4% |
| Open Water | 3,261 | 15.3% | 3,261 | 19.6% | NA | NA |
| Right-of-Way | 1,706 | 8.0% | 1,706 | 10.3% | 1,706 | 12.8% |
| Total City | 21,268 | 100% | 16,597 | 100.0% | 13,336 | 100.0% |

### Table 3-2. 2040 Future Land Use

| Land Use Designation | Gross Acres | % Gross Acres | Net Acres (Without Wetlands) | % Net Acres (Without Wetlands) | Net Acres (Without Wetlands and Open Water) | % Net Acres (Without Wetlands and Open Water) |
|---|---|---|---|---|---|---|
| Permanent Rural | 694 | 3.3% | 235 | 1.4% | 235 | 1.8% |
| Urban Reserve | 4,004 | 18.8% | 3,052 | 18.4% | 3,052 | 22.9% |
| Low Density Residential | 4,387 | 20.6% | 3,689 | 22.2% | 3,689 | 27.7% |
| Low Density Mixed Residential | 376 | 1.8% | 364 | 2.2% | 364 | 2.7% |
| Medium Density Residential | 705 | 3.3% | 600 | 3.6% | 600 | 4.5% |
| High Density Residential | 188 | 0.9% | 153 | 0.9% | 153 | 1.1% |
| Planned Residential/Commercial | 98 | 0.5% | 87 | 0.5% | 87 | 0.7% |
| Office Residential | 139 | 0.7% | 92 | 0.6% | 92 | 0.7% |
| Signature Gateway District | 74 | 0.3% | 73 | 0.4% | 73 | 0.5% |
| Commercial | 505 | 2.4% | 451 | 2.7% | 451 | 3.4% |
| Town Center | 46 | 0.2% | 45 | 0.3% | 45 | 0.3% |
| Business Campus | 367 | 1.7% | 329 | 2.0% | 329 | 2.5% |
| Industrial | 624 | 2.9% | 581 | 3.5% | 581 | 4.4% |
| Civic and Institutional | 485 | 2.3% | 354 | 2.1% | 354 | 2.7% |
| Parks and Open Space | 3,541 | 16.6% | 1,470 | 8.9% | 1,470 | 11.0% |
| Private Airfield | 68 | 0.3% | 55 | 0.3% | 55 | 0.4% |
| Open Water | 3,261 | 15.3% | 3,261 | 19.6% | NA | NA |
| Right-of-Way | 1,706 | 8.0% | 1,706 | 10.3% | 1,706 | 12.8% |
| Total City | 21,268 | 100.0% | 16,597 | 100.0% | 13,336 | 100.0% |

# Land Use Designations

Lino Lakes' future land use designations are described in this section, and summarized on Table 3-3.

## Permanent Rural

The purpose of the Permanent Rural category is to designate those areas that are not intended to receive sewer service due to topography and soil issues, or due to a private conservation easement. This area will make up a very small percentage (1.8%) of the city's total land area (net of wetlands and water bodies) in 2040. Development in rural areas shall be limited to residential single family at low densities or agriculture-related uses. Residential development in these areas shall be limited to an overall density of one unit per 10 acres served by individual or community sewage treatment systems. However, cluster development guided by conservation subdivision principles to permanently preserve open space, especially in areas mapped for greenway corridors, may be encouraged through the use of density bonuses. Agricultural activities within the Permanent Rural designation should utilize conservation practices so as to not impair regional water bodies.

## Urban Reserve

The 2040 Land Use Plan identifies 3,052 net acres of Urban Reserve, or 22.9% of the city's total land area (net of wetlands and water bodies). The purpose of the Urban Reserve area is to preserve land for post-2040 urban development. An Urban Reserve designation is used to facilitate well-planned, orderly urban expansion. The Urban Reserve prevents the spread of scattered large lot development that poses future obstacles to urban development by increasing costs for future installation of public infrastructure, and making future subdivision difficult. An urban reserve helps to promote cost-efficient planning by preventing premature expansion of urban services, ensuring orderly and efficient expansion of future urban services (utilities and roads). To promote an efficient future development pattern in this area, development before 2040 will be limited to one unit per 10 acres. This limit will allow for more efficient infrastructure provision once the market is ready and the city has determined that more intense

**Table 3-3. Land Use Designation**

| Land Use Category | Description |
|---|---|
| Permanent Rural | Areas that are not intended to receive sewer service due to topography and soil issues. Development limited to residential single family at low densities or agriculture related uses |
| Urban Reserve | Land preserved for post-2040 urban development. Land use prior 2040 limited to agriculture related uses and single family residential limited to one unit per 10 acres |
| Low Density Residential | Residential development at 1.6 to 3.0 dwelling units per acre |
| Low Density Mixed Residential | Residential development at 3.0 to 4.0 dwelling units per acre |
| Medium Density Residential | Residential development at 4.0 to 6.0 dwelling units per acre |
| High Density Residential | Residential development at 6.0 to 8.0 units per acre |
| Planned Residential/ Commercial | Mix of residential, retail, and office uses either within one building, structure or development. Residential development may include higher density housing options at 8.0 to 10.0 units per acre |
| Office Residential | Mix of office, business and residential uses. Residential development is not required, but should not exceed 50% of the land area at a density of 4.0 to 6.0 units per acre |
| Signature Gateway District | A mix of higher density residential, commercial services and employment opportunities. Residential densities of 8.0 to 10.0 units per acre are permitted and the Council may approve up to 15 units per acre |
| Commercial | Retail, office and service uses |
| Town Center | The area allows for a mix of higher density residential, commercial services and employment opportunities consistent with the existing approved Legacy at Woods Edge PUD. Residential densities of 10.0 to 24.0 units per acre are permitted. |
| Business Campus | High-quality, integrated development of a wide range of business uses at high visibility locations |
| Industrial | Manufacturing, processing, warehousing, and research and development uses |
| Civic and Institutional | Public buildings or facilities, private or public utilities and infrastructure, public and private schools, and cemeteries |
| Parks and Open Space | Passive or active recreational areas and facilities as well as lands under public control that are designated as permanently undeveloped for the purpose of resource management or protection |
| Private Airfield | Aviation related uses |







development is appropriate in these areas. The Urban Reserve is not permanent, as this area will be reviewed at least every 10 years as part of the Comprehensive Plan Update. Therefore a portion of Urban Reserve could be staged for urban development in another 10 years. An Urban Reserve allows Lino Lakes to study the rate of growth over the next 10 years and better understand the type of land use and rate of growth that will occur in this area.

## Residential Land Uses

Residential uses will account for approximately 33% of the total 2040 developed land area (net of wetlands and water) in Lino Lakes in 2040. Detailed descriptions of each residential land use category are included below, along with the rationale for locating these uses.

### Low Density Residential

The city's predominant future residential land use is low density residential. The 2040 Land Use Plan identifies 3,689 acres of low density residential, or 27.7% of the total land area (net of wetlands and water bodies). This land use category provides for housing at densities of 1.6 to 3.0 units per net acre that is served by municipal sewer and water service. Efforts were made to locate these areas to avoid conflict with more intense land uses, including commercial and industrial areas, high density housing, and high traffic volume roadways. Low impact development will be required in accordance with the Resource Management Plan in environmentally sensitive areas within the Low Density Residential designation.

### Low Density Mixed Residential

This Land Use Plan identifies 364 acres for Low Density Mixed Residential development, which accounts for 2.7% of the city's total land area (net of wetlands and water bodies). The purpose of this land use category is to provide for residential development between 3.0 and 4.0 units per acre. The category would allow inclusion of both attached and detached housing types including single family detached, two-family homes, townhomes and detached townhomes. Pedestrian and open space connections should be provided to achieve a relationship with the larger community.

### Medium Density Residential

The city's 2040 Land Use Plan identifies 600 net acres for medium density residential development, or 4.5% of the city's total land area (net of wetlands and water bodies). This land use category will accommodate medium density residential development at densities of 4.0 to 6.0 units per net acre served by municipal sewer and water. These areas can serve as a transition between lower and higher intensity uses. Development in these areas should consider neighboring uses, and efforts should be made to provide for smooth transitions between medium and low density areas. Several medium density residential areas were also located on sites with environmentally sensitive areas. This provides for increased flexibility for development in these areas. Allowing for higher density on suitable areas of a site will increase the financial feasibility of preserving sensitive areas, and allow for more creative site plans that incorporate natural areas into the site planning process. Standards for development in environmentally sensitive areas will require additional environmental protection measures to reduce stormwater runoff and other environmental impacts of more intense development.

### High Density Residential

The 2040 Land Use Plan identifies 153 net acres of high density residential uses, or 1.1% of the city's total land area (net of wetlands and water bodies). The purpose of this land use category is to accommodate residential development at a density of 6.0 to 8.0 units per acre served by municipal sewer and water. These areas can also serve as a transition between lower and higher intensity uses, such as commercial areas or higher volume roadways. As with medium density residential areas, several high density areas were identified to provide for development flexibility in environmentally sensitive areas.

### Planned Residential/Commercial

This Land Use Plan identifies 87 acres for Planned Residential/Commercial development, which accounts for 0.7% of the city's total land area (net of wetlands and water bodies). This district provides a setting for high density development to accommodate affordable and life cycle housing choices at a density of 8.0 to 10.0 units per acre with opportunities for neighborhood scale retail, service and office uses. This district incorporates planning parameters estimating the ratio of the residential and commercial mix.







These ranges are flexible and may change based on a specific development proposal.

The sites are located in areas along high traffic corridors and the district provides a transition to lower density residential uses. This district allows residential development with requirements comparable to the City's R-4, Multi-family residential zoning district. Housing types in this district would include townhomes, condominiums and potentially apartment developments in an attached or stacked configuration. Emphasis on high quality architecture with residential building heights of 2 to 3 stories maximum. This district allows compatible commercial uses by Conditional Use Permit consistent with the NB, Neighborhood Business and LB, Limited Business Districts.

## Commercial/ Industrial/ Business Campus Uses

The planning process for future commercial and industrial areas was guided by the community's goal to coordinate transportation and land use planning. Transportation issues, including access spacing guidelines, capacity issues, and traffic control needs were considered when locating commercial areas. In addition to auto and truck access, pedestrian and transit connectivity to commercial and industrial areas is important. To promote pedestrian and transit activity within and around commercial and industrial districts, pedestrian connectivity within commercial and industrial projects is encouraged, as are pedestrian connections to existing and future pedestrian, trail, and transit facilities. The plan for future commercial and industrial areas addresses many of the city's commercial and economic development goals and strategies. This discussion is included in Chapter 5, Economic Development.

### Office Residential

This Land Use Plan identifies 92 acres for Office Residential development, which accounts for 0.7% of the city's total land area (net of wetlands and water bodies). This category provides for office and business uses and residential units at a density of 4.0 to 6.0 units per acre. Residential development is not required but should not exceed 50% of the land area.

### Signature Gateway

This Land Use Plan identifies 73 acres for Signature Gateway development, which accounts for 0.5% of the city's total land area (net of wetlands and water bodies). The Signature Gateway District is reserved for high visibility, high traffic corridors serving as an entrance to the Community. The district allows residential at a density of 8.0 to 10.0 units per acre with 15 units per acre allowed if the project meets the City's housing goals. The district allows for development of multiple complementary uses on a single site including a combination of higher density residential, commercial services, and employment opportunities. This district incorporates planning parameters estimating the ratio of the residential and commercial mix. These ranges are flexible and may change based on a specific development proposal.

### Town Center

This Land Use Plan identifies 45 acres for Town Center development, which accounts for 0.3% of the city's total land area (net of wetlands and water bodies). The southeast quadrant of the I-35W/Lake Drive interchange represents the "downtown" Lino Lakes ("Legacy at Woods Edge") and the civic focal point for the community. The areas is intended to integrate a mixture of commercial, high density housing and public land uses in an attractive and cohesive design. City Hall, a YMCA, and a community green emphasize the community focus.

### Commercial

The 2040 Land Use Plan identifies a total of 451 net acres of commercial uses, which account for 3.4% of the city's total land area (net of wetlands and water bodies). This use is intended to accommodate retail, office and service uses. Commercial areas are identified along major roadways within the City, as these corridors will provide higher traffic volumes and visibility to support commercial uses. The provision of additional commercial areas will increase employment opportunities for residents of the community, and will also increase the city's tax base and relieve pressure on residential property taxes. Creating commercial areas around the city will provide convenient retail opportunities for residents of all neighborhoods.

### Industrial

Industrial uses, which include manufacturing, processing, warehousing, and research and development, are concentrated along major regional transportation corridors, I-35W and I-35E, to provide for convenient transportation access for users. The 2040 land use plan includes 581 net acres of industrial development, or 4.4% of the city's total land area (net of wetlands and water bodies). Similar to commercial land use categories, this use will also provide additional employment opportunities and diversify the city's tax base.

### Business Campus

"Business Campus" is a new designation in the 2040 Plan Update. The purpose of this new designation is to provide for the high-quality, integrated development of a wide range of business uses at high visibility locations, particularly the area near the I-35E and I-35W corridors and interchanges. These areas will create a strong image for the city and serve primarily as employment centers, with office, service, research and development, data centers and light industrial uses. Warehousing and outdoor storage would be limited, as accessory to these primary uses. Other uses would include those that support the businesses and their employees, such as convenience retail or services, hotels, restaurants, daycare facilities, banks or other financial institutions, and park and ride facilities. Additional uses may include destination uses that have a market draw beyond the local area, such as entertainment, public institutions or non-profit or semi-public facilities. A master plan/ PUD plan will ensure a cohesive development pattern, and provide standards for good aesthetics and architectural quality, while protecting the natural resources of the area.

Approximately 329 net acres, or 2.5% of the city's total net land area has been designated Business Campus on the 2040 Land Use Plan. Additional area designated on the Full Build Land Use Plan recognizes that long-range plans for the northeast area of the city include interchanges on I-35E and I-35W. Access combined with high visibility at a key intersection of major transportation facilities will make this area desirable for business development, and less desirable for residential development. Implementation of this new designation will require new zoning ordinance language.

## Civic and Institutional

The Land Use Plan identifies 354 net acres of Civic and Institutional uses, making up 2.7% of the city's total land area (net of wetlands and water bodies). The purpose of the Civic / Institutional area is to accommodate public buildings or facilities, private or public utilities and infrastructure, public and private schools, and cemeteries. Additional discussion on civic and institutional uses is provided in Chapter 11, Community Facilities.

## Parks and Open Space

The Land Use Plan identifies 1,470 net acres of Park and Open Space, or 11 percent of the city's total land area (net of wetlands and water bodies). However, because the community's park and open space areas consist of numerous wetlands and several lakes, the gross area of Lino Lakes Parks and Open Space areas is substantially larger (3,541 gross acres, or 16.6% of the city's total gross land area). The purpose of the Parks and Open Space area is to accommodate passive or active recreational areas and facilities as well as lands under public control that are designated as permanently undeveloped for the purpose of resource management or protection. Additional discussion of the planned parks, trails, and open space system is provided in Chapter 10, Parks, Greenways and Trails.

## Private Airfield

The Land Use Plan identifies 55 net acres of Private Airfield, or 0.4 percent of the city's total land area (net of wetlands and water bodies). Lino Lakes contains two private airfield areas. Surfside Seaplane Base, located on the northwest shore of Rice Lake, includes docking, hangar, fuel, and maintenance facilities. An on-land private landing strip is also located at Surfside Seaplane Base. The second private airfield consists of a private landing strip at the Lino Lakes Air Park, which is located south of Carl Street and west of 4th Avenue. The Lino Lakes Air Park is used by members of the private air park association, made up of many of the homeowners along the landing strip.

## 2040 Land Use Plan Updates

Through a process involving the Planning & Zoning Board and citizen and landowner input, the city identified a list of potential changes to the city's Future Full Build Land Use Map. In some cases, the changes requested concerned not the future land use, but involved possible changes to the Utility Staging Plan map to accelerate extension of public utilities to a given site.

The potential changes were evaluated and the 2040 Full Build Land Use Map includes changes to only a few areas, labeled on Figure 3-3 as follows:

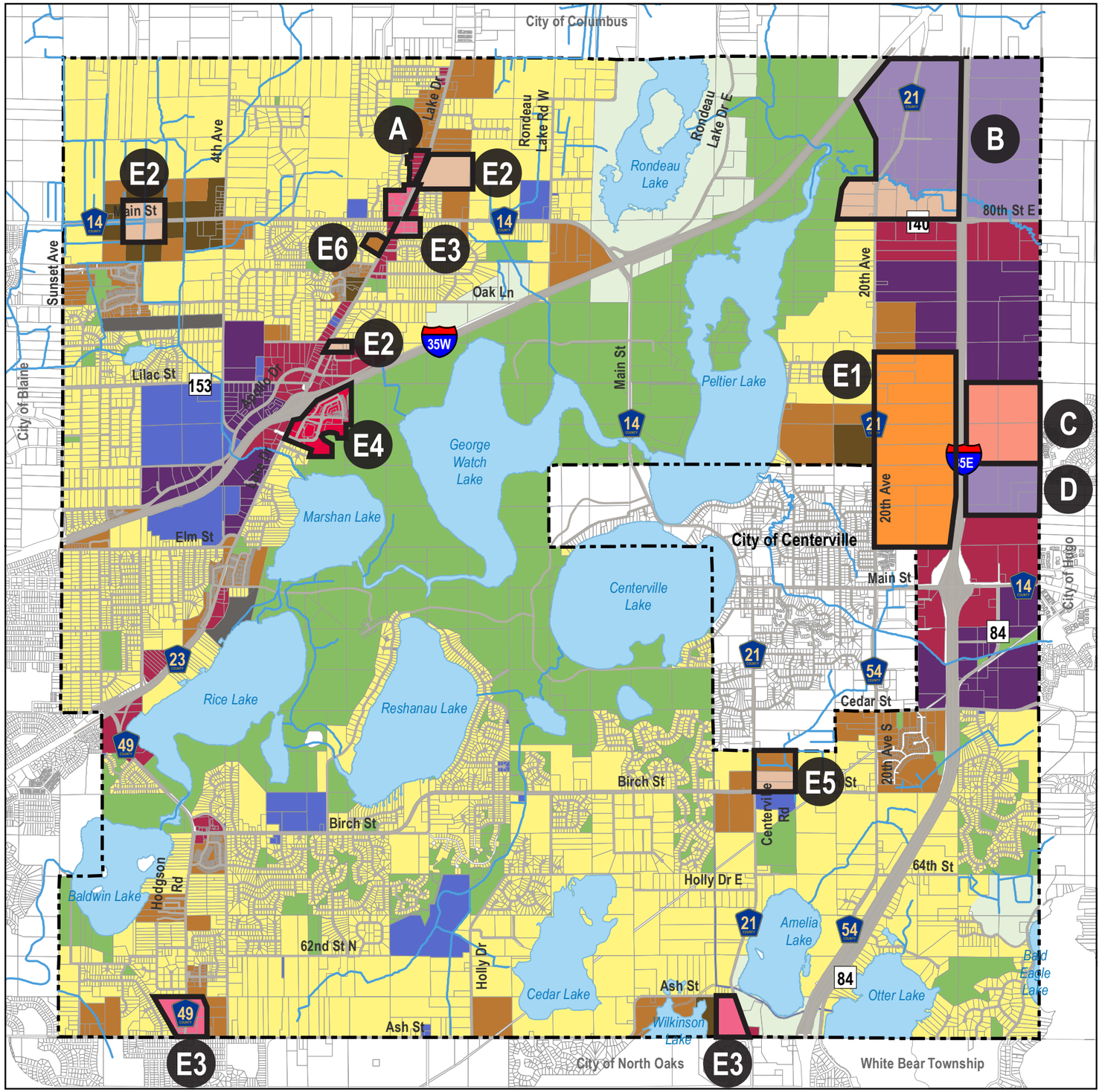
a. Approximately 10.4 acres on the west side of Lake Drive north of Diane Street has changed from Medium Density Residential to Commercial. This change recognizes some of the existing land uses and the configuration of existing parcels which would make it difficult to assemble a suitable housing development site. This area is in the post-2040 Utility Staging Area.

b. Approximately 361 acres in the northeast corner of the city lying north of 80th Street and east of the regional park has changed from Low Density Residential (120 acres), Medium Density Residential (241 acres) to the new classification of Business Campus (272 acres) and Planned Residential/Commercial (90 acres). The Planned Residential/Commercial area is designated west of I-35E and south of Hardwood Creek, with the remainder designated Business Campus. Including Planned Residential/Commercial would allow opportunities for higher-density housing and other uses compatible with intense business-related uses. This area is in the post-2040 Utility Staging Area.

c. Approximately 139 acres east of I-35E and west of 24th Avenue, on the city's boundary with Hugo, has changed from Industrial to Office Residential (Winter Property.) Office Residential allows opportunities for higher-density housing compatible with business-related uses and recognizes the environmental constraints posed by a large wetland complex on the site. This area was in Stage 2A of the 2030 Utility Staging Plan, and has changed to Stage 1A of the new 2040 Utility Staging Plan.

d. Approximately 87 acres east of I-35E, approximately one half mile north of the I-35E and County Road 14 interchange, has changed from Industrial to Business Campus. This allows for high-quality, integrated development of a wide range of business uses at high visibility location This area was in Stage 2A of the 2030 Utility Staging Plan, and has changed to Stage 1A of the new 2040 Utility Staging Plan.

e. (E1) Approximately 376 acres between 20th Avenue and I-35E has changed from Mixed Use (376 acres) to Low Density Mixed Residential. This area is in Stage 1A, 1B, and 3 in the 2030 Utility Staging Plan and there is no change to the staging in the 2040 Utility Staging Plan.
(E2) Approximately 69.3 acres has changed from Mixed Use to Planned Residential/Commercial. These areas include, four parcels in the NW corner of the city on Main St and West of 4th Ave (29 acres); one parcel on Lake Dr and North of Main Street (37 acres) and three parcels on Lake Drive and South of Main Street (3.3 acres). These areas are in Stages 1A, 2B, 2A, and 3 in the 2030 Staging Plan. There is only one change to the staging in the 2040 plan: the parcel located on Lake Drive and North of Main Street is in Stage 3 in the 2030 Staging Plan and has changed to Stage 2B in the 2040 Staging Plan.
(E3) Approximately 79.1 acres has changed from Mixed Use (78.1 acres) and Low Density Residential (1 acre) to Signature Gateway District (79.1 acres). These areas include a group of parcels on Lake Drive and Main Street, and two areas along the City of Lino Lakes' Southern border. All of these areas are in Stage 1A in the 2030 Staging Plan and there is no change to the staging in the 2040 Staging Plan.
(E4) Approximately 46 acres directly Southeast of 35W near Marshan Lake has changed from Mixed Use to Town Center. This area is in Stage 1A in the 2030 Staging Plan and there is no change to the staging in the 2040 Staging Plan.
(E5) Approximately 37.6 acres south of the City of Centerville has changed from Mixed Use to Planned Residential/Commercial and Medium Density Residential. This area is in Stage 2B in the 2030 Staging Plan and there is no change to the staging in the 2040 Staging Plan.
(E6) Approximately 5 acres southwest of the Lake Drive and Main Street area has changed from Mixed Use to Medium Density Residential. This area is in Stage 1A in the 2030 Staging Plan and there is no change to the staging in the 2040 Staging Plan.




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 3-3
# Full Build Land Use Plan Changes, 2030 to 2040

## Legend

- A Medium Density Residential to Commercial
- B Low Density Residential and Medium Density Residential to Business Campus and Planned Residential/Commercial
- C Industrial to Office Residential
- D Industrial to Business Campus
- E Mixed Use Changes
  - E1 Mixed Use to Low Density Mixed Residential
  - E2 Mixed Use to Planned Residential/Commercial
  - E3 Mixed Use to Signature Gateway District
  - E4 Mixed Use to Town Center
  - E5 Mixed Use to Planned Residential/Commercial and Medium Density Residential
  - E6 Mixed Use to Medium Density Residential

3,500 1,750 0 3,500 Feet

N

Date: 2/7/2019

# Growth Management and Utility Staging

Lino Lakes is required, by state law, to accommodate new growth. Metropolitan sewer interceptors have been constructed to meet the demand of future growth. The city can determine how and where this growth should occur. The city has prepared a plan that provides efficiently for this growth, while ensuring quality development that does not negatively impact natural features of the community.

As Lino Lakes develops, protection of its valuable natural resources will continue to play an important role in guiding growth and shaping future development. Growth and economic development objectives will be balanced with managing and protecting natural resource systems. Chapter 2 documents the important natural resources of the city. Chapter 10 describes the Greenway System, developed as part of the 2030 Comprehensive Plan, as a "working" multi-functional greenway corridor intended to provide areas for stormwater management, upland buffer areas for wetlands protection, conservation and/or reestablishment of natural areas, as well as open space and trails for people. The city will implement the Greenway System through its land use policies and ordinances, working collaboratively with the development community to maximize the public values from private development in an economically viable way.

The city will manage its growth by controlling the availability of infrastructure, as urban-scale development is not feasible without municipal sewer and water service. A utility staging plan, which identifies the timing and phasing for sewer service to all areas within the city, was developed and updated as part of the Comprehensive Plan process. Additionally, growth will be timed to ensure that appropriate transportation improvements are completed to accommodate new development. The sewer, water and transportation systems were analyzed to determine their capacity to accommodate the 2040 and full build-out land use plans and growth forecasts. These systems are discussed more fully in other chapters of the Comprehensive Plan.

## Utility Staging Plan

The provision of sewer and municipal water service is the key factor to determine the timing of future growth. The future land use plan was analyzed to determine future water supply and wastewater infrastructure needs to accommodate new growth. The 2040 Utility Staging Plan Map (Figure 3-4) identifies the sequence and anticipated timing of water and sewer provision. The staging area boundaries are based on the city's sewer districts, current development patterns, and land needed for forecasted development. The staging plan establishes the pattern, timing, and location of future growth to 2040 and beyond.

The staging plan provides several benefits to Lino Lakes:

- Creates orderly logical growth pattern based on planned development patterns and availability of infrastructure
- Clearly defines timing at which land is potentially available for development
- Allows the city greater control over the pace and location of new development combined with providing necessary services when planned development occurs
- Provides greater ability to plan, budget and set goals for future development based on the Staging Plan

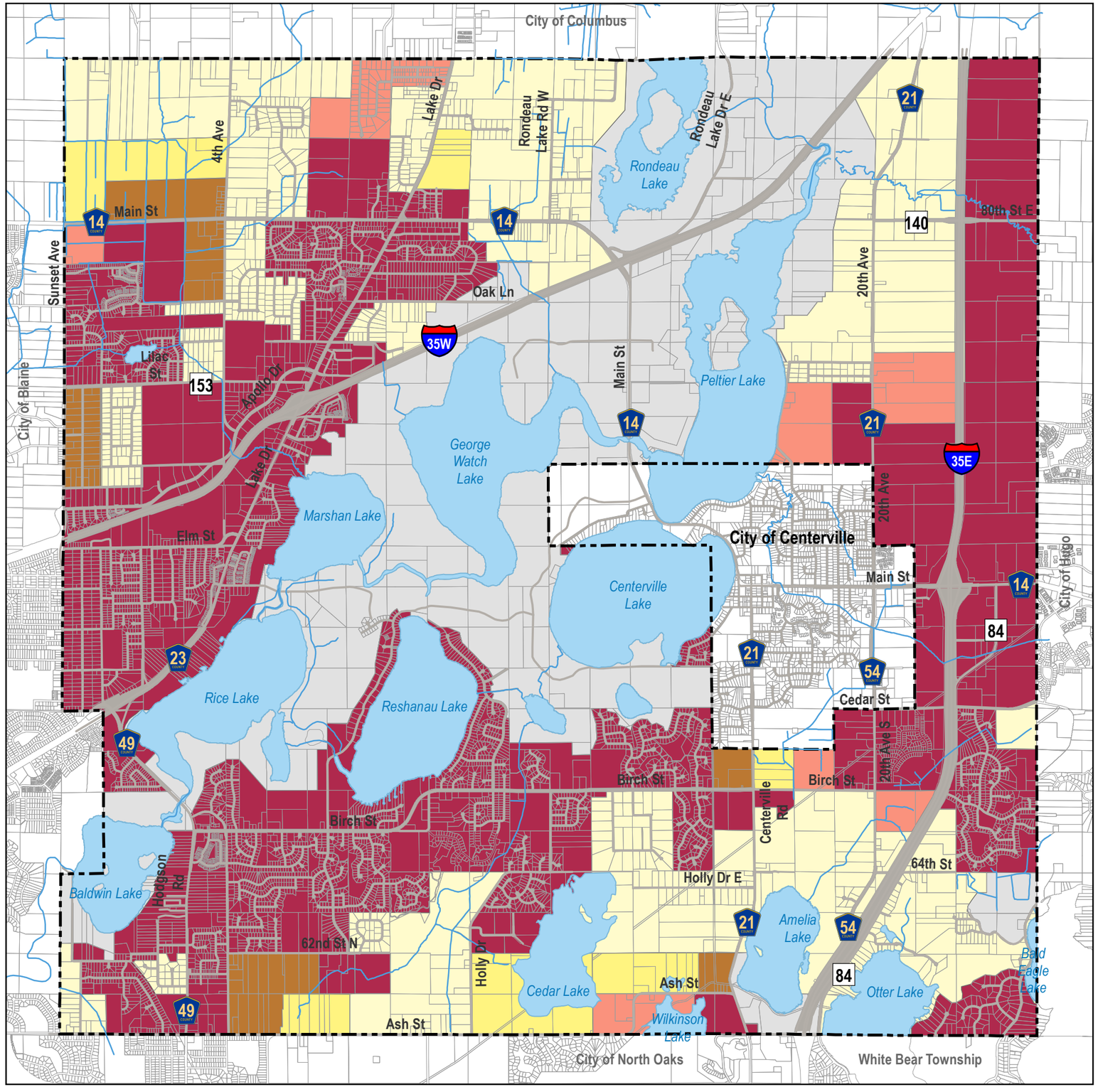
The 2030 Comprehensive Plan anticipated that Lino Lake's population would increase to 22,500 by 2010, to 26,300 by 2020 and to 30,700 by 2030. Growth has lagged the forecasts that were prepared in 2004, prior to the Great Recession of 2007-2009 which slowed development throughout the region in the late 2000's and early 2010's. The 2040 forecasts are similar to the 2030 forecasts, anticipating that the city will reach 31,100 population by 2040. Approximately 1,600 new households are expected between 2020 and 2030, and about 2,000 new households are expected between 2030 and 2040.

Because the 2030 Comprehensive Plan provided for about the same amount of growth that must be accommodated by the 2040 Plan, major changes are not required. Because much of the growth anticipated in the last decade did not occur, development of some areas planned for development between 2010 and 2020 have been delayed into the next decade (between 2020 and 2030.) Much of the land planned for development between 2020 and 2030 will not be needed to accommodate growth until the second decade of the updated plan (between 2030 and 2040.) And, there is less need to add areas previously planned to urbanize after 2030 to the 2040 urbanizing area.

The Staging Plan reflects the city's three growth areas where regional sewer interceptors are located, the northeast, northwest, and south growth areas. The Staging Plan identifies areas for growth from 2020 to 2030, 2030 to 2040, and post 2040. Each ten-year staging area is also sub-divided into five-year phases. To promote an efficient growth pattern, development outside of the current five-year phase will be limited to agriculture related uses and single family residential at a density of one unit per 10 acres. Therefore, during the time period associated with Stage 1A (2018-2025), development in Stages 1B, 2A, 2B and Stage 3 will be limited to agriculture uses or single family residential at one unit per 10 acres. The city will monitor growth by annually assessing market conditions and land capacity to determine when the next staging area should be opened for development. The staging plan cannot force development to occur. Rather, it prohibits urban growth from occurring outside areas planned for utility service.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 3-4
# 2040 Utility Staging Plan




## Legend

- Stage 1A Planned Service Area (2018 - 2025)
- Stage 1B Planned Service Area (2025 - 2030)
- Stage 2A Planned Service Area (2030 - 2035)
- Stage 2B Planned Service Area (2035 - 2040)
- Stage 3 Planned Service Area (Post 2040)
- No Service
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

### Utility Staging Plan Updates

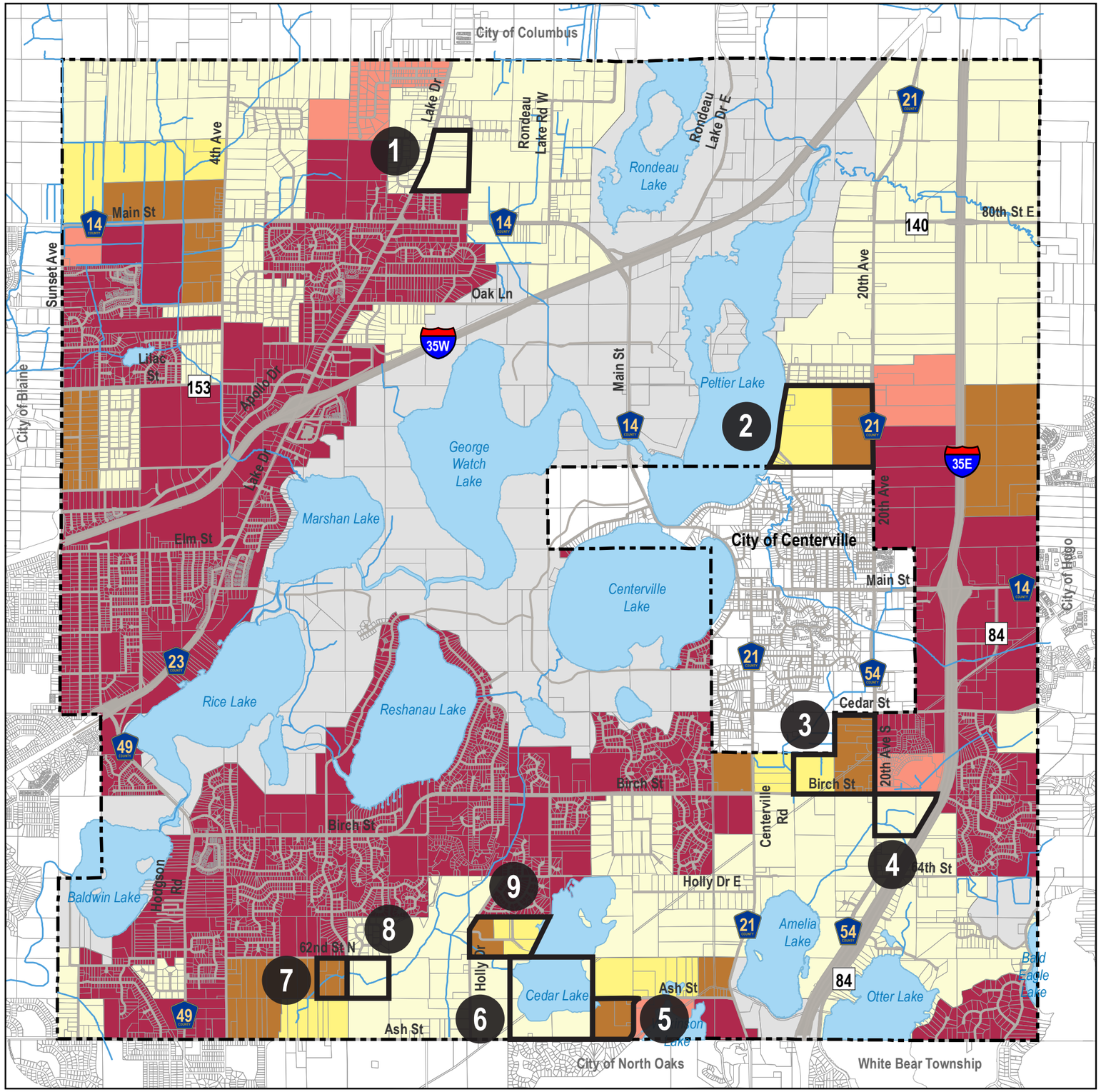
The boundaries of Utility Staging Plan areas have been updated to extend the time frame of the Comprehensive Plan from 2030 to 2040, and to ensure that an adequate supply of land is available to accommodate future development. The categories on the map reflect the following changes:

**Table 3-5. Lino Lakes Utility Staging Areas, 2030 and 2040 Plans**

| | 2030 Comprehensive Plan | 2040 Comprehensive Plan |
|---|---|---|
| **Stage 1A** | 2008-2015 | 2018-2025 |
| **Stage 1B** | 2015-2020 | 2025-2030 |
| **Stage 2A** | 2020-2025 | 2030-2035 |
| **Stage 2B** | 2025-2030 | 2035-2040 |
| **Stage 3** | Post 2030 | Post 2040 |

In addition to the updated time frame for each staging area designation, specific changes have been made to 10 areas labeled on Figure 3-5 as follows:

1. Approximately 61 gross/53 net acres on the east side of Lake Drive (CSAH23) guided Planned Residential/Commercial and Medium Density Residential, change from 2030 Stage 3 to 2040 Stage 2B
2. Approximately 174 gross/135 net acres west of 20th Ave and east of Peltier Lake guided Low, Medium and High Density Residential, change from 2030 Stage 2A & 2B to 2040 Stage 1A & 1B
3. Approximately 101 gross/ 90 net acres west of 20th Avenue and north of Birch Street guided Low and Medium Density Residential, change from 2030 Stage 2A & 2B to 2040 Stage 1A & 1B
4. Approximately 47 gross/ 28 net acres east of 20th Avenue, west of I-35E and south of the Northpointe development guided Low Density Residential, change from 2030 Stage 3 to 2040 Stage 1B
5. Approximately 36 gross/ 31 net acres west of County Road J/ Ash Street, north of the City of North Oaks, guided Low Density Residential, change from 2030 Stage 2A to 2040 Stage 1B
6. Approximately 191 gross/ 123 net acres east of Holly Drive, north of County Road J and south of Cedar Lake, guided Low and Medium Density Residential, change from 2030 Stage 3 to 2040 Stage 2B
7. Approximately 31 gross/ 17 net acres south of 62nd Street, west of West Shadow Lake Drive, change from 2030 Stage 2A to 2040 Stage 1A
8. Approximately 37 gross/ 21 net acres south of 62nd Street, east of Area 7, change from 2030 Stage 3 to 2040 Stage 1A
9. Approximately 79 gross / 58 net acres on six Holly Court parcels change from 2030 Stage 2A and 2B to 2040 Stage 1A.




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 3-5
# Utility Staging Plan Changes, 2030 to 2040

## Legend - 2030 Utility Staging Plan

- Stage 1A Planned Service Area (2008-2018)
- Stage 1B Planned Service Area (2015-2020)
- Stage 2A Planned Service Area (2020-2025)
- Stage 2B Planned Service Area (2025-2030)
- Stage 3 Planned Service Area (Post 2030)
- No Service
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

## Utility Staging Plan Changes, 2030 to 2040

1. Stage 3 to Stage 2B
2. Stages 2A and 2B to Stages 1A and 1B
3. Stages 2A and 2B to Stages 1A and 1B
4. Stage 3 to Stage 1B
5. Stage 2A to Stage 1B
6. Stage 3 to Stage 2B
7. Stage 2A to Stage 1A
8. Stage 3 to Stage 1A
9. Stage 2A and 2B to Stage 1A

3,500 1,750 0 3,500 Feet

N

Date: 03/08/18

### Existing Unsewered Single-Family Subdivisions

The urbanized area of the City of Lino Lakes surrounds several large-lot single family subdivisions that are not connected to the public sewer and water systems. These pockets of homes use subsurface sewage treatment systems (SSTS) and some use private wells. The Utility Staging Plan maps these areas in Staging Area 3. Even though the staging plan indicates that these areas will not receive service within the 20-year span of the plan, it is the city's policy to extend public utilities to these neighborhoods when either requested by the homeowners or when necessary to replace failing SSTS, to preserve and maintain existing neighborhoods. The city's sewer and water systems have been designed to serve these areas.

As part of the Staging Plan update, the city considered changing these neighborhoods to Stage 1A on the 2040 Staging Plan and changing them from "Urban Reserve" to "Low Density Residential" on the Land Use Plan Maps. Including them in the staging plan would remove an extra bureaucratic step (a Comprehensive Plan Amendment) from the process of extending utility service. However, the Metropolitan Council's formulas for calculating compliance with regional density policies would penalize the city for including these existing neighborhoods unless there is current documentation of SSTS failures. Therefore, case-by-case plan amendments will be necessary before service can be extended to these existing neighborhoods.

## Growth Management Strategy

The city's Growth Management Strategy is intended to provide a clear basis for efficient development staging as well as flexibility to respond to market conditions. These strategies work in conjunction with the staging plan to establish the criteria for moving from one staging area to another.

a. The Comprehensive Plan is an integrated compilation of local system plans shat should be kept up to date. The city will perform a review at least once every five years to ensure the plan addresses changing needs and conditions.
b. The Comprehensive Plan will include a staging plan defining areas sized to accommodate forecasted growth.
c. The city will monitor the 10-year staging areas and annually determine if adequate land remains available.
d. All development must be located within the current 10-year staging area unless a Comprehensive Plan amendment is approved that redefines the current 10-year staging area.
e. All development must be phased within each 10-year staging area in accordance with the staging plan unless the City Council determines, by resolution, to redefine the location of the current five-year phase.
f. Prior to reaching the time threshold for the next 10-year staging area, or five-year phase within a 10-year staging area, depicted on the staging plan, the City Council will determine by resolution if the next area is to be opened to development. The following criteria will be used to determine where and when to open up the next 10-year staging area, or five-year phase within a staging area, in accordance with the timing indicated on the staging plan:
    1. Adequate infrastructure must be available to support development. Appropriate analysis will determine if adequate infrastructure is available and what utility extensions and transportation improvements are required to support new development. If infrastructure is not available and cannot be made available in a timely manner to support expanding into the next 10-year staging area or five-year phase within a staging area, the city may refrain from opening up the next staging area, or portions thereof.
    2. Different areas of the city can be considered independently. A decision to open one area of the city to development does not automatically open a different area of the city. Decisions to open new areas to development should clearly define and map the area being opened.
    3. This process does not require a comprehensive plan amendment because it is in accordance with the timing indicated on the staging plan.
g. The following criteria will be used to determine if the city should allow a specific development project to occur early in a 10-year staging area, or five-year phase within a staging area, prior to the timing indicated on the staging plan.
    1. The proposed development must be located within both the current and the next 10-year staging area, or five-year phase, or located adjacent to the current staging area.
    2. The proposed development must be master planned. Small, piecemeal developments do not justify redefining the 10-year staging area, or five-year phase.
    3. The proposed, master planned project must provide discernible public values.
    4. Adequate infrastructure must be available to support development. Appropriate analysis will determine if adequate infrastructure is available and what utility extensions and transportation improvements are required to support new development.
    5. There must be a commitment that the development will pay its proportionate share of infrastructure improvement costs associated with development.
h. All development must adhere to the Greenway System plan, including all its components, as this plan provides a conservation design framework for growth within the city.
i. The city will plan to accommodate an annual average of 230 units per year over each 5-year phasing period not to exceed 345 units in any one year. At the end of the 5-year phasing period unallocated units will be averaged out over the next five year phase.

## Land Supply and Density

The city must plan for its household and employment growth forecasts. The city's existing land use inventory was combined with the utility staging plan and natural resource information to determine the amount of land available to accommodate projected growth. Based on the 2040 Land Use and Utility Staging Plans, the city has planned enough land to accommodate in excess of 6,000 residential units, more than enough to meet the projected demand of 3,300 units. All of this land will not develop before 2040. Additional land supply provides flexibility to accommodate the market and the plans of land owners, and the orderly extension of public services within individual utility staging areas.

The estimate of vacant land available to meet the city's growth projections from 2020 through 2040 includes all vacant, residential and agricultural parcels with more than 2.5 acres of net land area. Smaller parcels were eliminated from the inventory to avoid counting lots already subdivided and to exclude parcels unlikely to be resubdivided. Wetland and water areas were deducted to determine the net buildable land area.

The minimum and maximum numbers of potential new residential units were estimated for each parcel, using its density range from the 2040 Land Use Plan. Some adjustments were made to reflect development approvals in place: if a recent approval had determined the number of units allowed on an unplatted parcel, the actual number of units was substituted for the calculation. The potential new units in Low Density Mixed Residential, Planned Residential/Commercial, Office Residential, Signature Gateway and Town Center areas were estimated using the residential/commercial split and density range identified for each area by the Land Use Plan. Any existing residential units were deducted from the total, so that the estimates represent the net number of potential new units. The minimum and maximum estimated new residential units that can be accommodated for each 10-year planning period was calculated, and divided by the upland acres to estimate density.

**Table 3-6. Potential New Residential Units by 2040 Development Staging Area**

| | | Staging Area 1A & 1B, 2020-2030 | | | Staging Area 2A & 2B, 2030-2040 | | | Total, 2020-2040 Urban Service Area | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 2040 Land Use Plan | Density Range | Minimum Units | Maximum Units | Net Acres | Minimum Units | Maximum Units | Net Acres | Minimum Units | Maximum Units | Net Acres |
| Low Density Residential | 1.6 - 3 Units/Acre | 951 | 1,837 | 633 | 992 | 1,902 | 650 | 1,942 | 3,739 | 1,283 |
| Low Density Mixed Residential | 3 - 4 Units/Acre | 869 | 1,156 | 290 | N/A | N/A | N/A | 869 | 1,156 | 290 |
| Medium Density Residential | 4 - 6 Units/Acre | 1,215 | 1,834 | 309 | 474 | 712 | 119 | 1,689 | 2,546 | 428 |
| High Density Residential | 6 - 8 Units/Acre | 404 | 673 | 67 | 321 | 428 | 54 | 724 | 966 | 121 |
| Planned Residential/Commercial | 8 - 10 Units/Acre | 107 | 142 | 13 | 460 | 586 | 58 | 567 | 728 | 71 |
| Office Residential | 4 - 6 Units/Acre | 185 | 277 | 46 | N/A | N/A | N/A | 185 | 277 | 46 |
| Signature Gateway District | 8 - 15 Units/Acre | 265 | 499 | 33 | N/A | N/A | N/A | 265 | 499 | 33 |
| Town Center | 10 - 24 Units/Acre | 36 | 86 | 4 | N/A | N/A | N/A | 36 | 86 | 4 |
| Total | | 4,031 | 6,369 | 1,395 | 2,246 | 3,628 | 881 | 6,277 | 9,997 | 2,277 |
| Density | | 2.9 | 4.6 | N/A | 2.5 | 4.1 | N/A | 2.8 | 4.4 | N/A |

The Utility Staging Plan and 2040 Future Land Use Plan also provide land for commercial and industrial uses to accommodate the city's forecasted job growth of approximately 2,000 new jobs by 2040. It is more difficult to project the amount of land needed to accommodate non-residential development. According to the existing land use inventory, the city currently has about 400 acres of commercial and industrial land uses. The most recent estimates show about 3,944 jobs in the city. Therefore, it is estimated that the city needs to accommodate in increase of about 50%, which might require roughly 200 acres. As shown by Table 3-7, the plan allows for development of about 952 acres of commercial and industrial land uses between 2020 and 2040. In addition, the city has planned for some commercial uses to be permitted in Planned Residential/Commercial, Office Residential, Signature Gateway and Town Center Areas.

**Table 3-7. Vacant Commercial / Industrial Land, 2020 - 2040 Development Area**

| Future Land Use | Net Acres |
|---|---|
| Commercial | 309 |
| Industrial | 314 |
| Business Campus | 329 |
| Grand Total | 952 |

The Metropolitan Council requires that communities provide a measurement of forecasted employment. Acceptable measures include floor area ratios, building footprint percentages or impervious surface percentages. Lino Lakes anticipates that new development in the employment bearing land uses will tend to result in 65-75% impervious surface coverage, which is limited by the corresponding zoning district standards.

## Consistency with Regional Policy

The city must demonstrate that it meets the regional density policy for Emerging Suburban Edge communities. In order to ensure that regional sewer infrastructure investments are used cost-effectively, the Met Council requires a minimum average net density of three to five dwelling units per acre for sewered residential areas of the city.

The Metropolitan Council determines compliance with the density policy using a somewhat different calculation than the city used to evaluate its overall land supply. Because the last Comprehensive Plan and development planned prior to 2030 was already determined to comply, the calculation for determining compliance of the 2040 Plan changes as follows:

- Land planned for development before 2030 in the 2030 plan, which continues to be planned for development before 2030 (Stage 1) in the new 2040 plan, is excluded from the calculation.
- Land that was planned for development before 2030 in the 2030 plan, but will not develop until after 2030 (Stage 2) in the new 2040 plan is included in the calculation.
- Land added to the 2040 Urban Service Area (guided Urban Reserve in the 2030 plan) that will be staged for development between 2020 and 2040 (Stages 1 or 2) in the new 2040 plan is included in the calculation.
- The city may add the number of units and net land area reported to the Metropolitan Council as part of their plat monitoring program for all years reported (Lino Lakes reported from 2002 through 2016.) This gives the city some credit for approving plats that exceed the minimum densities allowed by the Comprehensive Plan.

The results of the density calculation using the Metropolitan Council's policy guidance is shown on Table 3-8. The land use plan meets the minimum 3 units per net acre standard.

In making this calculation, the city used the same process used for Table 3-6. Parcels smaller than 2.5 net acres were excluded to avoid counting lots already subdivided and to exclude parcels unlikely to be resubdivided. Wetland and water areas were deducted to determine the net buildable area.

The minimum and maximum numbers of net new residential units were estimated for each parcel, using its density range from the proposed 2040 Land Use Plan. Adjustments were made to reflect development approvals in place, if those approvals had not yet been reported to the Metropolitan Council's plat monitoring program. The potential new units in the Planned Residential/Commercial, Office Residential, Signature Gateway and Town Center areas were estimated using the residential/commercial split and density range identified for each area by the Land Use Plan. Any existing residential units were deducted from the total, so that the estimates represent the net number of potential new units. The minimum and maximum estimated new residential units in each category was calculated. After adding the number of units and net land area reported to the Metropolitan Council's plat monitoring program, the number of units were divided by the upland acres to estimate density.

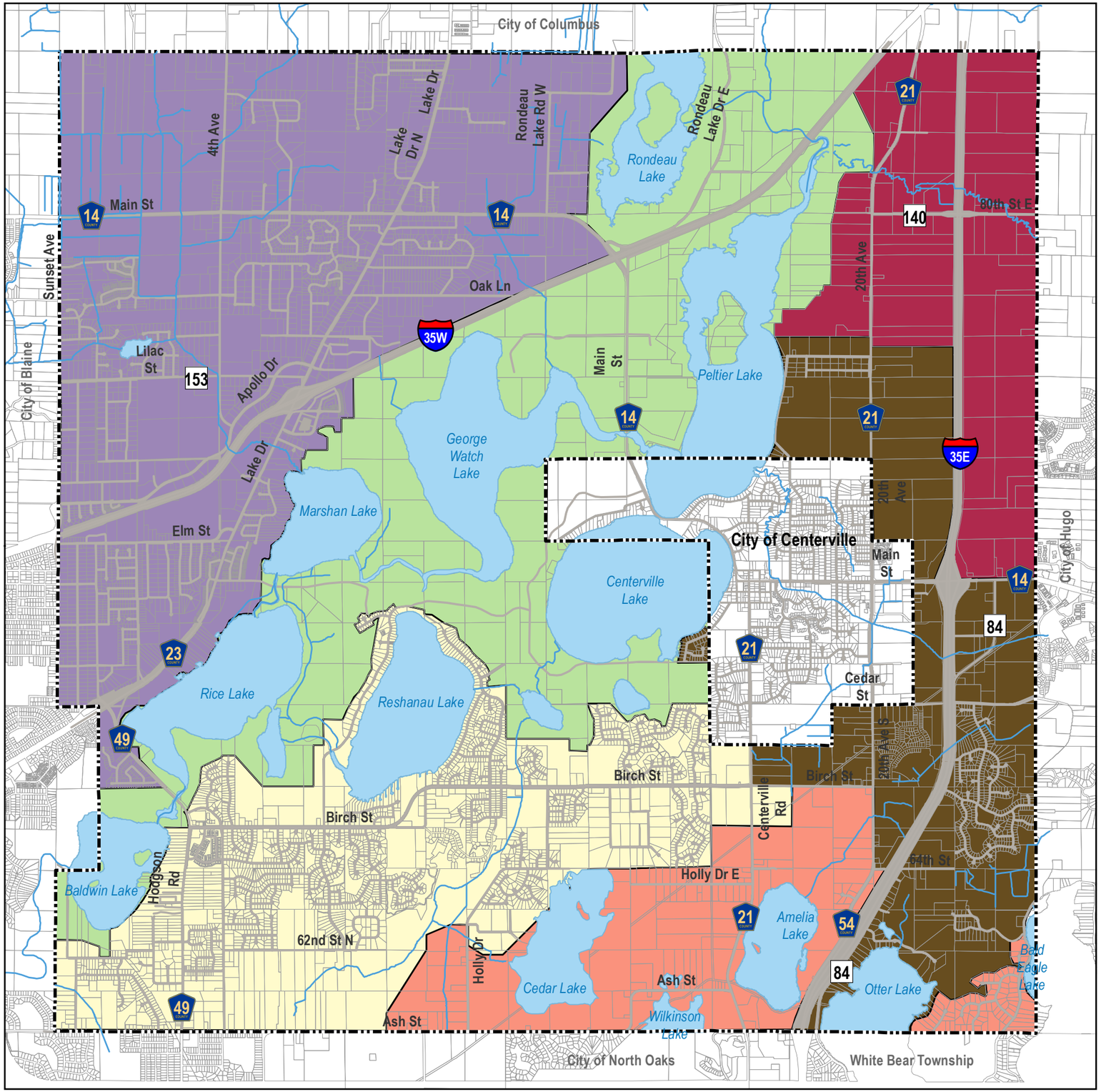
**Table 3-8. Metropolitan Council Density Calculation**

| 2040 Land Use Plan | | Minimum Units | Maximum Units | Net Acres |
|---|---|---|---|---|
| **Stage 2, 2030-2040** | | | | |
| **Low Density Residential** | 1.6 - 3 Units/Acre | 802 | 1,543 | 530 |
| **Low Density Mixed Residential** | 3 - 4 Units/Acre | | | |
| **Medium Density Residential** | 4 - 6 Units/Acre | 260 | 389 | 65 |
| **High Density Residential** | 6 - 8 Units/Acre | 321 | 428 | 54 |
| **Planned Residential/Commercial** | 8 - 10 Units/Acre | 222 | 288 | 28 |
| **Office Residential** | 4 - 6 Units/Acre | 185 | 277 | 46 |
| **Signature Gateway District** | 8 - 15 Units/Acre | | | |
| **Town Center** | 10 - 24 Units/Acre | | | |
| **Subtotal** | | 1,789 | 2,925 | 722 |
| **Land Added to 2040 Urban Service Area** | | | | |
| **Low Density Residential** | 1.6 - 3 Units/Acre | 190 | 359 | 121 |
| **Low Density Mixed Residential** | 3 - 4 Units/Acre | | | |
| **Medium Density Residential** | 4 - 6 Units/Acre | 214 | 323 | 54 |
| **Planned Residential/Commercial** | 8 - 10 Units/Acre | 238 | 298 | 30 |
| **Subtotal** | | 642 | 980 | 205 |
| **Add Plat Monitoring Data** | | 1,765 | 1,765 | 464 |
| **Total** | | 4,196 | 5,670 | 1,391 |
| **Density** | | 3.0 | 4.1 | |

## Planning Districts

To provide more detailed guidance for growth and development in the community, the City of Lino Lakes has established six planning districts based on the city's sewer service districts. Figure 3-6 shows the boundaries of the planning districts. Recommendations were developed for each planning district to address land use, infrastructure and public facilities and natural resources issues within each district. Discussion of each planning district includes two maps that show the planned land use and the Parks, Greenways and Trails recommendations for each district.

The description of each planning district identifies the RMUs (Resource Management Units) in which each district is located. The planning district boundaries do not correspond to the RMU boundaries, which are based on sub-watersheds and used by the city and the Rice Creek Watershed District to set specific resource management strategies that address the unique conditions of each area. Most of the planning districts include parts of several RMUs. For more information on the RMUs and for additional recommendations for preserving, protecting and improving the natural resources in each planning district, please see the Local Water Management Plan (Chapter 7 and Appendix A of this plan.)




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 3-6
# Planning Districts

## Legend

- Planning District 1
- Planning District 2
- Planning District 3
- Planning District 4
- Planning District 5
- Planning District 6
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Planning District 1

### Land Use

- Planning District 1 includes one area designated Signature Gateway (the County Road 49 and County Road J area).
  - Identified in Chapter 5, Economic Development, as an opportunity area, this area has been a priority redevelopment objective for the City.
  - A master plan was completed for the area in 2007 and provides the primary guidance for land development for the area. The plan is intended to establish a general land use design with some specified important design elements. Future amendments of the plan may be appropriate to address evolving community needs, market forces and regulatory requirements.
  - It is estimated that approximately half the area will develop with residential uses. While individual parcels may development with a single land use commercial development will be required within the district.
  - This area has a strong emphasis on high quality architecture and design standards as outlined in the master plan. Development will include City signature elements including decorative lighting and entrance signage.
  - Residential densities of 8-10 units/acre provide for both affordable and life cycle housing opportunities. District would include ability for the Council to approve up to 15 units/acre.
- A gateway should be planned at the Hodgson Road (CSAH 49) and County Road J (Ash Street) intersection.
- The city will seek the future relocation of the bus garage located along Hodgson Road (CSAH 49) into one of the community's industrial parks and the redevelopment of the site into a land use compatible with the surrounding land uses.
- The manufactured home park on Hodgson Road (CSAH 49) is a long term land use providing affordable housing.
- The city will work with Anoka County to ensure appropriate access management on Hodgson Road (CSAH 49).

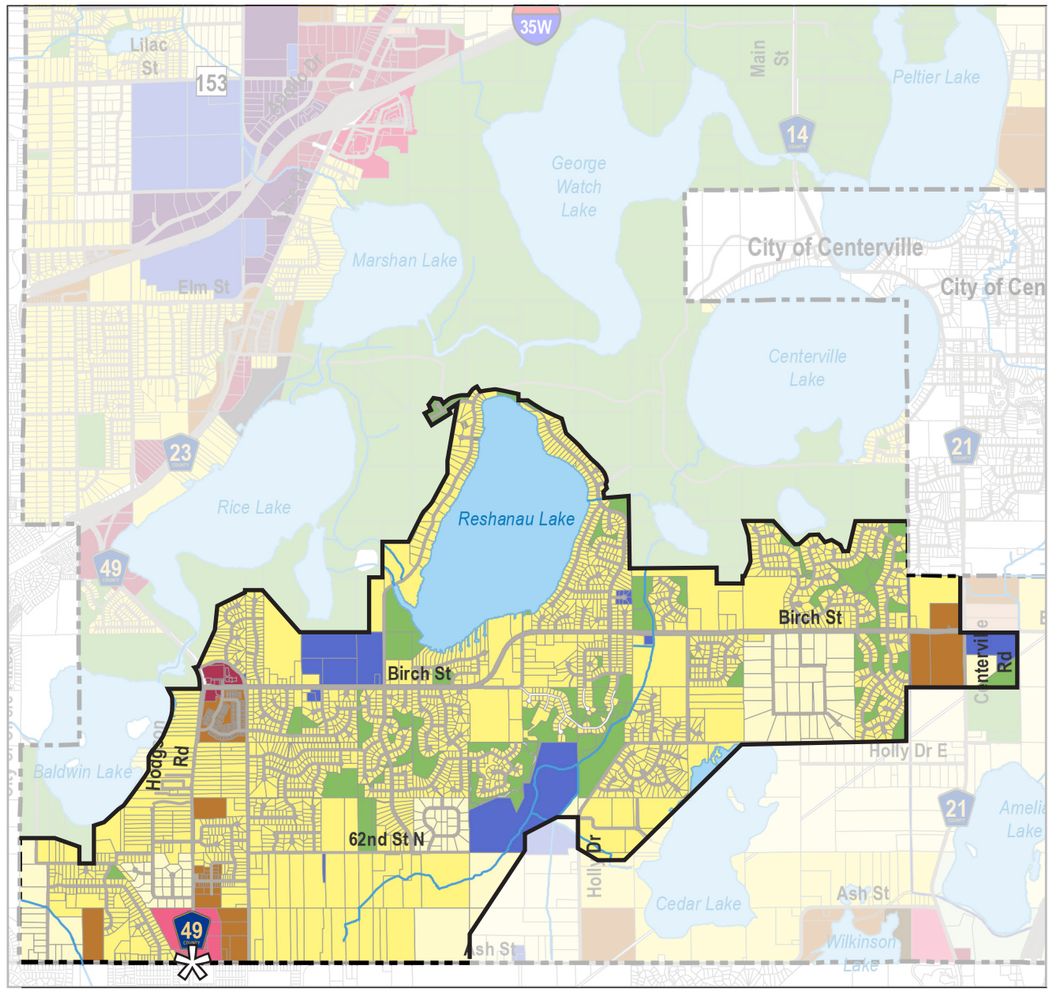
### Infrastructure & Public Facilities

- Follow and implement the CSAH 34 (Birch Street) Access Management Study.
- Work with Anoka County, Ramsey County and the City of Shoreview to ensure appropriate access management on County Road J (Ash Street).
- Many of the undeveloped areas of District 1 can be served by extending 8-inch and 10-inch lateral sewers off the existing system. New lift stations will be needed to serve an area of about 220 acres north of Ash Street planned for residential development.

### Natural Resources

- Planning District 1 includes all or part of the following RMUs (Resource Management Units): Reshanau RMU, Middle Creek RMU, Sherman RMU and Baldwin RMU.

**Figure 3-7. 2040 Future Land Use Map for Planning District 1**

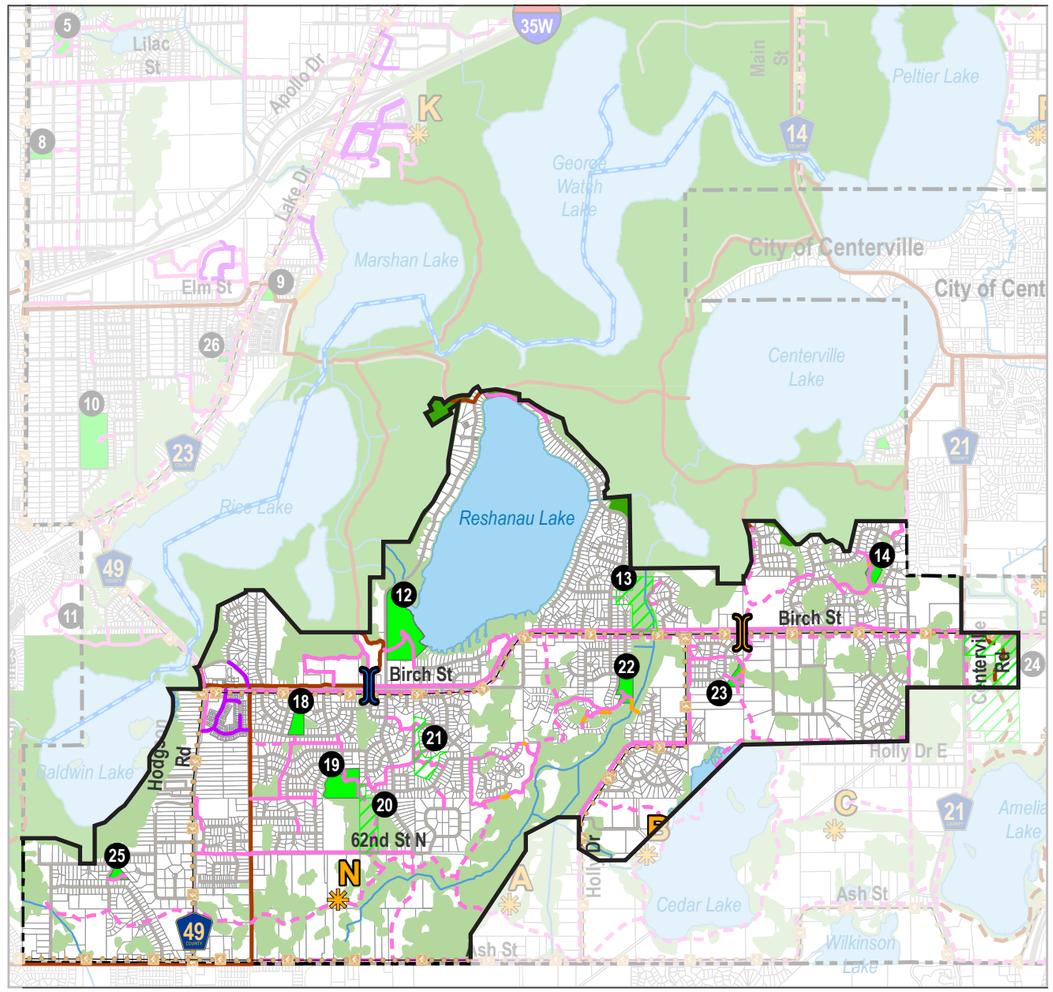



**Legend**

- Planning District 1 Boundary
- Gateway
- Permanent Rural
- Urban Reserve
- Low Density Residential
- Low Density Mixed Residential
- Medium Density Residential
- High Density Residential
- Planned Residential / Commercial
- Office Residential
- Signature Gateway District
- Commercial
- Town Center
- Business Campus
- Industrial
- Civic / Institutional
- Park / Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,000 0 3,000 Feet

**Figure 3-8. Parks, Greenways & Trail System Map for Planning District 1**




**Legend**

- Planning District 1 Boundary
- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel
- Future Pedestrian Bridge
- Water Trail
- Watermark Drainage Outlet
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalk Trail
- Proposed Trails
- Proposed On-Street Route
- Existing Regional Trail
- Proposed Regional Trail
- Watermark Drainage Outlet
- Greenway System
- Undeveloped Park
- City Parks
- Regional Parks
- Existing Wetland Banks
- Proposed Wetland Bank
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,000 0 3,000 Feet

N

## Planning District 2

### Land Use

- Planning District 2 includes the Town Center area. A complete "Design and Development Guide" has been adopted to support the community's vision and established standards for all development in the Legacy area. The guide allows for commercial, civic, and multi-family development with a residential density ranging from 10 to 24 units per acre. Approximately 9 acres of the project site remain undeveloped and are owned by the City.

- Planning District 2 includes Planned Residential/Commercial areas.
  - The Robinson Farm and Main Street site is planned to accommodate an 80/20 percent mix of residential and commercial. While allowed in all areas, commercial development will be required in at least one quadrant. To ensure implementation the City may choose to rezone land to a compatible neighborhood commercial zoning district upon completion of a corridor plan. A Master Plan for the Main Street Corridor between Sunset Avenue and 4th Avenue should be completed.
  - The Waldoch Farms site is planned to accommodate an 80/20 percent mix of residential and commercial. The existing nursery and retail business is expected to remain as a long term use. Commercial development, while allowed, is not required on the property.

- A Signature Gateway district is located around the intersection of Lake Drive and Main Street. Located at a major crossroads in the community the intersection was the original "downtown" of Lino Lakes. Opportunity exists to redevelop both underutilized property and outdated land uses. A master planning study should be prepared of the area to examine existing land use, future land use compatibility, right-of-way needs, access management, stormwater management, and other appropriate issues. This study area should extend south to include James Street, Vicky Lane, and Kelly Street intersections. The district allows for both residential and commercial uses. A 75/25 residential to commercial area ratio was assumed for planning purposes. However, commercial development is not required and individual parcels may develop with a since land use. The city will require strong emphasis on high quality architecture and design standards.

- In areas of small lots under multiple property ownership, land assembly and redevelopment efforts should be promoted to facilitate implementation of the Comprehensive Plan.
- A number of small isolated industrial sites along CSAH 23 are out of character with the surrounding land uses. The city will pursue the relocation of these industries into a community industrial park and redevelopment of these existing industrial sites.
- The city will continue to work with the State of Minnesota to monitor any expansion, improvements, or change in activities associated with Lino Lakes Correctional Institution.
- The Lino Air Park and Seaside Seaplane Base are designated as long term land uses. New development occurring near the private air parks should be designed with an awareness of airfield operations.
- Continue to support and promote the development of the southeast quadrant of Lake Drive (CSAH 23)/ I-35W interchange as a special community focus.
- Pursue development of parcels north of 77th Street on the west side of Lake Drive (CSAH 23) currently owned by the city.
- Pursue redevelopment of the 77th Street intersection with Lake Drive including the realignment of 77th Street west of Lake Drive to align with Marketplace Drive on the east.
- Promote the planning and development/redevelopment of the Town Center Parkway area west of Lake Drive to ensure coordinated design and access and the compatibility of land uses.
- An area along the west side of I-35W, around the eastern part of Oak Lane, is guided for permanent Rural Land Use on the Land Use Plan. It is not likely that this area can be economically served with municipal utilities because of extensive wetlands and the minimal amount of developable land.
- Gateways should be planned and created at the interchange of I-35W and Lake Drive (CSAH 23); at the Lake Drive and Hodgson Road (CSAH 49) intersection; and on Main Street (CSAH 14) at Sunset Road (CR 53).

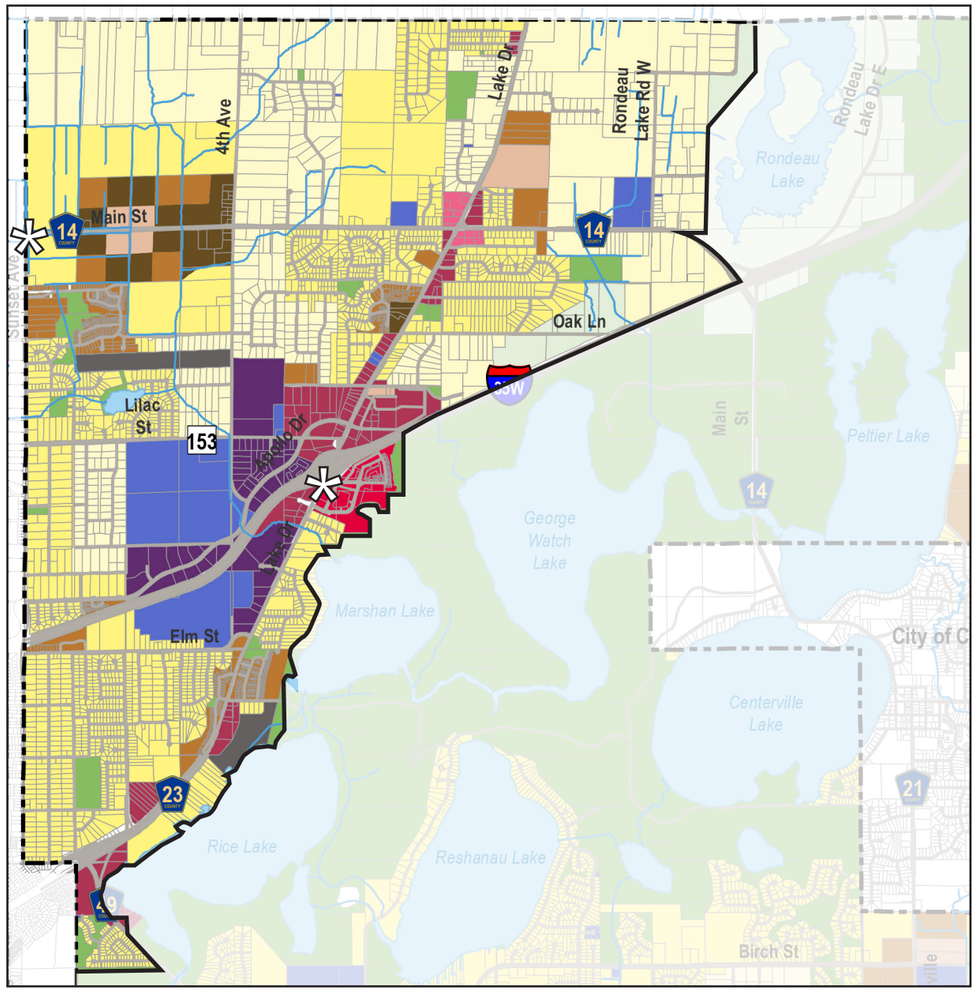
### Infrastructure & Public Facilities

- Work with Anoka County to prepare and implement an access management plan for Lake Drive (CSAH 23).
- Plan for the extension of Sunset Road (County Road 53) to the north of Main Street.
- Continue to implement the Main Street (TH 242/CSAH 14) Access Management Study. Coordinate with Anoka County on any future updates of the study.
- Work with Anoka County on the creation of a new full-access intersection on Main Street at a new road at the 200 block, consistent with the Main Street (TH 242/CSAH 14) Access Management Study.
- Support planning for connecting Main Street to 80th Street via a 'northern connection', including a new I-35E interchange and a new I-35W interchange, as described in the 2004 CSAH 14 Study and Chapter 6: Transportation Plan (post-2040).
- Sanitary sewer facilities (lift stations and sewer trunks) that serve the developed portion of Planning District 2 will not be adequate for the long-term development of the entire area. The Sanitary Sewer Plan (Chapter 8) lays out the additional lift stations and the new West Side Relief Sewer that will be needed in the future.

### Natural Resources

- Planning District 2 includes all or part of the following RMUs (Resource Management Units): Marshan RMU, Rondeau RMU, Rice Lake RMU and George Watch RMU.
- The 17 acre Woolan Park Wetland Bank, located north of Main Street and west of Lake Drive, is part of a larger 60 acre wetland complex. Opportunities to protect and restore the balance of the wetland should be evaluated with any adjacent development.

## Figure 3-9. 2040 Future Land Use Map for Planning District 2



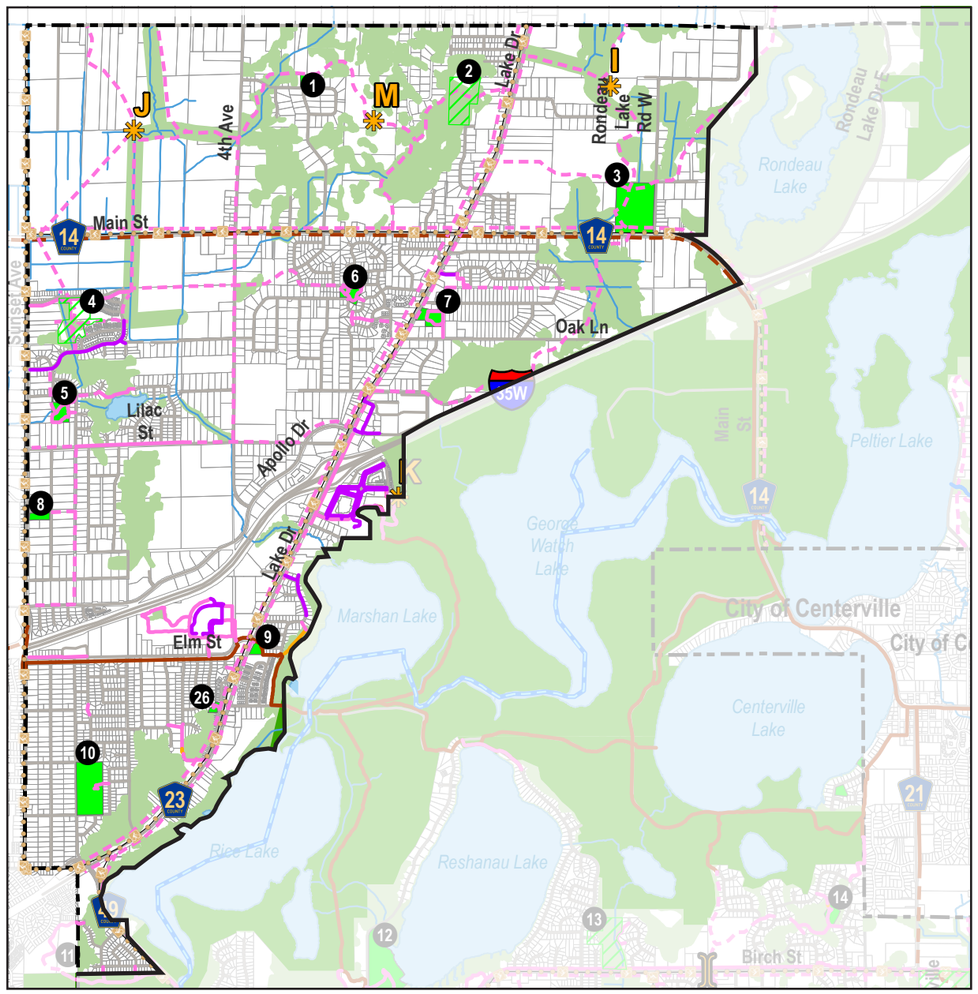

**Legend**

- Planning District 1 Boundary
- Gateway
- Permanent Rural
- Urban Reserve
- Low Density Residential
- Low Density Mixed Residential
- Medium Density Residential
- High Density Residential
- Planned Residential / Commercial
- Office Residential
- Signature Gateway District
- Commercial
- Town Center
- Business Campus
- Industrial
- Civic / Institutional
- Park / Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,000 0 3,000 Feet

N

## Figure 3-10. Parks, Greenways & Trail System Map for Planning District 2




**Legend**

- Planning District 1 Boundary
- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel
- Future Pedestrian Bridge
- Water Trail
- Watermark Drainage Outlet
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalk Trail
- Proposed Trails
- Proposed On-Street Route
- Existing Regional Trail
- Proposed Regional Trail
- Watermark Drainage Outlet
- Greenway System
- Undeveloped Park
- City Parks
- Regional Parks
- Existing Wetland Banks
- Proposed Wetland Bank
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,000 0 3,000 Feet

N

## Planning District 3

### Land Use

- Much of District 3 was included in the I-35E Corridor Alternative Urban Areawide Review (AUAR) completed in 2005. This large-scale study analyzed potential environmental impacts of future development over 4,660 acres of eastern Lino Lakes (the location of the AUAR area is shown on Figure 2-3). The analysis included land use, transportation, municipal water and sanitary sewer services, stormwater management, and natural resources. All development within the AUAR study area must comply with the mitigation plan that forms a part of the AUAR. The mitigation plan includes the Conservation Development Framework, which is described in the AUAR and forms the fundamental precept for all development within the AUAR area. The city will continue to implement the AUAR and update it as necessary.
- Encourage the development of the Clearwater Creek Industrial Park.
- An area south of 64th Street and northwest of Bald Eagle Lake is guided for permanent Rural Land Use on the Land Use Plan. It is not likely that this area can be economically served with municipal utilities because of extensive wetlands and the minimal amount of developable land.
- Gateways should be planned in the area of the Main Street/I-35E interchange and at the County Road J (Ash Street)/I-35E interchange.
- Planning District 3 includes the new Low Density Mixed Use area for the Watermark development.
- Planning District 3 includes the Planned Residential/Commercial area at Centerville Road and Birch Street. Located at a high volume traffic corridor the intent is to provide an opportunity for higher density housing as well as complementary commercial uses. The future development of the southeast corner as the city's recreation complex may increase demand for some neighborhood or community scale commercial uses near the large park. Approximately 80 percent of the area is planned to accommodate residential development. Commercial development, while supported, is not required.
- As the City continues to work with MnDOT, Anoka County and Ramsey County on proposed County Road J improvements and an upgrade to a full interchange to I-35E, the City will evaluate possible land use plan changes in the area.

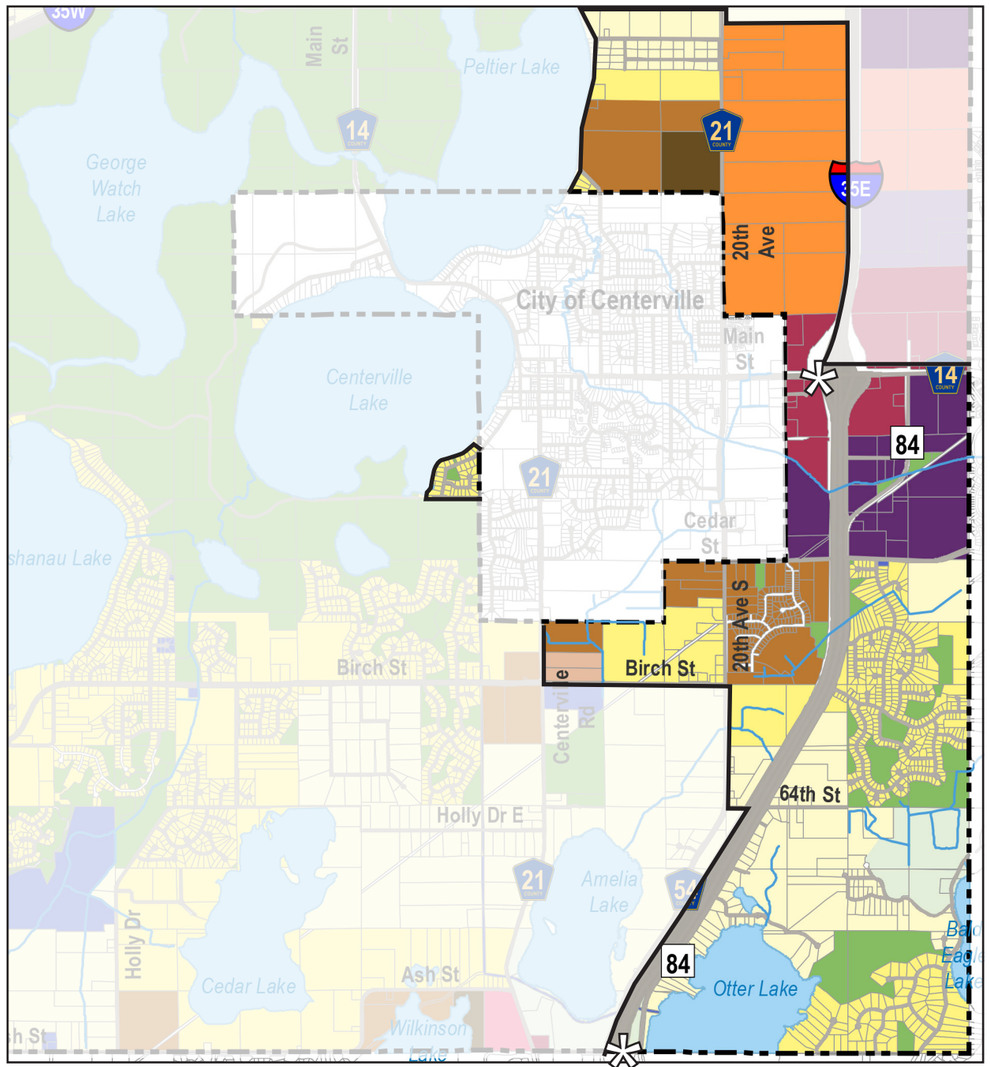
### Infrastructure & Public Facilities

- Municipal water service is available from the City of Centerville for extension into the LaMotte neighborhood on the southeast side of Centerville.
- The area immediately north and south of 64th Street East has the potential for developing sooner than 2040. Water and sanitary sewer service are available in Flora Court. However, there are several important planning issues to be addressed such as land elevation relative to the Flora Court sewer pipe, the need to construct 64th Street to city standards, and access for the various properties. Development of this area will require a plan that includes numerous properties currently under separate ownership. With such a plan, an amendment to the Comprehensive Plan may be possible and appropriate.
- Work with Anoka County and the City of Centerville to facilitate the future improvement of 20th Avenue North as an arterial street.
- Work with the City of Hugo, Anoka County, and Washington County to facilitate the future improvement of 24th Avenue North as a collector street.
- Work with Anoka County to prepare and implement an access management plan for Birch Street (CSAH 34).

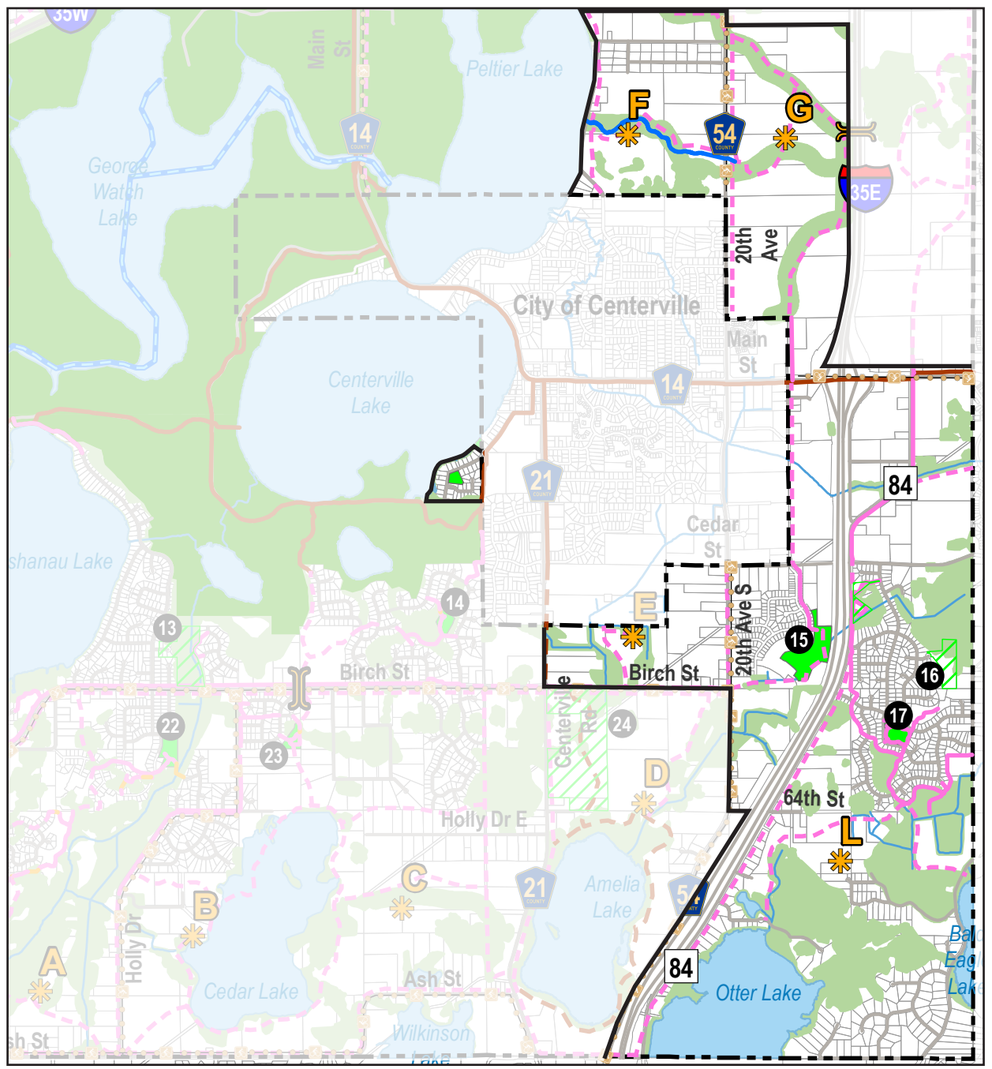
### Natural Resources

- Integrate Clearwater Creek into district and site planning to preserve the natural amenities of this water course.
- Planning District 3 includes all or part of the following RMUs (Resource Management Units): Reshanau RMU, Middle Creek RMU, Sherman RMU and Baldwin RMU.

## Figure 3-11. 2040 Future Land Use Map for Planning District 3




## Figure 3-12. Parks, Greenways & Trail System Map for Planning District 3



## Planning District 4

### Land Use

- A gateway should be planned at the intersection of Centerville Road and County Road J (Ash Street).
- Planning District 4 includes one area designated Signature Gateway Area (Centerville Road/County Road J).
    - This site is located at the intersection of two county roads, near an I-35E interchange. The site is expected to develop as an extension of the multi-family and commercial development south of the municipal boundary in the City of North Oaks. Approximately 80 percent of the area is expected to accommodate residential development at 8.0 to 10.0 units per acre. The City Council may allow up to 15 units per acre for projects that meet specific city housing goals.

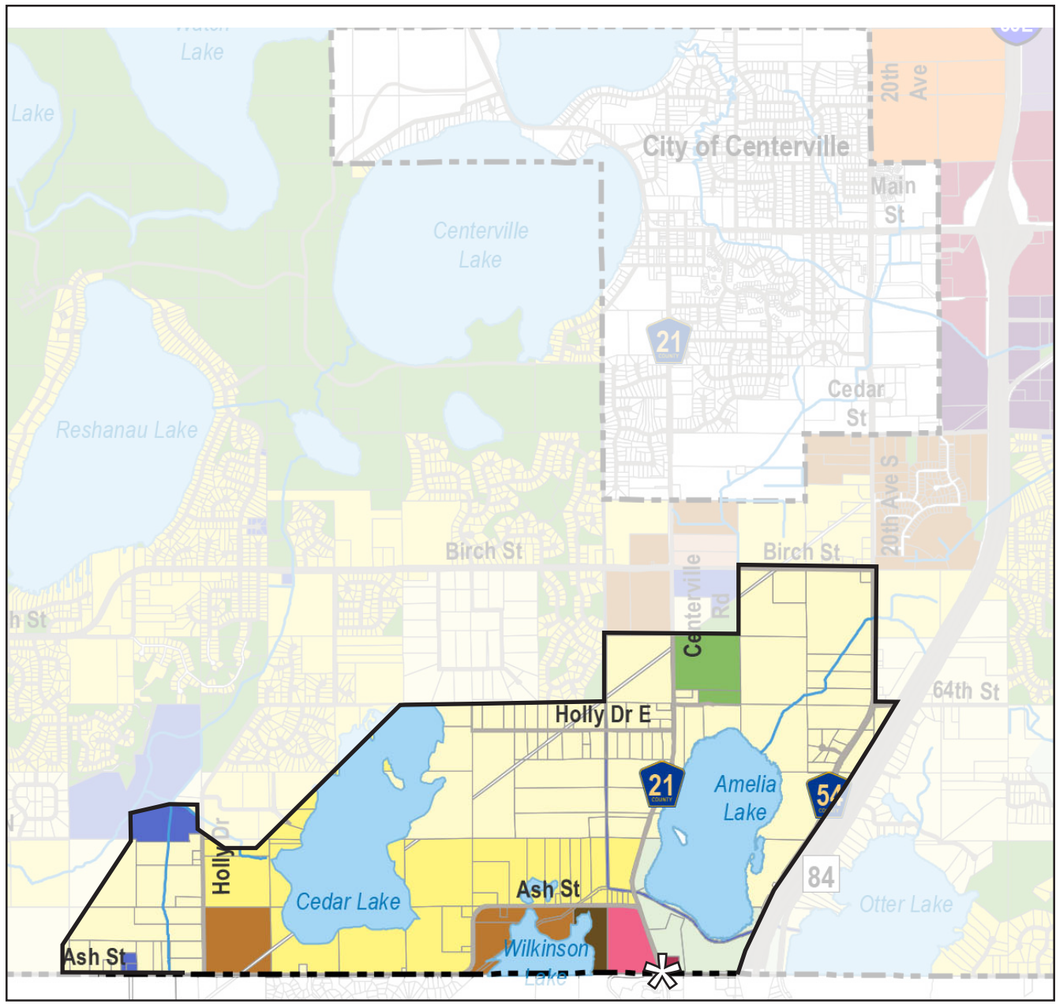
### Infrastructure & Public Facilities

- Recommended sanitary sewer improvements in this area are based on connecting to the White Bear Township sewer in Centerville Road. Local sewers will discharge to at least two lift stations which will pump by force main to the White Bear Township facility.
- The White Bear Township trunk sewer, constructed in the late 1980's, has capacity to serve portions of North Oaks and Lino Lakes in addition to White Bear Township's needs. North Oaks, by written agreement with White Bear Township, has purchased the right to use some of this capacity. The agreement has been modified, and North Oaks has made additional payments to the township as North Oaks' service needs have increased. A review of the current utilization of this facility indicates that there is still capacity available to serve at least a portion of the projected development in District 4. However, no formal agreement exists between Lino Lakes and White Bear Township. It is recommended that the city commence negotiations with White Bear Township to secure the right to discharge to this facility.
- The 195 acres along County Road J and Holly Drive are in 2040 Staging Area 2B and the landowners (Noren and Lundgren) have requested that the City consider moving this phasing up. The City will consider amending the staging plan if:
    - Development of the Holly Court area is in progress and/or approved for urban development, and
    - The amendment includes a Master Plan incorporating the Lundgren, Noren and North Oaks Farms, Inc. property that comprehensively addresses the extension of sanitary sewer and water facilities along with realignment of County Road J through the properties.
- The city acquired 60+ acres at the southeast corner of Birch Street and Centerville Road with the intent to creating a major community athletic complex. A master plan was created for the complex, including fields for soccer, baseball, and softball, as well as playground and other facilities. The city should continue to pursue the possibility of constructing the athletic complex. A master plan update will be needed to reflect the construction of a fire station on part of the property.
- Pursue a full interchange at I-35E and County Road J (Ash Street).
- Implement CSAH 34 (Birch Street) Access Management Study.
- Work with Anoka County and Ramsey County to ensure appropriate access management on County Road J (Ash Street).
- Examine the possibilities for realigning County Road J (Ash Street) to eliminate the two right angle turns and minimize the curves that replace them.
- Examine the possibility of extending Molitor Drive east to connect to 20th Avenue.

### Natural Resources

- Integrate Clearwater Creek into district and site planning to preserve the natural amenities of this water course.
- Planning District 4 includes all or part of the following RMUs (Resource Management Units): Amelia RMU, Wilkinson RMU.

Figure 3-13. 2040 Future Land Use Map for Planning District 4

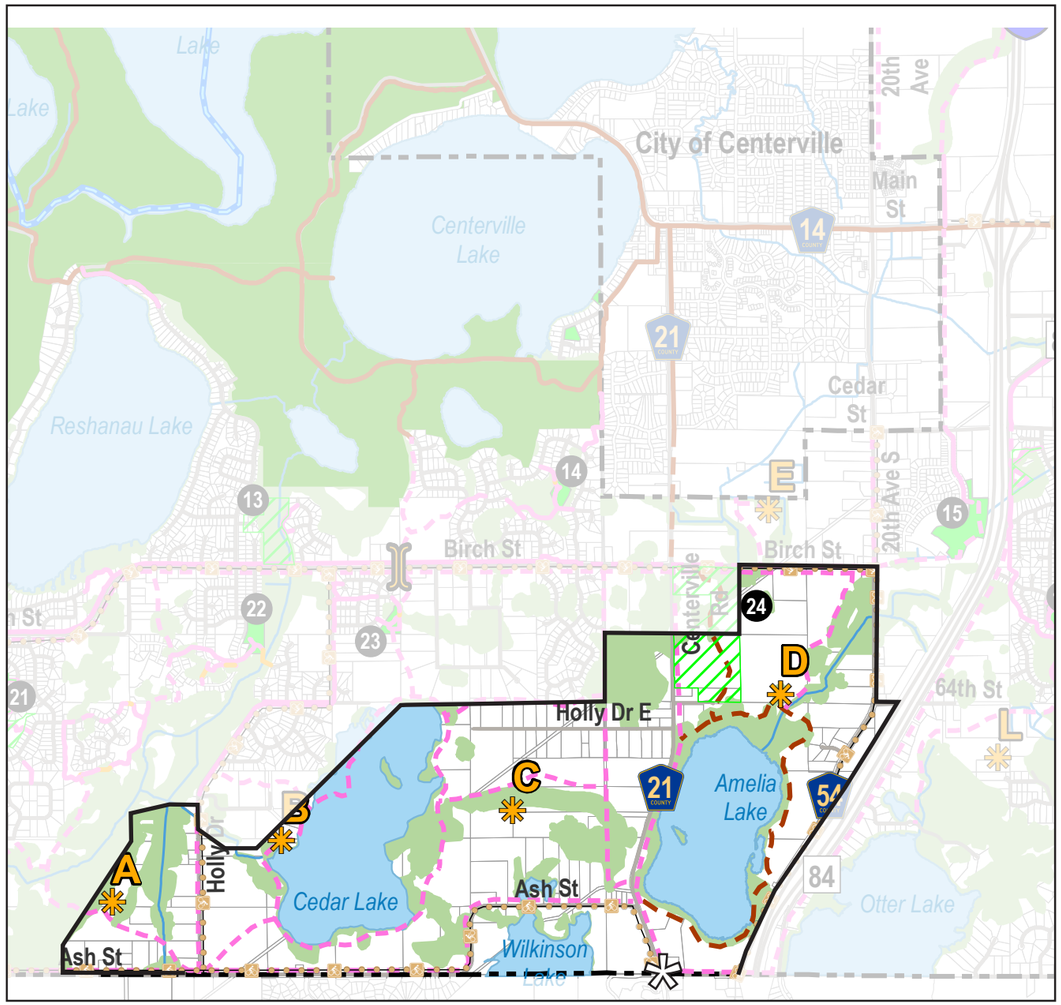



Legend

- Planning District 1 Boundary
- Gateway
- Permanent Rural
- Urban Reserve
- Low Density Residential
- Low Density Mixed Residential
- Medium Density Residential
- High Density Residential
- Planned Residential / Commercial
- Office Residential
- Signature Gateway District
- Commercial
- Town Center
- Business Campus
- Industrial
- Civic / Institutional
- Park / Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

2,000 0 2,000 Feet N

Figure 3-14. Parks, Greenways & Trail System Map for Planning District 4




Legend

- Planning District 1 Boundary
- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel
- Future Pedestrian Bridge
- Water Trail
- Watermark Drainage Outlet
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalk Trail
- Proposed Trails
- Proposed On-Street Route
- Existing Regional Trail
- Proposed Regional Trail
- Watermark Drainage Outlet
- Greenway System
- Undeveloped Park
- City Parks
- Regional Parks
- Existing Wetland Banks
- Proposed Wetland Bank
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

2,000 0 2,000 Feet N

## Planning District 5

### Land Use

- Much of District 3 was included in the I-35E Corridor Alternative Urban Areawide Review (AUAR) completed in 2005. This large-scale study analyzed potential environmental impacts of future development over 4,660 acres of eastern Lino Lakes (the location of the AUAR area is shown on Figure 2-3). The analysis included land use, transportation, municipal water and sanitary sewer services, stormwater management, and natural resources. All development within the AUAR study area must comply with the mitigation plan that forms a part of the AUAR. The mitigation plan includes the Conservation Development Framework, which is described in the AUAR and forms the fundamental precept for all development within the AUAR area. The city will continue to implement the AUAR and update it as necessary.
- Planning District 5 includes significant land areas classified as "Business Campus", a new designation in the 2040 Plan Update. The purpose of this new designation is to provide for the high-quality, integrated development of a wide range of business uses at high visibility locations, particularly the area near the I-35E and I-35W corridors and interchanges. Please see the discussion of the Business Campus areas for additional guidance on these areas.
- Gateways should be planned in the area of the Main Street/I-35E interchange and, in the longer term considered in the area of a new 80th Street interchange.
- The full build plan includes a Planned Residential/Commercial District between 80th Street and Hardwood Creek. Approximately 50 percent of the area is planned to accommodate residential development. Commercial development will be a required component along the corridor. This is a post 2040 utility staging area.

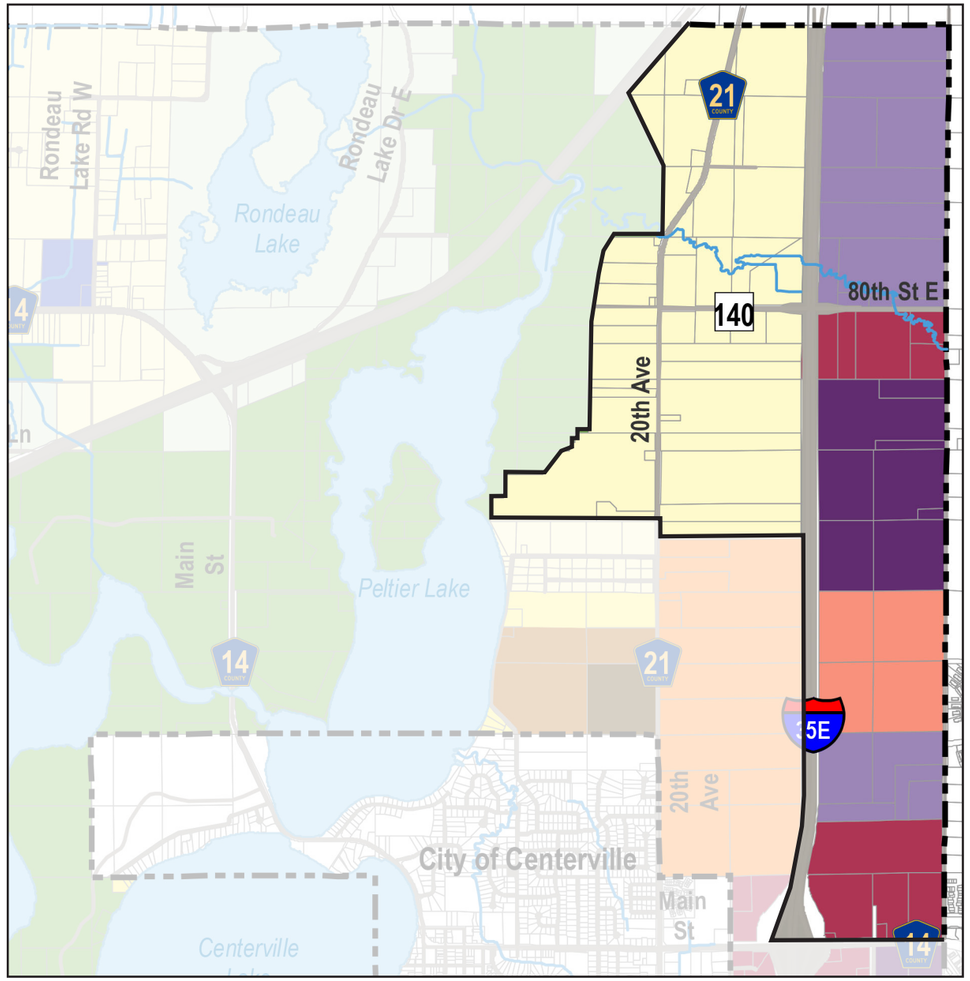
### Infrastructure & Public Facilities

- The AUAR and planning for the 2030 and 2040 Comprehensive Plans included analyses of a "full build out" land use scenario. The full build out analyses assumed all the Urban Reserve area was developed in order to analyze impacts and infrastructure needs. The area around 80th Street should not be allowed to develop until a new I-35E interchange is constructed. Transportation infrastructure will not be adequate to accommodate the urbanization of the area unless the interchange and associated road improvements are in place. This will include improvements to 20th Avenue and 24th Avenue.
- District 5 is the area planned for sanitary sewer service by the Lino Lakes interceptor in Main Street. This district will develop from Main Street to the north, between I-35E and 24th Avenue (Elmcrest). New development will bring municipal utility service north in an orderly fashion.
- Support planning for connecting Main Street to 80th Street via a 'northern connection', including a new I-35E interchange and a new I-35W interchange, as described in the 2004 CSAH 14 Study and the I-35E Corridor AUAR (post-2040).
- Work with Anoka County and the City of Centerville to facilitate the future improvement of 20th Avenue North as an arterial street.
- Work with Anoka County, the City of Hugo, and Washington County to extend Otter Lake Road north of Main Street as a collector street, and connect it to 24th Avenue North which should be improved as a collector street.

### Natural Resources

- Integrate Hardwood Creek into district and site planning to preserve the natural amenities of this water course.
- Implement the Northeast Drainage Area CSMP (Comprehensive Surface Water Management Plan.)
- Planning District 5 includes all or part of the following RMUs (Resource Management Units): Peltier RMU, Hardwood Creek RMU, Upper Rice Creek RMU.

