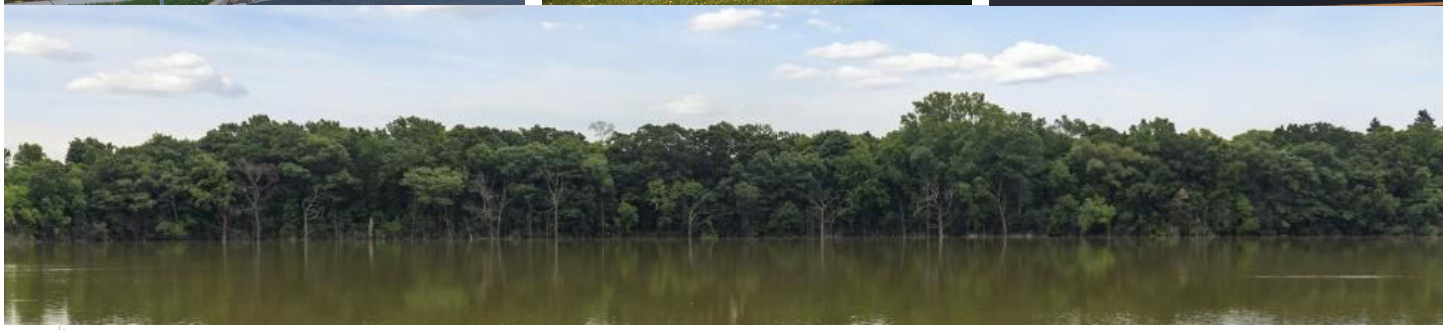
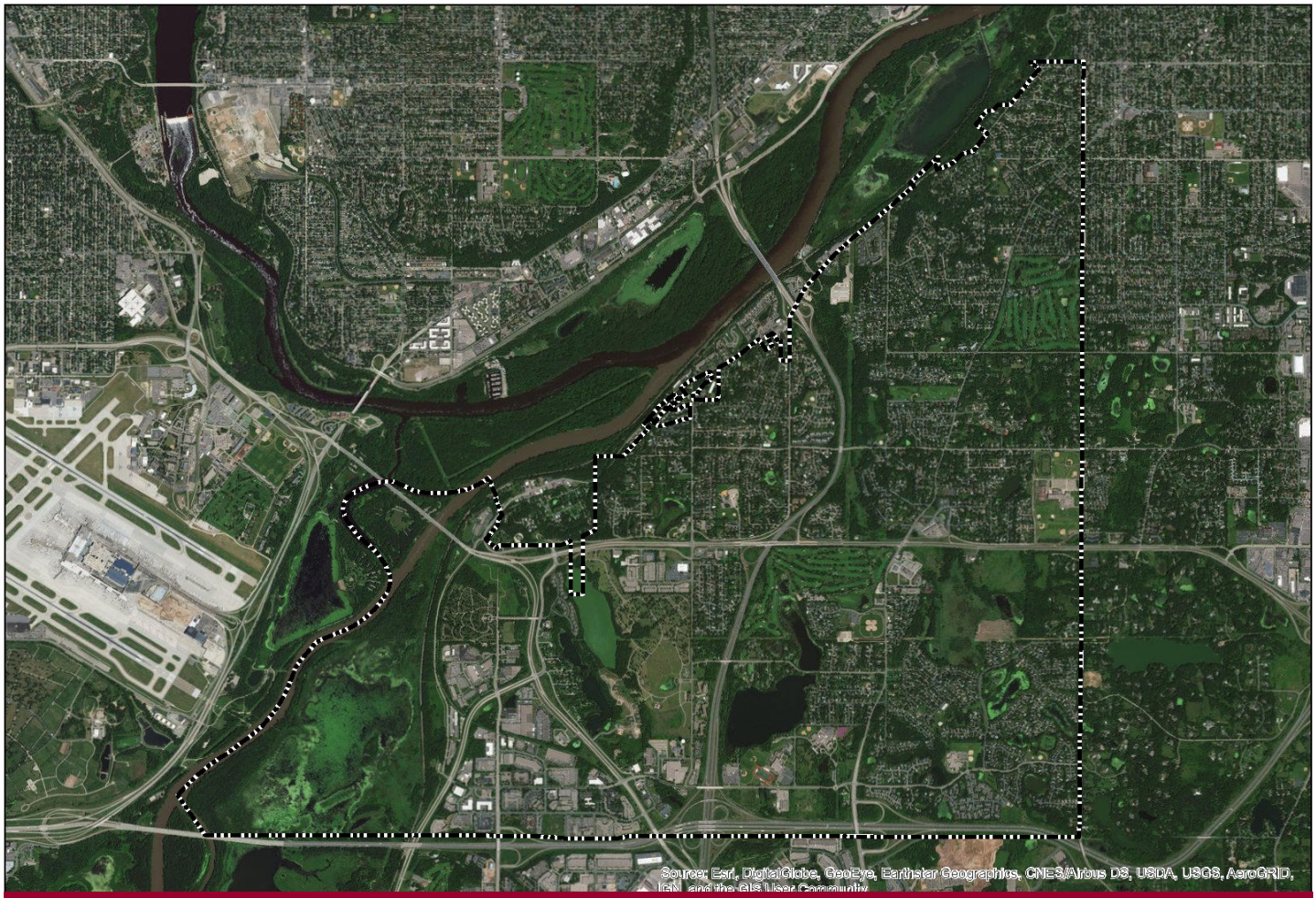


MENDOTA HEIGHTS 2040 COMPREHENSIVE PLAN

DRAFT June 2019



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Residents & Stakeholders

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APPENDICES

Appendix – A : List of Public Information Meetings; Public Hearings; Presentation Materials; and Feedback

Appendix – B: Background Report: Market and Development Context- Tangible Report (dated December 2016)

Appendix – C: Surface Water Management Plan – July 2018

Appendix – D: Resolution Declaring Mendota Heights to be a Pollinator Friendly Community (adopted January 5, 2016); and Native Plant List

1

INTRODUCTION & BACKGROUND

The City of Mendota Heights has a long history and commitment to planning, resulting in unique residential living environments and business centers. The City's first Comprehensive Plan was adopted in 1960, years before the Metropolitan Land Planning Act went into effect, requiring communities to incorporate regional policies and guidelines into their plans. The City has used its Comprehensive Plan to guide decisions since the 1960's; and the community looks much like it was envisioned in 1960, with an emphasis on high quality residential neighborhoods, open space and parks, and well-planned commercial and industrial areas.

The community is essentially developed and is enjoying the fruits of its long-range vision and development policies. Infill properties will continue to be built out, following the community's successful development philosophy. Redevelopment is also happening in select areas, following the City's commitment to provide a high quality of life for its residents and businesses. The City understands its role as part of the greater Metropolitan Region and will continue to plan accordingly. The City has adopted the following Vision and Mission Statements to guide planning and development:

Vision Statement

Mendota Heights will be recognized as a high quality, family-oriented residential community, with a spacious, natural feel and the amenities of a city.

Mission Statement

Our mission is to preserve and enhance the quality of life in Mendota Heights by providing quality public safety, infrastructure, and planning for orderly and sustainable growth.

Plan Organization

This 2040 Comprehensive Plan is organized in chapters similar to the previous 2030 Comprehensive Plan, but with new chapters on Economic Development and Resilience, arranged as follows:

1 Introduction & Background

2 Land Use

3 Transportation

4 Parks & Open Space

5 Housing

6 Economic Development

7 Natural Resources

8 Resilience

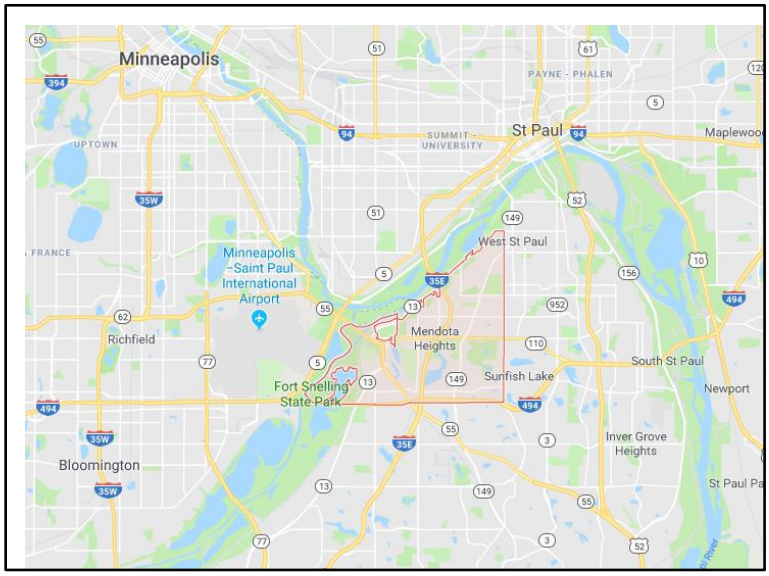
9 Critical Area (Mississippi River Critical Corridor Area)

10 Implementation

Goals and policies for each chapter are included within that chapter and also as one combined set in the Appendix. Surface Water Management Plan (July 2018) will also be appended.

Setting

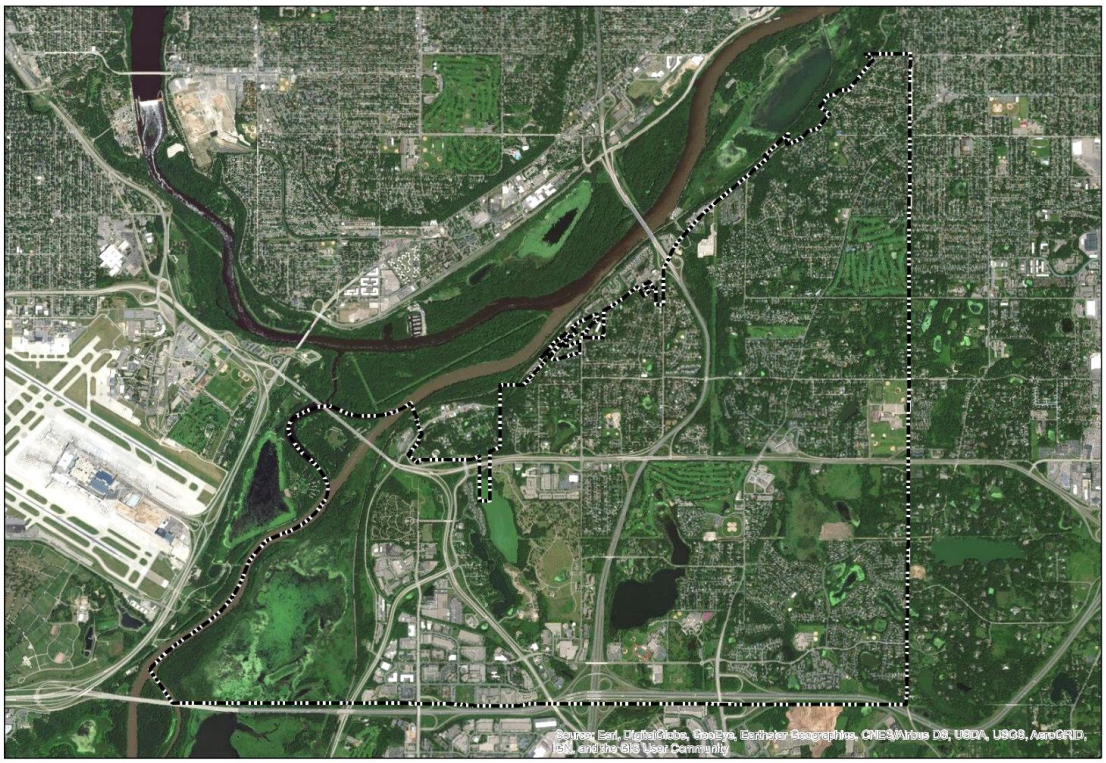
Mendota Heights is located in northern Dakota County, bordering the Minnesota and Mississippi Rivers. The City of Lilydale and the City of Mendota border the City on its northwest side. Across the rivers are the cities of St. Paul and Minneapolis, Fort Snelling and the Minneapolis-St. Paul International Airport (MSP). The east is bordered by Delaware Avenue and the cities of West St. Paul and Sunfish Lake. Interstate



494 divides Mendota Heights from Eagan to the south. Interstate I-35E divides the City north to south.

Despite being near to these major business centers, much of the community maintains a natural, open appearance. The river bluffs, rolling topography, and wooded areas have provided an excellent setting for residential development. The topography has brought about the creation of a curvilinear local street system and allowed for intimate residential neighborhoods to be nestled amongst mature wooded settings, lakes, wetlands, nature preserves, and the Mississippi and Minnesota River bluffs. Mendota Heights is a premier suburb, offering high-quality residential and business areas. Per capita income and property values are among the highest in the area, but homes in more moderate price brackets are also available.

The residents of Mendota Heights enjoy close proximity to an extensive system of regional and local parks, and convenient access to the regional highway system, international airport, and metropolitan employment centers. These factors have helped make Mendota Heights an attractive place to live.



Centrally located in the metropolitan area, the Minnesota and Mississippi Rivers form a natural green belt around it, allowing the community to maintain a quiet, private way of life, unique in the Twin Cities. Mendota Heights achieved its exceptional residential neighborhoods and successful business community by following the comprehensive plans set forth many decades ago. Innovative and

forward thinking on the part of community officials has resulted in a planned community, which affords a high-quality lifestyle for its residents while providing a full array of services and employment opportunities. The community has preserved an abundance of parks and open spaces, encourages spacious residential development, and has planned for diversified, high technology offices and business areas. Excellent schools and a well-educated populace complement the traditional character of the City. Civic pride and aesthetic excellence are high priorities in Mendota Heights.

The community set out early in its incorporated history to create attractive residential neighborhoods by planning for aggressive protection and wise use of its abundant environmental assets. The rich abundance of woods, wetlands, and open space areas that provide the natural feel of the community today, are a testament to the forethought and planning of Mendota Heights' forefathers. As the Twin Cities metropolitan area has grown up around it, Mendota Heights has actively pursued its objective of preserving open spaces, making this community one of the region's most attractive places to live. The environment has played a central role in the City's land use planning.

Mendota Heights has many spacious, green neighborhoods

Process

The process of updating the Comprehensive Plan for Mendota Heights was initiated in late 2016 when Stantec, the City's planning consultant, began updating background information and demographics for the Plan. Stantec also worked with Tangible Consulting, which prepared a report analyzing the market and development context of the City. A background report was shared with the Planning Commission in early 2017.