Figure 3-15. 2040 Future Land Use Map for Planning District 5



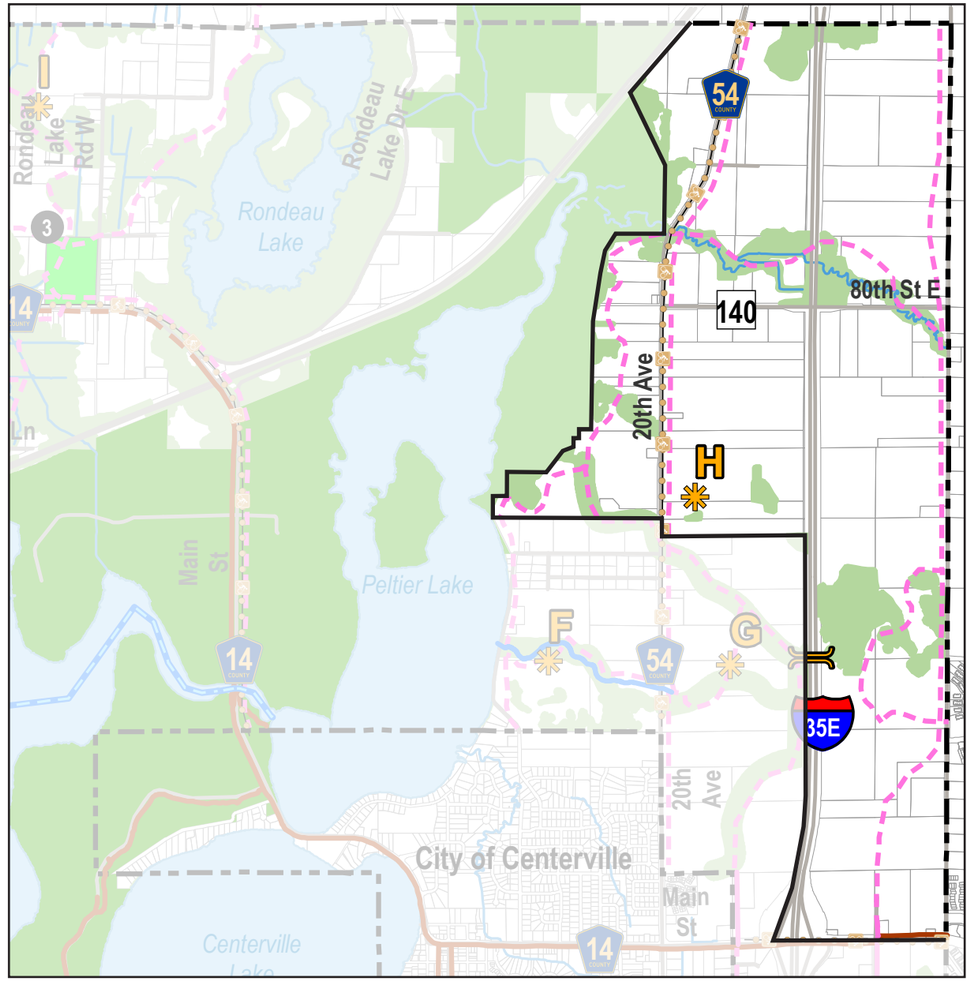

Legend

- Planning District 1 Boundary
- Gateway
- Permanent Rural
- Urban Reserve
- Low Density Residential
- Low Density Mixed Residential
- Medium Density Residential
- High Density Residential
- Planned Residential / Commercial
- Office Residential
- Signature Gateway District
- Commercial
- Town Center
- Business Campus
- Industrial
- Civic / Institutional
- Park / Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

2,000 0 2,000 Feet

N

Figure 3-16. Parks, Greenways & Trail System Map for Planning District 5




Legend

- Planning District 1 Boundary
- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel
- Future Pedestrian Bridge
- Water Trail
- Watermark Drainage Outlet
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalk Trail
- Proposed Trails
- Proposed On-Street Route
- Existing Regional Trail
- Proposed Regional Trail
- Watermark Drainage Outlet
- Greenway System
- Undeveloped Park
- City Parks
- Regional Parks
- Existing Wetland Banks
- Proposed Wetland Bank
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

2,000 0 2,000 Feet

N

## Planning District 6

### Land Use

- District 6 includes the Rice Creek Regional Park Reserve, which is guided Park/Open Space.
- District 6 also includes an area surrounding Rondeau Lake and land on the southeast side of the Main Street/I-35W area that is not within the Park Reserve. These areas are guided for permanent Rural Land Use.

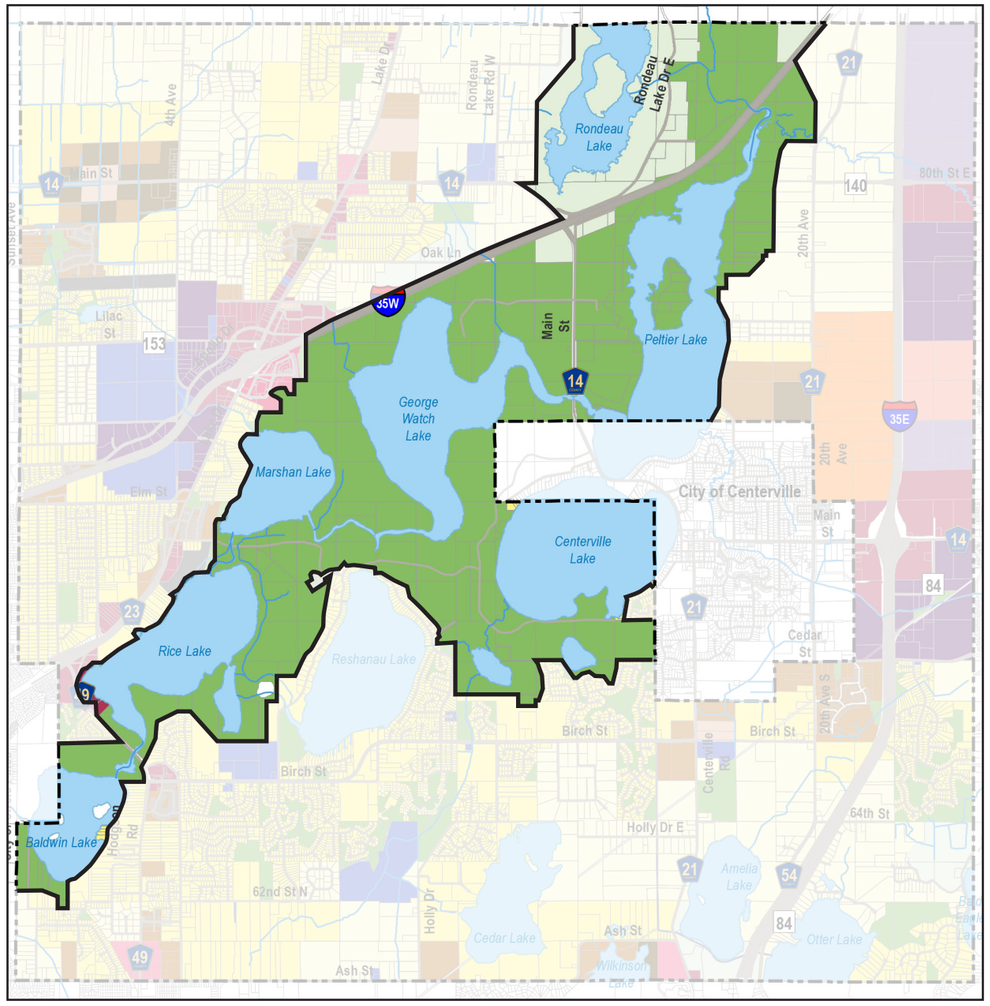
### Infrastructure & Public Facilities

- It is not likely that the areas guided for Permanent Rural land use can be economically served with municipal utilities because of extensive wetlands, the minimal amount of developable land, and the barrier created by the freeway.
- District 6 also includes a few parcels on Centerville Lake at the west end of Mound Trail. These parcels also are not within the Park Reserve. They will continue to be served by the City of Centerville's municipal utilities.
- Support planning for connecting Main Street to 80th Street via a 'northern connection', including a new I-35E interchange and a new I-35W interchange, as described in the 2004 CSAH 14 Study and the I-35E Corridor AUAR.
- Promote an expanded trail system within the regional park that would provide improved neighborhood access and provide non-motorized trail connections to different portions of the city.

### Natural Resources

- Planning District 6 is located in the Centerville RMU (Resource Management Unit.)

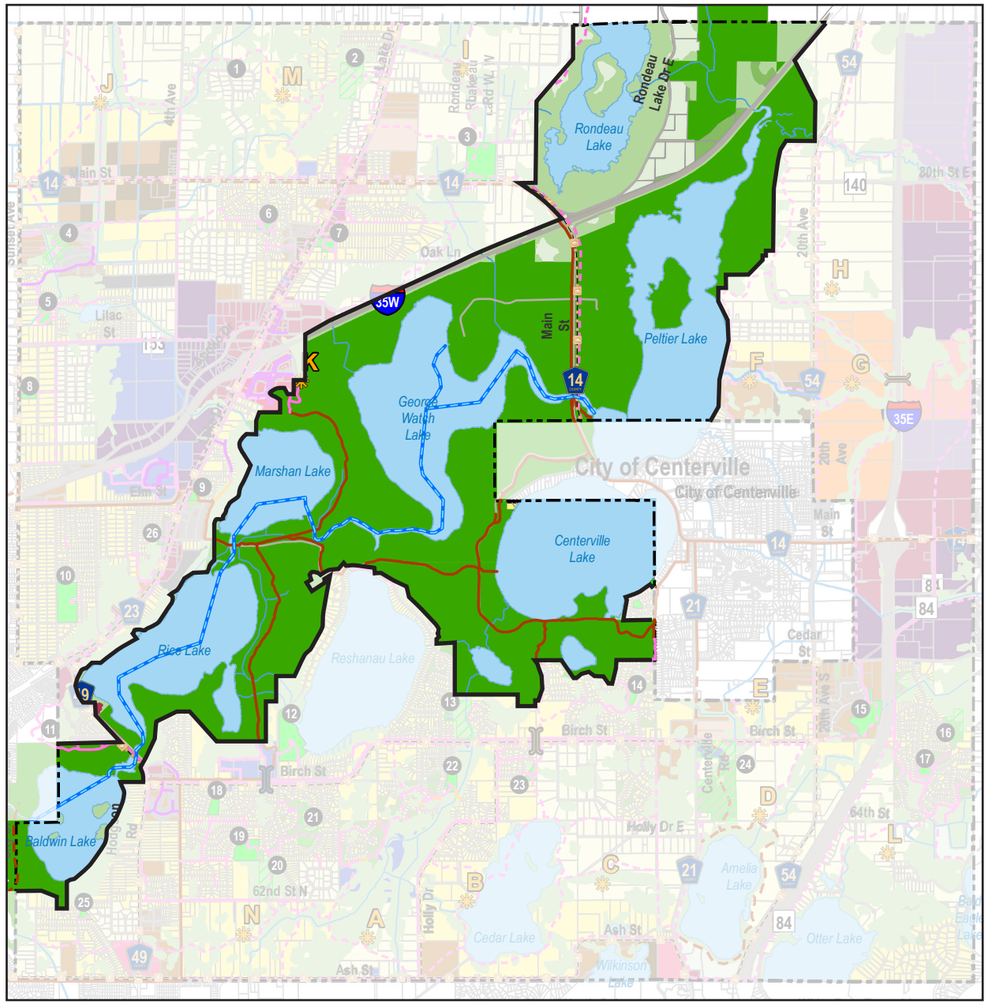
## Figure 3-17. 2040 Future Land Use Map for Planning District 6




**Legend**

- Planning District 1 Boundary
- Gateway
- Permanent Rural
- Urban Reserve
- Low Density Residential
- Low Density Mixed Residential
- Medium Density Residential
- High Density Residential
- Planned Residential / Commercial
- Office Residential
- Signature Gateway District
- Commercial
- Town Center
- Business Campus
- Industrial
- Civic / Institutional
- Park / Open Space
- Private Airfield
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

## Figure 3-18. Parks, Greenways & Trail System Map for Planning District 6




**Legend**

- Planning District 1 Boundary
- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel
- Future Pedestrian Bridge
- Water Trail
- Watermark Drainage Outlet
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalk Trail
- Proposed Trails
- Proposed On-Street Route
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- Undeveloped Park
- City Parks
- Regional Parks
- Existing Wetland Banks
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- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

# Special Resources

As required by state statute, a municipality's Comprehensive Plan must also include strategies for protection of special resources, including solar access, historic preservation, and aggregate resources.

## Solar Energy

Minnesota Statutes require an element for the protection and development of access to direct sunlight for solar energy systems. The purpose of this legislation is to prevent solar collectors from being shaded by adjacent structures or vegetation and to ensure that development decisions do not preclude the possible future development and use of solar energy systems. The 2040 Comprehensive Plan Update must include the calculation of the city's solar resource (Table 3-9) and a solar suitability map (Figure 3-19) along with policies and strategies needed to implement the policies.

The gross solar generation potential and the gross solar rooftop generation potential are estimates of how much electricity could be generated using existing technology and assumptions on the efficiency of conversion, expressed in megawatt hours per year (Mwh/yr). These values are not intended to demonstrate the amount of solar likely to develop in Lino Lakes. Instead, the calculations estimate the total potential resource before removing areas unsuitable for solar development or factors related to solar energy efficiently. The Metropolitan Council estimates of the potential for solar in the community are shown in Table 3-9. The Council estimates that, for most cities, the rooftop generation potential is equivalent to between 30% and 60% of the community's total electric energy consumption.

The locations where there is the most potential for solar generation is shown on Figure 3-19. This map is a portion of the Minnesota Solar Suitability Analysis Map, developed by the University of Minnesota and maintained by the Department of Commerce. The map provides solar insolation (total annual sun energy, measured in watts) data at a high resolution (1 meter.) These data can be used to estimate total potential energy production of solar installations. Solar insolation varies, but the most important factor affecting small-scale photovoltaic solar installations is intermittent shading do to nearby structures and trees. At this scale, areas on the map may appear black, but a closer examination will reveal smaller areas with solar potential, particularly on rooftops.

To ensure the availability of solar access, the City of Lino Lakes will:

- Whenever possible, protect access to direct sunlight for solar energy systems on principal structures.
- Encourage future site and building plans to maximize efforts to design for efficient use of solar energy including such elements as the location of windows, shade trees (and types), windows, and driveways.
- Use where possible solar energy design elements for future public facilities and infrastructure development.
- Encourage and support educational programs and research that focuses on alternative or renewable energy systems.

**Table 3-9. Gross Solar Potential, City of Lino Lakes**

| Gross Potential (Mwh/yr) | Rooftop Potential (Mwh/yr) | Gross Generation Potential (Mwh/yr)2 | Rooftop Generation Potential (Mwh/yr)2 |
|---|---|---|---|
| 46,134,090 | 1,048,368 | 4,613,409 | 105,836 |

## Historic Preservation

According to the Minnesota Historic Preservation Office (SHPO) there are no properties in the City of Lino Lakes on the National or State Registers of Historic places.

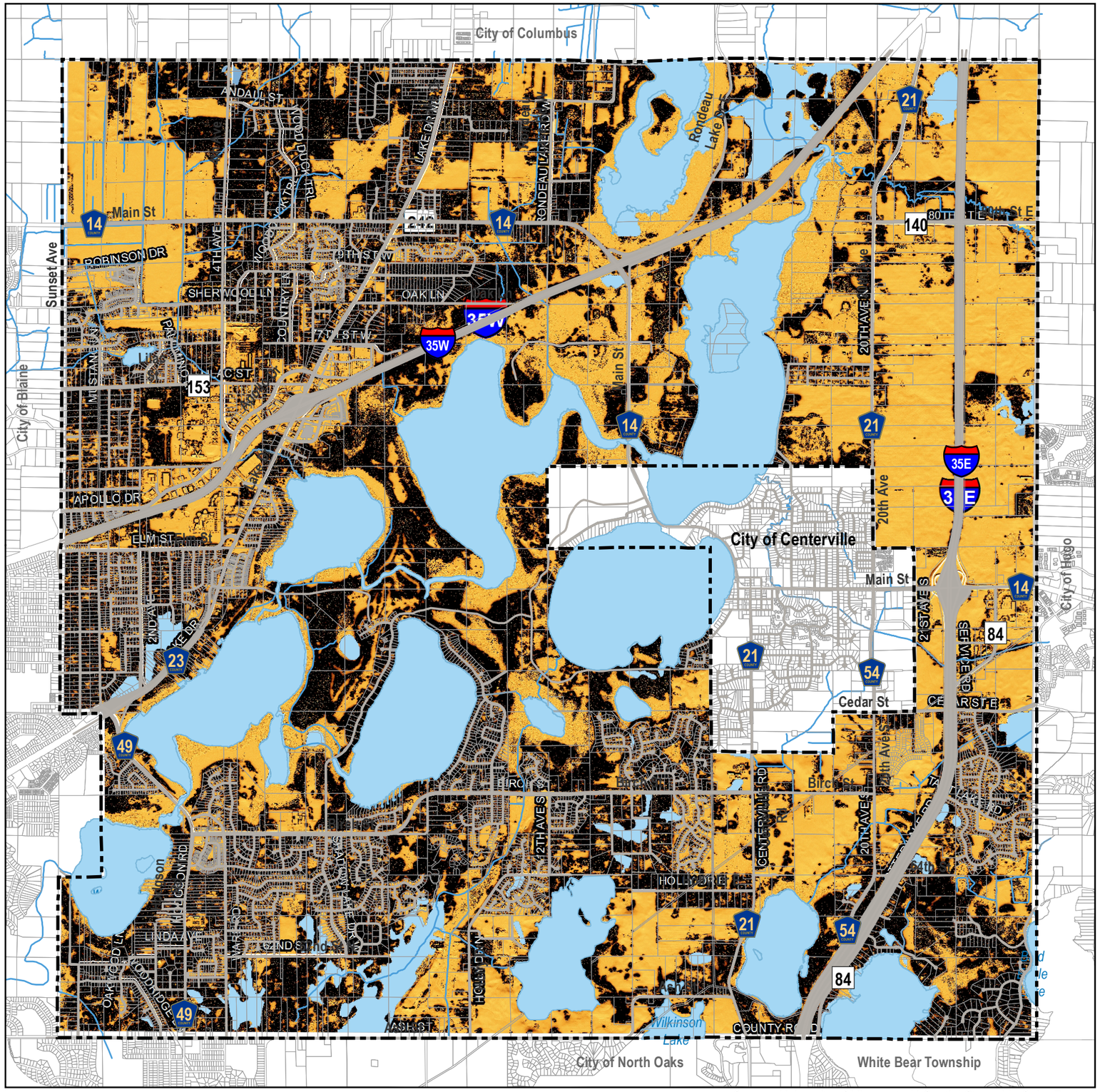
A cultural resource assessment conducted as part of the I-35E Corridor Alternative Urban Areawide Review (AUAR) identified high potential for historic resources, including mounds and artifacts, in the AUAR area. The City of Lino Lakes will consider the preservation of historic resources in the review of site plans and other planning decisions. The City will, whenever possible, preserve historic structures or landscapes.

## Aggregate Resources

The Metropolitan Council requires cities to identify the location of aggregate resources within the community based on the Minnesota Geological survey within the Comprehensive Plan. No aggregate resources were identified in the City of Lino Lakes.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 3-19
# Gross Solar Potential




## Legend

- High: 1268242
  Low: 900001
- Solar Potential under 900,000 watt-hours per year
- Open Water
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Source: University of Minnesota U-Spatial Statewide Solar Raster

# Chapter 4: Housing




## Introduction

The condition, affordability, and availability of housing affect the social and economic health of every city. As a developing community, Lino Lakes has an excellent opportunity to provide a variety of housing options to meet the needs of all its current and future residents throughout their lives.

The 2030 Comprehensive Plan identified the need for a greater variety of housing options within the community, which currently consists mainly of single family detached homes. In response, the city developed a Land Use Plan that identifies residential areas at a variety of density ranges and will incorporate areas with higher density housing options. This will accommodate a wider variety of housing types including senior housing, live/work units, and multi-family in a variety of styles from rental, condo and townhomes. Single family options will range from entry-level single family, move-up for growing families and "executive housing" to meet the needs of a changing population. This shift to provide a more diverse housing supply supports future economic development objectives by retaining existing residents and attracting new residents from all social and economic backgrounds, and is an essential component for sustainable growth. These areas will provide much needed housing options for the city's work force, young professionals, families, and senior residents. The 2040 Comprehensive Plan continues to accommodate these housing options.

This Housing Plan satisfies the requirements of the Metropolitan Land Planning Act and stipulations of MINN. STAT. § 473.859, Subd. 2(c) and Subd. 4. The plan includes background information on current housing supply and an assessment of current and future housing needs. Chapter 12 of the Comprehensive Plan includes implementation strategies for the Housing Plan and other plan chapters.

# Goals and Policies

The vision statement, as described in Chapter 1, defines what Lino Lakes should look like in the future. The goals and policies guide the Housing Plan to help achieve that vision for housing development. The goals and policies that follow were established in the 2030 Comprehensive Plan and reaffirmed as part of the 2040 Comprehensive Plan process.

### Goal 1: Improve availability of affordable and life-cycle housing.

**Policies:**

a. Work with developers to identify innovative strategies for providing entry-level and life cycle housing.
b. Use redevelopment tools to revitalize aging residential properties, made possible by various federal, state, local government, and non-profit programs.
c. Provide expanded opportunities for housing ownership made available by various federal, state, local government and non-profit agencies.
d. Provide for and designate appropriate areas for high-density development.
e. Strive to integrate affordable housing in all residential land use districts.

### Goal 2: Enhance opportunities for senior housing.

**Policies:**

a. Develop partnerships with non-profit and private sector groups who assist in the creation of senior housing.
b. Coordinate development of housing with retail accessibility (restaurants, shops, groceries).

### Goal 3: Maintain existing housing stock to insure a high-quality environment in all residential neighborhoods.

**Policies:**

a. Promote the improvement of the existing housing stock, and to encourage the rehabilitation or redevelopment of substandard housing
b. Encourage in-fill housing where appropriate.

### Goal 4: The City will consider all widely accepted housing tools, as appropriate on an individual basis, including:

- **Housing Bonds** [1,2,3]
- **Tax Abatement** [1,2]
- **Consolidated Request for Proposals from Minnesota Housing** [1,2,3]
- **Site Assembly** [1,2]
- **Livable Communities Act programs** [1,2,3]
- **CDBG and HOME through Anoka County** [1,2,3]
- **Adopting a Local Fair Housing Policy** [1,2,3]
- **Participation in housing related organizations, partnerships, and initiatives** [1,2,3]
- **Preservation of existing Low-Income Housing Tax Credit (LIHTC) units** [1]
- **Community Land Trust** [1,2,3]
- **Manufactured Home Park Preservation** [1,3]
- **Tools that preserve private unsubsidized affordable housing (including but not limited to a local 4d program, tax incentives, etc.)** [1,3]

[1,2,3]: Tools in this list will be considered for housing goals numbered elsewhere in the plan

# Housing Assessment

## Housing Development Trends

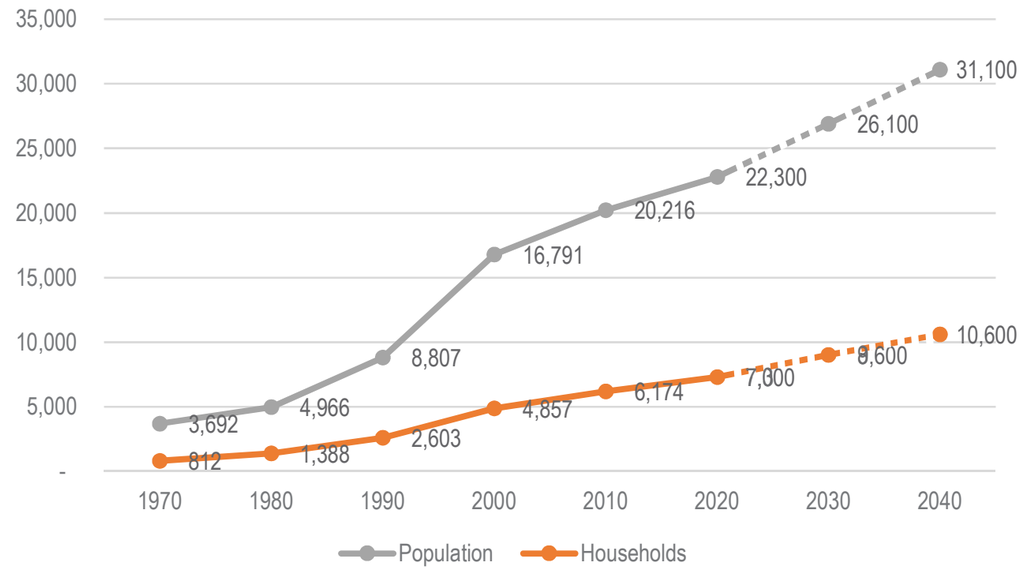
Table 4-1 and Figure 4-1 show Lino Lakes population and household growth since 1970 and forecasts through 2040. Each new household represents a new housing unit added to the community.

### Table 4-1. Lino Lakes Population and Households, Growth and Forecasts

| Year | Population | Households |
|---|---|---|
| **1970** | 3,692 | 812 |
| **1980** | 4,966 | 1,388 |
| **1990** | 8,807 | 2,603 |
| **2000** | 16,791 | 4,857 |
| **2010** | 20,216 | 6,174 |
| **2020** | 22,300 | 7,000 |
| **2030** | 26,100 | 8,600 |
| **2040** | 31,100 | 10,600 |

Source: US Census and Metropolitan Council Forecasts

### Figure 4-1. Lino Lakes Population and Households



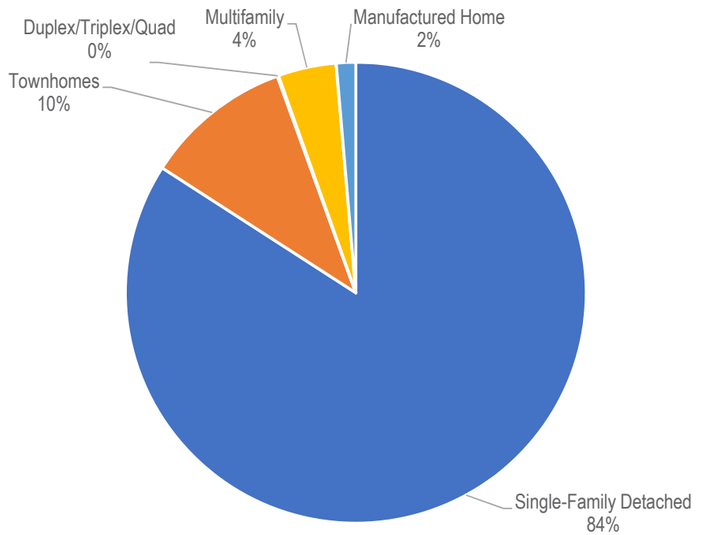

Lino Lakes' residential land use is predominantly single family homes. After 1990, the city started seeing construction of some townhomes (single family attached), and multi-family housing primarily aimed at the senior market. Single family detached units represent almost 85% of the city's housing.

### Table 4-2. Lino Lakes Housing Units by Type

| | 1990 | 2000 | 2010 | 2017 |
|---|---|---|---|---|
| **Single-Family Detached** | 2,491 | 4,462 | 5,447 | 5,688 |
| **Townhomes (single-family attached)** | 33 | 294 | 646 | 700 |
| **Duplex, triplex and quad** | 31 | 16 | 5 | 5 |
| **Multifamily (5 units or more)** | 0 | 44 | 132 | 277 |
| **Manufactured Home** | 82 | 109 | 93 | 92 |
| **Other (Boat, RV, etc.)** | 8 | - | - | - |
| **Total** | 2,645 | 4,925 | 6,323 | 6,762 |

Source: 1990, 2000 & 2010, Decennial Census; 2017, American Community Survey 5Yr Summary File 2013-2017

### Figure 4-2. Housing Units by Type, 2017



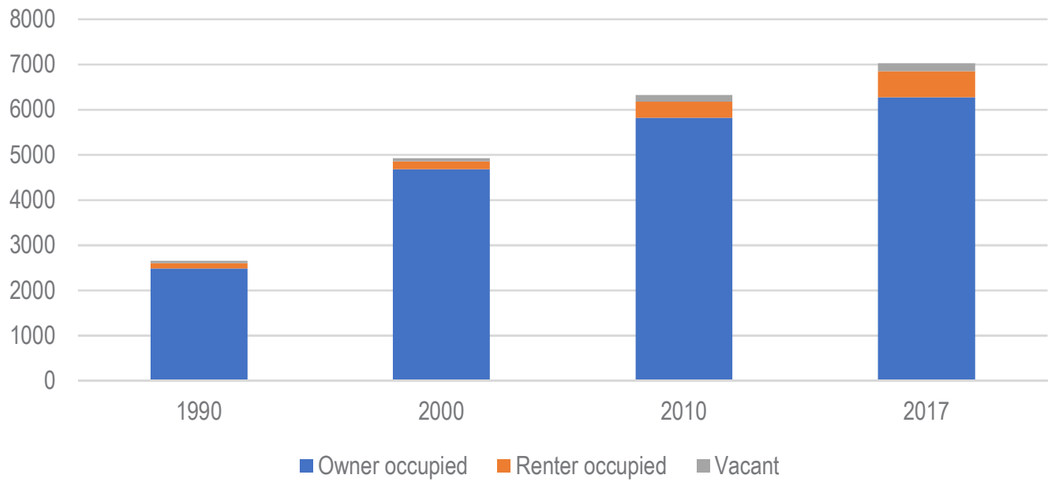
Lino Lakes is a city of homeowners. At the time of the 2000 Census, over 95% of Lino Lakes households owned their home. That number has fallen slightly to around 90%, according to the 2010 Census and the 2017 Census Bureau survey estimates. This can be explained partly by the increase in multi-family rental opportunities during that time. However, there has also has been a general decrease in the rate of homeownership since the Great Recession and the following crisis in the housing market, when many households lost their homes to foreclosure. The increase in renter-occupied households may reflect the conversion of some single-family owner-occupied units to rentals. Lino Lakes continues to have a higher homeownership rate than Anoka County or the 7-County Twin Cities Region. Vacancy rates in the city have consistently been very low, around 2%.

### Table 4-3. Lino Lakes Housing Tenure & Vacancy

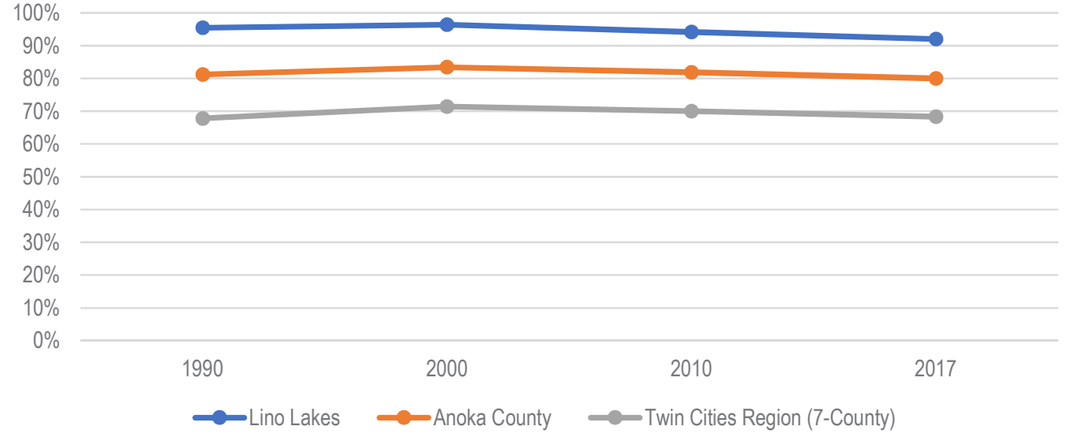
| | 1990 | | 2000 | | 2010 | | 2017 | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| **Owner occupied** | 2,485 | 93.7% | 4,681 | 95.1% | 5,818 | 92.0% | 6,271 | 89.3% |
| **Renter occupied** | 118 | 4.4% | 176 | 3.6% | 356 | 5.6% | 573 | 8.2% |
| **Vacant** | 50 | 1.9% | 64 | 1.3% | 149 | 2.4% | 182 | 2.6% |
| Total | 2,653 | 100.0% | 4,921 | 100.0% | 6,323 | 100.0% | 7,026 | 100.0% |

Source: 1990, 2000 & 2010, Decennial Census; 2017, American Community Survey 5Yr Summary File 2013-2017

### Figure 4-3. Housing Tenure & Vacancy




### Figure 4-4. Homeownership Rate




### Table 4-4. Homeownership Rate

| | 1990 | 2000 | 2010 | 2017 |
|---|---|---|---|---|
| **Lino Lakes** | 96% | 96% | 94% | 92% |
| **Anoka County** | 81% | 83% | 82% | 80% |
| **Twin Cities Region (7-County)** | 68% | 71% | 70% | 68% |

Source: 1990, 2000 & 2010, Decennial Census; 2017, American Community Survey 5Yr Summary File 2013-2017

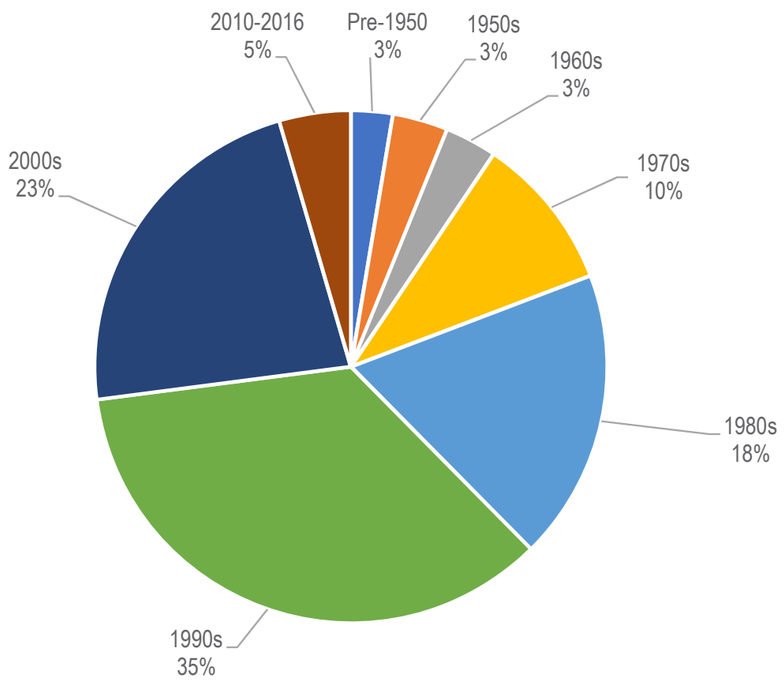
Lino Lake's housing is relatively new, but many homes are reaching the age when investment may be required to maintain their livability and value. Table 4-5 and Figure 4-5 shows the number and percentage of homes built by decade. Figure 4-6 maps the location of homes by decade built. Lino Lakes' older residential neighborhoods are located west of the Chain of Lakes Regional Park.

**Table 4-4. Age of Housing Stock**

| Decade Built | Number of Homes |
|---|---|
| **Pre-1950** | 174 |
| **1950s** | 231 |
| **1960s** | 217 |
| **1970s** | 648 |
| **1980s** | 1,215 |
| **1990s** | 2,337 |
| **2000s** | 1,489 |
| **2010-2016** | 299 |

Source: Anoka County Assessor's Data

**Figure 4-5. Age of Housing Stock**



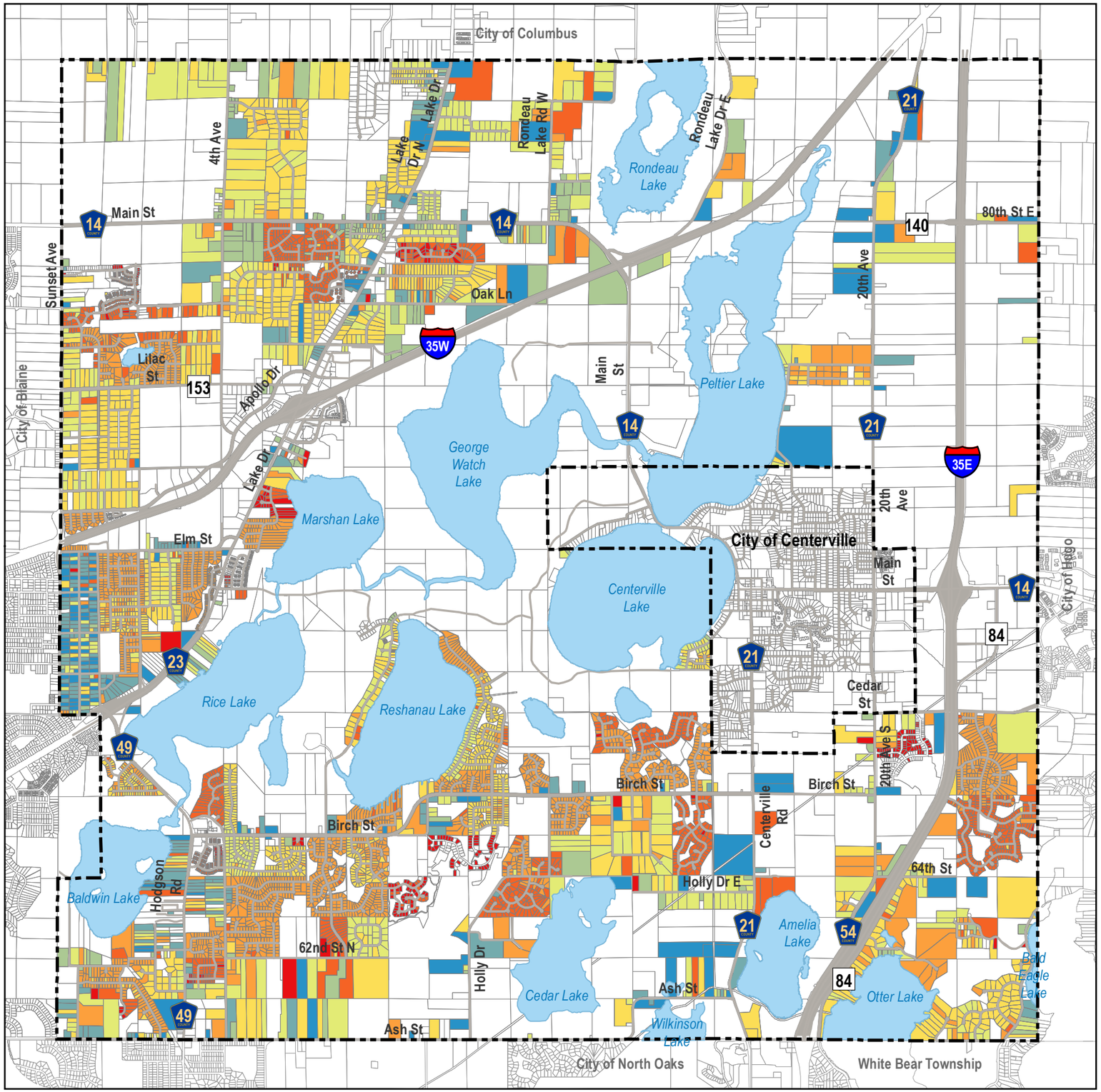







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# Figure 4-6
# Age of Housing Stock




## Legend

**Decade Built**

- Pre-1950s
- 1950s
- 1960s
- 1970s
- 1980s
- 1990s
- 2000s
- 2010-2016
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Source: Anoka County Assessor Data.

Date: 3/8/2018

## Housing Prices and Rents

### Owner-Occupied Housing

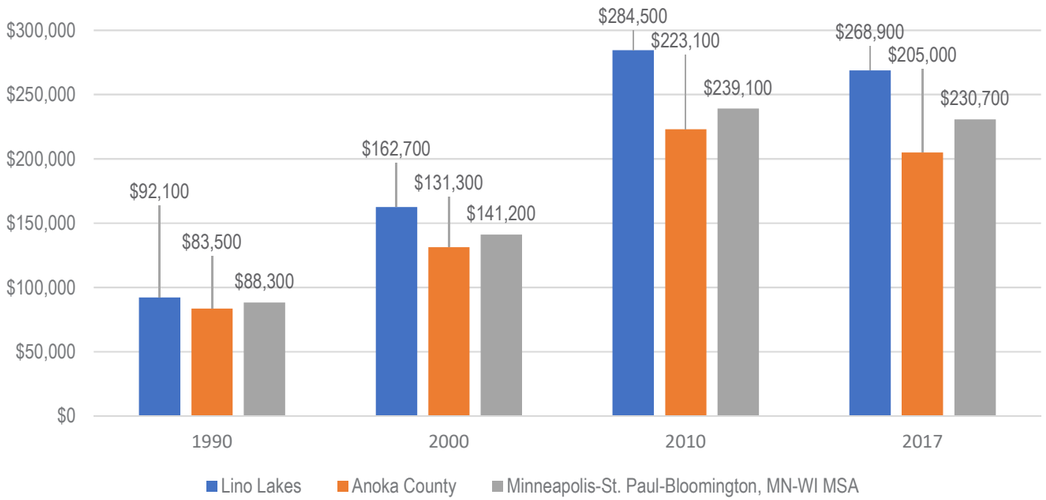
Most (around 90%) of Lino Lakes housing units are owner-occupied. Table 4-6 and Figure 4-7 compare the median housing values in Lino Lakes with Anoka County and the larger metropolitan area.

### Table 4-6 Median Housing Value

| Median Housing Value | 1990 | 2000 | 2010 | 2017 |
|---|---|---|---|---|
| Lino Lakes | $92,100 | $162,700 | $284,500 | $268,900 |
| Anoka County | $83,500 | $131,300 | $223,100 | $205,000 |
| Minneapolis-St. Paul-Bloomington, MN-WI Metropolitan Statistical Area | $88,300 | $141,200 | $239,100 | $230,700 |

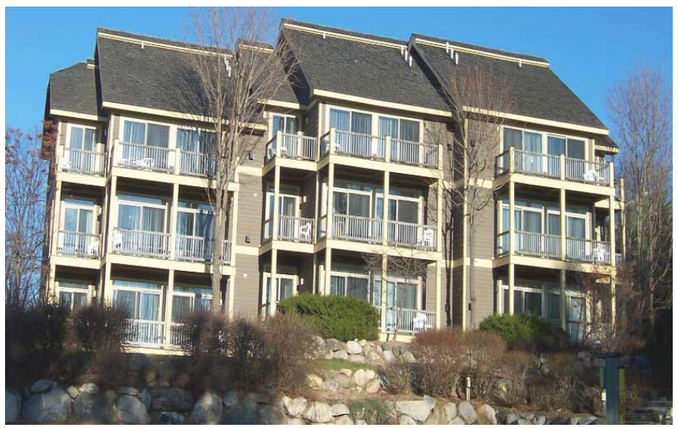
Source: Decennial Census (1990/2000) and American Community Survey 5 Yr Summary File (2010/2017)

### Figure 4-7. Median Housing Value







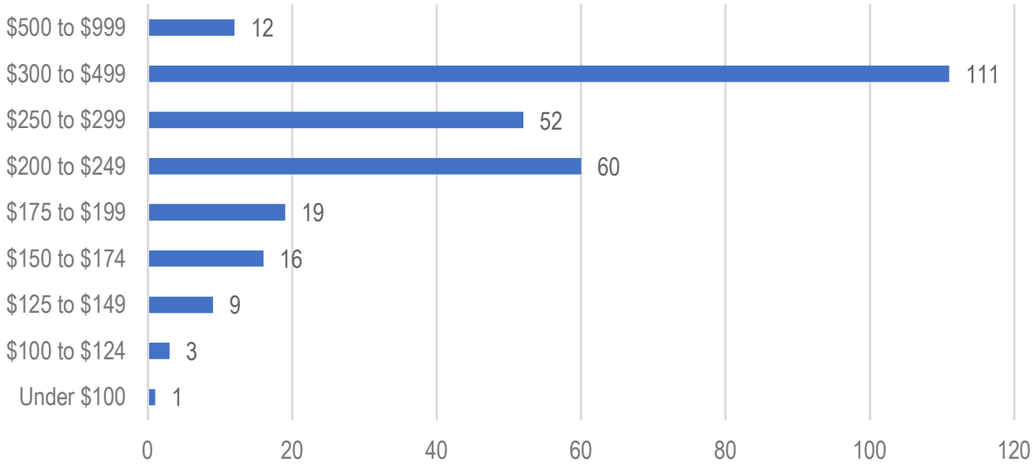
Another source of information on housing prices are Certificates of Real Estate Value filed with the Minnesota Department of Revenue when owner-occupied housing units are sold. Table 4-7 shows the data collected on Lino Lakes home sales over the last 15 years, and Figure 4-8 show the most recent year's data (2016).

### Table 4-7: Existing Home Sales by Price in Lino Lakes

| Price (in $000s) | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Under $100 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 3 | 4 | 5 | 1 |
| $100 to $124 | 7 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 5 | 5 | 6 | 11 | 14 | 10 | 3 |
| $125 to $149 | 27 | 22 | 9 | 2 | 0 | 0 | 2 | 4 | 4 | 9 | 8 | 8 | 15 | 9 | 14 | 9 |
| $150 to $174 | 45 | 38 | 30 | 24 | 17 | 10 | 14 | 6 | 8 | 9 | 13 | 15 | 13 | 22 | 23 | 16 |
| $175 to $199 | 49 | 36 | 32 | 24 | 28 | 26 | 16 | 7 | 7 | 7 | 15 | 10 | 17 | 14 | 17 | 19 |
| $200 to $249 | 45 | 63 | 73 | 50 | 57 | 48 | 44 | 37 | 23 | 26 | 16 | 32 | 41 | 40 | 46 | 60 |
| $250 to $299 | 49 | 46 | 47 | 51 | 54 | 38 | 32 | 15 | 17 | 9 | 7 | 27 | 20 | 28 | 40 | 52 |
| $300 to $499 | 31 | 74 | 73 | 79 | 84 | 81 | 50 | 21 | 28 | 33 | 28 | 37 | 55 | 59 | 52 | 111 |
| $500 to $999 | 2 | 7 | 6 | 7 | 12 | 11 | 13 | 8 | 2 | 4 | 2 | 3 | 10 | 3 | 7 | 12 |
| $1000 and over | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Grand Total | 255 | 288 | 274 | 237 | 252 | 215 | 171 | 100 | 90 | 102 | 96 | 144 | 185 | 193 | 214 | 283 |

Source: Certificate of Real Estate Value, Minnesota Department of Revenue

### Figure 4-8. Existing Homes Sales, 2016




Data from the Anoka County Assessor provides a snapshot of Lino Lakes home values in 2017. Table 4-8 and Figure 4-9 show the assessor's market values of homes for property taxes payable in 2017.

The Metropolitan Council has asked that communities differentiate housing values above and below $238,500 as an indicator of housing affordability. This is the housing price that the Metropolitan Council considers affordable to low-and-moderate income families making no more than 80% of the area median income (AMI.) In 2017, AMI was $90,400 per year for a family of four. "Affordable" generally means that a family spends less than 30% of its income on housing.

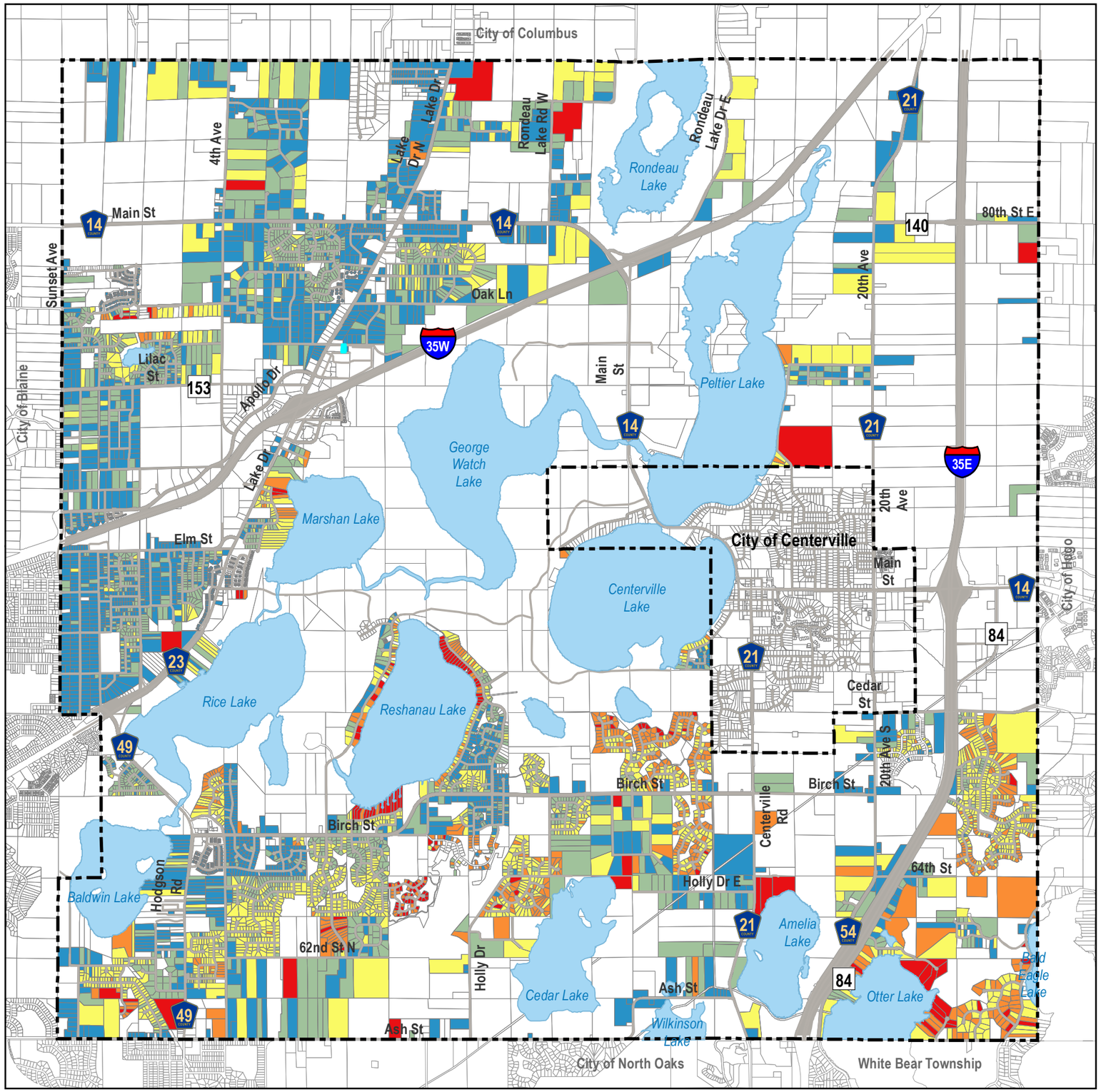
### Table 4-8. Lino Lakes Property Tax Value, 2016 / Payable 2017

| Value | Number | Percent |
|---|---|---|
| Up to $238,500 | 2,524 | 38% |
| > $238,500 - 300,000 | 1,628 | 25% |
| > $300,000 - 400,000 | 1,603 | 24% |
| > $400,000 - 500,000 | 595 | 9% |
| > $500,000 | 260 | 4% |
| Total | 6,610 | 100% |

Source: Anoka County Assessor's Data

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 4-9
# Property Tax Value, Single Family Homes




## Legend

**Property Tax Value, Single Family Homes**

- Up to $238,500
- > $238,500 - 300,000
- > $300,000 - 400,000
- > $400,000 - 500,000
- > $500,000
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Source: Anoka County Assessor Data. Assessed value 2016 / Payable 2017

Date: 3/8/2018

## Rental Housing

Approximately 10% of Lino Lakes housing units are renter-occupied. Table 4-9 and Figure 4-10 show gross rents in Lino Lakes, Anoka County and the Metro Area, and the trend over the last 25 years.

### Table 4-9: Median Gross Rent

| | 1990 | 2000 | 2010 | 2017 |
|---|---|---|---|---|
| **Lino Lakes** | $615 | $747 | $1,137 | $1,328 |
| **Anoka County** | $498 | $649 | $870 | $1,034 |
| **Minneapolis-St. Paul-Bloomington, MN-WI Metropolitan Statistical Area** | $479 | $641 | $842 | $1,001 |

Source: Decennial Census (1990/2000) and American Community Survey 5 Yr summary File (2010/2017)

## Housing Affordability

"Affordable housing" means housing affordable to low-and-moderate income families making no more than 80% of the area median income (AMI) for both rental and ownership housing. In 2017, AMI was $90,400 per year for a family of four. "Affordable" generally means that a family spends less than 30% of its income on housing.

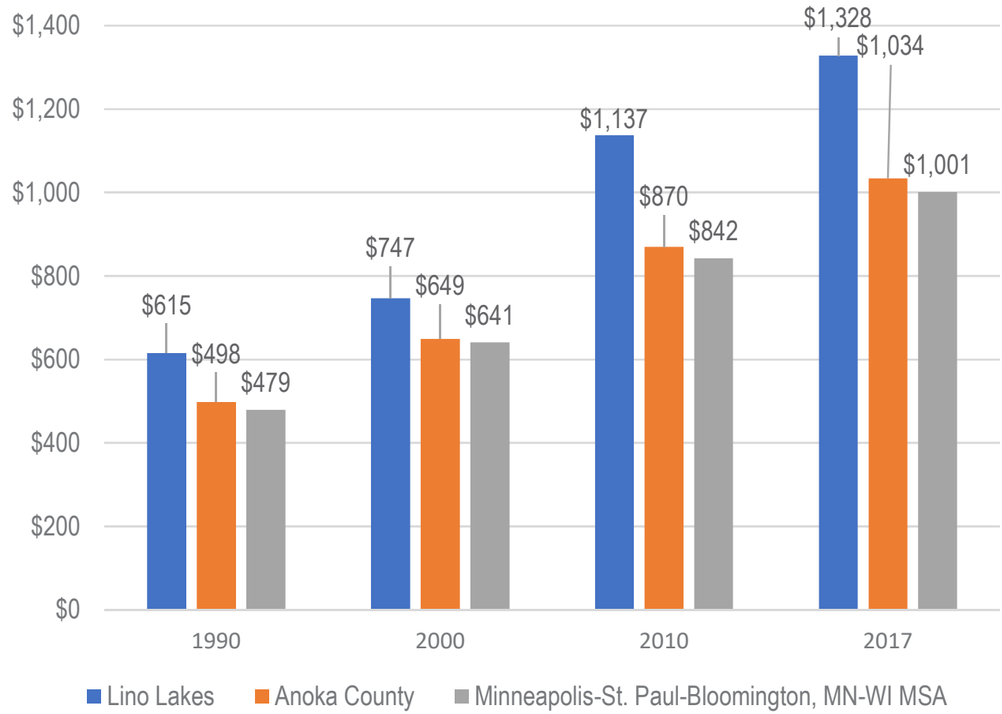
Table 4-10 and Figure 4-11 show the Metropolitan Council's most recent estimate of the number of existing Lino Lakes housing units affordable at various income levels, which vary by household size. The annual incomes for each level shown on the table are based on 2017 AMI for a family of four and are for illustration purposes only. The AMI is adjusted annually, as are housing cost estimates which include all the costs of housing (such as utilities, interest rates and rents) which constantly fluctuate.

### Table 4-10. Units Affordable by Household Income

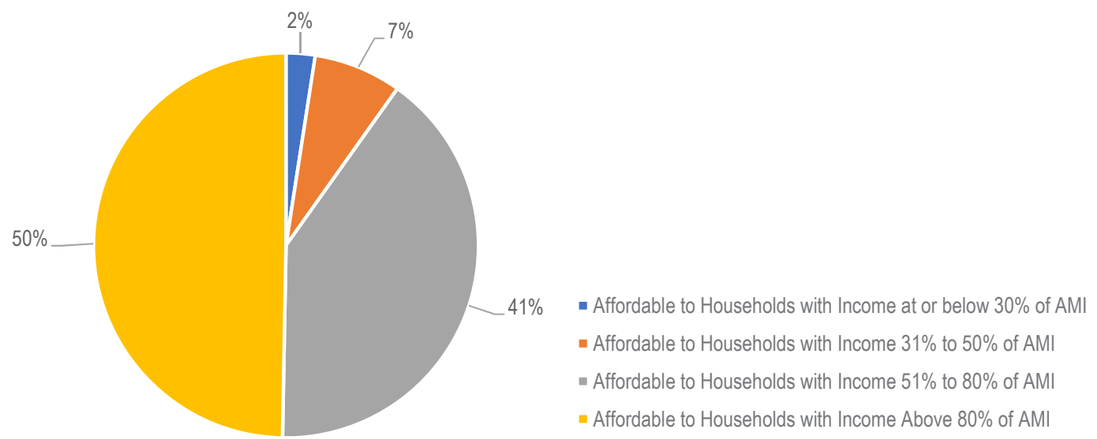
| | Units | % of All Units |
|---|---|---|
| **Affordable to Households with Income at or below 30% of AMI** *(less than or equal to $27,120)* | 163 | 2% |
| **Affordable to Households with Income 31% to 50% of AMI** *(over $27,100 and less than or equal to $45,200)* | 492 | 7% |
| **Affordable to Households with Income 51% to 80% of AMI** *(over $45,200 and less than or equal to $72,320)* | 2,696 | 41% |
| **Affordable to Households with Income Above 80% of AMI** *(over $72,320)* | 3,312 | 50% |
| **Total Housing Units** | 6,663 | 100% |

Source: Metropolitan Council, November 2017, Lino Lakes Existing Housing Assessment, Local Planning Handbook

### Figure 4-10. Median Gross Rent




### Figure 4-11. Affordability by Household Income



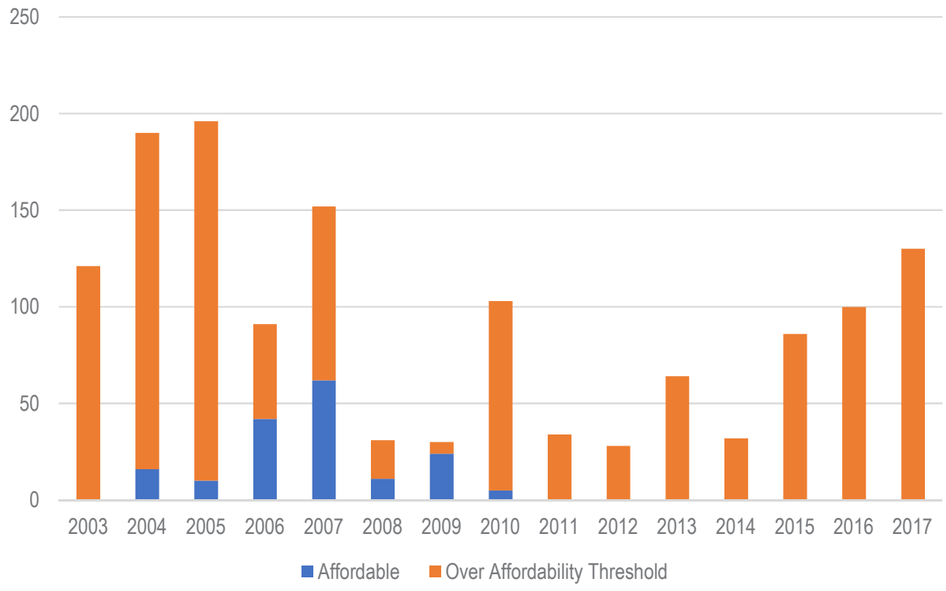
The rising cost of land and construction makes new construction of affordable housing difficult. Table 4-11 and Figure 4-12 show the new residential units built in Lino Lakes in recent years (2003 through 2017). No construction of units considered affordable to households at or below 80% of the median income were reported during the last five years of this period. However, review of Anoka County sales data indicates there were new construction sales in the city meeting this threshold.

**Table 4-11. New Units by Affordability, Lino Lakes**

| Year | Affordable | Over Affordability Threshold | Total |
|---|---|---|---|
| **2003** | 0 | 121 | 121 |
| **2004** | 16 | 174 | 190 |
| **2005** | 10 | 186 | 196 |
| **2006** | 42 | 49 | 91 |
| **2007** | 62 | 90 | 152 |
| **2008** | 11 | 20 | 31 |
| **2009** | 24 | 6 | 30 |
| **2010** | 5 | 98 | 103 |
| **2011** | 0 | 34 | 34 |
| **2012** | 0 | 28 | 28 |
| **2013** | 0 | 64 | 64 |
| **2014** | 0 | 32 | 32 |
| **2015** | 0 | 86 | 86 |
| **2016** | 0 | 100 | 100 |
| **2017** | 0 | 130 | 130 |
| **Grand Total** | 170 | 1,218 | 1,388 |

Source: Metropolitan Council Residential Building Permit Survey

**Figure 4-12. New Units by Affordability, Lino Lakes**




## Housing Cost Burden

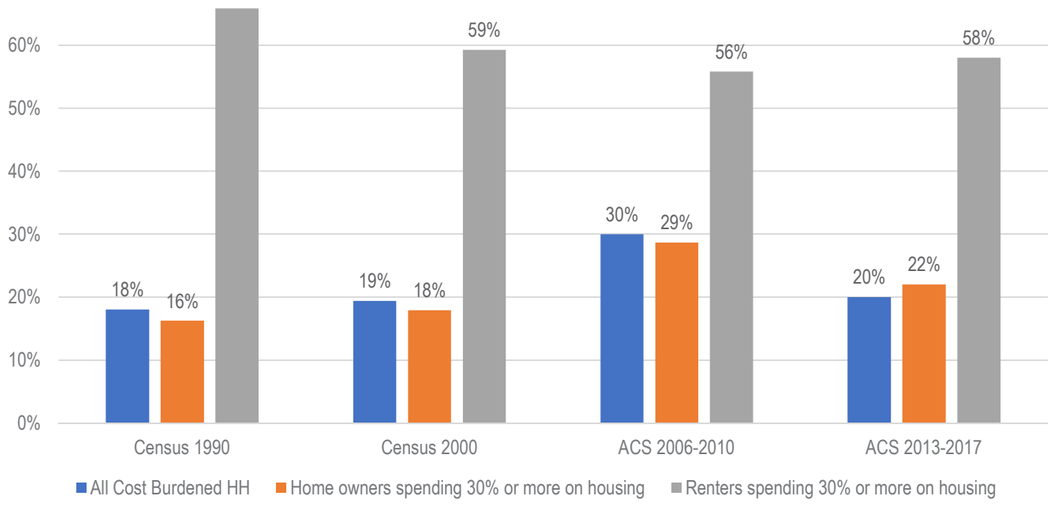
Households at any income level spending 30% or more of their income on housing are experiencing "housing cost burden." Table 4-12 and Figure 4-13 show the most recent Census Bureau Data (the American Community Survey, 2013-2017) that found 1,157 home owner households and 183 renter households in Lino Lakes were cost burdened, about 20% of all households. 36% of renter households were cost burdened compared to about 19% of owner households. For renters, housing costs include rent and utilities; for owners, housing costs include mortgage principal and interest, property taxes, property insurance, utilities, and other fees.

### Table 4-12. Housing Cost Burdened Households, Lino Lakes

| | 1990 | 2000 | 2010 | 2017 |
|---|---|---|---|---|
| **Homeowners** | | | | |
| Burdened (spending 30% or more on housing) | 344 | 769 | 1,601 | 1,157 |
| Not Burdened (spending up to 29% on housing) | 1,774 | 3,522 | 3,980 | 5,084 |
| **Renters** | | | | |
| Burdened (spending 30% or more on housing) | 52 | 96 | 154 | 183 |
| Not Burdened (spending up to 29% on housing) | 27 | 66 | 122 | 315 |
| **Total Households** | 2,197 | 4,453 | 5,857 | 6,739 |

Source: Decennial Census (1990/2000) and American Community Survey 5 Year Summary File (2010/2017)

### Figure 4-13. Housing Cost Burdened Households



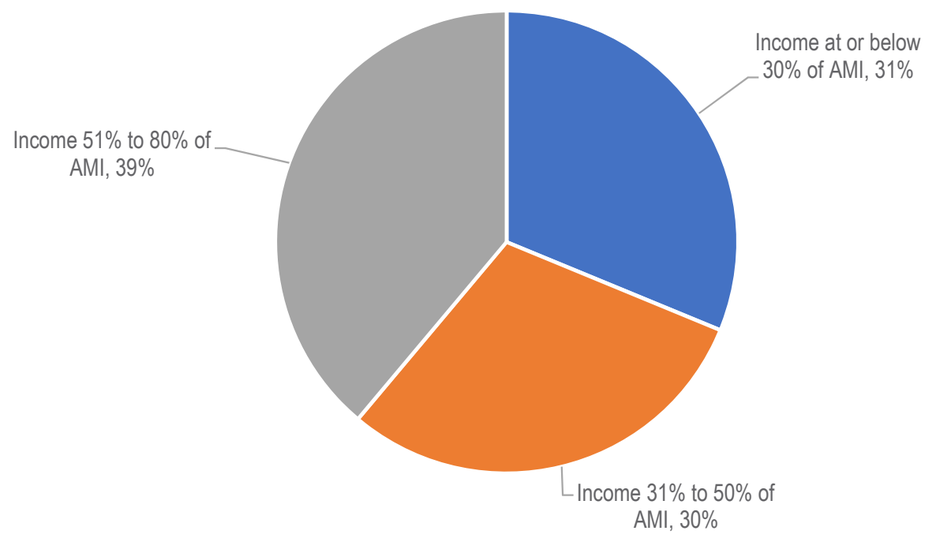

Housing costs can be particularly burdensome for low and moderated income households. In 2015, As shown by Table 4-13 and Figure 4-14, the Department of Housing and Urban Development estimated that 1,556 Lino Lakes low and moderate-income households were experiencing a housing cost burden. More than half of these households had incomes less than 50% of the median.

### Table 4-13. Cost Burdened Low and Moderate Income Households, Lino Lakes

| | Households | % of Cost Burdened Households |
|---|---|---|
| **Income at or below 30% of AMI** | 486 | 31% |
| **Income 31% to 50% of AMI** | 465 | 30% |
| **Income 51% to 80% of AMI** | 605 | 39% |
| **Total Cost Burdened Households** | 1,556 | 100% |

Source: U.S. Department of Housing and Urban Development, 2011-2015 Comprehensive Housing Affordability Strategy (CHAS), adjusted by Metropolitan Council to better match Metropolitan Council Housing Estimates

### Figure 4-14. Cost Burdened Low and Moderate Income Households



## Existing Subsidized Housing

As indicated by Table 4-14 Lino Lakes has very few existing housing units subsidized to be affordable to low and moderate-income households.

**Table 4-14. Existing Subsidized Units, Lino Lakes**

| All Publicly Subsidized Units | Publicly Subsidized Senior Units | Publicly Subsidized Units for People with Disabilities | Publicly Subsidized Units: All Others |
|---|---|---|---|
| 107 | 47 | 0 | 60 |

Source: City of Lino Lakes records show 47 units are senior units in Cottages of Willow Ponds.

Lakewood Apartments, located at 705 Town Center Parkway, provide 60 affordable two- and three-bedroom apartments. Built in 2004, this project received several sources of public funding to make all units affordable including Tax Increment Financing (TIF) provided by the Lino Lakes Economic Development Authority. All resident households must make 60% or less of AMI, and 20% must make 50% or less of AMI. Contracts assure affordability through 2024.



*Lakewood Apartments in Lino Lakes*

# Housing Needs

## Life-Cycle Housing and Housing Diversity

The Metropolitan Council forecasts that Lino Lakes will grow by approximately 1,600 households between 2020 and 2030 and by another 2,000 new households between 2030 and 2040. The city's housing supply should be diverse and consist of a variety of styles and price ranges to allow residents the option of living in Lino Lakes their entire lives, and to provide the opportunity for their children to do the same.

Life-cycle housing is defined as housing that meets the needs of the community in all age ranges. Generally, people desire different types of housing at different stages of their life-cycle. Usually, people between the ages of zero and 19 are students living with their parents. Those between the ages of 20 and 24 are often renters and do not often become first time home-buyers until they reach the ages of 25 to 34. First-time homebuyers (25-34) and move-up renters often prefer to purchase modestly-priced single-family homes, townhomes, or rent upscale apartments. People aged 35 to 49 often are in their peak earning years and can afford to buy a larger home with more amenities, referred to as move-up housing. Empty nesters are usually between the age of 50 and 64 and many of them may decide to downsize to a smaller housing unit, as with younger seniors (between the ages of 65 to 74). This choice may include renting a multi-family unit, purchasing a lower-maintenance multi-family housing product such as a condominium or townhome, or purchasing a home in a retirement community. Older seniors (74 and above) may begin to require some level of assisted housing.

## Senior Housing

As the community ages, there will be an increase in demand for smaller, low maintenance housing designed for the senior population. This demand might be accommodated through a variety of townhouse styles or apartments. Empty nesters are a particularly active group on the younger end of the senior age range and locating developments near some of Lino Lakes' natural amenities will be enticing to this group. For seniors no longer able to live alone, supportive housing options such as assisted living or memory care units will be needed.

The city's first senior housing development was the *Cottages of Willow Ponds*, an affordable rental project completed in 1996. The city's Economic Development Authority provided Tax Increment Financing for the project. The development is located on Elm Street, and includes 12 buildings of four units each, for a total 47 units and one shared common area. Vacancies within this senior housing development have been very limited since its completion. Contracts assure affordability until 2045.

*Lino Lakes Assisted Living*, at 725 Town Center Parkway, was the city's first assisted living complex. It opened with 73 units in 2010, and was expanded to include a 36-unit memory care facility in 2013. *White Pine/ Gracewood Senior Living*, at 675 Market Place Drive, opened in 2014 with 39 assisted living and memory care units.

## Affordable Housing Need

The cost of housing is an increasing concern throughout the Metropolitan region. Housing costs directly influence one's ability to rent or purchase a home in the community, and can also affect the ability of local employers to find workers. The cost of housing is influenced by the cost of land, labor, materials, community regulations and fees and interest rates. In Lino Lakes, the large supply of land benefits the community in terms of relatively lower costs. However, as municipal services are expanded, fees for development will increase. These fees, although initially paid by the developer, are included in the cost of the unit.

The rising costs of housing affects businesses. Many employers view affordable housing as a benefit to the city, as most workers desire to live in the same community where they work or in a nearby community. With the substantial increase in employment anticipated for Lino Lakes in the next 20 years, affordable housing for workers will be a critical issue.

"Affordable" housing is defined as housing that is affordable to low-and-moderate income families, Cities are asked to acknowledge their share of the region's need for affordable housing at three levels of affordability: less than 30% AMI 31-50% AMI, and 51-80% AMI. The Metropolitan Council has calculated Lino Lakes' share of the region's need for low and moderate-income housing for the decade of 2021-2030 to be 515 new units, as listed in Table 4-15. The city is expected to add 1,700 new households between 2021 and 2030. The need for new affordable units is about 30% of the total. In comparison, in 2017 about 50% of the city's existing housing stock was considered to be affordable (see Table 4-10.)

**Table 4-15. Affordable Housing Unit Needs for Lino Lakes, 2021-2030**

| Threshold | # Housing Units |
|---|---|
| At or below 30% AMI | 284 |
| 31 to 50% AMI | 197 |
| 51 to 80% AMI | 34 |
| Total Units | 515 |

Source: Metropolitan Council System Statement for City of Lino Lakes, September 17, 2015

The city must demonstrate that it has guided residential land at densities sufficient to create opportunities for construction of affordable housing, to accommodate its share of the region's affordable housing need for 2021-2030. The regional and local plans will be updated again in ten years, at which time the city will need to accommodate the need for affordable units in the follow decade of 2031-2040.

For the 2040 plan update, the Metropolitan Council will consider land guided for development at a minimum density of eight units per acre. As shown on Table 4-16, the city has planned for sufficient residential development within its Planned Residential/Commercial, Signature Gateway and Town Center areas to accommodate the need for affordable units. The table includes only the areas planned to develop with public utilities between 2021 and 2030. Please see Chapter 3, Land Use, for a complete discussion of the Land Use areas and the Utility Staging Plan.

**Table 4-16. Areas Guided for Development Greater than 8 Units per Acre, 2021-2030**

| Planning District | Land Use and Location | Density Range (units/acre) | Approximate Net Acres Residential | Minimum Net New Units | Maximum Net New Units |
|---|---|---|---|---|---|
| 1 | Signature Gateway - Hodgson Road (CSAH 49) & County Road J (Ash Street) | 8 to 10 | 22 | 176 | 220 |
| 2 | Planned Residential/Commercial - Robinson Farm/ Main Street & 2nd Avenue (Staging Area 1A) | 8 to 10 | 14 | 112 | 140 |
| 2 | Signature Gateway - Lake Drive/Main Street | 8 to 10 | 8 | 64 | 80 |
| 2 | Town Center - Lino Lakes Town Center/ Legacy at Woods Edge | 10 to 24 | 8 | 80 | 192 |
| 4 | Signature Gateway - Centerville Road/County Road J (Ash Street) | 8 to 10 | 14 | 112 | 140 |
| Total | | | 66 | 544 | 772 |

The city's future land use plan can accommodate the goal of 515 units at a minimum density of eight units per net acre by 2030. While the city is doing its part in by guiding areas for higher density housing, which is where most affordable housing will likely occur, barriers to development of affordable housing still exist in Lino Lakes and the region. Some of these barriers are beyond the city's control, including the following:

- Steady increases in land prices and construction costs.
- Physical limitations of land due to wetlands, poor access, poor soils that would increase the cost of land development or construction.
- State, county and local tax structures.

These are just a few of the barriers to construction of new affordable housing. Despite these difficulties, the city has an important role in affordable housing. The largest impact Lino Lakes makes on affordable housing is its regulatory tools, including land use and zoning regulations that do not impede the construction of affordable housing. Many of these tools can be used to encourage developers. Flexibility through the use of the Planned Unit Development (PUD) process may encourage the construction of affordable housing.

Acknowledging the regional housing goals established by the Metropolitan Council does not commit the City of Lino Lakes to provide funding for housing. The city will continue to investigate means to pursue the goals in its comprehensive plan and identify action steps in the Implementation Plan (Chapter 12 of this Plan.) However, this should not be interpreted as a commitment to use city funds to overcome the financial obstacles to life cycle and affordable housing.

## Balancing Community Housing Needs with Environmental Protection

Protection of the city's natural resources has been, and will continue to be, a critical factor in development and growth decisions. However, balancing community housing needs with environmental protection measures is challenging for many communities. The City of Lino Lakes has effectively used conservation subdivision techniques to preserve valuable natural resource areas in recent years. However, because land costs for common open space areas are passed on to residents of that particular conservation subdivision, the costs of residential units within conservation subdivisions are very high, significantly exceeding guidelines for affordable housing costs in the metropolitan area. Typically, these units are only available to residents earning very high incomes; therefore, young families and those who work in Lino Lakes are often unable to purchase homes in conservation developments. To create more affordable opportunities within conservation subdivisions, funding options through land trusts or non-profit organizations may be pursued that would allow the city or a non-profit organization to directly purchase open space areas created in conservation subdivisions. This would reduce costs for residents within conservation subdivisions, increasing the affordability of these units. Density bonuses may also be used as an incentive to developers to provide more affordable housing units within conservation subdivisions, as allowing for additional units on a site may make a conservation development more financially feasible.

Other efforts to reduce the environmental impacts of residential development, such as green building techniques, can also increase development costs, which are then passed on to residents. This can make the provision of affordable housing units within green buildings difficult. As with conservation subdivisions, density bonuses may be used to increase the financial feasibility of residential developments that incorporate green building techniques. Funding options are available to increase the affordability of green building developments. The Minnesota Green Communities program, a collaboration of the Greater Minnesota Housing Fund, the Family Housing Fund, and Enterprise provides funding to support the production of "green" affordable housing.

# Chapter 5: Economic Development




## Introduction

The City of Lino Lakes is in an enviable economic development position in the metro area. The community has many assets that set it apart from other metro area cities and gives it an advantage in growing the local economy. The city is one of the few cities to have interchange access on two interstate highways and can therefore offer superior transportation convenience and a wide range of commercial and industrial sites. The city has taken steps in recent years to build upon these assets, expand the local economy and upgrade the quality of design in its development. Residents have benefited from a more diverse set of options for goods, services and employment within the city limits. The regional profile of Lino Lakes will increase among the commercial/industrial development community as its population grows and competing sites closer into the Metropolitan Area's core are developed. This chapter will:

- Set goals and policies for economic development
- Document some of the key indicators of the city's economy
- Describe available economic development assistance tools
- Describe the economic development priorities as established in the City's Economic Development Strategic Plan

Chapter 12, Implementation, includes specific strategies/ action steps that will help the city to achieve the goals and priorities.

# Goals and Policies

The vision statement, as described in Chapter 1, defines what Lino Lakes should look like in the future. The goals and policies that follow were established in the 2030 Comprehensive Plan and reaffirmed as part of the 2040 Comprehensive Plan Process.

### Goal 1: Expand and diversify the city's tax base by encouraging commercial and industrial development in the Planned Residential/ Commercial, Office Residential, Signature Gateway and Town Center Areas to lessen the tax burden on residential properties

**Policies:**

a. Encourage developers to take advantage of development opportunities especially within designated redevelopment areas.
b. Establish guidelines for the appropriate inclusion of green spaces, paths, sidewalks and other people-oriented amenities within commercial areas and throughout the city.
c. Ensure commercial development is dispersed appropriately throughout the community and in designated business development areas.
d. Develop walkable neighborhoods with commercial nodes and amenities for residents.
e. Integrate into neighborhoods those retail and service commercial activities that serve the neighborhood.

### Goal 2: Work with developers to identify innovative strategies for attracting entry level and smaller entrepreneurial businesses to Lino Lakes.

**Policies:**

a. Encourage new business owners and expanding entrepreneurial businesses to locate here by offering available financial incentives when consistent with city policy.
b. Work with the current business community, the Quad Area Chamber of Commerce and the city's Economic Development Advisory Committee to attract new businesses and expand the economic success of existing businesses.
c. Promote Lino Lakes' identity as a business-friendly city.

### Goal 3: Attract and encourage new light industrial, high tech, business and professional services enterprises and maintain and expand existing businesses in Lino Lakes.

**Policies:**

a. Protect designated industrial areas from residential encroachment and marginal land uses that will preclude the highest economic use of land available for commercial and light industrial development.
b. Develop strategies and programs to attract high tech and high value industrial and business and professional services enterprises that have an emphasis on job creation.
c. Encourage high-end business park development designed to attract medical, technology, and similar industries, which provide quality employment opportunities and have low service demand for municipal services.
d. Encourage a comprehensive business center with services such as wi-fi access, office space, copy services, postal and overnight delivery pick up, and telephone services to small and start-up entrepreneurial business owners and telecommuters who can share space and costs.
e. Continue to support local business retention and expansion initiatives.
f. Recognize the fundamental linkage between housing and economic development and work to match housing availability with community employment.
g. Promote the Anoka County Airport as an asset to corporate users.

### Goal 4: Promote efficient, planned commercial and industrial expansion within the City's growth areas, accessible to public infrastructure and transportation.

**Policies:**

a. Identify key commercial and industrial development opportunities within the City's planned growth areas in locations with access to major transportation systems.
b. Encourage compact commercial development that will make efficient use of infrastructure and resources.
c. Require that new commercial, industrial, and developments may only occur in sewered areas in accordance with the staging plan.
d. Promote the rehabilitation and redevelopment of existing commercial facilities by continuing to pursue and make available various financial programs and assistance.
e. Promote the development of a major regional commercial center which would include various types of restaurants, shopping, and entertainment venues for both adults and children.
f. Review and clearly define design standards to promote consistent application and timely approvals for commercial and industrial development.
g. Promote the use of "Green" building and low impact development techniques in new development.
h. Ensure, as areas are developed, that a specific development project bears its proportionate share of infrastructure improvement costs to the fullest extent possible.

### Goal 5: Promote Lino Lakes' location within the metropolitan region as an advantage in doing business.

**Policies:**

a. Work to actively market Lino Lakes as a great place to live and work.
b. Collaborate with business support organizations to serve the needs to current and future businesses.
c. Consider the use of available financial incentives (i.e. TIF/tax abatements/grants, etc.) to attract businesses to relocate or start up in Lino Lakes.

# Key Indicators

This section presents data about employment trends and forecasts, and about commuting and travel patterns, both of which reflect and influence the city's economic development. Information on some of the other factors affecting the local economy is also found in other plan chapters: for example age, education and income (Chapter 2, Community Background); land use and development (Chapter 3, Land Use); and housing affordability (Chapter 4, Housing).

## Employment Trends and Forecasts

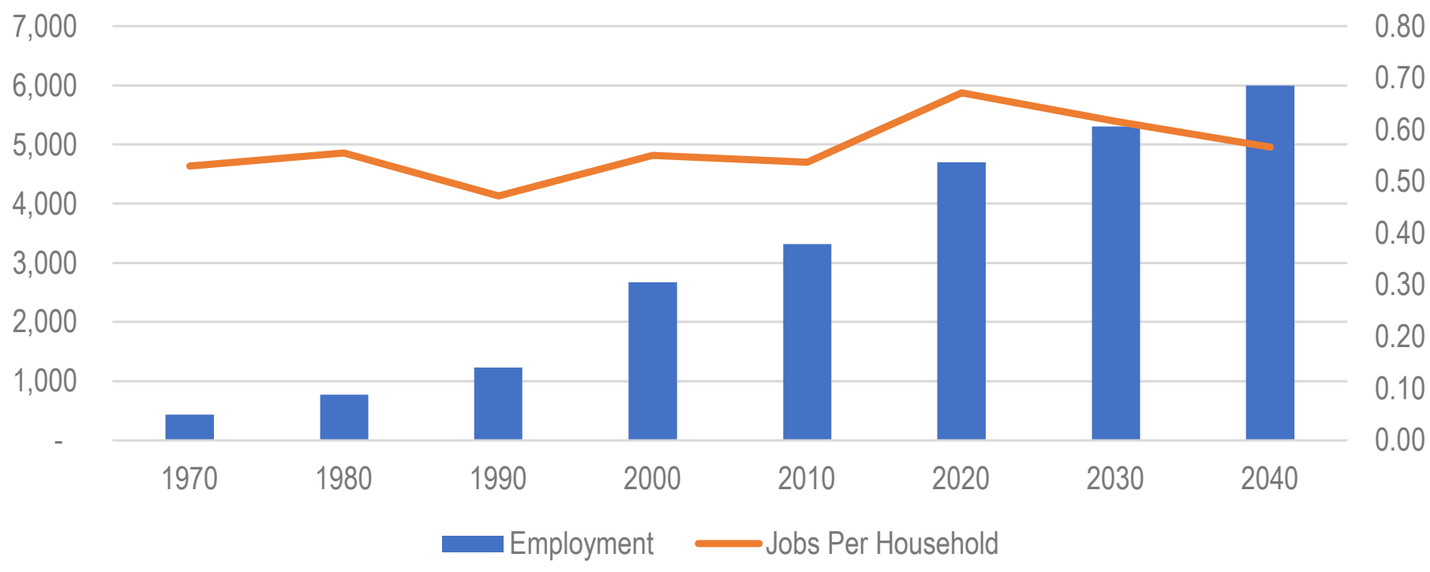
Table 5-1 and Figure 5-1 illustrate the historic and projected employment numbers since 1970 and through the 2040 planning period. Lino Lakes has experienced a very consistent residential and commercial growth rate with approximately one local job for every two households This ratio is consistent with a suburban community that does not have a large or diversified economy, commonly referred to as a "bedroom community". As the community grows, the trendline shows a slight improvement, which would provide more opportunity for residents to work within the community and provide residents with a greater diversity of goods and services.

**Table 5-1. Lino Lakes Employment Trends and Forecasts**

| | Employment | Households | Jobs Per Household |
|---|---|---|---|
| **1970** | 430 | 812 | 0.53 |
| **1980** | 771 | 1,388 | 0.56 |
| **1990** | 1,229 | 2,603 | 0.47 |
| **2000** | 2,671 | 4,857 | 0.55 |
| **2010** | 3,313 | 6,174 | 0.54 |
| **2020** | 4,700 | 7,000 | 0.67 |
| **2030** | 5,300 | 8,600 | 0.62 |
| **2040** | 6,000 | 10,600 | 0.57 |

Source: Metropolitan Council

**Figure 5.1 Lino Lakes Employment Trends and Forecasts**



A closer look at employment over the last 16 years (2000 – 2016) shows how the number of establishments (businesses or job locations) has fluctuated along with employment and the average weekly wages of Lino Lakes jobs. Table 5-2 and Figure 5-2 show the effects of the Great Recession of 2007 to 2012. The number of establishments, employment and even wages decreased in 2008 through 2010. The trend in the last several years shows that employment and wages were starting to grow again and now exceed pre-recession levels.

**Table 5-2. Lino Lakes Employment and Wages, 2000-2016**

| Year | Employment | Establishments | Average Weekly Wage |
|---|---|---|---|
| **2000** | 2,641 | 247 | $ 661 |
| **2001** | 2,740 | 251 | $ 665 |
| **2002** | 3,103 | 276 | $ 685 |
| **2003** | 3,095 | 298 | $ 695 |
| **2004** | 3,188 | 324 | $ 728 |
| **2005** | 3,868 | 332 | $ 723 |
| **2006** | 4,014 | 349 | $ 764 |
| **2007** | 3,922 | 347 | $ 769 |
| **2008** | 3,672 | 344 | $ 776 |
| **2009** | 3,587 | 329 | $ 712 |
| **2010** | 3,353 | 317 | $ 698 |
| **2011** | 3,440 | 330 | $ 732 |
| **2012** | 3,561 | 312 | $ 758 |
| **2013** | 3,800 | 315 | $ 786 |
| **2014** | 3,946 | 322 | $ 788 |
| **2015** | 4,144 | 312 | $ 811 |
| **2016** | 4,245 | 325 | $ 850 |
| **2017** | 4,321 | 336 | $ 869 |

Source: Minnesota Department of Employment and Economic Development (DEED), Quarterly Census of Employment & Wages (Annual)

**Figure 5.2 Employment and Wages, 2000-2016**

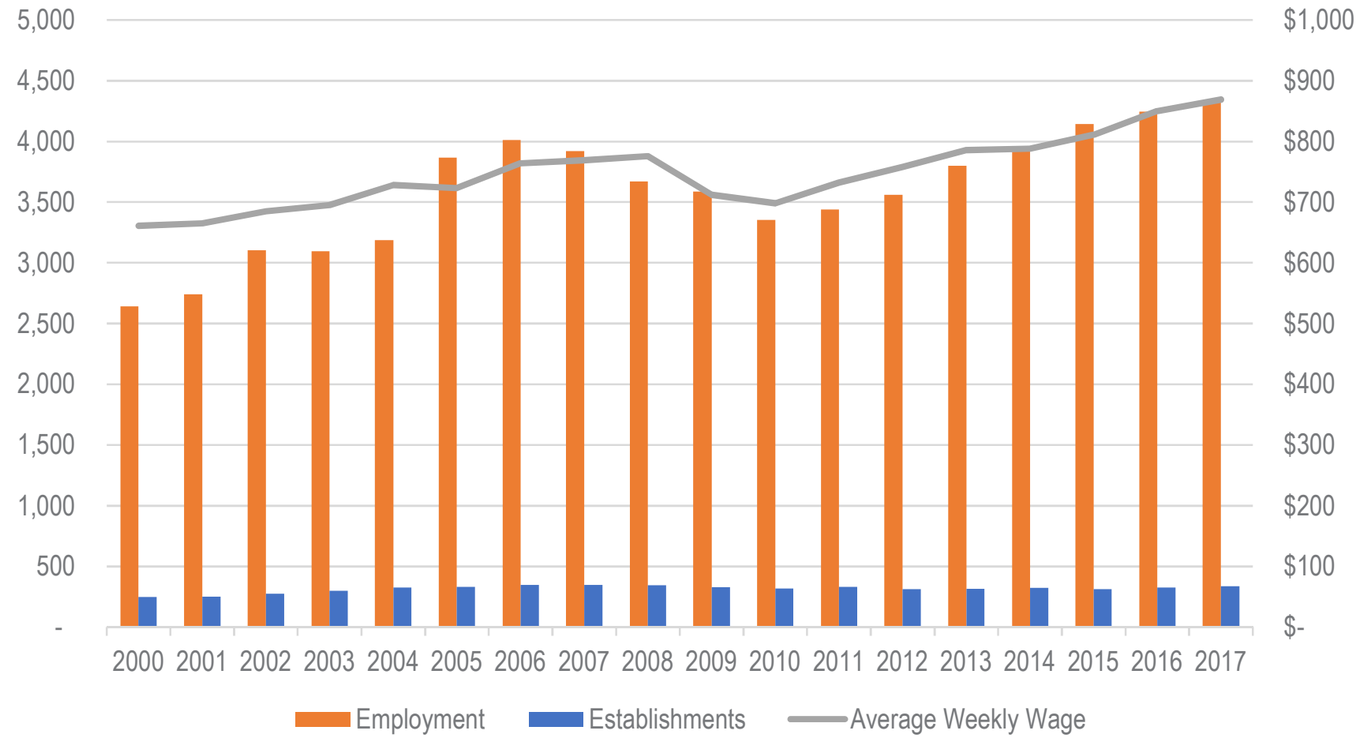


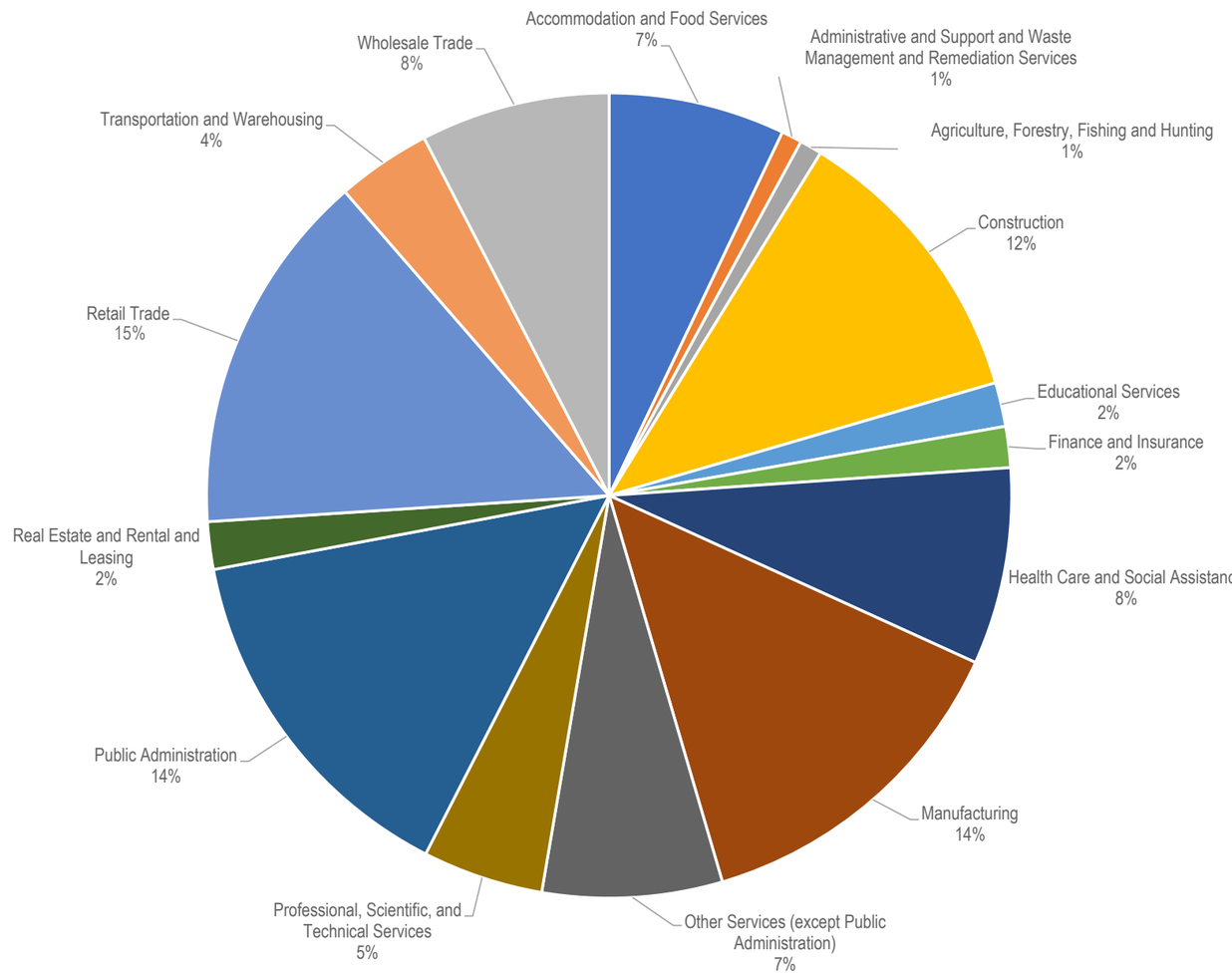
Table 5-3 and Figure 5-3 show employment by industry in 2016, painting a picture of what sectors of the economy provide jobs in Lino Lakes. The table compares Lino Lakes with the Twin Cities Region and the pie chart illustrates employment in Lino Lakes only. Lino Lakes has many of its jobs in the construction, manufacturing, public administration and retail trade industries, at higher percentages than found in the region. This information provides some insight into how employment in Lino Lakes might be impacted by downturns in certain economic sectors (such as manufacturing) or what types of businesses the city may want to encourage to diversify the local economy (such as health care or information.)

### Table 5-3. Employment by Industry, 2017

| | Lino Lakes | | Twin Cities Region (7-County) | |
|---|---|---|---|---|
| **Industry** | **Number** | **%** | **Number** | **%** |
| Accommodation and Food Services | 301 | 7% | 136,687 | 8% |
| Administrative and Support and Waste Management and Remediation Services | 35 | 1% | 96,629 | 6% |
| Agriculture, Forestry, Fishing and Hunting | 38 | 1% | 2,871 | 0% |
| Arts, Entertainment, and Recreation | 11 | 0% | 32,210 | 2% |
| Construction | 496 | 12% | 67,603 | 4% |
| Educational Services | 75 | 2% | 130,676 | 8% |
| Finance and Insurance | 70 | 2% | 103,801 | 6% |
| Health Care and Social Assistance | 336 | 8% | 259,652 | 15% |
| Information | | 0% | 37,253 | 2% |
| Management of Companies and Enterprises | | 0% | 69,709 | 4% |
| Manufacturing | 580 | 14% | 169,480 | 10% |
| Mining | | 0% | 654 | 0% |
| Other Services (except Public Administration) | 307 | 7% | 56,568 | 3% |
| Professional, Scientific, and Technical Services | 206 | 5% | 124,928 | 7% |
| Public Administration | 617 | 14% | 69,398 | 4% |
| Real Estate and Rental and Leasing | 81 | 2% | 26,558 | 2% |
| Retail Trade | 622 | 15% | 167,009 | 10% |
| Transportation and Warehousing | 161 | 4% | 66,658 | 4% |
| Utilities | | 0% | 6,151 | 0% |
| Wholesale Trade | 323 | 8% | 80,389 | 5% |
| **Total, All Industries** | **4,259** | **100%** | **1,704,883** | **100%** |

Source: Minnesota Department of Employment and Economic Development (DEED), Quarterly Census of Employment & Wages (Average of Four Quarters)

### Figure 5.3 Lino Lakes Employment by Industry, 2017



## Commuting and Travel Patterns

Because Lino Lakes is part of the larger Twin Cities Metropolitan area, city residents can and do take advantage of employment opportunities throughout the region. Most Lino Lakes residents in the labor force work outside of the city. Similarly, Lino Lakes businesses draw their workers from the wider region.

Transportation is a key factor for business location. On one hand, the city's unique location at the intersection of two major interstate highways (I-35E and I-35W) provides access to and from both Minneapolis and St. Paul downtowns and to the rest of the region, allowing employers to draw workers from the wider region and for Lino Lakes residents to access employment opportunities. Good transportation makes the city attractive to new businesses (and new home buyers.) On the other hand, as commute times increase, and as travel time to major regional attractions (such as the two downtowns and the Mall of America and similarly to the international airport) increase, employers may find the community less attractive. Residents desiring shorter commutes, or alternatives to driving alone, may decide to move or not purchase homes in the city if their commute becomes too difficult or transit options are not available. But if the local economy continues to grow and diversify, more opportunities for local employment should be available to residents, which could have a positive impact on overall commute times and ultimately the quality of life. More local jobs would also increase the daytime population of the city, attracting service and retail businesses available to workers and residents alike and further reducing the need to leave the city.

Tables 5-4 and 5-5 show the top 10 workplaces of people who live in Lino Lakes (the "Commuteshed") and the top 10 residences of people who work in Lino Lakes (the "Laborshed") in 2015. The data illustrates the mobility of Lino Lakes residents; only 4% worked within the city of Lino Lakes. While many of them worked in nearby communities, the greatest numbers commuted to the central cities of Minneapolis or St. Paul. Of the jobs located within Lino Lakes, only 15% were held by Lino Lakes residents. Many of the employees came from nearby communities, but almost half came from "other" locations—residences not in the top 10—indicating that employers draw workers from the wider region. The data in these tables give an approximation of commuting patterns. The Census Bureau counted wage & salary jobs covered by unemployment insurance. Business owners, self-employed persons, some temporary workers, family farmers, military personnel, and others are typically are not covered, and thus not counted.

**Table 5-4. Lino Lakes "Commuteshed" (2015)**

*Top 10 workplaces of people who live in Lino Lakes, 2015*

| Workplace | Workers | % |
|---|---|---|
| Minneapolis | 1,604 | 16% |
| St. Paul | 1,266 | 13% |
| Blaine | 981 | 10% |
| Lino Lakes | 446 | 4% |
| Roseville | 428 | 4% |
| Fridley | 342 | 3% |
| Shoreview | 322 | 3% |
| Arden Hills | 258 | 3% |
| White Bear Lake | 257 | 3% |
| Plymouth | 218 | 2% |
| Other | 3,960 | 39% |
| Total | 10,082 | 100% |

Note: Workplaces and residences not in the top 10 are counted in "Other".

Source: U.S. Census Bureau Local Employment-Household Dynamics.

**Table 5-5. Lino Lakes "Laborshed" (2015)**

*Top 10 residences of people who work in Lino Lakes, 2015*

| Residence | Workers | % |
|---|---|---|
| Lino Lakes | 446 | 15% |
| Blaine | 302 | 10% |
| Forest Lake | 167 | 6% |
| Coon Rapids | 135 | 4% |
| St. Paul | 133 | 4% |
| Hugo | 130 | 4% |
| Minneapolis | 103 | 3% |
| Ham Lake | 92 | 3% |
| Circle Pines | 79 | 3% |
| White Bear Lake | 75 | 2% |
| Other | 1,340 | 45% |
| Total | 3,003 | 100% |

Note: Workplaces and residences not in the top 10 are counted in "Other".

Source: U.S. Census Bureau Local Employment-Household Dynamics.

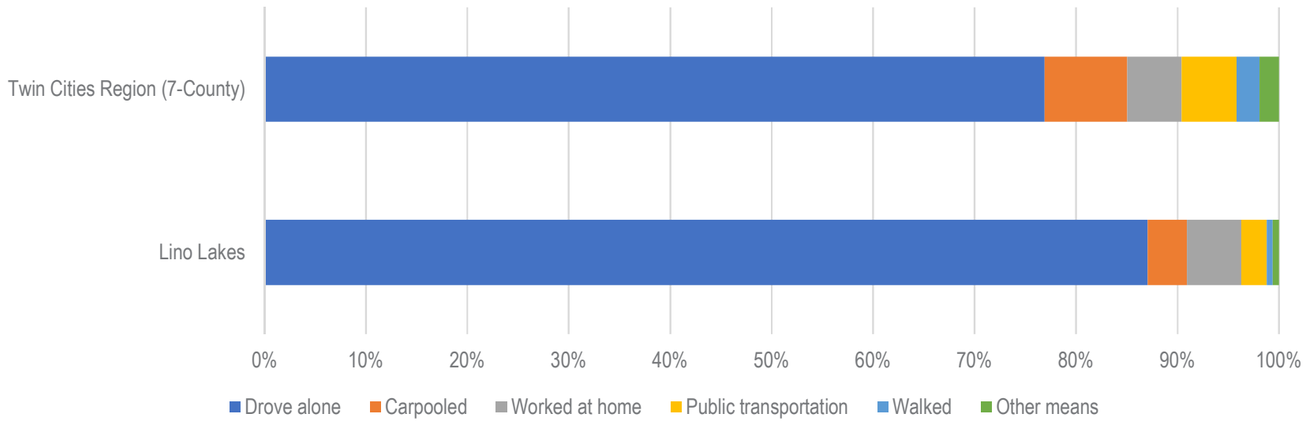
Residents of Lino Lakes use private transportation almost exclusively to reach their employment. Table 5-6 and Figure 5-4 show how Lino Lakes residents traveled to work in 2017, and compares it with the Twin Cities Region. Lino Lakes residents were more likely to drive alone (87% vs 77% in the region) and less likely to have carpooled or used public transportation. About the same percentage worked at home as in the region (5%).

### Table 5-6. Transportation to Work, 2017

| | Lino Lakes | | Twin Cities Region (7-County) | |
|---|---|---|---|---|
| | Number | % | Number | % |
| Drove alone | 9,804 | 87% | 1,238,905 | 77% |
| Carpooled | 435 | 4% | 131,146 | 8% |
| Worked at home | 604 | 5% | 86,570 | 5% |
| Public transportation | 282 | 3% | 86,553 | 5% |
| Walked | 65 | 1% | 37,166 | 2% |
| Other means | 69 | 1% | 30,515 | 2% |
| Total | 11,259 | 100% | 1,610,855 | 100% |

Source: American Community Survey 5Yr Summary File 2013-2017

### Figure 5.4 Transportation to Work, 2015




Because most residents must leave the city for employment they spend longer than average times commuting to and from work. Table 5-7 and Figure 5-5 show that commute times have been increasing for Lino Lakes residents (and everyone in the region).

### Table 5-7. Average Travel Time to Work (Minutes)

| | Lino Lakes Residents | Twin Cities Region (7-County) |
|---|---|---|
| Census 1990 | 24.8 | 20.76 |
| Census 2000 | 26.7 | 23.03 |
| ACS 2006-2010 | 26.3 | 23.56 |
| ACS 2013-2017 | 26.7 | 24.57 |

Source: U.S. Census Bureau Decennial Census and American Community Survey

### Figure 5.5 Average Travel Time to Work (Minutes)

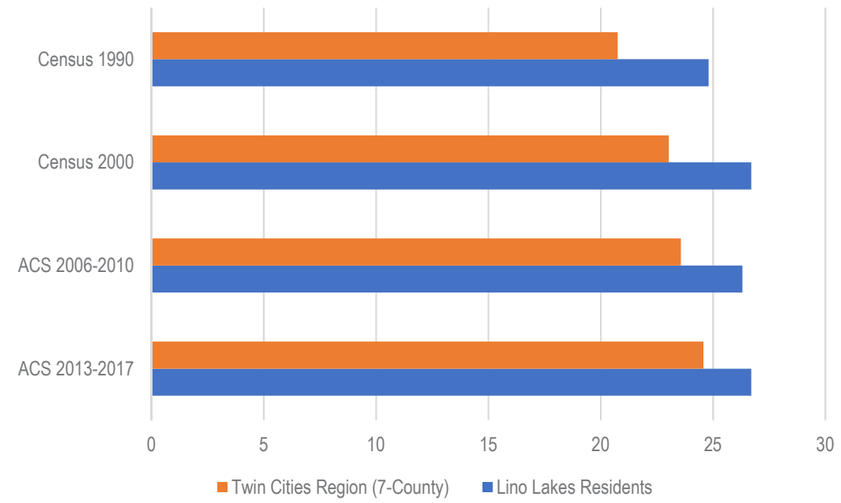


**Table 5-8. Travel Time to Work, 2017**

| | Lino Lakes | | Twin Cities Region (7-County) | |
|---|---|---|---|---|
| | Number | % | Number | % |
| Less than 10 minutes | 786 | 7% | 151,241 | 10% |
| 10 to 14 minutes | 1,016 | 10% | 189,332 | 12% |
| 15 to 19 minutes | 1,228 | 12% | 246,499 | 16% |
| 20 to 24 minutes | 1,901 | 18% | 266,605 | 18% |
| 25 to 29 minutes | 1,023 | 10% | 135,292 | 9% |
| 30 to 34 minutes | 1,951 | 18% | 234,653 | 15% |
| 35 to 44 minutes | 1,219 | 11% | 122,040 | 8% |
| 45 to 59 minutes | 1,114 | 10% | 109,835 | 7% |
| 60 or more minutes | 417 | 4% | 68,788 | 5% |
| Total | 9,869 | 100% | 1,524,285 | 100% |

American Community Survey 5Yr Summary File 2013-2017

**Figure 5-6. Travel Time to Work, 2017**

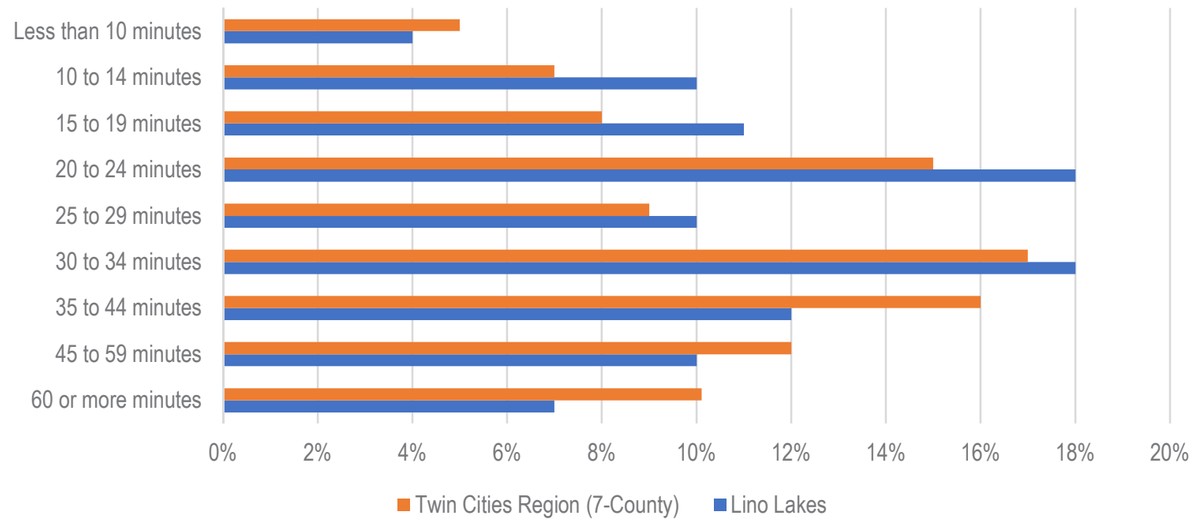



Table 5-8 and Figure 5-6 break down travel time for 2017, showing that Lino Lakes residents were less likely to have shorter than average (25 minutes or less) commute times, and many residents endure commutes of 45 minutes or longer.