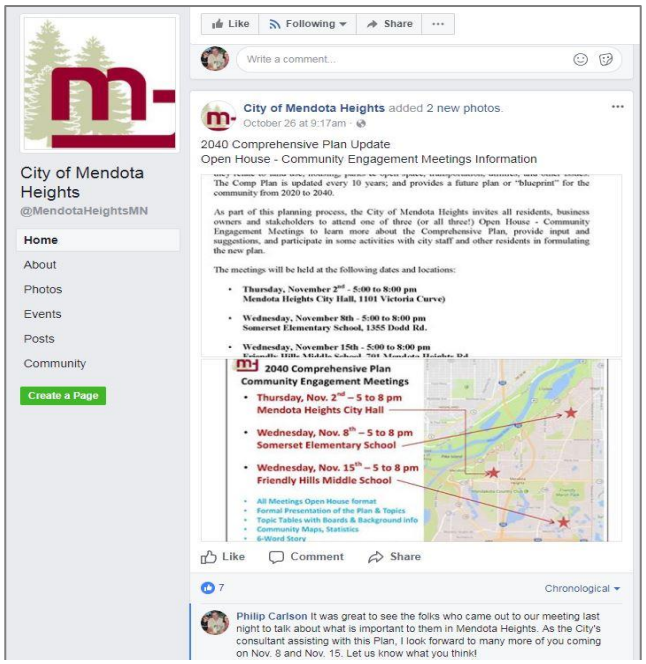
The City held three public information meetings at the local schools; and provided a "hands-on" display at the city's annual Fire Station Open House in 2017.

In a series of meetings later that year, the Planning Commission reviewed and adopted the draft Vision, Mission, and Goals & Policies for the Plan. This material was shared with the Parks Commission and with the larger community in four community open house meetings in the fall of 2017. There was also an online survey and an invitation for comments on the City website and Facebook page.

Discussion at a community open house

Participation at the Fire Station Open House event

Facebook was used to share information and invite comments on the planning process

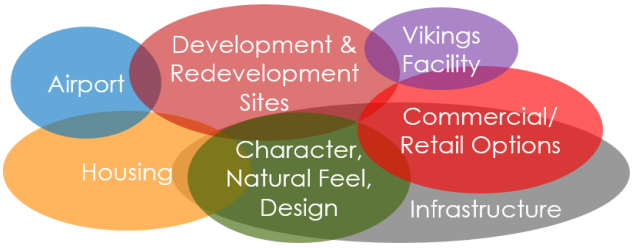


Key Planning Issues

The initial discussion with the Planning Commission, grounded in the background information and analysis, was condensed into seven key planning issues:

- **Character, Natural Feel, Design**
  Mendota Heights is open, spacious, green, and natural. The character and design of our community is important to maintain our quality of life. The environment and green space is essential to this character.

The key planning issues are interrelated



- **Commercial/Retail Options**
  Many people wish there were more restaurant and shopping options in Mendota Heights.

- **Development & Redevelopment Sites**
  The City is almost fully developed, but there are a few sites where new development or redevelopment can occur and there is keen interest in how to maximize their potential.

- **Housing**
  Mendota Heights is mostly high-end and mid-range valued single-family homes, but the City also needs a range of housing choices to provide life-cycle opportunities for people of all generations and stages of life, and work force housing to support people working in a wide range of careers.

- **Minnesota Vikings Facility**
  The Vikings football team has built its new headquarters and practice facilities nearby in Eagan, within a 200-acre mixed use development featuring offices, retail, and housing. Many are concerned about traffic impacting Mendota Heights. This mixed-use is anticipated to be developed in the future. On the business side, the Vikings development could be competition for City businesses or an opportunity for Mendota Heights businesses to support activities there.

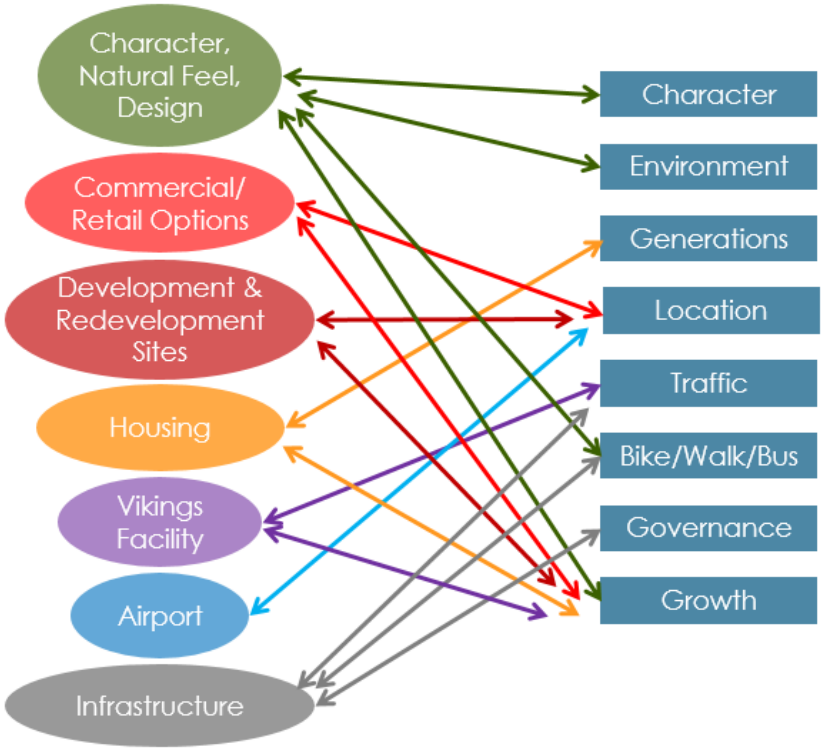
- **Airport**
  The MSP Airport is conveniently located nearby across the river, but also poses a nuisance with aircraft noise.

- **Infrastructure**
  Like many communities, Mendota Heights' roads, bridges and other infrastructure are aging and in need of maintenance. The City must plan in conjunction with county and state agencies in order to preserve quality of life and safety.

Community Input

There were over a hundred comments and stories offered in the various open house meetings and the online survey at the beginning of the planning process. Resident comments, SWOT analysis, survey results and presentation boards are noted and summarized in attached **Appendix-A.**

The comments have been grouped into eight topics as illustrated below in the blue boxes: Character, Environment, etc. These topics relate strongly to the Key Planning Issues identified above, as indicated by the arrows connecting similar ideas. Taken together, these issues and topics represent the ideas that will be the guiding force shaping the Comprehensive Plan Update. These issues are reflected in the Goals and Policies in the Plan as well.

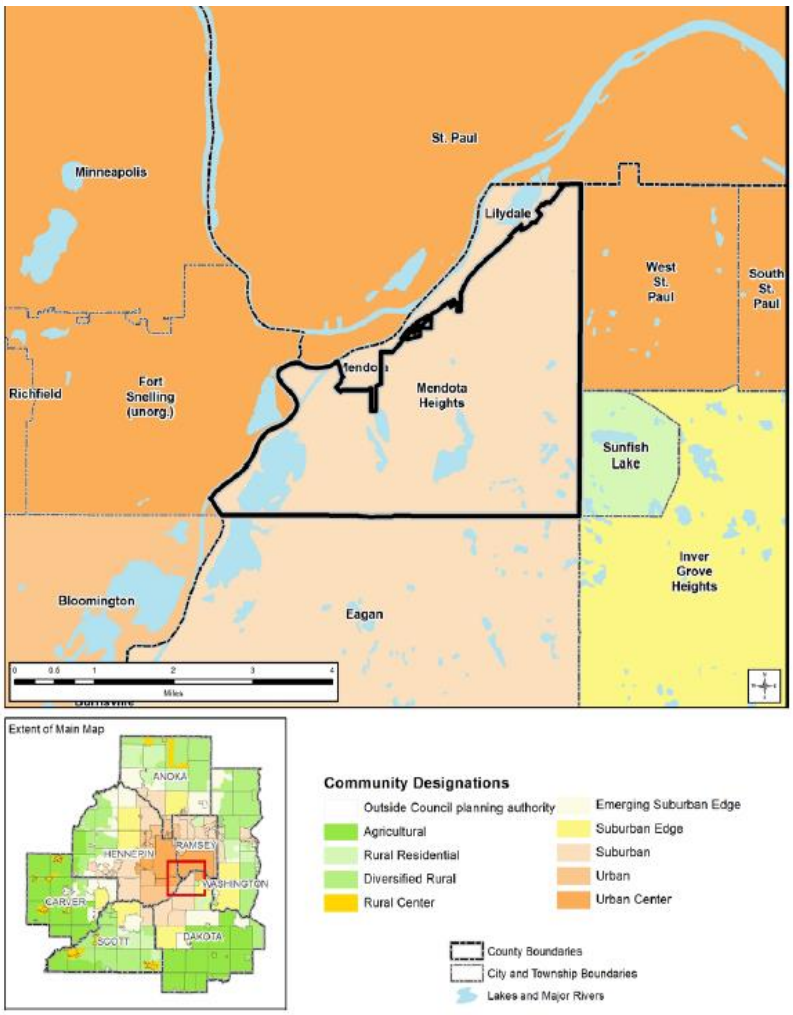


Regional Planning Designation

The following narrative and policies (in *gray italic type*) are excerpted and paraphrased from the Metropolitan Council's *Thrive MSP 2040 Plan:*

The regional planning area designation and related policies identify the Metropolitan Council's expectations for the amount, location, and standards for development. A community's planning area designation is based on its location, amount of developable land, existing development patterns, planned land uses and availability of infrastructure. The Metropolitan Council's Thrive MSP 2040 Plan designates Mendota Heights as "suburban." Suburban communities experienced continued growth and expansion during the 1980s and early 1990s, and typically have automobile-oriented development patterns at significantly lower densities than in previous eras.

Figure 1-1: Community Designation Map for Mendota Heights (Metropolitan Council)



Developed Communities

Community designations are intended to guide regional growth and development for areas that have urban infrastructure in place and the capacity to accommodate development and redevelopment and establish land use expectations including overall densities and development patterns. The Metropolitan Council forecasts that "Suburban" communities will account for 22 percent of the region's population growth, 27 percent of its household growth, and 43 percent of employment growth over the next three decades. The 2040 Thrive MSP policies for Suburban communities are available on the Metropolitan council website, and include the following:

Metropolitan Council policies for Suburban communities:

https://metrocouncil.org/Planning/Publications-And-Resources/Thrive-MSP-2040-Plan-(1)/7_ThriveMSP2040_LandUsePoliciesbyCD.aspx

- *Orderly and Efficient Land Use*
  - *Plan for new growth at overall average densities of 5 units per acre*[1]
  - *Look for development and redevelopment opportunities that link jobs, housing and transit*
  - *Plan local infrastructure to accommodate future growth*

- *Natural Resources Protection*
  - *Integrate natural resource conservation and restoration into the comprehensive plan and ordinances*
  - *Identify contaminated land for reclamation.*
  - *Plan for restoration of natural features and functions*

[1] The Met Council policy only applies to new residential development in the City and does not affect existing development or neighborhoods. All new single-family, medium density and high density residential development combined is expected to be 5 units/acre or more. Existing residential of all kinds in the City is currently about 2.3 units/acre.

Lemay Lake

- *Water Sustainability*
    - *Implement BMPs to control and treat stormwater in redevelopment*

- *Housing Affordability and Choice*
    - *Support the community's share of the region's affordable housing need*
    - *Support a mix of housing affordability*
    - *Use various sources of funding and financing tools to facilitate the development of lifecycle and affordable housing, including the needs of multigenerational households*

- *Access, Mobility, and Transportation Choice*
    - *Focus growth, if possible, around regional transit*
    - *Support improved pedestrian and bicycle circulation*
    - *Consider policies that reduce reliance on single-occupancy vehicles*
    - *Adopt Complete Streets policies*

- *Economic Competitiveness*
    - *Identify appropriate areas for business and industrial expansion*
    - *Support the cleanup and reuse of contaminated land*
    - *Preserve the industrial base for higher-intensity employment and new industries*
    - *Protect sites for highway-, river-, and rail-dependent manufacturing and freight transportation needs*
    - *Plan for land uses that support the growth of businesses that export goods and services outside the region*
    - *Preserve locations for employment, manage growth, and minimize land use conflicts*

Mendota Office Center

- *Building Resilience*
    - *Identify potential vulnerabilities in local infrastructure as a result of severe weather*
    - *Participate in programs that incentivize wind and solar power*
    - *Consider a property-assessed clean energy (PACE) program for conservation and renewable energy*
    - *Promote community solar gardens*
    - *Encourage travel demand management (TDM) policies and ordinance*
    - *Consider development standards that increase vegetative cover and increase the solar reflective quality of surfaces.*
    - *Participate in urban forestry assistance programs*

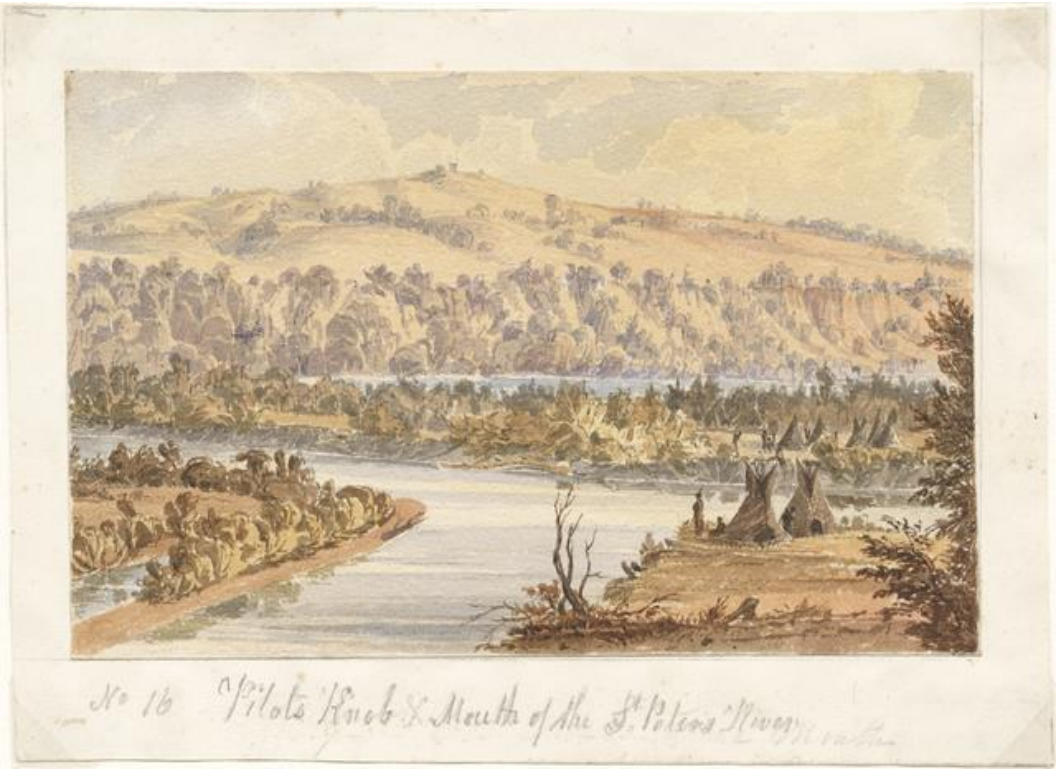
Community History

Mendota Heights has a long and rich heritage, which serves as a source of identity for the community. Mendota Heights is located near the confluence of the Mississippi and Minnesota Rivers.

Taoyateduta, chief of the Mdewakanton Dakota, ca. 1850

The Dakota people knew and referred to this place as "Mdo'–te" or "the junction of one river with another." French explorers and traders who settled the area in the late 1600's named the Minnesota River "*Sans Pierres"* because the river was silty, with few rocks. British explores and traders who arrived a few years later misunderstood the French name, calling the river *Saint Peter's*.

Native Americans view the area as an important meeting place. The current Pilot Knob site (*now City-owned property*) overlooks the confluence of the Mississippi and Minnesota Rivers. It was considered sacred by the Dakota who called it Oȟéyawahe, or "*the hill much visited*." Pilot Knob was named by riverboat pilots as the landmark overlooking Fort Snelling, the first American fort in Minnesota. Fort Snelling was constructed in the 1820s; and the name of the area was later changed to Mendota, which in Dakota means, "*meeting of the waters*."



In 1852, the territorial legislature changed the name of the river to Minnesota, a version of its Dakota name. Fur traders established a trading post in the early 1830's within what is now Mendota Heights. The trading post, coupled with Fort Snelling located across the river, formed the basis for one of the first settlement areas in Minnesota. During the period from 1837 to 1858, the Dakota ceded large tracts of land to the United States, which was then deeded to settlers who tilled the land and operated dairy farms. Gradually, individual homes began to appear along the St. Paul border in the north and in the hills above Mendota Township in the west. Between them were farms, country schools, and estates. The population of Mendota Township in 1860 was 454. The area grew slowly to 1,360 at the start of World War II. St. Peter's Church was originally built in 1840; re-built in 1853 atop the bluff overlooking the rivers; and today is the oldest church in continuous use within Minnesota.

Several trails crossed the area, including the Mission Trail. It connected the river to the Dakota Village at Kaposia, located in present-day South St. Paul. Dodd Road, the first military road through the region, was completed in 1849 and connected the community to St. Peter. Dodd Road currently bisects the City and continues to provide a north-south travel artery throughout the community. The Old Mendota Road, which is now Highway 62 (formerly Highway 110), provided for east-west travel through the area.

The Minnesota Central, the first Dakota County railroad, later the Chicago, Milwaukee & St. Paul, ran through Mendota Township, crossing the Minnesota River, and carried supplies to Fort Snelling. The Chicago, St. Paul, Minneapolis, and Omaha Railway was also an early railroad in the area.

Chicago, St. Paul, Minneapolis & Omaha railroad depot in Mendota, ca. 1890

Following World War II, farmers began to sell lots for individual homes and acreage for residential subdivisions. Home construction increased rapidly, particularly in the northern section of the township and by 1950, the population totaled 2,107. The Township of Mendota was established in 1858, and was eventually divided into two separate towns; Mendota being chartered in 1887, and incorporated in 1936. The remainder of the township was incorporated as Mendota Heights in 1956.

Interstate 494 comprises the southern border of Mendota Heights. Its intersection with Interstate 35E acts as a primary "gateway" into the community, as does Highway 55 as it crosses the Mendota Bridge. Other gateways include the Interstate 35E/Mississippi River crossing and Highway 62, as it enters the community from the east. Minnesota Highway 13 traverses the west and northwest edge of the City near the Mississippi and Minnesota Rivers. Steep bluffs along those rivers include the natural open spaces of Fort Snelling State Park, Minnesota Valley National Wildlife Refuge, and Lilydale Regional Park. These together with the Dodge Nature Center provide a greenbelt that surrounds and infiltrates Mendota Heights. The location of these features is illustrated on the Community Facilities map.

The natural and open space areas, when combined with the 770+ acres of community parks, three golf courses, Rogers, Augusta, and Lemay Lakes, and with the naturally rolling terrain and mature woodlands, create the appealing "natural open" setting of the City. These features and spaces are located adjacent to the major roadways and as such, create a unique, natural setting for intimate neighborhoods. The views of the River Valleys from adjacent bluffs and bridge crossings are nothing less than spectacular. The predominance of scenic, natural vistas and corridors within a community located so close to the core of the Twin Cities is truly unique within the Metropolitan Region. This being the case, the City of Mendota Heights considers it paramount to protect and enhance the natural living environment for its residents.

Rogers Lake in Mendota Heights

Development History

Early History

The river topography and landscape of bluffs, ravines, views, lakes, and wooded areas have provided attractive settings for residential settlement. Mendota Heights was a part of Mendota Township until the Village of Mendota Heights was incorporated in 1956.

1957 to 1977

The first Land Use Plan for Mendota Heights was adopted in 1959. Its purpose was to guide public and private development to achieve balanced residential and commercial/industrial growth, in order to assure the availability of tax funds for schools and public services. At that time, 21% of the land (exclusive of golf courses and cemeteries) was developed.

The City's history of early land planning established a clear and well-defined pattern for future land uses. The 1959 Plan identified the following needs:

- *The need for additional east-west thoroughfares;*
- *The need for community connections across future I-35E;*
- *The designation of a business/industrial area in the southwest corner of the City;*
- *The desire to limit commercial "strip" development; and*
- *The decision to continue the semi-rural character of the residential areas*.

Many of the major objectives of the 1959 Plan came to fruition as the Plan was largely followed over the ensuing years. In the twenty-year period from the late 1950's to the late 1970's, St. Thomas and Visitation schools were established (1955-56); Fort Snelling State Park was established (1961); the I-35 bridge into St. Paul was built (1965); Henry Sibley High School was built (1971); and in 1974, Mendota Heights became a city. Overall, an additional 40% of the land area was developed, most of it to establish new residential areas.

1977 to 1997

The land use pattern initially laid out by early comprehensive plans was clearly established along with several transportation improvements. Both I-35E and I-494 were built during this period. I-35E was extended in both directions, into downtown St. Paul and south into Burnsville. Interstate 494 was constructed along the southern border of the City and replaced Highway 110 (now Highway 62) as the primary east-west route.

In this period, United Properties began the development of the Mendota Heights Business Park, and several areas designated as residential were developed throughout the City.

The availability of the Interstate routes did relieve local roadways of some traffic, particularly in the cases of Highway 62 and Highway 149. The accessibility of the Interstate routes also more clearly established distinct neighborhoods in the community. The 1959 Land Use Plan emphasized the importance of east-west routes and planned crossings at Marie Avenue, Mendota Heights Road, and Wagon Wheel Trail, all of which were built more than 20 years later.

Aircraft traffic noise from flights over Mendota Heights dramatically increased in this period as well, due to the growth and expansion of the airline industry and the Minneapolis-St. Paul International Airport. The increasing number of flights, larger aircraft, and expanded use of the runways over the Mississippi River corridor, continue to impact the land use and living environment of the southern part of the community.

MSP International Airport, located across the Minnesota River west of Mendota Heights

The Metropolitan Airports Commission (MAC) actually bought out one neighborhood and created a flight path corridor, near Acacia Cemetery, within Mendota Heights. Homes were removed and the area was re-developed for industrial uses. Other residential areas were part of the Part 150 Sound Insulation program, receiving funds to upgrade windows and insulation in existing homes. New residential neighborhoods have been built with additional sound insulation and modified building techniques.

Total operations at the Minneapolis-St. Paul International Airport (MSP) increased from 230,793 in 1972 to 483,013 in 1998, more than doubling. This increase in flights, along with expansion of the flights over the new residential areas and outside of the flight corridor, has adversely affected many neighborhoods of the City.

The City put forth considerable time and effort to reduce aircraft noise and operations over the City, establishing an Airport Relations Commission (ARC), participating in the Dakota County Airport Relations Commission (DCARC), and the Metropolitan Aircraft Sound Abatement Council (MASAC) and adopting the first Noise Attenuation Ordinance.

1998 – 2007

From 1998 to 2006, the City issued 436 residential building permits; and of those, 259 were for single family homes. In 2003, the City saw the most development during this period, with a total of 125 residential permits issued during that year.

A number of significant projects reshaped Mendota Heights during this time. The most visible is the Village at Mendota Heights, a mixed-use development at the northeast intersection of Highway 62 and Dodd Road. The City acquired the property to create an urban town center that includes a senior residential facility, townhomes, condominiums, boutique-like retail center, and an open space plaza.

The Village at Mendota Heights

Source: City of Mendota Heights

A second significant change is the Summit of Mendota Heights, a mixed residential development consisting of townhomes and a multi-story condominium. This development is located on the former site of the Ecolab research building at Sibley Memorial Highway and Wachtler Avenue. Another residential project is the Hidden Creek development, a residential plat of generally one-acre lots.

Two other projects have showcased the City's desire to preserve and retain existing open space. The Mendota Heights Par 3 Golf Course had operated as a privately-owned facility for many years, until the owners proposed to close the 17-acre facility and develop the property into approximately 30 single family lots. After a successful referendum, the City purchased the golf course and is now operating the facility as a municipal course.

Perhaps the most important project also involves the City's decision to spend public dollars to preserve the Pilot Knob area, just off the Mendota Bridge between Acacia Cemetery and Highway 55. The City joined with other public entities, including Dakota County and the Minnesota Department of Natural Resources, and purchased a number of large parcels totaling 25.5 acres. The land will be retained as open space, and is currently being restored to its pre-development environment. The property has historical and cultural significance on many levels, including as a sacred site for native people, a nearby gathering area for the 1862 transfer of the Minnesota Territory lands to the U.S. government, and the "Pilot Knob" landmark for steamboats approaching the confluence of the Minnesota and Mississippi Rivers. In 2017, Oȟéyawahe/Pilot Knob is listed on the National Register of Historic Places.

2008-2018

Since the last Comprehensive Plan was prepared, a number of significant developments have taken place in Mendota Heights. The economic recession from 2007 to 2012 impacted development cross the Twin Cities, including Mendota Heights and there was little development activity during those years, but coming out of the recession there was some significant activity.

The Mendota Plaza Shopping Center at Highway 62 and Dodd Road saw a major renovation during this period, with a 15,000-square-foot Walgreen's pharmacy added in 2012; and in 2014, White Pine Senior Living, a 50-unit assisted living and memory care facility.

Also at Mendota Plaza, a new 4-story 139-unit apartment project called The Reserves at Mendota Village was completed in 2018 by At Home Apartments. It is the first new market-rate project in Mendota Heights in thirty years. The project is proposed to include 11,000 square feet of commercial space in two buildings sharing the site with the apartments.

The Reserves at Mendota Village (Mendota Plaza

Source: At Home Apartments

A new market rate apartment project began development in 2018 by Michael Development on the site of the former Mendota Motel and Larson Garden Center at Highway 13 and Acacia Drive. Phase I will provide 70-units of market rate apartments, with underground and surface parking. Phase II will provide between 64-68 units of senior (aged 55+) units of housing. Both phases are expected to be completed by late 2019 to mid-2020.

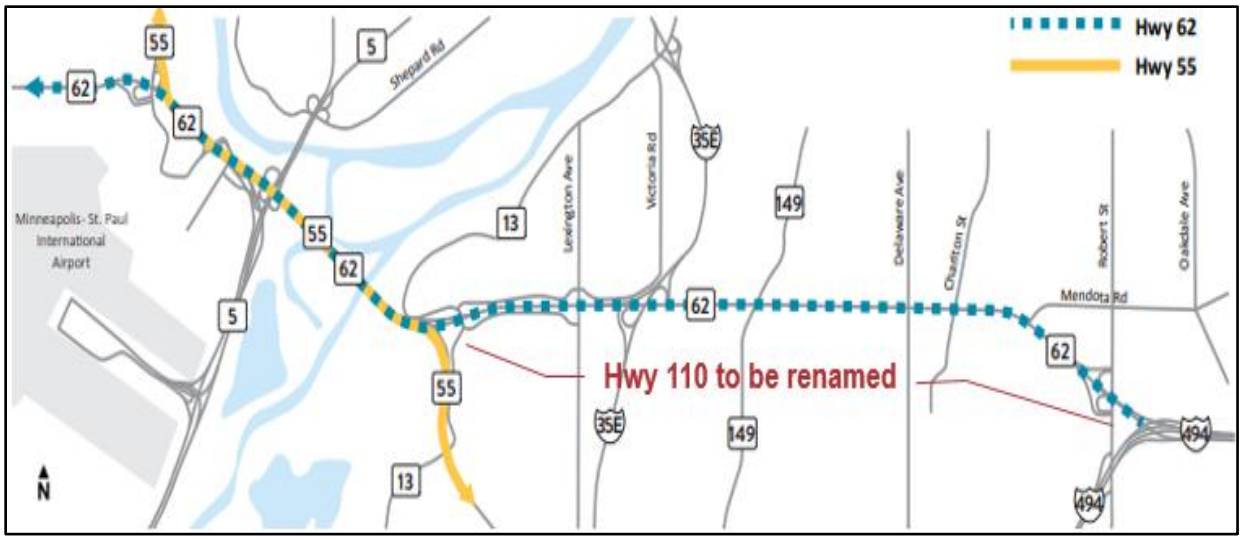
Mendota Heights Apartments - 2160 & 2180 Hwy 13

Source: Kaas-Wilson Architects

Minnesota Vikings facility in Eagan -2017 (photo: Leila Navidi)

The Vikings football team's new headquarters and surrounding development in nearby Eagan has generated considerable discussion and will affect Mendota Heights with traffic, noise and light, but also with potential increases in economic activity and property values. Located just off the southeast edge of Mendota Heights, it will include the teams' corporate offices, practice facilities, 6,500-seat stadium, athletic clinic, team Hall of Fame, and ancillary offices, hotels, retail, restaurants and housing on the 200-acre site.

While no major roadway projects have been built recently, one of the major highways in Mendota Heights has been renamed. In the summer of 2018, Highway 110 was renamed Highway 62, acknowledging it as an extension of Highway 62 that starts on the west side of the Mendota Bridge and extends west through Minneapolis and other suburbs to I-494 in Eden Prairie.



Source: MnDOT

Community Facilities / Services

The City of Mendota Heights currently retains a full complement of administrative services, including Administration, Engineering, Public Works, Parks & Recreation, Police, Fire, Finance, and Code Enforcement. The City contracts with private consultants for planning and legal services. City Hall provides administrative office space and public meeting facilities. City Hall is located at 1101 Victoria Curve, northwest of the intersection of Highway 62 and Lexington Avenue.

Police and Fire

The City of Mendota Heights provides police protection for its residents. The police station is located in the lower level of City Hall. Police are dispatched from Dakota Communications Center located in Empire Township. The City also provides police services to the communities of Lilydale and Mendota. The Police Department consists of 20 officers and 2.5 non-sworn civilian employees.

Fire protection is also provided by the City. The department is located on Dodd Road, one-quarter mile south of Highway 62. Fire and Rescue Service consists of 36 volunteers and has a fully equipped station consisting of a 2,000-gallon tanker, three pump trucks (one with a 65' ladder), a rescue vehicle, a brush truck, a boat, an ATV, and other equipment and services. Renovations are underway for the Dodd Road facility with approximately $8 million of upgrades to relieve overcrowding in the apparatus bay, administrative space and storage areas, plus technology and HVAC upgrades.

The City also provides fire services to the cities of Sunfish Lake, Lilydale, and Mendota. The average response time to fire calls ranges from six to eight minutes. The Fire and Rescue Services was last rated as providing Class 4 services (1-best, 10-worst), as defined by the Insurance Services Office. Specific residential fire ratings are determined based upon a combination of factors, including the individual rating for the Fire Department, availability of water services, and the level of communications (i.e., 911 call system, fire alarms, pagers, and dispatch systems), available in the community.