More local job opportunities would reduce the need for Lino Lakes residents to leave the city for employment. As commutes become more difficult, Lino Lakes residents may look for alternatives to driving alone, such as transit or carpooling. Housing close to job opportunities will be more desirable and also reduce the need for long commutes. Balancing employment growth with transportation and housing development will help make Lino Lakes more attractive to businesses and residents alike.

Table 5-9 and Figure 5-7 show travel time from Lino Lakes to selected destinations in the region. Travel times to the Mall of America and the Minneapolis and St. Paul Central Business Districts have increased since 2005 and will continue to get longer between now and 2030.

The Mall of America is included because data for the International Airport is not available but it is nearby the Mall. Travel time to the airport may be important to some businesses, which may be discouraged from locating in Lino Lakes as travel times increase. However, the city's proximity to general aviation airports (including Anoka County/Blaine) may be seen as an advantage by others.

**Figure 5-7. Travel Time, Lino Lakes to Selected Destinations, AM Peak (Minutes)**

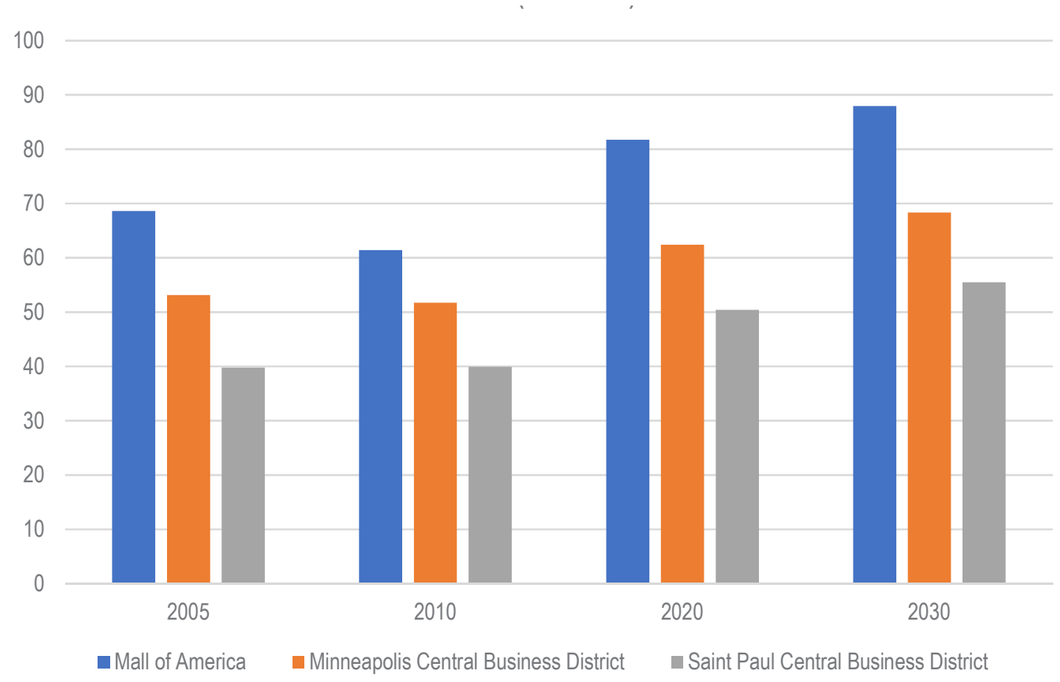



**Table 5-9. Travel Time from Lino Lakes to Selected Destinations**

| Destination | 2005 | 2010 | 2020 | 2030 |
|---|---|---|---|---|
| AM (6-9) | | | | |
| Mall of America | 68.61 | 61.42 | 81.74 | 87.95 |
| Minneapolis Central Business District | 53.16 | 51.73 | 62.42 | 68.35 |
| Saint Paul Central Business District | 39.75 | 39.92 | 50.38 | 55.5 |
| PM (3-7) | | | | |
| Mall of America | 69.86 | 72.11 | 80.35 | 82.38 |
| Minneapolis Central Business District | 41.61 | 44.24 | 48.8 | 50.78 |
| Saint Paul Central Business District | 30.89 | 31.69 | 35.06 | 35.56 |

Source: Metropolitan Council Travel Demand Forecasting Model, 2010

# Economic Development Assistance

## Statutory Authority

Minnesota cities have a large array of powers and tools for assisting and encouraging economic development. Some key sources of statutory authority come from the following:

- Constructing public improvements and levying special assessments – Chapter 429
- Constructing, operating, and maintaining water, sanitary sewer and storm water utility systems – Section 444.075
- Creating and using special service districts – Sections 428A.01 through 428A.101
- Creating and using housing improvement areas – Section 428A.11
- Establishing and using tax increment financing districts – Sections 469.174 through 469.1791
- Making and using tax abatement levies – Sections 469.1812 through 469.1815
- Powers granted to cities through housing and redevelopment authorities – Sections 469.001 through 469.047
- Powers granted to cities through economic development authorities – Sections 469.090 through 469.1081
- Lease financing for real and personal property – Section 465.71

Every statutory power contains a unique set of authorizations and restrictions. In some cases, the city may have several options. For example, public improvements can be financed with special assessments, special service districts, housing improvement areas, tax abatement, and tax increment financing. The tools are interrelated, and the city may use several for one project. To evaluate the use of potential statutory powers, the city should find the answers to the following questions:

- Who can use the powers? Most municipal powers are granted directly to the city council directly, but some may reside only or optionally with another entity, such as a housing and redevelopment authority (HRA) or economic development authority (EDA).
- How do the powers function? Every municipal development power carries different requirements and procedures, which may have advantages or disadvantages in each situation. For example, tax increment financing involves a complex set of statutory requirements. Property owners must petition to start the process for establishing a special service district. Property tax abatement discussions should involve the county and school district.
- Does the power provide funding capacity? Some statutes offer access to revenue or debt financing. When evaluating these tools, the city will need to ask:
- What revenues are authorized?
- How can the revenues be used?
- Can the city issue the bonds as "general obligations," achieving the lowest interest rates?
- Do the bonds count against the city's debt limit?
- What approvals are needed to authorize use of these powers?

## Finance Tools

The investment of public dollars to achieve economic development objectives should be guided by several key principles:

- Financial resources are limited. The city has limited funding to apply to economic development initiatives, so the use of resources must be targeted to achieve the greatest effect on the community.
- Financial decisions require long-term perspective. The current use of financial resources may reduce monies available in the future. In evaluating short-term opportunities, it is important to question the long-term impact on community development.
- Public funds should lead to private investment. While this section focuses on public finance actions, economic development cannot become reality without private investment. The use of public funds should be targeted to actions that encourage private investment in Lino Lakes.

Figure 5-8 lists some of the tools that are available to the City of Lino Lakes. Each finance tool has unique requirements which are subject to constant state and federal law changes. Each one creates different obligations on the part of the city. For example, the city takes the lead with tax increment financing, and will have on-going administrative responsibilities. If certain city assistance qualifies as a business subsidy under state law, the city will need to establish, monitor and annually report on achievement of job and wage goals. Using some other tools (such as an industrial revenue bond) may have minimal city reporting on monitoring requirements once they are established, but may be subject to state allocations administered by the state Department of Employment and Economic Development (DEED) when they are issued. Some of the available tools do not provide direct assistance or subsidies to businesses at all, but can still be used to encourage economic development. For example, the city can invest in its utility and roadway systems to make development possible and spur private investments that further the city's goals.

Lino Lakes' Charter places some limitations on using special assessments as an economic development tool compared to other communities. The City Charter contains a process to allow property owners to use petitions to protest a special assessment project and prevent it from occurring if there is sufficient opposition. In addition, if the proposed special assessment is for less than 100% of the cost of the improvement, a citywide vote is required.

**Figure 5-8. Economic Development Tools**

- Tax Increment Financing
- Property Tax Abatement
- Special Assessments
- Special Service Districts
- Housing Improvement Area
- Utility Revenues
- DEED Grant and Loan Programs
- Street State Aid
- Street Reconstruction
- Lease Revenue Bonds
- Capital Improvement Bonds
- EDA/HRA Tax Levies
- Industrial Revenue Bonds

# Economic Development Priorities

In 2014 the city evaluated the opportunities for economic growth within Lino Lakes, representing the various types of development currently facing the community: housing, commercial, industrial and redevelopment. The city developed priorities based on a review of each area's positive aspects and potential challenges. Four areas of opportunity were identified.

- Development and implementation of a Business Retention and Expansion Program (BRE)
- Lino Lakes Town Center, located at Interstate 35 and Lake Drive
- Redevelopment of the intersection of Hodgson Road (CSAH 49) & County Road J (Ash Street)
- The Commercial and Industrial Corridor along Interstate 35E and County Road 14

## Business Retention and Expansion

Retention and expansion of key businesses is an important strategy in promoting continued economic growth. It is an avenue by which communities promote reinvestment and facilitate employment growth. By establishing a formal Business Retention and Expansion (BRE) Program, Lino Lakes can enhance its relationship with key existing businesses. The BRE is an avenue to gather information about local business activity, anticipate changes in a company's status, and work to retain the businesses that provide the greatest positive economic impact.

## Lino Lakes Town Center

The I-35W/Lake Drive interchange represents the city's Town Center. Within the Town Center, commercial land uses are proposed at all four quadrants of the freeway interchange. The city intends the Town Center area to become a commercial and civic focal point for the community.

The SE quadrant of I-35W/Lake Drive interchange I-35W/Lake Drive interchange represents the Lino Lakes Town Center. This area, developed in 2004 as *Legacy at Woods Edge*, is intended to integrate a mixture of commercial, medium and high density residential, and public land uses in an attractive and cohesive design. City Hall, a YMCA, and a community green emphasize the community focus. A complete "Design and Development Guide" has been adopted to support the community's vision and establish standards for all development within the area. The project was a causality of the Great Recession and the property reverted to the State of Minnesota due to tax delinquency.

In 2013 the City's Economic Development Authority (EDA) obtained ownership of the remaining 20 acres through special legislation, allowing for greater authority in determining the type and timing of development. Lino Lakes' ability to be flexible both on land sale pricing and type of development, plus the potential to assist with financing gaps will ultimately facilitate a development plan that meets the city's goals. In 2015 the EDA facilitated the sale of 11 acres to a national builder for the completion of the town home area in the northeast quadrant of the site consistent with the development master plan. Approximately nine acres remain. The city may wish to consider rebranding the site as part of its continued marketing efforts.

## Interstate 35E and County Road 14 Corridor

The Interstate 35 Corridor, centered on County Road 35E represents the City's largest potential for commercial and industrial development. With over three miles of interstate frontage on both sides of the interstate the site offers excellent visibility and access for commercial and industrial development. Located equal distance from existing market hubs of Vadnais Height (County Road E) and Forest Lake, the interchange area provides principal access to growing markets of Lino/Centerville and Hugo/south Forest Lake.

The city has previously undertaken both planning and infrastructure improvements in the area to prepare for and facilitate commercial and industrial development. The 35E Corridor Alternative Urban Areawide Review (AUAR) was completed in 2005 and continues to be updated. The city partnered with Anoka County to reconstruct the I-35E/Main Street interchange in 2010. The city completed the Northeast Lino Lakes Drainage Area Comprehensive Stormwater Management Plan to address storm water management deficiencies in the corridor covering approximately 1,300 acres. The 2040 Land Use plan also includes the establishment of a Business Campus designation to provide for the high-quality, integrated development of a wide range of business uses.

**Figure 5-9. Lino Lakes Town Center**



## Hodgson Road (CSAH 49) & County Road J (Ash Street)

Redevelopment of this area would have several community benefits. Suited toward smaller scale neighborhood development, the site is located at the southern gateway to Lino Lakes. Positive aspects to redevelopment include the elimination of blight, addition of new goods and services, and increased tax base. Challenges include the collaboration of multiple cities and counties, infrastructure construction and lower densities that surround the area. The site has been highlighted in past Lino Lakes' economic development plans. Recently, neighboring Shoreview has studied the area for redevelopment potential as part of a transitional corridor study. Collaboration with Shoreview is critical to effectively redevelop the area. Additionally, there are outside financial resources that can be researched and grant funds sought to help facilitate investigation, acquisition and site improvements.

The Hodgson Road & CR J Master Planning Study was approved by the City Council in 2007. The plan establishes a general land use design, but does not mandate the exact site layout or specific uses of individual parcels. The design of individual development projects must accommodate the infrastructure needs for the larger study area. Future amendments of the Plan may be appropriate to address evolving community needs, market forces, and regulatory requirements.

The city has completed a master utility plan for the development area in 2014 and is proceeding with planning for trunk utility improvements to service the area. The city also worked with a property owner to facilitate demolition of an existing substandard building in the northwest quadrant to help set the stage for future development.

**Figure 5-10. Hodgson Road & Country Road J Master Plan, 2007**




Master Planning Study for County Road J & Hodgson Road

# Chapter 6: Transportation




## Introduction

The purpose of the Transportation Chapter is to provide the policy and program guidance needed to make appropriate transportation-related decisions when development occurs, when elements of the transportation system need to be upgraded or when transportation problems need to be addressed. The Transportation Chapter demonstrates how the City of Lino Lakes will provide for an integrated transportation system that will serve the future needs of its residents and businesses, support the city's development plans, and complement the portion of the metropolitan transportation system that lies within the city's boundaries.

As the owners of the transportation network in Lino Lakes (i.e. City of Lino Lakes, Anoka County and the Minnesota Department of Transportation (MnDOT)) advance their respective Capital Improvement Programs (CIPs), this chapter is intended to serve as an important resource and reference in establishing priorities and advancing transportation projects for implementation. Advancing these projects from a planning to implementation phase will require collaborative discussions among the city, county, MnDOT, adjacent communities, Metropolitan Council, residents and others to conduct traffic studies, finalize designs, preserve rights-of-way, obtain environmental clearances and leverage necessary financial resources.

There are three primary objectives of the Transportation Chapter:

- To provide a guidance document for city staff and elected officials regarding the planning and implementation of effective transportation facilities and systems over the planning horizon
- To give private citizens and businesses background on transportation issues and allow them to be better informed regarding the city's decision-making on transportation issues
- To communicate to other government agencies Lino Lake's perspectives and intentions regarding transportation planning issues

In addition to roads, transportation also includes transit and the system of trails and sidewalks. Maintaining and improving a multi-modal transportation system is important to the ongoing economic health and quality of life of the city and it is needed for people to travel easily and safely to work and other destinations, to develop property and to move goods. The city's multimodal transportation system includes facilities for vehicles, freight, walking, bicycling and transit operated by several agencies, including the City of Lino Lakes, Anoka County, and the Minnesota Department of Transportation (MnDOT).

Several social, economic and environmental trends will influence the entire Twin Cities Metro Area, including the City of Lino Lakes, over the next 20-plus years. These include population growth, changes in household size, increases in transportation fuel costs and environmental concerns. With increased population growth and limited funding for new and/or expanded transportation facilities, congestion on the regional highway system is expected to increase. Specific transportation issues the City of Lino Lakes faces include:

- Growing congestion on regional routes such as I-35W and I-35E causing diversion of traffic to county roads and local streets
- Increasing traffic and infrastructure needs due to development areas in Lino Lakes, particularly in areas west and southeast of the regional park reserve
- Changing transportation needs due to an aging population
- Increasing competition for space among modes (i.e., vehicles and bicycle/pedestrian interests)
- Limited financial resources needed to maintain and improve the transportation systems as costs are expected to increase

The Transportation Chapter has been prepared in compliance with State of Minnesota Statutes and applicable Metropolitan Council guidelines. As part of this chapter, the city has reviewed existing and future conditions for each mode and identified safety, operations, and network improvements that will be important to address over the 2040 planning horizon. The city has also developed goals and strategies to preserve and improve the transportation system.

This chapter has been prepared to be consistent with the regional transportation strategies outlined in the Metropolitan Council 2040 Transportation Policy Plan (TPP). The TPP is a regional plan that evaluates the existing transportation system, identifies transportation challenges to the region, and sets regional goals, objectives, and priorities to meet the transportation needs of current residents while accommodating the region's anticipated growth. The TPP also guides local agencies in coordinating land use and transportation and establishes regional performance measures and targets.

Lino Lakes is classified by the Metropolitan Council as "Emerging Suburban Edge" which is defined as communities that are in the early stages of transitioning into urbanized levels of development. Emerging Suburban Edge communities are expected to plan for forecasted population and household growth at average densities of at least three to five units per acre for new development and redevelopment. They are expected to target opportunities for more intensive development near regional transit investments at densities and in a manner articulated in the 2040 Transportation Policy Plan. The TPP does not include any planned regional transit investments in Lino Lakes.

# Goals and Policies

The vision statement, as described in Chapter 1, defines what Lino Lakes should look like in the future. The goals and polices guide the Transportation Chapter to help achieve that vision for roads, transit and other modes of transportation. The goals and policies that follow were established in the 2030 Comprehensive Plan and reaffirmed as part of the 2040 Comprehensive Plan process.

### Goal 1: Plan for and achieve required street improvements and connectivity throughout the City of Lino Lakes.

**Policies:**

a. Develop a transportation plan that will identify and plan for needed public transportation options and street construction, upgrading, and related funding requirements.
b. Ensure by 2040 that main east/west and north/south transportation corridors are of good quality and allow for potential, required expansion and upgrades, i.e., widening, expanded capacity, turn lanes, and accommodating pedestrian and bicycle facilities.
c. Identify and prepare appropriate plans, official controls, zoning and subdivisions ordinances and regulations, and official maps for land use around identified potential future interchanges.
d. Work to connect neighborhoods by minimizing the use of cul-de-sacs.

### Goal 2: Ensure that streets and roads are as safe as possible.

**Policies:**

a. Identify potential traffic safety problem areas and adopt plans to lessen risks as traffic volume increases along these problem stretches and intersections.

### Goal 3: Improve traffic flow despite increase in traffic numbers.

**Policies:**

a. Plan for an expanded and improved road system to accommodate projected increases in traffic volume accompanying predicted/planned growth and development.
b. Locate high-density housing along traffic corridors.
c. Ensure, as areas are developed, that development bears its proportionate share of transportation improvement costs to the fullest extent possible.
d. Develop mass transit options to serve growing transportation demands.

### Goal 4: Ensure that local streets are maintained (or reconstructed) to an acceptable level.

**Policies:**

a. Adopt, fund and implement a Comprehensive Pavement Management Plan for the maintenance and reconstruction, to an optimum level, of the city's streets in a responsible and cost-effective manner.
b. Periodically review and monitor the effectiveness of the pavement management plan. Amend policies and/or propose City Charter revisions to insure all components of the plan are implemented in a responsible manner.

### Goal 5: Reduce unnecessary traffic on Lino Lakes' streets and roads.

**Policies:**

a. Plan for and develop park-and-ride opportunities that are adjacent to our arterial roadways.
b. Identify ways to minimize unnecessary heavy vehicles in residential areas (i.e. Garbage Trucks)
c. In cooperation with Anoka County and other local units of government, pursue state and federal funding for mass transit.

### Goal 6: Promote alternative transportation such as bicycling, walking, transit and rail.

**Policies:**

a. Encourage sidewalks and separated pathways along all arterials, collector, and local streets in developing residential and commercial areas.
b. Incorporate, where feasible, bicycle and pedestrian infrastructure and safety standards when planning changes, additions, or maintenance to roads, sidewalks, bridges, paths, or other public facilities.
c. Work to physically connect neighborhoods with roads and pedestrian/bicycle links.
d. Support the planning and development of the established Rush Line transit corridor (rail and bus) from the central cities through Hugo.
e. Provide local transit opportunities to access the Rush Line corridor.
f. Continue to work with Metro Transit to provide and expand safe, affordable and efficient public transit.

### Goal 7: Maintain and coordinate the transportation system with adjacent communities, Anoka County, Washington County, Metropolitan Council and MnDOT.

**Policies:**

a. Use the functional classification system to define and plan existing and new roadways.
b. Develop and utilize access management guidelines in conjunction with Anoka County.
c. Continue to work with surrounding jurisdictions, state and federal agencies to ensure an integrated transportation system.

# Roadway System Plan

The roadway network in the city is comprised of two major regional highways, several county roads and a system of local roadways interconnecting the overall network. The City of Lino Lakes within the regional roadway network is depicted on Figure 6-1. The city's existing roadway network is shown in Figure 6-2. Continuity of routes within the city is an issue, due to the presence of several large natural features that serve as barriers to cross-city travel. These include the Rice Lake Creek Chain of Lakes Regional Park Reserve, several lakes, rivers and streams and numerous wetland areas. The regional Park Reserve is the largest natural feature within Lino Lakes and it divides the city diagonally from southwest to northeast. This creates a unique pattern for the city's land use and transportation systems. The majority of north-south and east-west routes within the city are located along the edges of the Park Reserve.

The roadway network portion of the transportation system in Lino Lakes is still developing with some additional elements expected to be added to accommodate growth, improve continuity and connectivity, and respond to congestion, safety and modal issues. This section of the Transportation Chapter will document existing conditions, address jurisdictional issues, functional classification, traffic volumes, congestion, safety, and future roadway system improvements.

## Roadway Jurisdiction

### Existing Roadway Jurisdictions

Roadways in the City of Lino Lakes are administered by different agencies depending upon their jurisdictional classification. The Minnesota Department of Transportation (MnDOT) maintains state highways, which include the Interstate system and other Trunk Highways (TH). Anoka County maintains the County State Aid Highway System (CSAH) and other County Roads (CR). The City of Lino Lakes maintain the remaining roads. The three jurisdictions cooperate in the planning and improvement of the roadway system in the city.

The jurisdictional classification system is intended to maintain a balance of responsibility among the agencies and is organized around the principle that the highest volume limited access roadways that carry regional trips are primarily maintained by MnDOT, the intermediate volume roadways that carry medium length trips are maintained by Anoka County and the local street system that provides access to individual properties is maintained by the city. Existing roadway jurisdictional classifications are shown by Figure 6-2.

The local city street system in Lino Lakes include Municipal State Aid (MSA) streets. Cities in Minnesota with populations greater than 5,000 are eligible to receive MSA funding from the state Highway User Tax Distribution Fund. The basic purpose of this program is to help local governments construct and maintain collector and arterial roadways which have consistent design standards and which are well integrated into the overall network of collector and arterial roadways. The state aid system typically includes a maximum of 20% of the city's roadway mileage. The State Aid Office of MnDOT has established clearly defined design requirements for MSA streets. These requirements ensure that capacity, operational, and safety goals are met in a uniform manner from community to community, and that street systems are well coordinated with each other. Based on MINN. STAT. § 169.80 and § 169.87, MnDOT does not allow cities to restrict truck traffic on MSA streets. The city's existing MSA system is shown by Figure 6-3.

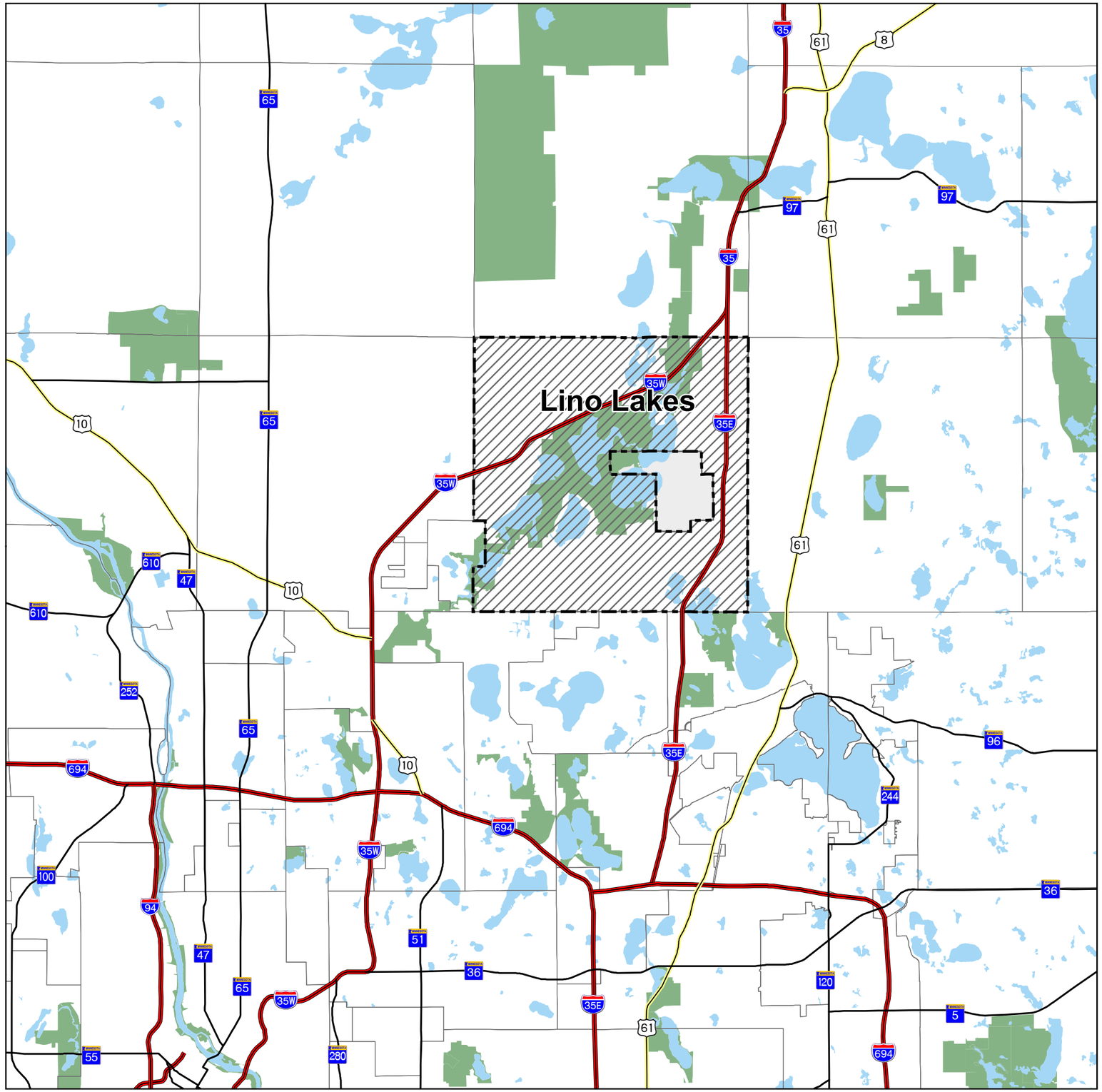
### Future Roadway Jurisdictions

Occasionally, because of development, changes in traffic patterns or the construction of new facilities the jurisdictional classification needs to be adjusted to reflect changes in the way certain roadways are used. There is one jurisdictional transfer planned within the City of Lino Lakes within the plan's horizon. County Road J from CSAH 21 (Centerville Road) to I-35E is requested to be changed from the City of Lino Lakes to Anoka County's jurisdiction. In addition, several probable future roadway extensions have previously been discussed for possible county jurisdiction in the future, including:

- A future roadway along the city's west boundary, from CSAH 14 (Main Street) to the north city limits, is planned as an extension of CR 53 (Sunset Avenue) and will be under Anoka County's jurisdiction.
- An extension of CR 84 (Otter Lake Road) from CSAH 14 (Main Street) to the north city limits will also be under the county's jurisdiction when constructed.
- An extension of CSAH 14 (Main Street) from Rondeau Lake Road West to the east to connect with CSAH 54 (20th Avenue) is also planned for Anoka County jurisdiction. However, it is not anticipated that this roadway extension would be needed until after the 2040 planning horizon, when the city approaches full build-out. (Note: this extension would include the re-designation of existing CSAH 14 south of Rondeau Lake Road West through the regional park and Centerville. This roadway would continue to be a County Road.)

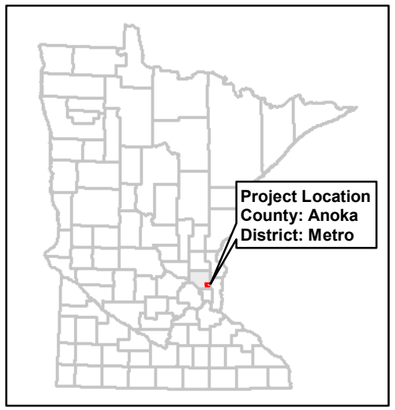
CITY OF LINO LAKES
2040 COMP PLAN

# Figure 6-1
# Regional Roadway Network




## Legend

- Interstate Highways
- United States Highways
- State Highways
- Regional Parks
- Open Water
- Municipal Boundary



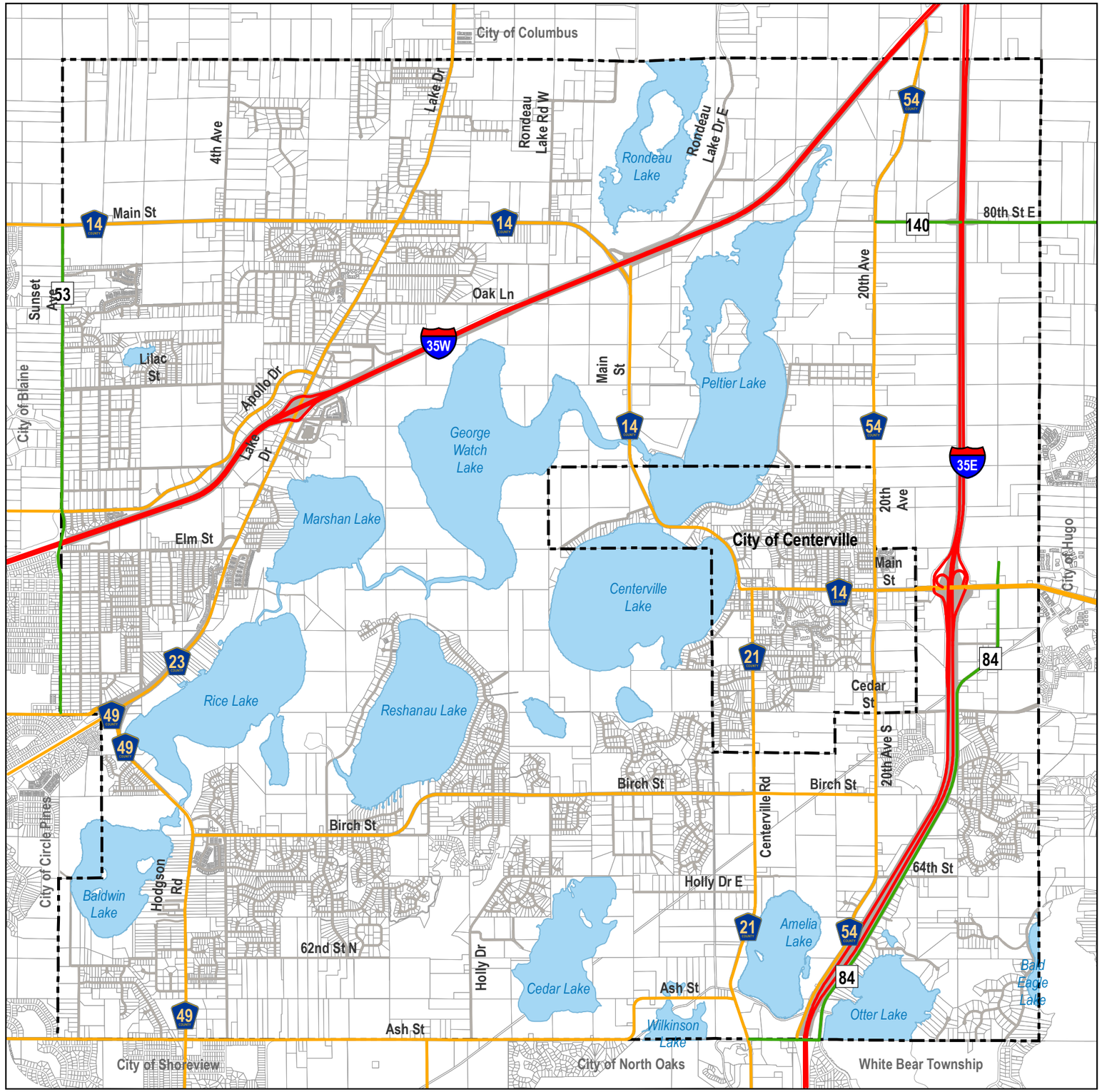

2.5 1.25 0 2.5 Miles

N

Date: 12/31/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-2
# Roadway Network and Jurisdictional Classification




## Legend

**Jurisdictional Classification**

- State
- County State Aid Highway (CSAH)
- County Road
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

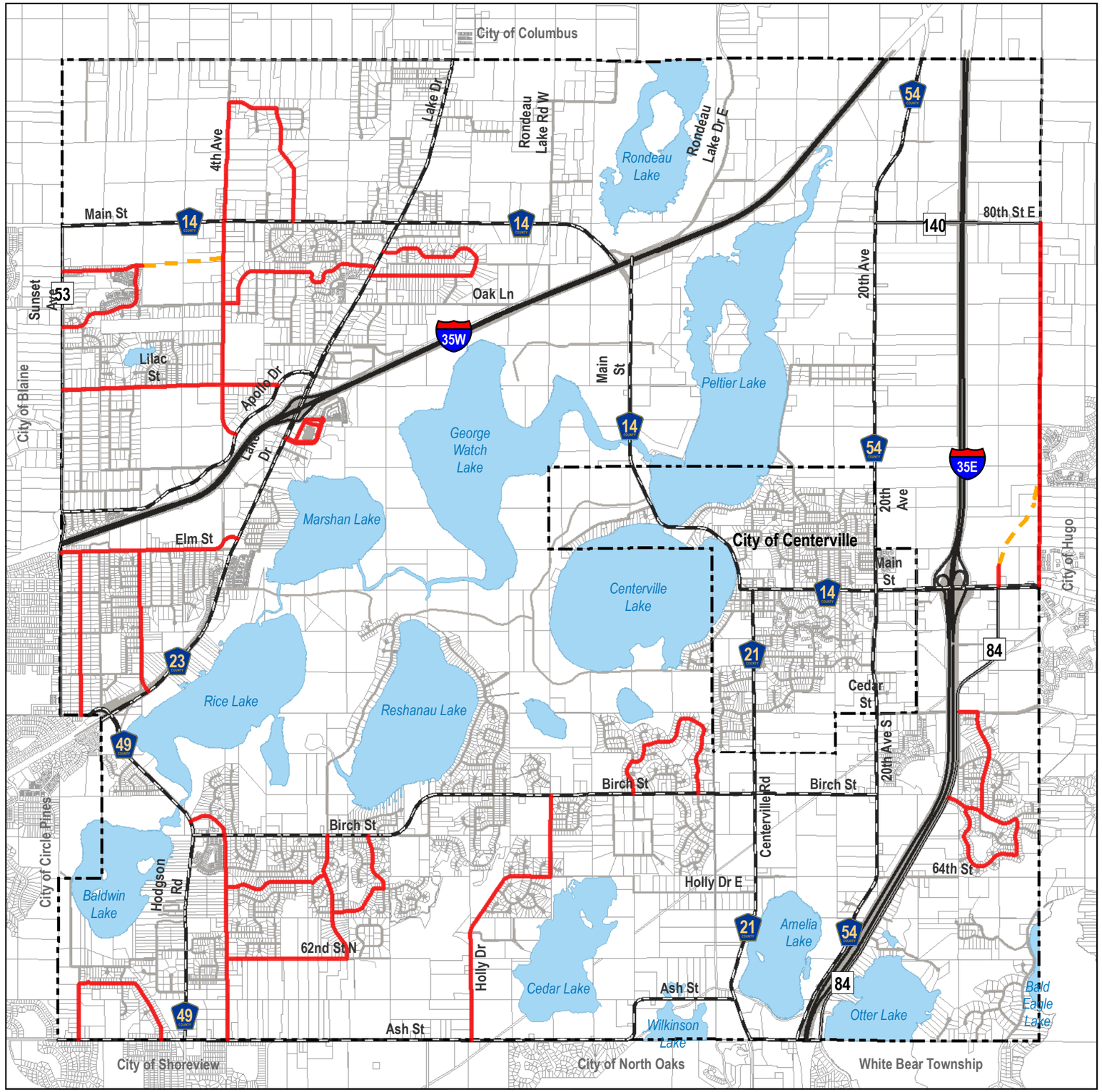
3,500 1,750 0 3,500 Feet

N

Date: 2/26/2020

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-3
# Municipal State Aid System




## Legend

**Municipal State Aid System**

- Existing Roadway
- Proposed Future Roadways

**Transportation System**

- MnDOT
- Count State Aid Highway
- County Road
- City
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 2/14/2020

## Functional Classification System

### Existing Functional Classification

The functional classification system groups roadways into classes based on roadway function and purpose. Functional classification is based on both transportation and land use characteristics, including roadway speeds, access to adjacent land, connection to important land uses and the length of trips taken on the roadway.

Four classes of roadways are included in the seven-county metropolitan area functional classification system: principal arterials, minor arterials, collector streets, and local streets. Figure 6-4 shows the existing functional classification of each road in the City of Lino Lakes. The following sections describe each functional class in greater detail and indicate which roadways fall into each classification.

**Principal Arterials** - Principal arterials are roadways that provide the greatest level of mobility and access control. Within the metropolitan area, the great majority of principal arterials are under MnDOT jurisdiction. Principal arterials are typically interstate highways or other state or federal freeways or expressways. These facilities are intended to serve trips greater than eight miles and express transit trips. Spacing of principal arterials varies within developing areas of the metropolitan area. Typically, these facilities are spaced between two and six miles apart. These facilities connect regional business and commercial concentrations, transportation terminals, and large institutions within the metropolitan area. Principal arterials also connect to other cities, regions, and states outside of the metropolitan area.

Principal arterials are intended to maintain average speeds of 40 miles per hour (mph) during peak traffic periods. To maintain mobility and speeds on principal arterials, land access and transportation system connections are limited. There is little to no direct land access from principal arterials. Intersections are limited to interstate freeways, other principal arterials, and "A" minor arterials. Access points are typically grade-separated or controlled with a signal and are spaced one to two miles apart.

The City of Lino Lakes is served by three principal arterials: I-35E, I-35W and CSAH 14 (Main Street) from the city limit with Blaine to I-35W. The Metropolitan Council's 2040 Transportation Policy Plan does not propose any additional principal arterials within the city.

**Minor Arterials** - Minor arterials maintain a focus on mobility, but provide more land access than principal arterials. Minor arterials are intended to serve trips of four to eight miles in length. Within developing areas of the metro, these facilities are spaced between one and two miles apart. Minor arterials connect cities and towns within the region and link to regional business and commercial concentrations. Access points along minor arterials are generally at grade and typically controlled with signals or stop signs.

During peak traffic, minor arterials in developing areas are intended to maintain 30 mph average speeds. As a result, transportation system connections are limited to interstate freeways, other principal arterials, other minor arterials, collectors, and some local streets. Land access is limited to concentrations of commercial and industrial land uses. The Metropolitan Council has established a system of "A" minor and "Other" arterials. "A" minor arterials are eligible for federal funding administered by the Metropolitan Council.

The Metropolitan Council has further split "A" minor arterials into four types, described below:

- Relievers: Arterials located parallel to congested principal arterials. The purpose of "A" minor relievers is to provide additional capacity in congested corridors.
- Augmenters: Arterials that supplement the principal arterials system within urban centers and urban communities
- Expanders: Arterials that supplement principal arterials in less-densely developed areas of the metro area
- Connectors: Arterials that provide connections between rural towns and connect rural areas with the principal arterial system

*The **Functional Classification System** organizes a roadway and street network that distributes traffic from local neighborhood streets to collector roadways, then to minor arterials and ultimately the principal arterial system. Roads are categorized based on the degree to which they provide access to adjacent land and mobility for through traffic. Functional classification indicates the relative hierarchy of roadways in the transportation network.*



"Other" arterials (formerly known as "B" minor arterials) have a similar focus on mobility above land access. These roadways connect major traffic generators in the region. "Other" arterials are not eligible for federal funding. Table 6-1 shows the Minor Arterials located in Lino Lakes.

**Collector Roadways** - Major and minor collector roadways provide linkages to larger developments and community amenities. They generally do not link communities to one another. Collector roadways generally favor access to the system over mobility, but try to balance the two competing needs. These roadways are generally lower speed than the principal or minor arterial routes. They are usually owned and operated by cities, although counties operate some of these facilities. Collectors are intended to serve trips of one to four miles in length. Collectors link minor arterials, other collectors, and local streets. Major collectors typically serve higher density residential areas and concentrations of commercial and industrial land uses. These facilities tend to serve longer trips than minor collectors. The collector roadways in the City of Line Lakes are shown in Table 6-2: Minor collectors serve fewer trips than major collectors and typically link lower density residential and commercial land uses. The minor collector roadways are shown on Figure 6-4.

**Local Roadways** - Local streets provide access to adjacent properties and neighborhoods. Local streets are generally low speed, and designed to discourage through traffic. All the remaining roadways in the city that were not listed under the previous functional classifications above fall under the local road designation. As mentioned earlier, the City of Lino Lakes has a unique street system due to the presence of many large natural features including the regional park preserve, lakes, wetlands and streams. Sensitivity to and preservation of these features is important and has played a large role in the development of the street system within the city. This has resulted in an interconnected street system that differs from the traditional grid system evident in other communities. Connectivity and continuity of roadways within the city is an issue that will persist as the city continues to balance the need to preserve these natural features with the need to provide accessibility, mobility, and efficiency within its transportation system.

**Table 6-1. "A" Minor Arterials**

| Roadway | From | To | Type |
|---|---|---|---|
| **CSAH 12 (Apollo Dr)** | CSAH 23 (Lake Dr) | CR 53 (Sunset Ave) | Expander |
| **CSAH 49 (Hodgson Rd)** | CSAH 23 (Lake Dr) | CSAH 32 (Ash St) | Expander |
| **CSAH 32 (Ash St)** | CSAH 21 (Centerville Rd) | West City Limit | Expander |
| **CSAH 21 (Centerville Rd)** | CSAH 32 (Ash St) | South City Limit | Expander |
| **CSAH 14 (Main St)** | I-35E | I-35W | Expander |
| **CR J (Ash St)** | I-35E | CSAH 21 (Centerville Rd) | Expander |
| **CSAH 23 (Lake Dr)** | North City Limit | West City Limit | Reliever |
| **CSAH 54 (20th Ave)** | North City Limit | South City Limit | Reliever |
| **CSAH 8 (Main St)** | East City Limit | I-35E | Connector |
| **CSAH 34 (Birch St)** | CSAH 21 (Centerville Rd) | CSAH 49(Hodgson Rd) | Other |
| **CSAH 21 (Centerville Rd)** | CSAH 14 (Main St) | CSAH 32 (Ash St) | Other |
| **CR J (Ash St)** | CR 84 (Otter Lake Rd) | I-35E | Other |

**Table 6-2. Major Collector Roadways**

| Roadway | From | To |
|---|---|---|
| **CSAH 34 (Birch St)** | CSAH 54 (20th Ave) | CSAH 21 (Centerville Rd) |
| **Holly Drive No/12th Ave** | CSAH 34 (Birch St) | South City Limit |
| **CR 84 (Otter Lake Rd)** | CSAH 8 (Frenchman Rd) | South City Limit |
| **4th Ave** | North City Limit | CSAH 12 (Apollo Dr) |
| **CR 53 (Sunset Ave)** | CSAH 14 (Main St) | CSAH 49 (Hodgson Rd) |
| **Elm St** | CSAH 23 (Lake Dr) | CR 53 (Sunset Ave) |
| **Pine St** | CSAH 23 (Lake Dr) | 4th Ave |
| **Lilac St** | CR 53 (Sunset Ave) | CSAH 12 (Apollo Dr) |

## Future Functional Classification

The City of Lino Lakes supports the following future changes to the functional classification system proposed by Anoka County. Several of these changes affect the metropolitan highway system.

**Principal Arterials**

- **CSAH 14 (Main Street) extension – Rondeau Lake Road West to CSAH 54 (20th Avenue)**
  This new roadway is planned as a northern bypass. Anoka County does not anticipate construction of this route until after 2040. It is recommended this route be classified as a post-2040 principal arterial. This designation is consistent with the existing CSAH 14 (Main Street) classification. The addition of this extension will provide a continuous principal arterial roadway between I-35W and I-35E (via CR 140 (80th Street)). Interchanges are proposed at both interstate connections with this future route.

**"A" Minor Arterials**

- **CR 140 (80th Street) – I-35E to CSAH 54 (20th Avenue)**
  This segment will provide the link for the northern bypass (CSAH 14 extension) to connect to I-35E. Therefore, when the bypass is constructed (post-2030) this route will be classified as a principal arterial. However, until the bypass is constructed this roadway is recommended to be upgraded to an "A" minor expander.

- **CR 140 (80th Street) – East City Limit to I-35E**
  This roadway is recommended to be upgraded from a minor collector to an "A" minor expander. This is consistent with the recommendation to upgrade CR 140 (80th Street) from I-35E to CSAH 54 (20th Avenue) to an "A" minor expander. In addition, this route will connect an "A" minor reliever to a principal arterial, when a new interchange is constructed at I-35E, and connects to an important east-west roadway, 170th Street N, in Washington County. Therefore, upgrading this route to an "A" minor expander is consistent with the function it serves, both now and in the future.

- **CR 53 (Sunset Avenue) – CSAH 14 (Main Street) to County Road 49 (North Road)**
- This roadway is recommended to be upgraded from a major collector to an "A" minor expander. This route serves as the main north-south route for the western portion of the city. In addition, it connects with CSAH 14 (Main Street), a principal arterial.

- **Potential Future CR 53 – Pine Street to CSAH 14 (Main Street)**
  This new roadway is proposed to be constructed before 2040. It is recommended this future roadway be classified as an "A" minor expander, consistent with CR 53 (Sunset Avenue) to the south.

- **Potential Future CR 84 – North City Limit to CSAH 14 (Main Street)**
  This new roadway is recommended to be classified as an "A" minor expander. This route will serve as the main north-south route in the eastern portion of the city, providing a reliever function to I-35E. Washington County supports the planning of this future extension and will work cooperatively with the city.

**"Other" Minor Arterials**

- **CSAH 34 (Birch Street) – CSAH 54 (20th Avenue) to CSAH 21 (Centerville Road)**
  This roadway is recommended to be upgraded from a major collector to an "Other" minor arterial. Because this segment of CSAH 34 (Birch Street) now connects a minor arterial to an "A" minor arterial, it too must be upgraded. The "Other" minor arterial classification of this segment is consistent with the classification of CSAH 34 (Birch Street) to the west of CSAH 21 (Centerville Road). A corridor study on CSAH 34 (Birch Street), from CSAH 49 (Hodgson Road) to CSAH 54 (20th Avenue) was completed in 2011 which documented the future improvement needs for CSAH 34 corridor.

- **CR 84 (Otter Lake Road) – CSAH 14 (Main Street) to South City Limit**
  This segment is recommended to be upgraded from a major collector to a "Other" minor arterial. In the future, it will connect to the planned extension of CR 84 (Otter Lake Road), which is planned as an "A" minor reliever. Washington County is supportive of the future CR 84 extension from CSAH 14 (Main Street) to the northern city limits.

The proposed functional classification changes noted above are shown on Figure 6-5. Although some of these roadways may not be in place before 2040, roadways that do not currently exist are illustrated to demonstrate what the system will look like when complete. Several additional areas within the city are still developing. The functional classification of these roadways is listed above if the classification is a minor arterial or higher. Major and minor collector classifications of new routes are not listed separately in this section but are included on the future functional classification plan (Figure 6-5). As described above, Figure 6-5 includes the extension of an existing principal arterial with the understanding that this improvement would not occur within the 2040 planning horizon. Projections of traffic volumes under full build out conditions, described later in this section, indicate the need for additional capacity across the northern part of the city to accommodate both regional traffic and additional local traffic that is expected with the full build-out of the city.

In addition to the proposed Principal and Minor Arterials outlined above, the collector roadway connections listed in Table 6-3 are being planned and are illustrated in Figure 6-5.

Recommended changes to the functional classification system will be adopted by the city as part of the overall Comprehensive Plan Update. Changes that involve "other" minor arterials, major collectors or minor collectors may be made without the approval of another agency, provided these changes are consistent with state and county plans. However, the changes and the resulting functional classification should be officially reported to the Metropolitan Council under separate communication to ensure that the Metropolitan Council has the opportunity to update their records.

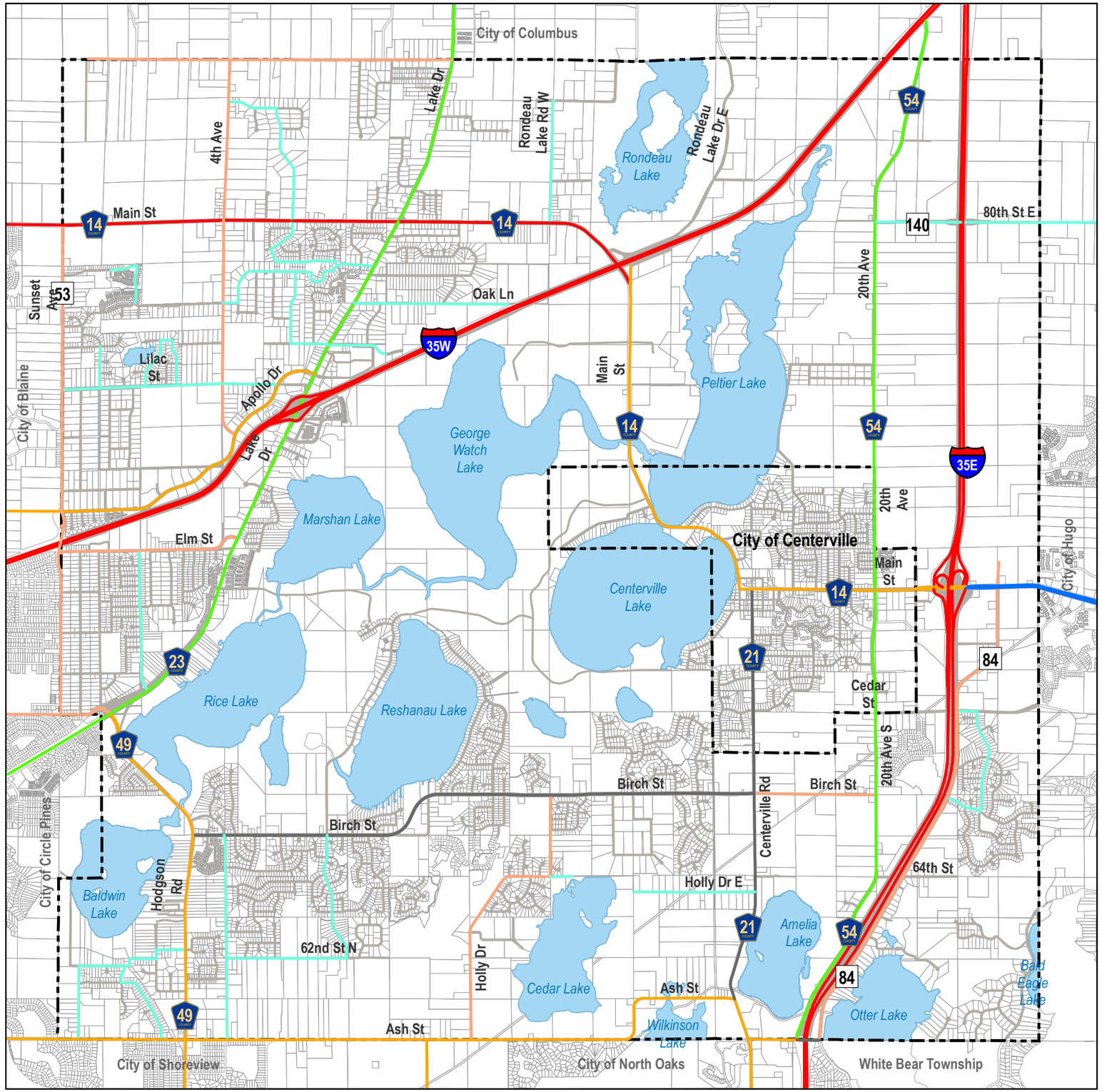
Any proposed change to a Principal Arterial or 'A' Minor Arterial designation will need to be approved by the Transportation Advisory Board (TAB) of the Metropolitan Council. Since these changes are likely to involve either state or county roadways, the city should work closely with these agencies to ensure that the approval process is carried forward.

**Table 6-3. Future Roadway Connections – Collectors**

| Roadway | From | To | Future Jurisdiction | Future Functional Classification |
|---|---|---|---|---|
| **Ware Road** | CSAH 34 (Birch St) | CSAH 32 (Ash St) | City | Major Collector |
| **Robinson Drive** | Wood Duck Trail | Century Trail | City | Major Collector |
| **Century Trail** | Pine Street | Robinson Drive | City | Minor Collector |
| **New North/South Street** | Pine Street | CSAH 14 (Main St) | City | Minor Collector |
| **New East/West Street** | 4th Avenue | CR 53 (Sunset Ave) | City | Minor Collector |
| **Robinson Drive** | Wood Duck Trail | Century Trail | City | Minor Collector |
| **New East/West Street** | Rondeau Lake Rd W | CSAH 23 (Lake Dr) | City | Minor Collector |
| **New East/West Street** | CSAH 14 (Main St) | 77th Street | City | Minor Collector |
| **W. Shadow Lake Drive** | 62nd Avenue | CSAH 32 (Ash St) | City | Minor Collector |
| **New North/South Street** | Holly Drive E | CSAH 32 (Ash St) | City | Minor Collector |
| **Holly Drive E** | New North/South St | 12th Avenue | City | Minor Collector |
| **Molitor Drive** | CSAH 54 (20th Ave) | CSAH 21 (Centerville Rd) | City | Minor Collector |
| **Gordon Avenue** | Rehbein Street | Centerville Boarder | City | Minor Collector |
| **21st Avenue** | CR 140 (80th Street) | CSAH 14 (Main St) | City | Minor Collector |
| **New East/West Street** | 21st Avenue | Peltier Lake Drive | City | Minor Collector |

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-4
# Existing Functional Classification




## Legend

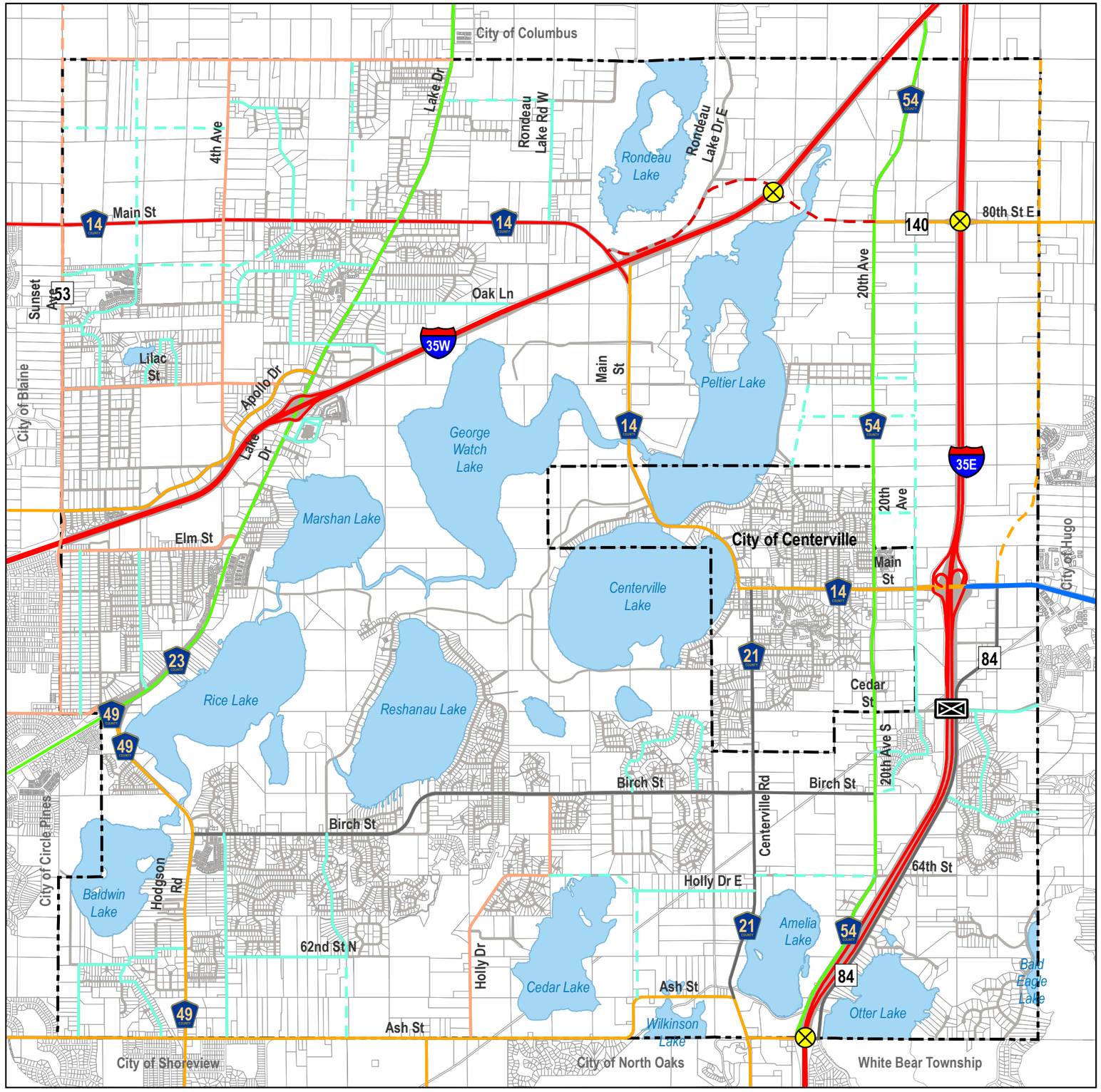
**Existing Functional Class**

- Principal Arterial
- A-Minor Arterial Reliever
- A-Minor Arterial Expander
- A-Minor Arterial Connector
- Other Minor Arterial
- Major Collector
- Minor Collector
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 2/14/2020




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-5
# Proposed Functional Classification System

## Legend

- Future Full Access Interchange
- Future Overpass

**Existing Functional Class**

- Principal Arterial
- A-Minor Arterial Reliever
- A-Minor Arterial Expander
- A-Minor Arterial Connector
- Other Arterial
- Major Collector
- Minor Collector

**Proposed Functional Class**

- Principal Arterial*
- A-Minor Arterial Expander
- Other Minor Arterial
- Major Collector
- Minor Collector
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

*Post 2040

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Traffic Volumes and Forecasts

### Existing Traffic Conditions

To determine roadway capacity deficiencies and needs the existing Average Daily Traffic (ADT) volumes and lane configuration were identified using data from the MnDOT traffic volume website and city traffic counts. Figure 6-6 shows the existing ADT volumes. Figure 6-7 shows the existing number of lanes on the area roadway system.

### 2040 Traffic Forecasts

Year 2040 traffic forecasts were prepared using the Metropolitan Council travel demand model. The model was refined for application specifically for the City of Lino Lakes. The 2040 projections were compared against the assumed 2040 roadway network to see where roadway segment capacity deficiencies may result. The 2040 roadway network assumed for this analysis is the same as the current roadway network, as the city and county Capital Improvement Programs (CIPs) do not include any projects that add significant capacity to the roadway network. While the travel demand model is a valuable tool for identifying future traffic based on the proposed land use impacts, it is not meant for use in detailed traffic operations studies. For a more accurate representation of the transportation impacts from specific developments, detailed traffic studies should be conducted to determine the operational impacts on adjacent roadways and intersections.

A central concept of travel demand forecasting is the use of Transportation Analysis Zones (TAZs). Each forecast study area, in this case the City of Lino Lakes, is divided into a series of TAZs. Each TAZ has land use data which indicates trip generation and trip attraction including population, household, and employment data. Figure 6-8 displays Metropolitan Council TAZs within the City of Lino Lakes.

Table 6-4 provides the initial population, household, and employment allocations by TAZ assumed in the Metropolitan Council model. Table 6-5 provides the population, household, and employment allocations by TAZ based on the City of Lino Lakes Land Use Plan as detailed in Chapter 3. The results of the City of Lino Lakes modeling process are summarized in Figure 6-9 which displays 2040 projected average daily traffic volumes.

### Full Build (post 2040) Traffic Forecasts

As the city looks toward the long-term future (i.e., beyond the 2040 planning horizon) and approaches full build-out of the community, it is assumed that the roadway improvements identified above will be implemented. To accommodate the additional development that is anticipated beyond 2040, further roadway system improvements will be required. Traffic forecasts for the City of Lino Lakes under full build-out conditions were prepared using the future households, population and employment data outlined in Table 6-5. Based on these projections the full build traffic forecasts were developed and are shown on Figure 6-10.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-6
# Existing Traffic Volumes

## Legend

XXX- Existing (2016) AADT Traffic Volumes*

**Transportation System**

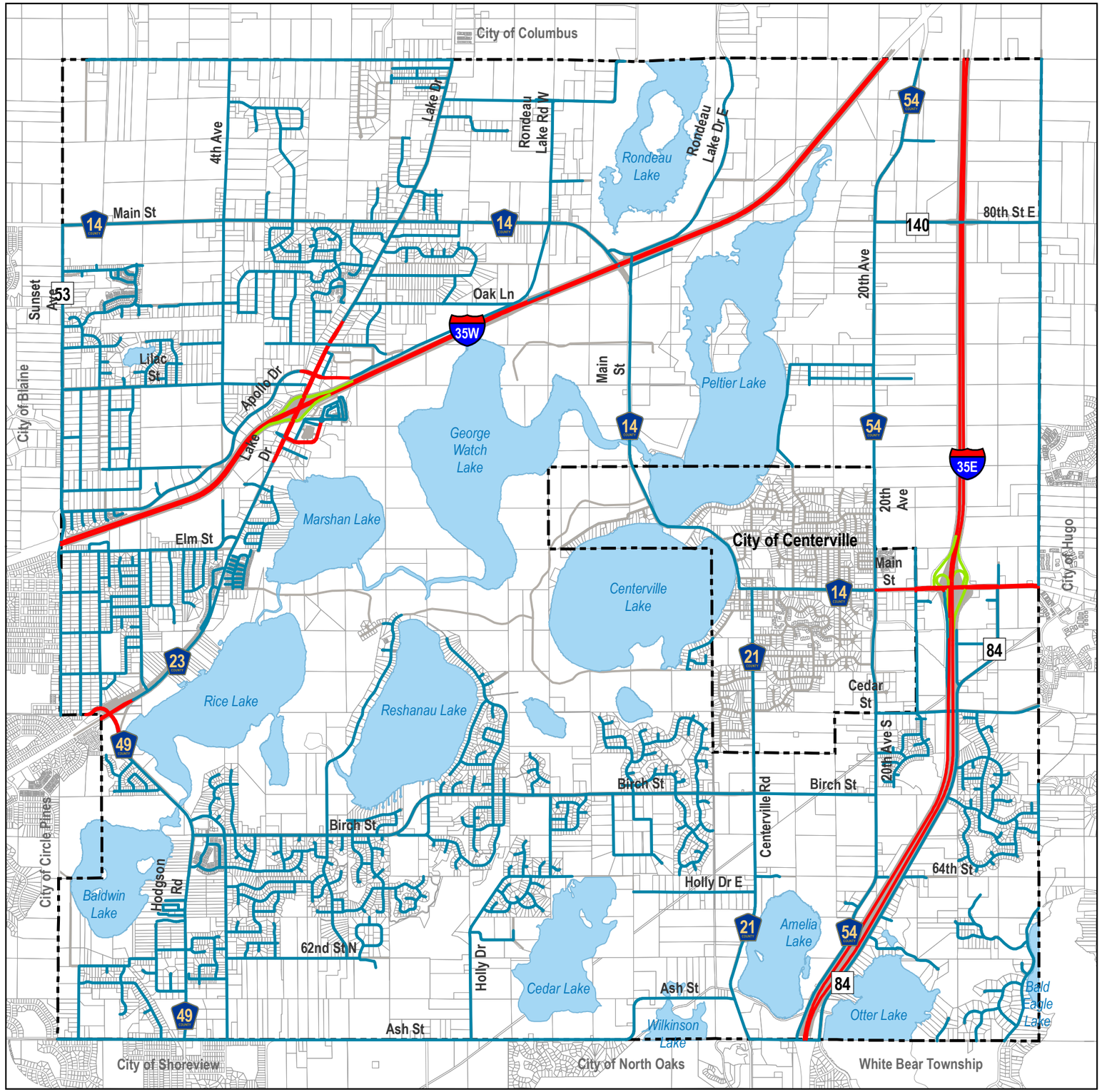
- State
- County State Aid Highway (CSAH)
- County Road
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

* MnDOT Traffic Count Website

3,500 1,750 0 3,500 Feet

N

Date: 3/7/2018




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-7
# Existing Number of Lanes

## Legend

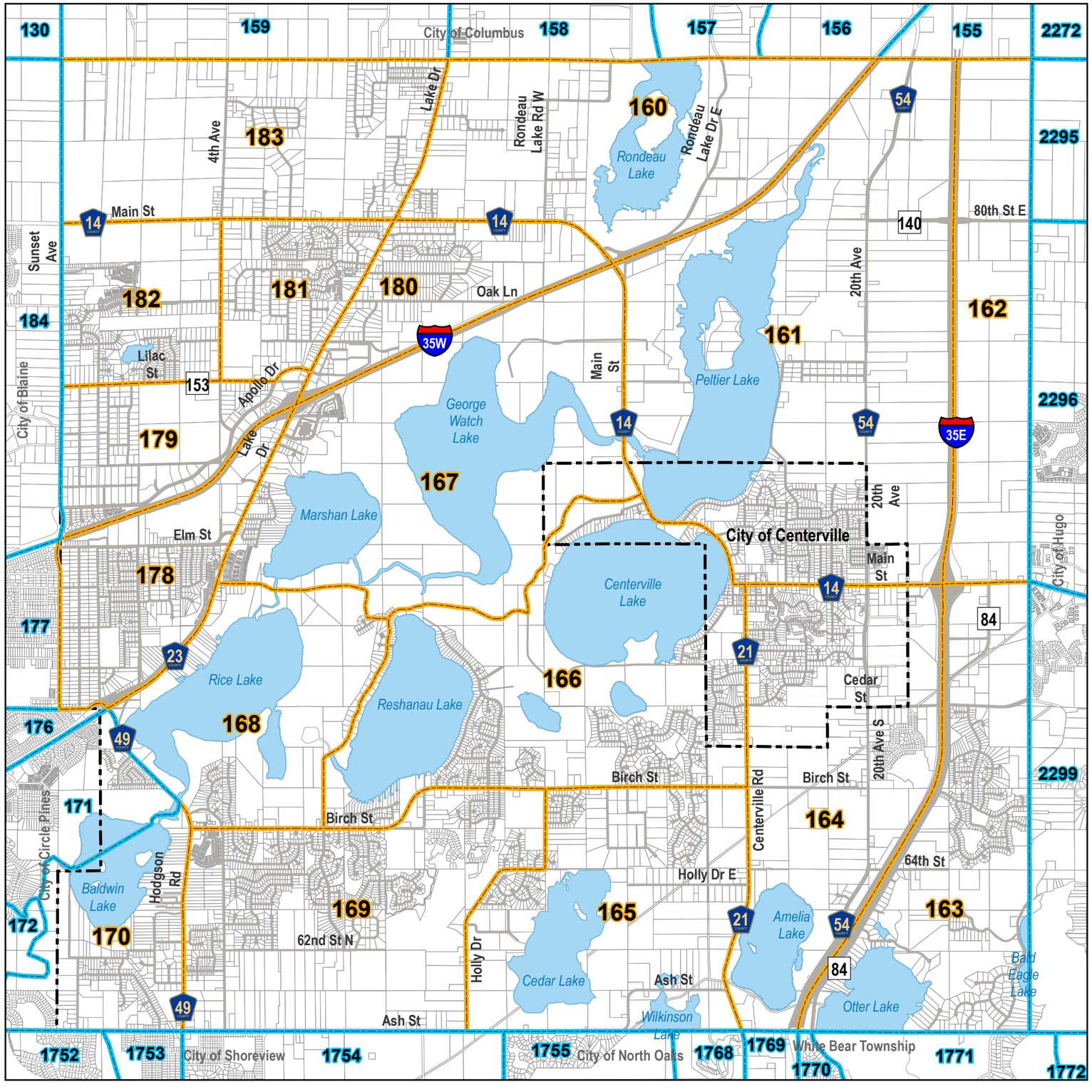
**Number of Lanes**

- 6
- 4
- 2
- 1
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 2/14/2020




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-8
# Traffic Analysis Zones

**Legend**

- XX- Lino Lake TAZ Number
- XX- Adjacent TAZ Number
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

**Table 6-4. Metropolitan Council Current TAZ Data - City of Lino Lakes (Raw Data - Unadjusted)**

| - | 2010 Census | | | 2020 Forecast | | | 2030 Forecast | | | 2040 Forecast | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TAZ | Population | Households | Employment | Population | Households | Employment | Population | Households | Employment | Population | Households | Employment |
| **160** | 331 | 118 | 17 | 360 | 127 | 49 | 371 | 136 | 49 | 387 | 146 | 50 |
| **161** | 278 | 80 | 23 | 469 | 163 | 67 | 1451 | 527 | 247 | 3368 | 1256 | 654 |
| **162** | 51 | 13 | 40 | 65 | 22 | 163 | 105 | 37 | 275 | 104 | 38 | 347 |
| **163** | 1930 | 558 | 256 | 1697 | 543 | 549 | 1620 | 548 | 661 | 1583 | 565 | 755 |
| **164** | 139 | 58 | 73 | 285 | 95 | 72 | 615 | 212 | 100 | 1100 | 387 | 131 |
| **165** | 1232 | 361 | 29 | 1294 | 433 | 43 | 1652 | 571 | 53 | 2066 | 726 | 62 |
| **166** | 2252 | 689 | 57 | 2170 | 754 | 36 | 2203 | 786 | 36 | 2283 | 826 | 36 |
| **167** | 642 | 260 | 274 | 860 | 299 | 505 | 953 | 341 | 513 | 1081 | 393 | 515 |
| **168** | 464 | 153 | 164 | 495 | 171 | 188 | 523 | 186 | 203 | 567 | 204 | 214 |
| **169** | 3598 | 1140 | 171 | 3921 | 1315 | 226 | 4484 | 1552 | 259 | 4913 | 1730 | 276 |
| **170** | 852 | 329 | 7 | 1139 | 383 | 36 | 1332 | 461 | 43 | 1501 | 527 | 50 |
| **171** | 300 | 93 | 3 | 289 | 101 | 12 | 286 | 102 | 11 | 289 | 104 | 11 |
| **178** | 2208 | 779 | 357 | 2091 | 757 | 364 | 2042 | 771 | 406 | 2055 | 800 | 441 |
| **179** | 1882 | 178 | 843 | 2351 | 210 | 1069 | 2443 | 255 | 1090 | 2560 | 285 | 1095 |
| **180** | 648 | 225 | 593 | 692 | 243 | 707 | 728 | 267 | 721 | 777 | 294 | 722 |
| **181** | 1430 | 470 | 318 | 1626 | 547 | 494 | 1819 | 634 | 503 | 1857 | 666 | 505 |
| **182** | 1246 | 413 | 9 | 1494 | 502 | 26 | 1919 | 670 | 26 | 2347 | 842 | 27 |
| **183** | 733 | 257 | 81 | 1003 | 337 | 95 | 1554 | 542 | 104 | 2261 | 811 | 112 |
| **Total** | **20216** | **6174** | **3315** | **22300** | **7000** | **4701** | **26100** | **8600** | **5300** | **31099** | **10600** | **6003** |

Source: Metropolitan Council

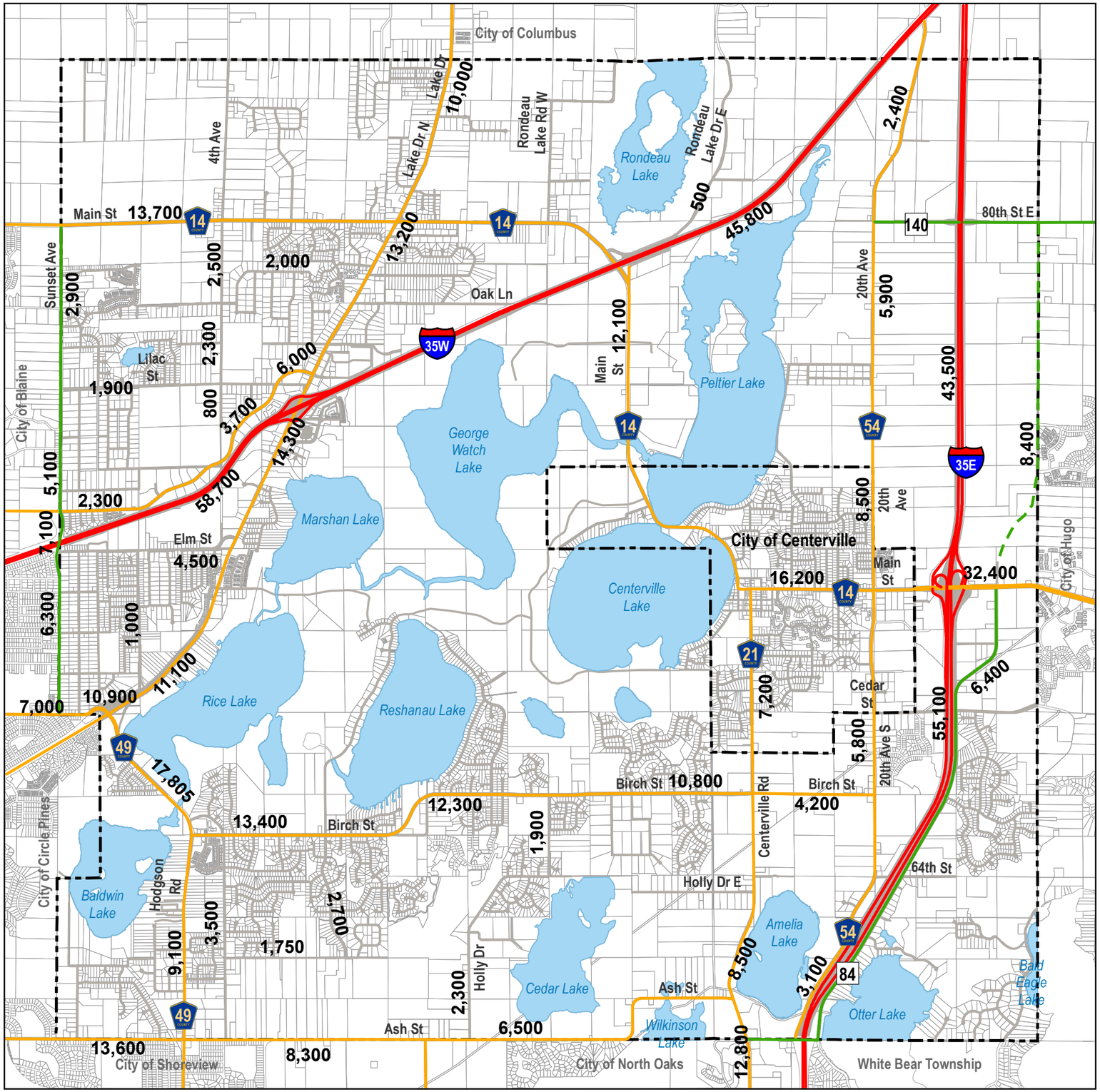
*TAZ boundary and associated data include areas outside the City of Lino Lakes.

**Table 6-5. City of Lino Lakes 2040 Land Use Plan Allocation of Forecasts by TAZ**

| | 2010 Census | | | 2020 Forecast | | | 2030 Forecast | | | 2040 Forecast | | | Post 2040 Forecast | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TAZ | Population | Household | Employment | Population | Household | Employment | Population | Household | Employment | Population | Household | Employment | Population | Household | Employment |
| 160 | 331 | 118 | 17 | 370 | 130 | 50 | 380 | 140 | 50 | 390 | 150 | 50 | 3340 | 1180 | 300 |
| 161 | 278 | 80 | 23 | 2460 | 890 | 190 | 3480 | 1290 | 380 | 5370 | 2000 | 810 | 8260 | 2780 | 6580 |
| 162 | 51 | 13 | 40 | 70 | 20 | 160 | 110 | 40 | 280 | 100 | 40 | 350 | 1720 | 580 | 4520 |
| 163 | 1930 | 558 | 256 | 1740 | 570 | 550 | 1670 | 570 | 660 | 1580 | 560 | 760 | 2430 | 820 | 1710 |
| 164 | 139 | 58 | 73 | 1700 | 610 | 460 | 2110 | 770 | 500 | 2670 | 970 | 540 | 5830 | 1960 | 570 |
| 165 | 1232 | 361 | 29 | 1320 | 450 | 40 | 1700 | 600 | 50 | 2070 | 730 | 60 | 5820 | 1960 | 570 |
| 166 | 2252 | 689 | 57 | 2670 | 950 | 60 | 2730 | 990 | 60 | 2770 | 1000 | 60 | 2140 | 720 | 70 |
| 167 | 642 | 260 | 274 | 880 | 310 | 500 | 980 | 360 | 510 | 1080 | 390 | 520 | 2800 | 940 | 150 |
| 168 | 464 | 153 | 164 | 510 | 180 | 190 | 540 | 200 | 200 | 570 | 200 | 210 | 420 | 140 | 310 |
| 169 | 3598 | 1140 | 171 | 4010 | 1370 | 230 | 4620 | 1620 | 260 | 4910 | 1730 | 280 | 360 | 1220 | 10 |
| 170 | 852 | 329 | 7 | 1240 | 430 | 40 | 1460 | 520 | 40 | 1590 | 560 | 50 | 3120 | 1050 | 340 |
| 171 | 300 | 93 | 3 | 310 | 100 | 10 | 320 | 110 | 10 | 320 | 110 | 20 | 420 | 140 | 310 |
| 178 | 2208 | 779 | 357 | 2140 | 790 | 360 | 2100 | 810 | 410 | 2060 | 800 | 440 | 2390 | 810 | 80 |
| 179 | 1882 | 178 | 843 | 2400 | 220 | 1070 | 2520 | 270 | 1090 | 2560 | 280 | 1100 | 840 | 280 | 1570 |
| 180 | 648 | 225 | 593 | 710 | 250 | 710 | 750 | 280 | 720 | 780 | 290 | 720 | 1350 | 450 | 670 |
| 181 | 1430 | 470 | 318 | 1660 | 570 | 490 | 1880 | 660 | 500 | 1860 | 670 | 500 | 1690 | 570 | 650 |
| 182 | 1246 | 413 | 9 | 1530 | 520 | 30 | 1980 | 700 | 30 | 2350 | 840 | 30 | 3840 | 1290 | 80 |
| 183 | 733 | 257 | 81 | 1020 | 350 | 100 | 1600 | 570 | 100 | 2260 | 810 | 110 | 7350 | 2480 | 250 |
| **Total** | **20216** | **6174** | **3315** | **26740** | **8710** | **5240** | **30930** | **10500** | **5850** | **35290** | **12130** | **6610** | **57250** | **19300** | **19500** |

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-9
# 2040 Forecasted Traffic Volumes




## Legend

XXX- 2040 Forecast

**Transportation System**

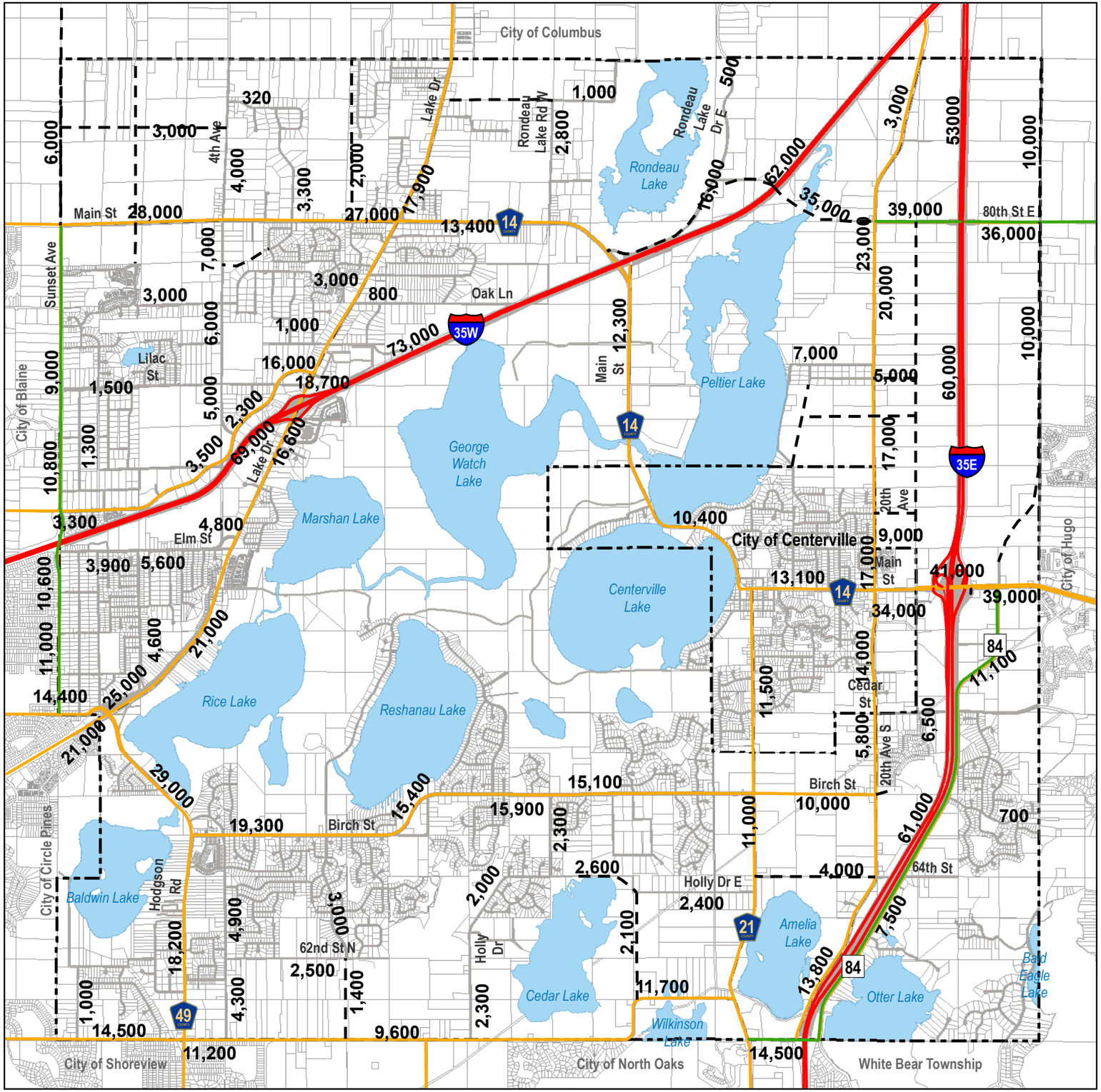
- State
- County State Aid Highway (CSAH)
- County Road
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

Source:
- Metropolitan Council Forecasts
- Anoka County Forecasts

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020 **6-20**







# Figure 6-10
# Full Build Forecasted Traffic Volumes (Post 2040)

## Legend

XXX- Post 2040 Forecasts

**Transportation System**

- State
- County State Aid Highway (CSAH)
- County Road
- Future Roads
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Safety Issues

A central concern of transportation professionals is roadway safety. To assist in the evaluation of crashes, MnDOT maintains a database of crash records from around the State of Minnesota. These records identify the location, severity and circumstances associated with each crash. This dataset is useful for identifying crashes within the city, but it should be noted that the crash location data input may not always be extremely accurate. Therefore, further evaluation may be needed to determine if safety issues exist at locations identified as having a high frequency of crashes. MnDOT's dataset was reviewed to identify the number, location and severity of crashes in the City of Lino Lakes for the years 2011 - 2015. Overall there were 1,107 crashes, of which 4 involved fatalities, 266 involved personal injury and 837 involved property damage (see Table 6-6). These crashes were generally widely distributed throughout the city with most locations accounting for only one or two incidents, suggesting that a crash at that location was a random event. However, several of these crashes were concentrated at a limited number of locations.

There is a high correlation between the frequency of crashes and traffic volumes. Roadways with high volumes tend to have more crashes than a lower volume roadway. A planning-level safety analysis was conducted to identify locations in Lino Lakes with a high frequency of crashes. Further investigation is warranted at these locations to evaluate the types of crashes and to calculate crash rates at these locations to determine their relevance. The intersection with the most crashes are listed in Table 6-7.

In keeping with the state's goal of "Toward Zero Deaths," additional analysis of the fatal crashes within the city over the five-year study period was also conducted using crash reports. Based on the reports, roadway geometry was not cited as contributing factors in the fatal crashes. Instead, the reports showed the following:

- 100% of the fatal crashes occurred on I-35 E.
- Two of the crashes involved single vehicles running off the road. One was a rear-end crash and one was listed as unknown.

**Table 6-6. Motor Vehicle Crashes in Lino Lakes (2011-2015) ***

| Year | Number of Crashes | | | | | |
|---|---|---|---|---|---|---|
| | | Personal Injury Crashes | | | | |
| | Fatal Crashes | Type A Incapacitating Injury | Type B Non-Incapacitating Injury | Type C Possible Injury | Property Damage Crashes | Total Crashes |
| 2011 | 2 | 1 | 14 | 35 | 142 | 194 |
| 2012 | 1 | 4 | 18 | 29 | 158 | 210 |
| 2013 | 1 | 3 | 11 | 29 | 172 | 216 |
| 2014 | 0 | 0 | 14 | 48 | 175 | 237 |
| 2015 | 0 | 3 | 19 | 38 | 190 | 250 |
| 5-Year Total | 4 | 11 | 76 | 179 | 837 | 1,107 |
| 5-Year Average | 1 | 2 | 15 | 36 | 167 | 221 |

*Includes Interstate and Trunk Highway Facilities

**Table 6-7. Top Eight Crash Locations in Lino Lakes (2011-2015) (by total crashes) ***

| Crash Location Descriptions | Number of Crashes | | | | | |
|---|---|---|---|---|---|---|
| | | Personal Injury Crashes | | | | |
| | Fatal Crashes | Type A | Type B | Type C | Property Damage Crashes | Total Crashes |
| CSAH 14 (Main St) at CSAH 23 (Lake Dr) | 0 | 0 | 0 | 5 | 23 | 28 |
| CSAH 49 (Hodgson Rd) at CSAH 34 (Birch St) | 0 | 0 | 1 | 4 | 11 | 16 |
| CSAH 32 (Ash St) at CSAH 21 (Centerville Rd) | 0 | 0 | 0 | 6 | 8 | 14 |
| CSAH 23 (Lake Dr) at I-35W Ramps | 0 | 0 | 2 | 1 | 7 | 10 |
| CSAH 14 (Main St) at CR 53 (Sunset Ave) | 0 | 0 | 0 | 9 | 9 | 9 |
| CSAH 34 (Birch St) at Ware Road | 0 | 0 | 0 | 3 | 4 | 7 |
| CSAH 14 (Main St) at I-35W Ramps | 0 | 0 | 1 | 2 | 3 | 6 |
| CSAH 34 (Birch St) at Hokah Drive | 0 | 0 | 0 | 3 | 3 | 6 |

*Excludes Interstate and TH Facilities

## Programmed or Planned Roadway Improvements

Various roadway projects are either currently under construction, programmed for completion in the next few years, or proceeding through the planning process. When identifying future needs, roadways that are programmed or planned are considered part of the future roadway system because they will likely be in place during the 2040 and Full Build (post 2040) planning horizon.

### Regional Roadway Improvements

There are no programmed or planned improvements to regional roadways (I-35W or I-35E) within the City of Lino Lakes. MnDOT's *Metro District Transportation System Plan* does identify the need for additional lanes on portions of I-35W within Lino Lakes; however, no funding has been identified for these projects and therefore, they will most likely occur outside the 2040 planning horizon. Since the regional improvements noted above are not currently funded (programmed), they were not incorporated into the model as part of the future roadway system. However, based upon the city's anticipated future land use, 2040 traffic forecasts identify if there is a need for these improvements during the 2040 planning horizon.

### Anoka County Improvements

The following roadway improvements were previously identified by Anoka County in their 2030 Transportation Plan and therefore assumed to be part of the future roadway system. It was assumed that they should be upgraded to three-lane or four-lane facilities in the future to accommodate the 2040 and post 2040 traffic conditions:

- CSAH 14 (Main St) – I-35W to West City Limit
- CSAH 32 (Ash St) – CSAH 49 (Hodgson Rd) to West City Limit
- CSAH 32 (Ash St) – CSAH 21 (Centerville Rd) to Holly Drive
- CSAH 23 (Lake Dr) – West City Limit to North City Limit
- CSAH 49 (Hodgson Rd) – CSAH 23 (Lake Dr) to CSAH 32 (Ash St)
- CSAH 21 (Centerville Rd) – CSAH 32 (Ash St) to South City Limits
- CSAH 54 (20th Ave) – 77th Street to South City Limit
- CSAH 34 (Birch St) – CSAH 21 (Centerville Rd) to CSAH 49 (Hodgson Rd)

The following roadways also require upgrade to three-lane divided facilities by year 2040:

- CR 53 (Sunset Ave) – CSAH 14 (Main St) to CSAH 23 (Lake Dr)
- CSAH 21 (Centerville Rd) – CSAH 14 (Main St) to CSAH 34 (Birch St)
- CSAH 32 (Ash St) – Holly Drive to CSAH 49 (Hodgson Rd)

### City of Lino Lakes Improvements

The City of Lino Lakes' *2018 - 2022 Capital Improvement Program* identifies the following additional local road projects:

- Cedar Street – East City Limit to CSAH 84 (Otter Lake Rd)
- CR J (Ash Street) at CSAH 21 (Centerville Road) Roundabout
- CSAH 84 (Otter Lake Road) Extension – Elmcrest Drive (Hugo) to 100 feet north of CSAH 14 (Main Street)
- In addition to these improvements other street connections may be constructed with development projects.

The above improvements will alleviate most of the anticipated congestion in the city by 2040. However, as the city moves beyond the 2040 planning horizon and approaches full build-out, roadways such as CSAH 14 (Main St) between CSAH 21 (Centerville Rd) and I-35E may not be able to accommodate future traffic demand. The solution to this potential congestion issue is not additional increases in roadway capacity, but rather system improvements described in the following section that would occur in the post-2040 timeframe.

The CSAH 34 Corridor Study also determined that additional roadway system improvements in the area, such as a potential future overpass of I-35E between CSAH 14 (Main St) and CSAH 34 (Birch St) near Cedar Street will further help to reduce future traffic volumes in the CSAH 14 (Main St) interchange area. Additional study is needed; however, in the meantime, the city may want to consider preserving right-of-way for this potential future overpass. These system improvements would divert sufficient traffic away from existing CSAH 14 (Main St) to eliminate potential future congestion issues.

Enforcement of the land designated as Urban Reserve by the city's 2040 future land use plan is also critical to ensuring the improvements to the transportation system before 2040 are sufficient. If land designated Urban Reserve is developed at a higher density than expected before 2040 the transportation system will suffer and additional congestion will be experienced.

The City of Lino Lakes strives to coordinate with adjacent jurisdictions (i.e., Blaine, Hugo, North Oaks, Shoreview, and Circle Pines) as well as Anoka County, Ramsey County, Washington County, and MnDOT when planning future improvements. Coordination among jurisdictions will provide opportunities for collaboration that could benefit all agencies and the public. This may result in financial and time savings through economies of scale, as well as potentially reducing construction impacts to residents through the coordination of projects.

## Roadway Improvement Needs

### Existing Roadway Capacity

Congestion on the roadway system is judged to exist when the ratio of traffic volume to roadway capacity (v/c ratio) approaches or exceeds 1.0. The ratio of volume to capacity provides a measure of congestion along a stretch of roadway and can help determine where roadway improvements, access management, transit services, or demand management strategies need to be implemented. It does not, however, provide a basis for determining the need for specific intersection improvements.

Table 6-8 provides a method to evaluate roadway capacity for non-freeway and non-regional highway roadways. For each facility type, the typical planning level average daily traffic (ADT) capacity ranges and maximum ADT volume ranges are listed. These volume ranges are based upon guidance from the Highway Capacity Manual, discussions with the Metropolitan Council and professional engineering judgment. A range is used since the maximum capacity of any roadway design (v/c = 1) is a theoretical

measure that can be affected by its functional classification, traffic peaking, access spacing, speed, and other roadway characteristics. Further, to define a facility's "daily capacity", the top of each facility type's volume range should be used. This allows for capacity improvements that can be achieved by roadway performance enhancements. Another useful capacity analysis index is the level of traffic that a facility can accommodate before it is defined as approaching its capacity limit. A segment of road is noted as "approaching capacity" when observed daily volume equals or exceeds 85% of daily capacity ($v/c \geq 0.85$). This level of traffic volume is also presented in Table 6-8 by facility type.

Using the methodology described above, existing capacity deficiencies were identified by comparing existing ADT volumes to the thresholds noted in Table 6-8. The existing traffic volumes (Figure 6-6) and the existing number of lanes (Figure 6-7) were used to develop the existing capacity deficiencies shown in Figure 6-11. As noted in the figure "congested" roadway segments are defined as those with a volume-to-capacity ratio at or above 1.0, which signifies that a segment of road has observed volumes which exceed its design capacity. In addition, the figure also identifies those segments of roadways that are approaching capacity (volume-to-capacity ratio of 0.85 to 1.0).

Based on this analysis, the following road segment currently exceeds its design capacity:

- CSAH 23 (Lake Drive) – South of I-35W to north of CSAH 49 (Hodgson Road)
- CSAH 23 (Lake Drive) – North of Apollo Drive to CSAH 14 (Main Street)
- CSAH 49 (Hodgson Road) – South of CSAH 23 (Lake Drive) to CSAH 34 (Birch Street)
- CSAH 34 (Birch Street) – Holly Drive to CSAH 49 (Hodgson Road)
- CSAH 32 (Ash Street) – CSAH 49 (Hodgson Road) to West City Limit

It is important to point out that the use of ADT volumes in determining existing congestion most likely will not identify peak hour congestion issues. Because there are peak hour directional flows of traffic from Lino Lakes into and out of Minneapolis/St. Paul, it is important to at least acknowledge that these peak hour congestion issues currently exist. Local knowledge of these issues was used to identify the peak hour congestion areas listed below:

- CSAH 32 (Ash Street) at CSAH 49 (Hodgson Road) intersection
- CSAH 21 (Centerville Road at CR J (Ash Street) intersection
- CR J (Ash Street) at I-35E interchange

In addition, the following roadways are currently approaching congestion:

- CSAH 14 (Main Street) – CSAH 23 (Lake Dr) to West City Limit
- CSAH 23 (Lake Drive) – North City Limit to CSAH 14 (Main Street)
- CSAH 49 (Hodgson Road) – CSAH 34 (Birch Street) to CSAH 32 (Ash Street)
- CSAH 34 (Birch Street) – CSAH 21 (Centerville Road) to Holly Drive

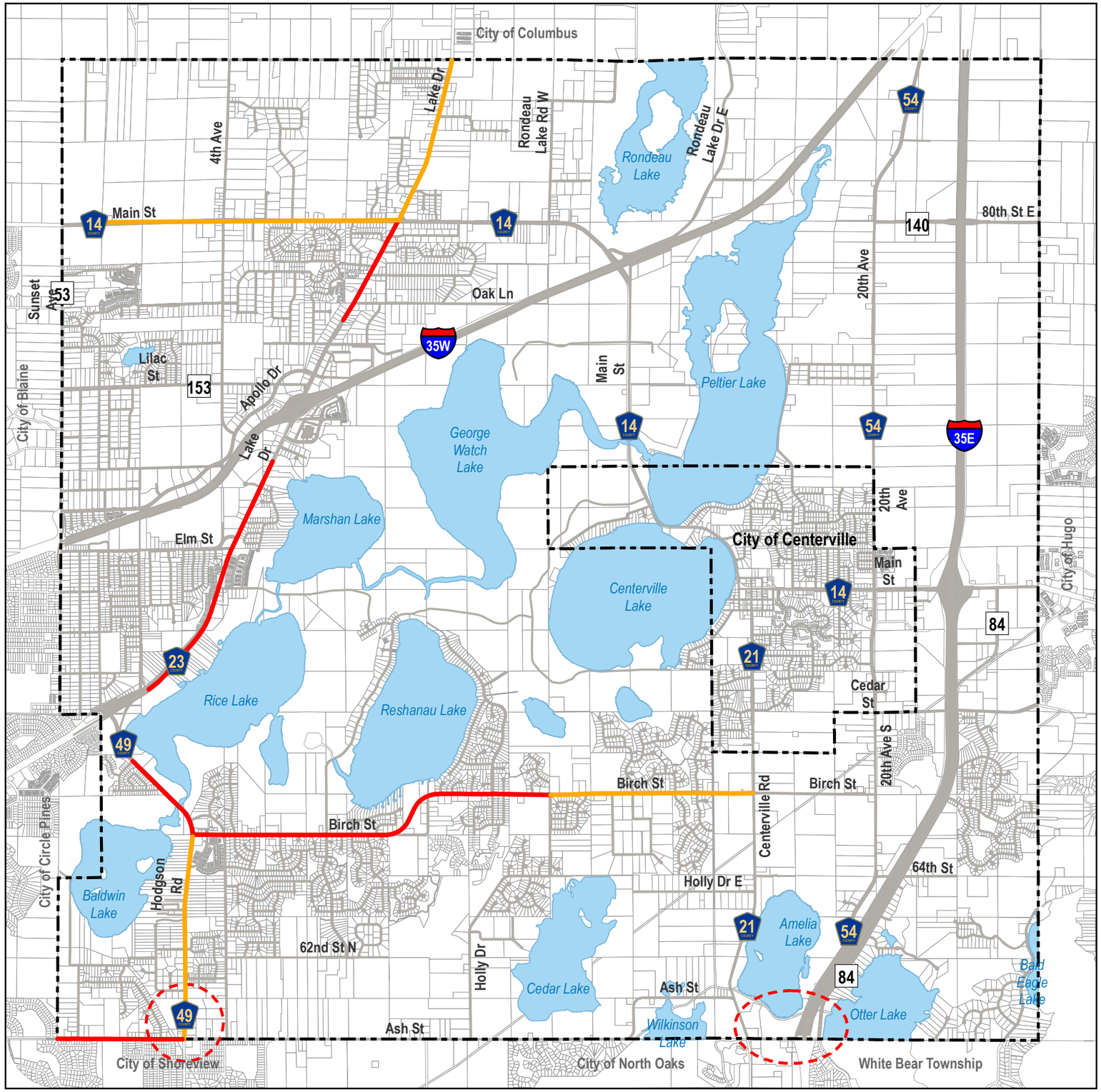
The methodology described above is a planning-level analysis that uses average daily traffic volumes and is not appropriate for all traffic conditions. Traffic conditions that do not fit the average daily traffic criteria (i.e., weekend travel, holiday travel, special events, etc.) are likely to produce different levels of congestion. Further, this methodology does not take into account specific geometric conditions that exist at the intersection nodes, potential peaking characteristics of these roadways or directional flow disparities, which can greatly impact the order of magnitude of the deficiency (either meaning there is not a deficiency or it is more significant than what is indicated by the ADT alone). However, for purposes of the transportation planning process, this v/c methodology is widely accepted and applicable. For detailed design consideration of access management, intersection traffic control and congestion mitigation, the city may require a traffic study providing detailed operational analysis for specific developments.

**Table 6-8. Planning-Level Roadway Capacities by Facility Type**

| Facility Type | Planning Level Daily Capacity Ranges (ADT) | Daily Capacity (ADT) | Approaching Capacity (85% of ADT) |
|---|---|---|---|
| **Two-lane undivided urban** | 8,000-10,000 | 10,000 | 8,500 |
| **Two-lane undivided rural** | 14,000-15,000 | 15,000 | 12,750 |
| **Two-lane divided (three-lane)** | 14,000-17,000 | 17,000 | 14,450 |
| **Four-lane undivided urban** | 18,000-22,000 | 22,000 | 18,700 |
| **Four-lane divided (five-lane)** | 28,000-32,000 | 32,000 | 27,200 |
| **Four-lane divided rural** | 35,000-38,000 | 38,000 | 32,300 |

Note: The terms urban and rural describe typical section design (e.g. curb and gutter for urban and ditch drainage for rural. They do not imply geographic areas






CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-11
# Existing Congestion

## Legend

**Volume/Capacity Ratio**

- 0.85 - 1.00 (Approaching Capacity)
- 1.01 + (Over Capacity)
- Congestion Area of Concern
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

### 2040 Capacity Deficiencies

A planning level analysis was performed to identify locations where capacity problems are expected to occur by the planning horizon year (2040). Capacity was based upon the existing roadway system along with the programmed and planned improvements identified earlier. Similar to the methodology described above to determine existing capacity deficiencies, the future volumes were reviewed to determine if future capacity deficiencies will develop. Based on this review, Figure 6-12 illustrates Lino Lakes' projected future capacity deficiencies based on projected 2040 development.

With existing and programmed improvements and 2040 development, some of the major roadways in the city are expected to operate at levels approaching capacity or over capacity. The following summarizes the road segments anticipated to exceed their design capacity in 2040:

- CSAH 14 (Main St) – West City Limits to CSAH 54 (20th Avenue)
- CSAH 32 (Ash St) – West City Limits to Holly Drive
- CSAH 34 (Birch St) – CSAH 21 (Centerville Rd) to CSAH 49 (Hodgson Rd)
- CSAH 23 (Lake Dr) – West City Limit to South of I-35W
- CSAH 23 (Lake Dr) – North City Limit to north of I-35W
- CSAH 49 (Hodgson Rd) – South of CSAH 23 (Lake Dr) to CSAH 32 (Ash St)
- CSAH 21 (Centerville Rd) – CSAH 34 (Birch St) to South City Limit

In addition, the following road segments are expected to be approaching capacity by 2040:

- CSAH 32 (Ash Street) – CSAH 21 (Centerville Road) to Holly Drive
- CSAH 21 (Centerville Road) – CSAH 14 (Main St) to CSAH 34 (Birch St)
- CSAH 54 (20th Avenue) – 73rd Street to CSAH 14 (Main St)

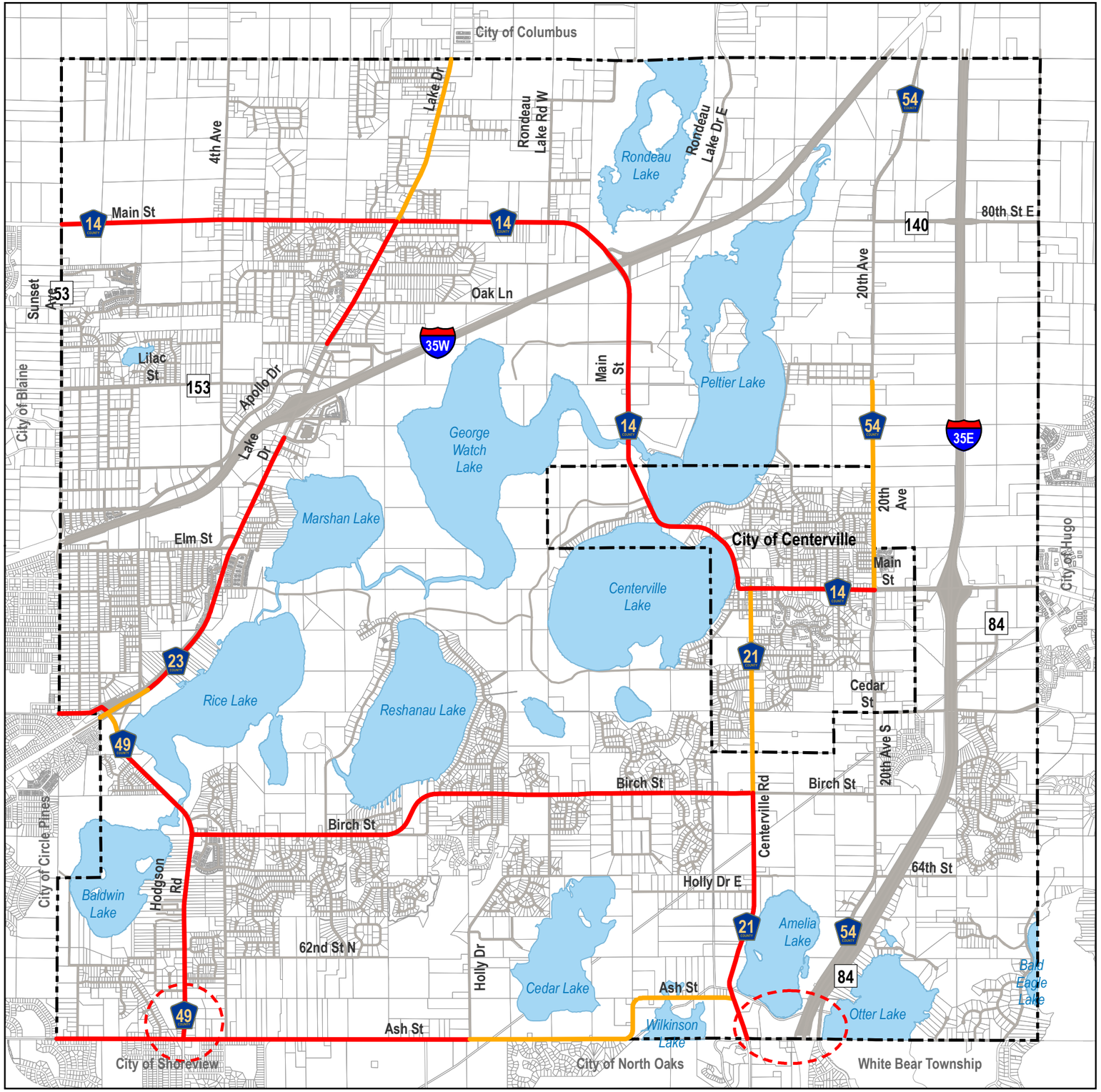
### Full Build (post 2040) Deficiencies

The most significant improvement that will be necessary in the post-2040 period will be the construction of a new roadway to connect I-35W and I-35E across the northern part of the city. What is referred to as the northern bypass would include new interchanges at both freeways and would create a continuous east-west route across the northern part of Lino Lakes. This improvement will be necessary to accommodate both regional traffic and additional local traffic that is expected with the full build-out of the city, particularly in the northeast. This roadway would be designated CSAH 14 and the existing CSAH 14 from I-35W through the regional park and Centerville would be re-designated. In addition to providing for regional and local traffic, this improvement will relieve congestion in the existing CSAH 14 segment between CSAH 21 and the east city limits and will reduce traffic as far south as CSAH 34.

Future roadway improvements designed to address system connectivity, continuity, congestion and/or safety issues have been identified for the roadway system in Lino Lakes based on the programed or planned roadway improvements, 2040 traffic forecasts (Figure 6-9) and the post 2040 forecast (Figure 6-10). Those roadways that should be upgraded in the future conditions are presented in Figure 6-13 and are derived from a combination of system needs and the intended function of each roadway as it relates to the adjacent supporting land use.

It should be noted that the proposed roadway section discussed here is based on planning-level capacity thresholds and does not account for spot intersection improvements and/or trails. The final design of the proposed roadway improvements will be determined through future additional study. This will be particularly important for those roadways with future traffic forecasts close to the planning-level capacity thresholds designating what type of facility is needed in the future (i.e., two-lane versus four-lane facilities).

The determination of how and if to implement the additional roadway system needs, and their proper sequencing, will be determined through each jurisdiction's programming process that considers the estimated cost of each project, available financing and coordination with other projects.




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-12
# 2040 Congestion

## Legend

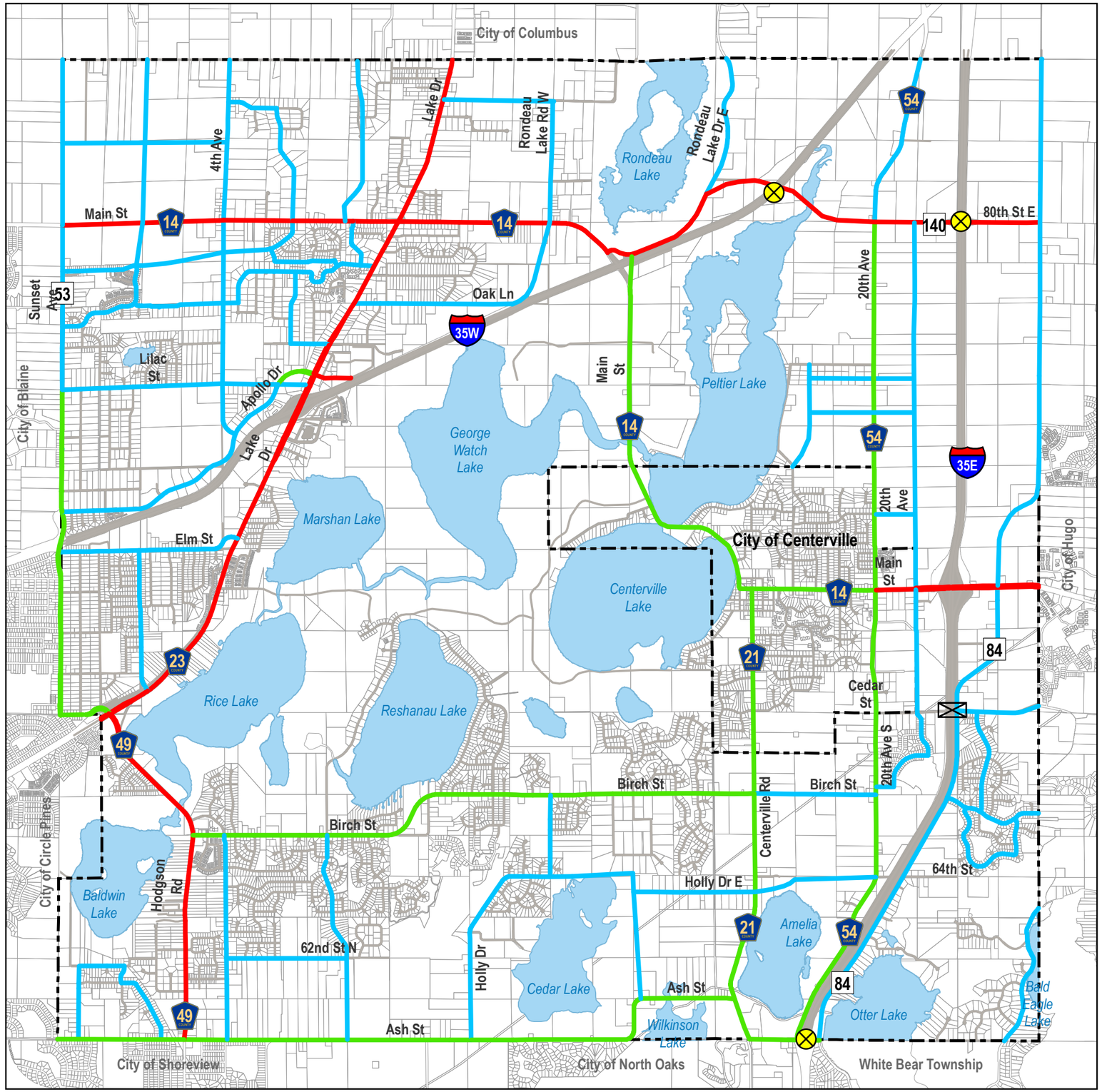
**Volume/Capacity Ratio**

- 0.85 - 1.00 (Approaching Capacity)
- 1.01 + (Over Capacity)
- Congestion Area of Concern
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-13
# Future Roadway System
# Post 2040

## Legend

- Future Full Access Interchange
- Future Overpass

**Recommended Lanes**

- Four Lane Divided
- Three Lane / Four Lane (Based on Study)
- Two lane Divided
- Two Lane
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Access Management

Control of access to roadways, both in terms of cross-street spacing and driveway placement, is a critical means of preserving or enhancing the efficient operation of the roadway system and improving safety by reducing crash exposure. Access control guidelines are used to preserve the public investment in the roadway system and to give direction to developers for plan preparation. The guidelines balance the public interest (mobility) with the interests of property owners (access). Effective control of driveway access on the entire street system requires cooperation of municipal, county and state officials.

MnDOT has developed a policy on access management and guidelines for access spacing. MnDOT's Highway Access Category System and Spacing Guidelines can be found on MnDOT's website.

The City of Lino Lakes will work to support the access management guidelines of other jurisdictions. The city is aware that both Anoka County and MnDOT have access guidelines managing their roadways located within Lino Lakes. The city acknowledges these guidelines and will work with these agencies to support access management in the City of Lino Lakes by amending its official controls to include both MnDOT's and Anoka County's access guidelines. However, due to existing development patterns there may be some redevelopment areas that do not meet the minimum access spacing guidelines and/or have joint access agreements between properties. The city will work with these property owners and Anoka County and/or MnDOT as necessary to develop acceptable access management plans for these exceptions.

### Access to Principal Arterials

The City of Lino Lakes will strive to meet metropolitan guidelines for access to principal arterials. These guidelines recommend limiting cross-street access to one-half-mile spacing within urbanized areas, with one- to two-mile spacing being optimal. No new driveway access is permitted to principal arterials.

### Access to Minor Arterials

The city strives to meet Anoka County guidelines for access to the minor arterial system. The Anoka County guidelines identify access spacing per functional classification of county roadways. Guidelines vary from 1/8-mile to one-mile spacing between accesses. However, due to existing development patterns there may be some redevelopment areas that do not meet the minimum access spacing guidelines and/or have joint access agreements between properties. The city will work with these property owners and Anoka County and/or MnDOT as necessary to develop acceptable access management plans for these exceptions.

### Driveway Access on City Streets (Collectors and Local Roads)

Driveways contribute to accidents and reduced traffic flow on major streets in municipalities because they add to the number of locations where vehicle conflicts can occur. Hence, it is desirable to have guidelines in place that:

- Limit the number of driveways to those that are actually needed to safely accommodate the traffic generated by each development.
- Provide adequate spacing between driveways so conflicts (and resulting accidents) between vehicles maneuvering at adjacent driveways do not arise.
- Ensure proper design to accommodate driveway traffic and minimize vehicle conflicts without significantly reducing roadway capacity.

Occasionally topographic features of a particular site or the needs of a particular land use may require special access features in a proposed development. The city may wish to withhold approval of these developments or site changes until a study has been made of the potential impacts on the affected roadways and the adequacy of the proposed access design is determined. The city may require that the following steps be included in the traffic study for the site:

- Estimate site traffic generation and future non-site traffic.
- Determine directional distribution of trips.
- Estimate turning movements at driveway and the resulting level of service.
- Analyze current and future access requirements.
- Provide necessary geometric and operational improvements to safely accommodate the site's access requirements without negative impacts to traffic operation on the adjoining roadways.

## Right of Way

Right-of-way (ROW) is a valuable public asset. Therefore, it needs to be protected and managed in a way that respects its intended function, while serving the greatest public good. Lino Lakes with its current and anticipated growth may need to reconstruct or widen existing roadways and construct new roadway segments to meet future capacity and connectivity demands. Such improvements may require that adequate ROW be maintained or secured. The city will coordinate with MnDOT and Anoka County for ROW acquisition along state or county routes. The city may use a variety of tools and techniques, including but not limited to the following:

- **Right-of-Way Preservation -** When future expansion or realignment of a roadway is proposed, but cannot immediately be constructed, Lino Lakes should consider ROW preservation strategies to reduce costs and maintain the feasibility of the proposed improvement. Before implementing any ROW preservation programs, the city should weigh the risks of proceeding with ROW preservation without environmental documentation. MnDOT policy requires environmental documentation prior to purchase. If environmental documentation has not been completed, agencies risk preserving a corridor or parcel that has associated environmental issues.
- **Direct Purchase -** One of the best ways to preserve ROW is to purchase it. Unfortunately, the city has limited funds to purchase ROW in advance, and the public benefit of purchasing ROW is not realized until a roadway or transportation facility is built. Most typically, local jurisdictions utilize various corridor preservation methods prior to roadway construction and then purchase the ROW if it is not dedicated, at the time of design and construction. A potential resource for direct purchase of ROW is the Right-of-way Acquisition Loan Fund (RALF), which is administered by the Metropolitan Council.
- **Planning and Zoning Authority -** Lino Lakes has the authority to regulate existing and future land use. Under this authority, the city has a number of tools for preserving right-of-way for transportation projects. These tools include:
  - **Zoning -** If the property has a very low-density zoning classification, the city should try to maintain its existing zoning classification (i.e., do not rezone it). A low zoning classification limits the risk for significant development, and can help preserve

land for potential ROW, until funding becomes available for roadway construction.

- **Platting and Subdivision Regulations -** Platting and subdivision regulations allow the city to consider future roadway alignments during the platting process because most land must be platted before it is developed. The City can use its authority to regulate land development to influence plat configuration and the location of proposed roadways. In most instances, planning and engineering staff work with developers to formulate a plat that meets development objectives and that conforms to a long-term community vision and/or plans. Lino Lakes requires ROW dedication as part of the platting and subdivision process.

- **Official Mapping -** A final strategy to preserve ROW is to adopt an Official Map. An Official Map is developed by the local governmental unit and identifies the centerline and ROW needed for a future roadway. The local agency then holds a public hearing showing the location of the future roadway and incorporates the official map into its thoroughfare or community facilities plan. The official mapping process allows agencies to control proposed development within an identified area, and to influence development on adjacent parcels. However, if a directly affected property owner requests to develop his/her property, agencies have six months to initiate acquisition and purchase of the property to prevent its development. If the property is not purchased, the owner may develop it in conformance with current zoning and subdivision regulations. As a result, the official mapping process should only be used for preserving key corridors in areas with significant growth pressures.

Additional information on some of the tools and techniques listed above can be found in Appendix J of MnDOT's *Interregional Corridors: A Guide for Plan Development and Corridor Management*. This guide also includes information on the environmental review and documentation process as it relates to right-of-way preservation.

## Complete Streets

Complete Streets is the planning, scoping, design, implementation, operation, and maintenance of roads to reasonably address the safety and accessibility needs of users of all ages and abilities. Complete Streets consider the needs of motorists, pedestrians, transit users and vehicles, bicyclists, and commercial and emergency vehicles moving along and across roads, intersections, and crossings in a manner that is sensitive to the local context and recognizes that the needs vary in urban, suburban, and rural settings (MINN. STAT. § 174.75, Subd. 1).

Complete Streets is a process for developing a transportation network that best accommodates all modes of transportation. Planners and designers must systematically consider all modes when developing their long-range plans and short-term maintenance and construction projects. The City of Lino Lakes supports considering implementing a Complete Streets process in roadway reconstruction projects where appropriate and feasible.

## Traffic Calming

Traffic calming is an approach used to accomplish one or more of the following primary objectives:

- Reduce speeds on local streets
- Reduce cut-through (non-local) traffic levels on local streets
- Improve safety and usability for non-motorized traffic

Under certain circumstances, traffic calming can be used on collector level roadways to reduce speeds, primarily at intersections. However, the focus is on "returning neighborhood streets to the neighborhood."

Traffic calming measures are best evaluated and implemented within the context of the overall transportation network serving the city; it is never advisable to simply shift a problem from one street or area to another. Since so much of Lino Lakes is rural in nature, traffic calming may not have the same application as in more typical urban settings. However, the following measures should be kept in mind as possible "tools in the toolbox:"

- Traffic circles/roundabouts
- Lateral lane shifts – roadway striping
- Curb extensions/neckdowns at intersections
- Raised crosswalks
- Diverters – close access to street
- Diver feedback signs

It has been suggested that narrowed streets reduce speeds. However, empirical data on this is not conclusive. Traffic calming measures should be reviewed on a case-by-case basis, and should be evaluated within the context of the overall street network and broad-based policy objectives.

The city has developed and adopted a traffic policy to document processes and procedures for locating and installing traffic devices, to include: signage, pavement markings and traffic calming devices specifically within neighborhoods to address speeding, traffic control (stop signs) and cut through traffic issues.

# Transit System Plan

Meeting the transportation needs of Lino Lakes' residents requires more than a comprehensive, well maintained roadway system. A complete transportation system incorporates a variety of transportation modes to meet the disparate needs of the city's residents. Affordable and convenient transit is an essential characteristic of an urban community. Transit is an important element in the overall transportation network because it:

- Provides opportunities to people who prefer an alternative to automobile travel
- Offers an option to senior citizens and people who cannot drive or cannot afford an automobile with access to various services within the area (i.e., medical care, shopping and governmental services)
- Potentially removes a portion of existing or future automobile traffic from the roadway, possibly reducing travel time and congestion for other vehicles on the roadway

The City of Lino Lakes is committed to supporting and preserving existing transit services and facilities in the city and seeking ways to improve the transit system. Although the city does not have direct responsibility for the operation of services or providing facilities, the city can advocate for better service while promoting more transit supportive land use patterns as sections of the city develop or redevelop. This section identifies the existing services, facilities and programs within the City of Lino Lakes, suggests improvements, and discusses the city's role in supporting the transit system.

## Transit Market Areas

The transit system in the City of Lino Lakes is typical of suburban cities that are still developing. The most conspicuous services are the express routes to both downtown Minneapolis and St Paul that operate during the peak periods from large centrally located park and rides. But while this service is the most visible, it is only one element of a comprehensive collection of services, facilities and programs. The *2040 Transportation Policy Plan* identified five existing transit market service areas for the Twin Cities metropolitan area. The market service areas were defined by:

- Population density
- Employment concentration and job density
- Trip volumes and patterns
- Transit dependent segments of the population

Table 6-9 provides detailed information on Transit Market Areas defined by the Metropolitan Council including the recommended service options and service characteristics. Lino Lakes is located in Transit Market Area IV and V. This means that the area is expected to have lower levels of transit service, with service focused on peak period express service.

### Table 6-9. Transit Market Area Services

| Market Area | Propensity to Use Transit | Typical Transit Services |
|---|---|---|
| I | Highest potential for transit ridership | Dense network of local routes with highest levels of service accommodating a wide variety of trip purposes. Limited stop service supplements local routes where appropriate |
| II | Approximately 1/2 ridership potential of Market Area I | Similar network structure to Market Area I with reduced level of service as demand warrants. Limited stop services are appropriate to connect major destinations |
| III | Approximately 1/2 ridership potential of Market Area II | Primary emphasis is on commuter express bus service. Suburban local routes providing basic coverage. General public dial-a-ride complements fixed route in some cases |
| IV | Approximately 1/2 ridership potential of Market Area III | Peak period express service is appropriate as local demand warrants. General public dial-a-ride services are appropriate. |
| V | Lowest potential for transit ridership | Not well-suited for fixed-route service. Primary emphasis is on general public dial-a-ride services. |
| Emerging Market Overlay | Varies. Typically matches surrounding Market Area. | Varies. Typically matches surrounding Market Area. |
| Freestanding Town Center | Varies. Typically matches surrounding Market Area. | Varies. Potential for local community circulator as demand warrants. Some peak period commuter express service may be appropriate |

Source: Metropolitan Council 2040 Transportation Policy Plan

## Existing Transit Service and Programs

This section is a description of existing transit service and programs in the City of Lino Lakes (Figure 6-14). Two transit service providers currently serve Lino Lakes:

- Metro Transit
- Anoka County Transit (ACT)

Metro Transit provide fixed-route transit service and ACT provides demand-responsive services.

### Fixed Route Transit Service

Fixed route transit service includes both local and express bus service that operates on a regular schedule and a follow a consistent route. Table 6-10 shows the characteristics of the routes serving Lino Lakes.

**Anoka County Transit Fixed Routes 801, 805, and 831** - These routes operate in the southern part of the county. Although they do not serve Lino Lakes, residents can access these routes by transferring from Transit Link service.

### Demand-Responsive Transit Service

**Anoka County Transit Services** - Anoka County Transit offers transit service to all residents of Anoka County who can travel independently or with a personal care attendant.

**Anoka County Transit (ACT) Link Dial-a-Ride Service -** Transit Link is a demand-response transit service in Lino Lakes which serves all of Anoka County as well as NW Ramsey County. Hours of service are 6:00 a.m. to 7:00 p.m., Monday-Friday. There is no weekend service for Transit Link. Transfers are coordinated with all fixed routes in Anoka County and NW Ramsey County to give passengers the most efficient and affordable way to travel. The regular fare for Transit Link service is $3.50 per person; the peak hour fare is $4.50 per person with a $0.75 surcharge for all trips over 15 miles. All Transit vehicles are accessible. Transit Link is the Twin Cities' shared dial-a-ride service for the general public and is available within the Twin Cities metro area where regular fixed-route transit service is more than a 1/2 mile away (1/4 mile in winter). Transit Link is for trips that can't be accomplished on regular transit routes alone.

**ADA Complementary Service** - In compliance with the Americans with Disabilities Act (ADA), the Metropolitan Council provides specialized, demand-responsive service for persons who have disabilities that prevent them from using the regular route system. This service is provided in the same areas that regular route service is provided. In Anoka County, the Council contracts for these services with the Anoka County Transit Dial-a-Ride service. Within the City of Lino Lakes, ADA complementary service is available from 5:15 a.m. to 6:45 p.m. during the week and from 8:00 a.m. to 4:00 p.m. on weekends. In 2006, ACT Dial-a-Ride provided almost 35,000 ADA rides.

### Ride Matching Services

Lino Lakes residents are eligible to participate in the regional car pool matching database managed by the Metropolitan Council. Carpool participants qualify for the regional guaranteed ride home program; may use High Occupancy Vehicle (HOV) lanes and meter bypass ramps; receive parking discounts in some circumstances; may participate in occasional promotional benefits.

### Metro Van Pool

Lino Lakes residents are also eligible to participate in the Metro Van Pool program, a regional vanpool program sponsored by the Metropolitan Council. Metro Van Pool vanpools are made up of five to 15 commuters picked up along the vanpool route or at an agreed upon location. Like buses and carpools, vanpools are eligible to use meter bypass lanes or ramps and HOV lanes.

**Table 6-10. Characteristics of the Transit Routes Serving Lino Lakes**

| Route | Type | Cities Served | Park & Ride Served |
|---|---|---|---|
| **250** | Express | Lino Lakes, Circle Pines, Shoreview, Mounds View, New Brighton, Arden Hills, Minneapolis | St Joseph's Church, Lino Lakes<br>95th Street, Blaine<br>CR H, Mounds View |
| **262** | Limited Stop | Lino Lakes, Blaine, Shoreview, Vadnais Heights, Little Canada, Roseville, St Paul | 95th Street, Blaine<br>Highway 36, Little Canada |
| **275** | Express | Forest Lake, Columbus, Lino Lakes, Centerville, North Oaks, Vadnais Heights, White Bear Lake, Maplewood, Little Canada, Roseville, St Paul | Running Aces, Columbus<br>Forest Lake Transit Center<br>I-35E and CSAH 14, Lino Lakes<br>I-35E and CR E, Vadnais Heights |

### Travel Demand Management Program - Coordinated through Anoka County Transit's Commute Solutions

Metro Transit provides regional services through its Metro Commuter Services group and Anoka County Transit's Commute Solutions continues to receive grants to coordinate programs within the County. These local transportation management organizations provide further support and services. The city and employers may use these services and programs free of charge to benefit employee travel arrangements and budgets.

### Other Services

**Privately Contracted Regular Routes -** The Metropolitan Council contracts for about 5% of the regular route service that is provided in the Metropolitan area through contracts with private and non-profit transit providers.

**Community Based Urban Programs -** Throughout the region, ten small urban systems operate local transit service in their communities. Many of these services were originally formed to meet a specific mobility need for elderly or disabled, but are now open to the general public. Currently, the City of Lino Lakes does not offer this type of transit service.

**Community Based Rural Programs -** Throughout the region, eight rural systems provide a base level of transit service in areas that are not served by regular route service. These programs primarily serve the elderly and persons with disabilities but are open to the general public. As noted above, ACT provides these services for Anoka County, including the City of Lino Lakes. ACT is funded by revenue from contract services county contributions and donations.

**Anoka County Medlink (formerly Anoka County Volunteer Transportation)** - The Anoka County Medlink Program provides rides to and from medical, dental, and appointments with social services. To be eligible for a ride you can be a veteran of any age, a senior 60 years of age or older, or a client of Anoka County. This service relies on volunteer drivers. While the service is free, donations are encouraged. Medical and dental trips may be made throughout the metro area while appointments with social services must remain within Anoka County.

## Existing Transit Facilities

This section is a description of existing transit facilities in the City of Lino Lakes (Figure 6-14). Transit facilities include:

- Passenger facilities – Physical infrastructure that is designed for use by passengers while waiting for or boarding buses
- Support facilities – Physical infrastructure that is designed to support the operation and maintenance of transit vehicles
- Transit Advantages – Physical infrastructure that is designed to provide a travel time advantage for transit vehicles versus automobiles

### Transit Passenger and Support Facilities

Transit service cannot be provided without a variety of physical facilities. These include passenger facilities that provide an opportunity to board buses. They range from a simple bus stop to large transit centers. Transit support facilities are also essential components of a transit system. Transit vehicle storage and maintenance facilities are almost invisible to the public but critical to the operation of buses.

Figure 6-14 show the following park and ride facilities that serve residents of Lino Lakes:

- There is one active park and ride location in Lino Lakes located at I-35E and CSAH 14 (Main Street) is located at 7120 21st Avenue No. The capacity of this lot is 300 spaces. This lot is served by Route 275.
- Although not within the city limits, the most significant park and ride facility available to residents of Lino Lakes is the park and ride at 95th Avenue and I-35W in Blaine. There are 1,482 spaces at this lot, currently the third largest park and ride in the region, 982 of which are being used. Route 250 provides service to this lot with buses departing for Minneapolis as often as five minutes apart during the peak hour.
- St. Joseph of the Lakes church parking lot is also used as a park and ride. It's located just south of 35W on County Rd 12 and is served by Route 250.
- Because of the limited amount of service in the city, the number and type of physical support facilities is also limited. Currently, there are no vehicle storage or maintenance facilities in the City of Lino Lakes nor are there any major layover facilities.

### Transit Advantages

Transit Advantages is a term that describes physical features that provide a travel time advantage over automobiles using the same facility. These include bus-only shoulders, high occupancy vehicle (HOV) lanes, meter bypass lanes and ramp-meter bypasses. Transit advantages improve the attractiveness of transit by allowing buses to move faster than automobiles making the same trip, effectively reducing the travel time for transit patrons relative to automobile users.

### Bus-Only Shoulders

Bus-Only Shoulders (BOS) allow buses to use the roadway shoulder to bypass automobiles that are in the general flow of traffic. They may only be used when the speed in the regular lanes drops to 35 mph or lower. BOS shoulders are useful in those areas where there is chronic peak period congestion and increase the attractiveness of peak hour express buses by allowing express buses to maintain a minimum speed through congested areas.

- Bus-only shoulders in both directions have been established on I-35W from 95th Avenue south to Minneapolis. The Route 250 express buses operated by Metro Transit to downtown Minneapolis utilize these bus-only shoulders.
- Bus-only shoulders have been established on I-35E from TH 36 to downtown St Paul. Route 275 utilizes these BOS lanes.

### High Occupancy Vehicle Lanes

High Occupancy Vehicle (HOV) Lanes are roadway lanes reserved for cars with two or more people, motorcycles and transit vehicles. They provide a travel time incentive for people willing to carpool or use transit. At present, there are no HOV lanes in Lino Lakes or on routes to either downtown. However, there are two facilities adjacent to the city.

- I-35E from CR J to the south
- I-35W from Lexington to the south (planned for construction in 2019)

## Future Transit Service

The City of Lino Lakes benefits from the presence of a high-quality county-based provider, ACT, and Anoka County's active planning and management of future transit facilities and programs. The city should continue to be supportive and fully engaged in these programs and organizations to insure a high level of transit service in the city.

As part of economic development activities, Lino Lakes should inform and enlist the cooperation of existing and new employers in TDM measures, including specifically transit promotion and transit alternatives such as car and van pooling for employees. The city staff can serve as an effective conduit between employers, especially new firms, and the planning and services offered by Anoka County. This may include better facilities and reverse commute options, among others.

The City of Lino Lakes should actively plan and promote transit-friendly neighborhoods in the city, including good trails and pedestrian amenities, and support Transit Oriented Development (TOD). This will have the dual impacts of providing expanded, cost-effective travel options, and develop more walkable, livable communities and business developments.

### Fixed Route Service

Fixed route service in the City of Lino Lakes is provided by Metro Transit and the Metropolitan Council. The level of service provided by these agencies depends upon the overall level of funding available to the regional transit system. The city will continue to consult with Metro Transit and the Metropolitan Council to review transit service opportunities in the city. Specific ways that transit service in Lino Lakes could be improved are as follows:

- There is currently no local bus service in Lino Lakes. The city should review the possibility of establishing a circulator type route, probably operating on a flexible or deviated route model where the bus may leave the primary route for limited times and distances to respond to the needs of a specific transit user. If not currently feasible, this option should be periodically reviewed as the city continues to develop and as demographics and economic assumptions evolve.
- A general area of service that is problematic given limited resources is suburb-to-suburb connections. The relatively low demand combined with limited funding has inhibited the consideration of this type of service. As future suburban growth and densification occurs, demand will continue to increase for these types of local suburban services.
- As the commercial and light industrial employment base, particularly in the northeast portion of the city, develops and expands, employers and potential employees would benefit from expanded reverse-commute options from the urban areas to Lino Lakes via the transit system. This may include traditional reverse commute, return trips on the normal peak-period commuter runs, and connectors to employment sites from new park and rides, such as the facility at I-35E and CSAH 14 (Main Street).

### Demand-Responsive Transit Service

Demand-responsive transit service, including ADA-required replacement service, is provided by ACT. ADA services contracted by the Metropolitan Council are tied to the service area of regular route transit. Increasing the service area would require increasing the area served by ADA complementary service. Currently, the entire city is included in the ADA service, so this is not an issue for the city. However, increasing the hours of service, as funding permits, should continue to be on overall objective. General public and senior demand responsive services are funded through other sources, including PBF and county contributions. Increasing the service hours and eligible population would require additional funding, but should also be an overall objective for the city.

### Transitways

Light Rail Transit (LRT) projects are very capital intensive because they require dedicated right-of-way with rail and electric power installations, and the cars themselves are expensive. Due to the costs involved, LRT corridors generally need to be on a regional scale to justify the necessary investments. Therefore, the planning and implementation of LRT systems are primarily the responsibility of the Metropolitan Council and the metro-area counties. Because of their size, the cities of Minneapolis and St. Paul have also been very involved in the planning process for certain corridors.

The TPP's transit investment plan does not show any transitway investments planned for the City of Lino Lakes in the current revenue scenario. However, the TPP does show that with the increased revenue scenario a transitway could be provided adjacent to I-35W. This corridor together with the Rush Line Corridor adjacent to TH 61 in Washington County are identified as "Accelerated Transitways" and are under study. The actual mode and alignments have not yet been determined.

Bus Rapid Transit (BRT) is another form of express transit service which often is less expensive than LRT. However, the costs are significant because of the need for a dedicated transitway (or, at minimum, substantial transit advantages), and the nature of the service is that these routes are regional in scale. BRT is one of the modes under consideration for the I-35W and Rush Line Corridor is part of the Environmental Analysis.

The I35W/95th Avenue park and ride was expanded, however, the city remains concerned that mobility in and around the inner suburbs and the urban core will be negatively impacted by lack of any further progress on transportation funding and capacity improvement projects. Lino Lakes recommends and supports an aggressive approach to transit expansion projects and funding mechanisms that will materially reduce congestion, improve urban mobility, and bolster our Minnesota economy and lifestyle.

### Park-and-Rides

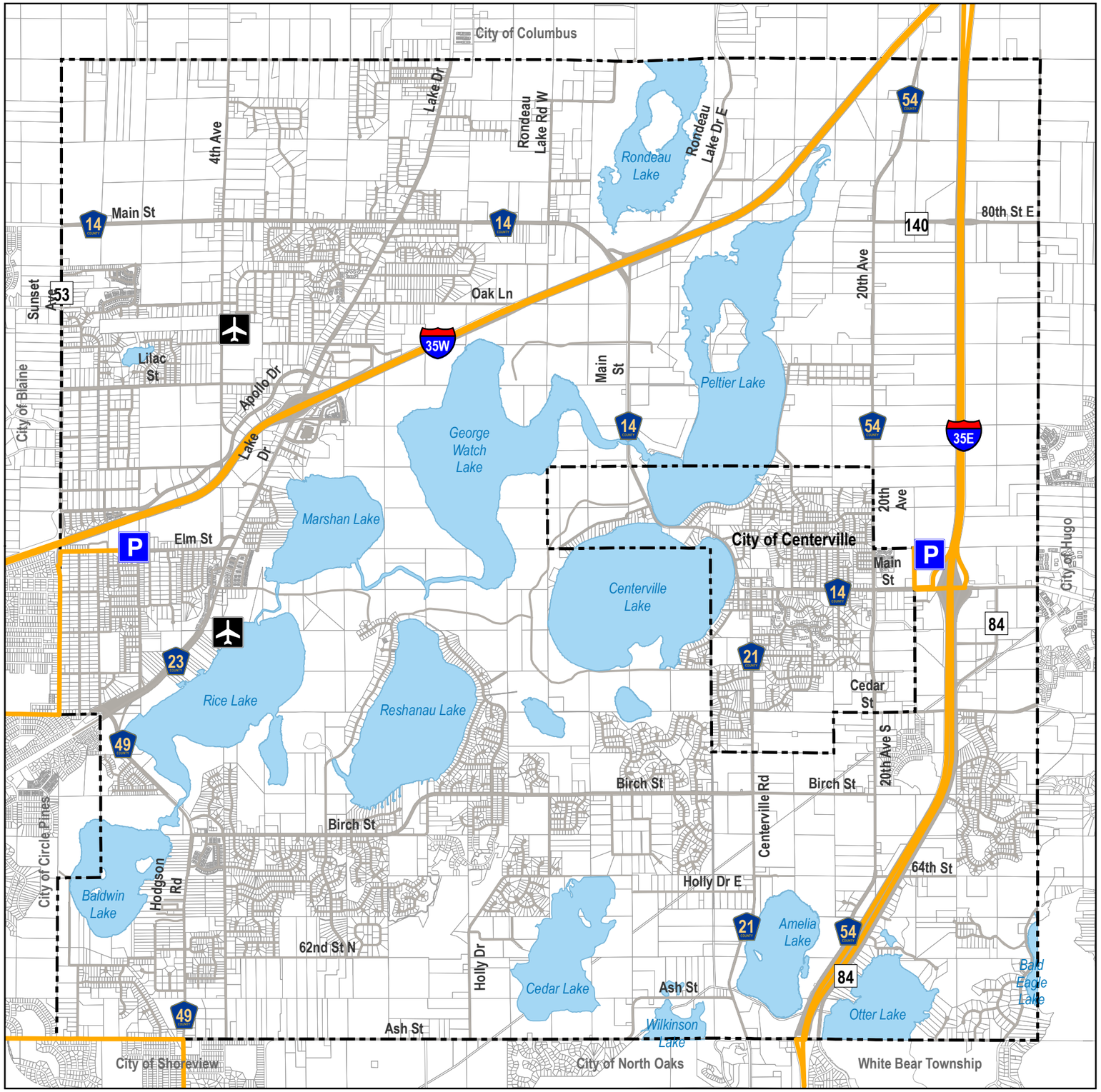
There are no new Regional Park-and-Ride facilities currently planned in the City of Lino Lakes.

### Land Use Planning

Land use planning, including trails and pedestrian amenities, play a crucial role in the success of transit in a community. Adequate and safe sidewalks, bus stops, shelters, and transfer or waiting facilities all are necessary components of a convenient and successful transit system. Transit Oriented Development (TOD) around developing and redeveloped areas are also key to future effective transit options.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-14
# Transit Service and Facilities




## Legend

- Surfside Seaplane Base/Lino Air Park
- Park and Ride Locations
- Bus Service
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

# Bicycle and Trail Plan

Trail systems can play a role in the transportation system by providing opportunities for alternative modes of travel such as bicycling and walking. They can also provide a primary source of transportation to recreational areas for leisure uses. The city's Trail System Plan included in Chapter 10, Parks, Greenways and Trails offers more detail on the existing and proposed trail system. Figure 6-16 illustrates existing and proposed trail facilities within the City of Lino Lakes.

## Trail Policies

The policies below apply to development of new trails as well as improvements to existing conditions:

- Trail improvements in Lino Lakes should be done incrementally and on a yearly basis.
- Trail development should link schools, neighborhoods, athletic complexes, and both local and regional parks in a cohesive trail system.
- To the extent possible, trails should be developed concurrently with the infrastructure of the subdivision or new development with planned connections to the trail systems.
- Develop and improve trails and bike routes to coincide with the upgrading of local, county and state roads.
- Parkland dedication policies and ordinances shall be used by the city to require each developer (of all land use categories) to dedicate land or, at the discretion of the city, provide a payment in lieu for all or part, for parks, trails, greenways and open space acquisition and development.
- The trails must be developed to keep pace with community growth to ensure safe travel in and around the city.
- The Park and Recreation Board, City Council, and city staff should work closely together to ensure the trail system is built in a logical, cohesive and comprehensive matter.

Coordination between Lino Lakes and adjacent cities and townships will maintain a level of quality bike and pedestrian trails that will satisfy the recreational needs of the people of Lino Lakes and surrounding communities.

## Trail/Transit Relationship

As stated in the Lino Lakes Trail System Plan, the majority of trail users value the trail system's high quality recreational value. With the emphasis on recreation, transportation and commuting trail uses are secondary. The Bunker/Chain of Lakes Regional Trail runs along Elm Street near one of the park-and-ride facilities in the city. The Central Anoka County Regional Trail also runs along CSAH 14 past another one of the park-and-ride lots. The majority of government facilities in the city are located in close proximity to trails. These facilities are major transit nodes. Better trail connectivity between these and the commercial areas in the city would offer users the opportunity to utilize the trail system to travel to and from more transit nodes throughout the city. By increasing the number of trail routes, the number of transportation and commuter users likely would increase.

Implementation of the city's Trail System Plan will occur over a number of years. However, having the goals, policies and strategies outlined will help the community recognize opportunities for additional pedestrian/bicycle facilities as they arise.

## Planned Regional Bicycle Transportation Network

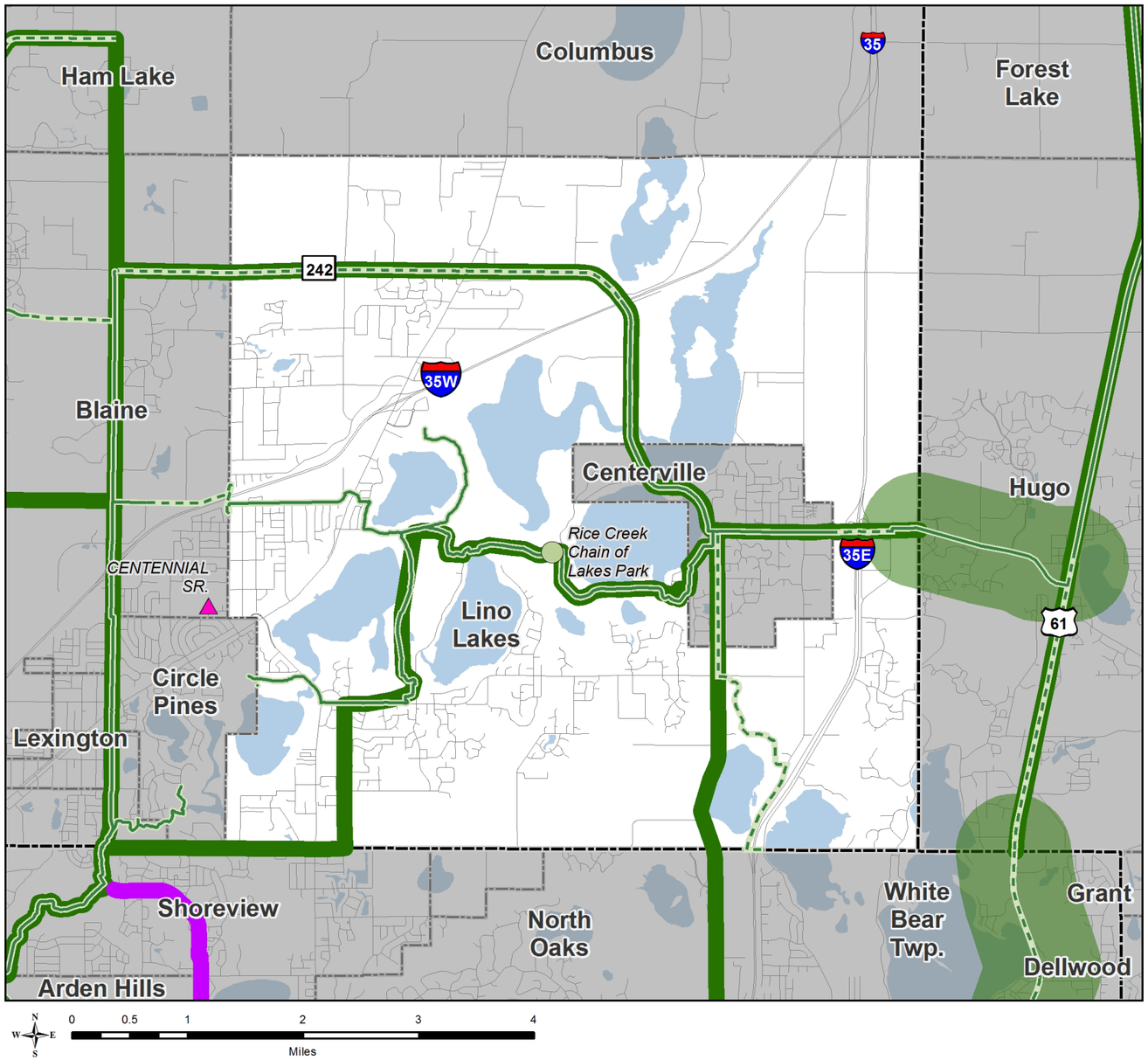
The Metropolitan Council established a Regional Bicycle Transportation Network (RBTN) in 2015. The RBTN (Figure 6-15) establishes regional priorities for bicycle transportation so that regional destinations are accessible by bicycle.

The Metropolitan Council established RBTN alignments in areas where existing facilities created a clear connection between regional destinations. RBTN corridors were identified in areas where there are several options for connections between regional destinations. The RBTN is further divided into two tiers. Tier 1 alignments/corridors are expected to attract the most bicycle use and are the highest priority for regional investments. Tier 2 alignments/corridors are the second priority for regional investments.

Within the City of Lino Lakes, the RBTN identifies two Tier 2 RBTN corridors:

- An east/west corridor that follows CSAH 14 (Main Street) from east of I-35E (in Hugo) through Centerville to Rice Creek Chain of Lakes Park to CSAH 34 (Birch Street) to Ware Road to CSAH 32 (Ash Street) to the CSAH 17 (Lexington Avenue) corridor in Circle Pines
- A north/south corridor that follows CSAH 21 (Centerville Road) from North Oaks through Centerville to CSAH 14 (Main Street) to CSAH 17 (Lexington Avenue) in Blaine

Both are included as part of the Lino Lakes sidewalk and trail network.




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-15
# Regional Bicycle Transportation Network (RBTN)

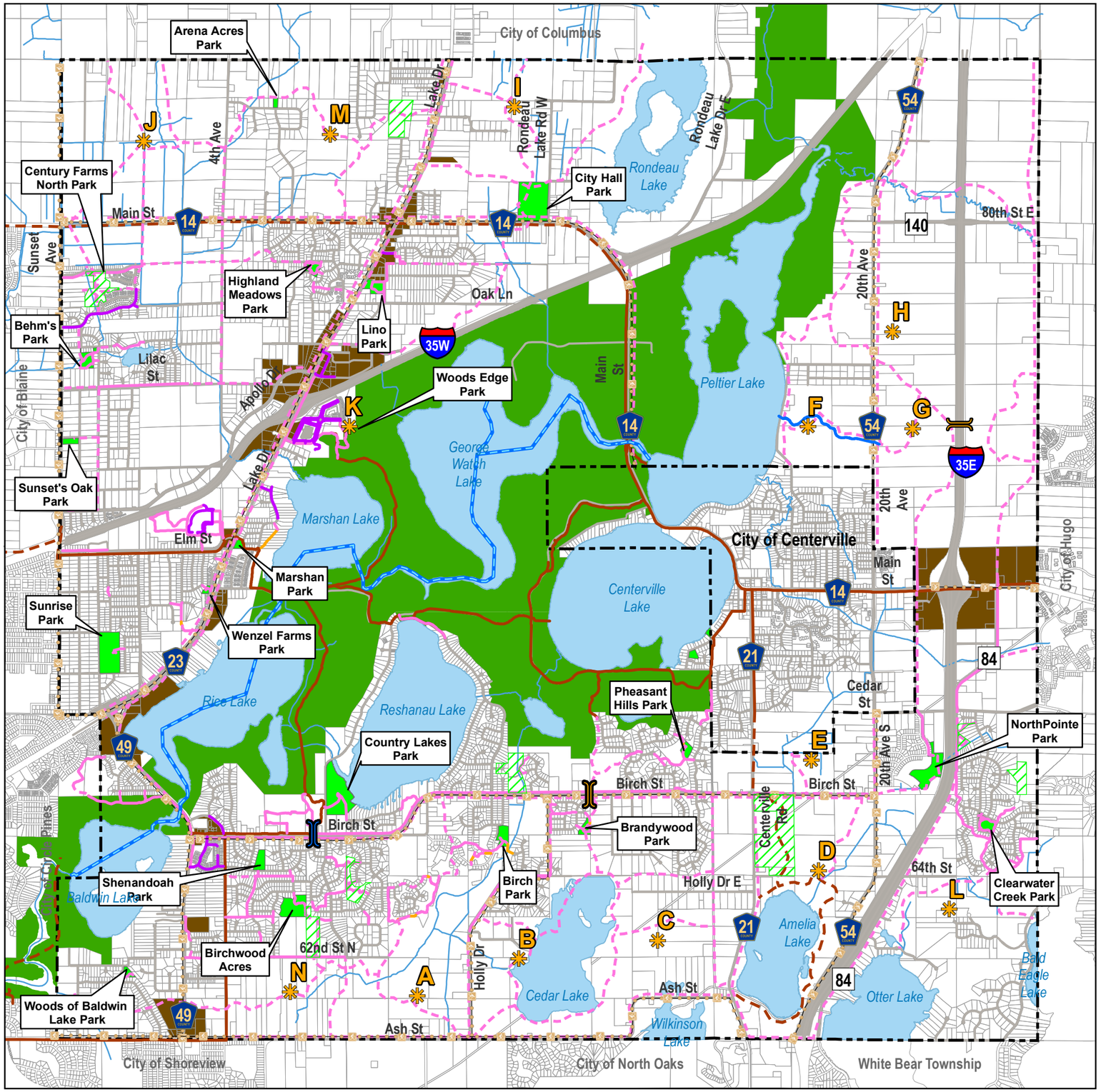
## Legend

**RBTN Alignments**
- Tier 1 Alignment
- Tier 2 Alignment

**RBTN Corridors (Alignments Undefined)**
- Tier 1 Priority Corridor
- Tier 2 Corridor

**Regional Destinations**
- Metropolitan Job Centers
- Regional Job Centers
- Subregional Job Centers
- Large High Schools
- Colleges & Universities
- Highly Visited Regional Parks
- Major Sport & Entertainment Centers

**Regional Trails (Parks Policy Plan)**
- Existing
- Planned
- County Boundaries
- City and Township Boundaries
- NCompass Street Centerlines
- Open Water Features
- Existing State Trails (DNR)
- Mississippi River Trail




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-16
# Trail System

## Legend

- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel/Bridge
- Water Trail
- NE Drainage Outlet
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalt Trail
- Proposed Trails
- Proposed On-Street Route
- Existing Regional Trail
- Proposed Regional Trail
- Undeveloped Park
- City Parks
- Regional Parks
- Business/Commercial Areas'
- Open Water
- Municipal Boundary

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Aviation Plan

Lino Lakes is located approximately 16 miles northeast of Minneapolis-St. Paul (MSP) International Airport. It is also located approximately four miles east of the Anoka County Airport in Blaine (Janes Field) and three miles south of the Forest Lake Airport. The Anoka County Airport is classified as a minor Public Reliever Airport and the Forest Lake Airport is classified as an Other Public Use Airport in the Metropolitan Council's Aviation Development Guide/Policy Plan.

The Anoka airport is tower-controlled and serves as a reliever to MSP International by providing facilities and services that are crucial to general aviation business. The Anoka County Airport was approved for 5,000-foot runways, precision landing aids and new hangar buildings. With the above improvements, the airport will be able to improve their long-term system capabilities.

Lino Lakes is located outside of the defined airport influence area for both airports. There is a 500-foot radio tower south of Old Birch Street. This is the only structure within Lino Lakes that exceeds 200 feet. Any applicant who proposes to construct a structure 200 feet above the ground level must get appropriate approval. The Federal Aviation Administration (FAA) requires the FAA Form 7460-1 "Notice of Proposed Construction or Alteration", under code of federal regulations CFR-Part 77, be filed for any proposed structure or alteration that exceeds 200 feet. FAA Form 7460-1 can be obtained from FAA headquarters and regional offices. These forms must be submitted 30 days before alteration/construction begins or the construction permit is filed, whichever is earlier. The Minnesota Department of Transportation must also be notified (see MCAR 8800.1200).

There are MnDOT designated public waters within Lino Lakes permitted for seaplane use under state aeronautics rules and regulations. These designated waters include Centerville Lake, Peltier Lake, George Watch Lake, Rice Lake and Reshanau Lake. The operation of seaplanes on any of these lakes must conform to all applicable marine traffic rules and regulations.

Surf-Side Seaplane Base, located on the northwest shore of Rice Lake is a private facility that includes docking, hanger, fuel and maintenance facilities. There is also an on-land private landing strip at Surf-Side. In addition to the seaplane base, there is a private landing strip at the Lino Lakes Air Park, which is located south of Carl Street and west of 4th Avenue. Lino Lakes Air Park is for the use of members of the private airpark association, made up of many of the homeowners along the landing strip. Figure 6-17 shows the location of these aviation facilities.

The city should ensure that new development in the vicinity of these private facilities is designed with an awareness of airfield operations. However, the safety zones that are mandatory for public airports are not required for private airparks.

## Freight

Freight transportation in the City of Lino Lakes is served predominantly by the Principal Arterial highways, I-35W, I-35E and CSAH 14 (Main Street) west of I-35W. There are no railroad lines in the City of Lino Lakes. The closest active railroad is a Class III railroad line in the City of Hugo operated by Minnesota Commercial that runs parallel to TH 61, ending at Frenchman Road (CSAH 8).

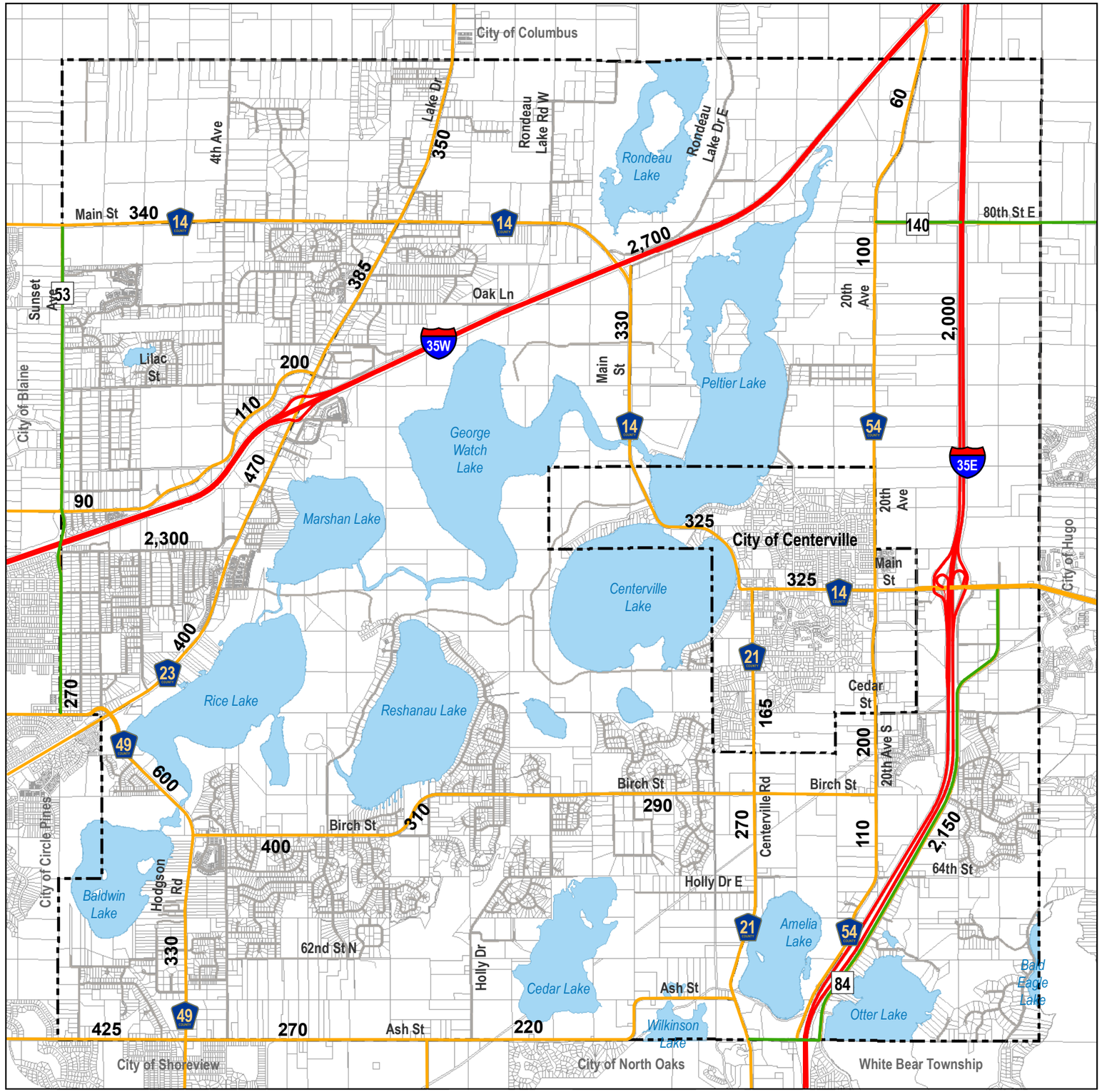
There are no large freight traffic generators within the city as identified by the Metropolitan Council. Freight generators within the city include a concentration of industrial and commercial land uses adjacent to CSAH 23 (Lake Drive) and CSAH 12 (Apollo Drive). The Metropolitan Council's Regional Truck Highway Corridor Study (completed in 2017) identified the following truck corridors in the City of Lino Lakes:

- Tier 1 - I-35E
- Tier 2 - I-35W
- Tier 3 - CSAH 54 (20th Avenue) from CSAH 32 (Ash Street) to CSAH 14 (Main Street)

The Regional Truck Highway Corridor Study indicated that the interstate system serves as the freight backbone. Other tiered roadways provide redundancy to the interstate system and provide door-to-door access to manufacturing facilities, distribution centers, intermodal freight hubs and ultimately, retailers and customers.

Figure 6-17 shows Heavy Commercial Average Annual Daily Traffic (HCAADT) within Lino Lakes on the Principal Arterial and "A" Minor Arterial system.

The 2040 TPP acknowledges several freight challenges that impact the city and the region. Freight traffic and congestion are expected to increase and place pressure on the region's highway and rail systems. Additionally, there are concerns about compatibility between freight traffic and adjacent land use. While the city's industrial and commercial areas are located adjacent to the primary freight corridors, it will be important to ensure that future development is also compatible with freight operations.




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 6-17
# Existing Heavy Commercial Traffic Volumes

## Legend

XXX- Existing (2016) HCAADT Traffic Volumes*

**Transportation System**

- State
- County State Aid Highway (CSAH)
- County Road
- Open Water
- Municipal Boundary
- Parcels

* MnDOT Traffic Count Website

3,500 1,750 0 3,500 Feet

N

Date: 2/14/2020

# Chapter 7: Local Water Management Plan Executive Summary



## Local Water Management Plan Purpose

The City of Lino Lakes' Local Water Management Plan (LWMP) is a local management plan that meets the requirements of Minnesota Statutes 103B.235, Minnesota Rules 8410, the Rice Creek Watershed District Watershed Management Plan (dated January 2010, as amended November 9, 2016), and the Vadnais Lake Area Water Management Organization Watershed Management Plan (dated October 26, 2016). Minnesota Statute 103B.201 states that the purposes of the water management programs are to:

- Protect, preserve, and use natural surface and groundwater storage and retention systems;
- Minimize public capital expenditures needed to correct flooding and water quality problems;
- Identify and plan for means to effectively protect and improve surface and groundwater quality;
- Establish more uniform local policies and official controls for surface and groundwater management;
- Prevent erosion of soil into surface water systems;
- Promote groundwater recharge;
- Protect and enhance fish and wildlife habitat and water recreational facilities; and
- Secure the other benefits associated with the proper management of surface and groundwater.

The Lino Lakes' Local Water Management Plan addresses these purposes. The LWMP was adopted by City Council in 2018 and is incorporated as Appendix A of the 2040 Comprehensive Plan.



## Local Water Management Responsibilities and Related Agreements

The City of Lino Lakes has not entered into any water management related agreements with its neighboring cities, Anoka County, Rice Creek Watershed District (RCWD), or the State of Minnesota other than on a project-specific agreement for BMPs constructed to meet water quality requirements. The City of Lino Lakes has a Joint Powers Agreement with the Vadnais Lake Area Water Management Organization (VLAWMO), in which the City is designated as a signer and member of VLAWMO. The City of Lino Lakes is responsible for construction, maintenance, and operation of the City's stormwater management system.

## Background

The City of Lino Lakes (population 20,216) is located in Anoka County in the seven county Twin Cities metropolitan area, approximately 20 miles north of downtown Saint Paul. The City covers approximately 33 square miles. Lino Lakes is nestled between the cities of Blaine and Circle Pines to the west, Columbus to the north, Hugo to the east, and Shoreview and North Oaks to the south. The city of Centerville is located near the center of Lino Lakes.

Lino Lakes is within two watershed agencies: RCWD and VLAWMO. RCWD is a watershed district and has the authority to regulate development impacts on water resources; VLAWMO is not a permitting agency, but does provide guidance on the implementation of best management practices within its jurisdiction. This plan addresses the rules and regulations put forth by the RCWD and VLAWMO.

Surface water in Lino Lakes general drains to the Rice Creek Chain of Lakes which includes Baldwin Lake, Rice Lake, Reshanau Lake, Marshan Lake, George Watch Lake, Centerville Lake, Peltier Lake, and Rondeau Lake as well as Rice Creek, Hardwood Creek (Judicial Ditch 2), and Clearwater Creek (Judicial Ditch 3).

A large portion of the city remains undeveloped. Although the community has been identified as Suburban Leading Edge, it still retains its rural and agricultural roots. Chapter 2 of the 2040 Comprehensive Plan discusses land use in Lino Lakes.

## Summary of Implementation Section

The need to address water quality within the city is partially illustrated in the maps in Appendix A showing the various impaired lakes (Figure 2-8) which has regulatory implications that are still being developed, the City's stormwater infrastructure (Figure 2-7), the underlying soils and geology (Figures 2-2 and 2-3), the groundwater resources (Figure 2-9) and the existing floodplain (Figure 2-14). The following is a generalized list of the key implementation strategies, policies, and/or actions proposed in this LWMP to address the City of Lino Lakes' water resources issues:

- Implement the Resource Management Plan through development of Subwatershed Management Plans for each resource management unit (RMU). These plans will establish:
  - A clear vision of the multi-functional Greenway System for City staff and developers that will be used as a tool early in the land development process.
  - Create a wetland bank to provide replacement opportunities for development or roadway projects.
  - Work with RCWD on the ditch abandonment process for public drain tile systems and explore partial abandonment for surface ditch systems, in cases where the public drainage system requires redesign to implement the multi-functional Greenway System.
  - Implement water quality improvements via the Subwatershed Plans for each RMU specific to the waterbodies of the area and upcoming regulations (ex., impairments, TMDLs).

- Implement the design guidelines of Northeast Lino Lakes Comprehensive Stormwater Management Plan (CSMP) with future development in the Peltier Lake and Clearwater Creek subwatersheds

- Continue to manage the City's wetlands and natural resources by:
  - Implementing City-wide Natural Resource Revolving Fund Plan, in cooperation with RCWD and VLAWMO
  - Continuing to participate in pre-permit application meetings with the RCWD and US Army Corps of Engineers to support the collaborative permitting process implemented through RCWD Rule and the Corps' Programmatic General Permit that implements the Special Area Management Plan.
  - Continuing to manage and protect the heron rookery, tamarack swamps, and other important plant and animal communities.

- Review existing City policies, regulations, ordinances and plans including:
  - Continue to implement and enforce the City's Stormwater Pollution Protection Program (SWPPP) as part of the NPDES Municipal Separate Storm Sewer System (MS4) permit.
  - Implement the Wellhead Protection Plan to protect the groundwater source from contamination.
  - Continue to implement the City's Water Conservation Management Plan
  - Evaluate the need to modify existing ordinances to ensure implementation of all components of the multi-functional Greenway System
  - Revise maximum allowable impervious surface requirements for low and medium-density residential districts

- Establish and adopt Better Site Design (BSD) standards for new and re-development that:
  - Provide guidance for staff, City Boards, and City Council
  - Protect high priority wetlands, their biological condition, and their function as high quality habitat;
  - Enhance groundwater hydrology and protect groundwater-dependent natural resources;
  - Provide natural flood reduction;
  - Integrate water quality improvement components in the landscape; and
  - Implement the Resource Management System Plan.

- Evaluate revisions to Road Design Standards including:
  - Reducing minimum pavement widths;
  - Ribbon curbs and curb cuts with roadside swales, infiltration, and biofiltration; and
  - Use of pervious pavements.

- Review existing watershed models and work with the RCWD and VLAWMO to address flow constraints in the system.

- Continue public outreach, education and dissemination of information, including:
  - Work with private landowners to retrofit/implement the multi-functional Greenway System, for those parcels that are not part of a Master Plan or are already developed.
  - Partner with RCWD, VLAWMO, and Minnesota Department of Natural Resources (MnDNR) to establish program to educate residents on the means to identify and eradicate invasive species.
  - Participate with other public agencies and organizations on education and outreach efforts.
  - Develop, distribute, and present public with information regarding the importance of shoreland buffers.

- Evaluate financing options to implement activities and policies in LWMP, such as:
  - Pursue funding through federal and state grant opportunities
  - Pursue grants through RCWD Grant Programs to assist in the funding of projects that will reduce the impact of existing development on local water resources.
  - Pursue funding support from VLAWMO for projects in the Amelia Lake and Wilkinson Lake watersheds.
  - Review and evaluate funding sources for surface water management including ad valorem taxes, development charges, grants and user fees.
  - Update and continue to implement Trunk Surface Water Management Fee System.

CITY OF LINO LAKES
2040 COMP PLAN

# Figure 7-1
# Surface Water

## Legend

- Major Drainage Routes
- Minor Drainage Routes
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- National Wetlands Inventory
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

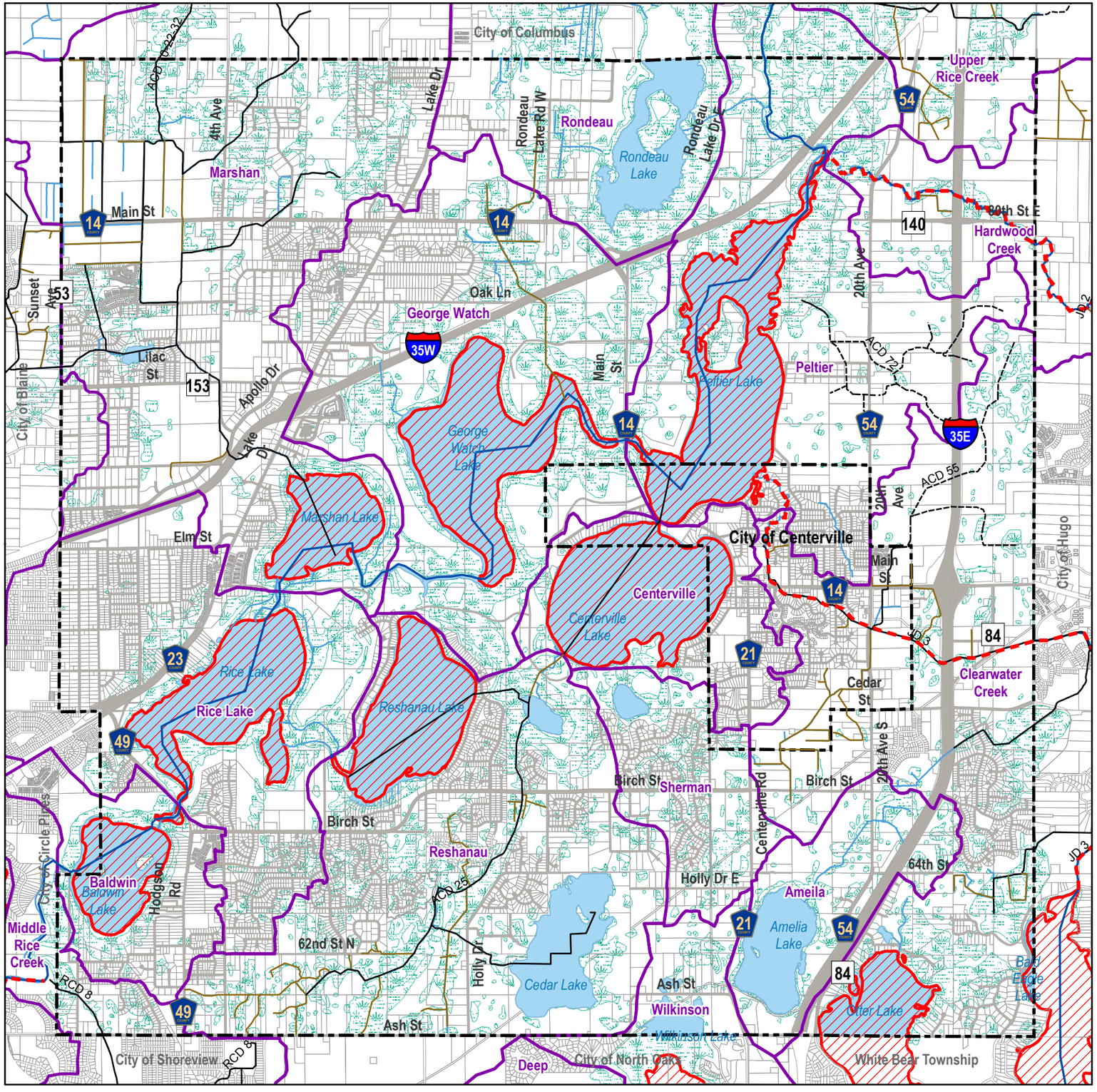
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES
2040 COMP PLAN

# Figure 7-2
# Impaired Waters



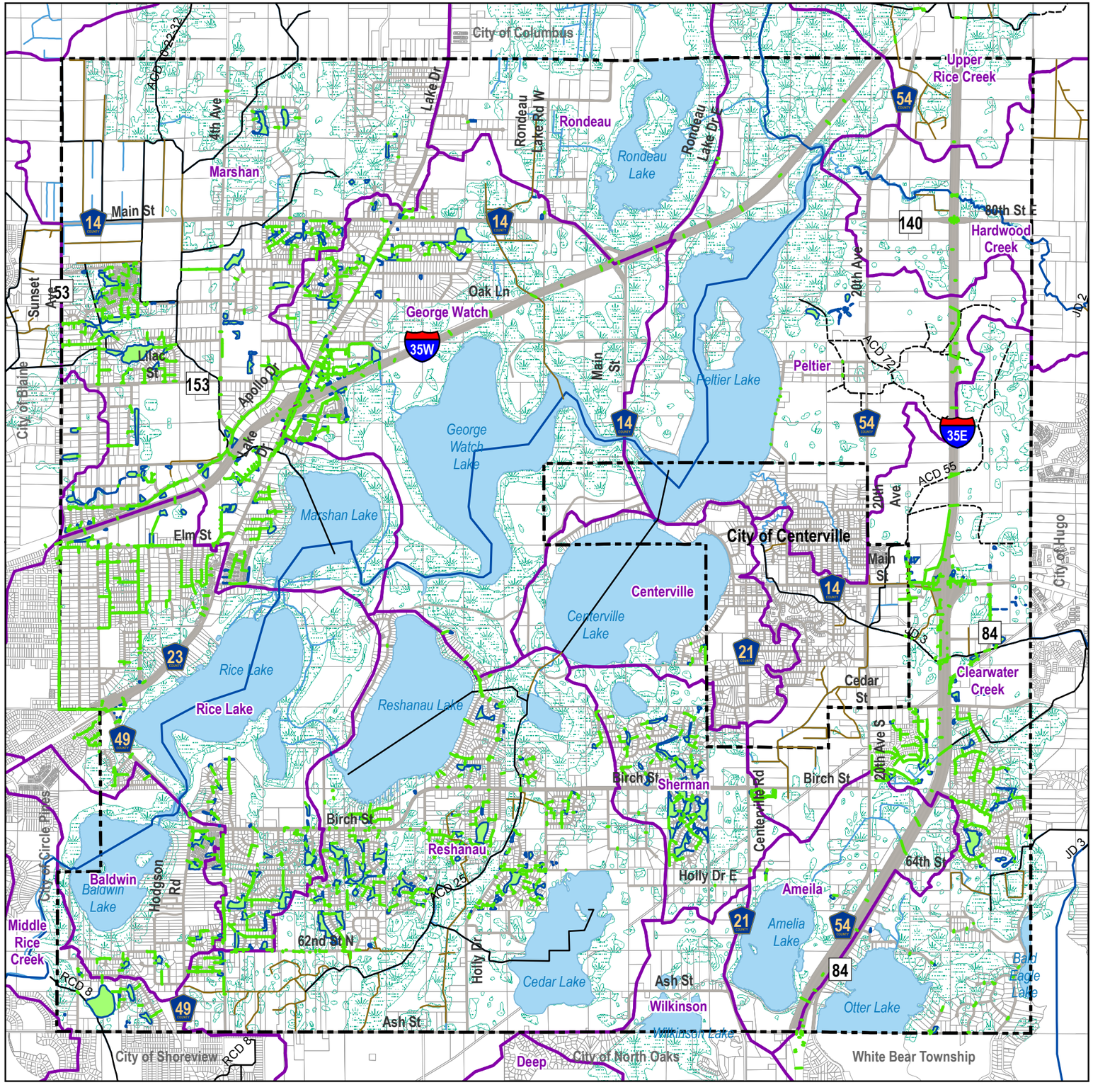

## Legend

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Impaired Streams
- Impaired Lakes
- Resource Management Units
- National Wetlands Inventory
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 7-3
# Existing Storm Sewer System

## Legend

- Storm Sewer
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Stormwater BMPs
- Resource Management Units
- National Wetlands Inventory
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

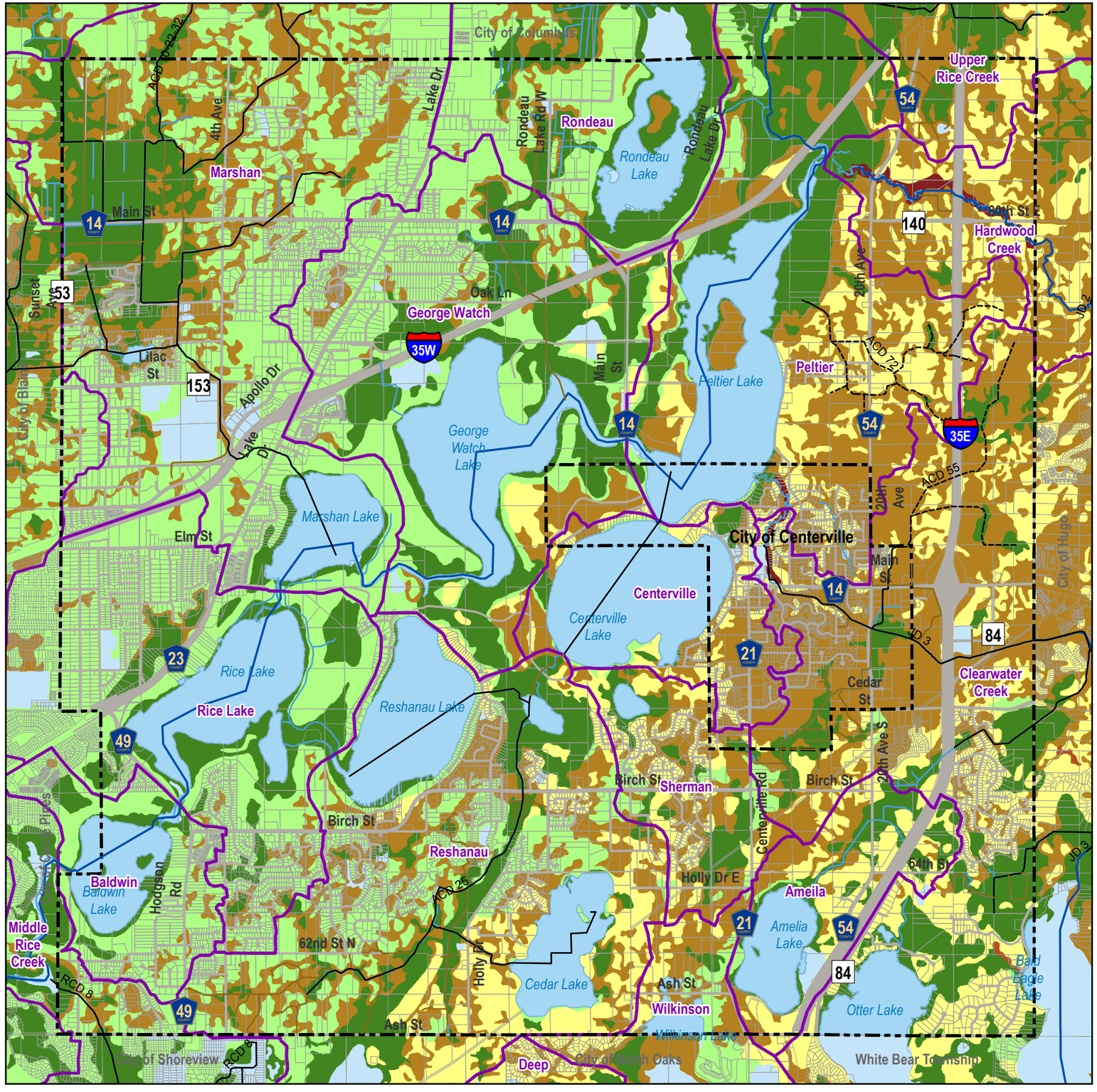
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 7-4
# Hydrologic Soil Group




## Legend

**Hydrologic Soil Group**

- A
- A/D
- B
- B/D
- C
- C/D
- D

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

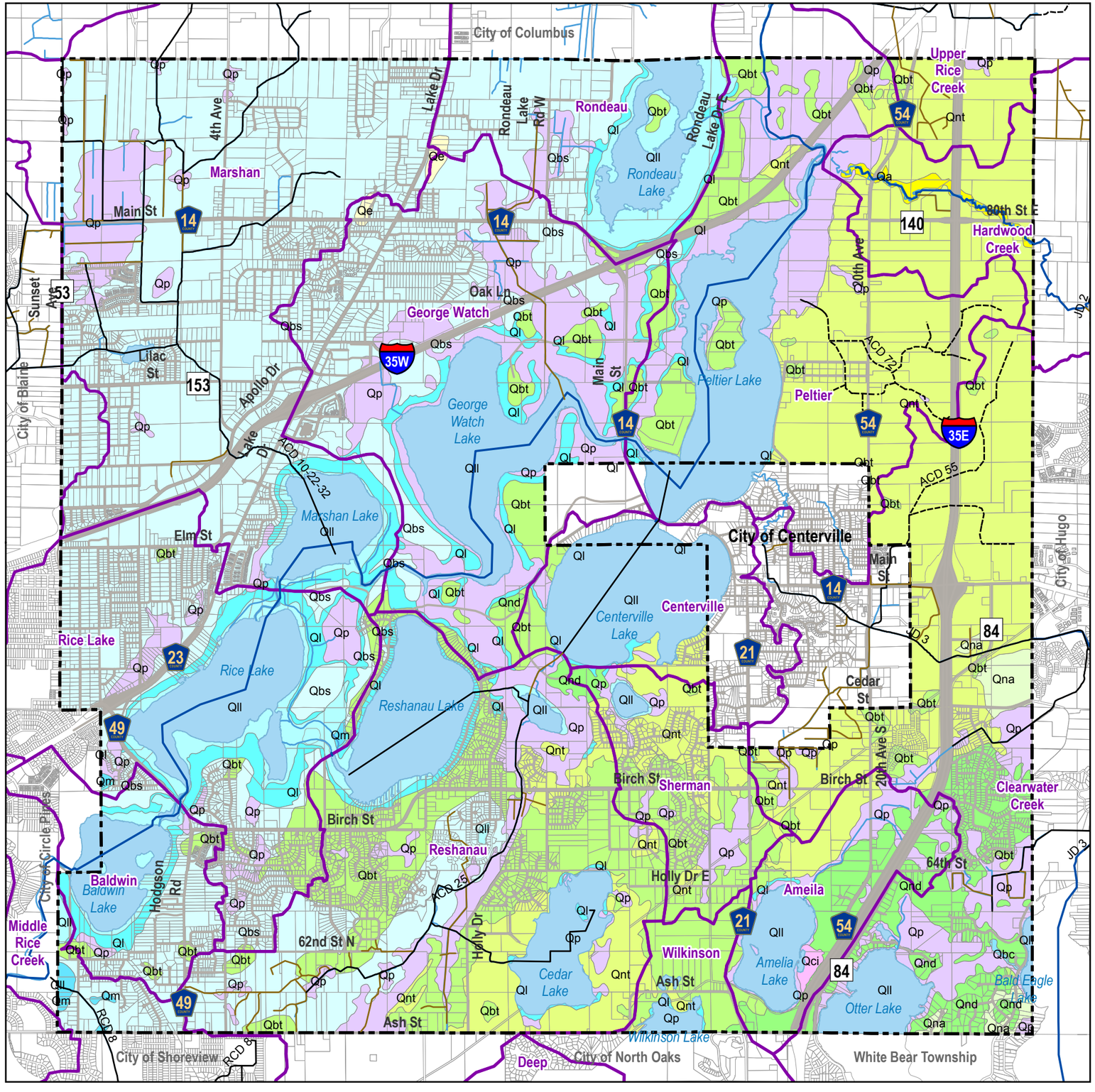
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 7-5
# Surficial Geology




## Legend

**Quaternary Units**

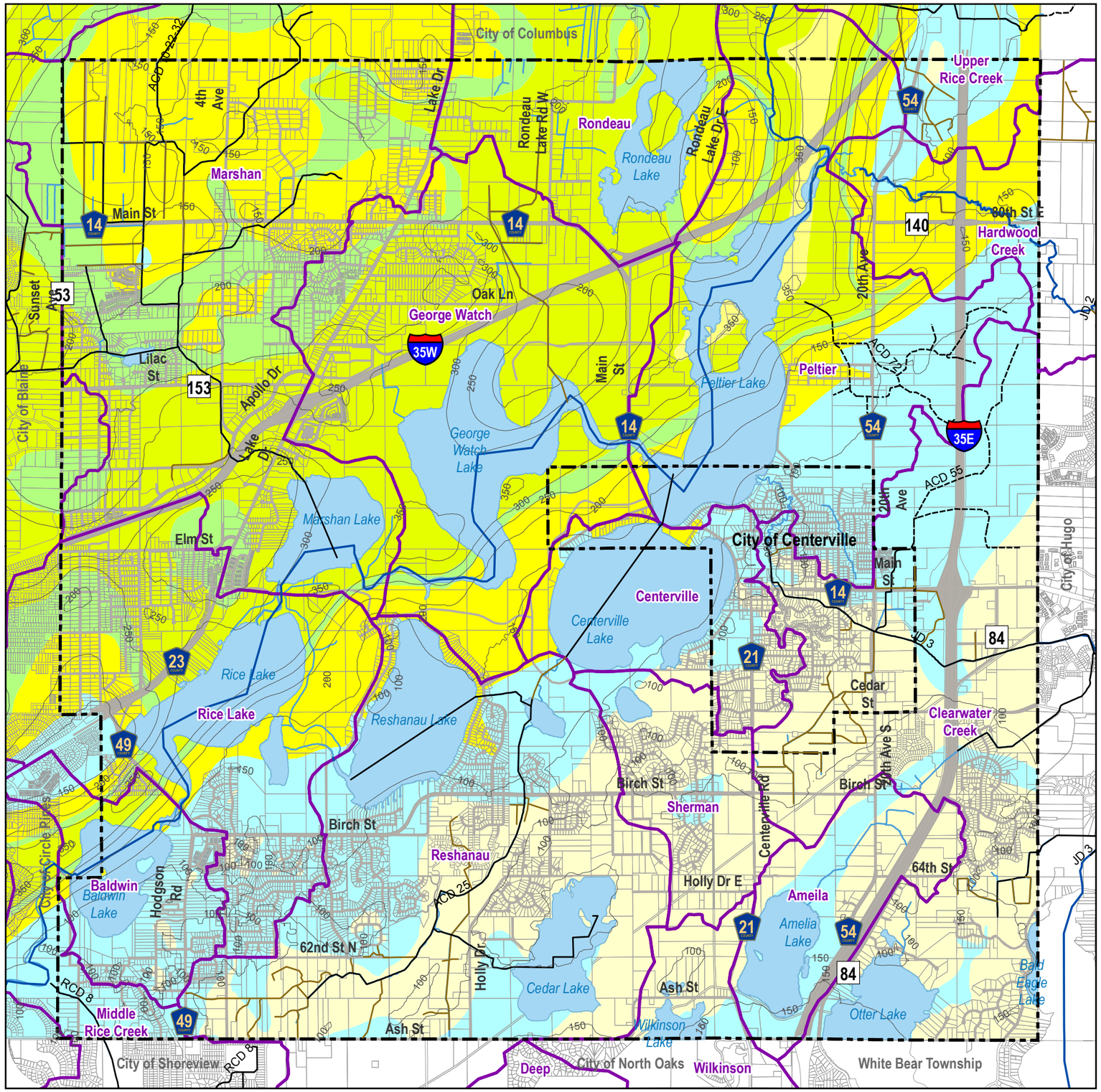
- Alluvium (Qa)
- Lake Sand (Ql)
- Lake Silt and Clay (Qll)
- Peat and Muck (Qp)
- Marl (Qm)
- Eolian Sand (Qe)
- Sand Facies (Qbs)
- Silt and Clay (Qbc)
- Sand over gray loamy to sandytill (Qbt)
- Loamy Till (Qnt)
- Sandy Till (Qna)
- Mixed Till (Qnd)
- Ice-contact Deposit(Qci)

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 7-6
# Bedrock Geology

## Legend

**PALEOZOIC ROCKS**

- Platteville Limestone, Up. Ord.
- St. Peter Sandstone, Mid. to Up. Ord.
- Prairie du Chien group, Lower Ord.
- Jordan Sandstone, Up. Camb.
- St. Lawrence Formation, Up. Camb.
- Tunnel City group,Up. Camb.
- Wonewoc Sandstone, Up. Camb.
- Eau Claire Formation, Mid. to Up. Camb.
- Mt. Simon Sandstone, Mid. Camb.

- Depth to Bedrock Contour Lines (ft.)
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

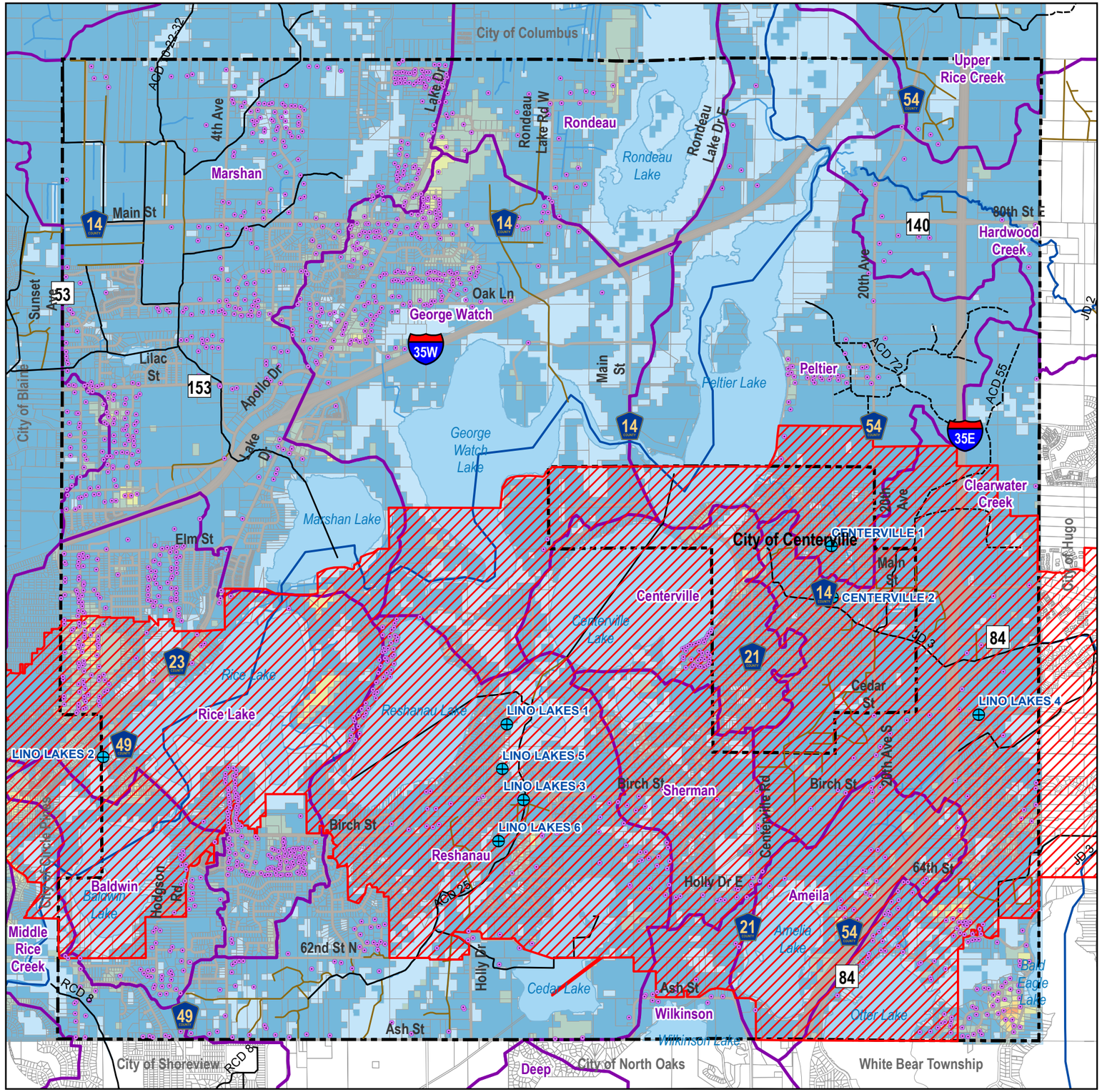
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 7-7
# Groundwater Resources




## Legend

- Municipal Wells
- Private Wells
- Drinking Water Supply Management Area

**Modeled Depth to Water Table (ft)**

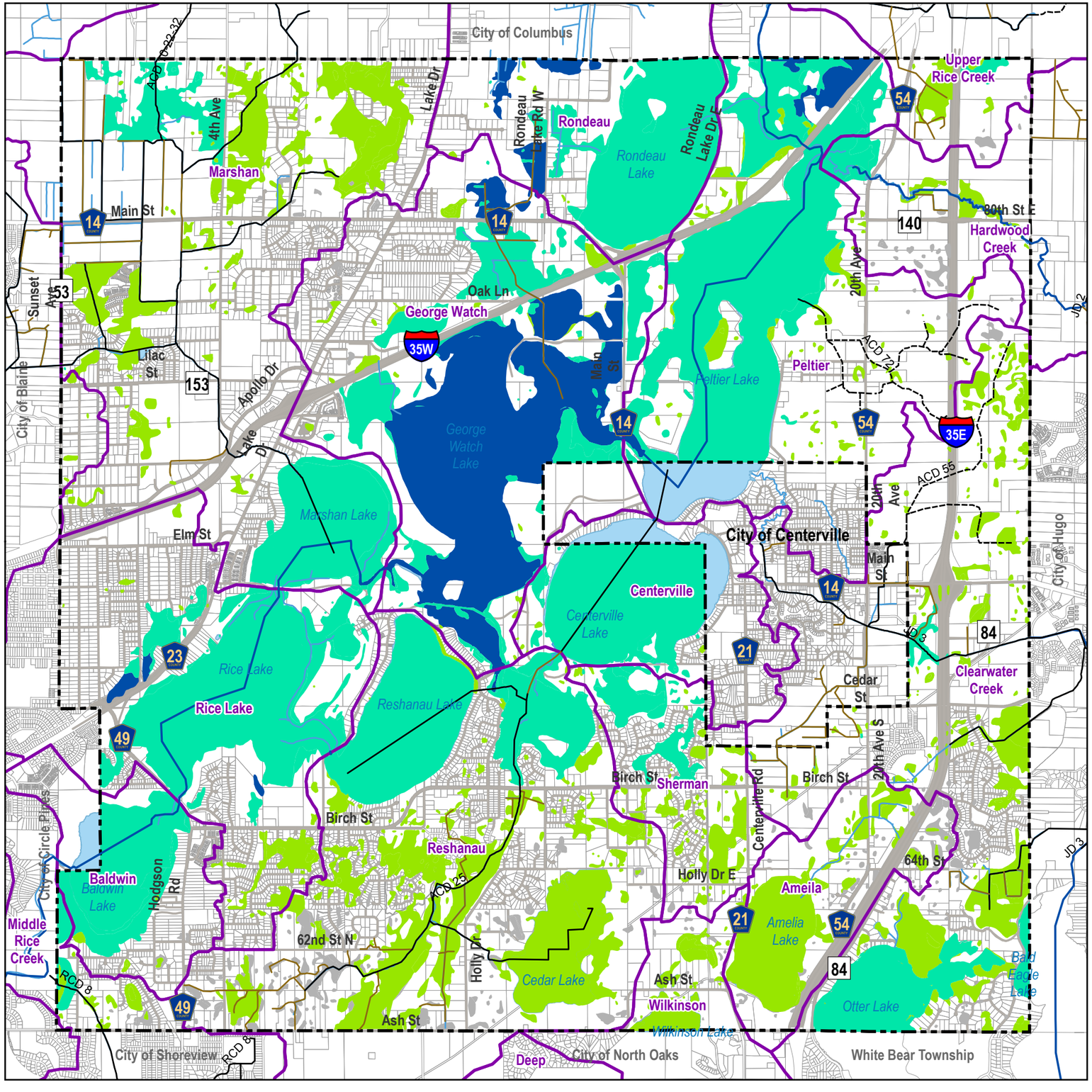
- 0 to 10
- >10 to 20
- >20 to 30
- >30 to 40
- >40

- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 7-8
# Surface Water Groundwater Interaction

## Legend

**Surface Water Type**

- Disconnected from the regional groundwater system
- Recharges aquifers
- Receives and discharges groundwater
- Supported by upwelling groundwater
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

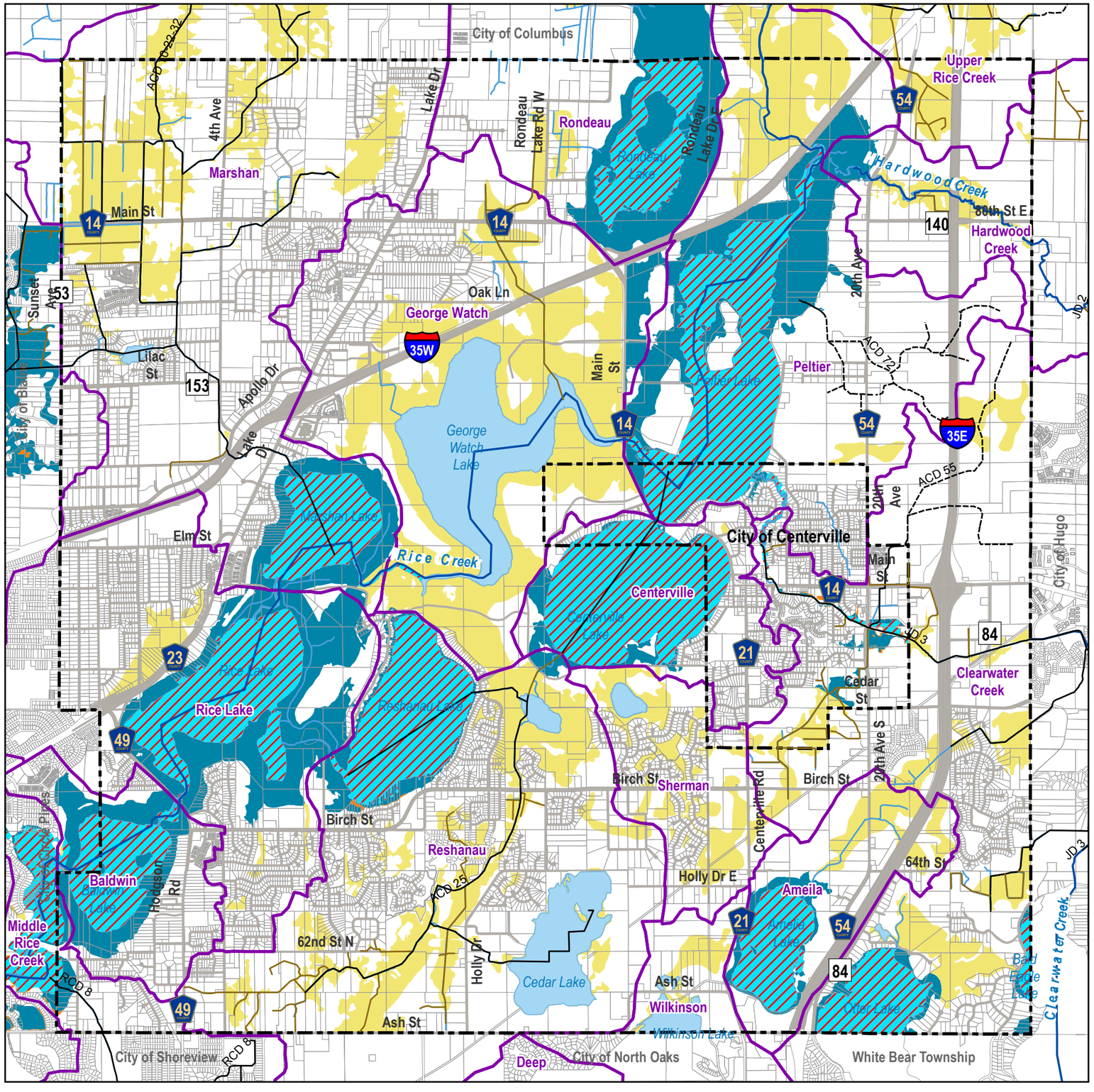
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 7-9
# Floodplain Districts




## Legend

- General Floodplain (Zone A)
- Flood Fringe (Zone AE)
- Floodway (Zone AE)
- 500-year Floodplain (Zone X)
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

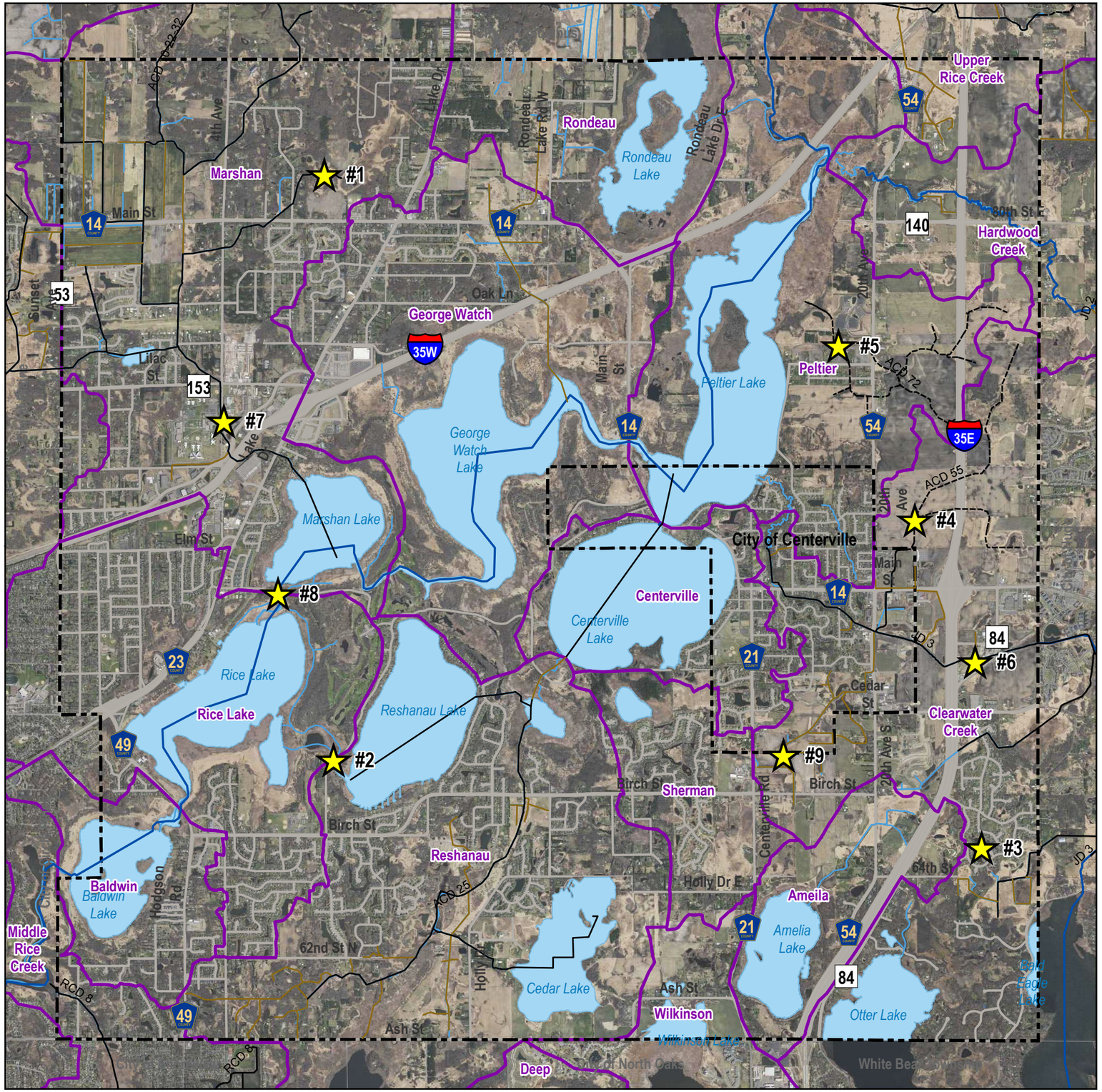
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES
2040 COMP PLAN

# Figure 7-10
# Water Resources Problem Areas




## Legend

- Problem Areas
- Public Ditch
- Tile, Public Ditch
- Private Ditch
- DNR Public Watercourse
- Resource Management Units
- Open Water
- Right-of-Way
- Municipal Boundary
- Streams

**Specific Issues:**

#1 - Beaver dam at culvert regularly causes neighborhood flooding
#2 - West Shadow Lake Drive overtops when water levels are high
#3 - High water elevations in wetland flood trail
#4 - ACD 55 unable to meet demands of urban development runoff
#5 - ACD 72 unable to meet demands of urban development runoff
#6A - Clearwater Creek (JD-3) streambanks are unstable and incised
#6B - JD-3 unable to meet demands of urban development runoff
#7 - ACD 10-22-32 unable to meet demands of urban development runoff
#8 - Aqua Lane overtops when water levels are high
#9 - Abandoned County Ditch 47 subject to flooding

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

# Chapter 8: Sanitary Sewer



## Introduction

The 2040 Comprehensive Sanitary Sewer Plan has two primary purposes. The first purpose is to provide recommendations and guidance to the City of Lino Lakes by evaluating the sewer system requirements needed from now through the year 2040 and beyond. This is completed by developing a strategy to implement a sanitary sewer system in accordance with the anticipated growth and development patterns of the City, as forecasted in the City of Lino Lakes 2040 Land Use Plan, and devising a proposed infrastructure system that can be feasibly and economically constructed to support this growth.

The second purpose is to produce documentation that can be used by state and local agencies, particularly the Metropolitan Council, for future local and regional planning purposes. As a result of projected population increases and land use changes in Lino Lakes, the Metropolitan Council estimates that sanitary sewer flows will increase approximately 54 percent between 2010 and 2040. This Sanitary Sewer Plan outlines the locations in which the Metropolitan Council can expect to see increased wastewater flows, allowing the Council to determine if capacity upgrades will be required in the regional wastewater collection system and at regional wastewater treatment plants.

# Goals and Policies

The new development forecasts for the City, as detailed in Chapter 1: Introduction, describe the current growth and expected development patterns. The following goals and policies have been developed to guide the implementation of the Comprehensive Sanitary Sewer Plan:

**Goal 1: Maintain the city's residents and businesses with an affordable and safe sanitary sewer system.**

**Policies:**

a. Provide a low-maintenance, cost-effective sewer system that meets the long-term needs of the city's residents and businesses.
b. Provide sanitary sewer service to undeveloped areas in a planned manner.
c. Provide for the capacity and extension of sanitary sewer to developed areas of the city currently served by on-site systems.
d. Establish an on-site septic system inspection program to identify potential failing systems.
e. Where possible, direct public sanitary sewer improvements to areas identified as having failed on-site systems.

The 2040 Sanitary Sewer Plan directly addresses all of these policies.

# Background

Wastewater generated in the City is either treated in on-site systems or is collected in City-owned sanitary sewers and conveyed to Metropolitan Council interceptors for treatment at the Metropolitan Wastewater Treatment Plant (WTP) in St. Paul. On-site treatment systems are generally located on larger lot developments in the City. Most are in unsewered areas but a few remain in neighborhoods that received service after on-site systems were built. The existing Lino Lakes sanitary sewer system is shown in Figure 8-1. For sewer planning purposes, the City has been divided into five Sewer Districts, as shown in Figure 8-2. District boundaries are based on the areas that can potentially be served by the various existing and future regional facilities serving the City.