Schools

Minnesota Independent School District #197 serves all or parts of the communities of Eagan, Inver Grove Heights, Lilydale, Mendota, Mendota Heights, Sunfish Lake and West St. Paul. The District is comprised of five elementary schools (two neighborhood schools and three magnet schools), two middle schools, and one high school. In addition, the District serves birth-to-age five children with an Early Learning Program. Total enrollment for District schools in the 2015-2016 school year was estimated at 4,343 students. This is down from 4,885 students in the 1998-1999 school year.

There are six public and private schools offering kindergarten through 12th grade located within the City of Mendota Heights: Mendota Elementary School, Somerset Elementary School, Friendly Hills Middle School, Henry Sibley High School, St. Thomas Academy, and Visitation School.

The following table provides a breakdown of enrollment of the K-12 public schools located within the City at the start of the 2007 - 2008 school year compared with the 2015-2016 school year.

Table 1-1: Public School Enrollment for K-12 Schools within the City of Mendota Heights: 2007-08 vs. 2018-19 School Years

School	Grades	2007-08 Total Enrollment	2018-19 Total Enrollment	Percent Change 2007-08 to 2015-16
Mendota Elementary School	K - 4th	360	388	8%
Somerset Elementary School	K - 4th	318	419	32%
Friendly Hills Middle School	5th - 8th	597	727	22%
Henry Sibley High School	9th - 12th	1,462	1,477	1%

Source: ISD 197

The number of students enrolled in private schools within the City was 1,201 during the 2015-16 school year, down from the 2007-2008 school year, when 1,295 students were enrolled in private schools.

Table 1-2: Private School Enrollment for K-12 Schools within the City of Mendota Heights: 2007-08 vs. 2018-19 School Year

School	Grades	2007-08 Total Enrollment	2018-19 Total Enrollment	Percent Change 2007-08 to 2015-16
St. Thomas Academy	6th - 12th	695	632	-10%
Visitation School	Montessori -12th	600	585	-2.5%

Source: St. Thomas Academy and Visitation School websites

Parks, Open Space, and Trails

The City of Mendota Heights boasts a variety of recreational opportunities, including access to regional trails, riverside and lakeside parks, scenic bluffs and a nature preserve. These facilities represent unique features in a park system that helps to shape the character of Mendota Heights. The City has 295 acres of city-owned parks and open spaces, which includes active and passive recreation areas, along with other state and private parks and open spaces. These facilities are detailed in the Parks, Open Space and Trails chapter of this plan.

Cemeteries

There are two cemeteries in Mendota Heights – Resurrection and Acacia – which occupy a significant amount of land on the west side of the community.

Wastewater

The City's Public Works Department operates and maintains the City's sanitary sewer system. The responsibilities of the sanitary sewer system include maintenance of the sanitary sewer lift stations, sanitary sewer main repair, and sanitary sewer hook-up inspections. The City has a "Cleaning and Televising Program", which it uses to identify and repair infiltration and structural deficiencies; permitting re-lining and replacement of service lines.

Water Supply

In 2016, the City transferred the ownership of its municipal water supply system to the St. Paul Regional Water Services (SPRWS). SPRWS provides water to all of Mendota Heights' properties, and owns the water tower and distribution system. SPRWS also maintains the water lines and hydrants and bills its customers directly. The two-million-gallon water tower, located on Lexington Avenue, next to the City's Public Works Facility, also provides reserve water capacity.

Surface Water & Stormwater Management

The City's Public Works Department is responsible for handling stormwater runoff, both to reduce flooding and to protect water quality. This has been identified as an important issue for Mendota Heights. The city completed a Surface Water Management Plan (July 2018), which is made part of this Comprehensive Plan Update, detailing the programs and policies for surface water management in the City, and is included as **Appendix – C**.

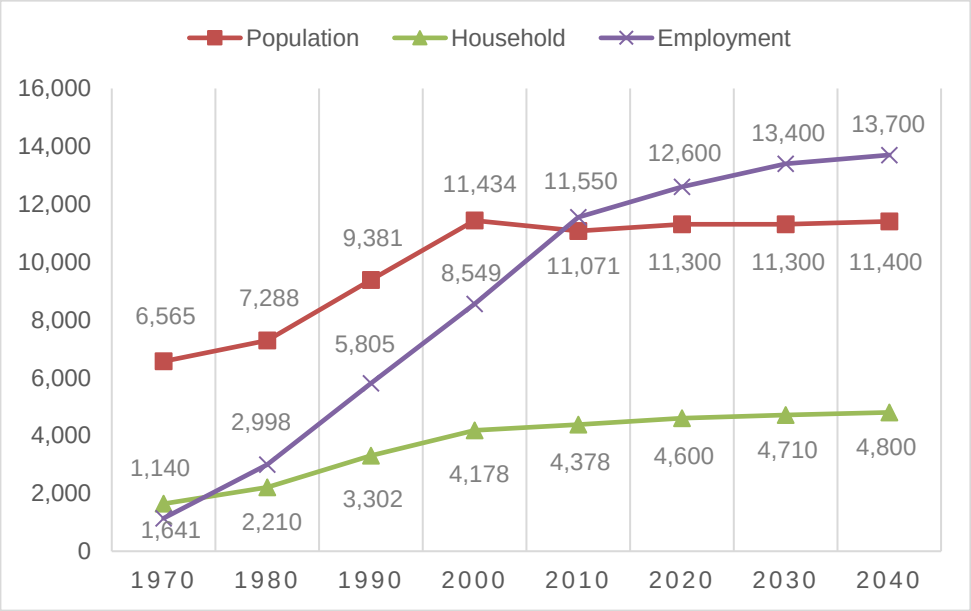
Socio-Economic Profile

The purpose of the social and economic inventory is to identify past trends, document current conditions, and help identify issues to be addressed in planning policies. These policies will help the community address a broad base of land use and development issues. With the help of a solid information and policy base, decision makers can evaluate and prioritize proposals for the community while fulfilling the City's long-term goals and objectives.

Growth Trends: Mendota Heights

The following graph illustrates the estimated and projected growth in the City of Mendota Heights for population, household, and employment from 1970 through 2040. The table on the following pages expands this information with comparisons to Dakota County.

Figure 1-2: Mendota Heights:
Population, Household, & Employment Estimates & Forecasts 1970-2040



Source: Metropolitan Council, US Census

After a significant increase between 1980 and 2000, City population decreased slightly after 2000, but is expected to remain relatively stable in the decades to come. In the meantime, the number of households is expected to grow at a slow pace, indicating a further decline of household sizes. Employment, however, has continued to grow in the past ten years, even despite the economic downturn in the mid-2000's, and is expected to continue but at a slightly slower pace in the next 20 years.

Growth Trends: Mendota Heights vs. Dakota County Communities

The following table shows population, household, and employment estimates and forecasts for the City of Mendota Heights and Dakota County, 1970 through 2040. The table shows how the City has grown slower in all three measures than the County as a whole over several decades, with the exception of employment between 1970 and 2000.

The City saw its largest population percent growth from 1980 to 1990. Dakota County also experienced its highest percentage growth in population from 1980 to 1990. City population is projected to remain more or less unchanged out to 2040, whereas the County is projected to continue to grow steadily for the next three decades.

Table 1-3: Mendota Heights and Dakota County:
Population, Household, and Employment Estimates & Forecasts 1970 – 2040

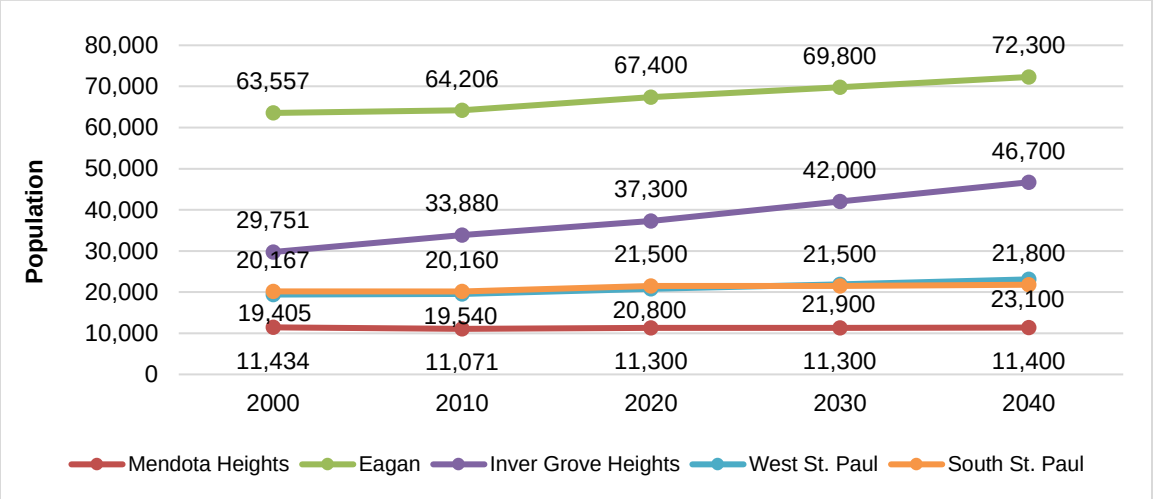
Population/Percent Change								
	1970	**1980**	**1990**	**2000**	**2010**	***2020***	***2030***	***2040***
Mendota Hts	6,565	7,288	9,381	11,434	11,071	11,300	11,300	11,400
Decade change	-	*11%*	*29%*	*22%*	*-3%*	*2%*	*0%*	*1%*
Dakota County	139,808	194,279	275,186	355,904	398,552	435,870	474,670	514,050
Decade change	-	*39%*	*42%*	*29%*	*12%*	*9%*	*9%*	*8%*
Household/Percent Change								
	1970	**1980**	**1990**	**2000**	**2010**	***2020***	***2030***	***2040***
Mendota Hts	1,641	2,210	3,302	4,178	4,378	4,600	4,710	4,800
Decade change	-	*35%*	*49%*	*27%*	*5%*	*5%*	*2%*	*2%*
Dakota County	37,560	64,087	98,293	131,151	152,060	170,940	187,980	204,750
Decade change	-	*71%*	*53%*	*33%*	*16%*	*12%*	*10%*	*9%*
Employment/Percent Change								
	1970	**1980**	**1990**	**2000**	**2010**	***2020***	***2030***	***2040***
Mendota Hts	1,140	2,998	5,805	8,549	11,550	12,600	13,400	13,700
Decade change	-	*163%*	*94%*	*47%*	*35%*	*9%*	*6%*	*2%*
Dakota County	31,100	62,134	106,029	154,242	170,192	203,330	219,860	236,500
Decade change	-	*100%*	*71%*	*45%*	*10%*	*19%*	*8%*	*8%*

Source: Metropolitan Council, US Census

Population

The following line graph illustrates the estimated and forecasted population for Mendota Heights and four other communities within Dakota County – Eagan, Inver Grove Heights, West St. Paul, and South St. Paul. Mendota Heights and its neighbors West St. Paul and South St. Paul are mostly developed and will grow slowly; Eagan and Inver Grove Heights, with room to grow, will see larger population increases.

Figure 1-3: Mendota Heights and Dakota County Communities: Population Estimates & Forecasts 2000-2040



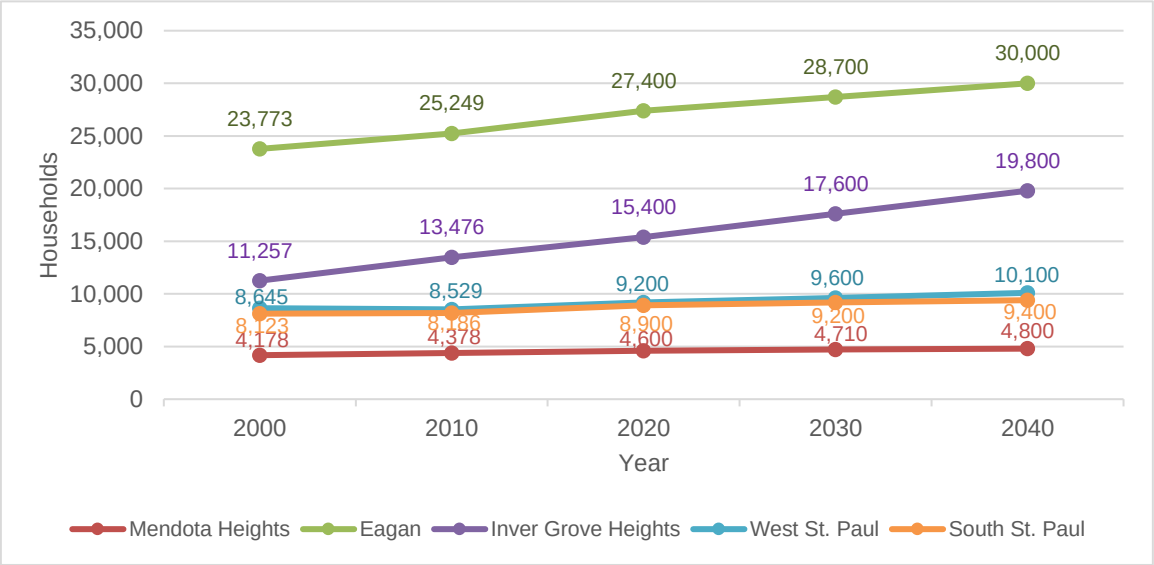
Source: Metropolitan Council, US Census

Household Growth Trends

The following graph illustrates the growth trend in the number of households, actual and projected, in Mendota Heights and area communities within Dakota County, from 1970 to 2040. As the graph illustrates, households in West St. Paul and South St. Paul will continue to steadily increase from 2010 until 2040. As with population, Eagan and Inver Grove Heights will experience more dramatic increases between 2010 and 2040.

Mendota Heights is expected to experience a modest rise in the number of households, similar to West St. Paul and South St. Paul.