The City's Comprehensive Sanitary Sewer Plan was originally adopted in 1990. Portions of the 1990 Plan were updated in 1999 and incorporated into the City's 2001 Comprehensive Plan as "Public Facilities Plan – Sewer Element." The City's most recent Comprehensive Sanitary Sewer Plan was adopted in 2011, to which a Comprehensive Plan Amendment was made in 2015 to adjust the sanitary sewer district boundaries nearby the new Lino Lakes Fire Station (Case No. CPA 2014-001).

## Planning Scope

The scope of this Plan is to develop documentation for sanitary sewer system requirements for the City of Lino Lakes. The scope is limited to providing general guidance and alignment information for implementing future trunk sewer lines and wastewater lift stations, based on the anticipated long-term growth of the City. The final location and detailed design of these trunk sewers and lift stations must be determined and prepared at later dates to conform to the development at each wastewater service area.

The City can use the recommendations within this Sanitary Sewer Plan to maintain growth without exceeding the capacity of the existing sewer system. This Plan also serves as a guide so that the expansion of the system is as effective and cost-efficient as possible. The Plan includes the projected wastewater flow from the City and the required future improvements to its system in the short term (through 2040), as well as consideration of the full build out system structure in the long term (beyond 2040). Accounting for both of these time frames allows the City to acquire sites for construction and install improvements with adequate size and capacity to satisfy future sewer system needs. This Plan should be revisited and updated whenever the development types, densities, growth rate, and/or water use patterns deviate significantly from those estimated herein.

The geographic area covered by this Plan includes the entire City with the exception of the Regional Park and freeway corridors. It is understood that complete development of all areas of the City is not expected to occur within the planning period. Nonetheless, the proposed facilities have been sized to accommodate projected full build out.

## Regional Context

The 2040 Comprehensive Sanitary Sewer Plan is required to be submitted to the Metropolitan Council Environmental Services (MCES) for review and approval. By submitting this document, the City will be formally requesting that MCES adequately provide treatment and interceptor capacity in accordance with the City's projected growth and development. MCES reviews the plans completed and submitted by Lino Lakes and surrounding communities, and utilizes those documents to assess service capacity and required infrastructure needs throughout the region. The City of Lino Lakes is responsible for providing MCES with a Plan that provides sanitary sewer service capacity requirements. The City is also responsible for providing notification to MCES of accelerated development to allow them to accelerate their infrastructure improvements.

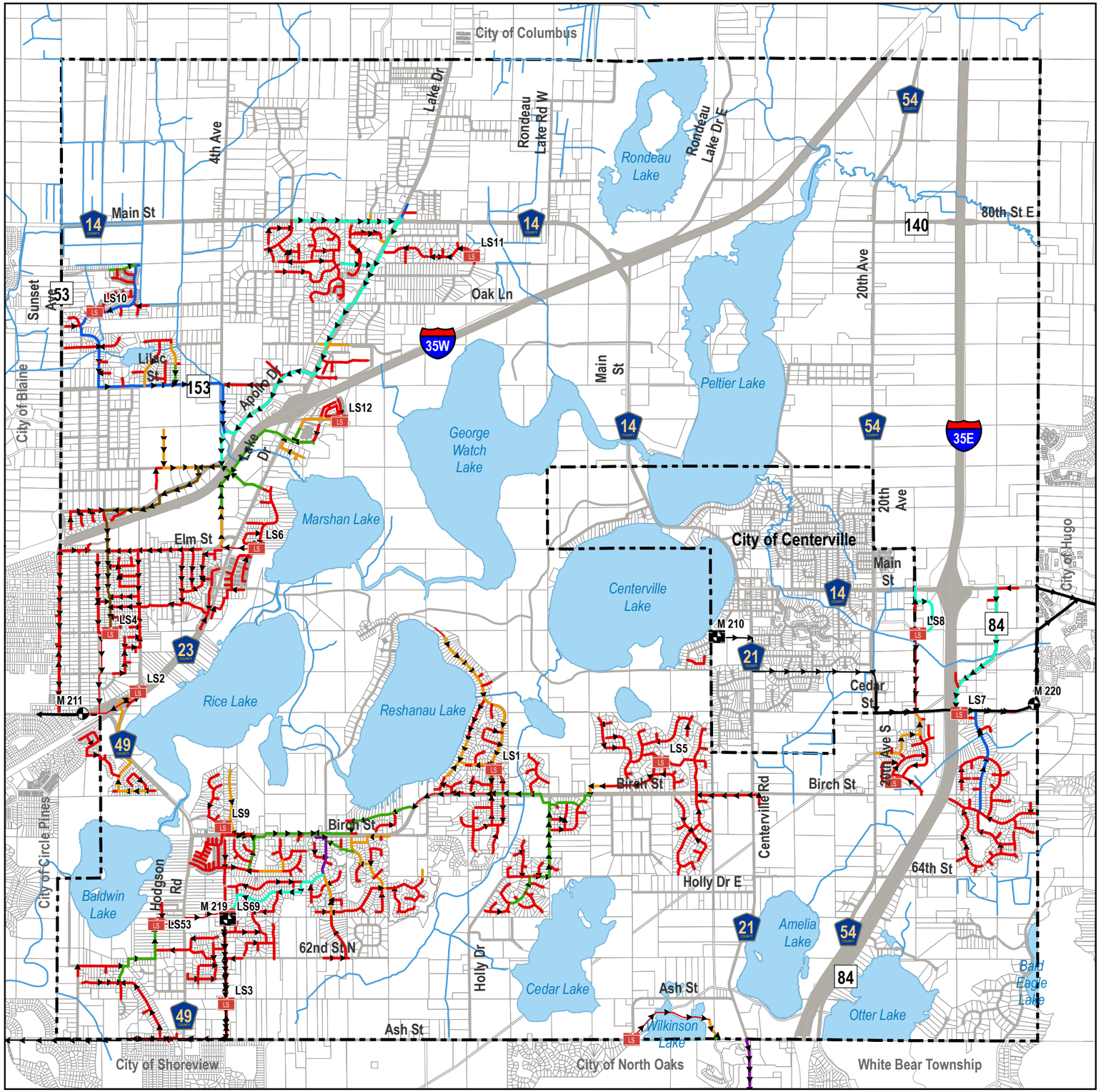
## Tasks

The tasks completed in the preparation of this plan were as follows:

1. The city's current growth and development patterns were reviewed in light of past planning documentation and changing demographic conditions.
2. The future growth patterns, land-use, and population projections were estimated in alignment with MCES forecasts.
3. MCES was contacted regarding its future plans for interceptor sewers and treatment capacities in the region of Lino Lakes.
4. The existing sanitary sewer system was evaluated to determine the adequacy or deficiency of the system based on estimated wastewater flow. This involved updating the city's SewerCAD model to determine the available capacity of existing trunk sewers and lift stations.
5. The future sanitary sewer system was evaluated based on anticipated growth and development. The city's proposed land use and staging were used to project future wastewater flows and to plan the approximate location, sizing, and timing of future sanitary sewer improvements.
6. The findings of the analyses listed above and recommendations to the City Council were summarized in this plan, including recommendations to the City Council.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 8-1
# Existing Sanitary Sewer System




## Legend

**Gravity Main Diameter**

- 8"
- 10"
- 12"
- 15"
- 18"
- 21"
- 24"

- MCES Meter
- MCES Lift Station
- Lift Station
- Forcemain
- MCES Forcemain
- MCES Gravity Main
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

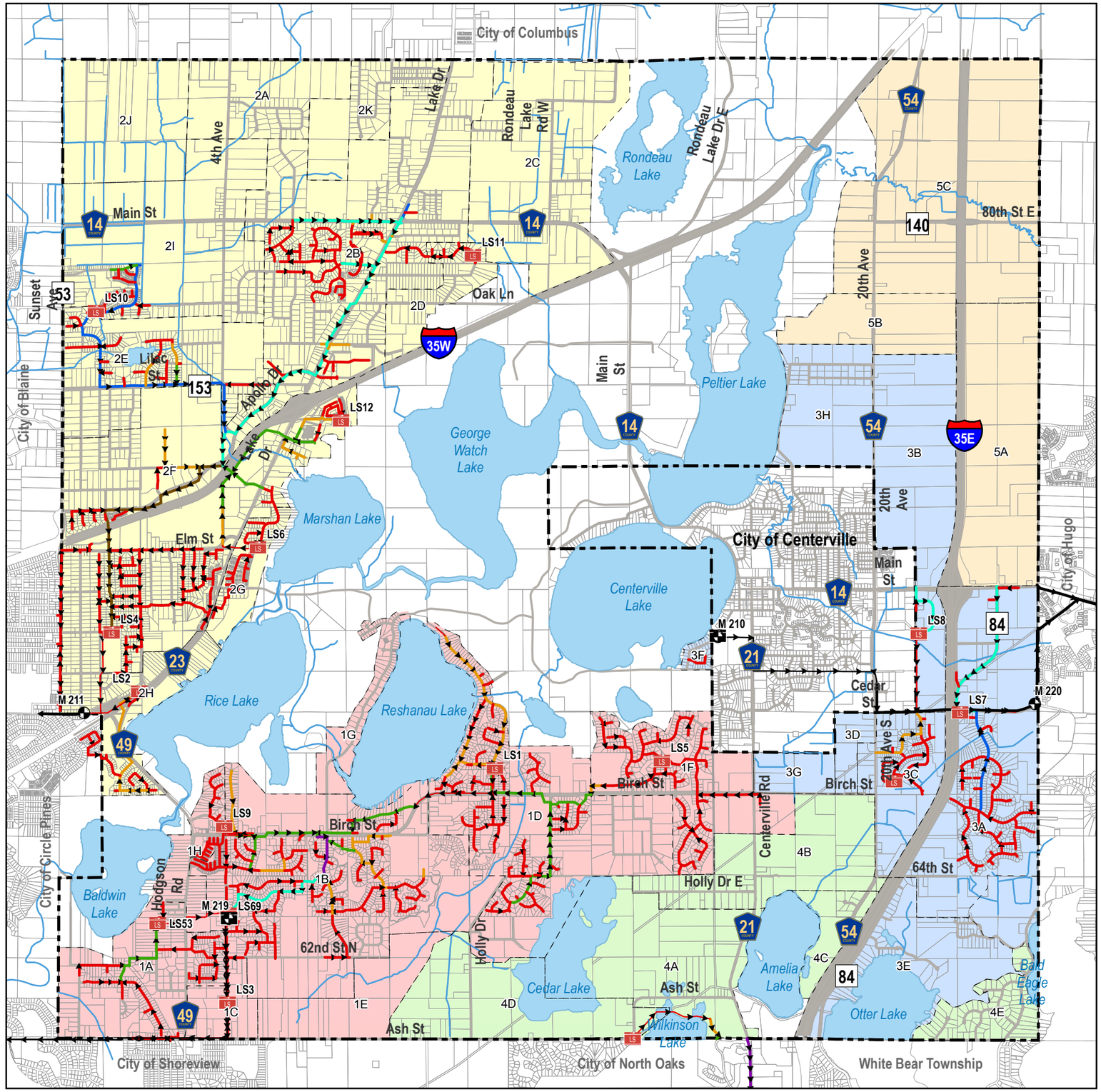
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 8-2
# Sanitary Sewer Districts




## Legend

**Sanitary District**

- District 1
- District 2
- District 3
- District 4
- District 5
- Sanitary Sub-District
- MCES Meter
- MCES Lift Station
- Lift Station
- Forcemain
- MCES Forcemain
- MCES Gravity Main

**Gravity Main Diameter**

- 8"
- 10"
- 12"
- 15"
- 18"
- 21"
- 24"
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

# Demographic Profile and Forecasts

The community of Lino Lakes anticipates growth in upcoming years. Planning for growth poses significant opportunities and challenges for the community. The City's growth forecasts in Chapter 2 and Land Use Plan in Chapter 3 are important tools for ensuring that the City is adequately prepared to respond to these opportunities and challenges. The Land Use Plan plays a key role in managing growth within the City. The Land Use Plan builds on the plan vision, goals, and strategies to establish a policy framework in which future development will occur. The future land use map is also used to estimate the community's capacity to accommodate projected household and employment growth.

## Sewer District Forecasts

Utilizing existing system and forecast information, this Plan provides guidance on future trunk sewers and lift stations necessary to accommodate the City's forecasted growth. This involved reviewing and updating the City's proposed land-use and staged development map, estimating the number of housing units and commercial/industrial properties in the future development sites, and providing solutions for the connection of new lateral sewers to the existing trunk sewer system. The general alignment of new trunk sewers and lift station locations is provided. Table 8-1 summarizes existing and full build out sewered population units.

Detailed forecasts of land use, population, and employment are included in Chapter 1: Introduction. These forecasts, broken out by sewer planning districts, are briefly summarized below. Existing development by district, as of 2017, is also summarized. District boundaries are shown in Figure 8-2. Note that the forecasts used for this and other infrastructure planning chapters rely on the midpoints of development density ranges to conservatively ensure that infrastructure can accommodate future demands on the system. In contrast, other chapters within this Plan rely on the minimum of development density ranges. Therefore, housing projection values will differ slightly between this chapter and others within this Plan.

### Sewer District Forecast Summary

Based on the 2040 forecasts, the City is expected to contain approximately 12,400 equivalent sewered residential units (including the Correctional Facility) by 2040. In addition, new commercial/industrial employment by 2040 could total approximately 6,000 employees. Development projections for 2040 are summarized in Table 8-1.

In comparing the City's Utility Staging Plan with the Full Build Out Future Land Use Map, it is apparent that large areas of developable land will remain after 2040. In addition, in-fill development and redevelopment will continue to occur. Full build out of proposed residential, commercial, and industrial areas will result in full build out sewer flows substantially greater than projected 2040 flows. It is therefore prudent to evaluate the capacity of existing and proposed facilities based on full build out development.

### Sewer District 1

Sewer District 1, located in southwest and south central Lino Lakes, includes primarily residential development along Hodgson Road and Birch Street east to Centerville, as well as the Rice Lake Elementary School. Flow from this area is collected at MCES Meter M219, Lift Station 69, and Interceptor 9106 along Ware Road which passes southwest through Shoreview.

A significant portion of District 1 is currently developed. As of 2017, District 1 contains approximately 2,370 sewered residential units and 300 unsewered units. There are about 600 developable acres in District 1 currently designated as low density sewered residential, 110 acres designated as medium density residential, 30 acres designated as Signature Gateway District, 5 acres designated commercial, and 1 acre designated civic/institutional.

The residential areas, including undeveloped lots in the existing subdivisions, are projected to accommodate about 990 new residential units by 2040. In addition, approximately 300 existing homes with on-site systems are projected to connect to the sewer system by 2040. The total number of sewered residences in District 1 would then be about 3,660 units in 2040. In addition, the commercial areas will support approximately 80 employees by 2040. Approximately 380 acres of low density residential and 30 acres of medium density residential are staged for development after 2040.

### Sewer District 2

Sewer District 2, located in northwest Lino Lakes, includes the commercial and industrial developments at the intersection of Interstate Highway 35W and Lake Drive, the Centennial Middle School, the Minnesota Correctional Facility, and the surrounding residential developments. Flow from this area is collected southward to MCES Meter M211 and Gravity Interceptor 8361 along North Road which passes southwest through Circle Pines.

This area consists of a mixture of urban and rural land uses. District 2 currently contains about 2,440 sewered residential units and 1,040 unsewered units, including the Lino Lakes Correctional Facility. The Correctional Facility houses approximately 1,200 residents, equivalent to about 500 single family residential units. This District contains about 900 developable acres designated as low density residential, 140 developable acres designated as medium density residential, 140 developable acres designated as high density residential, 8 acres designated as town center, 73 acres designated as planned residential/commercial, 16 acres designated as signature gateway district and 30 acres designated as civic/institutional. In total, these areas are projected to support approximately 2,200 new residential units by 2040. In total, assuming approximately 1,040 existing unsewered residential areas receive service, District 2 could contain the equivalent of about 5,680 sewered residential units in 2040.

District 2 also includes extensive existing commercial and industrial area, including approximately 30 developable acres designated commercial, 20 developable acres designated as industrial, and the previously mentioned planned residential/commercial, signature gateway district, and town center. Projected new employment in the commercial, industrial and mixed use areas totals about 1,700 employees by 2040.

## Sewer District 3

Sewer District 3, located in east central Lino Lakes generally east of Centerville, includes commercial and industrial development at the intersection of Main Street and Interstate Highway 35E and the residential developments to the south. Flow from these areas, including that from Centerville, is collected along East Cedar Street and conveyed east to MCES Meter M220 and Gravity Interceptor 802325.

District 3 also includes Sub-District 3F, comprised of two small developed areas totaling about 40 homes in the LaMotte Drive area and at the west end of Mound Trail on the north side of Centerville Lake. Sub-District 3F is served by an interconnection to the Centerville sanitary sewer system and by MCES Lift Station L4.

Existing sewered areas of District 3 contain about 570 existing single family residences, and a few commercial properties. The District also includes about 150 unsewered residences. District 3 contains approximately 150 acres of developable land designated as low density residential; 180 developable acres designated medium density residential; 40 developable acres high density residential; 363 developable acres designated as low density mixed residential; 92 developable acres designated as office residential; and 18 developable acres designated as planned residential/commercial. In total, these areas are projected to support approximately 2,200 new residential units by 2040. Assuming 150 existing unsewered residences receive service, total sewered residential development in District 3 is projected to be approximately 2,920 units by 2040.

District 3 also includes approximately 80 developable acres designated commercial, 130 acres designated industrial, and the previously mentioned low density mixed residential, office residential, and planned residential/commercial. Total new employment in these areas is projected to be approximately 1,180 employees by 2040.

## Sewer District 4

Sewer District 4 includes future development in south central and southeastern Lino Lakes, bordering on North Oaks and White Bear Township. Future flows from this area are planned to be conveyed to the southeast through the White Bear Township sanitary sewer system. There is no existing sewered development in District 4. There are about 170 existing non-sewered residences. District 4 contains approximately 290 developable acres designated low density residential, 20 acres medium density, 10 acres high density, and 25 acres signature gateway district. Most areas of District 4 are staged for development after 2040. Projected development by 2040 includes about 910 new residential units. In addition, 90 existing units in the West Oaks development, Sub-District 4E, are projected to receive service through a low pressure system, resulting in about 1,000 sewered units in District 4 by 2040. In addition, the signature gateway district in District 4 could support about 30 employees by 2040.

## Sewer District 5

District 5, located in the northeast corner of the City, is largely rural at present. There is no existing sewered development in this area. There are about 50 existing unsewered homes and a church located near Peltier Lake.

It is expected that little or no residential development will occur in District 5 before 2040, aside from limited office residential development east of I-35E. A large portion of District 5 is designated for future industrial, commercial, and planned residential/commercial land uses. The area east of Interstate 35E is staged for development before 2040, while the area west of Interstate 35E is staged after 2040. Total new employment in District 5 is estimated at about 3,000 employees by 2040. Future flows from this area are planned to be conveyed to the southeast, discharging into the MCES Lino Lakes Relief Interceptor.

**Table 8-1. Summary of Development Projections through 2040**

| District | MCES Facilities | Sub-District | Residential Units | | | | Employment |
|---|---|---|---|---|---|---|---|
| | | | Existing Sewered | Existing SSTS | Projected Sewered | 2040 Total Sewered | 2040 Total Sewered |
| 1 | Interceptor | 1A | 272 | 59 | 73 | 345 | 18 |
| | 91-06 | 1B | 914 | 66 | 168 | 1,082 | 0 |
| | Meter | 1C | 0 | 15 | 304 | 304 | 16 |
| | M219 | 1D | 665 | 59 | 140 | 805 | 0 |
| | | 1E | 0 | 8 | 261 | 261 | 0 |
| | | 1F | 346 | 7 | 115 | 461 | 0 |
| | | 1G | 0 | 60 | 76 | 76 | 0 |
| | | 1H | 169 | 25 | 151 | 320 | 42 |
| | | **Sub-Total** | **2,366** | **299** | **1,287** | **3,653** | **76** |
| 2 | Interceptor | 2A | 0 | 67 | 0 | 0 | 0 |
| | 83-61 | 2B | 429 | 348 | 380 | 809 | 719 |
| | Meter | 2C | 0 | 77 | 0 | 0 | 0 |
| | M211 | 2D | 0 | 45 | 72 | 72 | 0 |
| | | 2E | 211 | 82 | 100 | 311 | 285 |
| | | 2F | 1,254 | 226 | 0 | 1,354 | 458 |
| | | 2G | 211 | 1 | 0 | 211 | 44 |
| | | 2H | 97 | 24 | 0 | 97 | 124 |
| | | 2I | 239 | 93 | 2,001 | 2,240 | 51 |
| | | 2J | 0 | 11 | 300 | 300 | 0 |
| | | 2K | 0 | 63 | 273 | 273 | 35 |
| | | **Sub-Total** | **2,441** | **1,037** | **3,126** | **5,667** | **1,716** |
| 3 | Interceptors | 3A | 398 | 19 | 0 | 398 | 722 |
| | 76-51/91-06 | 3B | 0 | 4 | 772 | 772 | 362 |
| | Meter | 3C | 139 | 16 | 115 | 254 | 0 |
| | M220 | 3D | 0 | 6 | 106 | 106 | 0 |
| | | 3E | 0 | 65 | 0 | 0 | 0 |
| | | 3F | 37 | 0 | 0 | 37 | 0 |
| | | 3G | 0 | 2 | 440 | 440 | 91 |
| | | 3H | 0 | 39 | 908 | 908 | 0 |
| | | **Sub-Total** | **574** | **151** | **2,342** | **2,916** | **1,175** |
| 4 | Future | 4A | 0 | 29 | 461 | 461 | 33 |
| | | 4B | 0 | 33 | 0 | 0 | 0 |
| | | 4C | 0 | 9 | 0 | 0 | 0 |
| | | 4D | 0 | 15 | 545 | 545 | 0 |
| | | 4E | 0 | 81 | 70 | 70 | 0 |
| | | **Sub-Total** | **0** | **167** | **1,076** | **1,076** | **33** |
| 5 | Future | 5A | 0 | 4 | 211 | 211 | 1,307 |
| | | 5B | 0 | 10 | 0 | 0 | 0 |
| | | 5C | 0 | 37 | 0 | 0 | 1,694 |
| | | **Sub-Total** | **0** | **51** | **211** | **211** | **3,001** |
| | | **TOTAL** | **5,381** | **1,705** | **8,042** | **13,523** | **6,001** |

The residential projected sewered units include both new development and the connection of existing development (ISTS) to the public collection system. In those instances where the residential projected sewered units are zero, it simply means that connection to the public collection system is not planned for that area before 2040. The total household forecasts used in Chapter 8: Sanitary Sewer are greater than the Metropolitan Council household forecasts used in other chapters because they are based on the midpoint of the density range for each residential land use designation. This provides conservative projections for the sizing of future sanitary sewer infrastructure to accommodate variations in actual developed density.

## Wastewater Flow Projections and Design Flows

Water use is associated with population more than any other parameter, and in particular, the per capita consumption is the industry standard for computing water use and, therefore, wastewater flow generated. Both the Minnesota Pollution Control Agency (MPCA) and the Metropolitan Council Environmental Services (MCES) have compiled and documented extensive data that relates wastewater flow generation to population and land-use. This information has been used as our basis for estimating the wastewater design flows and peaking design conditions to determine the size and capacity of the existing and future sewer systems.

For the purpose of this Plan, an MCES-recommended value of 180 gallons per day (gpd) was assumed for the average daily wastewater production from a typical residential equivalent unit (1 REU = 180 gpd). The Metropolitan Council SAC Procedure Manual recommends an average rate of 274 gpd per SAC unit. However, a brief analysis of the existing land use and metered wastewater flow in the City of Lino Lakes indicates that the actual wastewater production is approximately 160 gpd, so the assumed value of 180 gpd is still conservative. The following parameters were used for the wastewater flow projections throughout this Plan:

Residential Equivalent Unit (REU) = 180 gpd per REU
Commercial/Industrial Development = 40 gpd per Employee

Design flows for piping and pumping facilities are based on peak wastewater flow conditions. Peaking factors vary with the total contributing population. The greater the population in the service area the less variable the wastewater flow condition is with time. Standard peaking factors developed by the MCES, as shown in Table 8-2, were utilized to estimate peak flows. Projected average daily flows and peak flows for years 2025, 2030, 2035, 2040, and at full build out development are summarized in Tables 8-3 through 8-8.

**Table 8-1A. Summary of Metropolitan Council Sewered Development Projections through 2040**

| District | MCES Interceptor | MCES Meter | 2020 | | 2030 | | 2040 | |
|---|---|---|---|---|---|---|---|---|
| | | | Households | Employment | Households | Employment | Households | Employment |
| 1 | 9106 | M219 | 2,433 | 100 | 2,681 | 122 | 2,832 | 142 |
| 2 | 8361 | M211 | 2,320 | 2,533 | 2,428 | 2,530 | 3,572 | 3,090 |
| 3 | 7651/9106 | M220 | 547 | 1,787 | 1,451 | 1,749 | 1,740 | 2,137 |
| 4 | 6901 | Future | 0 | 0 | 281 | 54 | 716 | 63 |
| 5 | 802325 | Future | 0 | 0 | 59 | 486 | 140 | 568 |
| **Sewered** | **N/A** | **N/A** | **5,300** | **4,420** | **6,900** | **4,940** | **9,000** | **6,000** |
| **Unsewered** | **N/A** | **N/A** | **1,700** | **280** | **1,700** | **360** | **1,600** | **0** |
| **Total** | **N/A** | **N/A** | **7,000** | **4,700** | **8,600** | **5,300** | **10,600** | **6,000** |

**Table 8-2. MCES Standard Peak Factors**

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

**Table 8-3. Summary of Projected Flows - 2020**

| District | MCES Facilities | Sub-District | Housing | Employment | Average Daily Flow (MGD) | Peak Factor | Peak Flow (MGD) |
|---|---|---|---|---|---|---|---|
| **1** | Interceptor | 1A | 325 | 31 | 0.061 | 4.0 | 0.244 |
| | 91-06 | 1B | 912 | 0 | 0.164 | 3.9 | 0.640 |
| | Meter | 1C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | M219 | 1D | 620 | 0 | 0.112 | 4.0 | 0.446 |
| | | 1E | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 1F | 338 | 0 | 0.061 | 4.0 | 0.243 |
| | | 1G | 70 | 0 | 0.013 | 4.0 | 0.050 |
| | | 1H | 297 | 69 | 0.059 | 4.0 | 0.236 |
| | | **Sub-Total** | **2,562** | **100** | **0.469** | **3.5** | **1.642** |
| **2** | Interceptor | 2A | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | 83-61 | 2B | 424 | 1,032 | 0.159 | 3.9 | 0.620 |
| | Meter | 2C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | M211 | 2D | 45 | 0 | 0.008 | 4.0 | 0.032 |
| | | 2E | 201 | 470 | 0.074 | 4.0 | 0.295 |
| | | 2F | 898 | 754 | 0.222 | 3.8 | 0.843 |
| | | 2G | 209 | 72 | 0.043 | 4.0 | 0.174 |
| | | 2H | 96 | 205 | 0.034 | 4.0 | 0.135 |
| | | 2I | 226 | 0 | 0.041 | 4.0 | 0.163 |
| | | 2J | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 2K | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | **Sub-Total** | **2,099** | **2,533** | **0.580** | **3.4** | **1.974** |
| **3** | Interceptors | 3A | 385 | 1,190 | 0.165 | 3.9 | 0.642 |
| | 76-51/91-06 | 3B | 0 | 597 | 0.048 | 4.0 | 0.191 |
| | Meter | 3C | 96 | 0 | 0.017 | 4.0 | 0.069 |
| | M220 | 3D | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3E | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3F | 37 | 0 | 0.007 | 4.0 | 0.027 |
| | | 3G | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3H | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | **Sub-Total** | **518** | **1,787** | **0.236** | **3.8** | **0.898** |
| **4** | Future | 4A | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4D | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4E | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | **Sub-Total** | **0** | **0** | **0.000** | **4.0** | **0.000** |
| **5** | Future | 5A | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 5B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 5C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | **Sub-Total** | **0** | **0** | **0.000** | **4.0** | **0.000** |
| | | **TOTAL** | **5,179** | **4,420** | **1.286** | **3.0** | **3.857** |

**Table 8-4. Summary of Projected Flows - 2025**

| District | MCES Facilities | Sub-District | Housing | Employment | Average Daily Flow (MGD) | Peak Factor | Peak Flow (MGD) |
|---|---|---|---|---|---|---|---|
| **1** | Interceptor | 1A | 345 | 15 | 0.063 | 4.0 | 0.253 |
| | 91-06 | 1B | 914 | 0 | 0.165 | 3.9 | 0.642 |
| | Meter | 1C | 179 | 13 | 0.033 | 4.0 | 0.133 |
| | M219 | 1D | 665 | 0 | 0.120 | 3.9 | 0.467 |
| | | 1E | 44 | 0 | 0.008 | 4.0 | 0.032 |
| | | 1F | 346 | 0 | 0.062 | 4.0 | 0.249 |
| | | 1G | 76 | 0 | 0.014 | 4.0 | 0.055 |
| | | 1H | 320 | 34 | 0.060 | 4.0 | 0.241 |
| | | **Sub-Total** | **2,889** | **62** | **0.525** | **3.4** | **1.785** |
| **2** | Interceptor | 2A | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | 83-61 | 2B | 429 | 510 | 0.118 | 4.0 | 0.472 |
| | Meter | 2C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | M211 | 2D | 72 | 0 | 0.013 | 4.0 | 0.052 |
| | | 2E | 211 | 232 | 0.057 | 4.0 | 0.226 |
| | | 2F | 1,254 | 373 | 0.256 | 3.7 | 0.946 |
| | | 2G | 211 | 36 | 0.041 | 4.0 | 0.163 |
| | | 2H | 97 | 101 | 0.026 | 4.0 | 0.102 |
| | | 2I | 760 | 11 | 0.138 | 3.9 | 0.537 |
| | | 2J | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 2K | 60 | 0 | 0.011 | 4.0 | 0.043 |
| | | **Sub-Total** | **3,094** | **1,263** | **0.658** | **3.3** | **2.171** |
| **3** | Interceptors | 3A | 398 | 588 | 0.119 | 4.0 | 0.475 |
| | 76-51/91-06 | 3B | 386 | 295 | 0.093 | 4.0 | 0.372 |
| | Meter | 3C | 139 | 0 | 0.025 | 4.0 | 0.100 |
| | M220 | 3D | 106 | 0 | 0.019 | 4.0 | 0.076 |
| | | 3E | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3F | 37 | 0 | 0.007 | 4.0 | 0.027 |
| | | 3G | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3H | 469 | 0 | 0.084 | 5.0 | 0.422 |
| | | **Sub-Total** | **1,535** | **883** | **0.347** | **3.6** | **1.249** |
| **4** | Future | 4A | 113 | 27 | 0.023 | 4.0 | 0.090 |
| | | 4B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4D | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4E | 70 | 0 | 0.013 | 4.0 | 0.050 |
| | | **Sub-Total** | **183** | **27** | **0.035** | **4.0** | **0.140** |
| **5** | Future | 5A | 211 | 1,065 | 0.123 | 3.9 | 0.480 |
| | | 5B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 5C | 0 | 1,380 | 0.110 | 4.0 | 0.442 |
| | | **Sub-Total** | **211** | **2,445** | **0.234** | **3.8** | **0.888** |
| | | **TOTAL** | **7,912** | **4,680** | **1.799** | **2.9** | **5.216** |

The total household forecasts used in Chapter 8: Sanitary Sewer are greater than the Metropolitan Council household forecasts used in other chapters because they are based on the midpoint of the density range for each residential land use designation. This provides conservative projections for the sizing of future sanitary sewer infrastructure to accommodate variations in actual developed density.

**Table 8-5. Summary of Projected Flows - 2030**

| District | MCES Facilities | Sub-District | Housing | Employment | Average Daily Flow (MGD) | Peak Factor | Peak Flow (MGD) |
|---|---|---|---|---|---|---|---|
| **1** | Interceptor | 1A | 345 | 16 | 0.063 | 4.0 | 0.253 |
| | 91-06 | 1B | 914 | 0 | 0.165 | 3.9 | 0.642 |
| | Meter | 1C | 179 | 14 | 0.033 | 4.0 | 0.133 |
| | M219 | 1D | 665 | 0 | 0.120 | 3.9 | 0.467 |
| | | 1E | 44 | 0 | 0.008 | 4.0 | 0.032 |
| | | 1F | 346 | 0 | 0.062 | 4.0 | 0.249 |
| | | 1G | 76 | 0 | 0.014 | 4.0 | 0.055 |
| | | 1H | 320 | 36 | 0.060 | 4.0 | 0.242 |
| | | **Sub-Total** | **2,889** | **65** | **0.525** | **3.4** | **1.786** |
| **2** | Interceptor | 2A | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | 83-61 | 2B | 429 | 535 | 0.120 | 3.9 | 0.468 |
| | Meter | 2C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | M211 | 2D | 72 | 0 | 0.013 | 4.0 | 0.052 |
| | | 2E | 211 | 243 | 0.057 | 4.0 | 0.230 |
| | | 2F | 1,254 | 391 | 0.257 | 3.7 | 0.951 |
| | | 2G | 211 | 38 | 0.041 | 4.0 | 0.164 |
| | | 2H | 97 | 106 | 0.026 | 4.0 | 0.104 |
| | | 2I | 820 | 12 | 0.149 | 3.9 | 0.579 |
| | | 2J | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 2K | 273 | 30 | 0.052 | 4.0 | 0.206 |
| | | **Sub-Total** | **3,367** | **1,355** | **0.714** | **3.3** | **2.358** |
| **3** | Interceptors | 3A | 398 | 617 | 0.121 | 3.9 | 0.472 |
| | 76-51/91-06 | 3B | 772 | 309 | 0.164 | 3.9 | 0.639 |
| | Meter | 3C | 254 | 0 | 0.046 | 4.0 | 0.183 |
| | M220 | 3D | 106 | 0 | 0.019 | 4.0 | 0.076 |
| | | 3E | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3F | 37 | 0 | 0.007 | 4.0 | 0.027 |
| | | 3G | 95 | 0 | 0.017 | 4.0 | 0.069 |
| | | 3H | 908 | 0 | 0.164 | 3.9 | 0.638 |
| | | **Sub-Total** | **2,571** | **926** | **0.537** | **3.4** | **1.825** |
| **4** | Future | 4A | 153 | 28 | 0.030 | 4.0 | 0.119 |
| | | 4B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4D | 161 | 0 | 0.029 | 4.0 | 0.116 |
| | | 4E | 70 | 0 | 0.013 | 4.0 | 0.050 |
| | | **Sub-Total** | **384** | **28** | **0.071** | **4.0** | **0.285** |
| **5** | Future | 5A | 211 | 1,117 | 0.127 | 4.0 | 0.510 |
| | | 5B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 5C | 0 | 1,448 | 0.116 | 4.0 | 0.463 |
| | | **Sub-Total** | **211** | **2,565** | **0.243** | **3.8** | **0.924** |
| | | **TOTAL** | **9,421** | **4,940** | **2.091** | **2.8** | **5.855** |

The total household forecasts used in Chapter 8: Sanitary Sewer are greater than the Metropolitan Council household forecasts used in other chapters because they are based on the midpoint of the density range for each residential land use designation. This provides conservative projections for the sizing of future sanitary sewer infrastructure to accommodate variations in actual developed density.

**Table 8-6. Summary of Projected Flows - 2035**

| District | MCES Facilities | Sub-District | Housing | Employment | Average Daily Flow (MGD) | Peak Factor | Peak Flow (MGD) |
|---|---|---|---|---|---|---|---|
| **1** | Interceptor | 1A | 345 | 17 | 0.063 | 4.0 | 0.254 |
| | 91-06 | 1B | 1,082 | 0 | 0.195 | 3.8 | 0.740 |
| | Meter | 1C | 304 | 15 | 0.056 | 4.0 | 0.224 |
| | M219 | 1D | 730 | 0 | 0.131 | 3.9 | 0.512 |
| | | 1E | 99 | 0 | 0.018 | 4.0 | 0.071 |
| | | 1F | 461 | 0 | 0.083 | 4.0 | 0.332 |
| | | 1G | 76 | 0 | 0.014 | 4.0 | 0.055 |
| | | 1H | 320 | 39 | 0.061 | 4.0 | 0.243 |
| | | **Sub-Total** | **3,416** | **72** | **0.621** | **3.4** | **2.110** |
| **2** | Interceptor | 2A | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | 83-61 | 2B | 429 | 589 | 0.124 | 3.9 | 0.485 |
| | Meter | 2C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | M211 | 2D | 72 | 0 | 0.013 | 4.0 | 0.052 |
| | | 2E | 311 | 268 | 0.077 | 4.0 | 0.310 |
| | | 2F | 1,354 | 431 | 0.278 | 3.7 | 1.029 |
| | | 2G | 211 | 42 | 0.041 | 4.0 | 0.165 |
| | | 2H | 97 | 117 | 0.027 | 4.0 | 0.107 |
| | | 2I | 2,040 | 48 | 0.371 | 3.6 | 1.336 |
| | | 2J | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 2K | 273 | 33 | 0.052 | 4.0 | 0.207 |
| | | **Sub-Total** | **4,787** | **1,526** | **0.984** | **3.2** | **3.148** |
| **3** | Interceptors | 3A | 398 | 679 | 0.126 | 3.9 | 0.491 |
| | 76-51/91-06 | 3B | 772 | 341 | 0.166 | 3.9 | 0.648 |
| | Meter | 3C | 254 | 0 | 0.046 | 4.0 | 0.183 |
| | M220 | 3D | 106 | 0 | 0.019 | 4.0 | 0.076 |
| | | 3E | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3F | 37 | 0 | 0.007 | 4.0 | 0.027 |
| | | 3G | 95 | 0 | 0.017 | 4.0 | 0.069 |
| | | 3H | 908 | 0 | 0.164 | 3.9 | 0.638 |
| | | **Sub-Total** | **2,571** | **1,019** | **0.544** | **3.4** | **1.850** |
| **4** | Future | 4A | 236 | 31 | 0.045 | 4.0 | 0.180 |
| | | 4B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4D | 161 | 0 | 0.029 | 4.0 | 0.116 |
| | | 4E | 70 | 0 | 0.013 | 4.0 | 0.050 |
| | | **Sub-Total** | **467** | **31** | **0.087** | **4.0** | **0.347** |
| **5** | Future | 5A | 211 | 1,229 | 0.136 | 4.0 | 0.545 |
| | | 5B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 5C | 0 | 1,593 | 0.127 | 4.0 | 0.510 |
| | | **Sub-Total** | **211** | **2,822** | **0.264** | **3.8** | **1.002** |
| | | **TOTAL** | **11,452** | **5,470** | **2.499** | **2.7** | **6.747** |

The total household forecasts used in Chapter 8: Sanitary Sewer are greater than the Metropolitan Council household forecasts used in other chapters because they are based on the midpoint of the density range for each residential land use designation. This provides conservative projections for the sizing of future sanitary sewer infrastructure to accommodate variations in actual developed density.

**Table 8-7. Summary of Projected Flows - 2040**

| District | MCES Facilities | Sub-District | Housing | Employment | Average Daily Flow (MGD) | Peak Factor | Peak Flow (MGD) |
|---|---|---|---|---|---|---|---|
| **1** | Interceptor | 1A | 345 | 18 | 0.064 | 4.0 | 0.254 |
| | 91-06 | 1B | 1,082 | 0 | 0.195 | 3.8 | 0.740 |
| | Meter | 1C | 304 | 16 | 0.056 | 4.0 | 0.224 |
| | M219 | 1D | 805 | 0 | 0.145 | 3.9 | 0.565 |
| | | 1E | 261 | 0 | 0.047 | 4.0 | 0.188 |
| | | 1F | 461 | 0 | 0.083 | 4.0 | 0.332 |
| | | 1G | 76 | 0 | 0.014 | 4.0 | 0.055 |
| | | 1H | 320 | 42 | 0.061 | 4.0 | 0.244 |
| | | **Sub-Total** | **3,653** | **76** | **0.664** | **3.3** | **2.190** |
| **2** | Interceptor | 2A | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | 83-61 | 2B | 809 | 719 | 0.203 | 3.8 | 0.772 |
| | Meter | 2C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | M211 | 2D | 72 | 0 | 0.013 | 4.0 | 0.052 |
| | | 2E | 311 | 285 | 0.079 | 4.0 | 0.315 |
| | | 2F | 1,354 | 458 | 0.280 | 3.7 | 1.037 |
| | | 2G | 211 | 44 | 0.042 | 4.0 | 0.166 |
| | | 2H | 97 | 124 | 0.027 | 4.0 | 0.110 |
| | | 2I | 2,240 | 51 | 0.407 | 3.5 | 1.425 |
| | | 2J | 300 | 0 | 0.054 | 4.0 | 0.216 |
| | | 2K | 273 | 35 | 0.052 | 4.0 | 0.208 |
| | | **Sub-Total** | **5,667** | **1,716** | **1.157** | **3.1** | **3.588** |
| **3** | Interceptors | 3A | 398 | 722 | 0.129 | 3.9 | 0.505 |
| | 76-51/91-06 | 3B | 772 | 362 | 0.168 | 3.9 | 0.655 |
| | Meter | 3C | 254 | 0 | 0.046 | 4.0 | 0.183 |
| | M220 | 3D | 106 | 0 | 0.019 | 4.0 | 0.076 |
| | | 3E | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 3F | 37 | 0 | 0.007 | 4.0 | 0.027 |
| | | 3G | 440 | 91 | 0.087 | 4.0 | 0.346 |
| | | 3H | 908 | 0 | 0.164 | 3.9 | 0.638 |
| | | **Sub-Total** | **2,916** | **1,175** | **0.619** | **3.4** | **2.104** |
| **4** | Future | 4A | 461 | 33 | 0.086 | 4.0 | 0.343 |
| | | 4B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4C | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 4D | 545 | 0 | 0.098 | 4.0 | 0.392 |
| | | 4E | 70 | 0 | 0.013 | 4.0 | 0.050 |
| | | **Sub-Total** | **1,076** | **33** | **0.196** | **3.8** | **0.746** |
| **5** | Future | 5A | 211 | 1,307 | 0.143 | 3.9 | 0.556 |
| | | 5B | 0 | 0 | 0.000 | 4.0 | 0.000 |
| | | 5C | 0 | 1,694 | 0.136 | 4.0 | 0.542 |
| | | **Sub-Total** | **211** | **3,001** | **0.278** | **3.7** | **1.029** |
| | | **TOTAL** | **13,523** | **6,001** | **2.914** | **2.7** | **7.868** |

The total household forecasts used in Chapter 8: Sanitary Sewer are greater than the Metropolitan Council household forecasts used in other chapters because they are based on the midpoint of the density range for each residential land use designation. This provides conservative projections for the sizing of future sanitary sewer infrastructure to accommodate variations in actual developed density.

**Table 8-8. Summary of Projected Flows - Full Build Development**

| District | MCES Facilities | Sub-District | Housing | Employment | Average Daily Flow (MGD) | Peak Factor | Peak Flow (MGD) |
|---|---|---|---|---|---|---|---|
| **1** | Interceptor | 1A | 607 | 18 | 0.111 | 4.0 | 0.443 |
| | 91-06 | 1B | 1,275 | 0 | 0.230 | 3.8 | 0.872 |
| | Meter | 1C | 304 | 16 | 0.056 | 4.0 | 0.224 |
| | M219 | 1D | 1,167 | 0 | 0.210 | 3.8 | 0.798 |
| | | 1E | 543 | 0 | 0.098 | 4.0 | 0.391 |
| | | 1F | 487 | 0 | 0.088 | 4.0 | 0.350 |
| | | 1G | 76 | 0 | 0.014 | 4.0 | 0.055 |
| | | 1H | 320 | 42 | 0.061 | 4.0 | 0.244 |
| | | **Sub-Total** | **4,778** | **76** | **0.866** | **3.2** | **2.771** |
| **2** | Interceptor | 2A | 628 | 0 | 0.113 | 4.0 | 0.452 |
| | 83-61 | 2B | 2,108 | 819 | 0.445 | 3.5 | 1.558 |
| | Meter | 2C | 1,506 | 0 | 0.271 | 3.7 | 1.003 |
| | M211 | 2D | 194 | 0 | 0.035 | 4.0 | 0.140 |
| | | 2E | 523 | 285 | 0.117 | 4.0 | 0.468 |
| | | 2F | 1,476 | 458 | 0.302 | 3.6 | 1.088 |
| | | 2G | 211 | 44 | 0.042 | 4.0 | 0.166 |
| | | 2H | 97 | 124 | 0.027 | 4.0 | 0.110 |
| | | 2I | 2,660 | 51 | 0.483 | 3.5 | 1.690 |
| | | 2J | 906 | 0 | 0.163 | 3.9 | 0.636 |
| | | 2K | 273 | 35 | 0.052 | 4.0 | 0.208 |
| | | **Sub-Total** | **10,582** | **1,816** | **2.050** | **2.8** | **5.740** |
| **3** | Interceptors | 3A | 698 | 722 | 0.183 | 3.9 | 0.715 |
| | 76-51/91-06 | 3B | 772 | 362 | 0.168 | 3.9 | 0.655 |
| | Meter | 3C | 314 | 0 | 0.057 | 4.0 | 0.226 |
| | M220 | 3D | 106 | 0 | 0.019 | 4.0 | 0.076 |
| | | 3E | 439 | 0 | 0.079 | 4.0 | 0.316 |
| | | 3F | 37 | 0 | 0.007 | 4.0 | 0.027 |
| | | 3G | 440 | 91 | 0.087 | 4.0 | 0.346 |
| | | 3H | 1,043 | 0 | 0.188 | 3.9 | 0.732 |
| | | **Sub-Total** | **3,850** | **1,175** | **0.787** | **3.3** | **2.597** |
| **4** | Future | 4A | 979 | 33 | 0.179 | 3.9 | 0.698 |
| | | 4B | 666 | 0 | 0.120 | 3.9 | 0.468 |
| | | 4C | 168 | 0 | 0.030 | 4.0 | 0.121 |
| | | 4D | 1,016 | 0 | 0.183 | 3.9 | 0.713 |
| | | 4E | 70 | 0 | 0.013 | 4.0 | 0.050 |
| | | **Sub-Total** | **2,899** | **33** | **0.524** | **3.4** | **1.783** |
| **5** | Future | 5A | 211 | 2,727 | 0.256 | 3.8 | 0.973 |
| | | 5B | 279 | 1,180 | 0.145 | 3.9 | 0.564 |
| | | 5C | 939 | 5,194 | 0.585 | 3.4 | 1.988 |
| | | **Sub-Total** | **1,429** | **9,101** | **0.985** | **3.2** | **3.153** |
| | | **TOTAL** | **23,538** | **12,201** | **5.213** | **2.3** | **11.990** |

# Metropolitan Council Environmental Services

## Metropolitan Urban Service Area (MUSA) Boundary

The MUSA boundary is the boundary in the seven-county Twin City Area within which the Metropolitan Council commits to provide sanitary sewage treatment and conveyance via regional interceptors. The City is required to provide local sewer collection services in accordance with the City's Comprehensive Plan. Wastewater collected within the City limits is conveyed into MCES interceptors. The collected sewage and the sewage from other communities are then conveyed to the MCES Metropolitan Wastewater Treatment Plant (WWTP), located in the City of Saint Paul.

MCES wastewater treatment facilities and interceptor systems are designed based on projected regional land-use and growth plans. Therefore, any significant changes in future land-use and development of the City will have an impact on MCES facilities.

## MCES Interceptors and Lift Stations

The City of Lino Lakes sewer system currently discharges to the MCES Interceptor system at four locations.

- District 1 is served by MCES Lift Station L69, located on Ware Road.
- District 2 is served by MCES Interceptor 8361, located on North Road on the Lino Lakes/Circle Pines boundary.
- Sub-District 3F discharges to MCES Lift Station L4, located at the Lino Lakes/Centerville Corporate boundary.
- District 3, including the pumped discharge from Lift Station L4, is served by the Centerville Interceptor (MCES Interceptor 7651) located on Cedar Street.

Lino Lakes flows will be discharged to the regional system at two additional locations in the future.

- Sewer District 4 is proposed to be served by a White Bear Township trunk sewer, ultimately discharging to the Forest Lake interceptor.
- District 5 is served by the Lino Lakes Relief Interceptor (MCES Interceptor 802325).

The locations of these facilities are shown on Figure 8-1. The following paragraphs provide a brief description of each of the existing MCES and White Bear Township facilities.

### MCES Interceptor 8361 (Sewer District 2)

The existing interceptor is a gravity sewer that receives the discharge from Lino Lakes Lift Stations 2 and 4. MCES Meter Station M211 is located at the discharge end of the force main serving these two lift stations. A peak flow capacity of 3.6 million gallons per day (MGD) has been allocated to Lino Lakes at this connection. Interceptor 8361 flows west and discharges into the North Suburban Interceptor (4-NS-523). As a result of recent development projections by Lino Lakes, Blaine, and other cities, MCES has committed to provide additional capacity at this location. The proposed MCES Blaine Relief Interceptor would provide an allocated capacity of 9.5 MGD for Lino Lakes.

### MCES Lift Station L69 (Sewer District 1)

This lift station, located on Ware Road, was constructed in 1995-96 to replace an earlier MCES facility, Lift Station L53. Lift Station L69 discharges south and then west through a long force main to the North Suburban Interceptor (4-NS-523) in the City of Shoreview. The current design capacity of Lift Station L69 is 2,760 gallons per minute (gpm) or 3.97 MGD. It can be upgraded to 2,920 gpm (4.20 MGD) by changing pump impellers. MCES Meter Station M219 is located at the lift station.

### MCES Lift Station L4 (Sewer Sub-District 3F)

The service area of this lift station is limited to a small, fully-developed area of Lino Lakes (Sub-District 3F), as well as the City of Centerville. The lift station and force main were upgraded by MCES in 2000 to provide for the long-term needs of this service area. MCES Meter Station M210 is located at the lift station. The force main discharges into MCES Interceptor 9708 at the intersection of 21st Avenue and Cedar Street.

### MCES Interceptors 7651 & 9708 – Centerville Interceptor (Sewer District 3)

This interceptor is a 24-inch gravity sewer constructed in 2000. It flows east into the City of Hugo and connects to the Forest Lake Interceptor. Interceptor 9708 receives flow by force main from MCES Lift Station L-4, and also from force mains serving Lino Lakes Lift Stations 7 and 8. MCES Meter Station M220 is located on the Lino Lakes/Hugo boundary on Cedar Street. The interceptor at the Lino Lakes boundary has a gravity capacity of 5.00 MGD, of which approximately 3.65 MGD is available to Lino Lakes.

### MCES Interceptor 6901 (Sewer District 4)

Lino Lakes Sewer District 4 is not currently served by an MCES facility. Future sewer service to this area is expected to be provided by way of the White Bear Township sewer system, ultimately discharging to MCES Interceptor 6901. Recent projects have extended service to the Lino Lakes boundary at three locations: an 18-inch gravity sewer on the west side of Centerville Road, the North Oaks Company's Rapp Farm lift station at the west end of Wilkinson Lake, and a White Bear Township pressure sewer system east of Otter Lake. The capacity of the White Bear Township trunk sewer is approximately 829 gpm in terms of average flow, as determined by the Centerville Road sanitary sewer analysis dated October 4, 2018. The analysis determined that the Centerville Road sanitary sewer has capacity for the ultimate planned development in White Bear Township, North Oaks, and Lino Lakes. The share of this capacity available to Lino Lakes will be confirmed pending the execution of a joint powers agreement with White Bear Township.

### MCES Interceptor 802325 (Sewer District 5)

MCES constructed the Lino Lakes Relief Interceptor in 2006, which extends west from the Forest Lake Interceptor (MCES Interceptor 7029) along Washington County Highway 8 to the Lino Lakes boundary. This sewer will serve District 5. Available capacity for Lino Lakes at this location is 5.6 MGD.

## Future Improvements to MCES Interceptors

At the writing of the city's 2030 Comprehensive Plan, the Metropolitan Council was anticipating growth in the North Suburban Interceptor service area. In the last 10 years, that growth has not occurred as anticipated and plans for additional capacity in that system have been delayed. The proposed MCES Blaine Relief Interceptor was a key part of the North Suburban

Interceptor improvement program. This plan, as well as the comprehensive plans of neighboring communities, will be used by MCES to reevaluate and plan the scope and timing of this interceptor and other interceptor improvements.

# Existing Sanitary Sewer System

## Existing Collection System

The City of Lino Lakes' sanitary sewer system is divided into five sewer districts. Flow from the existing Sewer Districts 1, 2, and 3 is measured at MCES meters M219, M211, and M220 respectively. Sewer Districts 4 and 5 have not been active to date. A map of the city's existing sanitary sewer system is shown in Figure 8-1. The MCES interceptors, lift stations, force mains, and meter stations serving the City of Lino Lakes are labeled to distinguish them from the city sanitary sewer system.

Most of the city sanitary sewer system consists of PVC gravity sewer lines ranging from 8 inches in diameter to 24 inches in diameter. Lateral sewers serving residential areas are typically 8 inches in diameter, and discharge into 10 inch or larger trunk sewers.

The city also currently owns and operates 14 sanitary sewer lift stations which are an integral part of the collection system. The locations of these lift stations are shown in Figure 8-1. Lift Stations 1 through 13 were constructed by the city. Lift Station L53 was originally an MCES facility, but was conveyed to the city by MCES in 1998 following construction of new MCES Lift Station L69. Design information on existing lift stations is summarized in Table 8-9. A brief description of the existing lift stations and their service areas follows.

All wastewater collected in the City of Lino Lakes is conveyed through the MCES system southward to the Metropolitan Wastewater Treatment Plant (WWTP) located southeast of St. Paul on the Mississippi River. The Metropolitan WWTP has a capacity of 251 MGD, provides advanced secondary treatment with chlorination/dechlorination, and discharges treated effluent to the Mississippi River. It also generates energy from treatment biosolids for in-plant use.

## List Stations

A summary of the city's existing lift stations is presented in Table 8-9.

**Table 8-9. Existing Lift Station Summary**

| Lift Station | Location | Year Constructed/ Reconstructed | Pumps (No./Capacity/HP) | Lift Station Capacity (gpm) |
|---|---|---|---|---|
| 1 | 6666 Black Duck Drive | 2003 | 2 pumps/775 gpm/23 HP +1 pump/800 gpm/25 HP | 1,550 |
| 2 | 6811 Lake Drive | 1986 | 2 pumps/180 gpm/5 HP | 180 |
| 3 | 6094 Ware Road | 1998 | 2 pumps/180 gpm/3 HP | 180 |
| 4 | 130 Gladstone Drive | 1998 | 3 pumps/1,000 gpm/25 HP | 2,000 |
| 5 | 1473 Snow Goose Trail | 1992 | 2 pumps/300 gpm/10 HP | 300 |
| 6 | 7199 Stagecoach Trail | 1993, 1996 | 2 pumps/200 gpm/3 HP | 200 |
| 7 | 2200 Cedar Street | 1996 | 2 pumps/1,000 gpm/40 HP | 1,000 |
| 8 | 6998 21st Avenue | 1999 | 2 pumps/250 gpm/15 HP | 250 |
| 9 | 6510 Ware Road | 2002 | 2 pumps/200 gpm/5 HP | 200 |
| 10 | 77 Century Trail | 2003 | 2 pumps/400 gpm/10 HP | 400 |
| 11 | 988 Kelly Street | 2006 | 2 pumps/150 gpm/7.5 HP | 150 |
| 12 | 7694 Village Drive | 2007 | 2 pumps/250 gpm/5 HP | 250 |
| 13 | Cypress Street | 2017 | 2 pumps/250 gpm/15 HP | 250 |
| L53 | 6300 Laurene Avenue | 1983, 1989 | 2 pumps/240 gpm/5.5 HP | 240 |
| Rapp Farm | 1400 Ash Street | 2004 | 2 pumps/900 gpm/24 HP | 900 |

| | |
|---|---|
| **Lift Station 1** | Located on Black Duck Drive near Birch Street, this lift station currently serves sub-districts 1D and 1F. Lift Station 1 was reconstructed in 2003 and has three submersible pumps. The station's capacity is 880 gpm with two pumps operating. Lift Station 1 discharges via force main to the gravity sewer at the intersection of Country Lakes Drive and Birch Street. |
| **Lift Station 2** | This lift station, located at Lake Drive and 2nd Avenue, serves a small area adjacent to Rice Lake. It discharges to MCES gravity sewer at Meter Station 211. |
| **Lift Station 3** | This lift station was constructed at its current location in 1998 as part of a general reconfiguration of sewer lines in Sewer District 1 associated with the construction of new MCES Lift Station L69. Old Lift Station 3, which was located at 6290 Ware Road, was converted into a manhole discharging into the MCES lift station. The new lift station provides service to future residential development near the south end of Ware Road. Lift Station 3 discharges to gravity sewer just south of the intersection of Linda Avenue and Ware Road, and then northwest to Lift Station L53. |
| **Lift Station 4** | This lift station, constructed in 1989, receives flow from the 24-inch West Central Trunk Sanitary Sewer. All existing sewered areas of Sewer District 2, except for the Lift Station 2 service area, are tributary to Lift Station 4. The existing lift station has three pumps housed in an 8.5-foot diameter vault, and discharges through a 14-inch force main to MCES Meter M211. |
| **Lift Station 5** | This lift station serves Sub-District 1F. It discharges to existing gravity sewer at the intersection of Timberwolf Trail and Pheasant Hills Drive, and then by gravity to Lift Station 1. |
| **Lift Station 6** | Located at the south end of Stagecoach Trail, this lift station serves a small area east of Lake Drive. It discharges into gravity sewer at the intersection of 4th Avenue and Elm Street, which is part of the Lift Station 4 service area. |
| **Lift Station 7** | Located at the intersection of Otter Lake Road and East Cedar Street, this station serves the part of District 3 east of 35E. It discharges to the MCES gravity sewer upstream of Meter M220. |
| **Lift Station 8** | This lift station was constructed in 1999, in conjunction with sewer construction in 21st Avenue. It serves the portion of District 3 west of 35E and north of Cedar Street. It discharges to the MCES gravity sewer at 21st Avenue and Cedar Street. |
| **Lift Station 9** | Located on Ware Road north of Birch Street, this station was constructed in 2002 to serve new development southeast of Rice Lake. It discharges into the sewer system tributary to MCES Lift Station L69. |
| **Lift Station 10** | This lift station, located near the intersection of Century Trail and Pinto Lane, was constructed in 2003 as part of the Century Farms North development. It serves existing development in Century Farms North and will receive flow from future development in Sub-District 2I. |
| **Lift Station 11** | This lift station was constructed in 2006 as part of the Pine Glen Subdivision. It serves a small area of Sub-District 2B. |
| **Lift Station 12** | This lift station, located southeast of the 35W/Lake Drive interchange, was constructed in 2007. It will serve the Legacy of Woods Edge development, located north and east of City Hall. This area is part of Sub-District 2F. |
| **Lift Station 13** | This lift station, located on Cypress Street in the Northpointe development, was constructed in 2017. It serves the southern half of Sewer Sub-District 3C. |
| **Lift Station L53** | This lift station was originally owned by MCES, but was conveyed to the city following the construction of new MCES Lift Station L69. It discharges via force main to Lift Station L69. Lift Station L53 services the southwest corner of the city (Sub-District 1A) and also receives flow from Lift Station 3. |
| **Rapp Farm Lift Station** | This lift station was constructed in 2004 to serve the Rapp Farm development in North Oaks. Its ownership is governed by the Rapp Farm Joint Powers Agreement between Lino Lakes, North Oaks, and White Bear Township. It currently serves the Rapp Farm development and is anticipated to serve Sewer Sub-District 4D. |

## Capacity Analysis

The city's lift stations and trunk sanitary sewers were analyzed to determine the existing service capacity and the total available capacity for future development. Existing wastewater flows were estimated by a combination of MCES meter records and existing land use designations. The total capacity of each trunk facility was calculated to determine the available capacity for future growth and development. Tables 8-10, 8-11, 8-12, and 8-13 summarize existing capacity, estimated existing flows, projected 2040 flows, and projected full build out flows. Flows are listed in gallons per minute (gpm) or millions of gallons per day (MGD). Where projected future peak flows exceed capacity, reconstruction or upgrading of the system may be required. For those locations likely to experience flows in excess of capacity within the planning period, future upgrades are addressed in the Future System Improvements section. A discussion of future needs and capacity restrictions in the various sewer districts is presented in the following paragraphs.

**Table 8-10. Lift Station Capacity Analysis**

| Lift Station | Firm Capacity (gpm) | Existing Average Flow (gpm) | Existing Max Flow (gpm) | 2040 Average Flow (gpm) | 2040 Max Flow (gpm) | Full Build Average Flow (gpm) | Full Build Max Flow (gpm) | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 | 1,550 | 358 | 533 | 410 | 1,394 | 455 | 1,503 | Adequate Capacity |
| 2 | 180 | 12 | 46 | 19 | 76 | 19 | 76 | Adequate Capacity |
| 3 | 180 | 4 | 16 | 39 | 156 | 39 | 156 | Adequate Capacity |
| 4 | 2,000 | 289 | 1,011 | 437 | 1,486 | 915 | 2,746 | Requires Future Upgrade |
| 5 | 300 | 39 | 155 | 58 | 230 | 61 | 243 | Adequate Capacity |
| 6 | 200 | 44 | 174 | 29 | 115 | 29 | 115 | Adequate Capacity |
| 7 | 1,000 | 70 | 282 | 90 | 350 | 127 | 497 | Adequate Capacity |
| 8 | 250 | 9 | 37 | 117 | 455 | 117 | 455 | Requires Future Upgrade |
| 9 | 200 | 34 | 136 | 42 | 169 | 42 | 169 | Adequate Capacity |
| 10 | 400 | 21 | 83 | 283 | 990 | 335 | 1,174 | Requires Future Upgrade |
| 11 | 150 | 6 | 22 | 15 | 58 | 30 | 119 | Adequate Capacity |
| 12 | 250 | 8 | 33 | 20 | 80 | 20 | 80 | Adequate Capacity |
| 13 | 250 | 3 | 12 | 12 | 48 | 18 | 73 | Adequate Capacity |
| L53 | 240 | 57 | 227 | 44 | 177 | 77 | 307 | Requires Future Upgrade |
| Rapp Farm | 900 | 5 | 20 | 93 | 363 | 152 | 578 | Adequate Capacity |

**Table 8-11. Existing System – Full Build Capacity Analysis – District 1**

| Facility | Sub-District(s) | Existing Capacity (MGD) | 2040 Flow | | | Full Build Flow | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | | Avg. (MGD) | Peak Factor | Peak (MGD) | Avg. (MGD) | Peak Factor | Peak (MGD) | |
| **Lift Station 5 (Pumps to LS1)** | 1F | 0.432 | 0.083 | 4.0 | 0.332 | 0.088 | 4.0 | 0.350 | Adequate Capacity |
| **Lift Station 1** | 1D, 1F | 2.232 | 0.228 | 3.8 | 0.866 | 0.298 | 3.7 | 1.101 | Adequate Capacity |
| **12" Trunk Sewer, Country Lakes Dr.** | 1D, 1F, 70 units in 1B | 0.832 | 0.240 | 3.7 | 0.889 | 0.310 | 3.6 | 1.117 | May Require Upgrade* |
| **12" Trunk Sewer, Birch St Crossing SE of Rice Lake Elementary School** | 1D, 1F, third of 1B | 1.166 | 0.293 | 3.7 | 1.083 | 0.374 | 3.6 | 1.347 | May Require Upgrade* |
| **Lift Station 9** | 1H | 0.288 | 0.061 | 4.0 | 0.244 | 0.061 | 4.0 | 0.244 | Adequate Capacity |
| **21" Trunk Sewer at L69** | 1B, 1D, 1F, 1G, 1H | 1.904 | 0.497 | 3.5 | 1.740 | 0.602 | 3.4 | 2.046 | May Require Upgrade* |
| **Lift Station 3** | 1C | 0.259 | 0.056 | 4.0 | 0.224 | 0.056 | 4.0 | 0.224 | Adequate Capacity |
| **Lift Station L53** | 1A, 1C | 0.346 | 0.120 | 3.9 | 0.466 | 0.167 | 3.9 | 0.650 | Requires Future Upgrade |
| **Lift Station L69** | All of District 1 | 3.974 | 0.664 | 3.3 | 2.190 | 0.866 | 3.2 | 2.771 | Adequate Capacity |

*Theoretical peak flow at full build out exceeds capacity. The facility may still function due to storage in pipes. Monitor flows as development progresses.

**Table 8-12. Existing System – Full Build Capacity Analysis – District 2**

| Facility | Sub-District(s) | Existing Capacity (MGD) | 2040 Flow | | | Full Build Flow | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | | Avg. (MGD) | Peak Factor | Peak (MGD) | Avg. (MGD) | Peak Factor | Peak (MGD) | |
| **Lift Station 2** | 2H | 0.259 | 0.027 | 4.0 | 0.110 | 0.027 | 4.0 | 0.110 | Adequate Capacity |
| **Lift Station 6** | 2G | 0.288 | 0.042 | 4.0 | 0.166 | 0.042 | 4.0 | 0.166 | Adequate Capacity |
| **Lift Station 10** | 2I | 0.576 | 0.407 | 3.5 | 1.425 | 0.483 | 3.5 | 1.690 | Requires Future Upgrade |
| **15" Sewer, Lilac Lane/4th Avenue** | Half of 2E | 1.472 | 0.039 | 4.0 | 0.158 | 0.058 | 4.0 | 0.234 | Adequate Capacity |
| **21" Sewer, Main Street/Lake Drive/ Apollo Drive** | 2A, 2B, 2C, 2D, 2K | 1.930 | 0.268 | 3.7 | 0.992 | 0.916 | 3.2 | 2.931 | May Require Upgrade* |
| **24" Sewer, 4th Avenue & Apollo** | 2A, 2B, 2C, 2D, half of 2E, 2K | 4.097 | 0.307 | 3.6 | 1.107 | 0.974 | 3.2 | 3.118 | Adequate Capacity |
| **24" Sewer at LS4** | 2A, 2B, 2C, 2D, half of 2E, most of 2F, 2G, 2K | 1.791 | 0.629 | 3.4 | 2.140 | 1.318 | 3.0 | 3.954 | May Require Upgrade* |
| **Lift Station 4** | 2A, 2B, 2C, 2D, half of 2E, most of 2F, 2G, 2K | 1.872 | 0.629 | 3.4 | 2.140 | 1.318 | 3.0 | 3.954 | Requires Future Upgrade |
| **MCES Interceptor 8361** | All of District 2 | 3.600 | 1.157 | 3.1 | 3.588 | 2.050 | 2.8 | 5.740 | Requires Future Upgrade |
| **Future MCES Blaine Relief Interceptor** | All of District 2 | - | 1.157 | 3.1 | 3.588 | 2.050 | 2.8 | 5.740 | New Facility by MCES |

*Theoretical peak flow at full build out exceeds capacity. The facility may still function due to storage in pipes. Monitor flows as development progresses.

**Table 8-13. Existing System – Full Build Capacity Analysis – District 3**

| Facility | Sub-District(s) | Existing Capacity (MGD) | 2040 Flow | | | Full Build Flow | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| | | | Avg. (MGD) | Peak Factor | Peak (MGD) | Avg. (MGD) | Peak Factor | Peak (MGD) | |
| **Lift Station 7** | 3A, 3E | 1.440 | 0.129 | 3.9 | 0.505 | 0.262 | 3.7 | 0.971 | Adequate Capacity |
| **15" Sewer, Clearwater Creek Drive** | 3A South of Cedar Street, 3E | 1.255 | 0.064 | 4.0 | 0.255 | 0.197 | 3.8 | 0.747 | Adequate Capacity |
| **21" Sewer, Otter Lake Road** | 3A North of Cedar Street | 2.822 | 0.132 | 3.9 | 0.514 | 0.132 | 3.9 | 0.514 | Adequate Capacity |
| **21" Sewer, 21st Avenue** | 3B | 2.402 | 0.168 | 3.9 | 0.655 | 0.168 | 3.9 | 0.655 | Adequate Capacity |
| **Lift Station 8** | 3B | 0.360 | 0.168 | 3.9 | 0.655 | 0.168 | 3.9 | 0.655 | Requires Future Upgrade |
| **MCES Centerville Interceptor** | All of District 3, City of Centerville | 5.000 | 1.110 * | 3.1 | 3.440 | 1.278 * | 3.0 | 3.834 | Adequate Capacity |

*2040 and Full Build average daily flow values include 0.491 MGD from Centerville, per the Centerville 2030 Comprehensive Plan.

## Sewer District 1

MCES Lift Station L69, which serves this district, was constructed with substantial reserve capacity and appears to be adequate for the needs of its service area through the planning period. The current capacity of Lift Station L69 is 3.97 MGD which is equal to the projected full build flow of 2.67 MGD. The existing trunk sewer system and existing city-owned lift stations were also analyzed, and the results are summarized in Table 8-11.

The future service needs shown in Table 8-11 are based on full build development of the service areas, that is, development of all currently undeveloped land at urban densities. It is also assumed that all existing homes served by on-site systems will either be redeveloped or connected to the sewer system in the future. Full build development of all areas of Sewer District 1 is not expected to occur before 2040.

## Sewer District 2

All currently sewered areas of District 2 are served by MCES Interceptor 8361, a 24-inch gravity sewer located along North Road. The MCES has allocated a capacity of 3.6 MGD to Lino Lakes in the existing interceptor. However, the MCES has considered constructing a new interceptor, the MCES Blaine Relief Interceptor, which would replace existing Interceptor 8361. The new interceptor would provide 9.5 MGD of capacity for Lino Lakes, which will be adequate for full development of District 2.

Currently, all existing sewers in District 2, except for a small area near Rice Lake, discharge to the city's West Central Trunk Sanitary Sewer, then to Lift Station 4, and then by force main to MCES Interceptor 8361. The existing trunk sewer, lift station and force main do not have sufficient capacity for full build out of District 2.

Table 8-12 summarizes future needs and available capacity of existing facilities serving District 2. The needs computed are based on full build development of the service area at urban densities, and the eventual conversion of existing homes served by on-site systems to city sewer service. Full build development of all areas of District 2 will not occur for many years. However, projected development as summarized in the Future Growth Forecasts section will probably result in flows in excess of available capacity in the city's trunk sewer before 2040. Prior to that time, a relief sewer should be constructed to serve the northwesterly and westerly portions of District 2. This relief sewer is discussed further in the Future Sanitary Sewer System section. Table 8-12 includes projected flows in the existing system with a relief sewer in place under Option 2.

## Sewer District 3

This area is served by MCES Interceptor 7651, a 24-inch gravity sewer along Cedar Street. This gravity sewer was constructed in 2000 to serve part of Lino Lakes and the City of Centerville. Its capacity is 5.00 MGD, of which approximately 3.65 MGD is allocated to Lino Lakes. This is adequate for full build development of District 3. Projected flows in existing trunk sewers and lift stations in District 3 are summarized in Table 8-13.

## Sewer District 4

There are no existing sanitary sewers in this part of Lino Lakes. The western boundary of Sub-District 4D was redrawn further west as part of this plan,

removing area from Sub-District 1E, in order to account for the wetland west of Holly Drive. Sanitary sewer facilities have been constructed to the Lino Lakes boundary at three locations. The North Oaks Company extended the 18-inch gravity sewer to the city boundary on the west side of Centerville Road. The North Oaks Company also constructed the Rapp Farm Lift Station, located in Lino Lakes west of Wilkinson Lake, with sufficient capacity for Lino Lakes Sub-District 4D. White Bear Township constructed a pressure sewer system east of Otter Lake which is sized to serve 90 homes in Lino Lakes Sub-District 4E. White Bear Township completed a capacity analysis for the Centerville Road sanitary sewer dated October 4, 2018 which determined that it has sufficient capacity for ultimate planned development, including the projected full build peak flow from Lino Lakes District 4 of 1.8 MGD. A joint powers agreement between Lino Lakes and White Bear Township should be completed to ensure that this capacity remains available for Lino Lakes use. If capacity is not available to meet system requirements, the land use, staging, and sewer district service areas will need to be reevaluated.

### Sewer District 5

This area was originally included in the service area of MCES Interceptor 7651. This interceptor, constructed in 2000, was sized based on land use planning available at the time, which assumed much of northeastern Lino Lakes would remain rural. The Lino Lakes 2040 Land Use Plan assumes full build urban development of most of District 5. Existing Interceptor 7651 has adequate capacity for District 3 and Centerville, but not sufficient capacity for all of District 5. Consequently, in 2006, the MCES constructed an additional interceptor, known as the Lino Lakes Relief Interceptor. This interceptor extends west from the Forest Lake Interceptor to the Lino Lakes/Hugo boundary at Main Street, and has a capacity of 5.6 MGD. This capacity is adequate for full build development of District 5.

## Subsurface Sewage Treatment Systems

There are currently no community treatment systems, wastewater treatment plants or rural centers plants within Lino Lakes. Significant portions of the City are currently Low-Density Residential and Rural Land-Use areas, which are not served by the public sewer system. Residences and businesses in these areas are served by subsurface sewage treatment systems (SSTS). Lino Lakes currently has 1,705 SSTS, 60 of which are non-conforming or have known problems. The City maintains a database that tracks SSTS year of construction, inspection dates, compliance with 7080 rules, and date and volumes of pumping.

Community treatment systems will only be allowed if all of the following conditions are met:

- The site must be in a permanent rural area outside the full build service area.
- The system must meet MPCA requirements.
- The system must remain in private ownership.
- The private ownership must have a maintenance and management agreement for the system. The agreement must state that the City can repair any public health hazards created by the system and pass those costs along in the form of assessments to the benefited property.

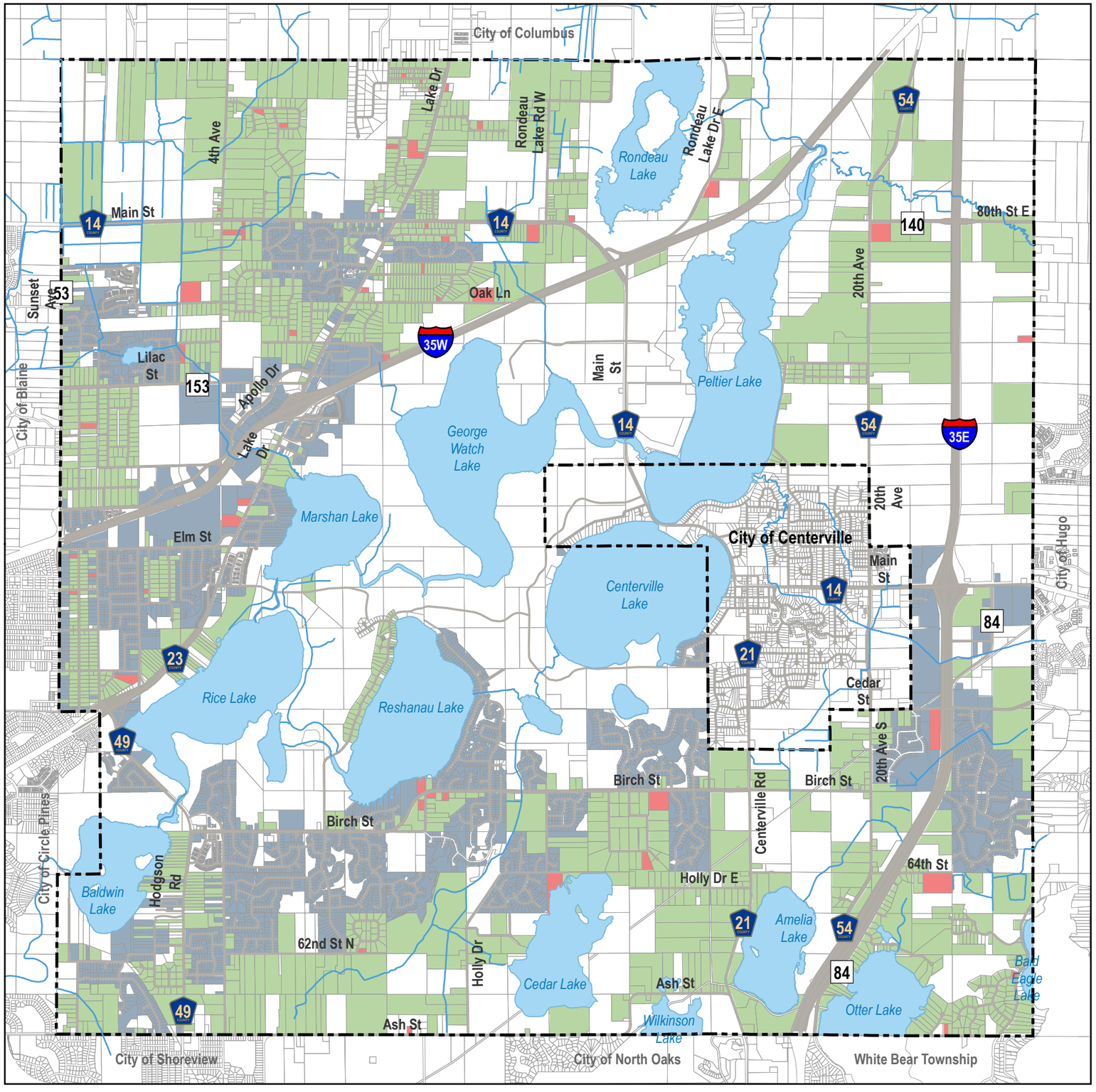
The City's policy is to permit unsewered residential properties to remain as long-term land uses, and to extend sanitary sewers into unsewered subdivisions only at the request of the property owners. New installations of SSTS will generally be restricted to rural land uses with a minimum lot size of 10 acres. Figure 8-3 shows the areas served by SSTS as of August 2017. This Plan assumes that most of these unsewered areas will be converted to sewered development at full build development, but some areas will probably not receive sewer service until sometime after 2040. Figure 8-3 also shows the known non-conforming systems and systems with known problems.

A copy of the City's SSTS ordinance, Chapter 403, is included in Appendix B. The ordinance requires inspection of systems once every three years. The City will also consider establishment of a "point of sale" inspection requirement.

The ordinance establishes notification and reporting procedures and requirements for repairs and re-inspection. Failed systems must connect to City sewer if available, as stated in Section 403 of the City Code, or must be repaired.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 8-3
# Subsurface Sewage Treatment Systems




## Legend

**Sewer Use**

- Public Collection System
- Subsurface Sewage Treatment System
- Non-Conforming SSTS
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

## Intercommunity Connections

Aside from the MCES Interceptor flows from each district described previously, the City of Lino Lakes has several existing and potential intercommunity connections.

1. Existing service for thirteen residential properties on the north side of Ash Street to the west of Hodgson Road in Sub-District 1A. These flows discharge into the City of Shoreview's sewer system.
2. Existing service for thirty-five residential properties on the east side of Sunset Avenue south of Elm Street in Sub-District 2F. These flows discharge into the City of Blaine's sewer system.
3. Existing service for the LaMotte neighborhood on the western boundary of Centerville discharges to Centerville's sanitary sewer system. Flows from Centerville are collected at MCES Meter M210 and Lift Station 4 and pumped east to Gravity Interceptor 802325 along West Cedar Street which passes through Lino Lakes into Hugo.
4. Joint planning with White Bear Township has shown that the White Bear Township sewer system has capacity available to serve full build development of Lino Lakes District 4. However, a formal agreement between the Cities does not exist and should be pursued to ensure that this capacity remains available for Lino Lakes use. A joint powers agreement between Lino Lakes and White Bear Township must be completed to ensure that this capacity remains available for Lino Lakes' use.
5. The City of Columbus has expressed interest in sanitary sewer service for future commercial development along Lake Drive just north of the Lino Lakes boundary. At the writing of the city's 2040 Comprehensive Plan, that region of the City of Columbus was designated by the Metropolitan Council as a Diversified Rural community. Unless the Metropolitan Council policy towards the City of Columbus changes, sanitary sewer service cannot be extended to the northern boundary of Lino Lakes. If and when their designation changes, the wastewater flow from the City of Columbus will need to be determined and compared to the available capacity in the Lino Lakes system. Additionally, the regional sewer capacity allotted to Lino Lakes by the Metropolitan Council will need to be increased accordingly if the additional flow will not be metered independently.
6. As provided for in two JPA's, the City of Centerville provides sanitary sewer and water services to the Rice Creek Campground and Beach Complex as well as two residential lots at the south end of Mound Trail.
7. At the time of 21st Avenue development sanitary service was provided to service the 22 acre parcel. This is provided for in the 21st Avenue North Joint Powers Agreement between the two communities.
8. Existing service for fifty-two residential properties in the Pine Hollow neighborhood in the City of Circle Pines. These flows discharge to Lino Lakes Sub-District 2H and then to MCES Meter M211. The City of Lino Lakes bills the City of Circle Pines for this sanitary sewer service based on water meter readings.

# Inflow and Infiltration

*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.

In 2006, MCES began an ongoing I/I Program which requires communities within their service area to eliminate excessive I/I over a period of time. MCES establishes annual I/I goals for each community discharging wastewater into the Metropolitan Disposal System based on average daily flows, community growth, and I/I mitigation peaking factors.

The Metropolitan Council requires the City to include a breakdown of residential housing stock age within the City into pre- and post- 1970 era, and what percentage of pre-1970 era private services have been evaluated for I/I susceptibility and repair. There was no public sewer system prior to 1973. The City does not have any information about how private services were extended to the homes.

## I/I Analysis

Lino Lakes' sanitary sewer system currently consists of approximately 72 miles of sanitary main, seven miles of force main, and 13 lift stations. All of the lift stations and their associated force mains were constructed after 1980 (see Table 8-9). The amount of clearwater flow generated within the city was estimated by calculating the average annual and peak month I/I rates, equal to the average wastewater flow minus the base wastewater flow, using data from 2012-2017. The average flow for the city, both annual and monthly, was calculated from MCES meter data. The peak month flow was determined for each year from 2012-2017, and then those yearly peak month flows were averaged to give a final value. The base flow rate was approximated as the average of the minimum daily flows for each year from 2012-2017.

**Table 8-14. Estimated I/I Rate**

| | |
|---|---|
| Average Annual Flow (2012-2017) | 1.02 MGD |
| Peak Month Flow (2012-2017) | 1.08 MGD |
| Base Flow | 0.99 MGD |
| Average Annual I/I Rate | 0.03 MGD (3%) |
| Peak Month I/I Rate | 0.09 MGD (8%) |

## I/I Reduction

The city's strategy for preventing excess I/I includes requiring all development to conform to city standards. City code prohibiting the discharge of storm water and other I/I sources to the sanitary sewer system is excerpted below.

§ 402.08 SUMP PUMP SYSTEMS REQUIRED; DISCHARGE OF SURFACE WATERS PROHIBITED.

**(1) Sump pump systems required.** Sump pump systems shall be installed in new residential buildings.

**(2) Storm water discharges prohibited**. It shall be unlawful for any owner, occupant or user of any premises to direct into or allow any storm water, surface water, ground water, well water or water from industrial or commercial air conditioning systems to drain into the sanitary sewer system of the city. No rain spout or other form of surface drainage and no foundation drainage or sump pump shall be connected or discharged into any sanitary sewer.

**(3) Draintile system.** A draintile, sump basket, pump, electrical receptacle and rigid pipe connection to the outside shall be required for any new residential buildings constructed within the city.

**(4) Existing house installations.** When a draintile system is to be installed in an existing structure that had no system of surface water drainage when first constructed, the system shall be installed the same as for new construction.

The City of Lino Lakes previously completed a two-phase I/I study due to concerns with groundwater and surface water entering the sanitary sewer system. The first phase of the study consisted of the south half of the city and was completed in 1998. The second phase of the study consisted of the north half of the city and was completed in 2000. The I/I study was used to prepare a plan for maintenance and capital improvement projects. The goal of the plan was to reduce I/I through a combination of rehabilitation, maintenance and capital improvements.

The I/I study provided a priority list of project areas where I/I was found. In 2004, the city hired a contractor to complete the highest priority work outlined in the I/I study. This project was estimated to reduce I/I by 43,500 gallons per day. The public works department maintains the sanitary sewer system and has performed numerous I/I reduction maintenance projects throughout the city in both areas outlined in the program and throughout the city. The city continues to monitor I/I in the areas outlined in the study and throughout the city via lift station pumping records and routine inspections of the sanitary sewer system by public works.

Some of the specific projects completed and planned by the City of Lino Lakes to reduce I/I sources are described in Table 8-15. Costs listed correspond exclusively to sanitary sewer improvements. Additional annual I/I reduction projects are listed in the Capital Improvement Plan in Appendix D.

**Table 8-15. I/I Activities**

| Year | Project | Cost |
|---|---|---|
| 2015 | Shenandoah Sanitary Sewer Lining | $260,000 |
| 2018 | LaMotte Sanitary Sewer Improvements | $320,000 |

The City of Lino Lakes will continue to proactively identify I/I sources and take corrective actions. The rehabilitation that has been completed to date has resulted in a reduction of I/I. However, the remaining I/I continues to be a concern and is being addressed.

## Future Sanitary Sewer System

The Growth Forecasts section, above, outlines Lino Lakes' anticipated growth and development. This section discusses the future trunk sewer and lift station facilities that will be required to support this growth. To adequately service the projected growth and development plan, the city will need to expand the existing sewer system. A trunk sanitary sewer collection system composed of trunk sewers, lateral sewers, and lift stations will need to be incrementally constructed.

The layout and sizing of the future trunk sanitary sewer system is based on projected full build out wastewater flows, so that the system can accommodate full build development. The timing of these improvements is based on the staging of development per the land use plan. The purpose of this chapter is to help the city plan for large infrastructure additions and replacements. The staging of proposed facilities is shown in Figure 8-4, and the sizing of the future trunk system is shown in Figure 8-5. The exact alignment of the proposed mains and lift stations may change during the design phase of each project.

### Design Considerations

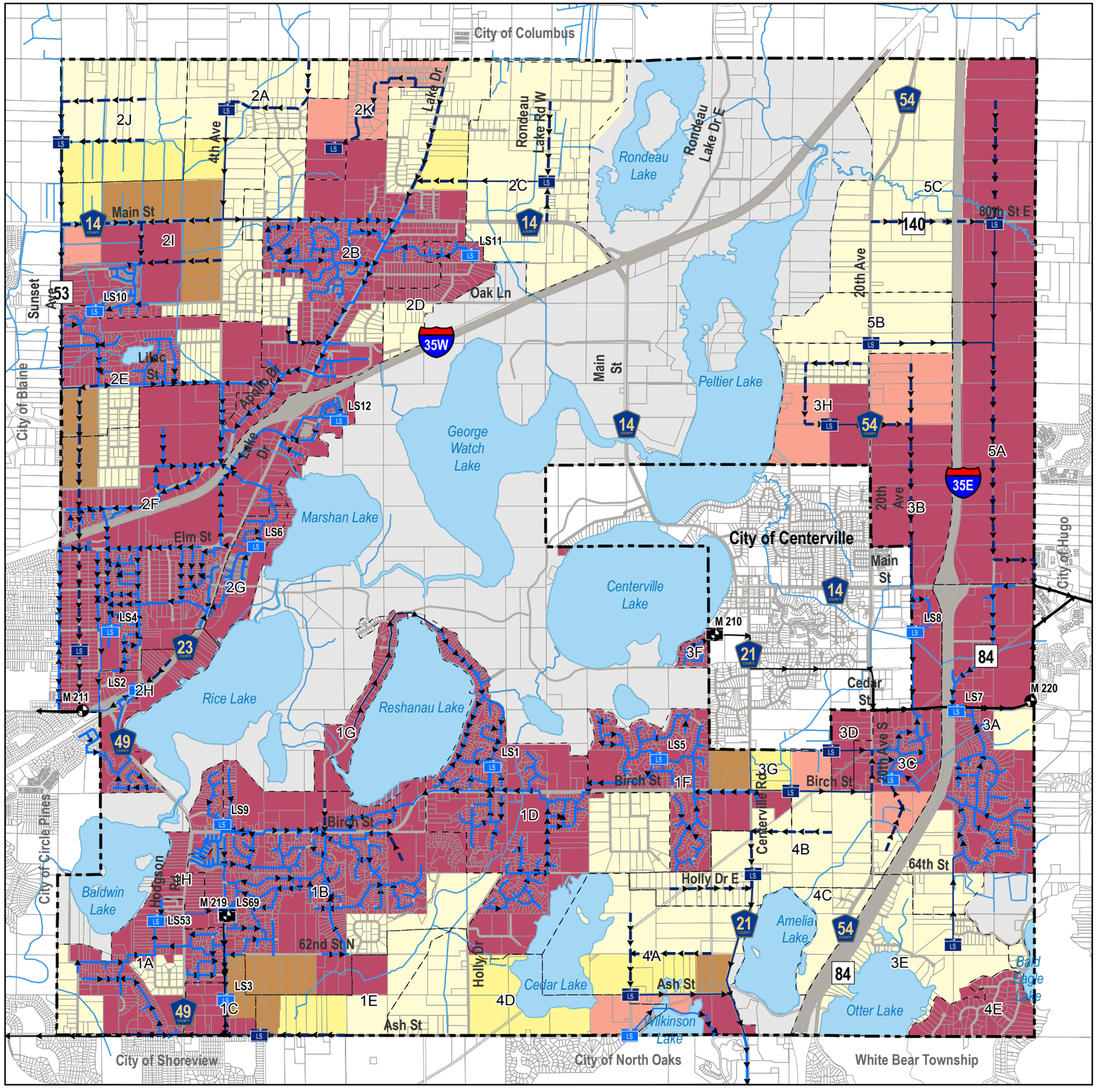
The future layout of the trunk sewer system is greatly dependent upon the existing topography of the areas to be served and the connection locations to the existing sewer system.

Gravity flow sanitary sewers are the lowest cost sewer system in urban regions. This is due to their long useful service life and low costs for operation and maintenance. One of the primary design considerations is to provide gravity sanitary sewer service whenever possible and to minimize the use of lift stations. When a lift station is required additional capital costs are incurred as well as greater operation and maintenance costs. In almost all communities, some lift stations are required.. The goal is to carefully plan the overall sewer system in an effort to reduce the total number required. When a lift station is needed, it is important to identify a maximum service area based upon the surrounding topography. It is also important to minimize the force main length in an effort to reduce the annual energy costs to pump the sewage to the discharge location.

By placing each trunk and lateral sewer at the recommended minimum pipe slope, the service area for that particular sewer is typically maximized and the number of lift stations required throughout the total system is reduced. Therefore, it was assumed that each trunk sewer in Figure 8-5 will be installed at the minimum recommended slope per Ten States Design Standards. Given the pipe size and slope, the capacity of each sewer can be determined.

A second major consideration is to identify the location and available capacity of each connection point to the existing sewer system. It is typically more economical to stage growth contiguous to the existing sewer system, extending incrementally with each new development. Eventually the existing system reaches the extent of its service capabilities. Before additional growth can be added, major infrastructure improvements are then required to extend the system's service area. The expansions shown in Figure 8-5 account for the available capacity at their connection point with the existing sewer system.

A detailed field review of the lift stations was not completed, nor was any sewer televising reviewed to evaluate the physical condition and operational performance of the existing infrastructure. A detailed maintenance schedule is not provided; rather, it is assumed that the city's on-going maintenance procedures will be followed to determine the scope and schedule of future facility upgrades.




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 8-4
# Future Sanitary Sewer System with Utility Staging

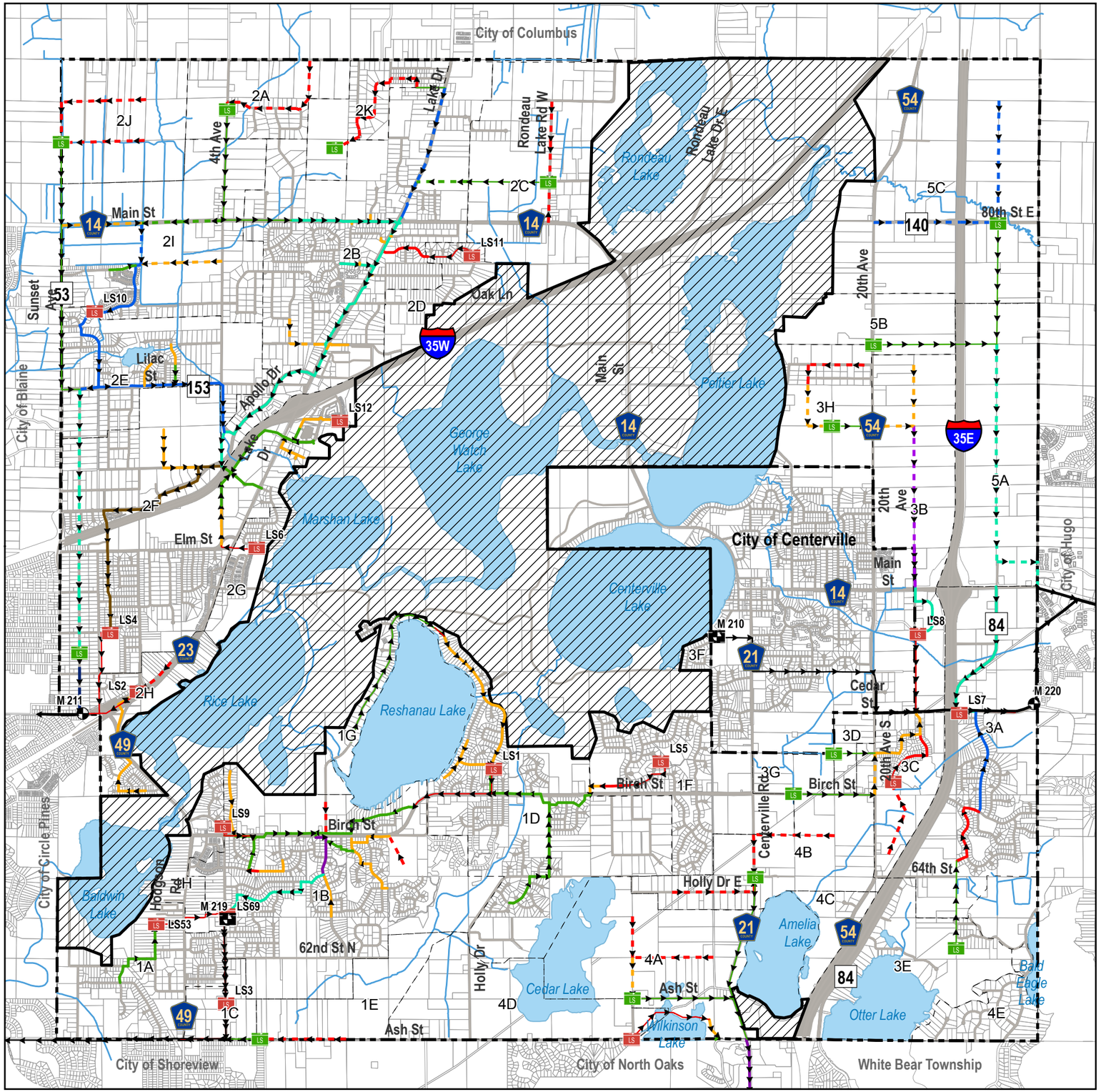
## Legend

- Lift Station
- Forcemain
- Gravity Main
- Future Lift Station
- Future Forcemain
- Future Gravity Main
- MCES Meter
- MCES Lift Station
- MCES Forcemain
- MCES Gravity Main
- Sanitary Sub-District
- Stage 1A (2018 - 2025)
- Stage 1B (2025 - 2030)
- Stage 2A (2030 - 2035)
- Stage 2B (2035 - 2040)
- Stage 3 (Post 2040)
- No Service
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 8-5
# Full Build Trunk

## Legend

- Lift Station
- Forcemain
- Future Lift Station
- Future Forcemain
- MCES Meter
- MCES Lift Station
- MCES Forcemain
- MCES Gravity Main

**Future Trunk Sewer**

- 8"
- 10"
- 12"
- 15"
- 18"
- 21"
- 30"

**Existing Trunk Sewer**

- 8"
- 10"
- 12"
- 15"
- 18"
- 21"
- 24"

- Not in Ultimate Service Area
- Sanitary Sub-District
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Future Sewer District Needs

### Sewer District 1

Many of the undeveloped areas of District 1 can be served by extending 8-inch and 10-inch lateral sewers off the existing system. Lateral sewers will typically be constructed by developers and are not listed with the future system improvements. A lift station will be needed to serve an area of about 220 acres of future residential development located in Sub-District 1E. This lift station would discharge to the existing MCES force main at County Road J and Ware Road. Sewer Sub-District 1G is planned to be served by a grinder pump system which will discharge to the existing sewer in Black Duck Drive.

### Sewer District 2

Construction of the Century Farms North subdivision, commencing in 2003, required construction of Lift Station No. 10. The lift station was constructed concurrently with the developer's project, and sewer mains within the subdivision were over-sized to serve as trunk sewers. The future system improvements include future extensions of these sewers north to Main Street and east to 4th Avenue to serve anticipated development north and east of Century Farms North.

Portions of the northwestern corner of District 2 cannot be served by gravity sewers connecting to either the existing Main Street trunk sewer or the proposed Century Farms North Lift Station. Three additional lift stations are proposed in this area. The first, located near 4th Avenue and Andall Street, will serve Sub-District 2A. This lift station will discharge to the existing gravity sewer in Main Street. The second, located in the northwest corner of the city, will serve Sub-District 2J. Currently, developed areas of Sub-District 2I are served by Lift Station 10, discharging into the existing gravity sewer in Sub-District 2E. However, long term development in the northwestern corner of Lino Lakes will eventually result in flow rates that exceed the capacity of the city's existing trunk sewers, as discussed in the Existing Sanitary Sewer System section of this plan. We anticipate that a relief sewer will need to be constructed before 2040 to divert some of the flow from the existing system. See discussion of West Side Relief Sewer below. The third additional lift station, located west of Lake Drive on Maple Street, will serve Sub-District 2K. This lift station will discharge to the future gravity sewer in Lake Drive.

Lift Station No. 4, which receives flow from almost all of District 2, was recently upgraded. This upgrade included provision of 3-phase power by Xcel Energy, and installation of new 25 HP, 1,000 gpm pumps. This upgrade will serve the city's needs for several years, but will not be adequate for full build development. Future installation of large pumps, up to 40 HP, will be required to fully utilize the capacity of the 24-inch pipe leading into the station. Further improvements, necessary to accommodate full build development, should be addressed as part of the West Side Relief Sewer development.

Other improvements contemplated in District 2 include extension of gravity sewer north along Lake Drive and construction of a new lift station to serve Sub-District 2C.

A major component of the long-range plan for District 2 is the provision of a new trunk sewer, referred to as the West Side Relief sewer. As discussed above, proposed development in District 2, combined with redevelopment or extension of city sewer service to areas not currently sewered, will cause the capacity of the existing 21-inch and 24-inch trunk sewers to be exceeded at some point in the future. The exact timing of this need is dependent on the rate at which development proceeds. However, it is prudent to begin planning for the future construction of the relief sewer. One possible route for this relief sewer is shown in Figure 8-5. The relief sewer as shown would discharge to the potential MCES Blaine Relief Interceptor.

Extensive areas of unsewered residential development exist in the western part of District 2. Construction of the relief sewer should be planned to coincide with extension of sewer service into these areas. The relief sewer project will also require construction of smaller trunk sewers to divert flow from the existing trunk sewer system to the relief sewer.

It may be advisable to include reconstruction of Lift Station No. 4 and its force main as part of the relief sewer project. A new force main could be constructed to outlet into the new relief sewer, thereby eliminating the existing long force main and reducing future pumping costs.

### Sewer District 3

Existing sewered development in District 3 includes residential, commercial, and industrial development in Sub-Districts 3A and 3B. Lift Station 7 serves Sub-District 3A, and will also provide service to future sewered development in Sub-District 3E.

Lift Station 8 currently serves a small commercial area in Sub-District 3B. From the lift station, gravity sewer extends north along 21st Avenue as far as Main Street. In the future, this main will be extended north to serve additional areas of Sub-District 3B.

Sub-District 3C will be served by gravity sewers connected to existing Interceptor 7651. Future lift stations will be constructed to serve Sub-Districts 3D, 3E, 3G, and 3H. Sub-District 3F will continue to be served through the Centerville Sanitary Sewer System and MCES Lift Station L4.

### Sewer District 4

Future system improvements in this area are based on connecting to the White Bear Township sewer in Centerville Road. Local sewers will discharge to at least two lift stations which will pump by force main to the White Bear Township facility.

The White Bear Township trunk sewer, constructed in the late 1980's, has capacity to serve portions of North Oaks and Lino Lakes in addition to White Bear Township's needs. North Oaks, by written agreement with White Bear Township, has purchased the right to use some of this capacity. The agreement has been modified, and North Oaks has made additional payments to the township as North Oaks' service needs have increased. A review of the current utilization of this facility indicates that there is still capacity available to serve at least a portion of the projected development

in District 4. However, no formal agreement exists between Lino Lakes and White Bear Township. The city should commence negotiations with White Bear Township to secure the right to discharge to this facility.

### Sewer District 5

Future development in District 5 will be served by gravity sewers and lift stations discharging into the new Lino Lakes Relief Interceptor at the intersection of Main Street and Elmcrest Avenue. Proposed locations of trunk sewers and lift stations are shown in Figure 8-5.

## Future System Improvements

This plan provides recommendations for the expansion of the city's sanitary sewer system to meet the projected growth and development plan. These recommendations apply to the city's trunk sewers and sanitary lift stations.

It is the policy of the City of Lino Lakes to require new developments to pay all costs for capital improvements to subdivisions. The sanitary sewer collection system will be constructed as part of the development improvements. In this manner, all lateral sewers will be directly paid for by the developer. For this reason, no cost information has been prepared for lateral sewer improvements.

A sewer connection charge is applied to each new connection to provide a dedicated fund for the trunk sewers and lift station facilities. Table 8-16 provides a summary of the improvements for trunk sewer and lift station facilities as shown in Figure 8-6, together with a preliminary cost estimate. This cost is based on the general alignment of the future trunk sewer for each development stage. The costs presented include markups of 10% for construction contingency and 20% for indirect costs such as engineering, financing, administrative, legal, and right-of-way. The city's sanitary sewer rate structure should be reviewed at least every five years to determine the connection charge needed to satisfactorily fund these recommended improvements.

It is recommended that the City develop an ongoing maintenance and replacement program for the existing sewer infrastructure. This program would include an annual schedule of sewer system televising, regular lift station maintenance and inspections, an annual schedule for flushing, and consideration of the replacement of older underground facilities when the overlying streets are reconstructed.

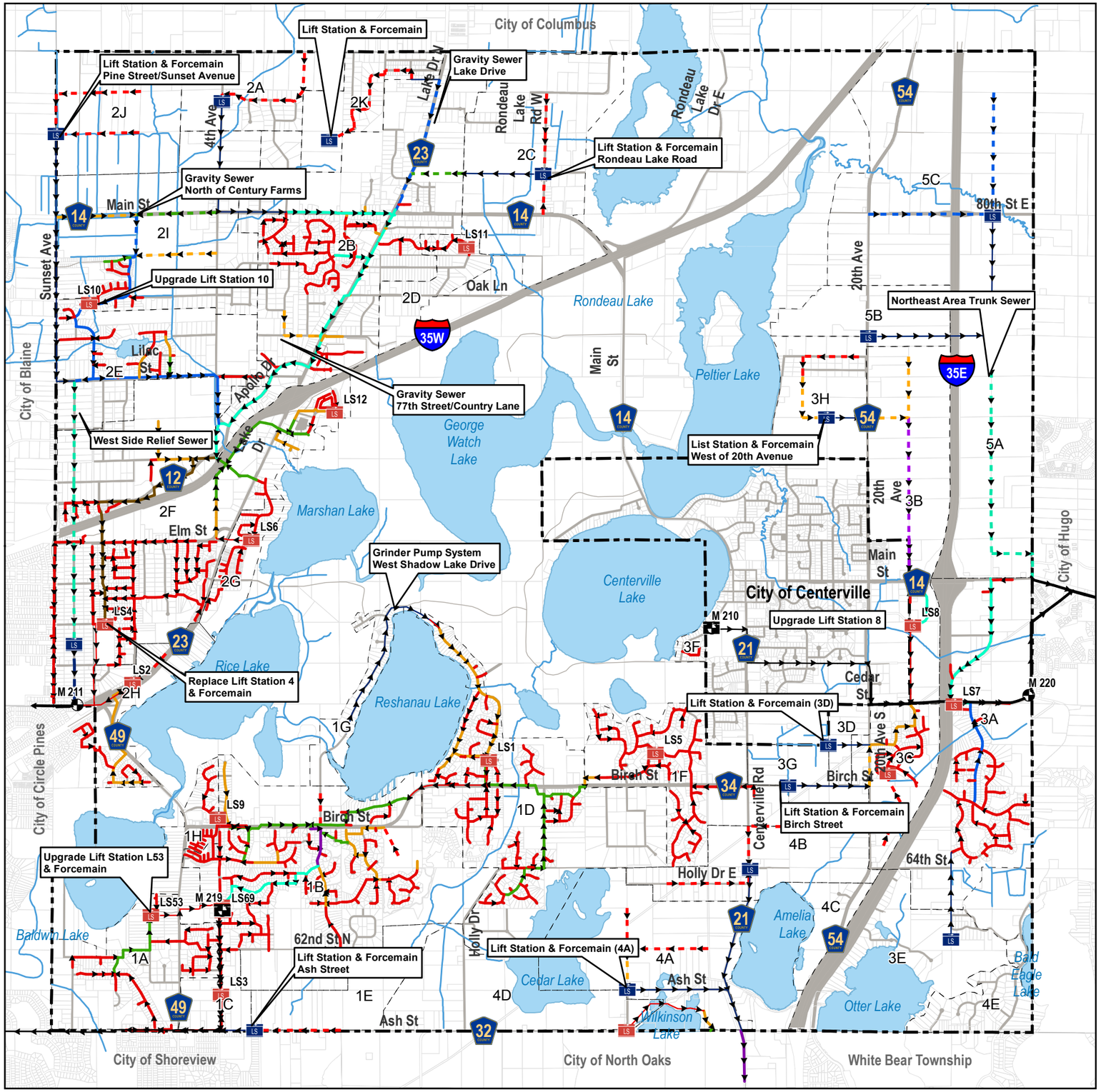
**Table 8-16. Future System Improvements**

| Year | Item | Location | Sewer Sub-District | Estimated Cost* |
|---|---|---|---|---|
| 2017 | Upgrade Lift Station 8 | 21st Avenue North | 3B | $73,500 |
| - | Gravity Sewer, Grinder Pump System, and Force main | West Shadow Lake Drive | 1G | $413,000 |
| 2020 | Northeast Area Trunk Sewer | - | 5A, 5C | $367,500 |
| 2020 | Upgrade Lift Station 10 | Century Trail | 2I | $73,500 |
| - 2025 | Lift Station & Force main | - | 3D | $252,000 |
| 2025 | Gravity Sewer | North of Century Farms | 2I | $1,050,000 |
| - | West Side Relief Sewer | Leonard Avenue, Lakeview Drive | 2E, 2F, 2I, 2J | $3,360,000 |
| 2030 | Lift Station & Force main | Maple Street | 2K | $300,000 |
| | Lift Station & Force main | West of 20th Avenue | 3H | $367,500 |
| 2030 | Replace Lift Station 4 & Force main | Sunrise Park | 2F | $840,000 |
| | Upgrade Lift Station L53 & Force main | Laurene Avenue | 1A | $210,000 |
| - 2040 | Gravity Sewer | Lake Drive North of Main Street | 2B | $1,260,000 |
| | Lift Station & Force main | Ash Street | 1E | $735,000 |
| | Lift Station & Force main | Birch Street | 3G | $350,000 |
| | Lift Station & Force main | - | 4A | $1,260,000 |
| Post 2040 | Gravity Sewer | 77th Street/Country Lane | 2B | $367,500 |
| | Lift Station & Force main | Rondeau Lake Road/81st St W | 2C | $472,500 |
| | Lift Station & Force main | Pine Street/Sunset Avenue | 2J | $1,207,500 |

*The estimated costs listed in the table above are general estimates; a feasibility study will be required at the time of each improvement to determine more specific costs.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 8-6
# Future System Improvements




## Legend

- Lift Station
- Forcemain
- Future Lift Station
- Future Forcemain
- MCES Meter
- MCES Lift Station
- MCES Forcemain
- MCES Gravity Main

**Future Gravity Main**

- 8"
- 10"
- 12"
- 15"
- 18"
- 21"
- 30"

**Gravity Main**

- 8"
- 10"
- 12"
- 15"
- 18"
- 21"
- 24"
- Sanitary Sub-district
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Stream

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

# Chapter 9: Water Supply Plan



## Introduction

This chapter describes Lino Lakes' plan to meet its existing and future water supply needs in a safe and dependable manner. First, it evaluates the existing Lino Lakes water system to identify any needs or deficiencies. Second, it identifies the future water system needed for the city's growth through full build out based on the city's population projections described in Chapter 1 and the 2040 and Full Build Land Use Plans described in Chapter 3 of this plan.

The existing and future water system was analyzed using the criteria explained in the Water System Performance Criteria section of this plan. All improvements proposed by this plan complement the existing system, provide for the safety and health of its customers, and allow for water service at affordable and competitive rates.

## Goals and Policies

The vision statement, as described in Chapter 1, defines what Lino Lakes should look like in the future. Goals and policies guide the Water Supply Plan to help achieve that vision for the water system. The goal and policies that follow were established in the 2030 Comprehensive Plan and reaffirmed as part of the 2040 Comprehensive Plan process.

**Goal 1: Provide the city's residents and businesses with affordable potable water that is safe and of high quality for daily consumption and fire demand.**

### Policies

a. Provide a low-maintenance, cost-effective water system that meets the long-term needs of the city's residents and businesses.
b. Provide adequate water pressure for all residents and businesses.
c. Continue working with adjacent communities to provide a cooperative water system for emergency services.
d. Provide water service for developing areas in a planned manner by constructing new mains, water towers, wells and water treatment plants.
e. Protect the city's sustainable water supply through conservation by reducing the demand for water, improving the efficiency of water use, and reducing loss and waste of water.
f. Protect the groundwater source from contamination by implementing the Wellhead Protection Plan.
g. Protect the reliability of the water supply system with redundant communication technologies in its control systems.

## Background

Potable water in the city is supplied by either private wells or by the city owned municipal water system. Private wells are generally located in large lot subdivisions and rural areas of the city. However, there are smaller pockets of urbanized areas, served by sanitary sewer, that are also served by private wells. The existing Lino Lakes Water Supply System is shown in Figure 9-1.

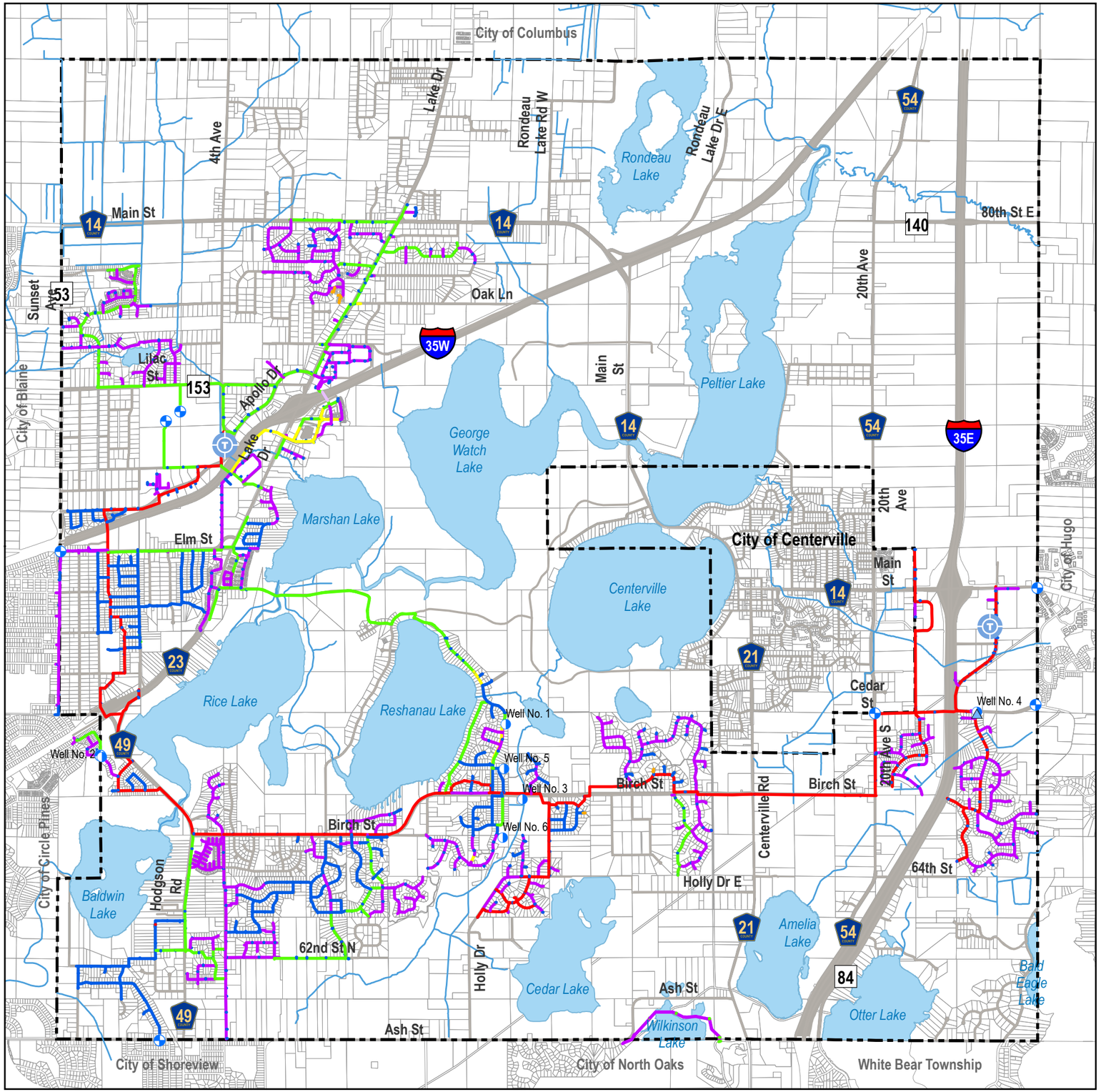
The city's Comprehensive Water Supply Plan was originally adopted in 1990. The city's last Comprehensive Water Supply Plan was adopted in 2011 and was based on the Water Emergency and Conservation Plan (now titled Water Supply Plan) adopted in 2007. The updated Water Supply Plan (WSP), included in Appendix C, conforms to the Minnesota Department of Natural Resources (DNR) template, while this chapter expands upon that template with additional detail for city planning.

The following sources of information were used to prepare this chapter:

- Water Supply Plan (WSP) for the City of Lino Lakes, prepared by WSB & Associates, Inc., May 2017
- MCES System Statement for the City of Lino Lakes, September 2015
- Water usage data as reported by the City to the DNR's Minnesota Permitting and Reporting System (MPARS), 2005-2017
- Wellhead Protection Plan for the City of Lino Lakes, prepared by WSB & Associates, Inc., June 2015

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-1
# Existing Water System




## Legend

**Watermain Diameter**

- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"

- Existing Booster Station
- Existing Well
- Existing Water Tower
- Interconnection
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 3/7/2018

## Growth Forecasts

Lino Lakes anticipates growth in upcoming years, which poses significant opportunities and challenges for the community. The city's vision, goals and growth forecasts in Chapter 1 and the land use plans in Chapter 3 are important tools for ensuring that the city is adequately prepared to respond to these opportunities and challenges. The Land Use Plan establishes a policy framework in which future development will occur. The future land use maps are also used to estimate the community's capacity to accommodate projected household and employment growth.

Using existing system and forecast information, this plan provides guidance on the water system needed to accommodate the city's forecasted growth. This involved reviewing and updating the city's proposed land use and utility staging plan maps and estimating the number of housing units and commercial/industrial properties in the future development areas.

Population projections are shown in Table 9-1. Figure 9-2 presents this information graphically, along with estimates of historical population, and the population served by the water system. This figure also assumes that virtually all city residents will eventually be brought onto the city water system, except for a few small areas of the city remaining on private water service.

**Figure 9-2. Historical and Projected Population**

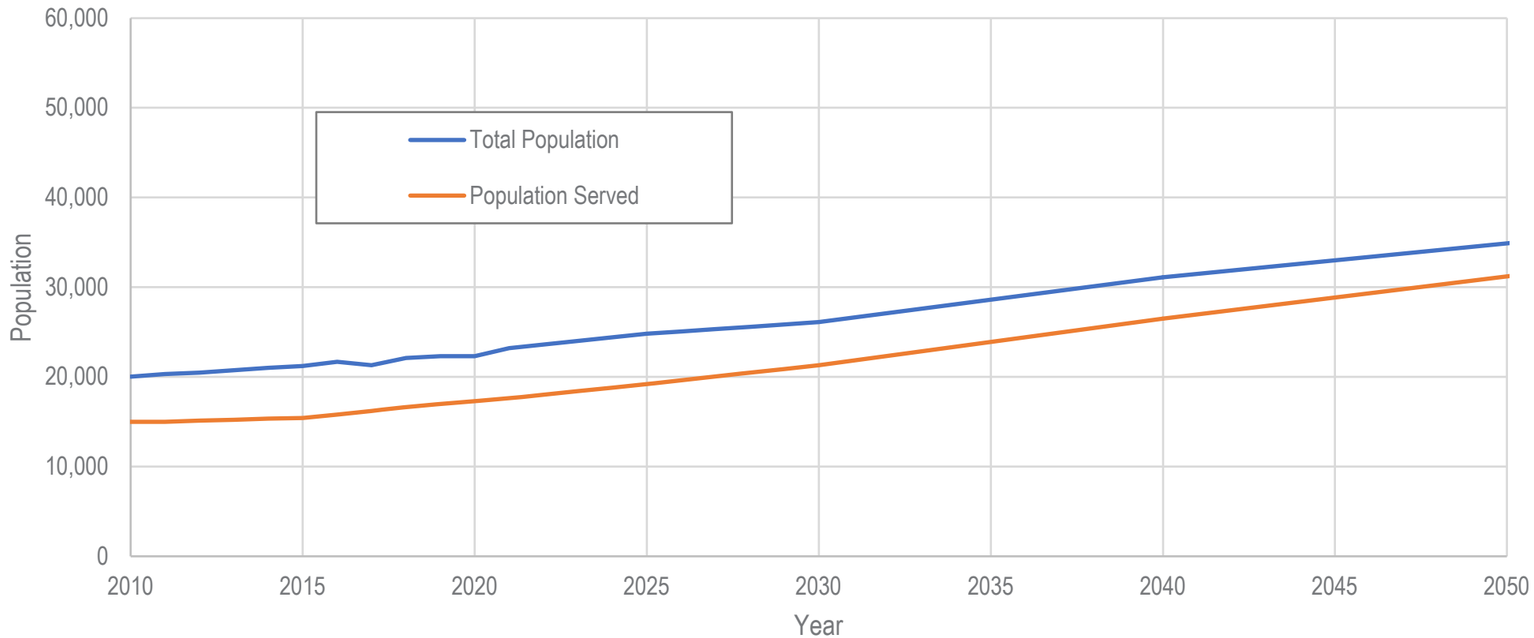



**Table 9-1. Population Forecasts**

| Year | Total Population | Population Served by Water System |
|---|---|---|
| **2017** | 21,300 | 16,200 |
| **2020** | 22,300 | 17,300 |
| **2030** | 26,100 | 21,300 |
| **2040** | 31,100 | 26,500 |
| **Full Build** | 55,700 | 55,700 |

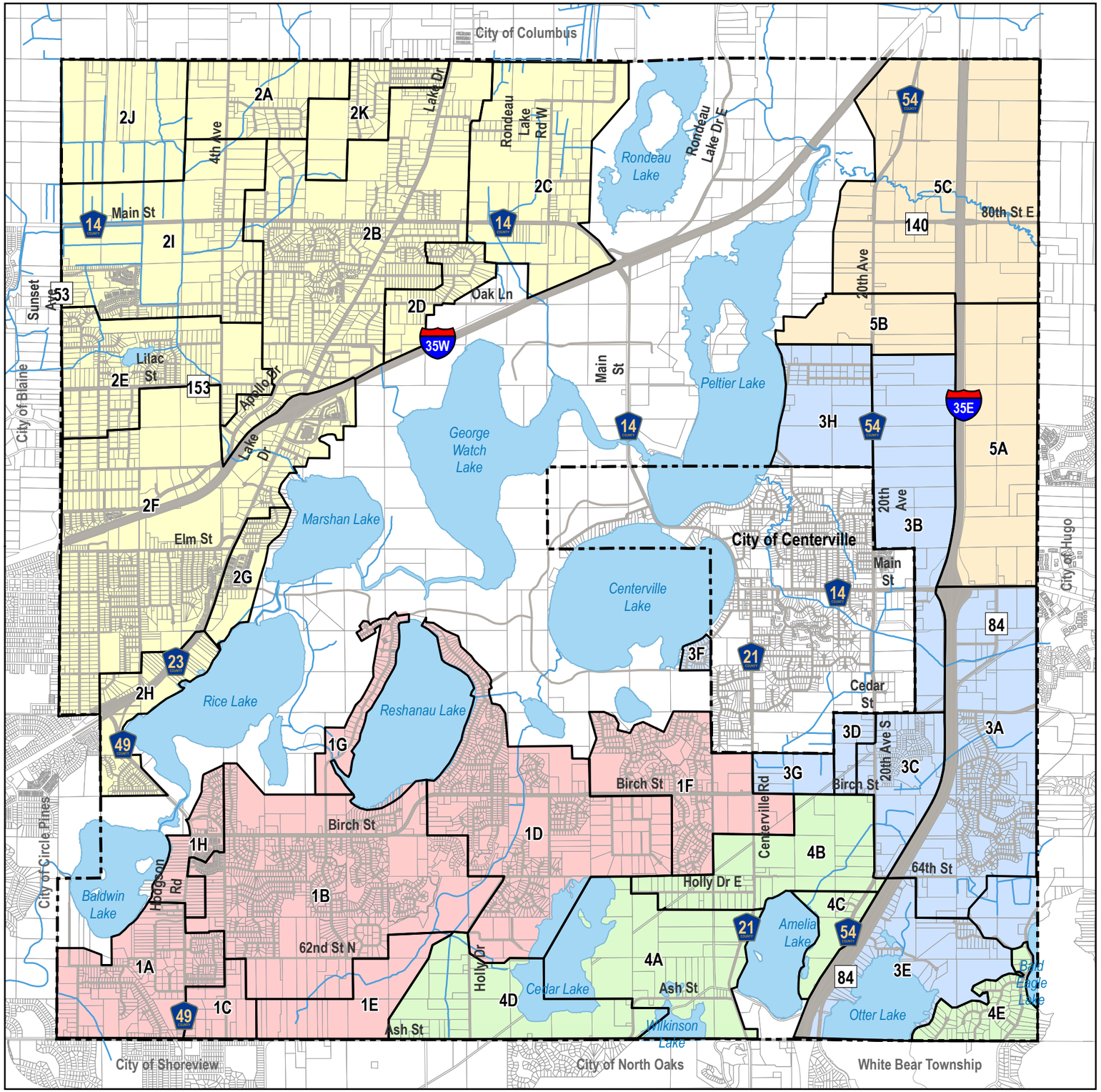
Table 9-2 represents population at full build out by sewer sub-district. This data is used in the analysis of the existing system and the design of the future water system. The sewer sub-districts listed below are mapped on Figure 9-3.

**Table 9-2. Population and Units at Full Build Out**

| Sewer Sub-district | Population at Full Build Out | Housing at Full Build Out | Employment at Full Build Out |
|---|---|---|---|
| **1A** | 1,448 | 607 | 18 |
| **1B** | 3,044 | 1,275 | 0 |
| **1C** | 726 | 304 | 16 |
| **1D** | 2,786 | 1,167 | 0 |
| **1E** | 1,297 | 543 | 0 |
| **1F** | 1,162 | 487 | 0 |
| **1G** | 181 | 76 | 0 |
| **1H** | 764 | 320 | 42 |
| **2A** | 1,499 | 628 | 0 |
| **2B** | 5,035 | 2,108 | 819 |
| **2C** | 3,596 | 1,506 | 0 |
| **2D** | 463 | 194 | 0 |
| **2E** | 1,249 | 523 | 285 |
| **2F** | 3,523 | 1,476 | 458 |
| **2G** | 504 | 211 | 44 |
| **2H** | 232 | 97 | 124 |
| **2I** | 6,352 | 2,660 | 51 |
| **2J** | 2,163 | 906 | 0 |
| **2K** | 652 | 273 | 35 |
| **3A** | 1,667 | 698 | 722 |
| **3B** | 1,843 | 772 | 362 |
| **3C** | 750 | 314 | 0 |
| **3D** | 253 | 106 | 0 |
| **3E** | 1,048 | 439 | 0 |
| **3F** | 88 | 37 | 0 |
| **3G** | 1,051 | 440 | 91 |
| **3H** | 2,491 | 1,043 | 0 |
| **4A** | 2,339 | 979 | 33 |
| **4B** | 1,590 | 666 | 0 |
| **4C** | 400 | 168 | 0 |
| **4D** | 2,426 | 1,016 | 0 |
| **4E** | 167 | 70 | 0 |
| **5A** | 0 | 0 | 2,953 |
| **5B** | 666 | 279 | 1,180 |
| **5C** | 2,243 | 939 | 4,967 |
| **TOTAL** | **55,700** | **23,327** | **12,200** |

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-3
# Sanitary Sewer Districts




## Legend

**Sanitary District**

- District 1
- District 2
- District 3
- District 4
- District 5
- Sanitary Sub-District
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

# Water System Performance Criteria

This section of the plan develops the performance criteria under which the water system will be evaluated and designed. This involves an evaluation of historical population, projection of future growth, per capita water consumption including water use patterns and trends, seasonal peaks in water consumption, and the impact of major users. This section will form the "design basis" for the Comprehensive Water Supply Plan.

## Water Use

Historical well appropriation records provide a valuable source of information for the prediction of future water needs. City records for the previous 10 years were reviewed to establish design parameters for this plan.

### Average and Peak Day Demand

Average day demand and peak day demand are commonly used as design criteria for water systems. Average day demand is the amount of water that will be consumed on an average day each year. Peak day demand is the amount of water consumed on the day with the highest rate of water consumption each year. Historical well production data is used to calculate the average day demand and peak day demand.

Well production demands are a measure of the amount of water needed to satisfy the supply demands of the customers. Well production in the City of Lino Lakes should always be greater than water sales or consumption. This difference is due to leaks, watermain flushing, meter inaccuracy, and other unmetered uses.

### Water Conservation

Public water suppliers that serve more than 1,000 people are required to have a Water Supply Plan (WSP) approved by the Minnesota Department of Natural Resources (DNR). The WSP addresses water use, water supply, emergencies and conservation measures. These plans were first required in 1996 and must be updated every 10 years. MINN. STAT. § 103G.291 requires public water suppliers to implement demand reduction measures before seeking approvals to construct new wells or increases in authorized volumes of water. Minnesota Rules 6115.0770 requires water users to employ the best available means and practices to promote the efficient use of water. Conservation programs can be cost effective when compared to the costs of developing new sources of supply or expanding water infrastructure and facility capacities. The WSP must address supply and demand reduction measures and allocation priorities and must identify alternative sources of water for use in an emergency. The supply and demand reduction measures set by the DNR are used along with historical well production data to serve as design criteria for the water system. The benchmarks consist of:

a. Unaccounted-for water less than 10%
b. Residential water demand less than 75 gallons per capita per day (gpcd)
c. Total per capita water demand decreasing
d. Peak day demand to average day demand ratio less than 2.6

The City of Lino Lakes submitted a draft of the WSP to the DNR on May 18, 2017.

## Fire Flow Consideration

The Insurance Services Office (ISO) publishes a report that quantifies the magnitude and duration of fire suppression water requirements for individual structures, and summarizes these in a Needed Fire Flow Batch Report. These estimated water requirements are primarily for major commercial, industrial, and public buildings, and consider several factors including the size of the structure, exposure to adjacent structures, construction materials, occupancy types, stored materials, and other similar factors. Identification of these locations allows a more representative evaluation of the fire capacity of the distribution system because it is based on actual fire flow needs within the city. The American Water Works Association (AWWA) and the ISO recommend that water systems are designed to supply a needed fire flow of 3,500 gpm for three hours. This recommendation was incorporated into design considerations throughout this chapter.

Effective March 2018, the City of Lino Lakes received a Public Protection Classification (PPC) of 04/4Y by the ISO. This classification is based on a scoring system which quantifies dozens of criteria that analyze the city's fire fighting resources, and then assigns the city a classification between one and 10. Cities with the greatest firefighting resources receive a score of one, and countrywide, the most common PPC is a score of five.

## Water Quality and Treatment Requirements

The City of Lino Lakes accepted a Water Treatment Plant Feasibility Study on September 24, 2007. Water quality information on the existing wells was reviewed to determine the existing water quality, levels of iron and manganese in the water, constituents that should be removed by treatment, and levels of removal. Water demands were projected for the future based on the DNR conservation measures for appropriating water and based on population projections for Lino Lakes. Using these demand projections, a plant capacity was determined. Blending of raw well water with the treated water on peak days was evaluated to reduce the treatment plant size. Three potential future water treatment plant sites were studied. At each site a review of future storage needs, water supply, high service pumping needs, and treatment plant sizing was performed based on full build out population projections. In addition, available treatment technology was reviewed and two types of processing equipment for iron and manganese removal were selected. The city has continued to discuss water treatment since completion of the feasibility study, and will continue to plan for construction of a water treatment plant before 2040.

## Water Distribution System

### Piping Network

In order to determine the existing capabilities of the watermain system, a WaterCAD model was developed using current WaterCAD distribution system modeling software. The model was created to simulate the existing system's response to average and peak demands, fire-fighting requirements, and overnight tank refill. Specifically, these conditions include average daily demand, peak day withdrawal with a fire demand, peak hourly withdrawal, and refilling the tanks with minimal overnight water use. The model also utilized the full build out conditions based on the proposed future land use and population projections to size future trunk watermain lines in undeveloped areas of the city.

### Pressure Requirements

Water pressure needs are subject to individual preference. Satisfactory pressure for some may be viewed as inadequate for others. Municipal water providers are often caught between balancing increasing customer demand for water pressure and regulatory demands for conservation and demand reduction. A reasonable range for normal working pressure is 50 to 70 psi, and not less than 35 psi. The Minnesota Department of Health requires that during a fire or other emergency withdrawal condition, minimum pressures shall not be less than 20 psi. A maximum pressure of 100 psi has been established to avoid over-pressure problems with consumers' appliances and plumbing systems.

A booster station supplies areas with pressure less than 35 psi due to elevation differences between the overflow elevation of the storage tanks and the ground elevation with additional pressure. A reducing station reduces pressure for those areas of the city that may experience pressures greater than 70 psi due to the difference between the ground elevation and the overflow elevation of the storage tanks.

### Interconnections

The City of Lino Lakes' water system is interconnected with the neighboring cities of Centerville, Circle Pines, Hugo, Shoreview, and Blaine as shown on Figure 9-1. In addition, there exist two interconnections to the Minnesota Correctional Facility water system which uses Lino Lakes water supply in combination with water production from their well. These interconnections are important to the reliable operation of a water system, enabling cities to back up their water supply to safeguard against failure of a well, or an extreme fire event. Several conditions affect the compatibility of system interconnections, including any differences in water quality and hydraulic grade lines (overflow elevations).

## Water Storage Requirements

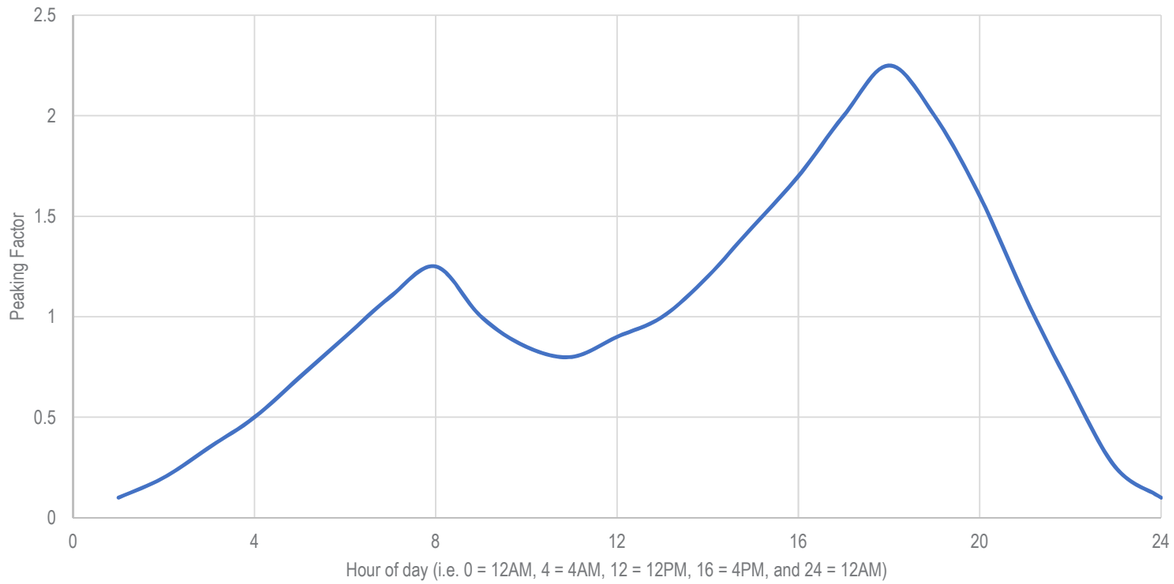
Water storage is provided in a municipal water system for three main reasons. The first is to provide for smooth pump operations, minimizing the frequent starting and stopping of large electric motors. The second reason is to provide reserve storage for emergency events, such as power outages, mechanical failure, and other events where the supply is unable to meet the instantaneous demand, or is lost altogether. Finally, water storage provides sufficient equalization storage to supply a peak day event.

### Peak Day versus Peak Hour with Fire Flow

Pumping facilities are designed to have sufficient "firm" capacity to supply the peak day demand. The peak day demand is the highest water production day of the year. Although it appears that the peak day rate enables one to establish the minimum design requirements for a system, it must be realized that the consumption rate over the period of a day follows a diurnal pattern, which means the majority of water consumption occurs during the daytime as shown in Figure 9-5. As a result, there are times during the peak day that the rate of consumption will actually exceed the "firm" pumping capacity available (i.e., peak hour, peak minute, etc.). Typically, the peak hour can be more than double the peak day rate. At this point, when demand exceeds "firm" pumping capacity, it becomes necessary to utilize storage capacity to even-out or "equalize" these instantaneous peaks. This prevents the need to provide pumping facilities to "pump on-demand" to meet the peak hour or peak minute demand, which would be costly and underutilize a large part of the facility capacity.

Minimum storage requirements have been established by the "Ten States Standards"[1], which state that, "Storage facilities should have sufficient capacity, as determined from engineering studies, to meet domestic demands, and where fire protection is provided, fire flow demands." This plan has based the minimum storage requirements on a storage volume sufficient to equalize the peak day demand, and supply a fire flow of 3,500 gpm for three hours.

**Figure 9-4. Typical Diurnal Consumption Pattern**




1 Recommended Standards for Water Works. 2012 Edition. Great Lakes - Upper Mississippi Board of State Public Health and Environment Managers.

## WaterCAD Computer Model Analysis

To determine the existing status and capabilities of the watermain system, a WaterCAD model of the City of Lino Lakes water distribution system was created. A model based on the full build out future land use was also created to evaluate what trunk lines would be required to serve the areas of Lino Lakes yet to be developed. This water distribution model was used to evaluate the hydraulic capability of the water system to meet the City of Lino Lakes' needs by simulating the system's response to average day demands, peak demands, and fire-fighting requirements. The simulations of average and peak demands calculate the pressures throughout the city's system to confirm if each street is receiving sufficient water pressure. The simulations of fire-fighting requirements calculate the available fire flow throughout the city. Each condition stresses the water system differently and helps to identify actual conditions of operation which can result in poor or reduced performance.

The Ten-States Standards recommend that working distribution pressures be 60 to 80 psi, and not lower than 35 psi nor higher than 100 psi. The Ten States Standards also recommend the minimum size of watermain for providing fire protection and serving fire hydrants to be 6-inch diameter, with larger mains required if necessary for providing satisfactory fire flow. In addition, velocities in long watermain segments should typically be less than five feet per second (fps), but are acceptable up to about 10 fps during emergency withdrawal conditions of short duration. These standards were used in the analysis of the existing system and the design of the future water system.

## Summary of Analysis and Design Criteria

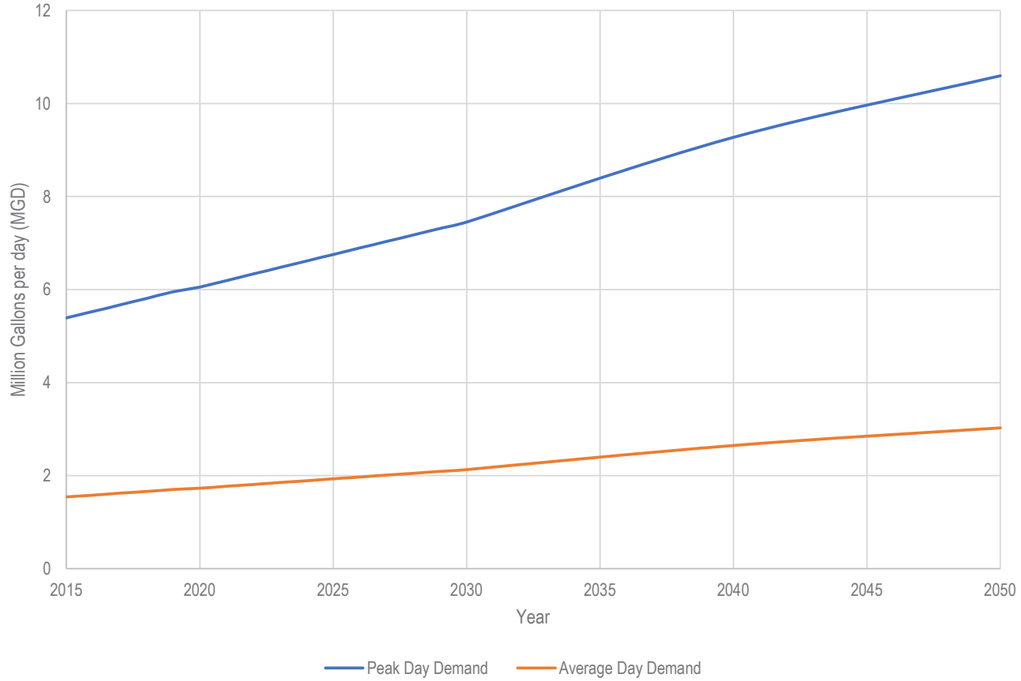
This section establishes the design parameters under which the existing and future water system will be evaluated and/or designed. Table 9-3 breaks down the design criteria used for the future water system. Figure 9-5 shows a graphical representation of these parameters to 2050.

To make conservative estimates for future water system designs, a total per capita water demand of 100 gpcd was assumed. This value is a normal assumption used by the Metropolitan Council for projections, and is slightly greater than the city's 2010-2015 average per capita demand of 91 gpcd. The Peak Day Water Demand section gives the peak day to average day ratio. The city's 2010-2015 average ratio is approximately 3.5, and this value was assumed for future water system designs through 2040. The Minnesota DNR recommends that cities reduce their peak to average day ratio to 2.6. It is assumed that the city's conservation efforts will reduce this parameter to 2.6 by full build out, at the latest. While these criteria are largely based on historical information, which is not totally reflective of trends, it is a conservative basis for projecting future water use patterns.

**Table 9-3. Criteria for Analysis and Design**

| | 2017 | 2020 | 2030 | 2040 | Full Build |
|---|---|---|---|---|---|
| **Population Served by Water System** | 16,200 | 17,300 | 21,300 | 26,500 | 55,700 |
| **Average Day Water Demand** | | | | | |
| **Total Per Capita Water Demand (gpcd)** | 100 | 100 | 100 | 100 | 100 |
| **Million gallons per day (MGD)** | 1.62 | 1.73 | 2.13 | 2.65 | 5.57 |
| **Gallons per minute (gpm)** | 1,125 | 1,201 | 1,479 | 1,840 | 3,868 |
| **Peak Day Water Demand** | | | | | |
| **Peak Day: Average Day Ratio** | 3.5 | 3.5 | 3.5 | 3.5 | 2.6 |
| **Million gallons per day (MGD)** | 5.67 | 6.06 | 7.46 | 9.28 | 14.48 |
| **Gallons per minute (gpm)** | 3,938 | 4,205 | 5,177 | 6,441 | 10,057 |
| **Storage Requirements** | Peak Day Equalization plus 3,500 gpm fire flow for 3 hours | | | | |
| **Pressure Requirements** | Nominal Working: 50-70 psi Minimum: 35 psi | | | | |
| **Minimum, at Fire Flow Withdrawal** | 20 psi | | | | |
| **Maximum Pressure** | 100 psi | | | | |

**Figure 9-5. Projected Water Demands**



# Existing Water System

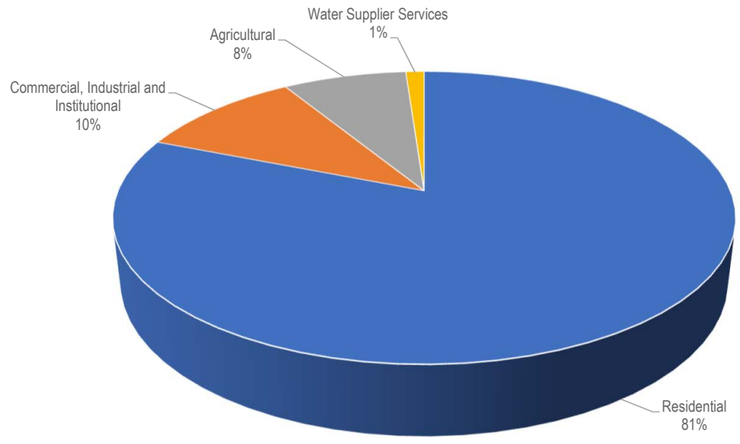
The existing city water system consists of six active wells, two elevated storage tanks, a booster station, and a system of trunk and lateral watermains ranging in diameter from 6-inch to 16-inch. The city does not treat its water at a central treatment facility. Instead, the city provides chemical addition at each well to disinfect, prevent tooth decay, and control iron and manganese precipitation. The water system serves approximately 15,400 residents (year 2015 Metropolitan Council Estimate) and maintains interconnections to neighboring cities and the Minnesota Correctional Facility water system as shown in Figure 9-1.

## Water Use

The water system daily demand averaged 1.24 million gallons per day in 2016 The peak day demand in 2016 was 3.36 million gallons. The water supplied by the six wells is pumped from the Jordan Sandstone Aquifer (groundwater aquifer), which meets all health requirements. To ensure that the ground water aquifers can meet future water demands, the City of Lino Lakes and state agencies are working to implement water conservation measures.

Categorical water use can provide insight into consumption trends and patterns within a city, and be a valuable source of information when predicting future water needs. Changes in the amount of water used within a category can result in fundamental changes in daily and yearly demand patterns seen by the system. Figure 9-6 presents average annual water sales by category from 2011-2015.

**Figure 9-6. Water Use by Category**




It should be noted that the 8% agricultural water use does not include water used for residential irrigation needs, such as watering of lawns and gardens. Of the 81% residential use, an estimated one half is for domestic use, and the other half is due to residential lawn irrigation and other discretionary uses. Due to conservation efforts by the City of Lino Lakes the percentage of residential use will reduce as the commercial, industrial, and institutional uses increase. Although the commercial, industrial, and institutional percentage of water use will increase the total gallons per capita consumed is projected to remain constant.

## Major Water Users

A major user is defined as one who consumes 5% or more of the total production. In the City of Lino Lakes, no single user consumes greater than 5% of total sales. The Minnesota Department of Corrections - Lino Lakes Facility currently uses 12,670,000 (2.82%) of the city's water supply as of 2015. The Minnesota Department of Corrections Lino Lakes Facility pumps additional water from their on-site well. If this well should fail or go out of service the Lino Lakes Facility would require approximately 5% of the city's production.

The top nine water users by volume, from largest to smallest, for the City of Lino Lakes are listed in Table 9-4. All users with irrigation systems must comply with the city-wide sprinkling ordinance that bans watering from 10am - 6pm every day from May 15th to September 15th.

**Table 9-4. Large Volume Users**

| Customer | Category | Use (MG per year) | Percent of Total Water Use |
|---|---|---|---|
| Correctional Facility (1) | Institutional | 6.77 | 1.51% |
| Correctional Facility (2) | Institutional | 5.90 | 1.31% |
| Millers Crossroads Village Irrigation | Residential | 3.68 | 0.82% |
| Lakewood Apartments | Residential | 3.28 | 0.73% |
| Hampton Inn & Suites | Commercial | 3.18 | 0.71% |
| YMCA Lino Lakes | Commercial | 3.14 | 0.70% |
| City of Lino Lakes Irrigation | Institutional | 2.17 | 0.48% |
| Molin Concrete Plant – Building 3 | Commercial | 1.71 | 0.38% |
| Century Farms HOA | Residential | 1.65 | 0.37% |

## Water Conservation

In May of 2017, the City of Lino Lakes submitted its Water Supply Plan (WSP) to the Minnesota Department of Natural Resources (DNR). This plan identified specific goals for the city to meet DNR conservation measures as shown in Table 9-5. Water use should be monitored yearly to ensure the success of water conservation goals.

### Table 9-5. Conservation Goals

| | |
|---|---|
| **Unaccounted Water (%)** | |
| Average annual volume unaccounted water for the last 5 years | 5,910,000 gallons |
| Average percent unaccounted water for the last 5 years | 1.3 percent |
| AWWA recommends that unaccounted water not exceed 10%. The city's unaccounted water falls below the recommended 10% unaccounted water. If there is a suspected leak, the city will conduct a water audit. There are 4,559 metered connections in Lino Lakes which are tested as needed. Residential meters are replaced at one million gallons and commercial, industrial, and irrigation meters are replaced at ten million gallons. | |
| **Residential Gallons Per Capita Demand (gpcd)** | |
| Average residential gpcd use for the last 5 years | 73 gpcd |
| In 2002, average residential gpcd use in the Twin Cities Metropolitan Area was 75 gpcd. The city's average residential gpcd use for the last 5 years falls below the recommended 75 gpcd. Data from the DNR and the city indicates that residential water demand has been decreasing since 2012. The city plans to continue its conservation strategies to ensure that the average residential gpcd remains below 75 gpcd. | |
| **Total Gallons Per Capita Demand (gpcd)** | |
| Average total gpcd use for the last 5 years | 91 gpcd |
| The total per capita demand average for the last 5 years was 91 gpcd. After residential use, the second largest volume usage is from commercial use, and the third largest volume usage is from agriculture delivery. The average total gpcd has been generally decreasing over the past 10 years, and the city plans to maintain and expand its conservation initiatives to continue reducing the average total gpcd. A graph showing total per capita water demand by customer category is included in Appendix C. | |
| **Peak Demands** | |
| 5-year average maximum day to average day ratio | 3.5 |
| The DNR recommends that the peak day/average day ratio be less than 2.6. The position of the DNR has been that a peak day/average day ratio that is above 2.6 indicates that the volume of water being used for irrigation in a community is too high and that efforts should be made to reduce the peak day use by the community. Since the city's ratio is above the DNR recommendation, reducing peak demands will be an important goal for the city going forward. Water conservation educational efforts will be emphasized towards reduction of high summer water usage. | |

To continue effectively maintaining and pursuing its conservation goals in Table 9-5, Lino Lakes plans to continue its ongoing conservation strategies.

Ongoing strategies include:

- Enforce city ordinances/codes to encourage or require water efficient landscaping systems (e.g. those with soil moisture sensors or programmable watering areas) in new installations or system replacements.
- The city's Critical Water Deficiency Ordinance is included in Appendix C.
- Make water system infrastructure improvements.
- Provide annual rebates or incentives to reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.).
- Conduct audience-appropriate water conservation education and outreach.
- Increase block rates (volume tiered rates) on water bills for each costumer category. Current rates are included in Appendix C.
- Consumer Confidence Reports are prepared annually.
- The city has defined tree ratio requirements based on hardscape and open space for new development.
- Rainfall sensors are required on landscape irrigation systems.
- Odd/even lawn watering restrictions are in place.
- Staff training includes awareness of conservation goals.
- As a measure of tracking the success of water conservation initiatives, the city continues to monitor water usage by customer category.
- The Rice Creek Watershed District and Anoka County provide education and retrofit programs for rain barrels and rain gardens.
- Information is available at utility and public buildings and on the city website (http://www.ci.lino-lakes.mn.us/).

Furthermore, the city will also consider applying for the Metropolitan Council's water efficiency grant when it next becomes available, to provide rebates or incentives for installing water efficient appliances and/or fixtures indoors (e.g., low flow toilets, high efficiency dish washers and washing machines, showerhead and faucet aerators, water softeners, etc.). The city will prepare a comprehensive open space plan, implement a stormwater management program, consider stormwater irrigation projects, continue to promote conservation through the city newsletter, attempt to locate unlocated wells with MDH grant funding, and continue wellhead protection plan implementation.

### Water Appropriation

The City of Lino Lakes appropriation permit (#1985-6168) currently authorizes the city to pump 900 million gallons per year. Historically, the city has pumped between 400 million and 600 million gallons per year, as shown in Table 9-6.

The Ramsey County District Court issued a ruling on August 30, 2017 that the Minnesota Department of Natural Resources (DNR) allowed over-pumping of the groundwater aquifer in the region of White Bear Lake. The judge ordered the DNR to review groundwater appropriation permits within five miles of the lake and to enforce a residential lawn watering ban when the lake water level drops below 923.5 feet above sea level. On September 26, 2017, the DNR issued a news release stating that it will appeal the court's ruling. The DNR contends that restricting permits within five miles of the lake will halt important development, and that the watering ban will impose an undue burden on 500,000 White Bear Lake area residents.

A portion of southeastern Lino Lakes falls within five miles of White Bear Lake, so the city is closely following developments in this case and will coordinate with the DNR to ensure that it is complying with regional and state guidelines. Development in District 4 is proposed to be temporarily supplied by White Bear Township along an 8-inch water line along the southern border of Lino lakes. This may be an issue depending on the outcome of the lawsuit. The City of Lino Lakes will review and adjust its Water Capital Improvement Plan (see Appendix C) as definitive conclusions become available and will continue water conservation and efficiency programs to reduce its consumption throughout this process.

## Wellhead Protection

Long-term preventative programs and measures for the city's existing water system will help reduce the risk of emergency situations. The City of Lino Lakes has several programs to help reduce these risks. They include a Wellhead Protection Plan (WHPP) that was adopted in April of 2016 and is due to be updated in November of 2026. The primary goal of the Wellhead Protection Plan is to ensure a safe and reliable drinking water supply to the community. The Wellhead Protection Plan includes two parts. Part I includes a Wellhead Protection Area, a Drinking Water Supply Management Area and a Vulnerability Assessment. Part II focuses on a Potential Contaminant Source Management Strategy, an Evaluation Program and an Alternative Water Supply/Contingency Plan. It lists the following goals: Figure 9-7 features a map of the City of Lino Lakes Drinking Water Supply Management Area.

1. Work to maintain or improve the current level of water quality so that the municipal water supply will continue to meet or exceed all applicable state and federal water quality standards.
2. Work to continue to supply sufficient water quantity for system users and emergency needs.
3. Provide and promote activities that protect the source water aquifer which provides water to the municipal system. This will include increased public education for the Wellhead and Source Water Protection Program and groundwater-related issues, as well as management of the identified potential contaminant sources and conveyance mechanisms within the Drinking Water Supply Management Area (DWSMA).
4. Continue to collect data to support future wellhead and source water protection efforts.

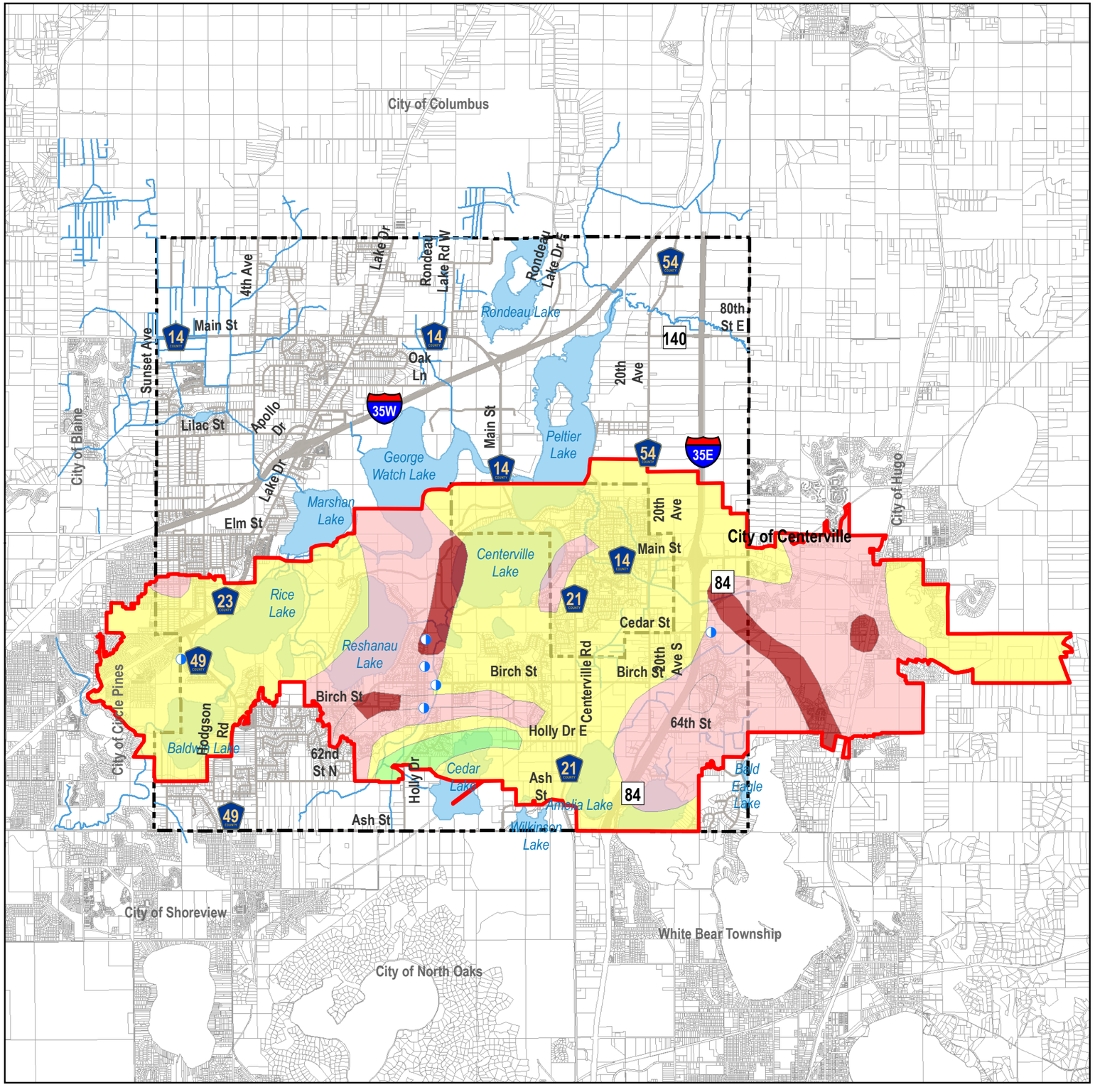
To achieve these goals, the WHPP lists the following implementation measures:

- Well Management
  - Promote proper sealing of abandoned, unused, unmaintained, or damaged wells.
  - Identify properties with abandoned wells and potential cross connections between private wells and the City's water system.
  - Educate the public about proper well management.
  - Investigate unlocated or undocumented wells within the city and DWSMA.

  - Incorporate WHP initiatives into city plans.
  - Identify new high-capacity wells within the DWSMA.
  - Monitor water quality from the city's wells to ensure water quality standards are met.
  - Encourage owners with individual sewage treatment systems and private wells to connect to city services, when they become available.
- Public Education
  - Develop public support and understanding for the WHP planning.
  - Educate city staff on transportation corridor and pipeline issues.
  - Educate emergency management officials of the importance of spills/cleanup within the DWSMA.
- Storage Tank Management
  - Notify owners of storage tanks within the DWSMA that the tank is in a source water protection area, and educate owners on the importance of spill prevention.
- Subsurface Sewage Treatment Systems (SSTS)
  - Coordinate with Anoka County to educate property owners on SSTS compliance.
  - Maintain an up-to-date septic system inventory.
- Stormwater Management
  - Educate the public on proper stormwater management, turf management, lawn care practice, and water conservation.
  - Cooperate with other agencies and programs to manage stormwater quality.
- Hazardous Waste Management
  - Educate the public on the proper disposal of hazardous waste items.
  - Educate hazardous waste generators about hazardous waste management.
- Data Collection
  - Collect and maintain local geologic and hydrogeologic data.
  - Evaluate the water quality monitoring strategy and results.
  - Maintain up-to-date information about wells and potential contaminant sources within the DWSMA.
  - If new high-capacity wells are completed, conduct a study to determine their impact on the DWSMA boundary.
- Water Conservation
  - Implement a community-wide water conservation program.
- Land Use Planning and Zoning
  - Eliminate or reduce potential pollution risks to the source water aquifer and minimize the risk of altering the WHPA and DWSMA.
- Implementation
  - Track and report WHP activities to aid in implementing WHP objectives.
- Evaluation
  - Evaluate the WHP.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-7
# Drinking Water Supply Management Area (DWSMA)




## Legend

- DWSMA Boundary

**DWSMA Vulnerability**

- Very High Vulnerability
- High Vulnerability
- Moderate Vulnerability
- Low Vulnerability
- Existing Well
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

## Water Supply Facilities

Water is pumped from six wells. These wells are all located within the southern section of the city and all obtain their water supply from the Jordan Aquifer. The Jordan Aquifer is the predominant aquifer in the majority of the Minneapolis/St. Paul Metro Area. In Lino Lakes, the Jordan Aquifer exists only beneath the southern section of the city.

### Well Production

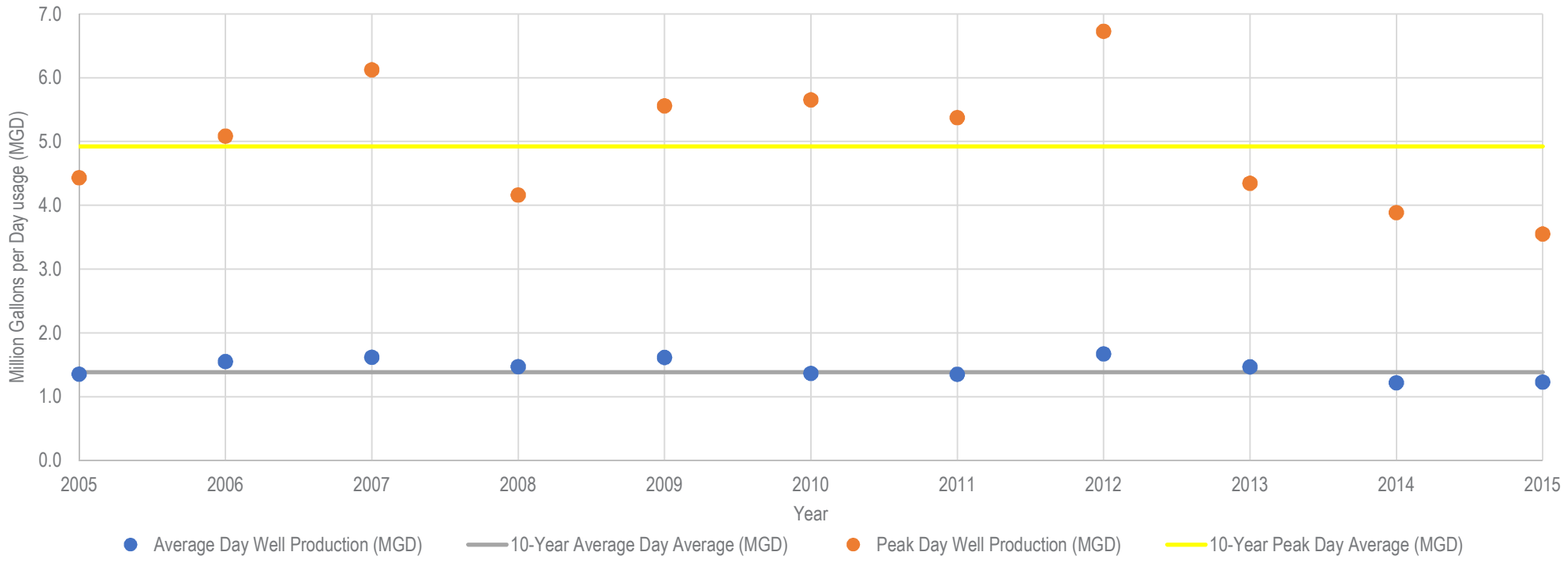
Table 9-6 below contains the average and peak day well production volumes, along with the computed per capita well production rates for the period of 2005-2015. Well production facilities are designed to have sufficient "firm" capacity to supply the peak day demand of the system. The "firm" capacity is defined as the capacity that would be available if the highest capacity well were removed from service due to maintenance or failure. Peak day well demand is critical in planning the water systems required well production. Figure 9-8 depicts the historical well production by average day demand and peak day demand.

**Table 9-6. Historical Water Use Data**

| Year | Population Served | Total Connections | Total Water Use (MG) | Total Water Pumped (MG) | Percent Unmetered/ Unaccounted | Average Daily Demand (MGD) | Max. Daily Demand (MGD) | Date of Max. Demand | Residential Per Capita Demand (GPCD) | Total Per Capita Demand (GPCD) |
|---|---|---|---|---|---|---|---|---|---|---|
| **2005** | 13,196 | 3,957 | 474.3 | 494.5 | 4.1% | 1.35 | 4.43 | 7/20/2005 | 83 | 103 |
| **2006** | 14,043 | 4,118 | 550.5 | 565.1 | 2.6% | 1.55 | 5.08 | 7/16/2006 | 90 | 110 |
| **2007** | 14,493 | 4,219 | 582.2 | 590.1 | 1.3% | 1.62 | 6.12 | 6/12/2007 | 92 | 112 |
| **2008** | 14,580 | 4,305 | 528.6 | 536.4 | 1.5% | 1.47 | 4.16 | 8/4/2008 | 82 | 101 |
| **2009** | 14,974 | 4,321 | 588.3 | 588.6 | 0.1% | 1.61 | 5.56 | 7/11/2009 | 86 | 108 |
| **2010** | 14,980 | 4,384 | 486.2 | 497.8 | 2.3% | 1.36 | 5.65 | 6/1/2010 | 73 | 91 |
| **2011** | 14,985 | 4,425 | 485.9 | 492.2 | 1.3% | 1.35 | 5.37 | 9/10/2011 | 71 | 90 |
| **2012** | 15,119 | 4,455 | 595.0 | 609.4 | 2.4% | 1.67 | 6.73 | 7/2/2012 | 89 | 110 |
| **2013** | 15,201 | 4,488 | 526.8 | 535.6 | 1.7% | 1.47 | 4.35 | 8/28/2013 | 77 | 97 |
| **2014** | 15,346 | 4,486 | 444.7 | 444.7 | 0% | 1.22 | 3.89 | 7/24/2014 | 64 | 79 |
| **2015** | 15,400 | 4,559 | 448.6 | 448.6 | 0% | 1.23 | 3.55 | 7/13/2015 | 63 | 80 |
| **Avg. 2010-2015** | 15,174 | 4,466 | 497.9 | 504.7 | 1.3% | 1.38 | 4.92 | - | 73 | 91 |

**MG – Million Gallons** **MGD – Million Gallons per Day** **GPCD – Gallons per Capita per Day**

**Figure 9-8. Historical Well Production**



## Existing Wells

All the city's wells are in the southern half of the city, and all obtain their water supply from the Jordan Aquifer. Table 9-7 shows detailed information on each well. Well logs and maintenance reports, a water level monitoring plan, and water level graphs for each well are included in Appendix C. The city has one mobile emergency generator that is kept at one of the well houses.

**Well No. 1** is located along Black Duck Drive, east of Reshanau Lake. This well was renovated in 2002 with a motor upgrade, VFD installation, and an increase in capacity of 350 gallons per minute (gpm) to total 675 gpm.
**Well No. 2** is located along Sand Hill Drive, south and west of Rice Lake. This well was renovated in 2002 with a VFD installation, and an increase in capacity of 250 gallons per minute (gpm) to a total of 625 gpm.
**Well No. 3** is located south of Well No. 1 along Birch Street. It is the largest capacity well in the city.
**Well No. 4** is located near the intersection of Clearwater Creek Drive and Cedar Street North.
**Well No. 5** is located along Black Duck Drive.
**Well No. 6** is located in Birch Park, along Pheasant Run.

The firm pumping rate is used as an indication of the system's ability to meet peak demands with the largest capacity well removed from service for maintenance, failure, or an emergency event. The city is currently appropriating its water supply from six active wells to supply water to the city's customers. When pumping at their current flows, the combined capacity of the six wells is approximately 5,550 gpm, with a "firm" capacity of 4,350 gpm when the largest supply facility, either Well No. 3 or Well No. 6, is removed from service.

**Table 9-7. Well Summary**

| Well No. and ID | Unique Well ID | Status | Firm Pumping Rate (gpm) | Capacity (gpm) | Depth (feet) | Aquifer | Year Installed | Static Level* (Feet) | Drawdown** (Feet) |
|---|---|---|---|---|---|---|---|---|---|
| **Well No. 1** | 240171 | Active | 675 | 675 | 306 | Prairie du Chien - Jordan | 1971 | 8.2 | 25 |
| **Well No. 2** | 110471 | Active | 625 | 625 | 258 | Prairie du Chien - Jordan | 1986 | 9 | 24 |
| **Well No. 3** | 559373 | Active | 1,200 | 1,800 | 283 | Prairie du Chien - Jordan | 1995 | 13 | 13 |
| **Well No. 4** | 554207 | Active | 750 | 750 | 338 | Prairie du Chien - Jordan | 1995 | 17 | 17 |
| **Well No. 5** | 722629 | Active | 1,100 | 1,600 | 273 | Prairie du Chien - Jordan | 2005 | 14 | 40 |
| **Well No. 6** | 767887 | Active | 1,200 | 1,200 | 295 | Prairie du Chien - Jordan | 2016 | 16 | 24 |

*Static Level is the non-pumping groundwater elevation.
**Drawdown is the distance the static water level is lowered by well pumping.

## Peak Day Demand

By implementing conservation measures, the city has taken the first steps in managing the peak day water use. Over the past 10 years, the peak day water use has been three to four times higher than the average day demand, as shown in Table 9-6. Most of this increase can be attributed to lawn irrigation and other discretionary uses. Figure 9-9 compares the well capacities and various demand scenarios to illustrate that the Lino Lakes water system has sufficient capacity to supply water to its customers throughout the year and during peak demands.

## Available Fire Flows

The WaterCAD model was used to simulate fire flow demand while the water system is at firm capacity and serving maximum day demands. This scenario is important because it evaluates the system's ability to provide sufficient water flow to a fire during a day of high demand and reduced capacity. For this simulation, the water tower levels are set to the lowest level observed during maximum day demand. Results of this simulation indicate that the City's existing water system can supply sufficient fire flow. An extremely small, four-parcel area, in the southwest region of the city resulted in fire flows less than 500 gpm, and this could be addressed by the city with increased looping in this region. Simulation of this scenario with the water system at full build out results in the future system having sufficient fire flow throughout the city's water system. A contour map of the city-wide available fire flows under this scenario is show in Figure 9-10 and Figure 9-11 for the existing and full-build out models, respectively.

When the Insurance Services Office (ISO) publishes its rating report for a city, the fire flows required for large water users are specified. These specified users in the city are often large buildings, which would require particularly more water to fight a fire. Table 9-8 below summarizes the fire flow requirements specified by the ISO and the current available fire flow.

**Figure 9-9. Well Capacity and Water Demand Statistics (2015)**

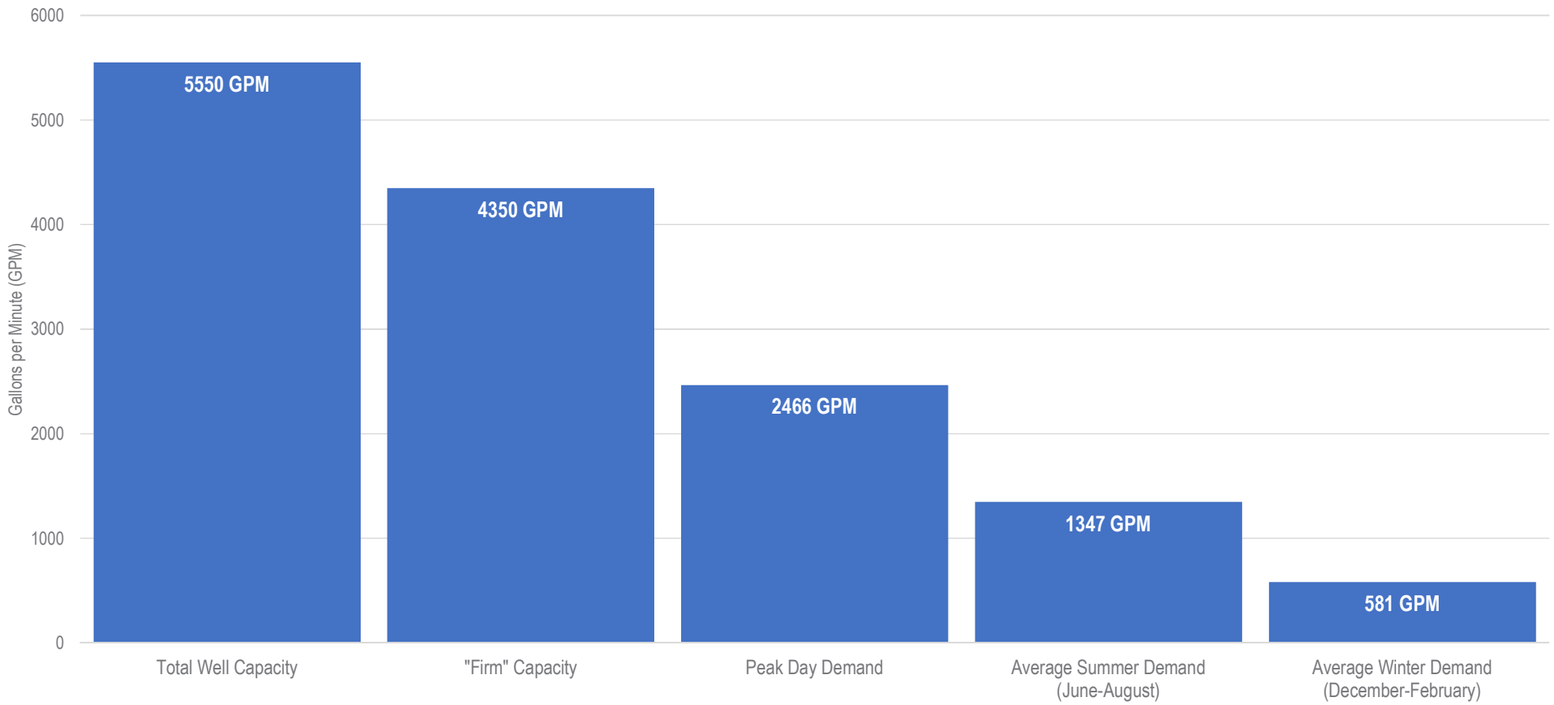
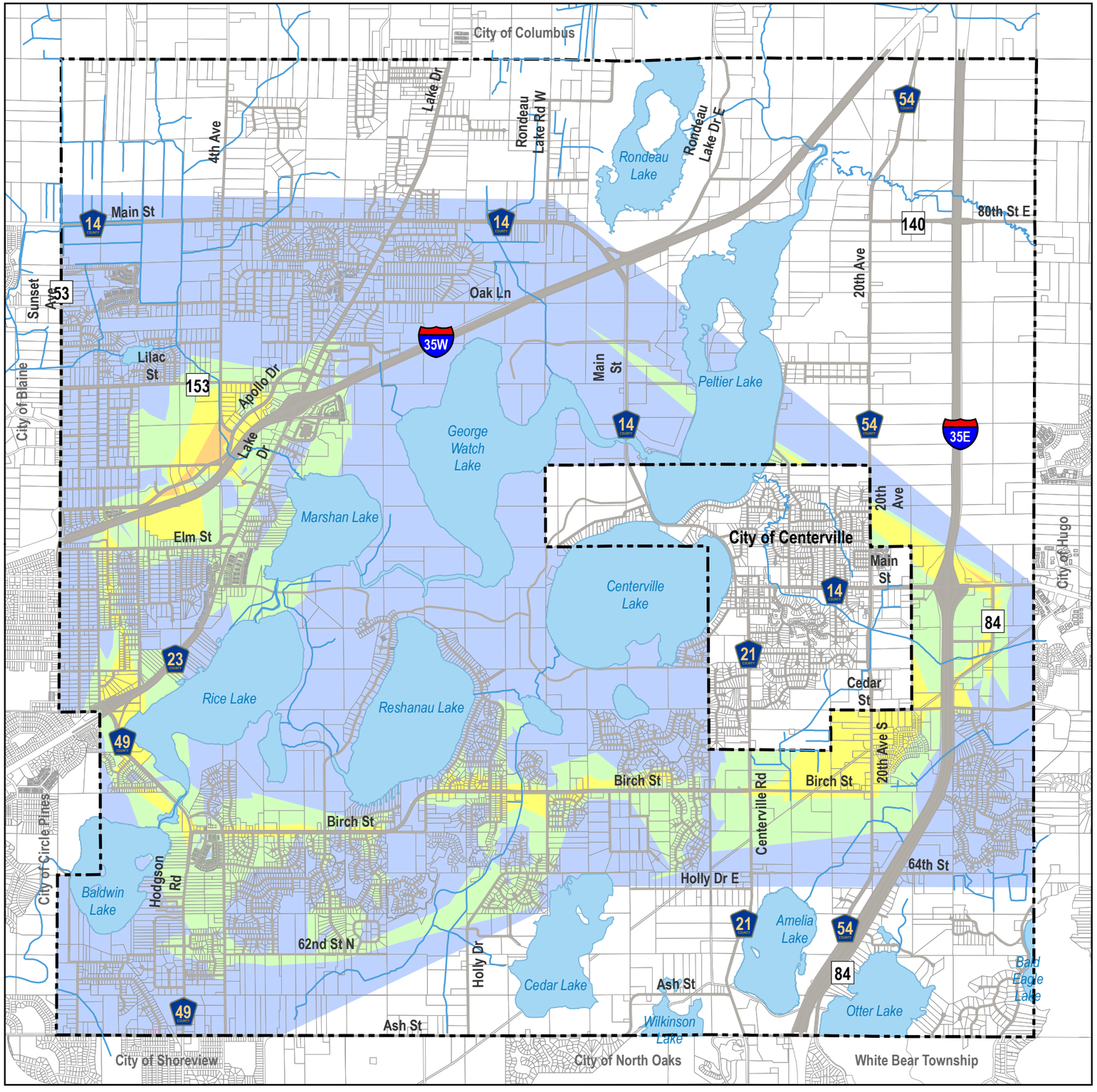



**Table 9-8. ISO Required and Available Fire Flows for Large Users**

| Location | Needed Fire Flow (at 20 psi) | Available Fire Flow |
|---|---|---|
| Town Center Pkwy & Village Dr, 1st hydrant N | 5,000 | 4,900 |
| 4th Ave & Elm St, 1st hydrant N | 5,000 | 2,100 |
| Hodgson Rd & Blue Heron Dr | 3,500 | 2,700 |
| Hodgson Rd & Baldwin Cir | 3,500 | 2,000 |
| 4th Ave & Lilac St, 2nd hydrant S | 3,000 | 6,400 |

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-10
# Existing System
# Available Fire Flows




## Legend

**Available Fire Flow**

- < 500 gpm
- 500-3,500 gpm
- 3,500-6,500 gpm
- 6,500-9,500 gpm
- > 9,500 gpm
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

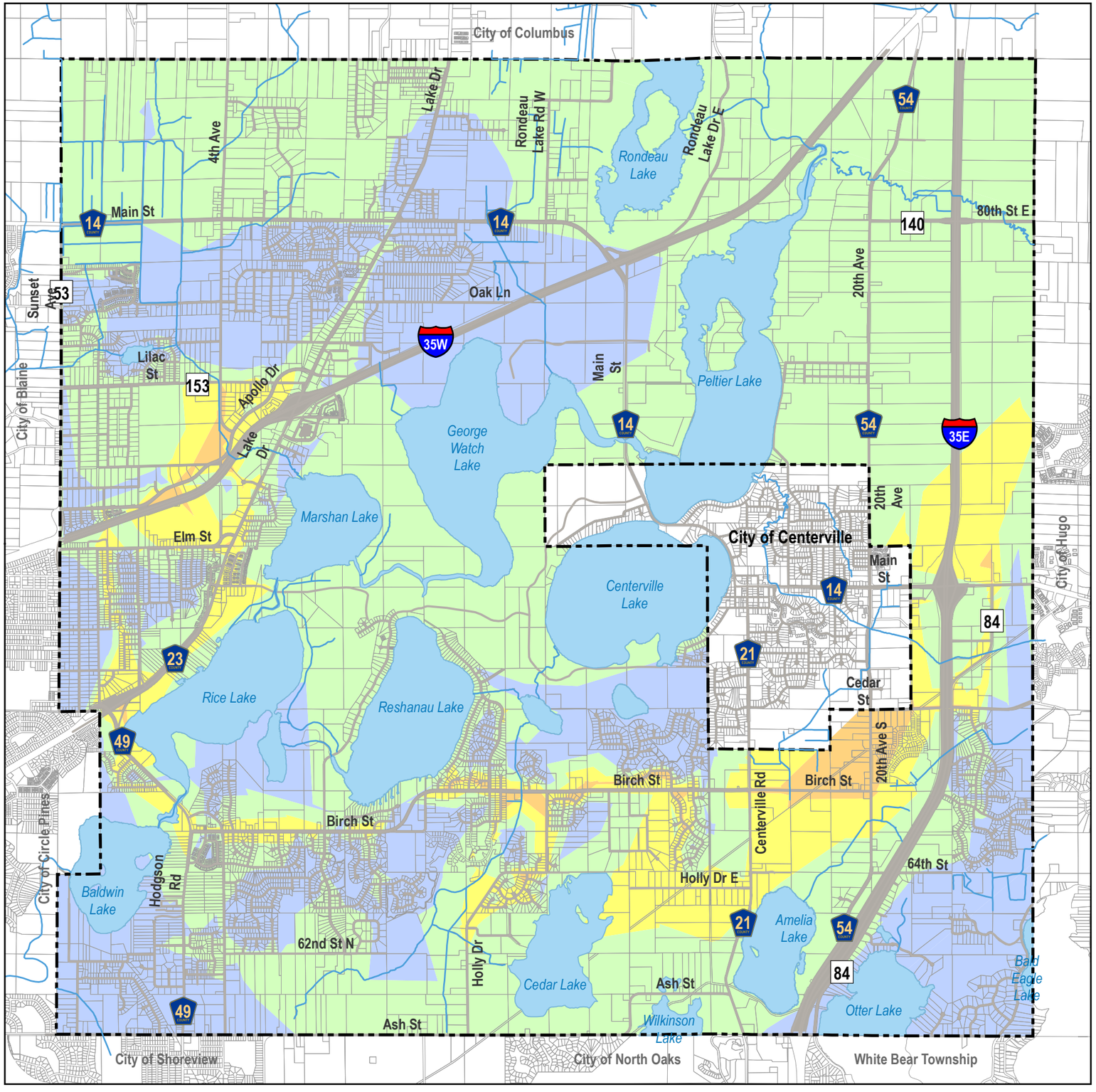
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-11
# Full Build System
# Available Fire Flows




## Legend

**Available Fire Flow**

- 500-3,500 gpm
- 3,500-6,500 gpm
- 6,500-9,500 gpm
- > 9,500 gpm
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

## Water Treatment

Lino Lakes water supply is provided by the Jordan sandstone aquifer, and this water source meets all health requirements of the Minnesota Department of Health (MDH).

The City of Lino Lakes does not treat its water for iron and/or manganese removal, softening, or any other conventional treatment processes. However, Lino Lakes' existing water system incorporates treatment by simple chemical addition at the well heads. Treatment methods include disinfection by gas chlorination and fluoridation by the addition of hydrofluorosilicic acid, for dental prophylaxis. Polyphosphates are also added at the well head as a sequestration agent to reduce iron and manganese problems.

While iron and manganese do not pose a health problem at the levels found in Lino Lakes' groundwater, they do exceed the Secondary Maximum Contaminant Levels (SMCL) of the Safe Drinking Water Act. The SMCLs were established to set limits for contaminants which reduce aesthetic quality, but that do not have any adverse public health effects, and are not enforceable by regulatory agencies. Table 9-9 shows the iron and manganese levels at each city well, compared to the Environmental Protection Agency (EPA) recommended secondary (non-health related) levels of 0.3 mg/L for iron and 0.05 mg/L for manganese. This raw well water data was collected in November 2017. Higher concentrations of iron and manganese in the water supply have the potential to cause aesthetic inconveniences, such as mild discoloration of clothes in the washing machine. But more often, iron and manganese in water is simply associated with "hard water," which is a harmless aesthetic characteristic that has been reasonably accepted by customers.

**Table 9-9. Water Quality Data**

| Well No. | 1 | 3 | 4 | 5 | 6 | EPA |
|---|---|---|---|---|---|---|
| Iron (mg/L) | 0.839 | ---- | 0.147 | 0.356 | 0.0932 | 0.30 |
| Manganese (mg/L) | 0.134 | 0.339 | 0.0617 | 0.170 | 0.390 | 0.05 |

## Water Distribution System

The water distribution system consists of all the components necessary to convey water from the wells or storage tanks to the individual points of demand. These demands are generated independently by all the serviced customers and by public needs such as hydrant streams for fire-fighting, skating rink flooding, watermain maintenance and flushing. While the major component of any system is the buried watermains, the total system also includes hydrants, valves, services and meters, and supplemental pumping facilities, as required. A distribution system's adequacy is based solely on its ability to deliver water, at an appropriate rate and pressure, to every demand point in the system. The City of Lino Lakes' water distribution system has been well maintained and has provided a dependable level of service to the city for many years.

### Piping and Distribution Network

The water distribution system was evaluated based on watermain size, leakage, static pressures, and operational capabilities.

The City of Lino Lakes' distribution system piping network consists of 10-inch through 16-inch diameter trunk transmission mains, and 4-inch through 8-inch diameter lateral distribution mains, as shown in Figure 9-1 Existing Water System Map. Most of the city watermains were constructed of cast or ductile iron pipe, and conform to the American Water Works Association (AWWA) standards for watermain materials and installation. Ten States Standards recommend that the minimum size of watermain providing fire protection should be at least 6-inch in diameter. All existing watermains in Lino Lakes appear to conform to Ten States guidelines. Table 9-10 shows the breakdown of pipe size and the lengths of each.

**Table 9-10. Watermain Size**

| Watermain Diameter | Length (Feet) | Length (Miles) |
|---|---|---|
| 4" | 713 | 0.13 |
| 6" | 97,342 | 18.44 |
| 8" | 180,885 | 34.26 |
| 10" | 9,158 | 1.73 |
| 12" | 82,874 | 15.70 |
| 14" | 325 | 0.06 |
| 16" | 79,031 | 14.97 |
| Total | 459,845 | 87.09 |

## Static Pressures

Static water pressure is defined as the pressure that would be measured under a no-flow, tank full condition and is determined solely by the tank overflow and individual ground elevations. This pressure is the maximum pressure achievable at any given location without the intervention of a supplemental energy source, such as pumping. The dynamic pressure, or normal water pressure, can be defined as the static pressure minus the friction or energy loss resulting from the flow of water through the distribution mains, or the gain in pressure due to pumping.

This Plan has established a normal operating pressure for Lino Lakes' water system between 50–70 psi, and not less than 35 psi. Additionally, 20 psi is established as the minimum pressure to be maintained at all points in the distribution system under fire flow conditions, and 100 psi is set as the maximum. The two elevated tanks that serve the city have an overflow elevation of 1,054.5 feet, and currently serve ground elevations ranging from 885 feet to 950 feet, resulting in a range of static pressures between 45 and 89 psi at ground level. A ground elevation of 940 feet equates to a static pressure of roughly 50 psi. Elevations above 940 feet are generally limited to a few isolated locations within the Clearwater Creek subdivision, and represent some of the highest elevations in Anoka County. The Clearwater Creek subdivision is served by a booster station, providing pressures in

excess of 50 psi. A ground elevation of 890 feet equates to a static pressure of roughly 87 psi. Elevations below 890 feet are limited to a few isolated locations. Most of the city sits at an elevation somewhere between 890 feet to 930 feet. When serving this range of elevation with a single pressure zone, the storage tank overflow elevation of 1,054.5 feet is optimally set.

## System Pressure Modeling

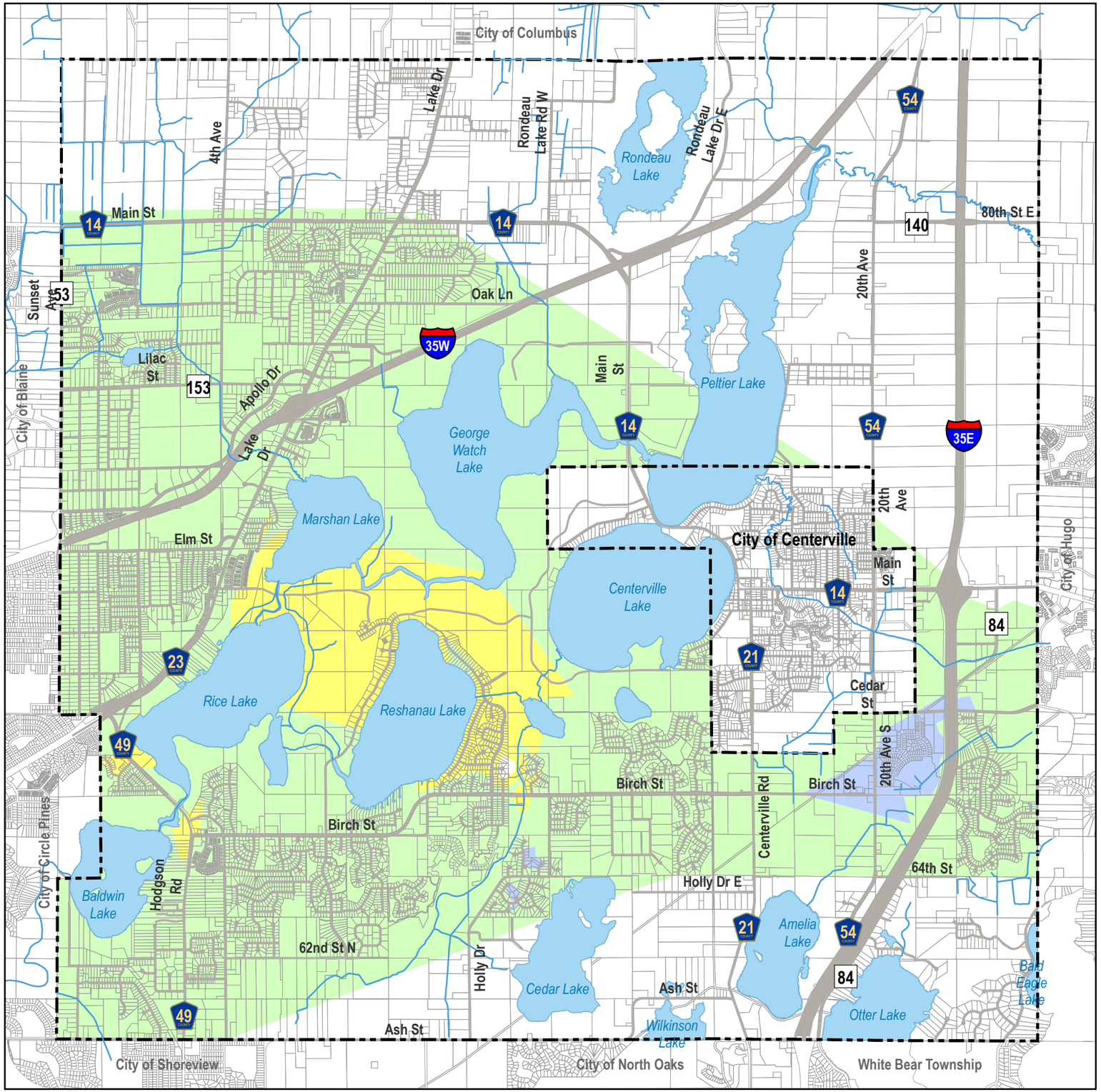
Two pressure scenarios were simulated with WaterCAD for both the existing system model and the full build-out model for the City of Lino Lakes.

The first scenario modeled in WaterCAD simulates the system at steady state serving average day demands. This scenario captures the most typical operating conditions of the system. The results of this simulation indicated that the city's existing system is operating at pressures ranging from 54 psi to 89 psi, with most of the system operating between 60 and 80 psi. Simulation of this first scenario with the water system at full build out results in the future system operating at pressures ranging from 51 to 94 psi. Most of the future system would still be operating between 60 and 80 psi, and the very small region of the city with pressures greater than 90 psi could be addressed by having homeowners install individual pressure reducing valves at their properties. A contour map illustrating the distribution of this range of pressures is shown in Figures 9-12 and 9-13 for the existing and full build out models, respectively.

The second scenario evaluates the system using an extended period simulation (EPS) with the water system at firm capacity serving maximum day demands. These conditions test the system's ability to provide sufficient pressures under stressed conditions of high demand and reduced capacity. Simulation of this second scenario resulted in the city's existing system operating between 45 psi and 87 psi, with most of the system operating between 50 and 60 psi. With the water system at full build out, simulation of this second scenario results in the future system operating at pressures ranging from 43 psi to 90 psi, with most of the system operating between 50 and 70 psi. A contour map that captures the city-wide distribution of this range of pressures during the hour of greatest demand during the EPS simulation is included in Figures 9-14 and 9-15 for the existing and full-build out models, respectively.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-12
# Existing System Pressure
# Normal Operating Conditions




## Legend

**System Pressure**

- 50-60 psi
- 60-70 psi
- 70-80 psi
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

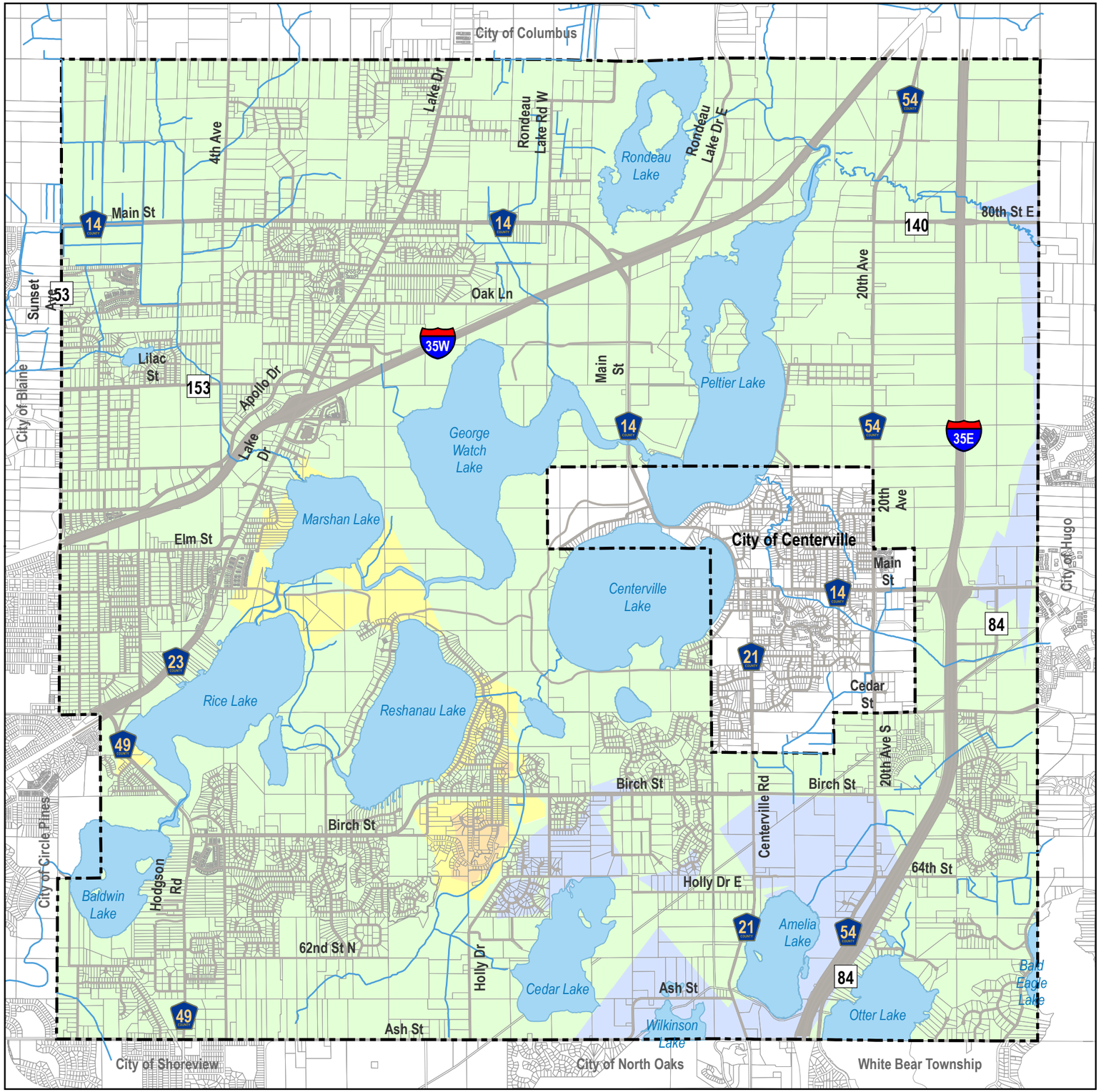
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-13
# Full Build System Pressure
# Normal Operating Conditions




## Legend

**System Pressure**

- 50-60 psi
- 60-70 psi
- 70-80 psi
- 80-90 psi
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

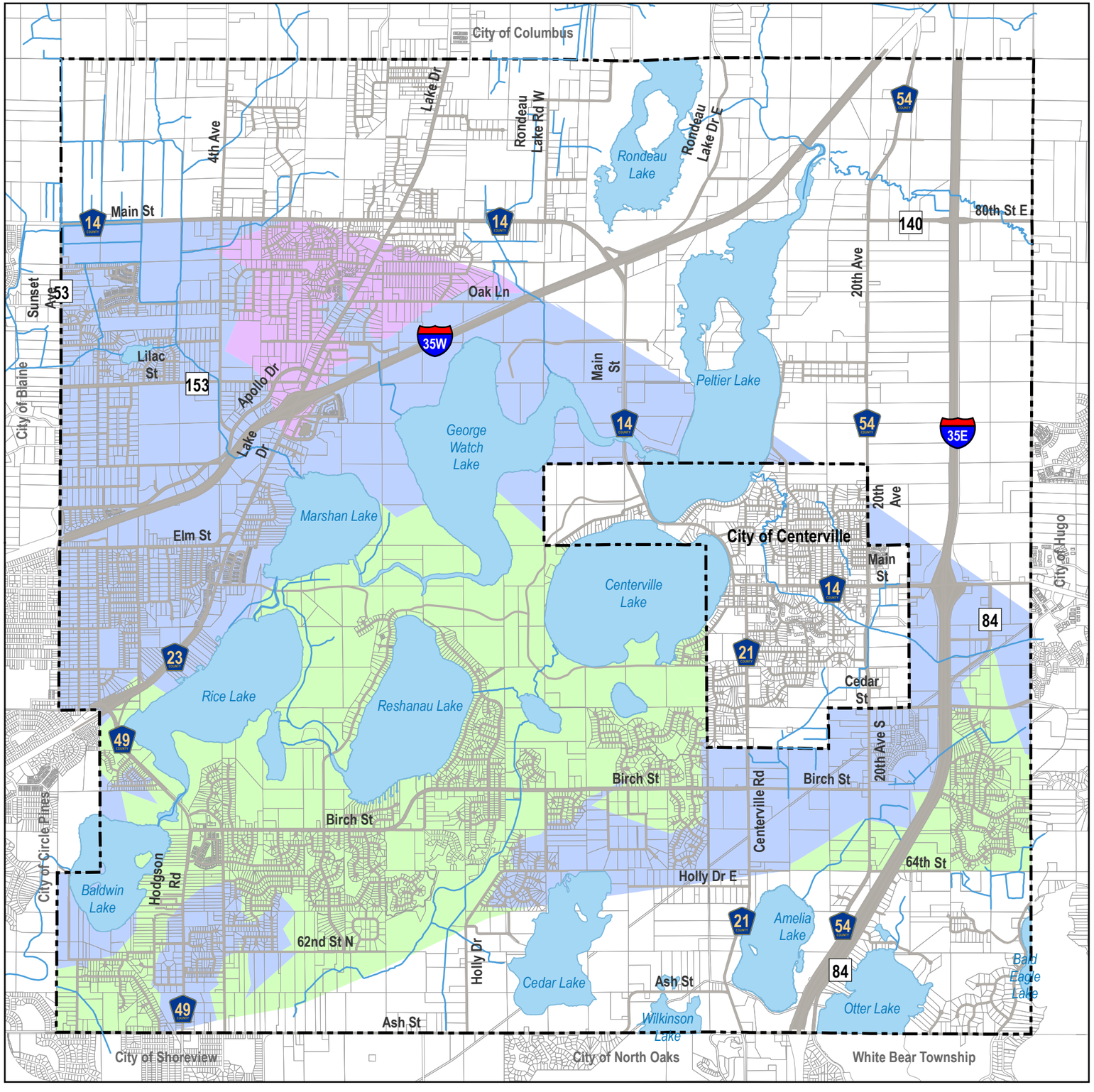
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-14
# Existing System Pressure
# Max Demand and Firm Capacity




## Legend

**System Pressure**

- 40-50 psi
- 50-60 psi
- 60-70 psi
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

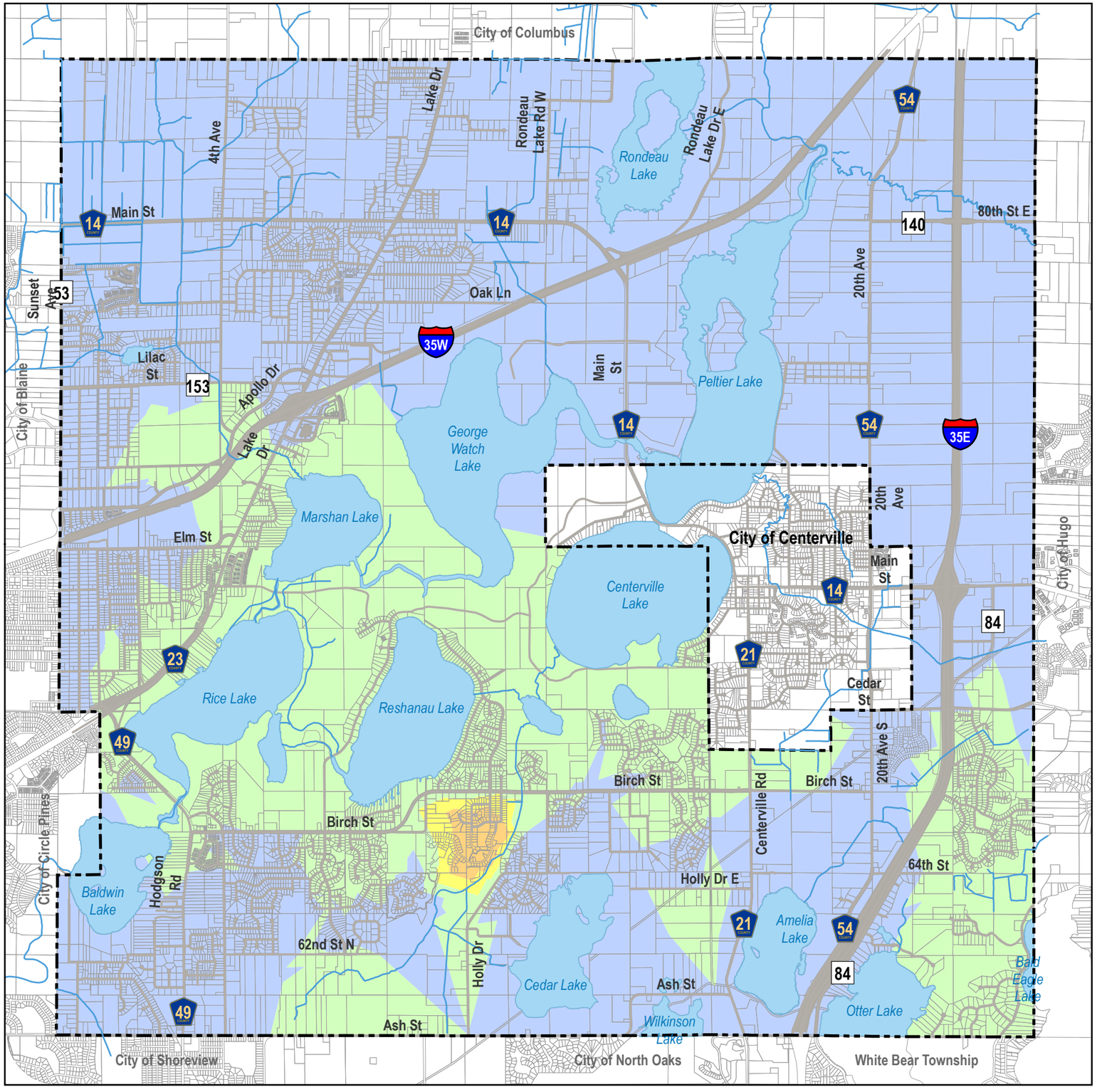
3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-15
# Full Build System Pressure
# Max Demand and Firm Capacity




## Legend

**System Pressure**

- 50-60 psi
- 60-70 psi
- 70-80 psi
- 80-90 psi
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 1/22/2018

## Booster Stations / Pressure Zones

The City of Lino Lakes has two water pressure zones, which are related to the ground elevation across the city as compared to the overflow elevations of the two towers. The main pressure zone covers most of the city that has optimal ground elevations for water pressure. A small area near Well No. 4 and the Clearwater Creek subdivision requires booster stations to maintain adequate pressure for this area. The Clearwater Creek Booster Station was reconstructed in 2013 in the garage of Well Pumphouse No. 4, to provide the Clearwater Creek subdivision with elevated water pressure. The booster station consists of two centrifugal pumps with variable speed drives to maintain a constant elevated system pressure, as detailed in Table 9-11. The station also has provision for a third pump to account for future growth within the subdivision, or expansion of the pressure zone to the west side of I-35E.

**Table 9-11. Existing Booster Pumps**

| Booster Pump No. | Design Boost (psi) | Design Pumping Rate (gpm) |
|---|---|---|
| 1 | 23 | 400 |
| 2 | 23 | 400 |

## Connections to Adjacent Communities (Interconnections)

The City of Lino Lakes' water system is interconnected with the neighboring cities of Centerville, Circle Pines, Hugo, Shoreview, and Blaine. In addition, there exist two interconnections to the Minnesota Correctional Facility water system. These interconnections are important to the reliable operation of a water system, enabling cities to back-up their water supply to safeguard against failure of a well, or an extreme fire event.

Several factors affect the compatibility of system interconnections, including any differences in water quality and hydraulic grade lines (overflow elevations). Combining treated and untreated water can result in instability of the combined water, leading to calcification of watermains and home plumbing systems, chlorine odors (if one chlorinates and the other does not), and possible overall degradation of water quality. A significant difference in hydraulic grade lines between the two communities may limit water flow to only one direction. Tables 9-12 and 9-13 detail each of the interconnections and how they function.

The City of Blaine has a lower HGL than Lino Lakes, likely leading to lower flows and pressures. The interconnection between Shoreview and Lino Lakes mainly benefits Lino Lakes because of the higher elevation of the Shoreview tank as compared to that of the Lino Lakes elevated tanks. This elevation difference makes it difficult for water to move from Lino Lakes to Shoreview. The Hugo, Circle Pines, and Centerville interconnections also provide the city with additional water supply possibilities.

**Table 9-12. Elevated Tank Overflow Elevations of Adjacent Communities**

| City | Water Tower No. 1 (feet) | Water Tower No. 2 (feet) | Water Tower No. 3 (feet) |
|---|---|---|---|
| Blaine | 1,053.37 | 1,053.70 | 1,063.70 |
| Shoreview | 1,092.5 | 1,092.5 | N/A |
| Circle Pines | 1,060 | N/A | N/A |
| Centerville | 1,054.58 | N/A | N/A |
| Hugo | N/A* | 1,055.5 | 1,084.0 |
| Lino Lakes | 1,054.5 | 1,054.5 | N/A |

*City of Hugo Water Tower No. 1 is no longer in use.

**Table 9-13. Connections with Adjacent Communities (Interconnections)**

| City | Interconnection Location | Watermain Diameter | Capacity (GPM/ MGD) | Operation |
|---|---|---|---|---|
| **Hugo (north)** | 2390 East Cedar Street | 10” | 1400/2.02 | Manually (Auto capable) |
| **Hugo (south)** | Main Street & Victor Path | 8” | 1400/2.02 | Manually |
| **Centerville** | 20th Avenue North and West Cedar Street (2000 West Cedar Street) | 8” | 1400/2.02 | Automatically |
| **Shoreview** | Woodridge Lane & Ash Street | 6” | 1400/2.02 | Manually |
| **Circle Pines** | 6697 Sandhill Drive | 8” | 800/1.15 | Manually |
| **Blaine** | Sunset Avenue & Elm Street | 8” | 800/1.15 | Manually |
| **Lino Lakes** | Minnesota Department of Corrections Facility (Interconnection 1 of 2) | 6” | 800/1.15 | Manually |
| **Lino Lakes** | Minnesota Department of Corrections Facility (Interconnection 2 of 2) | 6” | 800/1.15 | Manually |

## Water Storage Facilities

Water storage facilities serve several purposes in a water system, including supplying the capacity to meet peak demands which exceed the capacity of the supply source(s). They also help to maintain constant system pressure, and provide for smooth pumping operation by minimizing the amount of starting and stopping required to keep up with the customers’ demands. Storage facilities are equally important when providing water during emergency conditions such as power outages, supply facility breakdowns, and firefighting needs. The City of Lino Lakes currently has two elevated water storage tanks, one located east of I-35E and south of County Road 14, and the other located north and west of I-35W on Apollo Drive. The tanks are described in Table 9-14.

**Table 9-14. Existing Storage Tanks**

| Tank | Capacity | Overflow Elevation |
|---|---|---|
| **No. 1** | 1,000,000 Gallons | 1054.5 ft |
| **No. 2** | 1,000,000 Gallons | 1054.5 ft |

## System Operation

### SCADA Control System

The City of Lino Lakes has a SCADA (Supervisory Control and Data Acquisition) control system. SCADA systems have become the municipal standard for water systems in recent years. SCADA systems typically consist of a central, computer-based control system that communicates with each "remote" facility (i.e., well, tank, lift station, etc.) through one of several types of telemetry. The radio based telemetry system removes the city's dependence on and cost to lease phone lines. The use of radio SCADA systems can control operations such as starting and stopping equipment, monitoring for intrusion or facility failure, and alarming a failure which could result in a potentially dangerous or costly situation. Additional benefits include data storage, report generation, and trending to establish important operating information for historical, design, and report preparation.

### Backup Power

The city has one 135 Kilo Volt Amperes (KVA) trailer-mounted Caterpillar generator that can be connected to any of the city's six wells. City Hall and the two fire stations have their own emergency generators.

### Unaccounted Water

The Lino Lakes water distribution system unmetered water use is less than 10%. This amount of "un-metered" or "other" water use is well within the confines of what is considered reasonable and no action is required to reduce these levels. Iron and manganese may have an impact on meter registration, and the city has a meter change out program in place to help maintain accurate meter readings.