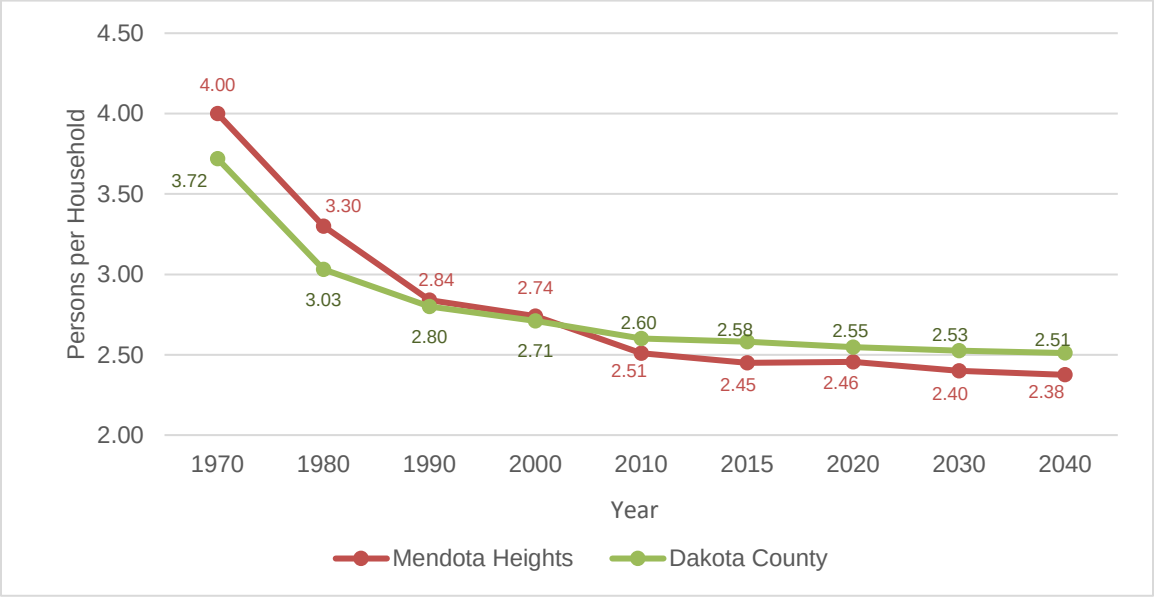
Figure 1-4: Mendota Heights and Dakota County Communities: Household Estimates & Forecasts 2000-2040



Household Size

The graph below illustrates average household size in Mendota Heights compared to Dakota County from 1970 to 2040. Household size has declined steadily since 1970 but is expected to flatten out in the next couple decades.

Figure 1-5: Average Household Size Mendota Heights & Dakota County 1970-2040



Household Type

Two types of householders are distinguished in the 2000 and 2010 U.S. Census: a family and a non-family householder. A family householder is a householder living with one or more people related to him or her by birth, marriage, or adoption. The householder and all people in the household related to him or her are family members. A non-family householder is a householder living alone or with non-relatives only.

The table below illustrates the demographic profile of the households in Mendota Heights. The table separates households by information pertaining to family and non-family households; households with or with or without children; and the number of households in each category.

Table 1-4: Mendota Heights Household Types 2000 & 2010

	Total households		HHs with Children		HHs without Children	
Household Type	2000	2010	2000	2010	2000	2010
Married Couple Families	2,902	2,821	1,356	1,068	1,546	1,753
Female Householder	253	281	151	155	102	126
Male Householder	83	102	37	46	46	56
Total Family Households	**3,238**	**3,204**	**1,544**	**1,269**	**1,694**	**1,935**
Percent	*77.5%*	*73.2%*				
Total Non-Family Households	**940**	**1,174**				
Percent	*22.5%*	*26.8%*				
Total Households	**4,178**	**4,378**				

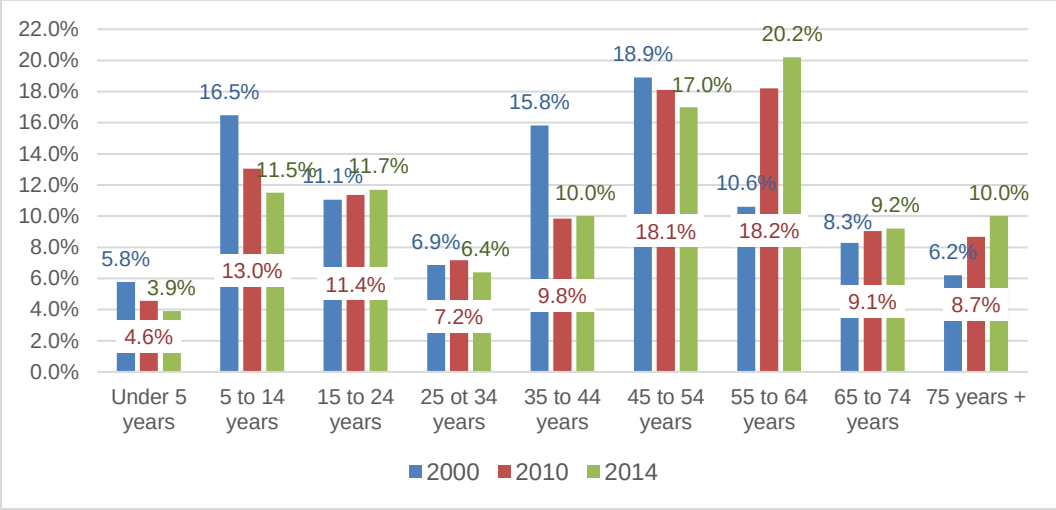
Source: 2000 and 2010 US Census

The number of households held fairly steady between 2000 and 2010, but the significant change is in households with and without children – the trend being fewer households with children. This likely indicates a societal trend but also the presence of more retirees in Mendota Heights.

Age Distribution

The following bar graph compares the percentages of the age distribution in the City of Mendota Heights in 2000 and 2010 and 2014. The median age of Mendota Heights' residents in 2000 was 41 years old. By 2010, the median age climbed to 47.5 years old. By 2014, the Census estimated it rose again to 49 years old.

Figure 1-6: Mendota Heights Age Distribution 2000, 2010, & 2014



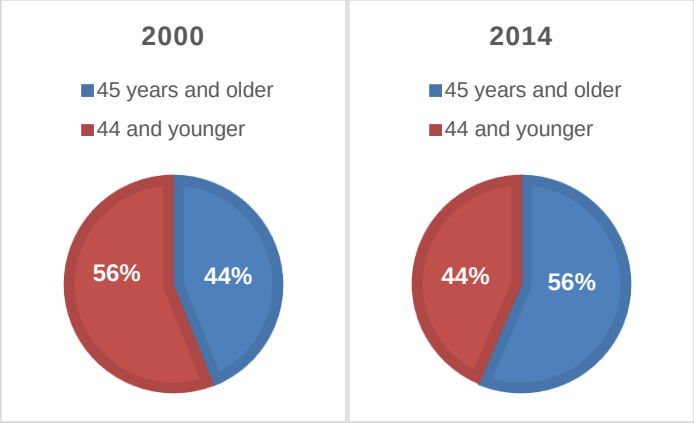
Source: US Census 2000 & 2010, ACS 2014

The largest age cohort in Mendota Heights are 45-to-64-year-olds, rising from about 29% in 2000 to over 37% in 2014. The share of children 14 and under has decreased from about 22% in 2000 to under 15% in 2014.

Age Distribution

The graphs to the right depict this aging trend in Mendota Heights in a focused way. In just 14 years, the share of the population over and under 45 years of age has flipped – from just under half to just over half.

Figure 1-7: Mendota Heights Age 45+ 2000 & 2014



Mendota Heights' age trends have been following the age composition trends of the Twin Cities Metro Area. The greatest population gains in the 1990s in the Seven-County Metro Area were in the forty-five (45) to fifty-four (54) year old age group, which is the same as Mendota Heights' largest percentage category. This was a result of the Baby Boom generation moving into an age category previously occupied by the smaller Depression and World War II generation. The generation after the baby boom generation, also known as Generation X, 35-to-44-year-old age group, also grew significantly in the 1990s, just as in Mendota Heights.

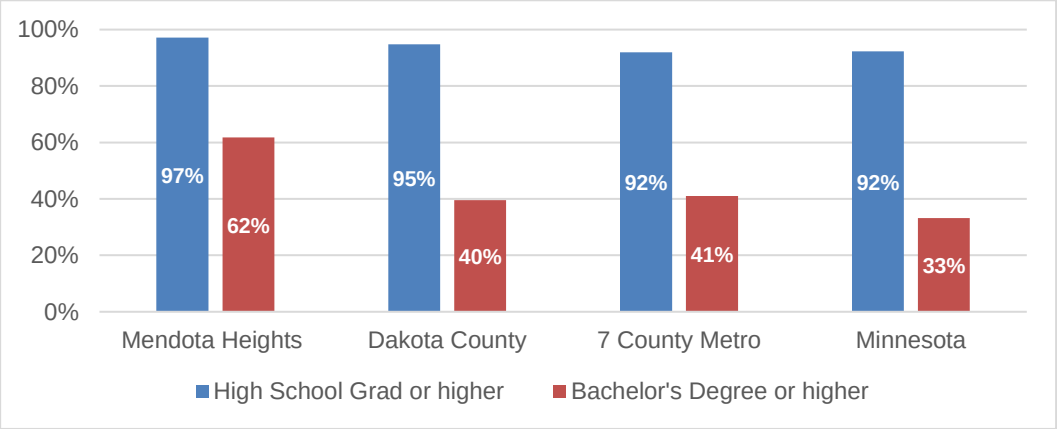
The continued aging of the population creates new challenges for the Seven-County Metro Area, as well as for the City of Mendota Heights. It is expected to increase the demand for a wider range of services and housing choices, such as townhomes, one-level housing, assisted living, and so on, rather than traditional single-family homes.

The Metropolitan Council has estimated that between 2000 and 2030, the population under the age of 55 is projected to increase by nineteen percent (19%) in the Twin Cities Seven County Metro Area, while the number of people 55 and over is expected to more than double, an increase of 111%. If the City of Mendota Heights continues to follow the population trends of the greater Metropolitan Area, the needs of the aging population will need to be recognized and addressed.

Education

The graph on the next page illustrates education levels for Mendota Heights' residents ages 25 and over in 2010, compared to Dakota County, the Twin Cities Metropolitan Area, and the State of Minnesota. Compared to the County, State and Metro area, Mendota Heights' residents are very well educated. The City has more than 20 percent more residents with Bachelor's degrees than either Dakota County or the Metro Area, and the highest percentage of high school graduates.

Figure 1-8: Educational Attainment – Mendota Heights, Dakota County, Metro Area & Minnesota



Source: ACS 2014, Metropolitan Council

Employment

Information from the 2010 Census regarding employment demographics for Mendota Heights is depicted in the table below. The statistics provided include employment information for residents over the age of 16. The majority of those employed in the City in 2010 were in Management, employing 62 percent of the population. The second largest employment category was Sales and Office, employing 23 percent of the population.

Table 1-5: Occupation of Residents in Mendota Heights

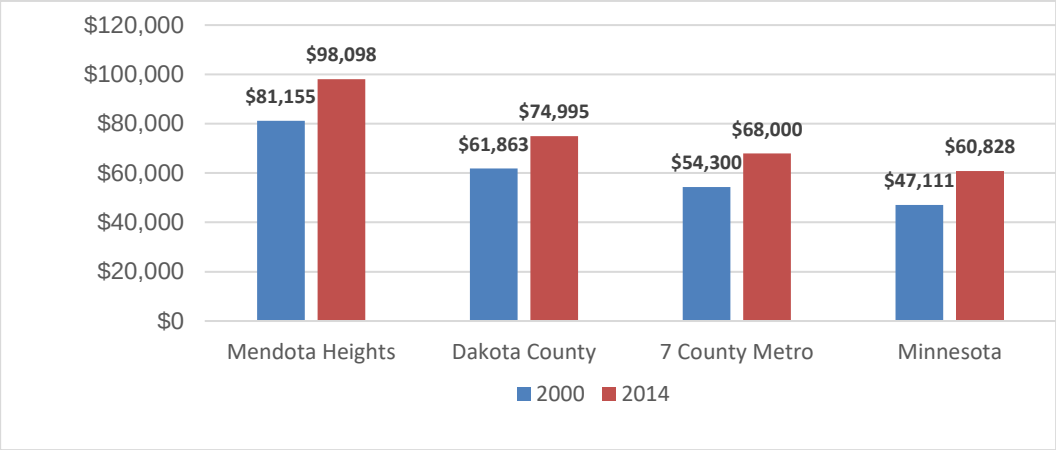
Management, business, science, and arts occupations	3,567
Service occupations	501
Sales and office occupations	1,342
Natural resources, construction, and maintenance occupations	110
Production, transportation, and material moving occupations	259
Total Civilian employed population 16 years and over	5,779

Source: ACS 2014

Income

The median household income for the City of Mendota Heights in 2000 was $81,155. The City's median household income has increased since then to $98,098 in 2014. The median household income for the City is higher than that of Dakota County, the entire Twin Cities Metro Area, and the State of Minnesota.

Figure 1-9: Median Household Income 2000 & 2014



Source: ACS 2014, Metropolitan Council

Poverty Rates

According to the 2000 Census and 2017 Census estimates, the City has a relatively low percentage of individuals below the poverty level, compared to Dakota County and Minnesota as a whole. Federal guidelines for 2015 considered the poverty level to be $12,071 annually for a single person, $24,230 per year for a family of four. For 2018 these increased to $12,140 and $25,100, respectively. The number living below the poverty level more than doubled in 2017 to 488 residents, or 4.3% of the estimated population.

2

Land Use

Although Mendota Heights is almost completely developed, there are substantial areas of public and private open space, wetlands, lakes, bluff and wooded areas that give the feeling of very low density in much of the community. The land use pattern is well established, with strong residential neighborhoods throughout the City, business and industrial development in the southwest corner, several major institutional uses (cemeteries, schools, golf courses), and protected natural areas (Dodge Nature Center, bluffs and ravines along the river). The City of Mendota Heights has identified the specific locations, and type of natural areas, open space, and recreation areas located within and around Mendota Heights, as illustrated in the ***Community Facilities Map - FIGURE 2-1***.

Attention is given to protecting the high quality natural and built environments, which is addressed in many of the goals of this Plan. The intent is to continue to protect the quiet, secluded feel of its mature neighborhoods by preserving natural features and the environment, promoting high quality and well-functioning developments, and continuing to work to decrease airplane noise over the City.

GOALS and POLICIES

GOAL 2.1: The land use plan will serve as the foundation for land use decisions in Mendota Heights.

Policies:

2.1.1 Land use, housing, transportation, parks and other community facilities shall develop in accordance with the Comprehensive Plan.

2.1.2 Review and amend the Comprehensive Plan as necessary to ensure consistent development policy in current and future development decisions.

2.1.3 Zoning and rezoning decisions shall conform to the Land Use Plan.

2.1.4 The Land Use Plan will be updated to reflect changing priorities and conditions as called for by the Metropolitan Land Planning Act.

2.1.5 Balance land use designations to meet projected growth demand.

GOAL 2.2: Preserve, protect, and enrich the mature, fully developed residential environment and character of the community.

Policies:

2.2.1 Subdivision and zoning standards will emphasize high quality site and building design.

2.2.2 Emphasize quality design, innovative solutions, and a high general aesthetic level in community development and building.

2.2.3 Future parks, trails and open spaces will be planned within walking distance of all residential areas.

2.2.4 Encourage development and planning of land that provides reasonable access to the surrounding communities.

2.2.5 Public buildings and properties will be designed, constructed and maintained to be a source of civic pride and to set a standard for private property owners to follow.

2.2.6 Provide a mechanism to allow for the maintenance and reinvestment in select non-conforming properties.

2.2.7 Redevelopment of existing MR-Medium Density Residential and HR-High Density Residential properties are to be limited to no greater density than currently exists.

2.2.8 LR Development & Redevelopment shall avoid the creation of new “flag lots” where the “flag lot” has less than the required 100 feet of frontage.

Goal 2.3: Support industrial and commercial development in designated areas.

Policies:

2.3.1 The City will use available resources to identify redevelopment needs. This will include cooperation with Dakota County and the Metropolitan Council to achieve redevelopment objectives.