## System Maintenance

Routine maintenance emphasizes regular service intervals for supply facilities, including exercising of distribution system components; repair of hydrants, distribution mains, and valves; and regular flushing, if warranted. As a water system ages, system maintenance can be expected to increase. A well-conceived preventive maintenance routine will extend the life of the existing facilities, save money, and help maintain reliable service to the City's customers. Most recently, the city reconditioned Tower 1 in 2015. Table 9-15 shows several "major" maintenance items, and typical recurrence intervals.

**Table 9-15: Typical "Major" Maintenance Items**

| Maintenance Item | Typical Frequency |
|---|---|
| Water Distribution System Leak Detection | As needed or biannually |
| Well and Pump Rehabilitation | 5 - 10 years |
| Water Storage Tank Inspection | 5 - 10 years |
| Water Storage Tank Repainting | 15 - 20 years |
| Water Treatment Plant Filter Inspection | 1 - 2 years |
| Water Treatment Plant Rehabilitation | 10 - 20 years |

# Future Water System

## Future Water Demand

Population and peak day water use can be used to determine the peak day per capita water utilization. This parameter is expressed in units of gallons per capita per day (gpcd), and can vary from year to year, becoming larger in drought years and smaller in wet years due to the variation in irrigation and recreational uses. Estimating per capita demands plays an important role in projecting future water system needs, and will determine how large the watermain infrastructure must be, as well as when and where they are required.

When projecting future water use, population and per capita consumption are not the only variables that can influence the magnitude of future demands. Consideration must also be given to changing trends in the amount of commercial and industrial development presently served, as well as their anticipated future requirements. There are no known major water users planning to locate in Lino Lakes at this time. Thus, future commercial and industrial, as well as residential, irrigation, and other water use is assumed to remain consistent with historical patterns.

The City of Lino Lakes is currently experiencing new development and growth. The city's projected population and water demands are listed in Table 9-16. The population projections were linearly extrapolated using Metropolitan Council (MCES) estimates for the years 2020, 2030, and 2040. It is assumed that, as of 2016, any new population growth will be serviced by the municipal water system. The per capita demands were assumed based on the city's historical data and standard MCES values. The maximum day demands were calculated using the average 2010-2015 ratio of peak to average demand of 3.5. By projecting population, and establishing anticipated per capita consumption rates, future water demands were used to plan supply and treatment requirements.

**Table 9-16 – Projected Annual Water Demand**

| Year | Projected Total Population | Projected Population Served | Projected Total Per Capita Water Demand (gpcd) | Projected Average Day Demand (MGD) | Projected Maximum Day Demand (MGD) |
|---|---|---|---|---|---|
| **2017** | 21,300 | 16,200 | 100 | 1.62 | 5.67 |
| **2018** | 21,800 | 16,600 | 100 | 1.66 | 5.81 |
| **2019** | 22,300 | 17,000 | 100 | 1.70 | 5.95 |
| **2020** | 22,800 | 17,300 | 100 | 1.73 | 6.06 |
| **2021** | 23,200 | 17,700 | 100 | 1.77 | 6.20 |
| **2022** | 23,600 | 18,100 | 100 | 1.81 | 6.34 |
| **2023** | 24,000 | 18,500 | 100 | 1.85 | 6.48 |
| **2024** | 24,400 | 18,900 | 100 | 1.89 | 6.62 |
| **2025** | 24,800 | 19,300 | 100 | 1.93 | 6.76 |
| **2030** | 26,900 | 21,300 | 100 | 2.13 | 7.46 |
| **2040** | 31,100 | 26,500 | 100 | 2.65 | 9.28 |
| **2050** | 34,885 | 30,285 | 100 | 3.03 | 10.60 |

gpcd – gallons per capita per day  MGD – Million Gallons per Day

## Water Supply Facilities

It is generally recommended that a city's supply and treatment capacity be equal to at least the maximum day demand with the largest well out of service (firm capacity). The system's existing firm capacity is 4,350 gpm (6.12 MGD). The maximum day demand on the system is projected to exceed that capacity by 2022, so the city should plan to install new Well No. 7 with a pumping capacity of at least 1,000 gpm before 2022. Furthermore, it is recommended that the city install new Well No. 8 before 2032 and new Well No. 9 before 2041, each with a pumping capacity of at least 1,000 gpm. Table 9-17 shows the future firm capacity needed to supply water for a peak day. Per the Ten States Standards, the firm capacity should equal to or exceed the peak day demand.

Figure 9-18 shows potential future well locations for Well No. 7 at Country Lakes Park, for Wells No. 8 and 9 along the existing 16-inch watermain in Birch Street (CSAH 34), and for Wells No. 10, 11, and 12 in the northern portion of the city. The exact locations of these future wells will need to be determined by well siting studies, which will include analyses of bedrock geology and test drilling. A preliminary review of the Anoka County Geologic Atlas Hydrogeologic Cross Sections indicates that the Prairie du Chien - Jordan aquifer is inconsistent in the northern part of the city, and use of the Tunnel City - Wonewoc aquifer may be required in that area. Figure 9-16 displays water supply demand by year and Figure 9-17 displays water supply demand by population through the year 2050. Figures 9-16 and 9-17 also indicate the approximate timing of future well installations.

## Water Treatment Facilities

The city completed a Water Treatment Feasibility Study in 2007. This Study reviewed potential locations, needs, and infrastructure required for a central treatment plant, and the resulting costs.

This plan recommends that the city consider two water treatment plants, one in the southern region of the city (Water Treatment Plant No. 1) and one in the northern region of the city (Water Treatment Plant No. 2). The city is currently considering the future location of Water Treatment Plant No. 1 to be near the future water tower site along Birch Street. The recommended location for Water Treatment Plant No. 2 is within the potential future well field, located in the northern region of the city. Both water treatment facilities would be designed for the removal of iron and manganese. The city would update the feasibility study before designing a water treatment facility.

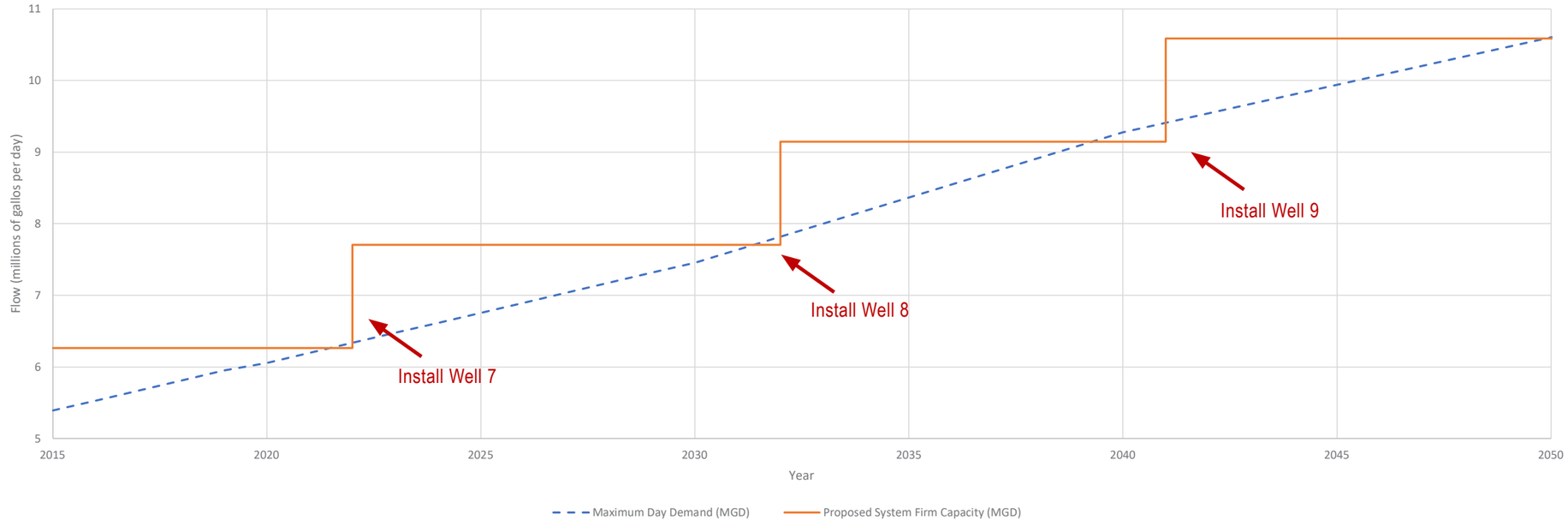
The future construction of the water treatment plants is tentatively scheduled in Table 9-19.

**Table 9-17: Projected Water Production Requirements**

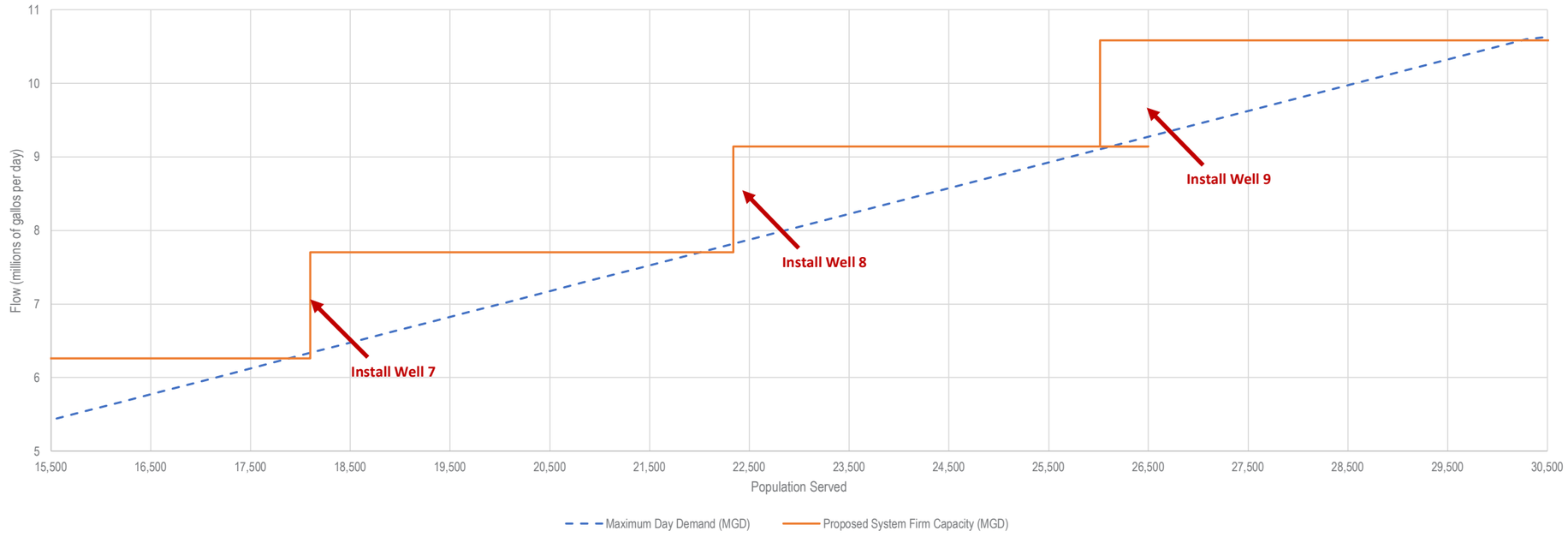
| Year | Existing Firm Capacity (MGD) | Existing Firm Capacity (gpm) | Required Firm Capacity (Est. Peak Day Demand) (gpm) | Additional Capacity Required (gpm) |
|---|---|---|---|---|
| **2016** | 6.26 | 4,350 | 3,840 | -510 |
| **2018** | 6.26 | 4,350 | 4,035 | -315 |
| **2020** | 6.26 | 4,350 | 4,205 | -145 |
| **2022** | 6.26 | 4,350 | 4,399 | 49 |
| **2024** | 6.26 | 4,350 | 4,594 | 244 |
| **2026** | 6.26 | 4,350 | 4,788 | 438 |
| **2028** | 6.26 | 4,350 | 4,983 | 633 |
| **2030** | 6.26 | 4,350 | 5,177 | 827 |
| **2040** | 6.26 | 4,350 | 6,441 | 2091 |
| **2050** | 6.26 | 4,350 | 7,361 | 3,011 |

MGD – Million Gallons per Day  gpm – gallons per minute

## Figure 9-16. Future Water Supply by Year

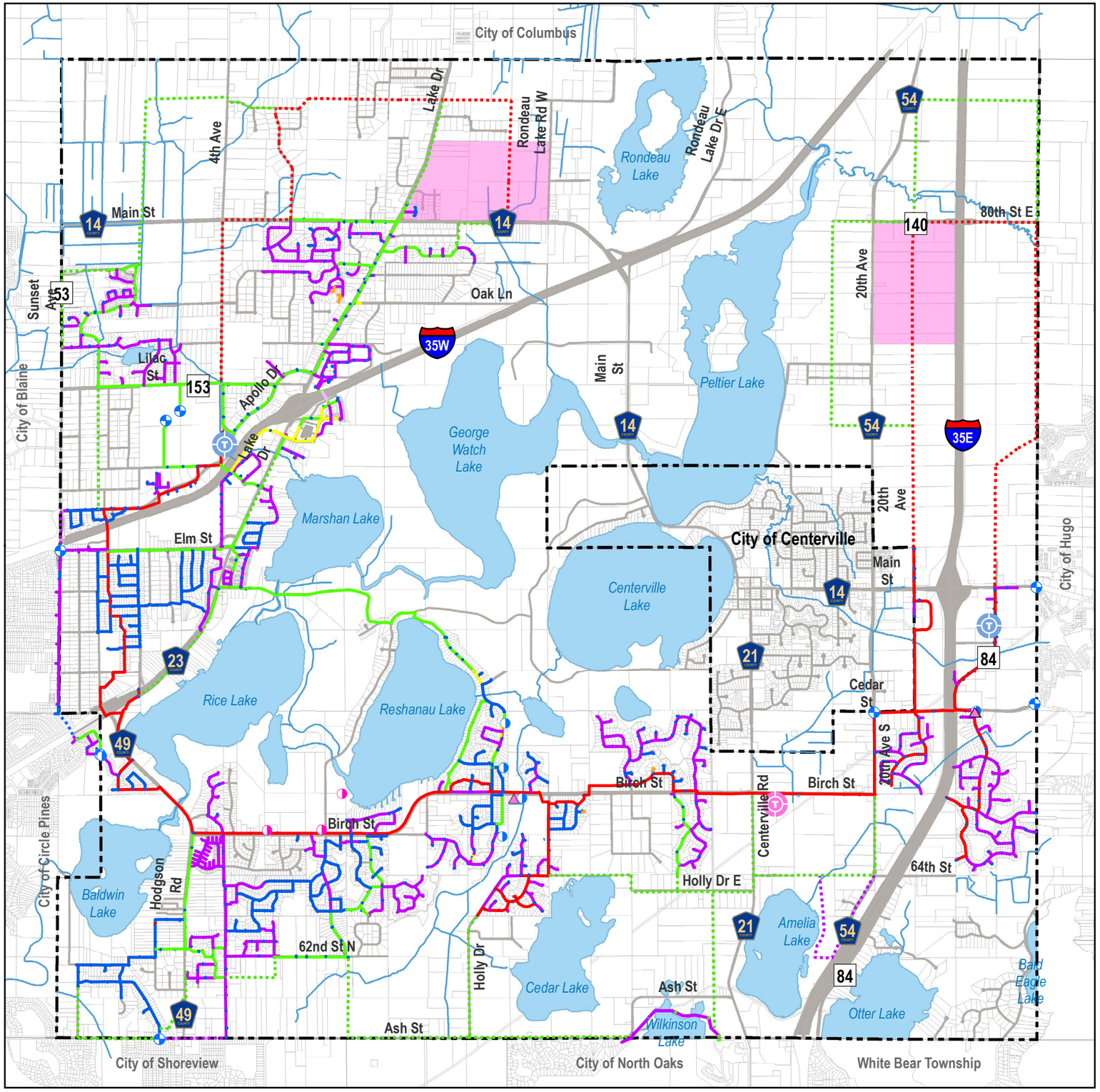



## Figure 9-17. Future Water Supply by Population Served



CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-18
# Full Build Water System




## Legend

- Future Booster Station
- Future Well
- Future Water Tower
- Future Well Field
- Existing Booster Station
- Existing Well
- Existing Water Tower
- Interconnection

**Future Watermain Diameter**

- 6"
- 8"
- 12"
- 16"

**Existing Watermain Diameter**

- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Water Storage Facilities

Pumping facilities are designed to have sufficient firm capacity to supply the peak day demand. The peak day demand is the highest water production day of the year. Although it appears that the peak day rate would establish the minimum system design requirements, the consumption rate follows a diurnal pattern (see Figure 9-4). As a result, there are times during the peak day that the rate of consumption will actually exceed the firm pumping capacity available (i.e., peak hour, peak minute, etc.). Typically, the peak hour can be more than double the peak day rate. At this point, when demand exceeds firm capacity, it becomes necessary to utilize storage capacity to even-out or "equalize" these instantaneous peaks. This prevents the need to provide pumping facilities to pump on-demand to meet the peak hour or peak minute demand, which would be costly and underutilize a large part of the facility capacity.

In 2017, a water storage study was conducted for the City of Lino Lakes that investigated the type, siting, and size of a future water tower. It is recommended that a city's storage capacity be equal to the maximum day demand plus a 3-hour 3,500 gpm firefighting reserve. Table 9-18 establishes peak day equalization plus fire reserve storage capacity for the years 2017, 2020, 2030, 2040, and 2050. Metropolitan Council population projections and projected water use of 100 gallons per capita per day were used for the peak day equalization analysis. Fire storage needs were calculated for a three-hour fire requiring 3,500 gpm.

The calculations in Table 9-18 assume that a 1,000 gpm capacity Well 7 will be installed in 2022, increasing the firm capacity of the system from 4,350 gpm to 5,350 gpm; a 1,000 gpm capacity Well 8 will be installed in 2032, increasing the firm capacity of the system from 5,350 gpm to 6,350 gpm; and a 1,000 gpm capacity Well 9 will be installed in 2041, increasing the firm capacity of the system from 6,350 gpm to 7,350 gpm.

Table 9-18 projects that before the year 2020, the storage capacity required, to both supply maximum day demand and have fire reserve storage, will have exceeded the storage capacity that the city maintains. It is recommended that the city install a new 1.5 MG elevated storage tank soon. There are several potential locations for this storage tank along Birch Street in the central part of the system. This new 1.5 MG elevated storage tank would provide sufficient water storage through 2050.

Figure 9-19 graphically depicts the storage requirements by date, and Figure 9-20 shows storage requirements by population until 2050. Both graphs assume that a 1,000 gpm capacity well is installed in 2022, 2032, and 2041.

### Table 9-18. Equalization and Fire Storage Analysis

| | | 2017 | 2020 | 2030 | 2040 | 2050 |
|---|---|---|---|---|---|---|
| | | 3 Hour Fire | 3 Hour Fire | 3 Hour Fire | 3 Hour Fire | 3 Hour Fire |
| A | Average Daily Water Use in gpd | 1,620,000 | 1,730,000 | 2,130,000 | 2,650,000 | 3,029,000 |
| B | Maximum/Average Day Ratio | 3.50 | 3.50 | 3.50 | 3.50 | 3.50 |
| C | Maximum Day Water Use in gpd (A x B) | 5,670,000 | 6,055,000 | 7,455,000 | 9,275,000 | 10,602,000 |
| D | Maximum Day Water Use in gpm | 3,938 | 4,205 | 5,177 | 6,441 | 7,363 |
| E | Firm Pumping Supply Capacity in gpm | 4,350 | 4,350 | 5,350 | 6,350 | 7,350 |
| F | ISO Design Fire Fighting Rate in gpm | 3,500 | 3,500 | 3,500 | 3,500 | 3,500 |
| G | Fire Fighting Duration in Hours | 3 | 3 | 3 | 3 | 3 |
| H | Design Fire Fighting Volume in gal (F x G x 60min/hour) | 630,000 | 630,000 | 630,000 | 630,000 | 630,000 |
| I | Total Coincident Demand in gpm (D + F) | 7,438 | 7,705 | 8,677 | 9,941 | 10,863 |
| J | Required Draft from Storage in gpm (I - E) | 3,088 | 3,355 | 3,327 | 3,591 | 3,513 |
| K | Adjusted Fire Fighting Storage in gal (G x 60 min/hr x J) | 556,000 | 604,000 | 599,000 | 646,000 | 632,000 |
| L | Equalization Storage in gal/day (C x 25%) | 1,417,500 | 1,513,750 | 1,863,750 | 2,318,750 | 2,650,500 |
| M | Total Storage Need in gal (K + L) | 1,973,500 | 2,117,750 | 2,462,750 | 2,964,750 | 3,282,500 |
| N | Storage Capacity in gal | 2,000,000 | 2,000,000 | 2,000,000 | 2,000,000 | 2,000,000 |
| O | Additional Storage Capacity Needed in gal (M - N) | -26,500 | 117,750 | 462,750 | 964,750 | 1,282,500 |

**Figure 9-19. Future Water Storage by Year**

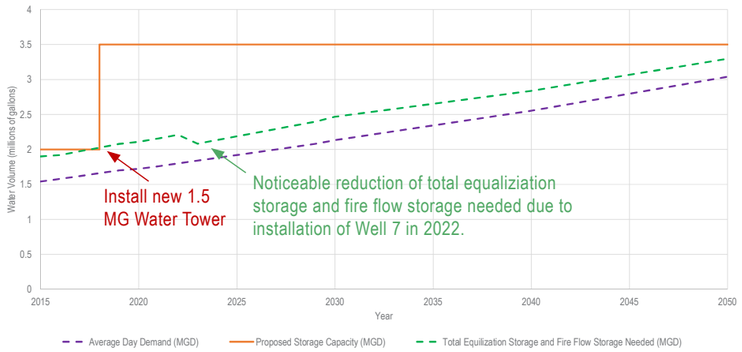
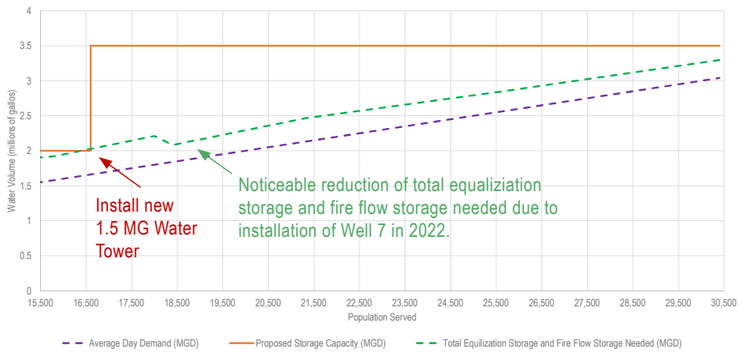



**Figure 9-20. Future Water Storage by Population Served**




## Water Distribution System

The capacity of water distribution facilities cannot be easily or economically increased once they are installed. Therefore, it is necessary that an accurate estimate of the water system capacity at full build out be used to generate future infrastructure needs required to serve the future demand. As a water system is expanded, it is essential that the mains be sized on the basis of future demand, which is calculated using full build out future land use and population projections.

Figure 9-18 shows locations of new trunk watermain in the undeveloped areas of the city. However, these are not the only acceptable locations. The intent is to show general locations and looping required to create redundancy in the system. The actual placement of the watermains should be considered with other utility issues, such as development patterns, roadway locations, and environmental concerns. The remainder of the future watermain can be placed as property develops and as demand for water service dictates. The cost for this watermain can likely be cost-shared with or paid in full by the new development.

The City of Lino Lakes currently maintains eight valuable water interconnections with surrounding cities. As Lino Lakes and the other cities develop the opportunity for additional interconnections may arise, although none have been identified at this time.

A computer model was constructed to simulate the additional demands and determine what added stress is placed on the system by the future demand. As discussed in the Existing Water System and Performance section, the trunk watermain network is not looped. Additional large diameter trunk watermain should be added to the system to strengthen and loop the existing trunk network. Six strengthening projects are recommended between the years 2018 and 2040. Table 9-19 indicates the timing and estimated costs and locations are shown on Figure 9-21. The earliest recommended improvements are directly related to the reliability of the system, where a failure in a single component could significantly impair the ability to transmit water quickly throughout the system in an emergency.

- Lake Drive Trunk Watermain (Park Court to Marshan Lane)
  This project connects the trunk watermain between Park Court and Marshan Lane, removing a dead end in the system. Dead ends can create stagnant water and can accelerate corrosion.
- County Road J & Woodridge Lane Watermain Extension
  This project extends a section of watermain from Woodridge Lane into the parcels located to the east.
- Lake Drive Trunk Watermain (Forsham Lake Drive to Park Court)
  This project connects the trunk watermain in Lake Drive between Forsham Lake Drive and Park Court, increasing looping and allowing for greater fire flow availability.
- Woodridge Lane to Hodgson Road Watermain Loop
  This project connects the previous watermain extension from Woodridge Lane to the existing watermain in Rohavic Lane, increasing looping and allowing for greater fire flow availability.
- Lake Drive Trunk Watermain (2nd Avenue to Ivy Ridge Lane)
  This project connects the dead end along Lake Drive near 7074 Lake Drive to the existing watermain near 2nd Avenue and Lake Drive, removing a dead end in the system. Dead ends can create stagnant water and can accelerate corrosion.
- County Road J & Baldwin Lake Road Trunk Watermain
  This project consists of constructing a 12-inch loop along County Road J and Baldwin Lake Road. Woodridge Estates, located in the southwest corner of the distribution system, is served by approximately 4,000 feet of dead end 6-inch diameter watermain. The project will remove the dead end from the system and help maintain reliable static pressure during periods of high demand.

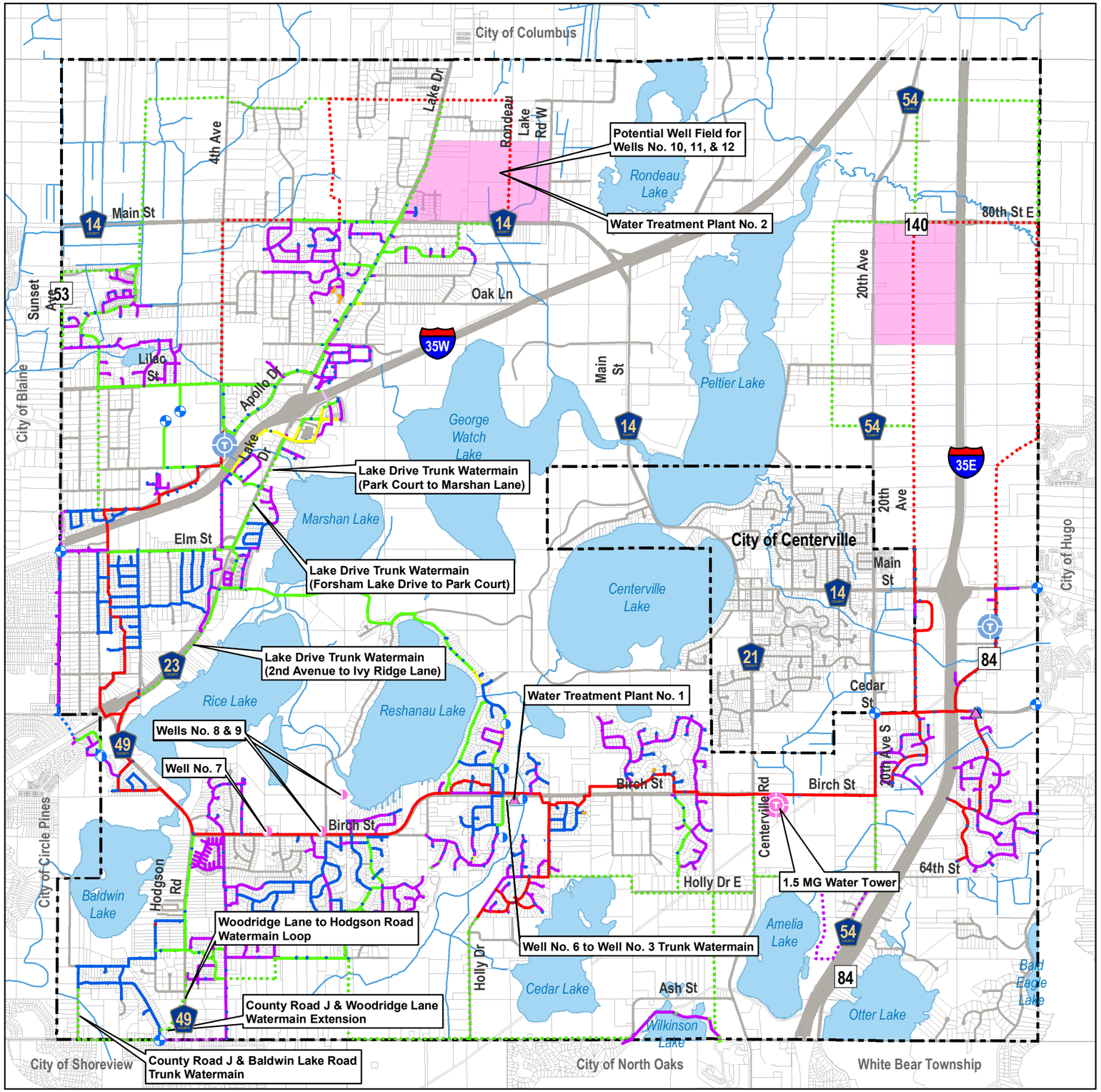
## Summary of Future System Improvements

The City of Lino Lakes' existing water system will need improvements to satisfy projected demand through 2040. Table 9-19 lists the improvements proposed, along with estimated years of implementation and costs. Figure 9-21 shows project locations. A copy of the city's Water Capital Improvement Plan is included in Appendix C.

**Table 9-19. Future System Improvements**

| Item No. | Year(s) | Improvement | Estimated Cost* |
|---|---|---|---|
| 1 | 2018 | Lake Drive Trunk Watermain (Park Court to Marshan Lane) | $170,000 |
| 2 | 2018 | County Road J & Woodridge Lane Watermain Extension | $230,000 |
| 3 | 2018 | Well No. 6 to Well No. 3 Trunk Watermain | $80,000 |
| 4 | 2018-2020 | Construction of 1.5 MG composite Water Tower | $4,069,350 |
| 5 | 2020 | Lake Drive Trunk Watermain (Forsham Lake Drive to Park Court) | $170,000 |
| 6 | 2020 | Woodridge Lane to Hodgson Road Watermain Loop | $850,000 |
| 7 | 2022 | Construction of Well No. 7 with Pumphouse | $880,000 |
| 8 | 2020-2025+ | Raw Watermain from Well No. 2 to Future WTP No. 1, including revision to well pump No. 2 | $1,500,000 |
| 9 | 2020-2025+ | Raw Watermains from Wells No. 1, 3, 5, and 6 to Future WTP No. 1, including revisions to well pumps | $1,575,000 |
| 10 | 2025+ | Construction of Water Treatment Plant No. 1 | $12,000,000 |
| 11 | 2027+ | Lake Drive Trunk Watermain (2nd Avenue to Ivy Ridge Lane) | $627,000 |
| 12 | 2032 | Construction of Well No. 8 with Pumphouse | $900,000 |
| 13 | 2040+ | Construction of Well No. 9 with Pumphouse | $920,000 |
| 14 | 2040+ | Construction of Well No. 10 with Pumphouse | $940,000 |
| 15 | 2040+ | Construction of Well No. 11 with Pumphouse | $960,000 |
| 16 | 2040+ | Construction of Well No. 12 with Pumphouse | $980,000 |
| 17 | 2040+ | Raw Watermains from Wells No. 10, 11, and 12 to Future WTP No. 2 | $1,800,000 |
| 18 | 2040+ | Construction of Water Treatment Plant No. 2 | $12,000,000 |
| 19 | 2040+ | Raw Watermain from Well No. 4 to WTP No. 1 | $1,500,000 |
| 20 | 2040+ | County Road J & Baldwin Lake Road Trunk Watermain | $1,500,000 |

***The prices in the table above are general estimates, and the city must conduct a feasibility study to determine more accurate costs.**




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 9-21
# Future System Improvements

## Legend

- Future Booster Station
- Future Well
- Future Water Tower
- Future Well Field
- Existing Booster Station
- Existing Well
- Existing Water Tower
- Interconnection

**Future Watermain Diameter**

- 6"
- 8"
- 12"
- 16"

**Existing Watermain Diameter**

- 4"
- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels
- Streams

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

# Emergency Preparedness Procedures

Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failures, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan.

## Federal Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, as amended by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188, Title IV – Drinking Water Security and Safety), requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan.

The City of Lino Lakes has a Federal Emergency Response Plan, but has been unable to confirm the date that it was certified. The contacts for this plan are:

Emergency Response Lead: Justin Williams
Phone: 651.982.2452
Email: justin.williams@ci.lino-lakes.mn.us

Alternate Emergency Response Lead: Rick DeGardner
Phone: 651.982.2444
Email: rick.degardner@ci.lino-lakes.mn.us

## Operational Contingency Plan

The state recommends that all utilities develop an operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures, as well as for routine maintenance. A contact list for contractors and suppliers and a water emergency telephone list that act as an Operational Contingency Plan are included in Appendix C.

## Emergency Response Procedures

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and can easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

The City of Lino Lakes maintains records and maps of its water system. City staff can access these resources from a central secured location in the event of an emergency, and appropriate staff know where these resources are located.

## Procedures for Augmenting Water Supplies

In the case of a short-term emergency, the City would need to obtain and distribute bottled water. For a long-term emergency, the City will evaluate the cause of service disruption and will determine if a new water source or improved water treatment is necessary. The scale of the response will depend on the cause of the disruption. In this case, a feasibility study should be conducted to determine how to address the issue in the most cost-effective manner.

## Surface Water Contingency Plan

The City considers Centerville Lake a potential surface water source for its municipal water system. Centerville Lake is part of the Rice Creek Chain of Lakes that is managed by St. Paul Regional Water Services (SPRWS). The lake's water quality and treatment requirements would need to be studied prior to its use as a raw water supply. SPRWS has some historical water quality data for the lake.

# Chapter 10: Parks, Greenways and Trails



## Introduction

Lino Lakes has an impressive history of planning for parks and open space, including the 2004 Parks, Natural Open Space / Greenways and Trail System Plan. That plan was updated in 2011 as part of the 2030 Comprehensive Plan update, and adopted by reference in Chapter 2, the Resource Management System Plan. This chapter of the 2040 Comprehensive Plan brings together and replaces those separate studies with a cohesive plan that reflects the community's long held belief that ongoing development must be in harmony with preserving the innate character of the city. The common vision and goal that has been carried throughout the various comprehensive plans and park plan updates is a continued focus on preserving the natural open space character of the city.

This chapter of the Comprehensive Plan will describe the parks, greenways and trail systems, with open space and natural resource components as applicable. The chapter will be used for:

- Strategic decision making, general policy setting, establishing priorities and budget allocations
- Day-to-day use by staff and those charged with implementing the plan to ensure a high level of consistency in interpretation and action

The following statements provide the key underpinnings of the progressive vision for parks, greenways and trails in Lino Lakes:

- Foster a high quality of life within the context of ecological protection, responsible land stewardship, long-term sustainability, and economic viability.
- Implement a balanced park, trail and greenway system offering multiple community values for a wide range of demographics and user groups.
- Perpetuate an interconnected latticework of natural landscapes, greenways, parks and trails throughout the city.
- Foster the "city as a park" concept, whereby preserved natural areas and parks serve as a primary factor in shaping the character of the community.
- Maintain a high and consistent standard of quality throughout the system.
- Adhere to a planning and design process to ensure consistency in public involvement and outcomes.
- Allow for some flexibility in implementation of the plan to adjust to realistic financial limitations, unforeseen events, and shifts in priorities.

# Goals and Policies

The goals and policies that follow were established in the 2004 Parks, Natural Open Space / Greenways and Trail System Plan and in the 2030 Comprehensive Plan, and reaffirmed as part of the 2040 Comprehensive Plan process.

**Goal 1: Continue development and maintenance of an appropriate balance of active and passive recreational activities to serve the diverse needs of the community for people of all ages and abilities, including, where possible, neighborhood parks, larger multi-use community parks and the Rice Creek Chain of Lakes Park Reserve (Regional Park).**

**Policies:**

a. Continue to pursue the development of a multi-sport recreation complex either on the city-owned property at Birch Street and Centerville Road, or another suitable site.
b. Foster and maintain cooperation between the city and school districts to facilitate joint use of indoor and outdoor facilities for organized and recreational activities.
c. Acquire, reserve, develop and maintain sufficient park and open space land to fulfill the identified and projected needs of the present and future populations.
d. Continue collaboration with the YMCA, Anoka County and similar organizations to provide shared recreational facilities for the entire community.
e. Continue, whenever possible, inclusion of neighborhood parks in future developments and planned redevelopments.
f. Direct and manage activities in an appropriate manner by balancing the use of programming activities in the neighborhood parks.
g. Promote and prioritize park, trail, recreation and open space improvements in accordance with a five-year capital improvement program, updated on an annual basis.
h. Include funding for the development, maintenance and replacement of park and trail amenities in the City of Lino Lakes Capital Improvement Plan.
i. Design, develop and maintain parks with appropriate lighting, landscaping, amenities, etc. to ensure a high degree of public and property safety and improved quality of life.
j. Use citizen participation in the planning, development, and operation of recreational open space.

**Goal 2: Collaborate with Anoka County to guarantee and improve public access of the Rice Creek Chain of Lakes Park Reserve (Regional Park) waterways for recreational use and enjoyment of the community.**

**Policies:**

a. Identify, develop and maintain new public access points to area lakes and waterways so that residents can enjoy these unique recreational opportunities.
b. Ensure the new access points are designed to minimize adverse impacts on lakeshore quality, water quality and adjacent environmental features: i.e. uplands, etc.
c. Utilize the Regional Park as an aesthetic and recreational community amenity while preserving the park's biosystems.

**Goal 3: Develop, maintain and connect the current and proposed trails and greenway systems in the City of Lino Lakes and the Rice Creek Chain of Lakes Park Reserve (Regional Park) in a manner that preserves and sustains the natural environment.**

**Policies:**

a. Preserve the open character of Lino Lakes through the preservation of natural open space and the establishment of greenway corridors.
b. Continue to work with adjacent jurisdictions to achieve interconnectivity among local and regional trails.
c. To the extent possible, require an interconnected trail system to be developed concurrently with the infrastructure of the subdivision or new development.
d. Develop and improve trails and bike routes to coincide with the upgrading of city, county and state roads.
e. Locate trails within or adjacent to greenway corridors, where appropriate, in a manner that minimized disturbance to the natural features of the greenway.
f. Provide safe and convenient pedestrian and bicycle access to all recreational facilities within the community and to destination areas, such as the Regional Park and business districts.
g. Promote greenway planning, of a proper size and configuration, to protect environmentally sensitive areas of the city.

### Goal 4: Identify, protect and preserve the desirable natural areas and ecological and aquatic resources of the community.

**Policies:**

a. Pursue a well-defined natural resource restoration and management plan consistent with the Rice Creek Watershed District (RCWD)/Lino Lakes Resource Management Plan (RMP).
b. Continue to provide natural resource staff and advisory board.
c. Maintain the partnership of Lino Lakes with the RCWD and other groups such as Anoka County to maintain, restore and manage the aquatic and upland areas of the city.
d. Establish and fund programs to maintain or improve current green spaces owned by the city.
e. Where possible, restore damaged or misused natural and ecologically significant areas to their original state.
f. Require natural space buffers, where appropriate, around wetlands to preserve their function and value.
g. Promote biodiversity through the use of native plant materials and other materials where appropriate.
h. Recognize importance of pollinators to the landscape and incorporate pollinator habitat into greenway establishment and restoration efforts.

### Goal 5: To provide city residents with parks, trails, greenways and natural areas for protection of the natural environment, recreational uses, as visual/physical diversions from the hard surfacing of urban development, and as a means to maintain the character, ambiance, appearance and history of the community.

**Policies:**

a. The city shall reserve the right to acquire land within all development areas for park, natural open space, greenways and trail purposes.
b. Parkland dedication policies and ordinances shall be used by the city to require each developer (of all land use categories) to dedicate land, or at the discretion of the city provide a payment in lieu for all or part, for parks, trails, greenways and open space acquisition and development.
c. Parks, natural resource areas and related recreation facilities shall be acquired, developed, maintained and improved upon by the city in accordance with this plan.
d. Alternatives to direct acquisition of property, such as conservation easements, shall be used where appropriate to set aside land for park and open space purposes.
e. Acquisition of specific parcels of land for park uses shall be based on the quality of the land and natural resource, its suitability for the desired uses and its location as defined in this plan.
f. A reasonable effort shall be made to eliminate physical barriers that deter individuals from using existing or future parks and recreation facilities.
g. Design and maintenance of all parks and recreation facilities shall emphasize high quality, user safety and cost accountability, consistent with design standards.
h. The Park Board, Environmental Board, and staff shall review and comment on all planned development matters that impact parkland, natural open space and trail corridor dedication, acquisition and development.

### Goal 6: Identify and work cooperatively with the state and other local government entities to develop approaches for addressing potential ecological challenges and threats that could adversely affect Lino Lakes.

**Policies:**

a. Identify and alert residents of potential ecological challenges and threats that can affect Lino Lakes and the property of residents.
b. Plan and initiate cooperative efforts with the state and other local government entities for programs that address and may manage these threats effectively.
c. Proactively educate the community and its residents of all ages about the specific actions they can or may be asked to take in addressing these threats.
d. Continue to encourage and support programs that measure the effectiveness of Best Management Practices.
e. Support and educate the community on new or developing techniques, methods and tools for dealing with new and existing threats.
f. Implement programs designed to protect trees through disease control and reforestation.
g. Implement strategies for the control of invasive/exotic plant species in parks and greenways.

### Goal 7: Identify important existing natural resources for protection and work cooperatively with developers and landowners to encourage healthy natural resource systems to retain the existing natural character of the community through education.

**Policies:**

a. Encourage the preservation of natural vegetation including plants of oak savannas, prairies, woodlands, wetlands and aquatic vegetation to be a design consideration for new subdivisions.
b. Examine the Lino Lakes landscaping and tree preservation ordinances to determine the need for additional requirements.
c. Require proper soil preparation for new developments to ensure deep rooting of new landscaping and minimal irrigation.
d. Promote the use of native grasses, forbs, shrubs and trees in development site restoration.
e. Discourage the use of introduced plant species that are known or could become invasive or destructive to native plant and animal habitats.
f. Discourage the use of herbicides, pesticides and phosphorous fertilizers on lawns to prevent runoff to wetland areas and provide alternative environmentally friendly measures for pest and weed control.

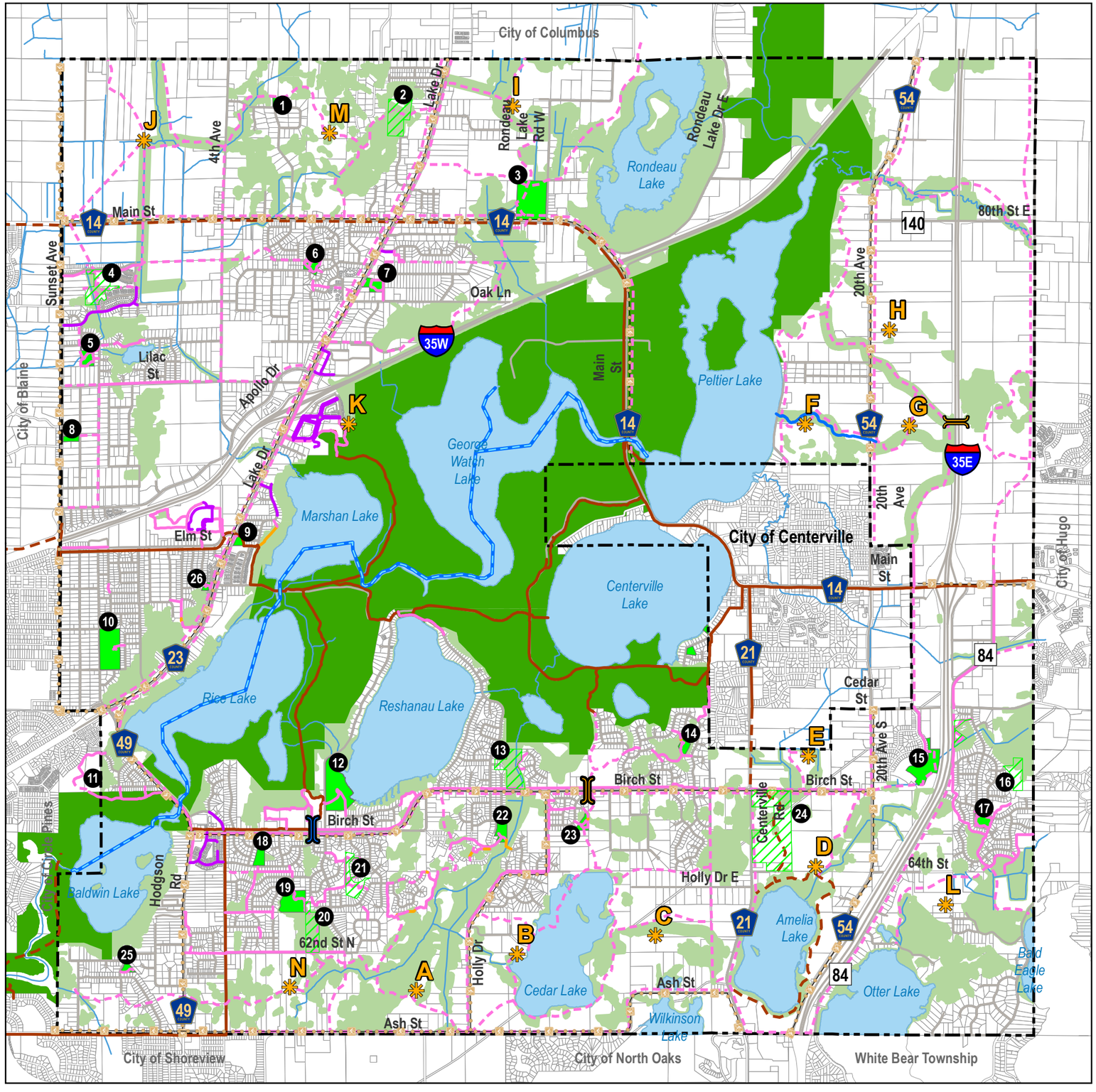
## Park System Plan

The park system plan serves a wide variety of active and passive recreational needs. This section describes the park system, with trails and greenways considered in a subsequent section. All parts of the system are highly interconnected, as the creation of an interconnected latticework of natural landscapes, greenways, parks and trails throughout the city is the defining theme for the park, greenway and trail system plan.

Figure 10-1, the 2040 Parks, Greenways & Trail System map, shows the location and name of each park within the system and the general areas where new parks will be needed as development occurs. The park system plan is based on current and anticipated needs of residents. Lino Lakes is a dynamic community with a growing and changing population and therefore, the park system plan must remain dynamic to accommodate changes in trends and resident expectations.

CITY OF LINO LAKES 2040 COMP PLAN

# Figure 10-1
# Parks, Greenways & Trail System




## Legend

- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel/Bridge
- Water Trail
- NE Drainage Outlet
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalk Trail
- Proposed Trails
- Proposed On-Street Route
- Existing Regional Trail
- Proposed Regional Trail
- Greenway System
- Undeveloped Park
- City Parks
- Regional Parks
- Open Water
- Municipal Boundary
- Parcels
- Streams

| | | |
|---|---|---|
| 1 Arena Acres Park | 10 Sunrise Park | 19 Birchwood Acres |
| 2 Wollan Park | 11 Rice Lake Estates | 20 West Shadow Ponds O/S |
| 3 City Hall Park | 12 Country Lakes Park | 21 Reshanau Lake Estates O/S |
| 4 Century Farm North | 13 Quail Ridge Property | 22 Birch Park |
| 5 Behm's Park | 14 Pheasants Hill Park | 23 Brandywood Park |
| 6 Highland Meadow Park | 15 North Pointe Park | 24 Recreation Complex |
| 7 Lino Park | 16 Clearwater Creek O/S | 25 Woods of Baldwin Park |
| 8 Sunset Oaks Park | 17 Clearwater Creek Park | 26 Wenzel Famrs Park |
| 9 Marshan Park | 18 Shenandoah Park | |

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

## Park Classifications

Although the system plan is based on the concept of a borderless system of parks and greenways, there is still a need to classify parks to ensure a well-balanced system. The parks within the system fall under classifications that define:

- General criteria for the acreage and character of the land needed for a given purpose
- Appropriate recreational uses
- Desirable level of development and programming

Lino Lakes' park classifications are based on those used in the previous plans and also take into consideration the guidelines recommended in the National Parks, Recreation, Open Space and Greenways Guidelines published by the National Recreation and Parks Association. Table 10-1 provides an overview of the classifications used for the Lino Lakes system.

**Table 10-1: Park Classifications**

| Classification | General Description | Size and Service Area Criteria | Lino Lakes |
|---|---|---|---|
| **Neighborhood Park** | Neighborhood parks are the basic unit of the park system. Serves as the recreational and social focus of the neighborhood. Focus is on informal active and passive recreation. | Typically five acres or more, eight to 10 acres preferred, with three acres the desired minimum size. Service area is ¼ to ½ mile uninterrupted by major roads and other physical barriers. | 14 – Existing<br>14 – Planned |
| **Community Park** | Serves broader purpose than neighborhood parks. Focus is on meeting community-based recreational needs, as well as preserving unique landscapes and open spaces. | Varies, depending on function. Minimum 20 acres preferred, with 40 or more acres optimal. Service area can be community-wide or several neighborhoods in given area of the city. | 3 – Existing<br>0 – Planned |
| **Regional Park / Park Reserve** | Regional parks and open spaces with a natural resource preservation and larger acreage focus. | Varies. | Rice Creek Chain of Lakes Park Reserve |
| **Recreation Complex** | Consolidates programmed recreational athletic fields and associated facilities to fewer strategically located sites within the community. Tournament level facilities are typical. These types of parks can also provide neighborhood-use functions. | Varies, with 20 acres or more desirable, but not absolute; 40 to 80 acres is optimal. | 0 – Existing<br>1 – Planned |
| **Special Use** | Covers a broad range of parks and recreation facilities oriented toward single-purpose use, such as a nature center, historic sites, plazas, aquatics facility, etc. | Varies. | 0 – Existing city parks; special use facilities are located in the Rice Creek Chain of Lakes Park Reserve<br>0 – Planned |
| **School Sites** | School sites or a combined park-school site to be used in conjunction with, or in lieu of, other classes of parks, such as neighborhood, community, recreation complex, and special use. | Varies. | 3 – Existing campus sites<br>0 – Planned |
| **Private Recreation Facility** | Park and recreation facilities that are privately owned, yet contribute to the public park and recreation system. | Varies. | YMCA |
| **Open Space** | Undeveloped open space focusing on natural resource preservation. | Varies. Determined by natural resource. | 2 – Existing<br>6 – Planned |

The following table summarizes the existing city-owned parks in Lino Lakes, their current park classification and existing recreational amenities.

**Table 10-2. Existing Lino Lakes City Parks**

| Name | Size (Acres) | Type | Playground | Basketball/ Hardcourt | Tennis/ Pickleball | Soccer/ Football | Softball/ Baseball | Open Lawn | Picnic Shelter | Picnic Spaces | Ice Rink/ Pleasure Rink | Park Building/ Warming House | Trails | Parking | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arena Acres | 1 | Neighborhood | X | Half-court | | | | | | | | | | | |
| Behm's | 6.1 | Neighborhood | X | Half-court | | | | X | X | | | | X | | |
| Birch Park | 5.5 | Neighborhood | X | | | | 1 | | X | X | X | X | X | X | |
| Birchwood Acres | 18.4 | Neighborhood | X | | | | 1 | X | | X | | | X | | |
| Brandywood | 3.5 | Neighborhood | X | | | | | X | | | | | X | | |
| Century Farms N. | 8 | Neighborhood | | | | | | | | | | | | | |
| City Hall | 24 | Community | X | Pad only | | | 2 | | | | X | X | X | X | Public Works |
| Clearwater Creek | 5.5 | Neighborhood | X | Half-court | | | | X | X | | | | X | | |
| Country Lakes | 22 | Community | | | | | | X | | X | | | X | X | Adjacent to lake |
| Highland Meadows | 4 | Neighborhood | X | Half-court | | | | X | X | X | | | X | | |
| Lino | 7.5 | Neighborhood | X | | | Soccer | | X | X | | | | X | X | |
| Marshan | 5 | Neighborhood | X | | | Soccer (small) | | X | | | | X | X | X | |
| NorthPointe | 5 | Neighborhood | X | Half-court | Pickleball | | | X | X | X | | | X | | |
| Pheasant Hills | 3 | Neighborhood | X | Half-court | | | | X | | | | | X | | |
| Quail Ridge | 6 | Neighborhood/ Open Space | | | | | | | | | | | | | Wetlands |
| Shenandoah | 8 | Neighborhood | X | | | | | X | | | | | | | |
| Sunrise | 20 | Community | X | | | X | 4 | X | 2 | X | 2 | X | X | X | Storage buildings |
| Sunset Oaks | 2.1 | Neighborhood | X | | | | | | | | | | X | | |
| Wenzel Farms | 1 | Neighborhood | X | Mini-court | | | | | | X | | | X | | |
| Woods of Baldwin Lake | 3 | Neighborhood | X | | | | | X | | X | | | X | | |
| Woolan's | 18 | Open Space | | | | | | | | | | | Informal | | Wetland banking |

## Neighborhood Parks

Neighborhood parks serve the recreational needs of individual neighborhoods within the city. These parks bring people together to recreate and socialize close to home. Providing a balanced set of amenities that appeal to a broad range of individuals is important to meeting contemporary park needs and new recreational trends. Active, non-programmed recreation remains the mainstay of neighborhood parks.

The specific design of neighborhood parks responds to the needs of the neighborhoods where they are located. Typically, five acres or more of upland are preferred for suitable recreational development, though this can vary. The general palette of amenities typically found within this class of park includes, but is not limited to, the following:

- Playground area for multiple age groups
- Trail loop internal to the park, with connection to community trail system and local streets
- Open maintained green space for informal use (two to three acres optimal)
- Basketball half-court and/or pickleball court
- Hardcourt area for hopscotch, four-square, etc.
- General site amenities – benches, picnic tables, trash containers, security lighting, etc.
- Picnic shelter
- Aesthetic improvements and architectural elements – arbor structure, ornamental fencing, etc.
- Ornamental landscaping near active use areas
- Natural landscaping and natural stormwater infiltration
- Parking – on limited, on-demand only basis

The key criteria for determining the location of new neighborhood parks include:

- Service area radius up to a half-mile
- Property characteristics suitable for park purposes
- Connection to neighborhoods via the trail and greenway system
- Trails that work in concert with the greenway system and that minimize potential environmental impacts
- Location of major roads and other physical barriers that limit the service area, such as extensive wetlands or lake systems

These criteria have been used for determining the location of the more recently-acquired parks and to identify search areas for new parks. In spite of any limitations associated with the location of some parks, the overall system plan is reasonably balanced at the neighborhood park level. Any imbalances that may remain have been or can be largely mitigated through good park design and interconnections with other parks through the emerging trail and greenway system.

Since the 2030 Comprehensive Plan was prepared, new and proposed neighborhood parks have been added to the park system plan, including:

- NorthPointe Park. This newly developed neighborhood park is located along a planned trail and greenway corridor. This park was identified on previous maps as a park search area.
- Century Farms North Park. The name of the park has not been officially determined. This land was added to the park system, but it is shown on the plan as a proposed park as it is currently undeveloped. This park was identified on previous maps as a park search area.

As illustrated on Figure 10-1, there are several neighborhood park search areas where new parks will be needed as development occurs. Note that the locations for these parks are general and do not represent a specific parcel of land. Their actual location will be based on the specific developments that the park serves and how the park ties into the trail and greenway system. In addition, the search areas assume a medium to high density residential development scenario. If the area remains rural or develops at a low density, there may be far less or no justification for a neighborhood park if the service area population would be insufficient to support it.

Desirable property characteristics for future parks include:

- A location central to the surrounding service area and linked to the trail and greenway system
- Physical characteristics appropriate for active and passive use, including adequate developable upland to accommodate typical neighborhood park amenities, ranging from active open space to play areas and trails
- Aesthetic characteristics such as a natural landscape with mature trees and quality natural vegetation, and interesting (but not excessive) topography for relief and character

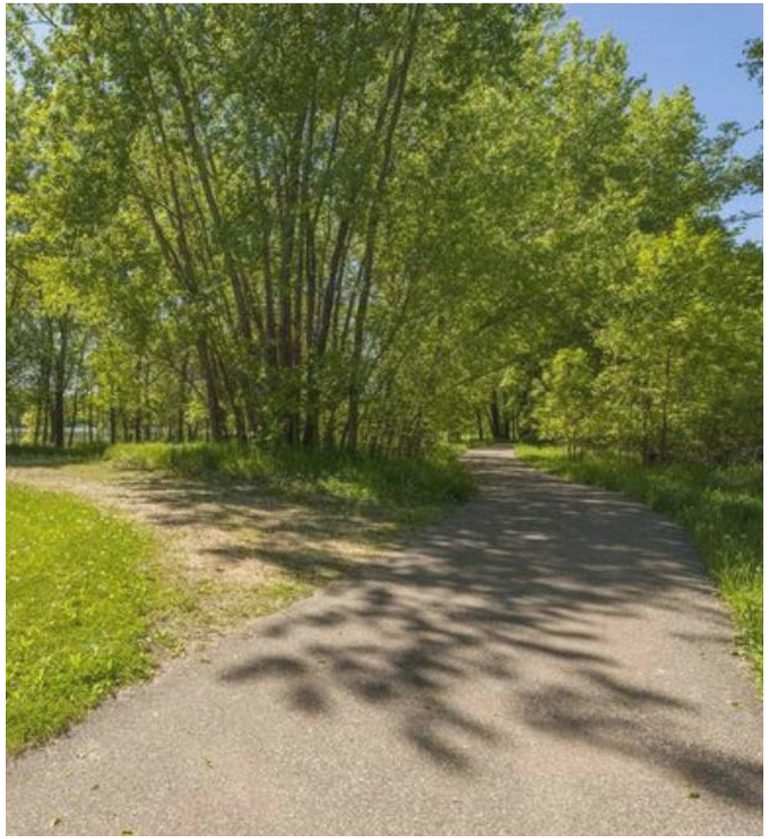
Although natural amenities are desirable, land that cannot be developed for active or passive park purposes (i.e., trails, overlooks, sitting areas) should not be included in the acreage calculation for a neighborhood park. Such areas include designated wetlands. non-upland protected areas, storm water treatment ponds and infiltration basins. Protected areas should be integrated into the larger greenway system to create complementary open space. Where feasible, the greenway system should directly abut the neighborhood park to create a contiguous park setting.

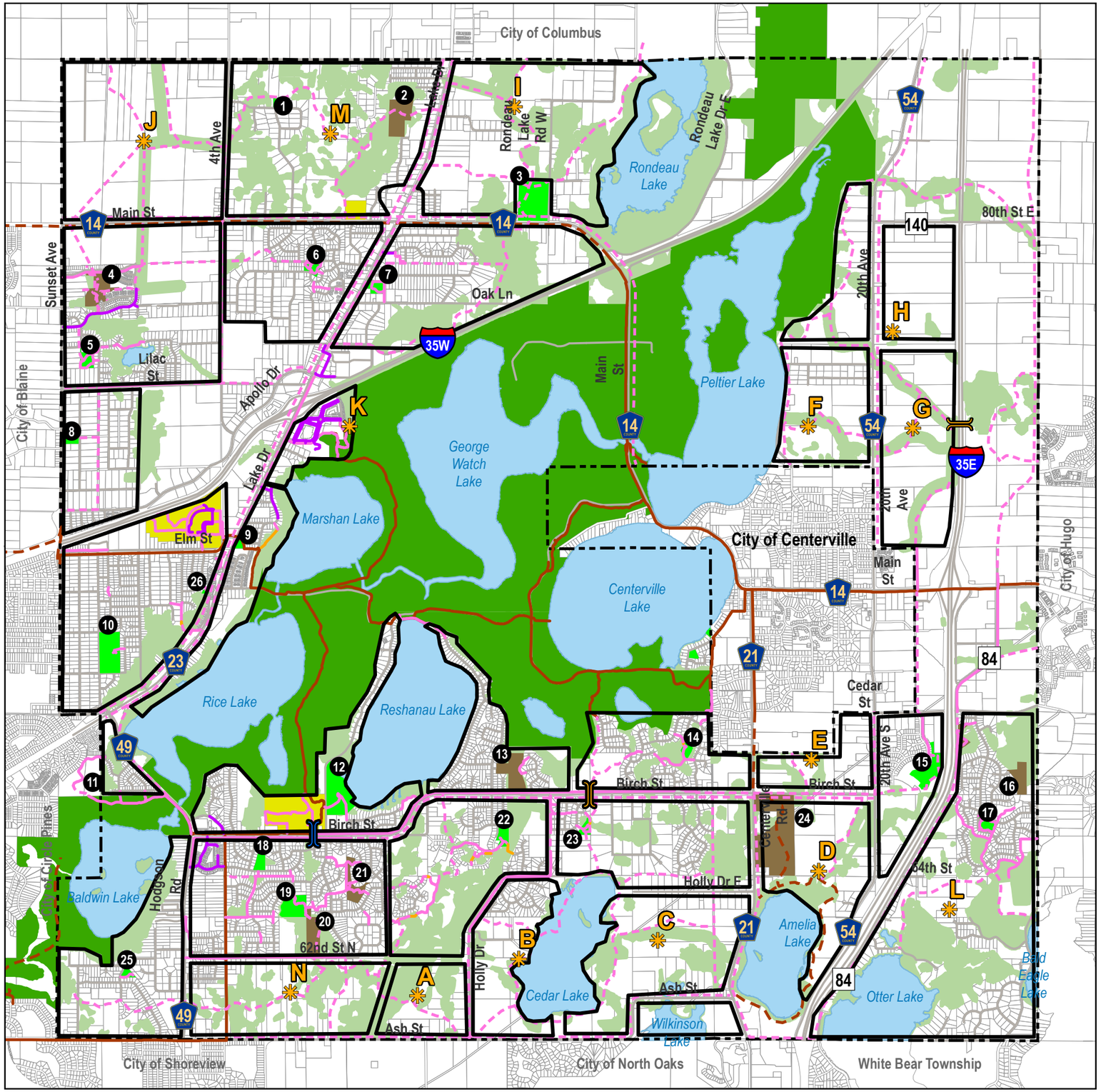
Neighborhood parks are linked to the greenway-based trail system to provide the conduit for pedestrians to get to the park in a safe and appealing manner. The greenway-based trails also expand the park experience itself, whereby the neighborhood park becomes less of a defined space and more of a linear park experience. The effect of connecting neighborhood parks with the trails and greenway system is that the spacing between individual parks can often be greater than traditional standards suggest. The system plan is based on this principle, with the greenway system playing a significant role in determining the number and location of future neighborhood parks necessary to meet community demands. Should the greenway system substantially change or not materialize the distribution of the accompanying neighborhood parks would need to be reconsidered.

The interconnection of parks through the greenway-based trail system is of particular importance to the success of the park system. This is especially the case with neighborhood parks, where safe and appealing access to them is critical to their use levels. Lacking these trail connections, any inequity in park distribution will become more apparent to the user because the parks will be harder to get to from within a given residential neighborhood. The less convenient the access, the less use parks are likely to receive. In addition, most of the neighborhood parks are on the smaller side, with only limited green space outside the active use areas. Because of this, the greenway system becomes an important open space component that significantly enhances the neighborhood park system.

Park search area locations are based on a park service area of up to a half-mile radius, uninterrupted by major physical barriers. Figure 10-2, the Park Service Areas Map, illustrates the half-mile service area for existing parks. As shown by the map, there are locations within the City of Lino Lakes that lack adequate access to existing or future park and recreational areas, though they do have access to park and recreational amenities either from school sites or parks located outside of Lino Lakes. The locations serviced by outside park and recreational areas include:

- Lino Lakes neighborhood southwest of Hodgson Road on the north side of Baldwin Lake. This neighborhood is serviced by Baldwin Park in Circle Pines.
- Lino Lakes neighborhood just west of proposed Park A, bounded by Ash Street on the south, Hodgson Road on the west and an existing wetland by Park A. Though Ash Street is a barrier, there is trail access to the adjacent Bucher Park in Shoreview with a pedestrian street crossing. If this neighborhood undergoes redevelopment in the future, the city should ensure adequate trail connection to Park A over the wetland, as well as to Birchwood Acres Park to the north, or the city may choose to consider an additional neighborhood park in this general location.
- Lino Lakes neighborhood in southeast corner located between Otter Lake and Bald Eagle Lake. This neighborhood currently has access to the adjacent Bald Eagle-Otter Lake Regional Park and it also has a double tennis court owned by the neighborhood association.






CITY OF LINO LAKES 2040 COMP PLAN

# Figure 10-2
# Neighborhood Service Areas

## Legend

- Future Neighborhood Park Search Area's
- Existing Tunnel
- Proposed Tunnel/Bridge
- Existing Asphalt
- Existing Concrete Trail
- Existing Boardwalk Trail
- Proposed Trails
- Existing Regional Trail
- Proposed Regional Trail
- Greenway System
- Undeveloped Park City Property
- City Parks
- Regional Parks
- School
- Neighborhood Park Service Area
- Open Water
- Municipal Boundary

| | | |
|---|---|---|
| 1 Arena Acres Park | 10 Sunrise Park | 19 Birchwood Acres |
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| 9 Marshan Park | 18 Shenandoah Park | |

3,500 1,750 0 3,500 Feet

N

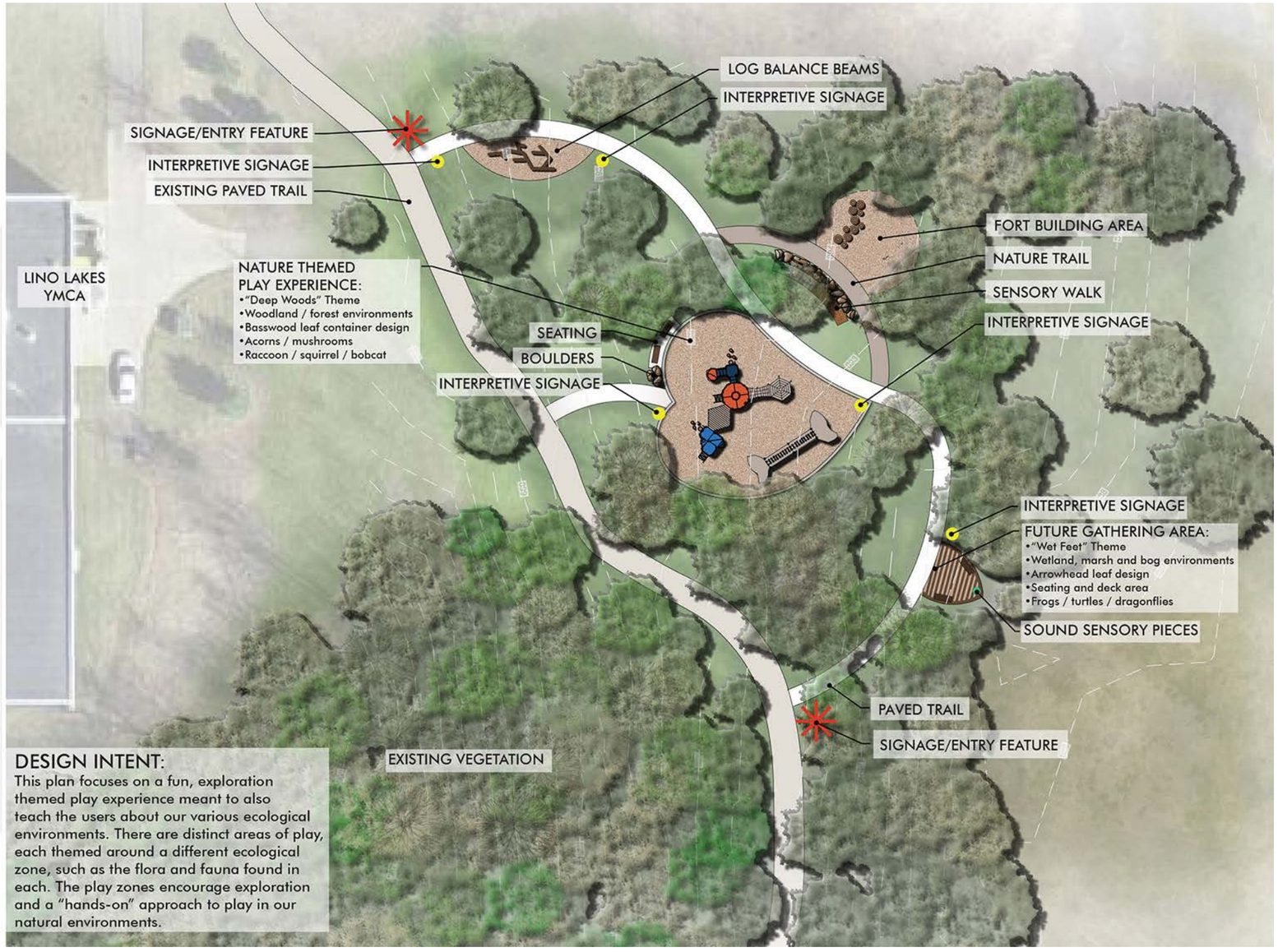
Date: 11/9/2020 **10-10**

The plan identifies 11 future neighborhood park search areas (labeled A – N on Figure 10-1 Parks, Greenways and Trail Systems Map). The following list describes each area where a new neighborhood park could be developed, if residential densities create the need.

- Neighborhood Park Area A – serves the south-central part of the city, in conjunction with Birchwood Acres Park and Neighborhood Park Area B. The linear trail system linking these parks together and to the neighborhoods is critical to meeting local park needs. Locating the park adjacent to the adjoining protected area would enhance its aesthetic appeal and open space value.
- Neighborhood Park Area B – serves the south-central area of the city, in conjunction with Birch Park, Brandywood Park, and Neighborhood Park Areas A and C. Locating the park adjacent to the adjoining protected area and water body would enhance its aesthetic appeal and open space value.
- Neighborhood Park Area C – serves the south-central area of the city, in conjunction with Brandywood Park and Neighborhood Park Area B. Lacking any significant natural area feature, the final location of this park depends on how it fits into the development plan and ties in with the trail corridor. Creating a compelling aesthetic character will be a key challenge.
- Neighborhood Park Areas D – serves the southeast area of the city, in conjunction with Brandywood and NorthPointe Parks and should take into consideration the potential development of the recreational complex facility in close proximity. Connecting the park to the linear trail corridor remains important to its success and amenities should be complementary.
- Neighborhood Park Area E – this site serves an isolated area on the edge of Centerville. If possible, site E should be integrated into a greenway-based linear trail coming out of Centerville and connecting to the potential future recreation complex facility. There is also the potential to work jointly with Centerville on parks in this area, thus avoiding some duplication.
- Neighborhood Park Area F – this site serves the central to north eastern side of Lino Lakes in conjunction with Park G. If possible, site F should be integrated along a greenway-based trail and depending on final development plans, could be developed on an existing upland area around the Northeast Area drainage outlet.
- Neighborhood Park Area G – Watermark Park development; this park is intended to serve the low density mixed residential area east of 20th Avenue and north of Main Street. A master plan has been developed for the future implementation of this proposed park.



- Neighborhood Park Area H – this site serves the northeast area of the city, assuming that the area is developed for residential uses. This site is the most speculative and will require additional review to ensure consistency with any land use changes that might occur. If possible, locating this park along a greenway is preferred.
- Neighborhood Park Area I – serves the north-central area of the city, in conjunction with City Hall Park. The linear trail system is important to linking these parks together and to future residential neighborhoods.
- Neighborhood Park Area J – serves the northwest area of the city, in conjunction with Arena Acres Park. The development of this park is important to the residents of this area as Arena Acres is very small in size and major roads cut off this portion of the city from other more developed parks. The linear trail system is vital to linking these parks together and to future residential neighborhoods.
- Neighborhood Park Area K – Woods Edge Park development; this park is planned to be developed as part of the Legacy at Woods Edge development and will be located within the regional park. A preliminary master plan was completed in 2017 identifying a neighborhood children's playground and natural play experience that fits appropriately within the natural wooded areas.
- Neighborhood Park Area L – this site serves the southeastern section of Lino Lakes in conjunction with Clearwater Creek Park and Bald Eagle – Otter Lake Regional Park.
- Neighborhood Park Area M – this site serves the northwestern section of Lino Lakes in conjunction with Arena Acres Park and school sites. A master Plan should be prepared to avoid over duplication of amenities available at Arena Acres and school sites.
- Neighborhood Park Area N – this site serves the south central section of Lino Lakes currently a large natural resource area with little population. If development occurs, this area will be in need of access to park and recreational amenities. Proposed greenway trails can link this neighborhood area and future park to numerous nearby parks, such as Birchwood Acres.



## Community Parks

Community parks serve a broader purpose than neighborhood parks. Their focus is on meeting community-based recreational needs, as well as preserving unique landscapes and open spaces. The general palette of amenities typically found within this class of park includes amenities common to a neighborhood park but at a larger scale, with more community-based facilities including, but not limited to, the following:

- Group picnic facilities
- Looped trail systems
- Open space (passive and active use)
- Athletic facilities (formal and informal)
- Tennis courts, full size basketball courts, pickleball court complex, etc.
- Open maintained green space
- Winter activities, such as ice skating, sledding, and skiing
- Special use features, such as swimming beaches, skate parks, etc.

In Lino Lakes, the Rice Creek Chain of Lakes Park Reserve provides many of the amenities and open spaces typically found within a community park, and much more. The city greenway system also contributes substantially to addressing passive open space needs most often associated with community parks. These features of the city's park system substantially offset the need to provide community-level parks at the local level.

Currently, Country Lakes Park, City Hall Park and Sunrise Park are considered community parks. No additional community parks are proposed under the system plan at this time, though the future recreational complex may also be considered a community park.

## Regional Parks

The 5,500-acre Rice Creek Chain of Lakes Park Reserve, administered by Anoka County Parks, is the epicenter and cornerstone of the city's greenway and open space system. It complements the city's system and adds considerably to the open space character of the community. The Park Reserve contains some of the most significant native wildlife habitat in the metropolitan area. The park also contains a swimming beach, picnic areas, boat launch facilities and paved bike trails that link with trails in the cities of Lino Lakes and Centerville. The Wargo Nature Center is also located within the park. Specific amenities within the Park Reserve include:

- 70-unit Rice Creek Campground with electric and water hookups
- Picnic area with a new 150-person capacity picnic shelter
- Swimming beach on Centerville Lake
- Wargo Nature Center
- 18-hole Chomonix Golf Course and driving range
- Miles of paved biking trails and natural surface hiking trails
- Proposed mountain bike trails
- Fishing pier on Peltier Lake
- Two canoe launches and two boat launches
- Two playgrounds
- Native prairie sites
- Geocaching
- Cross-country ski trails (groomed), with rental and concessions at the golf clubhouse
- Day camp opportunities through the YMCA Day Camp Heritage
- Compost site

Historically, the City of Lino Lakes and Anoka County have had a collaborative relationship, meeting public demand for recreational facilities and addressing ecological stewardship priorities. It is expected (and essential) that this relationship continues, especially with respect to planning trail connections and expanding ecological stewardship programs.

## Recreation Complex

Consolidating recreation facilities with programmed athletic fields to strategic locations within the city is desirable to take advantage of programming efficiencies and economies of scale. A recreation complex also allows for a closer association between players, parents and coaches when at scheduled events and can accommodate tournaments that can contribute to the local economy. Larger and fewer sites also provide greater conveniences, like parking, restrooms and concessions, and the capacity to generate revenue to offset operational and maintenance costs.

Staying on top of the demand for a recreation complex is critical given the limited capacity to expand programmed use of existing parks. Lacking space and facilities, new demands will simply go unmet. The city and school district are already facing some programming limitations. The lack of flexible capacity to absorb additional demand is a potentially limiting factor in expanding recreational programs. There is simply no place in most of the existing parks for a program activity to occur. This underscores the need to build some reserve capacity into the system.

Ultimately, it will be up to residents to determine the best course of action – which means either limiting programming or expanding the system. Although support for developing new facilities has not yet manifested, the demand for athletic fields has continued to grow with community development and this need is becoming more apparent.

The city has some land reserved in the city parcel located at Birch Street and Centerville Road which has been planned for a recreational complex containing athletic fields, but the plan will need to be updated over time. The city used part of this parcel for a new fire station, which has consumed some of the land previously planned for soccer fields. The city is encouraged to continue to reserve adequate space for a future recreational complex for athletic fields.

## Special Use and Other

The city currently does not have any park or recreational space that falls under a special use category, though the regional park reserve provides many amenities that fill the current special recreational use needs of the community. The city currently does not have an off-leash dog park area or a skate park.

Although public demand for developing dog parks is growing in the region, it has not manifested itself at a level to justify action in the near term. Should demand increase, providing this type of facility would likely be pursued through a partnership with Anoka County Parks.

A previous skate park was removed due to vandalism. Incorporation of a new skate park facility would likely need funding partners due to the high

cost of these types of facilities. To reduce the propensity for vandalism, skate parks need to be located in highly visible areas for safety and security reasons and not directly adjacent to residential sites, due to the noise. It is also highly recommended to avoid a "minimalist" approach to skate parks. With an appealing facility design, the user groups will tend to be more satisfied and take ownership of the facility, thereby reducing vandalism. If the recreational complex is implemented in the future, that location may provide an appropriate setting if sited and designed properly. Skate parks can also be located adjacent to police stations or other high use civic areas. There is an existing skate area in LaMotte Park in Centerville.

## School Sites & Private Facilities

Park-school sites offer joint-use opportunities between the city and school district. As illustrated on the system map, there are three active school sites that fall under this classification within Lino Lakes, two of which are in the Centennial School District and one within the Forest Lake School District. Taking full advantage of these partnerships will be important if recreational needs are to be met. This is especially the case with athletic fields, where the school district facilities are essential to meeting community needs. Development of a recreation complex would benefit the school districts city recreation programming and athletic associations. Currently there are no active joint-use agreements in place between the City of Lino Lakes and the school districts. The following describes each of the park-school sites.

Rice Lake Elementary School (Centennial ISD 12) Provides a variety of indoor and outdoor facilities on 15-acre site. Outdoor facilities include:

- Playground
- Ball field with ag-lime infield (280' outfield fence with 45' baseline)
- Ball field with ag-lime infield (no fence or bases)
- Ball field with ag-lime infield (280' left field, 290' center, and 285' right outfield fence with 65'baseline)
- Soccer field (110 yards x 55 yards)
- Soccer field (100 yards x 50 yards)
- Looped trail

Centennial Middle School & Blue Heron Elementary School (Centennial ISD 12) Provides a variety of indoor and outdoor facilities on 27-acre site. Outdoor facilities include:

- Ball field with grass and ag-lime infield (320' left and right and 370' center outfield fence with 90' baseline)
- Ball field with ag-lime infield (280' outfield fence)
- Two ball fields with ag-lime infield (300' outfield fence with 65' baseline)
- Football/soccer field (120 yards x 55 yards) '
- Football/soccer field (80 yards)
- Two football/soccer fields (110 yards x 55 yards)

Lino Lakes Elementary School (Forest Lake ISD 831) Outdoor facilities that are available at this site include:

- Three ball fields
- Playground
- Basketball court
- Two soccer fields

The City of Lino Lakes and school districts should work towards a mutually beneficial joint-use agreement that would define programming and responsibility for operating, maintaining and improvement for the outdoor recreation facilities at the Centennial Middle School (except tennis courts and track), Rice Lake Elementary School, Blue Heron Elementary School and Lino Lakes Elementary School. The agreements would be renewed on an annual basis unless either party provides written notice at least 30 days prior to January 1 of each year. Joint-use agreements for facilities are important to ensure that all parties understand the terms of the relationship. These partnerships are also important for planning and implementation of future outdoor recreational facilities that would benefit both the city and the school districts.

## Open Space

The park system includes land classified as "Open Space". Some open space areas are labeled as "wetland banks" on the Parks Greenways & Trail System Map (Figure 10-1). Additional wetland banks or other open space land may be added to the system as opportunities arise to protect valuable natural resources. (A map depicting existing and potential wetland bank areas is included in Chapter 2, Community Background (Figure 2-5.)) Open space parks may have some potential to be developed as neighborhood parks in the future. However, they will likely remain as open space due to their natural resource characteristics. Open space parks are an important part of the greenway system and help maintain the open space character of the community.

## Park Evaluations

This section evaluates each of the city's existing parks, documenting existing development, age, condition, accessibility and design, and discussing future development and redevelopment consideration. The information will help the city prioritize and budget for new or replacement park amenities. Cost estimates are current for 2018 and are based on developing and maintaining each park at its optimum condition.

## Arena Acres Park

**Address:** 519 Andall Street
**Classification:** Neighborhood Park
**Size:** 1 acre
**Description:** This small neighborhood park is located within the northwestern portion of Lino Lakes that was initially developed in 1999. The park is very functionally designed with the double tennis courts adjacent to the street and a small outdated playground hidden behind the courts with no trail access. It has great potential to be a more appealing neighborhood park through improved design with improved accessibility. Existing development includes:

- Playground
- Basketball half court
- Double tennis courts (recently taken out of commission due to poor condition)
- Seating arbor

**Development Considerations:** A master plan should explore ways to redesign the park to be more aesthetic while still accommodating appropriate uses. Connection to the proposed greenway-based trail in this area is also an important consideration. Suggested improvements include:

- Determine if any tennis courts should be replaced here or if there is a more appropriate location for these amenities. Some residents in the area did indicate this is currently their only park within walking distance and enjoy the court space, but the courts may be better suited elsewhere.
- Provide trail access to all key amenities within the park and link to larger trail system when it is developed.
- Improve aesthetics to create a more appealing park setting.
- New playground equipment.

New half-basketball court when needed

### Cost Estimates

New Development Costs: $5,000 for bituminous trail.

Replacement Costs: $75,000 to $100,000 for replacement of existing amenities and basketball half court. Additional $90,000 for new tennis court, if desired, though not recommended for this site.





## Behm's Park

**Address:** 7699 Mustang Lane
**Classification:** Neighborhood Park
**Size:** 6.1 acres
**Description:** This park developed in 1999 is largely surrounded by residential properties and a large section of woods that was retained during development, with only a small section of the park abutting the street corner with a trail access. Another trail easement to the street is located between two residential lots. The trail from the corner provides a great entrance sequence into the heart of the park, with the trail winding through mature vegetation until the view opens to the internal park areas. A loop trail extends around the park periphery through a recently restored native vegetation area and around the main activity areas of the park with an open lawn space. Existing development includes:

- Playground
- Loop trail
- Shelter
- Basketball half-court
- Open lawn

**Development Considerations:** Ongoing maintenance and replacement of amenities as needed are the main considerations for this park currently with improvements to overall accessibility a priority. Suggested future improvements include:

- Replace playground equipment
- Make playground area accessible
- Trail connections to the playground and court

### Cost Estimates

New Development Costs: $5,000 for concrete walk to playground container and court.
Replacement Costs: $75,000 for new playground equipment & surfacing, when needed.



## Birch Park

**Address:** 6520 Pheasant Run South
**Classification:** Neighborhood Park
**Size:** 5.5 acres
**Description:** The park developed in 1990 has many wonderful qualities and offers both passive and active recreation opportunities surrounded by a variety of natural spaces, including woods, prairie and wetland. A boardwalk provides a needed connection across a low area to the adjacent residences. The park is lacking proper accessibility in some areas.
Existing development includes:

- Separated playgrounds with pea gravel – one container has trail access
- Picnic shelter / picnic areas
- Ball field
- Hockey rink & general skating
- Warming house
- Paved parking lot
- Boardwalk
- Bituminous trail

**Development Considerations:** The park has nice facilities and a wide array of uses, though some additional improvements can also be made to enhance the existing uses and appearance. Suggested improvements in the near term include:

- New playground equipment
- Trail access to all amenities (ballfield, warming house, playgrounds)
- Improve lot HC parking stall with proper stall, access aisle and curb cut

Future considerations include:

- Internal loop trail – also consider rerouting the trail around the shelter, rather than through it
- Trail connections to the west when street is implemented
- Paved rink for multi-season use and consider reorienting rink if paved, as the current orientation is poor for ice conditions
- Improve access for skating area to reduce stress on turf which gives the park a poor appearance. If the rink were reoriented, use of the trails for access may help solve some of these issues

### Cost Estimates

New Development Costs: $200,000 to $220,000 for trails and paved rink.

Replacement Costs: $75,000 to $100,000 for replacement of existing amenities and accessibility improvements to parking lot.



## Birchwood Acres Park

**Address:** 572 Lonesome Pine Trail
**Classification:** Neighborhood Park
**Size:** 18.4 acres
**Description:** The park developed in 1996 has pockets of developed recreational spaces that are separated by natural areas and its location behind residential areas gives it a very private feel. It is not evident from the street that a park even exists. The developed areas could use some added character, as it feels very basic in places. Existing development includes:

- Playground with pea gravel
- Bituminous trails
- Ball field
- Open lawn

**Development Considerations:** There are future plans to potentially expand the park to the south with additional trails through the wetland with connection to other trails. Existing access to the park is along various trails from cul-de-sac locations and better identification and orientation for users would be beneficial. The playground area is very linear and in need of replacement Adjacent to the playground is an open turf space used for informal field use. Added amenities in this area, such as an arbor or shelter, would help enhance its use and character. To the north of this space is the larger open ball field that has a small backstop and players benches and allows for a soccer field overlay. Suggested improvements include:

- New playground equipment
- New backstop
- Park signage at entrance points
- Trail maps
- Connect the two trails at the Fox Road cul-de-sac location
- Shelter or arbor seating area
- Added landscape for screening along some of the ballfield/residential lot edges
- Picnic areas beneath the in the SW corner of the ballfield

### Cost Estimates

New Development Costs: $50,000 to $75,000 for trail connection, maps/signs, and shelter. Unknown for future trails and boardwalks to the south, if desired.

Replacement Costs: $100,000 to $150,000 for replacement of existing amenities.



## Brandywood Park

**Address:** 1300 Velvetleaf Lane
**Classification:** Neighborhood Park
**Size:** 3.5 acres
**Description:** This is a neighborhood park developed in 1992 that is tucked back behind residential areas and completely surrounded by mature, natural environments. It has a couple of trail connections out to the streets, but otherwise is very hidden and private. Once inside the main area of the park the nearby homes are hard to even see. Existing development includes:

- Playground
- Loop bituminous trail
- Open lawn

**Development Considerations:** The park is developed to the optimal level given its size and location within the neighborhood. There may be concerns with safety or park activities without sufficient sight lines or proper access in and there are no accessible routes to the park interior. Suggested improvements include:

- New playground equipment
- Trail connection to the playground and access point
- Small park identification sign at each trail location entering the park
- Ongoing maintenance of natural resources – especially removal of buckthorn to keep some more open views for safety within the park and to protect natural resources
- Depending on feasibility, one accessible trail route to the park interior

### Cost Estimates

New Development Costs: $5,000 for park signs

Replacement Costs: $150,000 to $200,000 for replacement of existing amenities, which may vary based upon feasibility of making an accessible trail connection.



## Century Farms North Park (unofficial name)

**Address:** 80 Robinson Drive
**Classification:** Neighborhood Park
**Size:** 8 acres (4 acres contiguous)
**Description:** This is a newly acquired neighborhood park parcel that is currently undeveloped.
**Development Considerations:** The park should be developed to provide necessary neighborhood level recreational amenities but should have a complementary experience to other neighborhood parks within this section of the city to be more unique. A master plan should be prepared to identify the needs and desires of the surrounding neighborhoods prior to development.

### Cost Estimates

New Development Costs: Until a master plan determines the extent of improvements and the types of amenities that should be included, preliminary costs cannot be estimated. Based on similar neighborhood park developments, costs could range from $400,000 to $600,000.
Replacement Costs: $0



## City Hall Park

**Address:** 1189 Main Street
**Classification:** Community Park
**Size:** 24 acres
**Description:** This site was the previous location of the Lino Lakes City Hall and currently still contains city maintenance facilities. The park amenities are mainly athletic based with an older playground with pea gravel surfacing, which is not accessible. The vehicular and pedestrian circulation needs improvement and the park is not inviting. The ballfields do not have the best orientation for play and the hockey rink is not properly oriented. Existing development includes:

- Gravel parking lot
- Paved parking lots
- Hockey rink
- Warming house
- Two ball fields
- Playground with pea gravel
- Bituminous pad

**Development Considerations:** Overall this site is in need of complete redevelopment for an improved recreational experience and to make better use of the space. It is recommended that a master plan be prepared for the entire site to create safer circulation patterns, with reduced or limited access off of Main Street and separate park access and uses from maintenance access and uses with clear separation of pedestrian trails. Improvements should be sure to provide proper accessibility to new amenities. Suggested improvements include:

- New ballfields or soccer fields
- New rink / skating area if desired by the community
- New playground – community sized
- Group picnic shelter(s)
- Court space (determine if tennis courts or other courts are appropriate)
- New parking and access
- Screening
- Trails (determine best/safest crossing over Main Street for future trail route)

### Cost Estimates

Until a master plan determines the extent of improvements and the types of amenities that should be included, preliminary costs cannot be estimated. Based on suggested amenities, these types of improvements could range from $1 to $2 million.





## Clearwater Creek Park

**Address:** 2270 Tart Lake Road
**Classification:** Neighborhood Park
**Size:** 5.5 acres
**Description:** This park was developed in 2002 and is still in good condition and the court was recently repainted. The existing vegetation is still relatively young and does not yet provide much shade. A loop trail runs around a large interior green space with numerous pedestrian access locations to the greater trail systems. Existing development includes:

- Playground
- Loop bituminous trails
- Picnic shelter
- Basketball half-court
- Open lawn

**Development Considerations:** Ongoing maintenance and replacement of amenities as needed are the main considerations for this park site with some minimal improvements needed to improve accessibility. Suggested improvements include:

- New playground surfacing
- Additional landscaping / trees

### Cost Estimates

New Development Costs: $0
Replacement Costs: $6,000 to $12,000 for improvements to this park



## Country Lakes Park

**Address:** 6600 West Shadow Lake Drive
**Classification:** Community Park
**Size:** 22 acres
**Description:** Passive use is the primary focus of this natural resource based park located along Reshanau Lake. The entrance consists of a gravel parking area that overlooks an informal lawn space surrounded by mature trees. An asphalt trail provides a neighborhood connection through the site from an existing neighborhood and to the adjacent Rice Lake Elementary School site The park has waterfront access with excellent viewing areas of the lake. At one time the park once had a popular swimming beach with light poles still in place. Existing development includes:

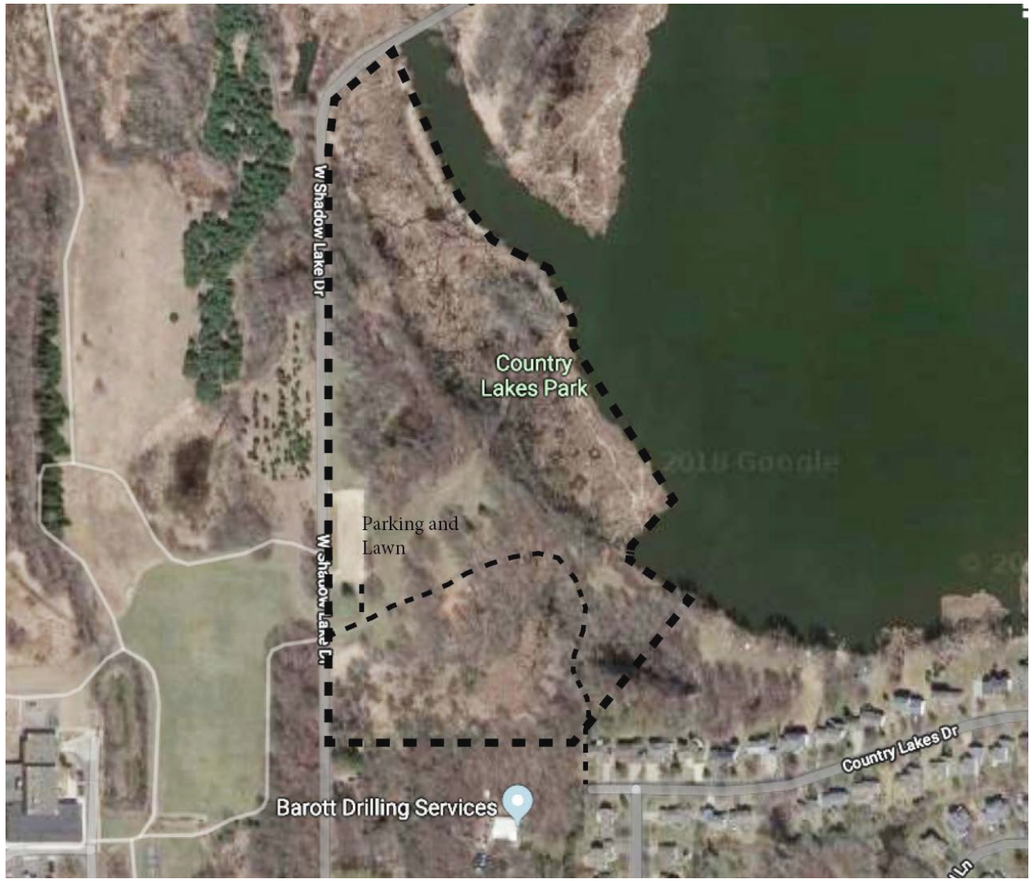
- Picnic areas
- Bituminous trails
- Open lawn
- Gravel parking lot

**Development Considerations:** The park needs to take better advantage of the waterfront access and views, as well as provide the visitor with useful information regarding site amenities within the park. The park is scheduled to have undesirable vegetation selectively removed which will drastically alter the appearance of the park, along with 2018 road improvements for West Shadow Lake Drive. An updated master plan should define the mix of amenities best suited for the park as well as address alterations to park access from the road improvements. Potential development opportunities include:

- Paved parking lot
- Educational information (coordinate with watershed and/or Rice Lake Elementary School
- Improved water access and pier
- Improved picnic spaces and related amenities
- Unique play experience

### Cost Estimates

Until a master plan determines the extent of improvements and the types of amenities that should be included, preliminary costs cannot be estimated. Based on suggested amenities, these types of improvements could range from $500,000 to $800,000.






## Highland Meadows Park

**Address:** 624 Arlo Lane
**Classification:** Neighborhood Park
**Size:** 4 acres
**Description:** This park was developed in 2003. The playground is tucked into a natural hillside area which is very aesthetic and it has a large green lawn in the center with some natural areas surrounding the site, some which have young trees that are not providing much screening yet from adjacent residential areas. It also has handicap accessibility and seating areas. The trail creates a couple of loops and extends around the site, has varying topography, provides accessibility to the park components, and defines the maintained areas from the natural areas. Existing development includes:

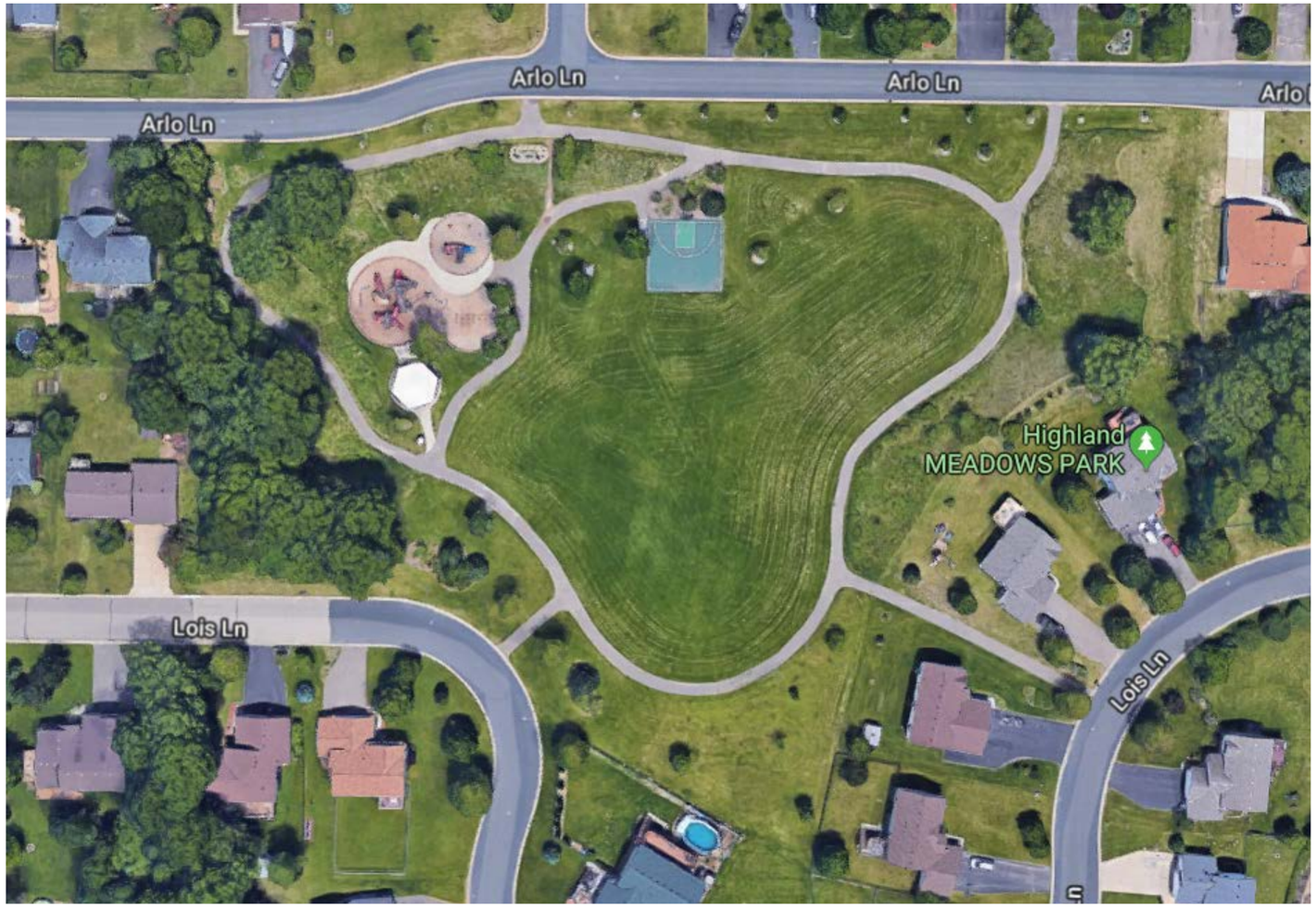
- Playground
- Loop bituminous trails
- Picnic shelter
- Basketball half court
- Picnic areas
- Open lawn

**Development Considerations:** Ongoing maintenance and replacement of amenities as needed are the main considerations for this park site as needed. Suggested improvements include:

- Additional trees along perimeter
- Irrigation shed

### Cost Estimates

New Development Costs: $0
Replacement Costs: $10,000 to $15,000 for improvements to this park



## Lino Park

**Address:** 7850 Lake Drive
**Classification:** Neighborhood Park
**Size:** 7.5 acres
**Description:** The entrance of the park off of Lake Drive is very unappealing and noisy with a large parking lot separated from the park by a chain-link fence and large overhead utility lines. The entrance sign planting bed provides some nice aesthetics. Many park amenities are in need of replacement. The interior of the park is much more pleasing and contains a large turf space used a lot by soccer groups which is surrounded by a more recent loop asphalt trail that has wetlands and mature natural spaces as a backdrop.

- Playground
- Loop bituminous trail
- Lawn space / soccer
- Book bin
- Picnic shelter
- Bituminous parking lot

**Development Considerations:** A master plan was prepared in 2007 which should be re-evaluated to ensure it meets current needs and desires prior to making improvements and should consider park expansion on the NE portion of the site along the trail. The 2007 master plan moved the playground more internal to the park where it was quieter, downsized the parking lot and added in a court space. The trails have been added to the site since the creation of the master plan. Suggested improvements include:

- New playground (potential relocation)
- Improved or relocated parking lot
- Basketball half-court
- New group picnic shelter
- Nature trails

### Cost Estimates

New Development Costs: Until an updated master plan determines the extent of improvements and the types of amenities that should be included with potential park expansion, preliminary costs cannot be estimated.
Replacement Costs: $200,000 to $250,000 for improvements to this park.



## Marshan Park

**Address:** 7204 Lake Drive
**Classification:** Neighborhood Park
**Size:** 5 acres
**Description and Existing Development:** The park building was initially developed in 1970 with new playground equipment added in 1999 located behind the building which is lacking in accessibility. Most of this site is maintained turf that is used for soccer. The park is adjacent to a high density residential area with a school campus on the west side of Lake Drive. Existing development includes:

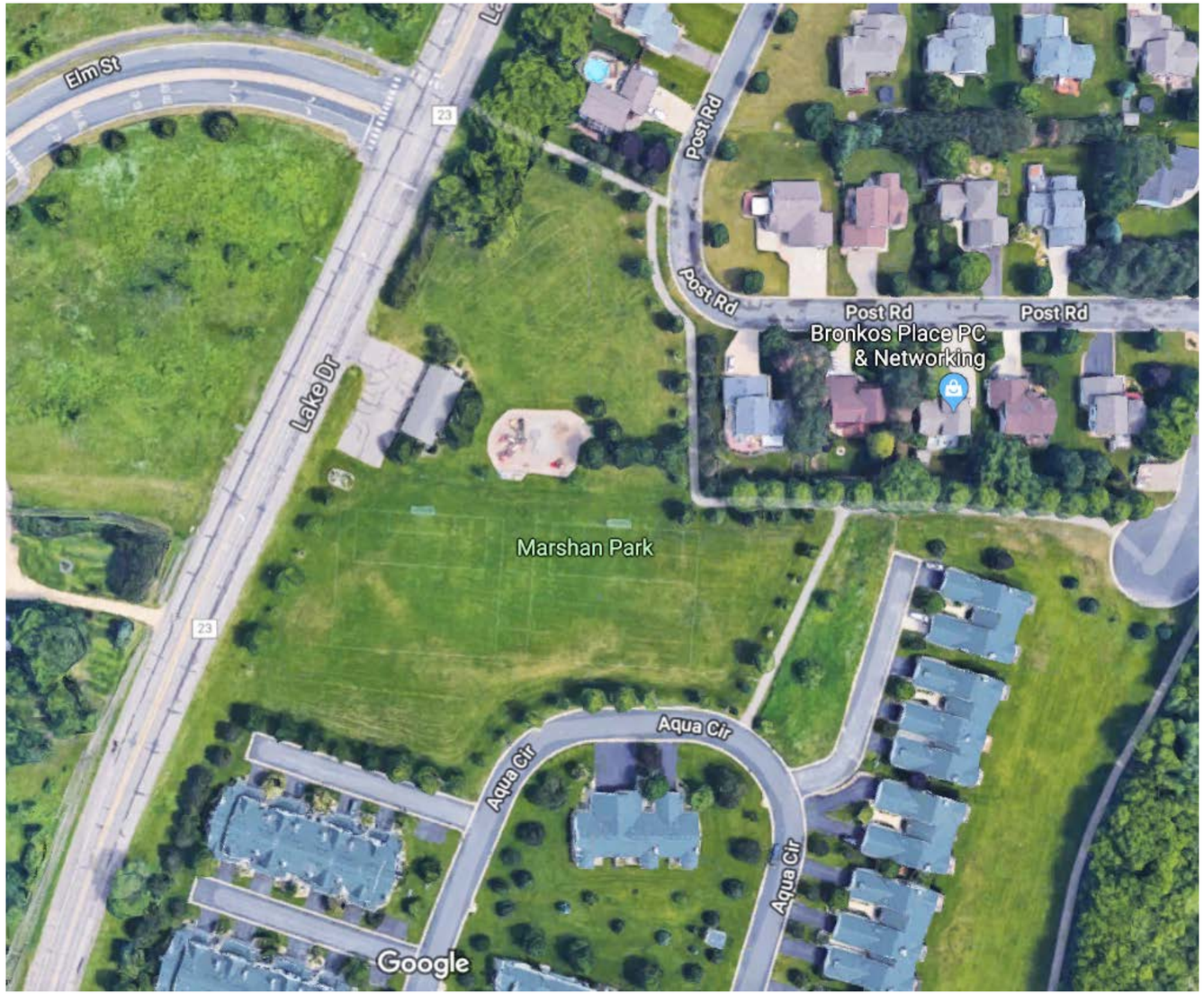
- Park building
- Playground
- Bituminous trails
- Bituminous parking lot
- Lawn space / small soccer

**Development Considerations:** An asphalt trail runs through the park and provides a link to the adjacent neighborhoods but does not provide access to the play area or connect to the parking lot, making the park inaccessible for the handicapped user. Additional amenities should be added to the park to provide more recreational value and a master plan design could make better use of the park space for an inviting and well-rounded park space. Suggested improvements include:

- Trail connections to playground and parking lot
- Basketball half-court with pickleball overlay
- Landscape improvements / screening
- New playground equipment when needed (possibly in new location)
- Picnic shelter

### Cost Estimates

New Development Costs: $70,000 to $80,000 for trails, shelter and a half court.
Replacement Costs: $100,000 to $150,000 for improvements to this park



## NorthPointe Park, 6690

**Address:** 21st Avenue South
**Classification:** Neighborhood Park
**Size:** 5 acres
**Description:** This newly developed park, scheduled to be complete in the spring of 2018, is located within a newer housing development. Future development will include trail extensions into the park from the south. Existing development includes:

- Playground for multiple ages
- Bituminous trails
- Picnic shelter
- Basketball half court with pickleball overlay
- Bench and picnic table seating areas

**Development Considerations:** As a newly developed park, no additional improvements are needed other than ongoing maintenance and landscape enhancements.