2.3.2 Encourage appropriate transitions between adjoining land uses.

2.3.3 Encourage the development of additional amenities within the industrial and commercial districts.

Goal 2.4: Reduce the impact of aircraft noise within the community.

Policies:

2.4.1 Increase public participation and representation through the Noise Oversight Committee (NOC) and the Metropolitan Airports Commission (MAC).

2.4.2 Achieve noise reduction through advocating modified takeoff procedures and corridor compliance.

2.4.3 Monitor the continued implementation of the Minneapolis/St. Paul (MSP) Airport Comprehensive Plan.

2.4.4 Advocate for specific noise control measures through operational changes and advanced technology.

2.4.5 Notify and work with Federal Aviation Administration and other appropriate agencies in the event that potential airspace obstructions are encountered.

2.4.6 Consider aircraft noise and safety issues in applicable land use and zoning decisions.

City of Mendota Heights

Community Facilities & Features Map

N W E S

0 3,000 6,000 Feet

- Municipal Facilities
- Schools
- Cemeteries
- City Parks
- State Parks
- Golf Courses
- Nature Preserves
- Lakes, Rivers, Streams
- Wetlands
- City Trails
- Regional Trails
- City Boundary

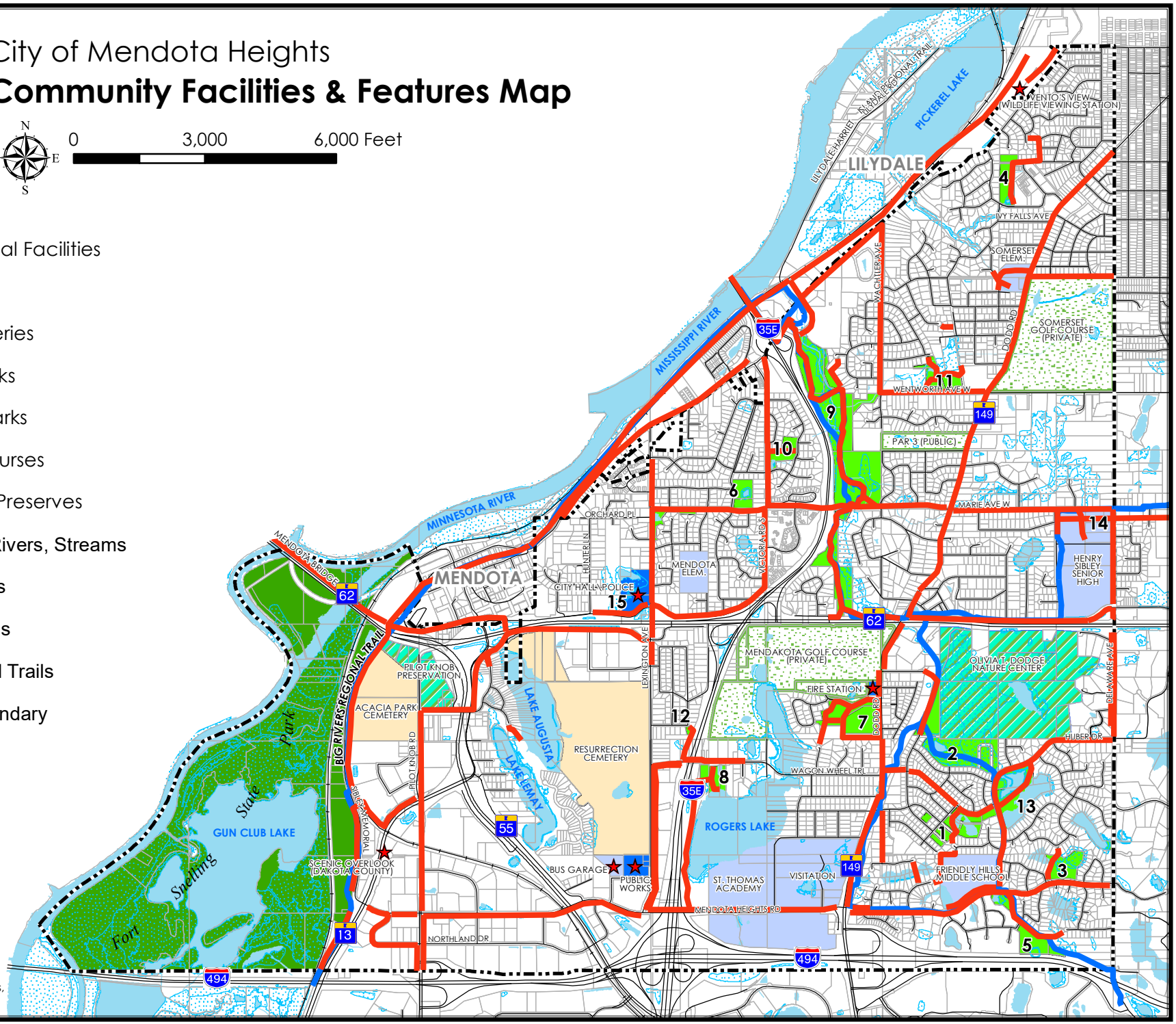


FIGURE 2-1

June 2019

Source: City of Mendota Heights, Dakota County, 2016

EXISTING LAND USE

The following table indicates how the existing land use is distributed within the City of Mendota Heights, and is also illustrated on the ***Existing Land Use Map - FIGURE 2-2***. Note that these categories are not the same and do not correspond to the Future Land Use categories identified later in this chapter.

Table 2-1: 2017 Existing Land Use

2017 Existing Land Use	Gross Acres	Net Acres *
Rural Residential	147.36	115.86
Low Density Residential	1,792.12	1,727.75
Medium Density Residential	63.79	59.80
Medium Density Residential - PUD	14.17	14.17
High Density Residential	127.19	126.52
High Density Residential - PUD	6.42	6.42
Business	21.78	21.78
Limited Business	98.38	96.71
Mixed Use - PUD	38.66	37.20
Industrial	386.17	384.76
City Facilities	37.79	31.99
Schools (Public Private)	288.06	282.21
Churches Synagogues	32.59	30.53
Cemetery	239.67	238.47
Parks/Open Space	1,032.68	526.46
Golf Course	292.47	281.95
Right-of-Way	1,222.47	1,202.42
Open Water	591.03	551.02
Wetland	0.00	696.80
Total	**6,432.81**	**6,432.81**

** The "net" acreage calculation reflects the gross acreage less estimated area of wetlands.*

Non-Conforming Single-Family Uses

The City recognizes there are certain areas of the city where single-family lots are generally smaller, and have less than the minimum lot size standard of 15,000 square feet per Zoning Code. Moreover, many structures in these areas do not meet current setback standards. Refer to ***Lot Sizes for 2020 Single-Family Land Uses Map – Figure 2-3***.

These smaller lots were developed before current zoning standards were in place, so in some cases, residences were built with or without meeting current setback standards. Over the course of time, when the City adopted updates to its Zoning Ordinance, many of these single-family parcels became legal non-conforming lots, which in terms of size and reduced setbacks can pose problems and legal hurdles when homeowners want to improve or expand their dwellings, and in some cases run into setback or lot coverage issues.

The City supports updating the Zoning Ordinance, as part of the Implementation Plan, to provide mechanisms for assisting these legal non-conforming uses, which may permit said uses to be improved or updated without extraordinary measures, such as a variance.

City of Mendota Heights
Existing Land Use Map

N W E S

0 3,000 6,000 Feet

- Rural Residential
- Low Density Residential
- Medium Density Residential
- Medium Density Residential - PUD
- High Density Residential
- High Density Residential - PUD
- Business
- Limited Business
- Mixed Use - PUD
- Industrial
- City Facilities
- Schools (Public Private)
- Churches Synagogues
- Cemetery
- Parks/Open Space
- Golf Course
- Right-of-Way
- Open Water
- Wetland
- City Boundary

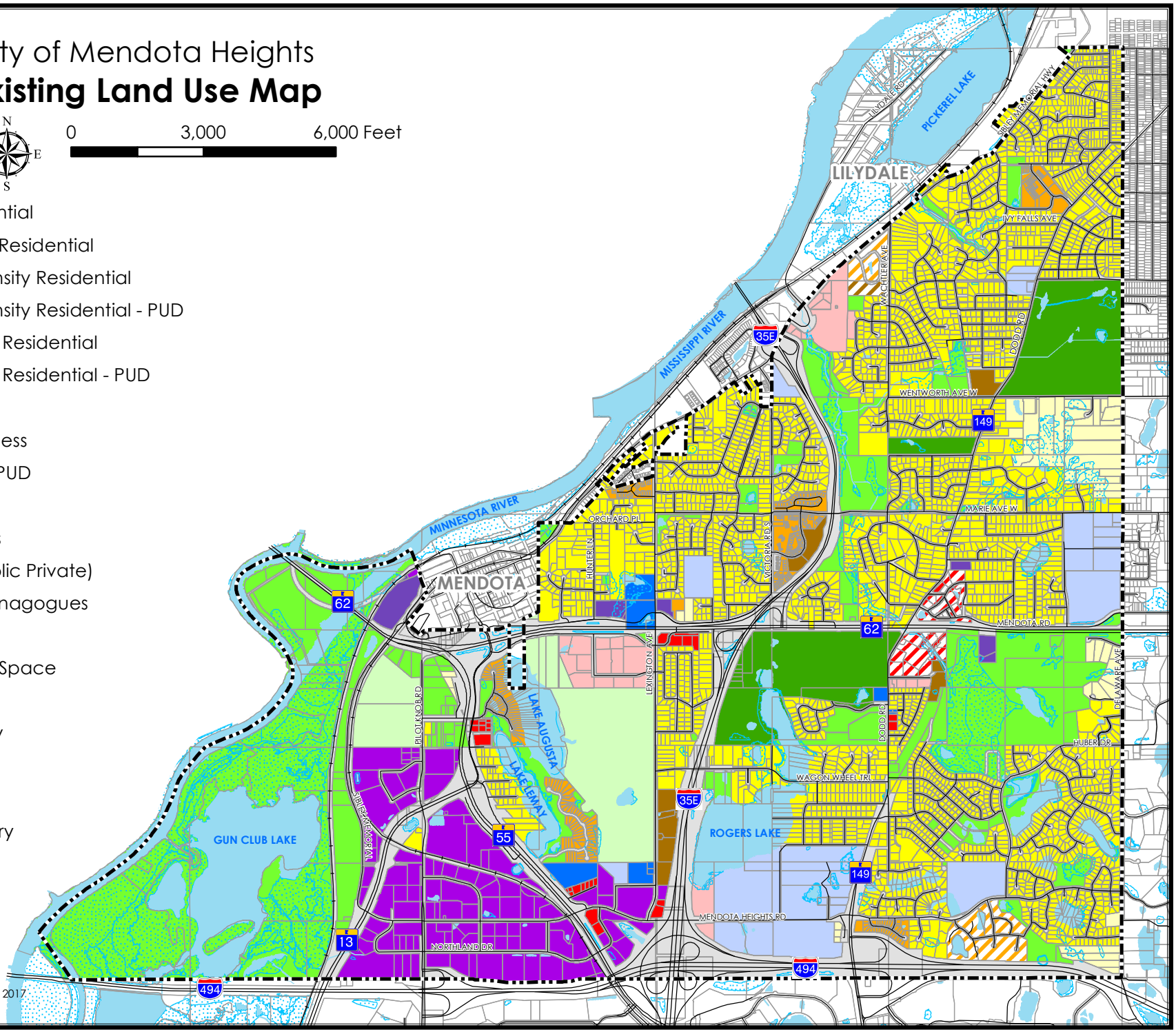


FIGURE 2-2
June 2019
Source: City of Mendota Heights, 2017

City of Mendota Heights

Lot Sizes for 2020 Single-Family Land Uses Map

N W E S

0 3,000 6,000 Feet

- Lot Size < 5,000 sqft
- Lot Size 5,000-7,500 sqft
- Lot Size 7,500-10,000 sqft
- Lot Size 10,000-12,500 sqft
- Lot Size 12,500-15,000 sqft
- Lot Size 15,000-20,000 sqft
- Lot Size 20,000-30,000 sqft
- Lot Size > 30,000 sqft
- City Boundary
- Open Water

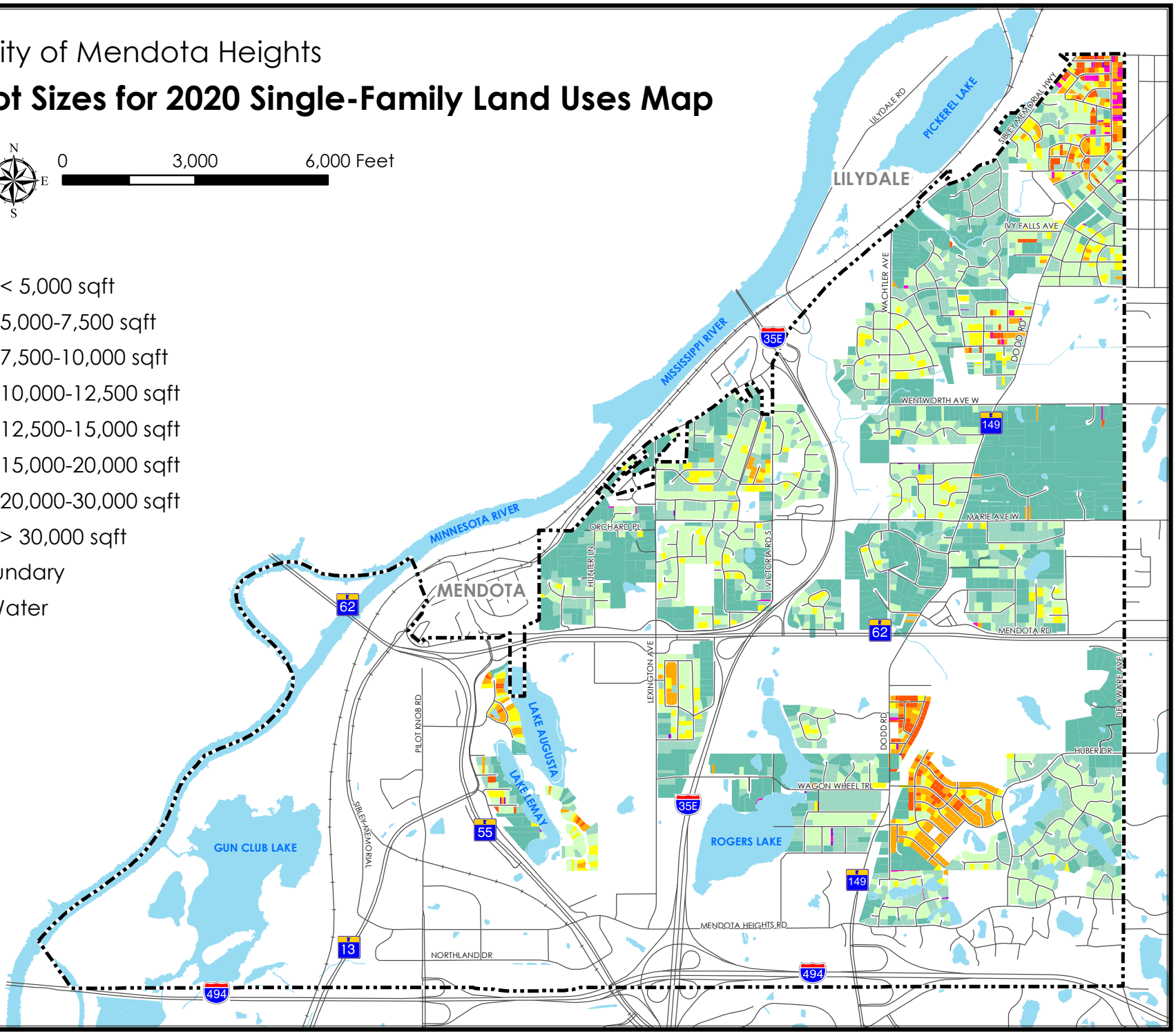


FIGURE 2-3

June 2019

Source: City of Mendota Heights, Dakota County, 2016

FUTURE LAND USE CATEGORIES

RESIDENTIAL

Single family housing is the predominant land use in the City, although in recent years there has been an increase in the development of multi-family housing. Eight percent (8%) of the residentially-designated land in the City is utilized for multiple family homes or medium to high-density development, as opposed to one percent (1%) in 1979 and five percent (5%) in 2002.