## Pheasant Hills Park

**Address:** 6659 Sherman Lake Road
**Classification:** Neighborhood Park
**Size:** 3 acres
**Description:** This is a small neighborhood park developed in 1996 that is tucked back away from the street and is tucked into a wooded area surrounded mainly by a wetland area with open water, offering a high quality natural park setting. Trail connections offer access from the street into the park with a little bridge over the open water. Existing development includes:

- Playground
- Bituminous trail
- Basketball half-court
- Lawn spaces

**Development Considerations:** The park has an appropriate blend of neighborhood amenities and will just need ongoing maintenance and replacements as needed. Suggested improvements include:

- New playground equipment
- Trail connection to the basketball court
- Updated amenities (benches, tables, etc.)

### Cost Estimates

New Development Costs: $0

Replacement Costs: $75,000 to $100,000 for improvements to this park



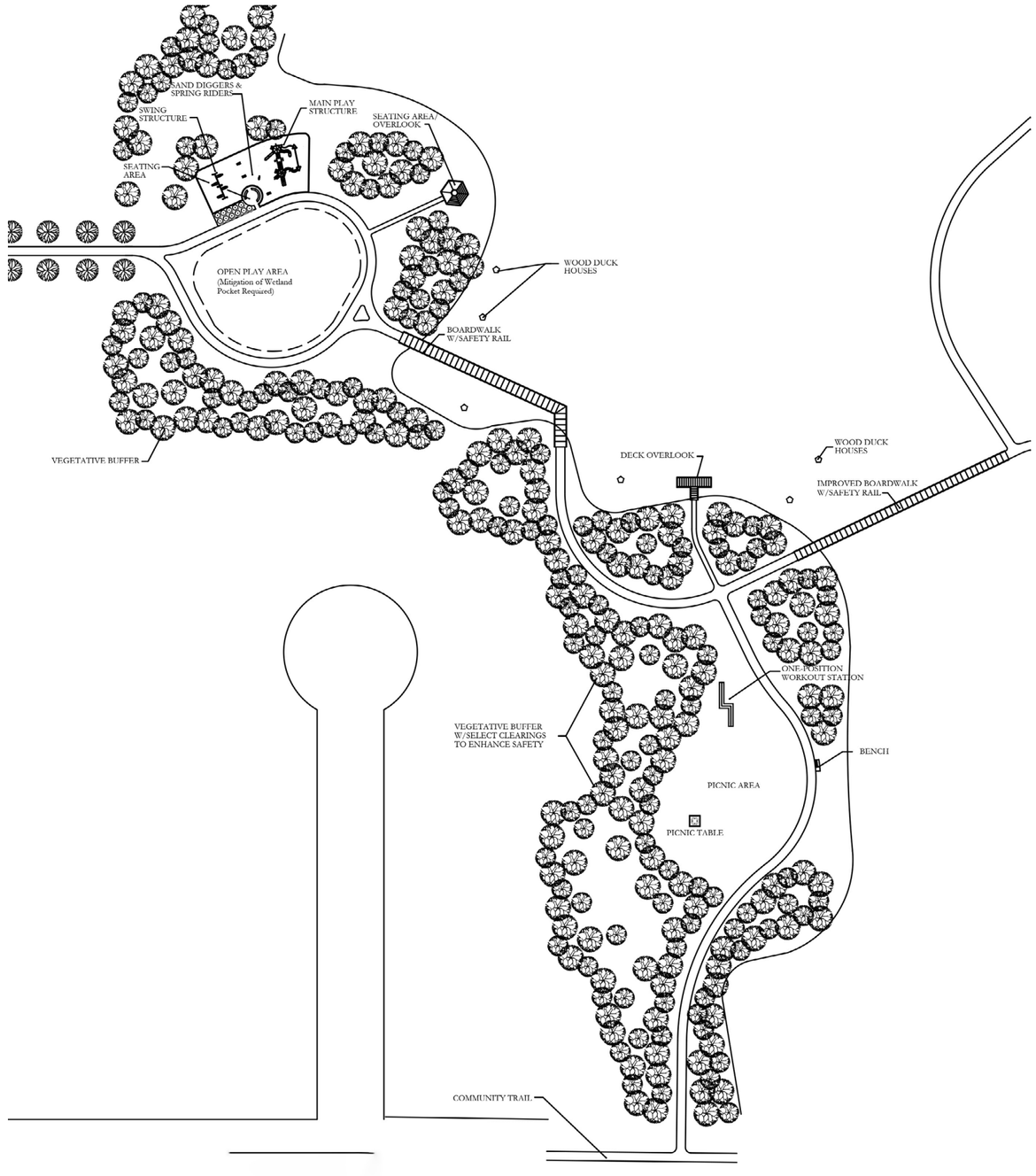
## Quail Ridge Park

**Address:** 1101 Birch Street
**Classification:** Neighborhood Park / Open Space
**Size:** 6 acres (open space & wetlands)
**Description:** This is a large open space containing numerous wetlands with a small area suitable for minimal development, but currently undeveloped.
**Development Considerations:** The park had a master plan prepared in 1998. It is recommended that prior to any development occurring, that the city approach the neighborhood residents to ensure the development is in line with community needs and demands. Suggested improvements on the previous master plan included:

- Playground
- Open lawn
- Picnic amenities
- Overlooks
- Trail and boardwalks to connect to existing trails along Ruffed Grouse Court and Birch Street

### Cost Estimates

New Development Costs: Until an updated master plan determines the extent of improvements and the types of amenities that should be included with potential park expansion, preliminary costs cannot be estimated. Approximately $150,000 to $200,000 for the neighborhood park development and an additional range of $250,000 to $300,000 for the trails and boardwalk connections would be in the range of similar sites.



## Shenandoah Park

**Address:** 475 Arrowhead Drive
**Classification:** Neighborhood Park
**Size:** 8 acres
**Description:** The majority of this park consists of wetlands with a very linear water channel, and a small portion of land for park development on the southern portion along Arrowhead Drive. A play area developed in 1998 is located adjacent to an open lawn area with some mature trees to the north and a water channel on two sides of the playground. Currently a trail enters a crosswalk at the edge of the park but there are no trails entering the park, making it inaccessible. Existing development includes:

- Playground with pea gravel
- Lawn space

**Development Considerations:** The park appears unfinished as it currently is and some minor improvements would make it more accessible and appealing to the users. Suggested improvements include:

- New playground equipment
- Seating plaza or shelter adjacent to playground
- Asphalt trail to playground and potentially a small internal loop around the park
- Possibly a small hardcourt, if desired
- Overlooks or boardwalk in some of the wetland areas overlooking the channel

### Cost Estimates

New Development Costs: $40,000 to $50,000 for a trail, shelter and small court

Replacement Costs: $75,000 to $100,000 for misc. improvements to this park



## Sunrise Park

**Address:** 6918 Sunrise Drive
**Classification:** Community Park
**Size:** 20 acres
**Description:** The majority of the park site is developed for active athletic recreation, including ballfields, soccer, hockey, etc. There are a few natural areas on the eastern end of the park between the park and residential lots. The playground was installed in 1998 and is tucked among some trees in the middle of the park along the eastern edge. The park has many amenities but they are scattered with two separate park entrances that don't connect and an informal gravel area for parking on the south. Some amenities lack best orientation and ballfield outfields are touching one another. Existing development includes:

- Playground with pea gravel
- Bituminous trails
- Paved parking lots
- Gravel parking area
- Two hockey rinks and general skating area
- Warming house
- Four ball fields
- Tow picnic shelters
- Open lawn / soccer field
- Park storage buildings (1975)

**Development Considerations:** A master plan should be prepared for this park prior to any new development to reconsider how activity areas are organized for a better fit and orientation and to determine which sports fields should remain on this site or be moved to improve overall quality. As it is, the park offers many values to the local neighborhood and larger community and some redesign may enhance space utilization with better pedestrian and vehicular circulation and better amenities overall. Suggested improvements include:

- Improved parking (reorganization)
- New hockey rinks (new orientation) and possibly pave for summer use
- New playground equipment
- Loop trail system
- Potentially add in some hardcourts (basketball, pickleball, etc.)
- New park building potentially with concessions

### Cost Estimates

Until a master plan determines the extent of improvements and the types of amenities that should be included, preliminary costs cannot be estimated. A full park reconstruction project could be in the range of up to $3.5 million depending on the desired amenities and buildings.







## Sunset Oaks Park

**Address:** 7481 Leonard Avenue
**Classification:** Neighborhood Park
**Size:** 2.1 acres
**Description:** This park developed in 1993 is a large rectangular piece of land along two streets that contains a soccer field, playground and a few spots for parking off of the street that are not well defined. It is very open and lacks character. Existing development includes:

- Playground
- Bituminous parking stalls

**Development Considerations:** As the playground matures and needs replacing, a master plan should be prepared to reorganize the park and playground in a more creative way with some added recreational amenities. This would improve the character of the park and provide the residents with additional types of recreation. Suggested improvements include:

- New playground
- Picnic shelter or arbor
- Basketball half court
- Loop trail
- Enhanced landscaping

### Cost Estimates

New Development Costs: $50,000 to $75,000 for trails, shelter and small court
Replacement Costs: $100,000 to $150,000 for misc. improvements



## Wenzel Farms Park

**Address:** 7139 Ivy Ridge Lane
**Classification:** Neighborhood Park
**Size:** 1 acre
**Description:** This is a small neighborhood park developed in 1996 that is surrounded by single family and multi-family housing. Existing development includes:

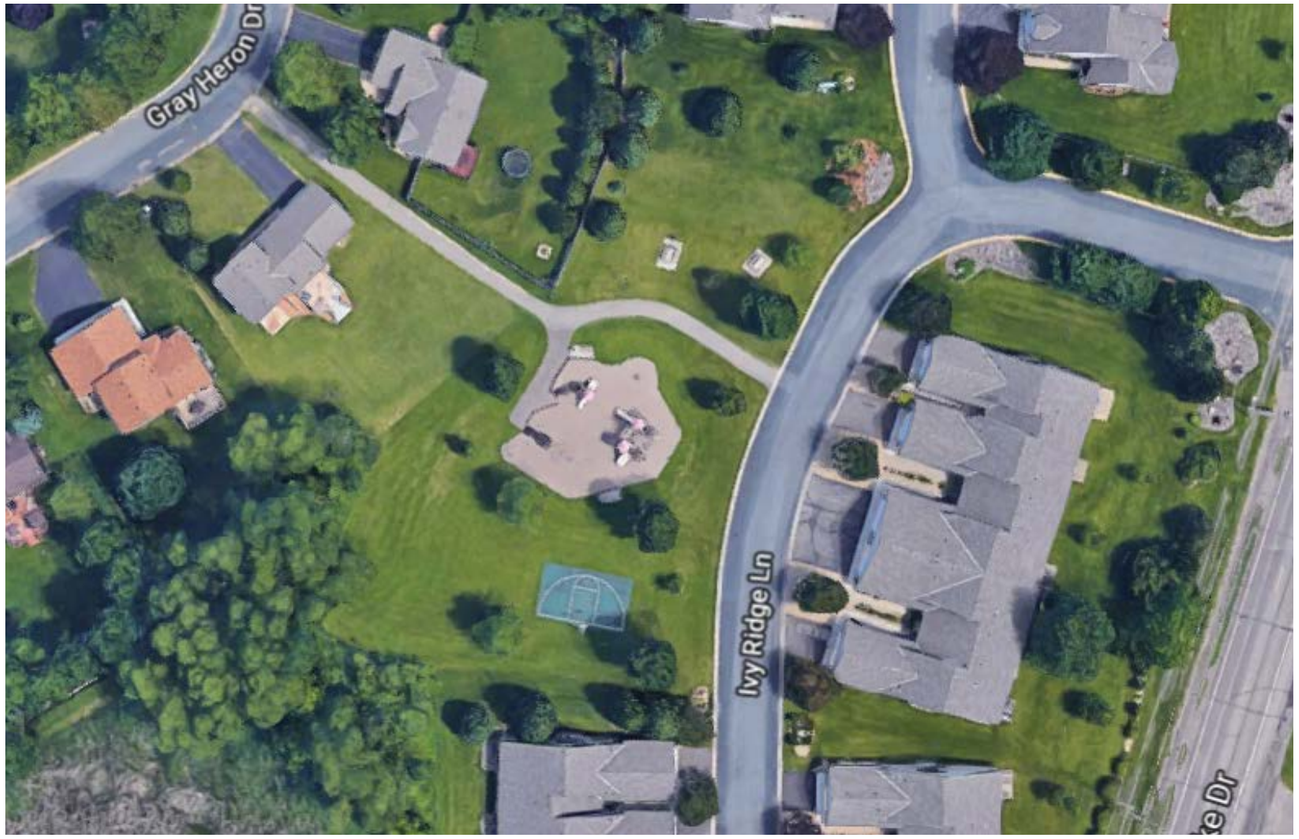
- Playground with pea gravel
- Bituminous trail
- Undersized basketball half-court
- Picnic areas

**Development Considerations:** The park is built appropriately for the size of the park but a trail connection to the basketball court would improve overall accessibility. Overall ongoing maintenance and replacements as needed are the primary considerations. Suggested improvements include:

- Trail connection to court
- Replace playground equipment when needed

### Cost Estimates

New Development Costs: $5,000 to $8,000 for trail connections
Replacement Costs: $50,000 to $75,000 for new playground equipment when needed



## Woods of Baldwin Lake Park

**Address:** 6130 Oak Wood Lane
**Classification:** Neighborhood Park
**Size:** 3 acres
**Description:** This is a small, quaint neighborhood park developed in 1994 that is tucked back among residential areas and surrounded by dense, natural vegetation that includes a small wetland. It is hidden from the street with access along an asphalt trail. Existing development includes:

- Playground with pea gravel
- Bituminous trail
- Open lawn
- Picnic amenities

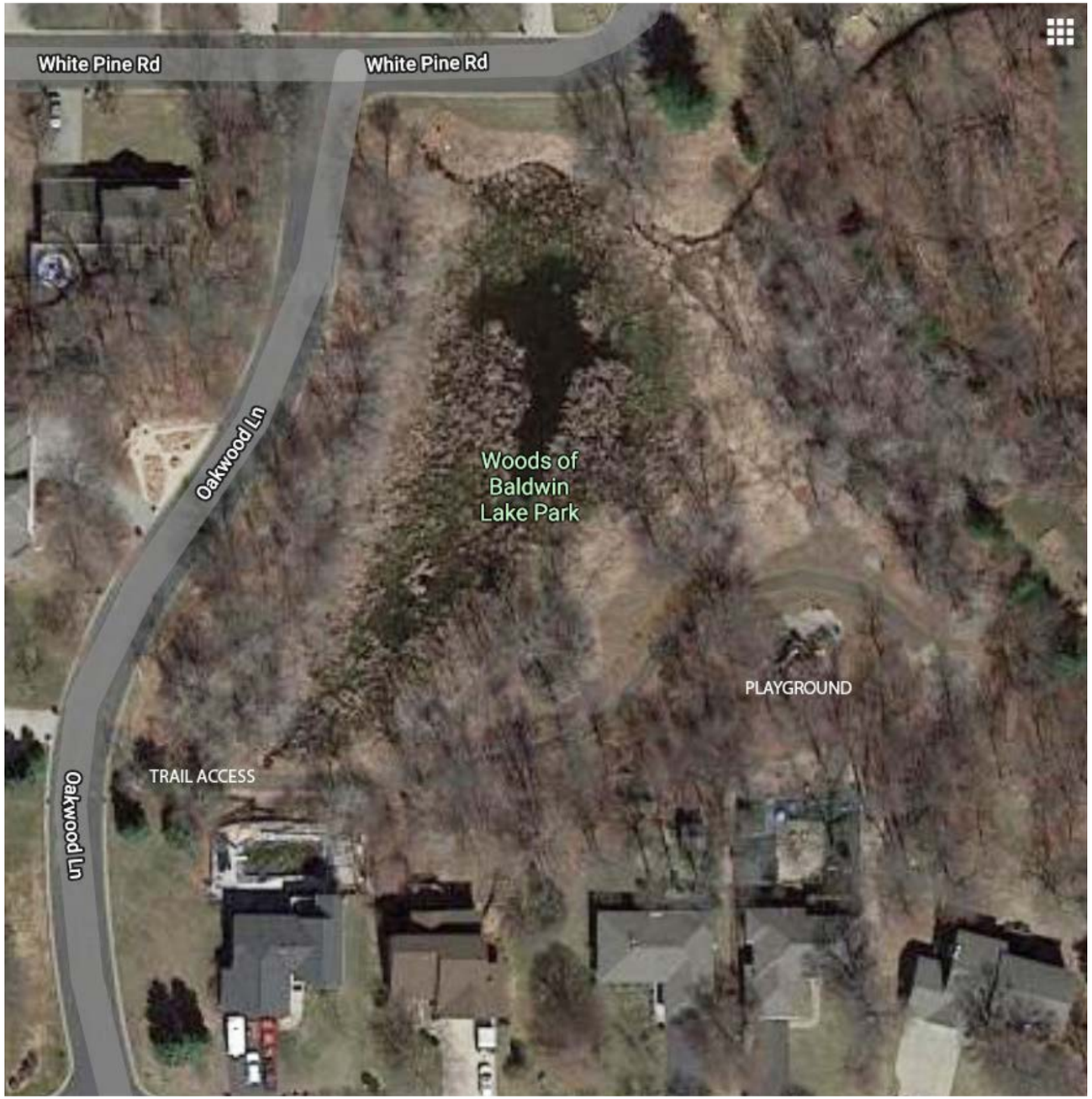
**Development Considerations:** This small park and further development should be limited, but there are some improvements that can be made to enhance it, especially in terms of safety and accessibility. Suggested improvements include:

- New playground equipment – ensure it is accessible
- Park signage along the trail entrance at the street
- New benches, tables, etc.
- Small seating overlook
- Vegetation management – thin out and remove invasive species for better views and visibility
- Replace trails as needed

### Cost Estimates

New Development Costs: $5,000 to $10,000 for signs

Replacement Costs: $150,000 to $200,000 for misc. improvements



## Woolan's Park

**Address:** 8215 Diane Street
**Classification:** Open Space
**Size:** 18 acres
**Description:** This is an undeveloped parcel containing extensive wetlands and mature wooded areas used for wetland banking. The park offers wonderful opportunities for viewing plants and wildlife. Existing informal trails have been created, some of which might be used by ATV's. It is currently undeveloped.
**Development Considerations:** Future development of a neighborhood park may be appropriate for this park, featuring a mix of active recreational amenities and passive use areas that take advantage of the natural setting. Connecting the park with the greenway-based trail system is also a major opportunity. Suggested improvements include:

- Natural play experiences or nature themed playground
- Trails / boardwalks
- Educational / interpretive information
- Nature viewing areas

### Cost Estimates

New Development Costs: Until a master plan determines the extent of improvements and the types of amenities that should be included, preliminary costs cannot be estimated. Based on suggested amenities, these types of improvements could range greatly from $300,000 to $600,000.

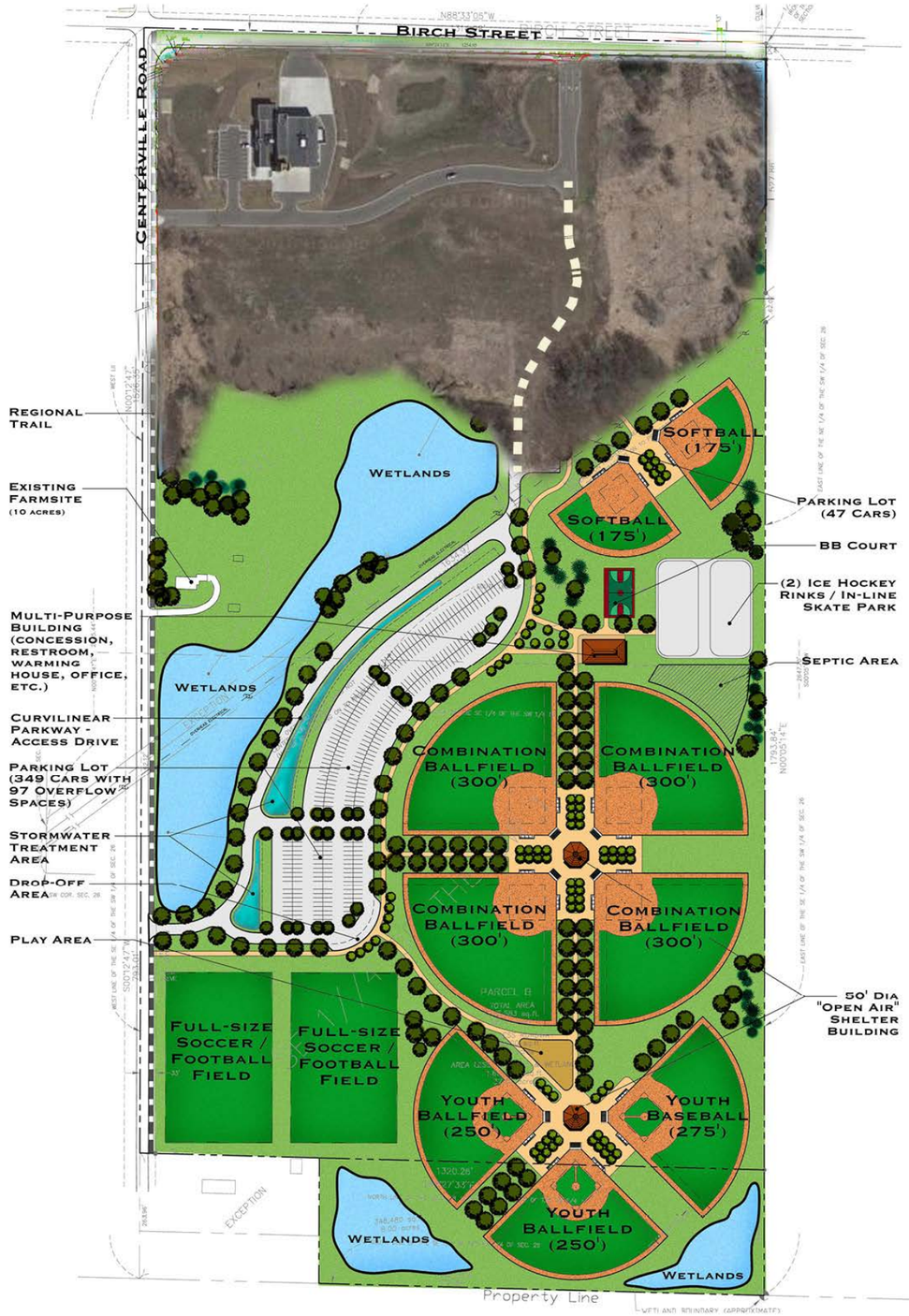
## Recreation Complex (Proposed)

**Address:** Birch Street & Centerville Road
**Classification:** Recreation Complex
**Size:** 65 acres
**Description:** The city recently developed a fire station at the north end of the site. No other development currently exists.
**Development Considerations:** This park is meant to provide much needed recreational athletic fields for the community. A preliminary master plan was developed for the recreation complex but due to the development of the fire station and the need to update facility needs, an updated master plan will be necessary prior to development. Suggested improvements from the master plan included:

- Baseball / softball fields
- Soccer / LaCrosse / rugby Fields
- Hockey rinks - multipurpose
- Potential skate park
- Tennis / pickleball courts
- Basketball courts
- Parking lots
- Trails
- Concessions buildings / restrooms
- Picnic shelters
- Playgrounds
- Miscellaneous amenities

### Cost Estimates

New Development Costs: Until an updated master plan determines the extent of improvements and the types of amenities that should be included, preliminary costs cannot be estimated.



# Greenway & Trail System Plan

## Integrating Greenways and Trails

The greenway-based trails that link individual neighborhoods with natural open spaces and the regional park system are the backbone of the Lino Lakes trail system. Through this system of trails, the interconnected latticework of natural landscapes, greenways, and parks throughout the city will be accessible to the public for enjoyment of the outdoors, nature viewing, exercise and transportation.

The key goals of the greenway and trail system plan are to:

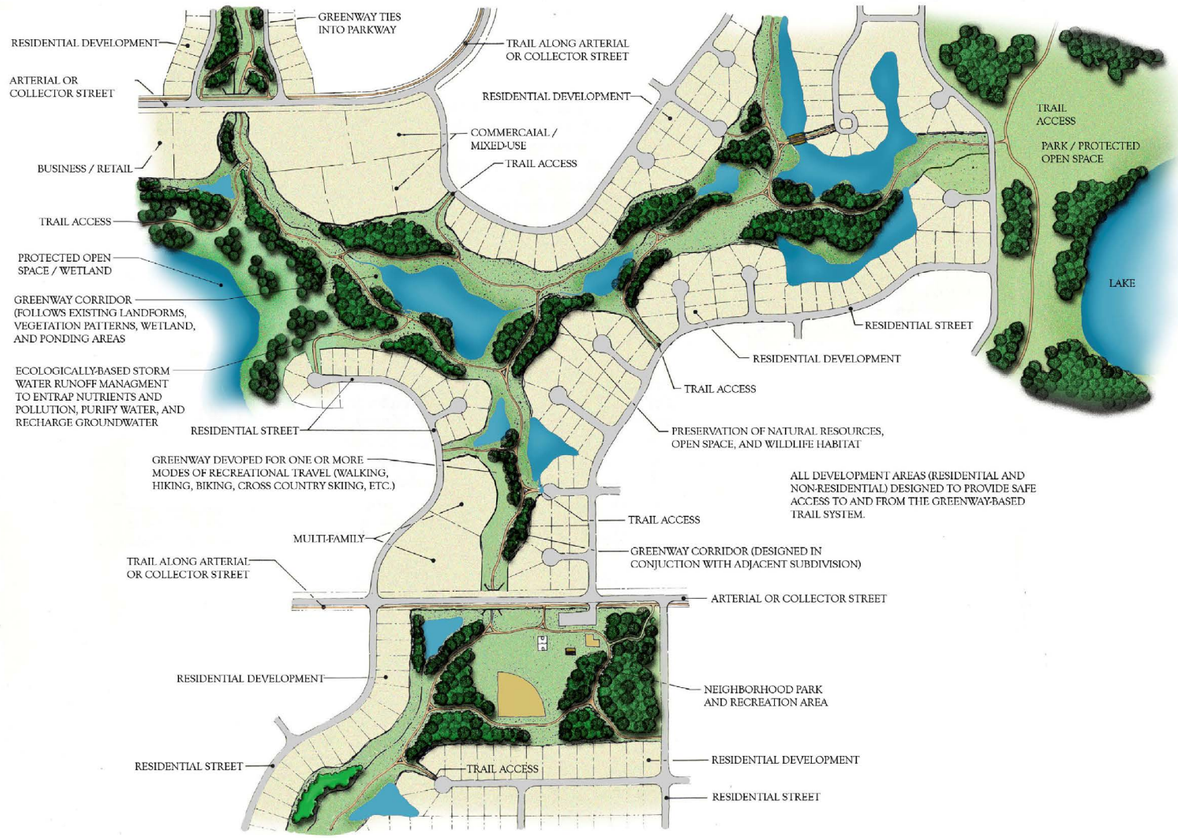
- Develop an interlinking system of greenways and trails throughout the city that interconnect with local and regional parks and trails.
- Provide reasonable trail access to the natural resource amenities within the community without unduly compromising their integrity and natural qualities.
- Provide a reasonable and appropriate degree of universal accessibility to trails throughout the system.
- Preserve high quality and unique greenways, open space and natural resource systems that contribute to the overall natural characteristics of Lino Lakes.

The greenway and trail system's existing and proposed trails collectively create a complete and integrated trail system. The plan is based on three key principles:

- It purposefully focuses on establishing the primary greenway-based destination trail network that forms the core system of high value recreation trails.
- It uses linking trails as a means to connect the destination trails together, as well as provide pedestrian-level transportation routes to schools, public parks and other public facilities and commercial districts.
- It is ambitious, yet realistic and achievable.

One of the greatest attributes of a greenways-based trail system is the continuity of a trail system with limited interruption by roads and other development features, providing a continuous, natural experience that connects to destination areas and is a destination unto itself. The following figure illustrates the concept of a greenway-based trail system:

The Park, Greenways and Trail Systems Map (Figure 10-1)shows existing and proposed trails and routes within the greenway and trail system plan. The locations of existing trails have been updated from previous plans and illustrate proposed trails within future multi-functional greenway corridors, connections between planned neighborhoods and connections between existing and future parks. The Transportation Chapter of the plan includes additional information regarding the trail system in terms of commuting and multi-modal transportation.

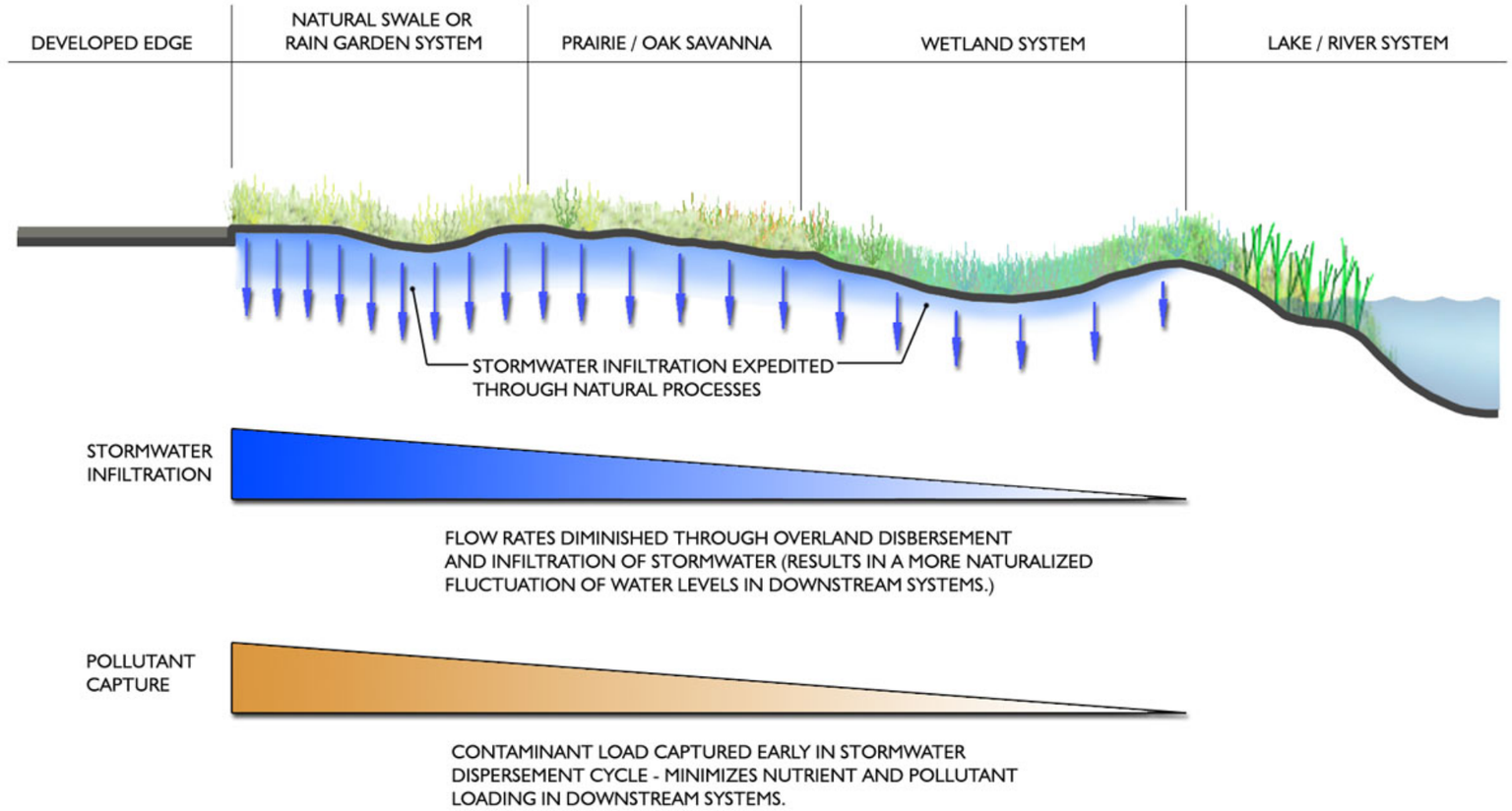


## Greenway System

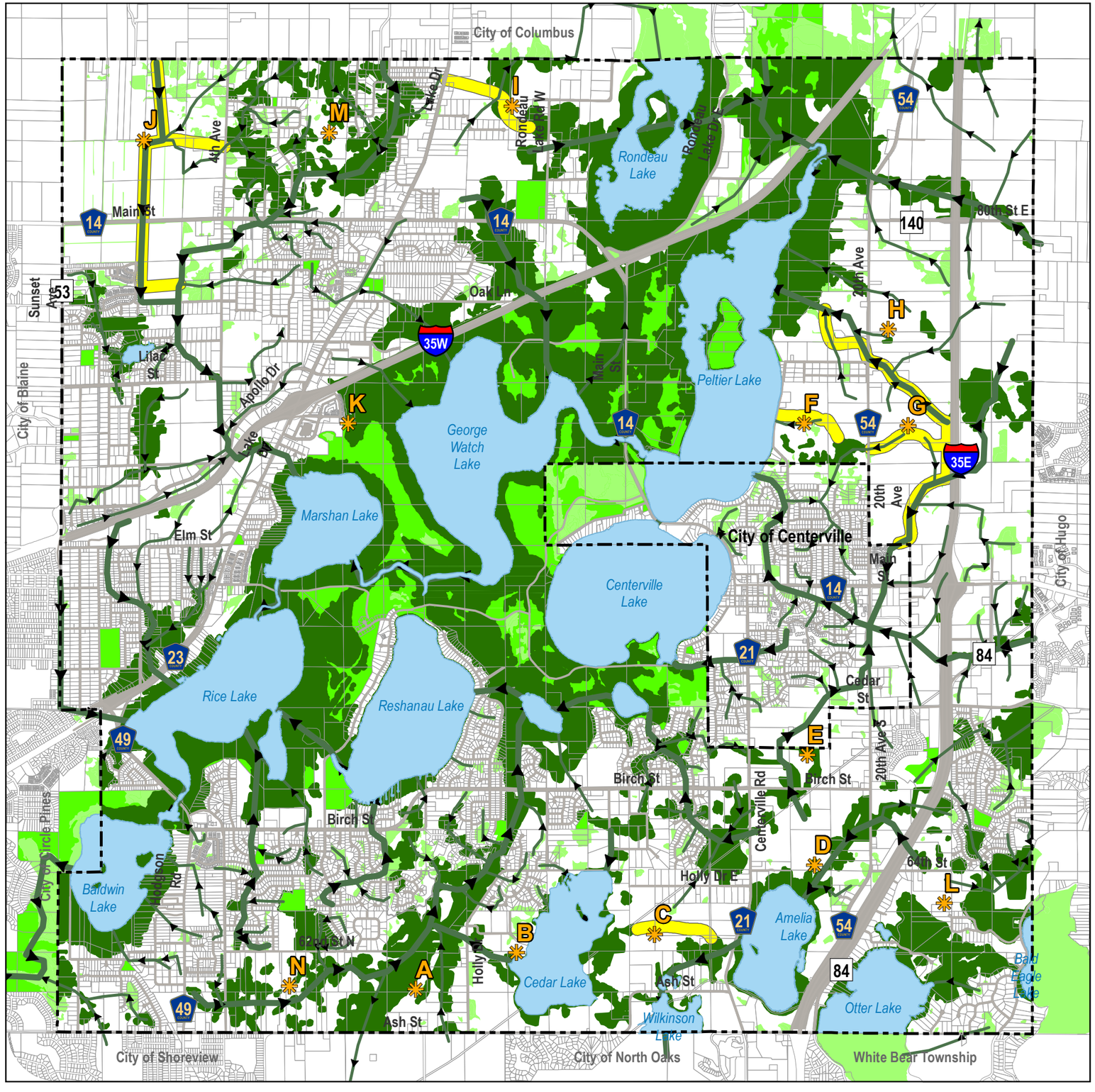
Wetlands, lakes, streams, ditches and aquatic resources make up the most prevalent natural system in Lino Lakes. The city has performed numerous natural resource-based studies over the past two decades. The extensive scientific inquiry regarding the location, quality and function of upland and aquatic resources resulted in the establishment of the greenway system as part of the 2030 Comprehensive Plan update, adopted in 2011. This is a "working" multi-functional greenway corridor intended to provide areas for stormwater management, upland buffer areas for wetlands protection, conservation and/or reestablishment of natural areas, as well as open space and trails for people.

The Greenway System Plan (Figure 10-3) illustrates the greenway, open space and natural resource system by combining the desired natural features into corridors with the following attributes:

- Major and minor drainage routes that are the spine of the regional and local surface water management system providing areas for the natural movement of water.
- High quality wetlands identified in the RCWD/Lino Lakes Resource Management Plan, including the RCWD Wetland Management Corridor (WMC). The WMC includes high priority wetlands with variable width buffer areas (50' average).
- Selected marginally suitable development areas, and 100-year floodplain
- Connections between parks, open space and the WMC for the movement of people and wildlife (often combined with a trail).
- Areas with low development suitability located outside the WMC. These areas contain a combination of rare species, natural and semi-natural habitat areas and hydric soils.




Natural Infiltration Method for Stormwater Management




CITY OF LINO LAKES 2040 COMP PLAN

# Figure 10-3
# Greenway System Plan

## Legend

- Future Neighborhood Parks
- Major Drainage Routes
- Minor Drainage Routes

**Greenway System**

- Natural Resource Conservation Area
- Natural Resource Enhancement Area
- Parks
- Wetlands
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 11/9/2020

The Greenway System Plan Map (Figure 10-3) classifies portions of the greenway into the following categories:

### Natural Resource Conservation Areas

These generally consist of water bodies and land areas that have some level of protection under current regulatory ordinances and controls, particularly wetland regulation. Specific areas included in this zone are:

- Lakes, creeks and county ditch system
- Major surface drainage routes
- High quality wetlands, identified in the RMP and included in the RCWD Wetland Management Corridor (WMC)
- Ecological buffer around high-quality wetland areas (50 feet)
- Selected 100-year flood plain

### Natural Resource Enhancement Areas

These general consist of areas that fill gaps in the greenway system and/or provide a corridor for the greenway-based trail system and may include the following:

- Minor drainage routes, generally, these areas serve as drainage routes in agricultural areas as well as areas that have been identified as linkages between recreation areas (i.e., parks and trails)
- Wetlands outside the WMC
- Hydric soils or areas with unique banded soils that support rare species
- Upland areas of oak, aspen maple-basswood or tamarack forests that are adjacent to or provide a link to conservation areas

The objective of the enhancement areas is to:

- Integrate them into future developments consistent with natural resource conservation areas.
- Restore and manage them as functioning, high quality greenways that are seamless with other aspects of the greenway system. An example of this is transitioning farm fields into prairie communities that expand the greenway system.

There are a number of strategies for protecting the city's natural resources preserving, establishing and protecting the greenway system, depending on the circumstances. The greenway system plan present in this chapter provides a framework regarding growth, development and management. It provides a unified "system approach" to natural resource management and providing natural resource based amenities, parks, trails and greenways which are highly valued and enjoyed by the community. This "systems approach" allows the city the ability to leverage several regulations and funding sources to implement the greenways and includes the following:

- Collaborate with the RCWD on the protection of the Wetland Management Corridor and establish of partnerships with other public entities.
- Identify and refine greenway corridors at the time of development. New development should incorporate enhancement or conservation areas in accordance with the greenway plan.
- Encourage conservation development, through the use of the Planned Unit Development, to provide greenway linkages and preserve protected areas while still preserving development rights.
- When possible, work with willing sellers to acquire high-quality natural areas.
- Implement the city's Natural Resource Revolving Fund plan to provide a designated funding source for preservation and restoration of land and resources within the greenway system.
- Integrate stormwater management features from developing areas to expand and enhance the greenway system.

The Greenway System Map (Figure 10-3) highlights natural resource areas that are larger in scale and/or serve a defined purpose, such as providing space for a trail corridor. In application, there will be other opportunities to expand the greenway system as development proposals are considered by the city. All lands offer some potential to be part of the greenway system. The extent to which these lands can be set aside as greenways will be determined through a collaborative process between the city and the development community.

## Trail System

### Trail Classifications

One of the important factors in developing the trail system plan was the recognition that the needs and skill levels of individual trail users are quite broad and therefore the types of trails and bikeways needed are also quite broad. The generally accepted groups or types of bicyclists are defined along basic levels of skill by the Federal Highway Administration. The Lino Lakes trail classifications were developed to accommodate these different levels of skill:

- Advanced or experienced riders – are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with a minimum of detour or delay. They are typically comfortable riding with motor-vehicle traffic; however, sufficient operating space is needed on the roadway to eliminate the need for either themselves or a passing motor vehicle to have to shift position.
- Basic or less confident adult riders – may be using their bicycles for recreation as well as for transportation purposes, e.g., to get to the store or to visit friends, but prefer to avoid roads with fast and busy motor-vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Basic riders are comfortable riding on neighborhood streets and off-street trails. On busier streets, they prefer designated facilities such as bike lanes or wide shoulder.
- Children – riding on their own or with their parents may not travel as fast as their adult counterparts. They use trails for recreation and getting to key destinations in their community, such as schools, convenience stores and recreational facilities. Residential streets with low motor vehicle speeds and off-street trails are preferred by this group. Although less desirable, and depending on the comfort and skill level of the user, very well defined on-street bikeways with clear pavement markings will also be used by older children.

The distinction among trail types, or classifications, is important due to their variable recreational value. The user experience and skill level associated with different types of trails greatly affects the value of the system to residents and the degree to which a trail or system of trails will be used. The classifications applied to Lino Lakes' trail system purposefully correlate

with desired user experience, with distinct emphasis placed on the quality of experience. Preference studies clearly indicate that the vast majority of trail users are seeking a recreational experience while using the trails, with fitness, transportation and commuting being secondary concerns. Trails offering a high quality recreational experience are those that:

- Are visually appealing and located in a pleasant, natural open space or corridor that is away from traffic and the built environment
- Offer continuity with limited interruptions and impediments to travel.
- Are not too difficult of a grade
- Are safe to use for a family or those with limited skills

The classifications also take into consideration the guidelines recommended in the National Parks, Recreation, Open Space and Greenways Guidelines published by the National Recreation and Parks Association. The technical design and development standards for each classification will be consistent with the city's standard practices.

## Destination Trails

These are trails that are located within a greenway, natural area or designated trail corridor (exclusive of trails along the road right-of-way, which are designated as linking trails). Destination trails are very desirable types of trails in that they:

- Emphasize the recreational experience of the user (rather than transportation/commuting).
- Allow for relatively uninterrupted pedestrian movement to and through a natural area, the city, and larger park system.
- Safely protect users from vehicular traffic.

These trails offer high recreational value and are suitable for all skill levels. Trails may vary in width from a minimum 8-foot 6-inch to 10-foot width or greater, depending on location.

The alignment of the destination trails as shown on the trail system map are based on their integration with the greenway system and making desired connections, especially to the regional park. These alignments are considered optimal (at a citywide planning scale). The actual alignment of destination trails remains flexible as long as the intent of the trail corridor is not compromised, as determined by the Park Board, Environmental Board and the City Council at the time of implementation.

## Linking Trails

The only significant difference between linking and destination trails is their location, which significantly affects their recreational value. Therefore, they are not differentiated from destination trails on the system plan maps. Whereas destination trails emphasize a recreational experience in a natural open space or park-like setting, linking trails emphasize safe travel for pedestrians to and from parks and connect trail corridors. Linking trails are generally located within the road right-of-way so are less attractive due to noise and setting.

As with destination trails, linking trails are suitable for all skill levels. A trail may vary in width from a minimum 8-foot 6-inch to 10-foot width or greater, depending on location.







## On-Street Routes

On-street bike routes (bike lanes and shoulders) are paved segments of roadways that safely separate bicyclists from vehicular traffic. On-street bike routes offer lower recreational value for many casual users and are best suited for higher skill levels. For the advanced bicyclists and multi-modal commuters, on-street bike routes are one of the most important elements in the trail system and should not be overlooked.

A bike lane is a designated portion of the roadway for the preferential or exclusive use of bicyclists. A bike route is a shared portion of the roadway that provides separation between motor vehicles and bicyclists. Most people would recognize this as a paved shoulder with bike route signage.



On-street routes can also include shared routes where bikes and vehicles utilize the same lanes. These are typically found on roads with lower speed limits and limited width to provide a separated trail, bike lane or shoulder. For the purposes of this plan, shared routes are not indicated on the trail plan.

On-street bike routes also play an important role in the Lino Lakes' system in that they augment the trail system by providing a safe alternative for bicyclists and in-line skaters. The primary user of the on-street bikeways will be a bicyclist who prefers biking on the road versus trails. Roads generally allow a cyclist to go faster speeds and offer more continuity in surfacing and intersections. Complementing the trails within the system with on-street bikeways along the busier roadways enhances the overall trail system by making it more complete and user friendly.

In Lino Lakes, most bikeways will be designated as bike routes, which are essentially widened shoulders on roadways. The need for defined bike lanes is not envisioned due to the more rural, versus urban, nature of the roadway system. Although a high priority toward continued expansion of the destination and linking trail system is justifiable, expanding the on-street bikeways should also be a priority given their role in the system. By providing for bike routes as a basic part of upgrading or building new roadways, the opportunity to expand the bikeway system within the city can be accomplished with reasonable capital investment.

## Regional Trails

The regional trails within Lino Lakes are mostly found within Rice Creek Chain of Lakes Park Reserve. Coupled with the greenway-based trails within the city, this trail system is one of the most outstanding features of the park and trail system. The regional trail system plan for the surrounding area also includes connections from the park reserve to trail corridors well beyond the city limits.

Existing and proposed regional trails include the following:

- **Bunker - Chain of Lakes Regional Trail**: There are 11.5 miles of existing trails and three miles of proposed trails that link Bunker Hills Regional Park with Rice Creek Chain of Lakes Park Reserve and the City of Centerville. The trail system connects to other regional trails including East Anoka County Regional Trail, Central Anoka County Regional Trail and Rice Creek Regional Trails. A general alignment of the trail is shown on Figure 10-1.
- **Central Anoka County Regional Trail**: There are 16 miles of existing trails and 10 miles of proposed trails that begin at the Mississippi West Regional Park and end at the Washington County line. In Lino Lakes it will connect Rice Creek Chain of Lakes Park Reserve on the west with the Hardwood Creek Regional Trail in Washington County. It also connects to Rum River Regional Trail, East Anoka County Regional Trail, Bunker – Chain of Lakes Regional Trail and Chain of Lake – Otter Lake Regional Trail. It will join up with Washington County and Hugo trails. A general alignment of the trail follows Main Street and is shown on Figure 10-1.
- **Chain of Lakes – Otter Lake Regional Trail:** This trail will be approximately three miles in length when complete, and will follow the east side of Centerville Road from Main Street in Centerville to Birch Street, southeast around Amelia Lake and will connect to a future Ramsey County trail along Otter Lake Road. It will also connect to Central Anoka County Regional Trail and Bunker – Chain of Lakes Regional Trail and will provide access to the Bald Eagle – Otter Lakes Regional Park and Tamarack Nature Center.
- **East Anoka County Regional Trail:** There are 27 miles of existing trail that connects the north and south ends of the county. While not located within Lino Lakes, it is part of a greater regional network that connects to Lino Lakes. It connects to Rice Creek North Regional Trail, Bunker – Chain of Lakes Regional Trail, Central Anoka County Regional Trail, and North Anoka County Regional Trail.
- **Rice Creek North Regional Trail:** There are 6.5 miles of existing trail and 1.5 miles of proposed trail that connects the cities of Blaine, Circle Pines and Lino Lakes and allows users to witness prairie restoration. It is part of the Rice Creek Chain of Lakes trail system and connects directly to Country Lakes Park in Lino Lakes.

## Snowmobile Trails

In addition to the existing and proposed trails shown on Figure 10-1, which are intended to accommodate pedestrian, bicycle, or other non-motorized trips, the City of Lino Lakes also contains a network of snowmobile trails that run primarily through the Rice Creek Regional Park Reserve. The Minnesota Department of Natural Resources (DNR) operates a program of grants to local organizations to help create and maintain snowmobile trails. Land for trails can be purchased by the local organization, but it is

more common to acquire leases that allow trails through private property. The local snowmobile organization negotiates the trail leases with property owners, executes the lease agreements and maintains the trail. The trail is not intended to be used for anything other than snowmobiling. A requirement for the DNR funding program is that these leases run for a one-season period and allow snowmobile use only from December 1 to April 1.

The City of Lino Lakes recognizes snowmobiling as a recreational activity enjoyed by many members of the public. The city is aware of the trails program and of the efforts of the Rice Creek Snowmobile Trail Association to maintain trails through Lino Lakes.

### Other Trails

There are many other types of trails that provide a varying experience for the user separate or connected to the overall trail system.

- **Nature Trails:** Rice Creek Chain of Lakes Regional Park Reserve provides an extensive and ever-expanding nature trail system within Lino Lakes. Because of this, there are no additional nature trails proposed under the trail system plan other than a small loop that may be part of a specific community or neighborhood park design, such as Country Lakes Park.
- **Cross-Country Ski Trails**: Rice Creek Chain of Lakes Regional Park Reserve is the primary area within the city where cross-country ski trails are provided. The park reserve has an extensive system of groomed ski trails, with the trailhead being the Chomonix Golf Course clubhouse. On occasion, informal cross-country skiing occurs in a few parks within the city. The emerging greenway system will also provide expanded opportunities for informal cross-country skiing in many parts of the city. With the extensive system in the regional park reserve, there is little need for the city to develop its own groomed cross-country trail system.
- **Equestrian Trails**: There are currently no horse trails provided in the city. With increased residential development, the keeping of horses within the city will continue to decline, reducing demand for horse trails. Given the limited demand, there are no equestrian trails proposed under the trail system plan.
- **All-Terrain (Mountain Bike / BMX) Trails:** The trail system plan does not include a designated all-terrain trail. Development of a trail of this sort should only be pursued if the demand can be substantiated and if its development would not be detrimental to the natural environment. Anoka County Parks is currently proposing a single-track trail in the Rice Creek Chain of Lakes Park Reserve. This would diminish the need for the city to develop separate facilities, though there may opportunities for connections to the proposed trails. Should the city pursue this type of trail, it should be professionally designed and sited to avoid ongoing maintenance problems.
- **Park Trails:** Trails are essential components of the development program for all parks within the system. In addition to providing access to the various amenities and facilities, trails are also a highly desired recreational amenity and are vital to a well-rounded park development that serves the needs of a wide variety of people and age groups. Park trails should be designed as part of an overall master plan, and where possible, internal park trails should be connected to the destination and linking trails shown on the trail system map. Specifically, trails within parks should:
  - Provide a looped system (when the size of the park warrants).
  - Provide direct access to all amenities and facilities.
  - Connect to all key park entrance points.
- **Water Trails:** Anoka County has designated a water trail that traverses through the interlinking waterways of the Rice Creek Chain of Lakes Park Reserve. The trail provides exceptional wildlife viewing and an opportunity to see the vast lake and wetland complex from a unique and compelling vantage point. The water trail is supported by a number of developed canoe/kayak landings, including:
  - Wargo Nature Center canoe launch
  - Peltier Lake boat launch
  - Centerville Lake boat launch
  - Aqua Lane (the access drive to the golf course) canoe launch
  - Country Lakes Park canoe launch (this has been removed recently, but may be replaced in the future)

## Priorities & Strategies

This chapter of the 2040 Comprehensive Plan describes a parks, greenways and trails system need to provide an optimal level of service to the community. The common vision and quality of life values described by the system plan are achievable through an assertive posture and concerted effort by the city. It will require strong political leadership and a willingness to use new approaches to managing development and leveraging financial resources (public and private) to secure desired public values. The plan is ambitious yet realistic if all funding mechanisms and other strategies are aggressively used to foster its implementation.

In recent years, Lino Lakes' investments into the system have been limited due to fiscal constraints, differences of opinion on needs and other priorities. In spite of this, a strong public commitment to the overall vision for the system remains intact, as judged by community input. The extent to which the plan will be implemented depends upon taking action on this commitment.

### Priorities

This section establishes overall priorities to guide the implementation process. The priorities for implementing the plan are underpinned by two objectives:

- Developing a balanced system that offers multiple community values
- Taking advantage of opportunities as they arise

At times, these objectives will be in conflict with each other in that opportunities to develop different aspects of the system will tend to present themselves in an unbalanced fashion. In Lino Lakes, the greatest near-term opportunities will be working with the development community to implement the park, greenways and trail system plans. Other aspects of the plan, such as developing additional athletic facilities, have recently had less community support and hence less of a mandate to implement.

Establishing priorities based on anticipated opportunities provides the city with some basis for acting, while at the same time not losing sight of

the balanced system objective. Table 10-3 establishes the priorities among categories and the underlying rationale for one priority over another. The priority order is not absolute. If an opportunity to implement a lower priority presents itself, the city should take advantage of it.

More detailed information related to priorities for implementation can be found in Chapter 12 of this Comprehensive Plan

**Table 10-3: Park, Greenway and Trail Priorities**

| Priority | Category | Overall Priority Statement |
|---|---|---|
| 1 | Greenways & Trails | The continued implementation of the greenway and trails plan is the top priority because it is intrinsically linked to the community development process that is continuously occurring within the city. Setting aside land for greenways must occur as part of that process if it is to occur at all. Completing the greenway system allows for greater community and regional connections and completes the gaps in the system. |
| 2 | Parks | Continued development of the park system is important to serving traditional recreational needs, especially as new housing developments are added to the city. Ongoing improvements and replacements in existing parks is becoming more of a concern as many original park developments are now reaching the end of their useful life. |
| 3 | Recreation Complex | Support for developing new recreation facilities with athletic fields is an ongoing need for the community. Its importance is likely gaining momentum, moving this to a higher priority than previously. |
| 4 | Natural Resource Stewardship | Lino Lakes values preservation of natural resources, and establishing a stewardship program is a significant priority. The city has been successful in planning for and preserving numerous natural open space systems within the community. It is now rated as a lower priority due to the amount of natural spaces already preserved. The community has a strong faith that the city will continue its preservation approach with new developments. |

## Strategies for Greenways & Trails

Implementing the greenway and trail system plan will require the use of a variety of strategies. The most important of these is greater reliance on greenway development approach to land development. This requires a good-faith partnership between the city and development community. One of the strengths of using the development process is that it leverages the economies of the development itself to fund desirable public values. In other words, this approach works toward the greatest level of open space protection (and other public values) with the least amount of direct city capitalization.

As with greenways, the city will need to collaborate with developers to leverage the economies of each development to help fund and implement the trails. Direct city funding may also play a role in implementing the greenway-based trails consistent with its standard trail development policies.

Some trails and pedestrian routes can be implemented in conjunction with roadway development or road reconstruction projects for greatest benefit and cost savings. Other trail systems, especially those that have regional connections, may be eligible for cost-share grants.

The city will establish a five-year trail program that defines key trail priorities. Trails that serve the greatest public good in terms of recreational, transportation and safety values will be the highest priorities.
Land use guidelines and zoning will continue to play a key role in managing development, including protecting natural resources. The ordinances and land use controls will continue to provide the regulatory strength behind the city's management of development. Stringent ordinances will also provide the incentive for the development community to collaborate with the city to maximize the public values from a private development in an economically viable way.

Strategies that can be used to preserve open space and establish the Greenway System include, but are not limited to:

- **Direct Purchase/Fee Simple Acquisition:** Relates to purchasing the property when the parcel meets the long-term preservation objectives of the community and the parcel can be integrated into the larger parks, open space and trail system. Priority is typically given to larger parcels. With limited fiscal resources, direct purchase is typically considered only after other protection methods have proven to be unsuccessful.
- **Conservation Easement:** Restricts development of land while permitting the landowner to retain ownership of the property. It is filed in the public records of the property and binds current and future property owners. The landowner may sell or donate the easement to a conservation organization, but it is not required. Where the easement is donated to a qualified charitable organization, a tax benefit may occur to the property owner.
- **Overlay Zoning:** Refers to a type of resource protection zoning that is superimposed over traditional zoning to protect defined natural resource areas while still allowing the underlying use in an appropriate form. A flood plain zoning district is an example of this.
- **Bonus/Incentive Zoning:** Is similar to transferring development rights except that the landowner or developer rights are used by the developer on the same property rather than purchased by another developer for some other property. This could allow a developer to develop at a higher density than normally allowed if the developer sets aside land in a conservation easement or greenway.
- **Clustering**: Allows developers to cluster development of smaller lots to allow for the provision of conservation easements and greenways.
- **Natural Resource Protection Zones**: Allows the city to impose a buffer along sensitive environmental areas. The buffer width varies depending on the situation, and these can be fixed or flexible.
- **Land Trusts**: Property owners can donate their property or a conservation easement to a conservation program. A number of these programs exist at the local, state, and national level. However, because of participation requirements (particularly with regards to parcel size), land trusts are sometimes of limited use.

## Strategies for Parks

Implementing the park system plan in the near term will continue to rely on traditional funding sources (such as the Park Dedication Fund and city budgets.) It is unlikely that funding will be adequate to develop the park system to its optimal level. Development of individual parks will continue on a priority basis consistent with past practices and available funding.

Redevelopment of existing parks is now a key issue facing the city that needs to be addressed. Many existing parks are at the point of requiring improvements and redevelopment to adequately meet the needs of the community, but funding is lacking.

Operations and maintenance funding must keep pace with the overall development of the system. To ensure that this happens, the city should define potential increases in operations and maintenance costs as part of all capital improvement projects and budget for these costs accordingly. The challenge lies in that dollars generated from park dedications, certain taxes, or a bond referendum cannot be used for operations and maintenance functions. In general, funding for operations and maintenance is covered through the city's yearly budget

In the longer term, the city will continue to monitor citizen's support for alternative funding programs (i.e., park bond referendum).

The following strategies are recommended for developing and maintaining the park system at an optimum level:

- Establish an initial five-year park improvement program that establishes priorities for park developments and improvements / replacements.
- Prepare a master plan for priority parks, including cost estimates and priorities for each park.
- Undertake park improvement projects consistent with funding available.

## Strategies for Recreation Complex

The implementation strategies for athletic facilities and a future recreation complex focus on the following:

- Maintaining or expanding existing relationships with school districts
- Making modest improvements to existing facilities for safety and playability
- Maintaining some reserve land capacity in the city to expand and develop recreational complex facilities in the future as warranted by demand and public support
- Though there was limited support for a referendum in 2002, the city should continue to develop advocates and gather feedback from the residents on potential support for a referendum to fund a recreation complex and potentially other park and trail initiatives.

## Strategies for Natural Resource Stewardship

Restoring and managing natural resources must be done in a manner that is both achievable and sustainable. The following considers each of these from an ecological and economic perspective (human/economic capital):

- Implement the Natural Resources Revolving Loan Fund to provide additional and ongoing resources for natural open space restoration efforts.
- Continue to partner with developers and homeowner associations to fund and restore nature resource areas as part of the development approval process.
- Continue to use a combination of traditional sources (public/private partnerships, wetland bank revenue) and grants though local, regional, state, and federal grant programs.

### Pollinator Initiatives

Recent public interest in pollinator-friendly areas accounts for a new initiative related to the open space areas of Lino Lakes. The initiative considers the following:

- Partner with groups and provide educational information for pollinator areas and pollinator corridors in the greenway, open space and natural resource system.
- Identify potential pollinator habitat that is a minimum of 0.5-acres in size and consists of open, grassy space or low shrubland. These areas include undeveloped parcels, parks, recreational areas, and school properties that have available open space.



# Chapter 11:
# Community Facilities



## Introduction

The purpose of this chapter is to provide goals and policies for community facilities, inventory the various community facilities within the City of Lino Lakes, and to identify future community facility needs to accommodate the need for new services.

# Goals and Policies

The vision statement, as described in Chapter 1, defines what Lino Lakes should look like in the future. The goals and policies that follow were established in the 2030 Comprehensive Plan and reaffirmed as part of the 2040 Comprehensive Plan process.

### Goal 1: Maintain the first-class education that the children of Lino Lakes are receiving, while also providing opportunities for additional education for adults.

**Policies:**

a. Maintain the high level of education that residents have come to expect.
b. Provide learning opportunities for residents of all ages.

### Goal 2: Promote the usage, creation, and uniqueness of community facilities, while also soliciting creative funding sources.

**Policies:**

a. Promote the community green within the Legacy at Woods Edge development as a gathering place for Lino Lakes' residents and visitors from around the region.
b. Ensure that community facilities are adequate to serve additional needs.
c. Establish a regional library in Lino Lakes.

### Goal 3: Maintain quality public facilities and the full complement of city services to the residents of Lino Lakes.

**Policies:**

a. Ensure that governmental buildings and services are located to offer ease of access and minimal response time.
b. Provide for adequate maintenance of the city's buildings and equipment and for their orderly replacement.
c. Fully plan for and program city services to support growth.
d. Hold public buildings to high architectural standards to create a sense of community identity, ensure land use compatibility, and to serve as examples for private development.

# Community Facilities Inventory and Future Needs

Figure 11-1 identifies the various public facilities in Lino Lakes, including municipal facilities, parks, trails, and solid waste disposal facilities. Schools and school district boundaries are shown on Figure 11-2.

## Civic Complex

The City of Lino Lakes built its civic complex on publicly owned land near Lake Drive and I-35W to help drive the development of a new downtown area. The Civic Complex, completed in 1999, houses the City Council Chambers and various departments including Administration, Finance, Community Development, Parks and Recreation, and Public Safety. A wing of this building, formerly housing the Centennial School District Early Childhood Center, has now been repurposed and is leased to a private day care facility. Currently, space is adequate at the Civic Complex, however the city will continue to monitor space needs to ensure the provision of adequate space for future public uses.

## Public Works Building

The Lino Lakes Public Works Building is located at the old City Hall on Main Street. The 11,000-square foot facility was built in 1971. The facility currently houses the Street, Parks, Water, Sewer and Fleet departments. The facility is not of sufficient size for the departments to function adequately. The lack of storage space results in many vehicles and equipment being parked and stored outside exposed to the elements. Continual growth of the city will require improvements and expansion of the existing facilities to maintain efficient operations. The City Council is currently evaluating options for improvements.

## Lino Lakes Senior Center

The Senior Facility is currently housed within the Public Works Building, and occupies approximately 2,000 square feet. This facility provides a variety of social and recreational activities for Lino Lakes' senior population. As the population of Lino Lakes ages, demand for services and activities for seniors will likely increase.

## Fire Stations

Until 2016 Lino Lakes was served by the Centennial Fire District through a joint powers agreement with the cities of Centerville, Circle Pines and Lino Lakes. Lino Lakes has now formed its own Fire Division within the Public Safety Department. It is staffed with a combination of paid-on-call firefighters and police officers who are cross-trained to respond to fire calls. There are two fire stations. Fire Station Number 1 was built in 1991 and serves the northwest area of the city. It was formerly operated as the Centennial Fire Station #2/ Lino Lakes Station. Fire Station Number 2 was completed in 2015 and serves the southern and eastern areas of the city. The new station includes a state-of-the-art training facility.

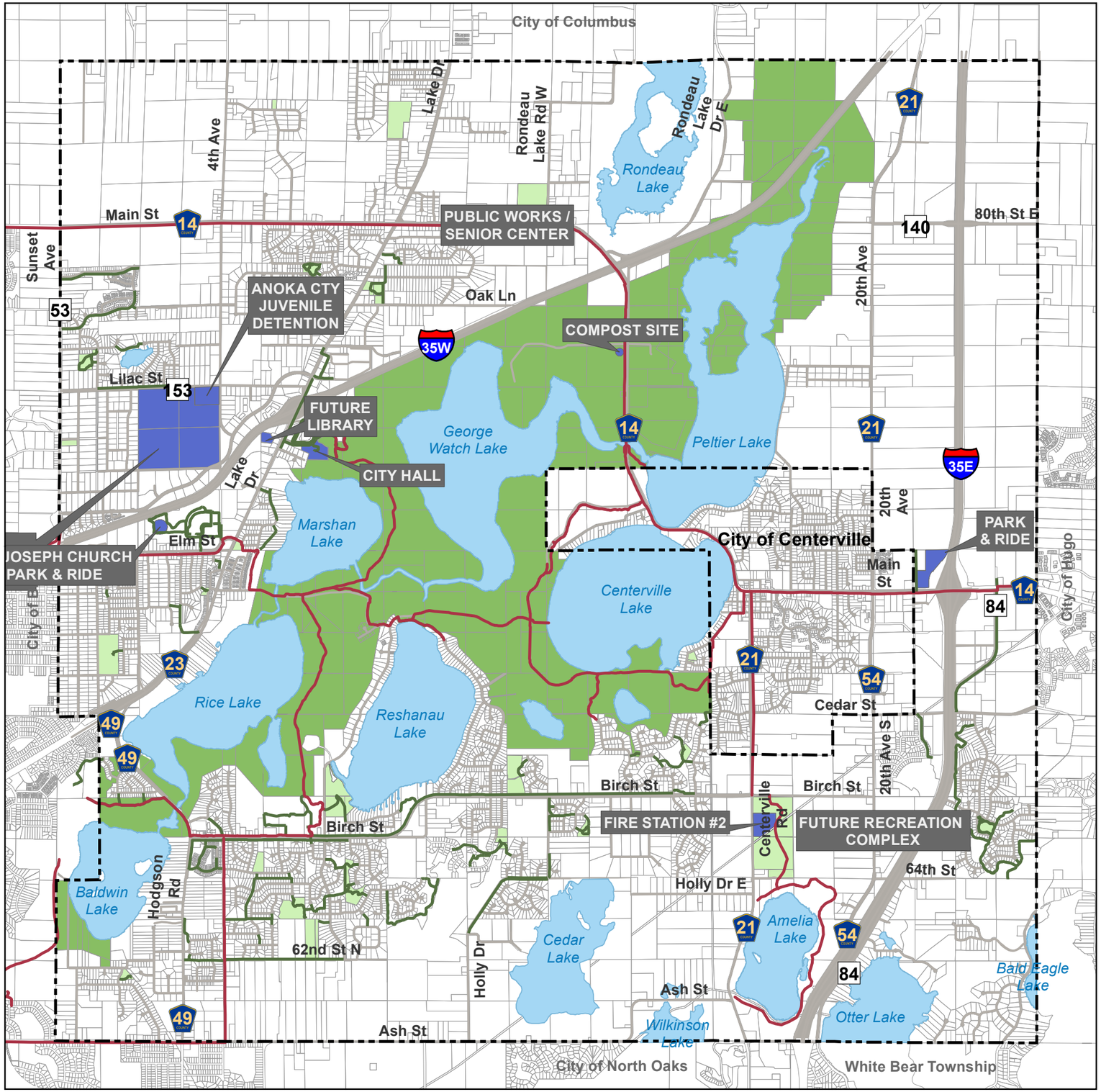







CITY OF LINO LAKES 2040 COMP PLAN

# Figure 11-1
# Community Facilities




## Legend

- Municipal Trails
- Regional Trails
- Public Facilities
- Regional Parks
- Municipal Parks
- Open Water
- Right-of-Way
- Municipal Boundaries
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 11/14/2019

## Parks, Open Space, and Trails

Complete information on existing and future parks, open space, and trails in Lino Lakes is provided in Chapter 10, Park, Greenways and Trails.

### Future Recreation Complex

Programmed athletic activities currently use the city's two community parks and the numerous neighborhood parks. Limitations exist due to the physical sizes of the parks and their locations within existing residential neighborhoods. Parking and traffic generated by programmed activities, particularly team sports, impacts the residential neighborhoods around the neighborhood parks. These issues, and the increasing demand for recreational activities as the city grows, create the need for additional facilities and thus the need for additional parkland.

Anticipating this need, the city acquired 67 acres at the southeast corner of Birch Street and Centerville Road. The area is primarily agricultural and includes only very low density, rural home sites. A large athletic complex at this location would provide for large scale activities, including team sports, and minimize traffic and parking conflicts with neighborhoods.

## Solid Waste

### Recycling

Curb side recycling is available to all residents living in single family homes, townhouses and condominiums. Licensed haulers offer single-sort recyclables collection on the same day as solid waste pickup. Apartment complexes, commercial and industrial uses must set up recycling services through their garbage hauler. Drop-off organics recycling options are also available, with a curb-side pickup option scheduled to begin in 2018. The City regularly hosts recycling drop-off days for special materials, such as appliances, clothing, electronics, fluorescent lights, household goods, etc.

### Rice Creek Chain of Lakes Compost Site

Anoka County currently operates a compost site within the city available to all Anoka County residents, located at 7701 Main St, Lino Lakes, south of 35W off CSAH 14 (Main Street). The site accepts leaves, grass clippings, weeds, garden wastes, soft-bodied non-woody plant pruning, sod (residential quantities), acorns, pine needles, brush, logs and stumps.

### Anoka County Household Hazardous Waste Facility

Anoka county operates this drop-off facility, available to city residents, at 3230 101st Ave NE, Blaine. Unusable or unwanted chemicals are considered household hazardous waste when their disposal poses an environmental or health threat. When disposed of in the garbage, down the drain or on the ground, some household chemicals can threaten our environment, harm garbage collectors or hurt you.

## Libraries

The Anoka County Library System serves the City of Lino Lakes. There are no library branches located within city limits; however, there are libraries nearby in Blaine, Circle Pines, and Ham Lake. Anoka County acquired a site for a future Lino Lakes branch at the southwest quadrant of the intersection of Lake Drive and I-35W. A library branch within the community would be an asset for Lino Lakes' existing and future residents. However there are no active plans to construct a library at this time.

## Transit Facilities

The Metropolitan Council owns and operates the I-35E and County Road 14 Park and Ride facility at 7170 21st Avenue North. It includes 300 surface parking spaces, waiting shelters, lighting and bike racks. Commuters may access express bus service to downtown St. Paul. Car poolers may also use the lot. Another Park and Ride facility at St. Joseph's Catholic Church, 171 Elm Street, serves express bus riders on I-35W to downtown Minneapolis.

## State of Minnesota Facilities

Lino Lakes hosts the Minnesota Department of Corrections Lino Lakes facility, located at 7525 Fourth Avenue. A medium-security and minimum-security prison, it has a population of 1,300 adult men. It opened in 1963 as a juvenile facility. In 1978, it was remodeled and converted to an adult facility. Anoka County also operates its East Central Regional Juvenile Detention Facility at this location.









## Schools

Three school districts serve Lino Lakes. District boundaries and school locations are show on Figure 11-2. These districts are Centennial School District No. 12, Forest Lake Independent School District No. 831, and White Bear Lake Independent School District No. 624. Most Lino Lakes falls into the Centennial Independent School District No. 12. This district also includes the cities of Blaine, Centerville, Circle Pines, and Lexington. The northern section of the city falls into the Forest Lake Independent School District No. 831. This district also includes the cities and townships of Forest Lake, May Township, Scandia, Wyoming, Columbus, Linwood Township, and parts of Marine-on-St. Croix, Hugo, Stacy, Ham Lake, Wyoming Township, and East Bethel. The southeastern edge of Lino Lakes falls into the White Bear Lake Independent School District No. 624. This district also includes the cities of Birchwood, Gem Lake, Hugo, Little Canada, North Oaks, Vadnais Heights, White Bear Lake, and White Bear Township.

Two of the three school districts have school facilities located within Lino Lakes city limits. The following school facilities are in Lino Lakes:

**Table 11-1: Lino Lakes Public Schools**

| Map # | School | Opened | Grades |
|---|---|---|---|
| **Centennial School District No. 12** | | | |
| 1 | Blue Heron Elementary, 405 Elm Street | 2002 | Pre-School through 5 |
| 2 | Centennial Middle School, 399 Elm Street | 1992 | K through 5 |
| 3 | Rice Lake Elementary, 575 Birch Street | 1992; addition 2016 | Early Childhood Education K through 5 |
| **Forest Lake Independent School District No. 831** | | | |
| 5 | Lino Lakes Elementary, 725 Main Street | 1952; additions 1976, 2002 & 2017 | K through 6 |

The city will continue to work with each of the school districts within the community to adequately plan for community growth, school facilities, and shared facility issues. To assist the school districts in planning for projected growth, projected household and population growth through 2040 is provided for each school district in Table 11-2. This data will allow the school districts to better plan for serving new students that may reside in Lino Lakes over the next 20 years.

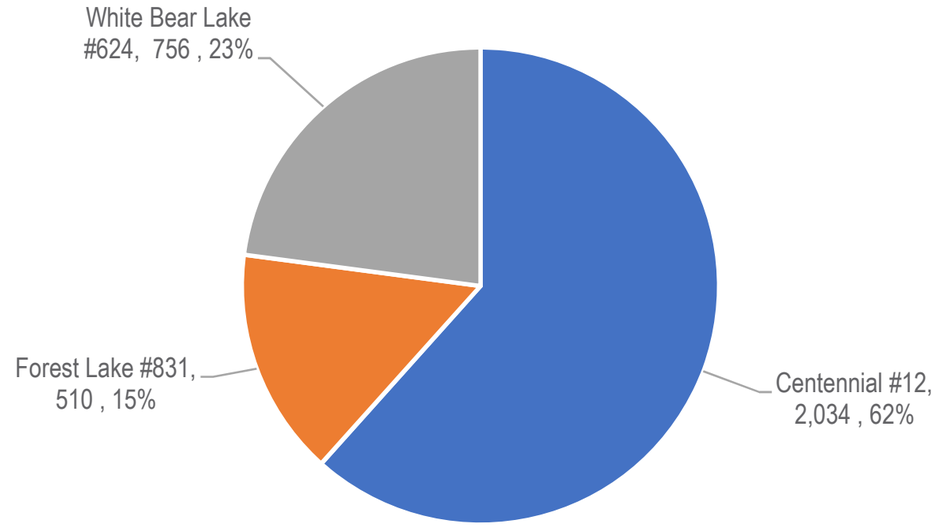
The projections are based on the Metropolitan Council's forecasts for Lino Lakes' growth, allocated by the availability of land for residential development in each district as provided by the Land Use Plan and Utility Staging Plans found in Chapter 3, Land Use. As illustrated by Figure 11-3, about 60% of the available land is in the Centennial School District No 12, so the most growth is expected in that district.

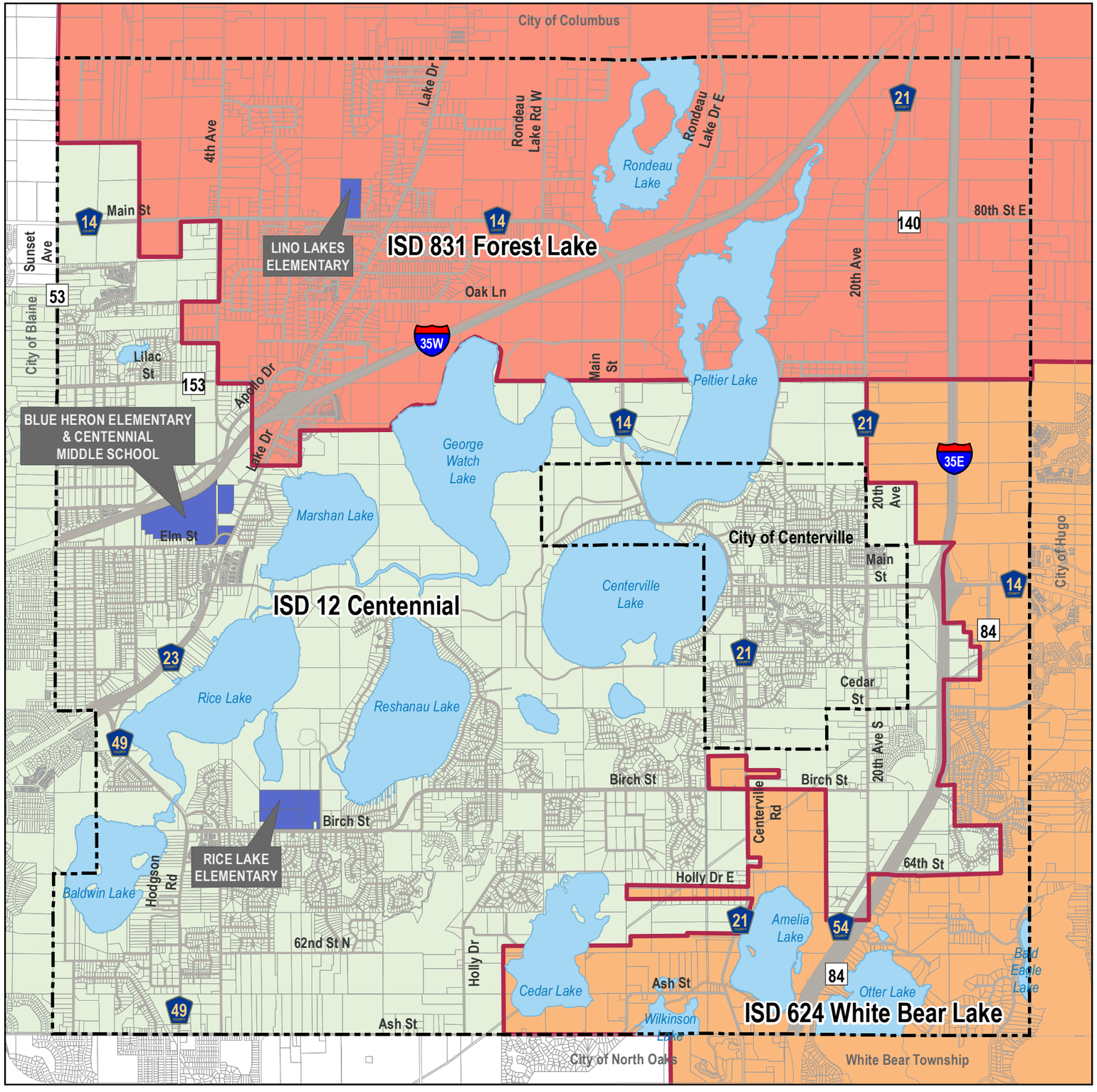
**Table 11-2. Projected Population and Household Growth by School District**

| | 2020-2030 | | 2030-2040 | | Total, 2020-2040 | |
|---|---|---|---|---|---|---|
| District | Population | Households | Population | Households | Population | Households |
| Centennial #12 | 2,755 | 1,142 | 2,341 | 892 | 5,095 | 2,034 |
| Forest Lake #831 | 396 | 164 | 909 | 346 | 1,305 | 510 |
| White Bear Lake #624 | 949 | 394 | 951 | 362 | 1,900 | 756 |
| Total Growth Forecast | 4,100 | 1,700 | 4,200 | 1,600 | 8,300 | 3,300 |

Source: Metropolitan Council Forecasts and City of Lino Lakes

**Figure 11-2. Household Growth by School District, 2020-2040**






CITY OF LINO LAKES 2040 COMP PLAN

# Figure 11-3
# School Districts

## Legend

- Schools
- ISD 12 Centennial
- ISD 831 Forest Lake
- ISD 624 White Bear Lake
- Open Water
- Right-of-Way
- Municipal Boundary
- Parcels

3,500 1,750 0 3,500 Feet

N

Date: 1/31/2018

# Chapter 12: Implementation



## Introduction

The Comprehensive Plan is the principal tool for guiding the development of Lino Lakes. The community's vision for the future will be realized only if the plan is implemented. The purpose of this section is to provide guidance on using the plan. Using the plan requires balancing the community aspirations and adapting to conditions that will change over the life of the plan. It also provides a "to-do list" of work the city should do to ensure that the plan is implemented in the future.

## Current Zoning

The Metropolitan Council requires that the implementation plan include a current zoning map and a description of zoning districts that include allowable density/intensity of use and lot sizes. This information is provided in Appendix D.

## Amendments and Updates

The city will periodically review the Comprehensive Plan and amend it to reflect changing needs and conditions. The city will perform a review at least once every five years to ensure the plan addresses changing needs and conditions. Plan amendments will need to follow the process required by City Code and state statutes.

## Implementation Tools

### Official Controls

Official controls, such as zoning regulations, subdivision regulations, and the official zoning map, must be consistent with the Comprehensive Plan. These controls represent the rules and regulations that govern city decisions regarding growth and development. The city will update its official controls within 9 months of plan adoption.

### Capital Improvement Plan

The Capital Improvement Plan (CIP) addresses future needs in the areas of infrastructure extension and replacement, municipal buildings and facilities, park improvements, and equipment replacement. The CIP includes project descriptions, cost estimates, financial resources and cash flow analyses. The CIP, while adopted annually, is a work in progress and must be reviewed and revised to stay viable. The CIP will serve as the foundation upon which future CIPs may be developed and refined. As conditions change, the city must adjust to and accommodate such changes within the CIP.

The city's current CIP is in Appendix D. The city updates the CIP annually. The capital improvement planning process that occurs each fall will assess the plans and programs recommended in the Comprehensive Plan and incorporate the recommendations as appropriate.

### Intergovernmental Coordination

Implementing the Comprehensive Plan will require continued coordination with many municipalities, counties, agencies and organizations. Lino Lakes is:

- within or adjacent to three counties (Anoka, Washington, and Ramsey),
- adjacent to 10 municipalities (Centerville, Hugo, White Bear Township, North Oaks, Shoreview, Circle Pines, Blaine, Ham Lake, Columbus, and Forest Lake),
- within three school districts (Centennial School District No. 12, Forest Lake Independent School District No. 831, and White Bear Lake Independent School District No. 624),
- within two watershed districts (Rice Creek Watershed District and Vadnais Lakes Area Watershed Management Organization),
- served by two interstates (I-35W and I-35E) and numerous county roads, and
- served by the Rice Creek Chain of Lakes Regional Park Reserve and regional trails.

Continued coordination with these entities is integral to ensuring implementation of this plan.

### Public Education and Outreach

The entire Lino Lakes community will be affected by the Comprehensive Plan and the public's involvement in supporting and helping achieve the plan's vision and goals is critical to its successful implementation. The city has several public education and outreach tools available including the city website (www.ci.lino-lakes.mn.us), the city newsletter, special mailings and publications, public hearings, community meetings, and advisory panels. These tools will be used to involve the public in implementing the plan.

### Economic Development Tools

Chapter 5, Economic Development, includes a list of the statutory powers and tools granted to the city to assist with economic development, and some of the considerations the city must take into account when deciding when, where and how to use these tools.

### Timing of Implementation Strategies

The timeframe within which the City intends to carry out each strategy is included in the following tables. Some strategies represent activities or programs already in place that the City plans to continue. These are listed as "ongoing". The timing and priority of these strategies should be regularly reevaluated as part of the City's annual goal setting and work planning process. For capital projects, the project timing is based on when the project will be included in the City's Capital Improvement Program (CIP). The timing, cost and funding source for each project is reevaluated and the CIP is updated by the City annually. Timing for these strategies is as follows:

**Ongoing:** Continuous or existing effort
**Short:** 1-5 years; included in the 5-year CIP
**Medium:** 5-10 years: this will be needed to serve the 2040 MUSA
**Long:** May not be needed until the City next updates the Comprehensive Plan.

This implementation plan is not intended to include all planning and policy efforts that the City will undertake to fulfill the goals of the Comprehensive Plan. It is intended to identify major initiatives, those that represent a new direction or require significant efforts by the Council, Commissions or staff.

The entire Comprehensive Plan will be reevaluated, at a minimum, every 10 years as required by State Law. The implementation strategies identified as long term, will be reevaluated when the City prepares the next Comprehensive Plan update.

# Implementation Strategies by Plan Chapter

## Land Use

To implement the goals and polices of the Land Use Plan, the city will consider the following actions:

| | Timing |
|---|---|
| **1. Review and update the zoning map as needed to eliminate any inconsistencies with the Comprehensive Plan.** | **Short** |
| **2. Evaluate the purpose and intent of the Planned Unit Development (PUD) process**<br>a. Review PUD minimum requirements and amend as necessary to meet city goals.<br>b. Consider establishing minimums for lot area and garage size in a PUD.<br>c. Consider limiting PUD flexibility to certain standards, such as lot width/depth, street width, setbacks, etc. | **Short** |
| **3. Consider creating new zoning districts:**<br>a. As "holding zones" for urban development. Holding zones would provide a zoning classification appropriate to land planned for future urban development but where municipal services are not yet available. The holding zone would apply until a landowner/ developer makes application for development, at which time the city may rezone the property consistent with its designation on the future land use plan map, provided that the development does not result in the premature extension of public utilities, facilities or services.<br>b. To implement the new "Business Campus" land use classification. | **Short** |
| **4. Review and update the existing residential zoning district requirements and subdivision regulations to ensure that the densities allowed in the plan can be achieved.** | **Short** |
| **5. Create a method of providing incentives, such as density bonuses and fee reductions, for development projects that achieve specific goals in the Comprehensive Plan.** | **Short** |
| **6. Develop design standards to ensure high quality residential, commercial and industrial development in the community, including:**<br>a. Standards for commercial developments so they are more attractive, user friendly, and integrated into the surrounding neighborhoods and adjacent areas.<br>b. Ways to strengthen and maintain the appearance of the city's gateways and key transportation corridors.<br>c. Guidelines for new development that are intended to sustain Lino Lakes' unique natural features. | **Short** |
| **7. Update natural resource protection standards in ordinances:**<br>a. Review and modify the maximum allowable impervious surface coverages for each Residential land use category.<br>b. Review and update site planning and stormwater management requirements to promote Low Impact Development (LID) techniques.<br>c. Use the Environmental Review/ Alternative Urban Areawide Review (AUAR) process to assess the impact of development on the city's natural resources and infrastructure. | **Short** |
| **8. Ensure that the development review process integrates land use with all other aspects of the plan:**<br>a. Ensure that the timing of development is consistent with the planned and programmed parks and open space, transportation, sewer and water systems.<br>b. Monitor the staging plan annually and review the supply of available land.<br>c. Coordinate with city police and fire departments as growth occurs in Lino Lakes to ensure that resources are in place to adequately serve the community. | **Ongoing** |
| **9. Promote community involvement in the development process and city affairs:**<br>a. Provide ample opportunities for community involvement and input for planning projects within the city through citizen advisory groups, public open houses, other stakeholder meetings, and surveys.<br>b. Continue to provide updates on development and planning projects in the city's newsletter.<br>c. Use the city's website to provide information and obtain input on planning and development projects in the city. | **Ongoing** |
| **10. Complete master plans as noted in the individual planning districts.** | **Medium** |

# Housing

To implement the goals and polices of the Housing Land Use Plan, the city will consider the following actions:

| | Timing |
|---|---|
| **1. Review and update the zoning and subdivision ordinances to identify and reduce impediments to affordable housing, including:** | **Short** |
| a. Periodically review land use regulations to determine their effectiveness in encouraging additional affordable units as well as allowing improvements to keep the existing housing stock desirable and livable. | |
| b. Offer incentives to developers who provide for affordable housing units while conserving environmentally sensitive sites, such as density bonuses, expedited permitting processes, or reduced fees. | |
| c. Ensure that all new housing including high density adheres to the highest possible standards of planning, design and construction. | |
| d. Promote development of neighborhoods that incorporate housing in a range of densities and affordability limits near shopping, services, daycare, and medical services. Safe access to parks and schools, and the ability to walk, bike or have access to transit should be part of the design. | |
| e. Use the Planned Unit Development process to provide flexibility for development containing affordable housing such as a reduction in lot size, setbacks, street width, floor area and parking requirements, density bonuses and consideration of reduction in city fees. | |
| **2. To promote maintenance of the existing housing stock, the city will:** | **Ongoing** |
| a. Continue enforcement of the Housing Maintenance Code. | |
| b. Maintain the city rental licensing program and enforcement efforts. Consider expanding the program to include single family rentals. | |
| c. Support and promote all county and state programs and non-profit programs providing housing rehabilitation funds for existing owner-occupied homes and rental buildings or units. | |
| d. Promote programs that encourage maintenance of existing housing such as a housing remodeling fair, neighborhood watch programs, city beautification programs, city wide clean-up program. | |
| e. Consider the use of all widely accept housing tools as noted in Goal 4 of the Housing Chapter. | |
| **3. Pursue funding opportunities to increase the affordability of new housing units, including:** | **Ongoing** |
| a. Use the powers and tools of the Economic Development Authority and the City Housing and Redevelopment Authority to make funds available for the creation of new affordable housing. | |
| b. Continue policies to use Tax Increment Financing to fund activities that increase new affordable housing. | |
| c. Seek housing developers to work cooperatively with the City to construct affordable units. | |
| d. Support and actively promote Anoka County's 1st Time Homebuyers programs to assist new homeowners entering the market for existing homes. | |
| e. Partner with, support and market programs offered by the County, State, MHFA, Federal Government and non-profits to fund the development of affordable housing. | |
| f. Utilize the city's website, newsletter and other sources for promotion and advertising of housing programs. | |
| g. Consider the use of all widely accepted housing tools as noted in Goal 4 of the Housing Chapter. | |
| **4. To improve opportunities for senior housing the city will:** | **Ongoing** |
| a. Cooperate with developers or other agencies as appropriate to assess senior housing needs in the community. | |
| b. Develop a list of available resources and providers of in-home services to older adults and those with special needs. | |
| c. Consider the use of all widely accepted housing tools as noted in Goal 4 of the Housing Chapter. | |

## Economic Development

To implement the goals and polices of the Economic Development Plan, the city will consider the following actions:

| | Timing |
|---|---|
| 1. Collaborate with business support organizations to serve the needs of current and future businesses. | Ongoing |
| 2. Develop strategies and programs to attract high tech and high value industrial and business and professional services enterprises that have an emphasis on job creation. | Ongoing |
| 3. Continue to support local business retention and expansion initiatives by implementing a Business Retention and Expansion Program. | Ongoing |
| 4. Promote the rehabilitation and redevelopment of existing commercial facilities by continuing to pursue and make available various financial programs and assistance. | Ongoing |
| 5. The Economic Development Advisory Committee (EDAC) will continue to prepare five-year economic development plans and one year action plans. | Ongoing |
| 6. Consider the use of available financial incentives (i.e. TIF/tax abatements/grants, etc.) to attract businesses to relocate or start up in Lino Lakes. | Ongoing |
| 7. Work to actively market Lino Lakes as a great place to live and work. | Ongoing |
| 8. Promote development of identified "Opportunity Areas": Legacy at Woods Edge, CR 49/J and I-35E Corridor. | Ongoing |

## Transportation

To implement the goals and polices of the Transportation Plan, the city will consider the following actions:

| | Timing |
|---|---|
| 1. The city should periodically review and update the Transportation Plan and its traffic forecasting model, based on estimates of future development, population trends, changing financial resources, and citizen and local government input. Depending on the speed and degree of change, it is recommended that the plan be reviewed at least every five to ten years. | Short |
| 2. The City of Lino Lakes will continue to coordinate with adjacent jurisdictions (i.e., Blaine, Hugo, North Oaks, Shoreview, and Circle Pines) as well as Anoka County, Ramsey County, Washington County, and MnDOT when planning future improvements. Coordination among jurisdictions will provide opportunities for collaboration that could benefit all agencies and the public. This may result in financial and time savings through economies of scale, as well as potentially reducing construction impacts to residents through the coordination of projects. | Ongoing |
| 3. Recommended changes to the functional classification system will be adopted by the city as part of the adoption of the overall Comprehensive Plan Update. Changes that involve "Other" Minor arterials, Major Collectors or Minor Collectors may be made without the approval of another agency, provided these changes are consistent with state and county plans. However, the changes and the resulting functional classification should be officially reported to the Metropolitan Council under separate communication to ensure that the Metropolitan Council has the opportunity to update their records. Any proposed change to a Principal Arterial or 'A' Minor Arterial designation will need to be approved by the Transportation Advisory Board (TAB) of the Metropolitan Council. Since these changes are likely to involve either state or county roadways, the city should work closely with these agencies to ensure that the process of approval is carried forward. | Ongoing |
| 4. The City of Lino Lakes will work to support the access management guidelines of other jurisdictions. The city is aware that both Anoka County and the Minnesota Department of Transportation (MnDOT) have access guidelines managing their | Ongoing |

| | |
|---|---|
| roadways located within Lino Lakes. The city acknowledges these guidelines and will work with these agencies to support access management in the City of Lino Lakes by amending its official controls to include both MnDOT's and Anoka County's access guidelines. However, due to existing development patterns there may be some redevelopment areas that do not meet the minimum access spacing guidelines and/or have joint access agreements between properties. The city will work with these property owners and Anoka County and/or MnDOT as necessary to develop acceptable access management plans for these exceptions | |
| 5. The Transportation Plan is designed to review transportation needs at a policy level and does not make recommendations for design. Each recommended improvement should be studied in more detail through an engineering study to verify the need and identify the exact nature of the improvement. Such studies will also serve to identify specific projects that will be designed to achieve the improvements recommended in the plan. The cost and schedule of individual projects should be addressed in preliminary and final design. | Ongoing |
| 6. The city should continue to pursue jurisdictional transfer of their half of County Road J from CSAH 21 (Centerville Road) to I-35E from the City of Lino Lakes to Anoka County's jurisdiction. The other half of the roadway is currently under Ramsey County jurisdiction. | Ongoing |
| 7. An overall strategy of improvement should be developed and adopted that considers the recommendations contained in the plan. To meet the objective of completing recommended improvements to the roadway system within the planning horizon of the plan, the city will continue to develop, in cooperation with the state and the county, a list of projects that will collectively result in the achievement of the desired system. These projects should be prioritized in such a way that overall system benefits are maximized.<br>a. The following projects should be included in the city's 2018-2022 Capital Improvement Plan:<br>- Cedar Street – East City Limit to CSAH 84 (Otter Lake Rd)<br>- CR J (Ash Street) at CSAH 21 (Centerville Road) Intersection Improvements<br>- CSAH 84 (Otter Lake Road) Extension – Elmcrest Drive (Hugo) to 100 feet north of CSAH 14 (Main Street) | Ongoing |
| b. The city should continue to work with Anoka County on improvements to CSAH 34 (Birch Street).<br>c. The city should continue to work with Anoka County, Ramsey County and MnDOT to implement a full interchange at I-35E and County Road J.<br>d. The city should continue to work with Anoka County, MnDOT and the Metropolitan Council to plan for the connection of CSAH 14 (Main Street) to 80th Street E via a "northern bypass", including a new I-35E interchange and a new I-35W interchange, as described in the 2004 CSAH 14 Study. | |
| 8. The city has developed and adopted a Comprehensive Pavement Management Plan to plan for the maintenance and reconstruction of the city's streets in a responsible and cost-effective manner. This includes accessing approximately one quarter of the city roadways on an annual basis. This plan should be updated periodically (every two to five years). | Ongoing |
| 9. The city has developed and adopted a Traffic Policy to document processes and procedures for locating and installing traffic devices, to include: signage, pavement markings and traffic calming devices specifically within neighborhoods to address speeding, traffic control (stop signs) and cut through traffic issues. These policies should continue to be followed. | Ongoing |
| 10. The city's trail systems should be developed and improved to encourage bicycling and walking as alternative transportation modes. Trails should link residential uses to schools, neighborhoods, athletic complexes, and both local and regional parks as well as commercial nodes within the city. To the extent possible, trails should be developed concurrently with the infrastructure of the subdivision or new development. | Ongoing |

## Local Water Management Plan

To implement the goals and policies of the Local Water Management Plan, the city will consider the actions summarized in Chapter 7 and in the full Local Water Management Plan, incorporated into the Comprehensive Plan as Appendix A. Priority implementation steps are outlined below:

| | Timing |
|---|---|
| 1. The city will develop subwatershed management plans for each Resource Management Unit (RMU). Priority should be given to the Peltier/Clearwater Creek, Marshan and Reshanau RMU's. | Short |
| 2. The city will establish stormwater reuse alternatives for incorporation into new and redevelopment projects. | Short |
| 3. The city will Implement design guidelines for the Northeast Lino Lakes Comprehensive Stormwater Management Plan (CSMP). | Short |
| 4. The city will implement a Natural Resource Revolving Fund through the establishment of wetland banks to assist with natural resource protection and stewardship. | Short |
| 5. The city will review and revise maximum allowable impervious surface requirements for low and medium density residential districts. | Short |
| 6. The city will incorporate applicable Better Site Design Standards into development standards to protect high priority wetlands, enhance groundwater protection and protect groundwater dependent nature resources. | Short |
| 7. The city will evaluate revisions to road design standards to minimize or reduce surface water runoff and improve water quality. | Medium |

## Sanitary Sewer

To implement the goals and polices of the Sanitary Sewer Plan, the city will consider the following actions:

| | Timing |
|---|---|
| 1. The city will annually review and evaluate the sanitary sewer rate structure and connection charges, to assure adequate funding of the sanitary trunk system. | Ongoing |
| 2. The city will review development proposals in light of the future sanitary sewer system layout presented in the 2040 Sanitary Sewer Plan, and incorporate needed trunk sewers into developers' plans where appropriate. | Ongoing |
| 3. The city will investigate the costs and benefits of requiring "point of sale" inspections for Subsurface Sewage Treatment Systems SSTS in addition to the periodic inspections currently required. The city will update City Code to comply with amendments to MN Rule 7080. | Short |
| 4. The city will initiate negotiations with White Bear Township to formalize the agreement to reserve capacity in the township's Centerville Road sewer for additional effluent generated as development occurs in Sewer District 4. | Short |
| 5. The city will continue to monitor and correct inflow and infiltration (I/I) throughout the sanitary sewer system. | Ongoing |
| 6. The city will review the Capital Improvement Plan annually, with particular attention to projects upcoming during the next two-year period. | Short |

## Water Supply

To implement the goals and polices of the Water Supply Plan, the city will consider the following actions:

| | Timing |
|---|---|
| 1. The city will annually review and evaluate the water rate structure and connection charges, to assure adequate funding of the water supply system. | Ongoing |
| 2. The city will review development proposals in light of the future water system layout presented in the 2040 Comprehensive Water Supply Plan, and incorporate needed new mains, water towers, wells and water treatment into developers' plans as appropriate. | Ongoing |
| 3. The city will implement the Wellhead Protection Plan to protect the groundwater source from contamination. | Short |
| 4. The city will continue working with adjacent communities to provide adequate water for emergency service. | Ongoing |
| 5. The city will protect its water supply through conservation efforts that reduce water demand, improve water use efficiency, and reduce loss and waste of water. | Ongoing |
| 6. The city will initiate negotiations with White Bear Township to provide interim water service to District 4 and permanent service to the West Oaks area. | Short |
| 7. The city will review the Capital Improvement Plan annually, with particular attention to projects planned within the next two years. | Ongoing |

## Parks, Greenways and Trails

To implement the goals and polices of the Parks, Greenways and Trails Plan, the city will consider the following actions:

| | Timing |
|---|---|
| 1. Prior to undertaking park development or redevelopment projects, the city will prepare a master plan to ensure the park will meet the needs of the community, and to avoid unnecessary duplication of amenities and infrastructure. If possible, the plan should be completed or updated no more than two years before undertaking a project. The plan identifies the need for the following park master plan projects:<br>a. Country Lakes Park (new master plan)<br>b. Century Farms North Park (new master plan)<br>c. Lino Park (updated master plan)<br>d. Arena Acres (updated master plan)<br>e. Recreation Complex (updated master plan) | Short |
| 2. The city will use its CIP to identify funding sources, prioritize and implement redevelopment and improvement projects for existing parks. This includes replacing or improving items such as playground equipment, shelters, picnic amenities, courts, sports fields, etc. as they become unsafe, are of poor quality, are at the end of their service live, and/or no longer meet recreational needs. | Ongoing |
| 3. The city will develop new parks using park dedication funds as the primary funding source. If park dedication funds are not adequate to fully develop parks, supplementary funding will be needed from other city revenues and potentially from grants. | Short |
| 4. The city will work cooperatively with the community and willing partner to identify the needs and potential funding sources for recreation facilities and community parks. The city will complete a thorough assessment of athletic field supply and demand. | Ongoing |

| | |
|---|---|
| **5. The city will consider development of joint-use agreements with the school districts to share land and facilities, maintenance and improvement or redevelopment to meet community recreation needs. The city will work with willing partners (community associations and user groups) to identify potential shared funding sources.** | **Ongoing** |
| **6. The city will continue to hold land in reserve for a recreation complex, and look for additional land acquisition opportunities to ensure adequate space for future facilities.** | **Ongoing** |
| **7. The city will continue to work with developers and use strategies such as conservation development to complete the greenways and open space system. Wetland banking will also play a role in providing some additional funds for acquiring land for the greenway system and protecting natural resources.** | **Ongoing** |
| **8. The City will implement the trail system concurrent with new housing developments, road construction/reconstruction projects and as funding is available.** | **Ongoing** |
| **9. The city will consider using the following funding sources for park acquisitions and improvements, as appropriate:**<br>a. General Levy: Yearly budget allocated to park, greenway and trail improvements, replacements, operation and maintenance, primarily derived from property taxes.<br>b. Park Dedication: Cash and/or land contributions from developers when land is subdivided for new development.<br>c. Grants: Many types are available, typically very competitive. Some are small amounts and most have a shared match policy.<br>d. Bond Referendum: Residents may vote to allow the city to issue bonds, to construct new facilities in the short term, to be paid back in the long term (such as 10 to 15 years or more.) While Lino Lakes' previous attempts at a bond referendum have been defeated, the city should continue to work with the community to determine if and when it may be willing to support a bond referendum. | **Ongoing** |

## Community Facilities

To implement the goals and polices of the Community Facilities Plan, the city will consider the following actions:

| | Timing |
|---|---|
| **1. To maintain first-class education for children and also provide educational opportunities for adults:**<br>a. Work with the three school districts serving Lino Lakes to continue the level of education that residents have come to expect.<br>b. Collaborate with the city's three school districts to provide opportunities for and actively market continuing education programs. | **Ongoing** |
| **2. To promote the usage, creation, and uniqueness of community facilities, while also soliciting creative funding sources:**<br>a. Promote the community green within the Legacy at Woods Edge development as a gathering place for Lino Lakes' residents and visitors from around the region by providing music and cultural activities.<br>b. Work with community groups such as athletic associations and service groups to gauge and discuss the demand for additional community facilities to be built in Lino Lakes.<br>c. Collaborate with business partners to help fund additional community facilities.<br>d. Market the use of community facilities for events such as youth athletic tournaments, social gatherings, and other community events.<br>e. Identify and market existing resources that are available for community use.<br>f. Promote usage of the city's and other community groups' websites, access cable channels, buildings, and other resources.<br>g. Continue to work with the Anoka County Library System to establish a regional library in Lino Lakes. | **Ongoing** |

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|---|---|
| **3. To maintain quality public facilities and the full complement of city services to residents:**<br>a. Plan for necessary new or expanded public facilities through an annual capital improvement program.<br>b. Hold public buildings to high architectural standards to create a sense of community identity, ensure land use compatibility, and to serve as examples for private development.<br>c. Continually assess the condition of maintenance facilities and equipment to ensure that such services continue to meet the needs of the community.<br>d. Consider response time for emergency providers and accessibility to community facilities when conducting development reviews and making other planning decisions. | **Ongoing** |