The Land Use Plan identifies four categories of residential uses: rural, low density, medium density and high density.

RR – Rural Residential

This land use is generally located in the east central part of the City. This designation is intended for large lot single family residences with and without City sewer. The Residential Estate areas are planned with a density not to exceed 1.45 units per acre. The corresponding zoning district classification is R-1A (One Family Residential).

LR – Low Density Residential

This land use is the most prevalent land use category in the City and provides for single family development. This designation is intended for a density not to exceed 2.9 units per acre, corresponding to the R-1 district minimum lot size of 15,000 square feet and minimum lot width of 100 feet.

MR – Medium Density Residential

This land use provides for townhome and attached housing development at urban densities of more than 3.0 but not to exceed 5.9 units per acre. New areas of Medium Density Residential are added in this update to include existing townhouse and duplex projects that were previously designated Low Density and zoned R-1. The corresponding zoning district classifications are: R-2 (Medium Density Residential District) and MR-PUD (Medium Density Residential Planned Unit Development).

HR – High Density Residential

This land use provides for multi-family and apartment development at densities of more than 6.0 but not to exceed 9.0 units per acre. Most of this land use is in a few large apartment projects. The corresponding zoning district classifications are: R-3 (High Density Residential District) and HR-PUD (High Density Residential Planned Unit Development).

COMMERCIAL

Commercial land uses are typically divided into two general categories; (1) office and (2) retail. The office category includes land uses generally considered to be of a limited business nature, typically a daytime office use. The Land Use Map identifies these areas as "LB - Limited Business". The current and corresponding zoning district classifications are B-1 (Limited Business), B-1A (Business Park) and B-2 (Neighborhood Business).

LB – Limited Business

There are presently four locations where most Limited Business uses in Mendota Heights are currently located or planned:

- In the southwest quadrant of Highway 62 and Lexington Avenue;
- Either side of Mendota Heights Road, between I-35E and Dodd Road;
- On the south side of South Plaza Drive, east of Dodd Road near the Mendota Plaza area; and
- On the south side of Highway 13 (Sibley Memorial Highway) at the northern city boundary, east of I-35E.

The second category of commercial uses expands the uses to include retail, restaurants, hotels and other high-level commercial uses. This includes neighborhood type convenience stores and shopping centers. The Land Use Map identifies these areas as "B - Business". The current and corresponding zoning district classifications are B-3 (General Business) and B-4 (Shopping Center).

B – Business

There are four locations where Business uses are planned:

- The southeast quadrant of Highway 62 and Lexington Avenue;
- The northeast quadrant of Lexington Avenue and Mendota Heights Road;
- The area between Highway 55 to the west, Mendota Heights Road to the north, and Northland Drive to the east/south.
- The 14.6 acres assemblage of city-owned parcels, located east of Highway 55, north of Bourn Lane and south of Lemay Shore Drive. The properties are commonly referred to as the "Bourn Lane Site".

MU – MIXED USE

The largest concentration of commercial or business uses in the City is not guided Business, but rather Mixed Use, at Highway 62 and Dodd Road, in the Mendota Plaza and The Village of Mendota Heights developments.

The intent of the district is to allow for mixed use developments that combine residential, retail, and commercial uses into a coordinated, planned development project. This land use designation is located both north and south of the Highway 62 and Dodd Road intersection, the City's only significant retail area.

The northeast quadrant of this intersection has been developed into a mixed use center known as *The Village at Mendota Heights*. The southeast corner of this includes the *Mendota Plaza* shopping center which has seen renovation and redevelopment in recent years, including a new Walgreen's pharmacy; White Pine Senior Living, a 50-unit assisted living complex, and a 4-story 139-unit apartment project developed by At Home Apartments.

INDUSTRIAL

I – Industrial

The Industrial land use category is concentrated in the City's industrial and business park in the southwest part of the City, north of I-494. The vast majority of the 400-plus acres of Industrial land is west of Highway 55, with a portion east of Highway 55 and west of I-35E. This land use includes manufacturing, office, and warehousing uses, but also hotels, and other commercial uses.

PUBLIC & OPEN SPACE

P/S – Public/Semi-Public

The Public/Semi-Public land use designation includes various land uses that are generally outside the commercial, industrial and residential categories. Among these are city buildings, such as City Hall, public works and fire stations; schools, both public and private; churches and synagogues; and cemeteries.

P – Park & Open Space

The Park and Open Space land use designation includes City parks, State parks, golf courses and nature preserves.

FUTURE LAND USE

The following table summarizes future land use for the City of Mendota Heights:

Table 2-2: 2040 Future Land Use

2040 Future Land Use	Gross Acres	Net Acres *
RR - Rural Residential	218.88	176.62
LR - Low Density Residential	1,781.10	1,712.03
MR - Medium Density Residential	187.64	179.66
HR - High Density Residential	65.57	65.27
LB - Limited Business	143.86	142.09
B - Business	30.87	30.83
MU - Mixed Use	47.41	45.05
I - Industrial	401	400.33
P/S - Public/Semi-Public	515.51	502.56
P - Park & Open Space	1,227.47	727.13
Right-of-Way	1,222.47	1,202.42
Open Water	591.03	552.02
Wetland	0.00	696.80
Total	**6,432.81**	**6,432.81**

** The "net" acreage calculation reflects the gross acreage less estimated area of wetlands.*

The following pages contain the City's previous *2**030 Planned Future Land Use Map - FIGURE 2-4***, followed by the ***2040 Future Land Use Plan - FIGURE 2-5***.

City of Mendota Heights

2030 Planned Future Land Use Map

N W E S

0 3,000 6,000 Feet

Residential:

- RR - Rural Residential
- LR - Low Density Residential
- MR - Medium Density Residential
- HR - High Density Residential
- LR-II
- MR-PUD
- HR-PUD

Commercial:

- LB - Limited Business
- LB-PUD
- B - Business
- MU-PUD - Mixed Use

Industrial:

- I - Industrial

Golf Course:

- GC - Golf Course
- GC-S - Small Golf Course

Institutional:

- CC - City Hall/Public Works/Fire Hall
- S - School
- PS - Private School
- CEM - Cemetery
- CS - Churches & Synagogues
- P - Parks
- SP - State Park
- NP - Nature Preserve
- Water

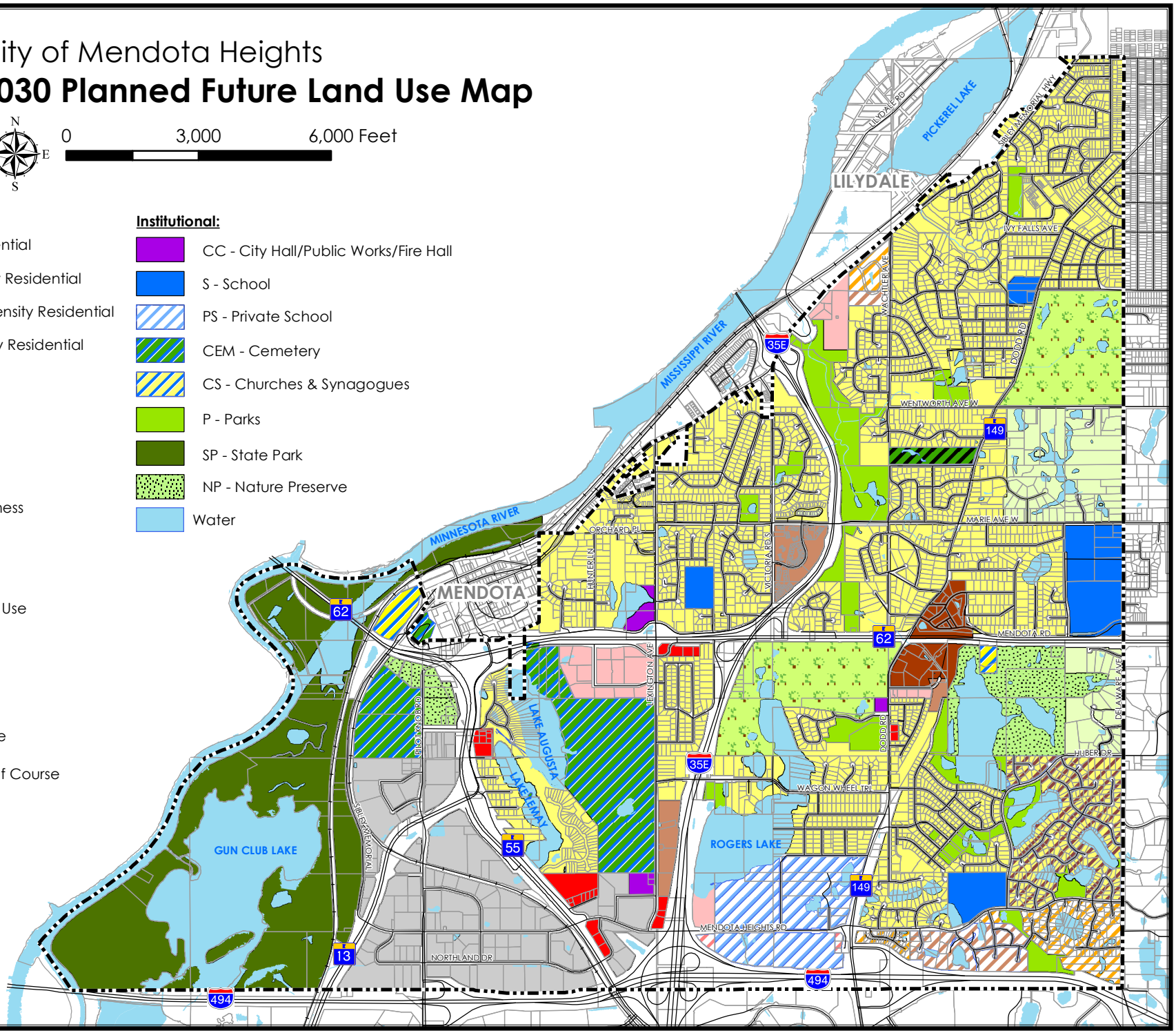


FIGURE 2-4

June 2019

Source: City of Mendota Heights, Dakota County, 2016

City of Mendota Heights

2040 Planned Future Land Use Map

0 3,000 6,000 Feet

- RR - Rural Residential
- LR - Low Density Residential
- MR - Medium Density Residential
- HR - High Density Residential
- LB - Limited Business
- B - Business
- MU - Mixed Use
- I - Industrial
- P/S - Public/Semi-Public
- P - Park & Open Space
- Open Water
- City boundary

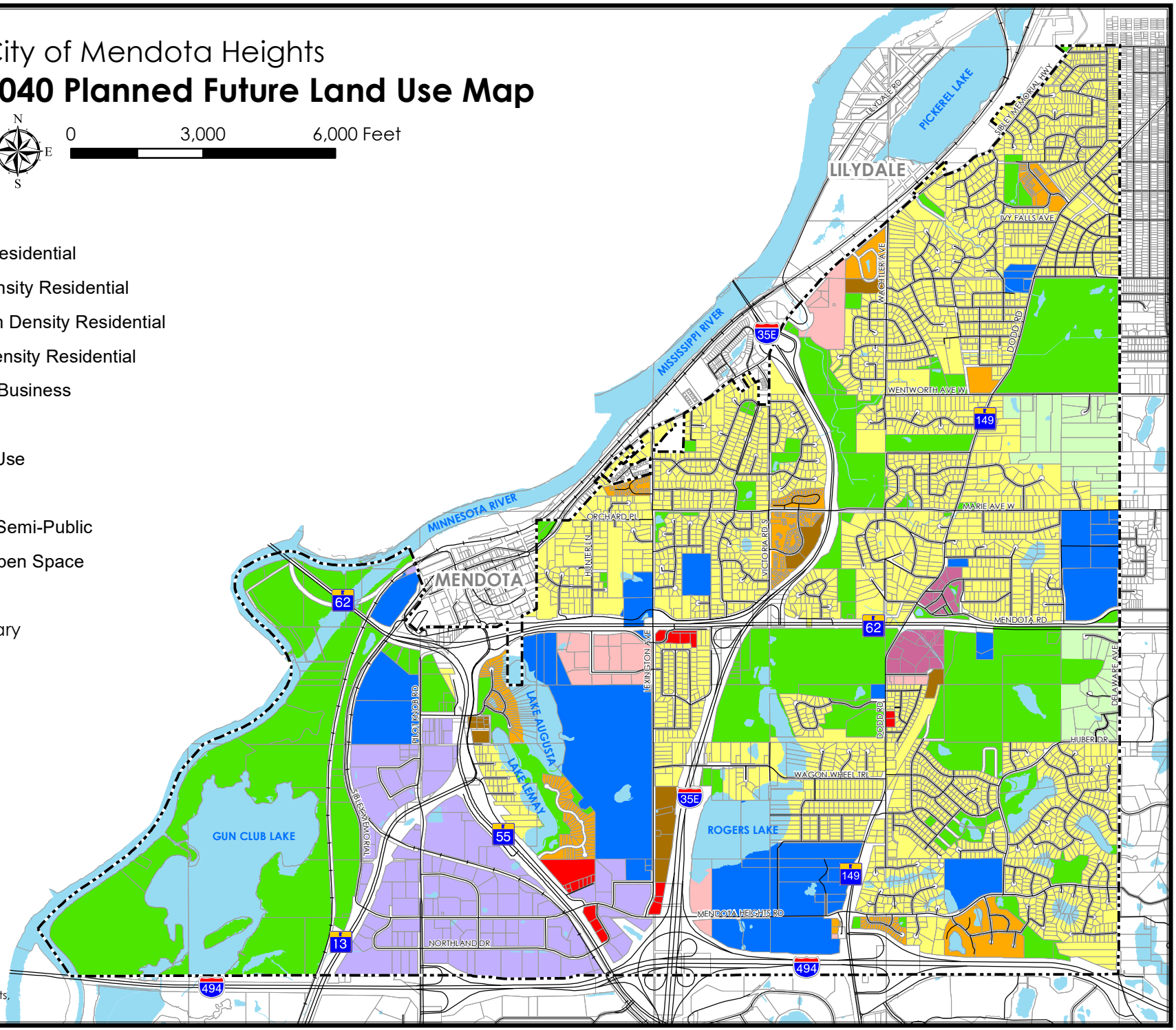


FIGURE 2-5

June 2019

Source: City of Mendota Heights, Dakota County, 2017

LAND USE CHANGES FROM 2030 TO 2040 COMPREHENSIVE PLANS

The designated future land use for a number of properties in the City has changed between the 2030 Comprehensive Plan (in 2008) and this 2040 Comprehensive Plan (adopted in 2019). Below is a brief narrative and summary of these changes, illustrated on the ***2040 Planned Future Land Use for Properties with Planned Land Use Change from 2030 to 2040 – FIGURE 2-6***.

1) 340 - D Street. This 0.86 acre parcel, referred locally as Jack's Mfg. Co., was left blank on the 2030 Plan, and is now guided I-Industrial in the 2040 Plan to reflect its current use. There is also a small 0.27 acre triangular shaped parcel located behind this property, owned by the adjacent St. Peter's Catholic Church. This parcel will be guided as P/S-Public/Semi-Public.

2) Pilot Knob Historical Site. This area consists of several parcels totaling over 32 acres in the westerly edge of the City, south of Highway 55 and either side of Pilot Knob Road and Highway 13. The westernmost parcel is owned by the Minnesota DNR; and all others by the City. In the 2030 Plan the DNR parcel was guided Right-of-Way and the City parcels were guided Parks & Nature Preserve. That land use category has been replaced with the designation Park & Open Space, hence the change between the 2030 and 2040 Plans. The existing and intended use of all the parcels is consistent with the designation Parks & Open Space.

3) Valencour Circle (2085 Valencour Cir. & 2095 Hwy 55). Two residential parcels on Valencour Circle, fronting Highway 55 north of Acacia Boulevard, were guided NP-Nature Preserve in the 2030 Plan, but being single family residences they have been changed in the 2040 Plan to LR-Low Density Residential, reflecting their current use.

4) 2160-2180 Highway 13 (between Acacia Drive & Victory Ave.). Up until 2017, these properties housed an old landscaping-nursery business and a motel, which were razed and redeveloped for a new apartment development. The 2030 Plan guided the properties as Business, but in 2017 the City approved the guiding of these sites to HR-High Density Residential, reflecting their future and intended use (*refer to Res. No. 2017-43; adopted 06/06/17*).

5) Augusta Shores / Lemay Shores Townhomes. The Augusta Shores and Lemay Shores residential developments were both guided Low Density Residential in the 2030 Plan, but as twin-homes, it is more appropriate as Medium Density Residential in the 2040 Plan, reflecting their actual use. There are also several parcels within each development owned in common by the homeowners association as permanent open space or conservation easement, so identifying these areas as Park & Open Space is appropriate.

6) Lexington & Centre Pointe Curve. The City owns a vacant 1.2-acre parcel in the southwest quadrant of Lexington Avenue and Centre Pointe Curve, backing up to Highway 62. It was guided Parks & Nature Preserve in the 2030 Plan, but as a City-owned parcel is guided Public/Semi-Public in the 2040 Plan.

7) Veronica Lane. There are two City-owned parcels at the end of Veronica Lane totaling 1.2 acres that were guided Low Density Residential in the 2030 Plan but are now guided Park & Open Space in the 2040 Plan, reflecting their actual use as permanent open space.

8) Lexington & Marie. The City owns two parcels in the southeast quadrant of Lexington Avenue and Marie Avenue that are permanent open space. They were guided Low Density Residential in the 2030 Plan but are now guided Park & Open Space in the 2040 Plan, reflecting their actual use.

9) Kingsley Estates. The Kingsley Estates townhomes on Lexington Avenue and Kingsley Circle occupy about 8.3 acres and were guided Low Density Residential in the 2030 Plan, but have been designated Medium Density Residential in the 2040 Plan, reflecting their actual use and density.

10) Caren Road. The City owns four parcels on Caren Road where it meets James Road and Lilac Lane, totaling about two acres. They were guided Low Density Residential in the 2030 Plan but are now guided Park & Open Space in the 2040 Plan, reflecting their actual use as permanent open space.

11) Victoria Highlands. The Victoria Highlands townhomes on the north side of Marie Avenue at Victoria Road occupy about 10 acres. They were guided Low Density Residential in the 2030 Plan but are now guided Medium Density Residential in the 2040 Plan, reflecting their actual use.

12) Eagle Ridge. The Eagle Ridge townhomes in the southeast quadrant of Marie Avenue and Victoria Road occupy about 22 acres. They were guided HR-High Density Residential in the 2030 Plan but are now guided MR-Medium Density Residential in the 2040 Plan, reflecting their actual use.

13) Valley View Heights Park. This small park at the corner of Cullen Avenue and Timmy Street was guided LR-Low Density Residential in the 2030 Plan but is now guided P-Park & Open Space in the 2040 Plan, reflecting its actual use as a City park.

14) Rogers Lake Park. This 2.3-acre parcel is part of Rogers Lake Park and had been guided Low Density Residential in the 2030 Plan but is now guided Park & Open Space in the 2040 Plan, reflecting its actual use as a city park.

15) Wagon Wheel Trail at Rogers Lake. The 3-acre City-owned parcel on the south side of Wagon Wheel Trail as it crosses Rogers Lake was guided Low Density Residential in the 2030 Plan, but is now guided Park & Open Space in the 2040 Plan, reflecting its actual use as permanent open space

16) Condon Court. Two parcels formerly addressed as 2511 and 2525 Condon Court were re-guided in 2015 from LB-PUD Limited Business-Planned Unit Development to MR-Medium Density Residential (*refer to Res. No. 2015-02; adopted 01/06/15*). The properties were later subdivided and rezoned R-2 Two Family Residential. These parcels will be guided in the 2040 Plan as Medium Density Residential, reflecting their current use.

17) 2357 Pagel Road. Two privately-owned parcels totaling 1.2 acres were shown in the 2030 Plan as Highway 149 right-of-way, but are actually privately owned parcels with 2357 Pagel Road. They are shown in the 2040 Plan as Low Density Residential, reflecting their actual use.

18) Mendota Meadows (Monet Court): two parcels dedicated to the city for open-space/buffering and storm water pond. Re-guided from MR-PUD in the 2030 Plan to Park/Open-Space in the 2040 Plan.

19) Mendota Woods. The Mendota Woods single family development on Arbor Court south of Mendota Heights Road was guided HR-PUD in the 2030 Plan, but is appropriately guided Low Density Residential in the 2040 Plan, reflecting the actual use.

20) Kensington PUD Townhomes. The Kensington PUD townhome development, south of Mendota Heights Road at Concord Way and Lockwood Drive, was guided HR-PUD in the 2030 Plan, but is now guided Medium Density Residential in the 2040 Plan, reflecting the actual use.

21) Kensington PUD Single Family Homes. The Kensington PUD single family development, in the southwest quadrant of Mendota Heights Road and Delaware Avenue, was guided MR-PUD in the 2030 Plan, but is appropriately guided Low Density Residential in the 2040 Plan, reflecting the actual use.

22) MnDOT Right-of-Way on Decorah Lane. A small triangular 0.76-acre parcel on MnDOT right-of-way fronting on Decorah Lane east of Dodd Road was guided Low Density Residential in the 2030 Plan, but is now guided Right-of-Way in the 2040 Plan, reflecting its actual ownership.

23) Friendly Marsh Park. A one-acre triangular parcel at the end of Apache Street is part of Friendly Marsh Park, but was guided Low Density Residential in the 2030 Plan. It is now guided Park & Open Space in the 2040 Plan, reflecting its actual use.

24) The Village (Dodd Road/Hwy 62/Market Street). A combination of city-owned outlots (total of 4.08 acres) located in The Village of Mendota Heights, was guided Mixed-Use PUD in the 2030 Plan, but are all guided Park & Open Space in the 2040 Plan, reflecting their actual use as permanent open space.

25) Somerset Area (Southwest Part). A large area in the southwest part of what was designated the Somerset Area Focus Area in the 2030 Plan was guided Rural Residential. It is actually developed as single family residential on sewered lots and is guided Low Density Residential in the 2040 Plan.

26) Somerset 19 Condominiums. The two-building condo project at Dodd Road and Wentworth Avenue on 8.1 acres was guided Low Density Residential in the 2030 Plan, but is now guided Medium Density Residential in the 2040 Plan, reflecting its actual density and use.

27) 723 - 3rd Avenue. The 3-acre privately-owned single family parcel was guided Parks in the 2030 Plan, but is now guided Low Density Residential in the 2040 Plan, reflecting its actual single-family residential ownership use.

28) City Parcel, Highway 13 at Ivy Falls. A narrow 2.6-acre parcel of City-owned land fronting Highway 13 on the bluff where Ivy Falls drains toward the river between Wachtler Avenue and Sylvandale Road was guided Low Density Residential in the 2030 Plan. It is now guided Park & Open Space in the 2040 Plan, reflecting its actual use as permanent open space.

29) Ivy Keep Condominiums. The Ivy Keep condo and townhome project, consisting of about 19 acres at Dodd Road-Ivy Hill Drive-Maple Park Drive, was guided Low Density Residential in the 2030 Plan, but is now guided Medium Density Residential in the 2040 Plan, reflecting its actual density and use. The exception is the Ivy Keep Association's 2.67 acre tract known as Outlot F, which has been requested to be re-guided to Park & Open Space, reflecting its actual use as permanent open space.

30) Lilydale Regional Park, St. Paul Parcel. A 0.7-acre parcel at the far northern edge of the City on the west side of Highway 13 is owned by the City of St. Paul and is within the Lilydale Regional Park. It was guided Low Density Residential in the 2030 Plan but is now guided Park & Open Space in the 2040 Plan, reflecting its actual ownership and use.

City of Mendota Heights

2040 Planned Future Land Use Changes Map for Properties from 2030 to 2040

0 3,000 6,000 Feet

- LR - Low Density Residential
- MR - Medium Density Residential
- HR - High Density Residential
- B - Business
- I - Industrial
- P/S - Public/Semi-Public
- P - Park & Open Space
- Open Water
- Right-of-Way
- City boundary

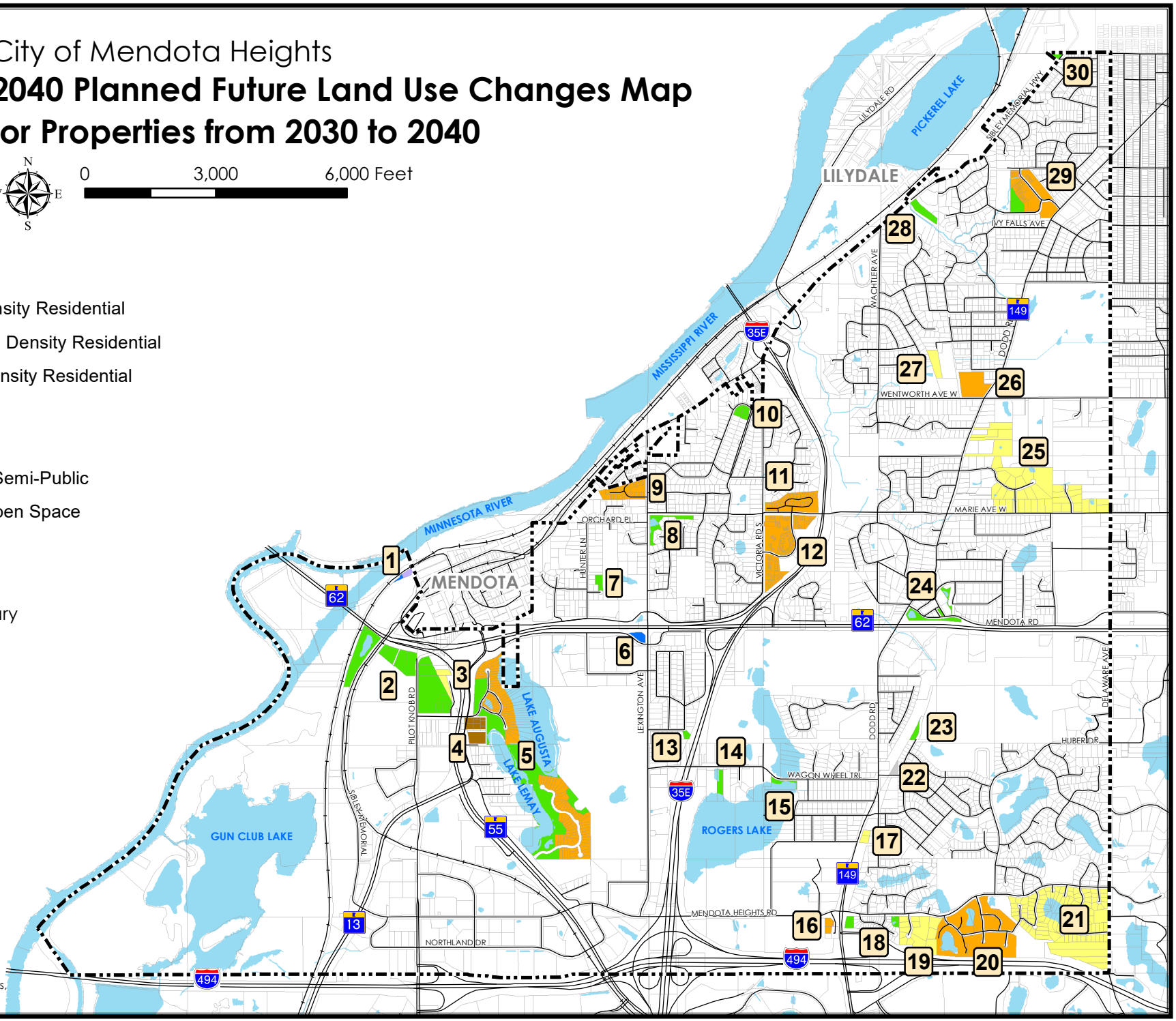


FIGURE 2-6

June 2019

Source: City of Mendota Heights, Dakota County, 2017

FOCUS AREAS

In the City's previous comprehensive plans, a number of specific properties in the City were mapped that were either vacant, under-developed, under-utilized or identified as either potential infill or redevelopment areas. Infill means that the property has the opportunity to develop or redevelop beyond its current level. The City is not recommending any land use or rezoning changes on these sites at this time or as part of this plan. A summary of these sites are provided below, along with the ***Focus Area Map – FIGURE 2-7***.

1) SE Quadrant of Highway 55 and Acacia Boulevard: This 9.1-acre city-owned site is bounded by Pilot Knob Road on the west, Acacia Boulevard on the north, and Highway 55 on the east. The site was approved under an interim use permit in 2015 as an off-leash dog park for a five year period, but is located in the industrial park and guided for future Industrial use.

2) 2359 Pilot Knob Road. This area consists of a 3.1-acre property currently used as a single family residence plus a 0.4-acre site owned by the Metropolitan Airports Commission. Both are guided for Industrial use.

3) NW Quadrant of Pilot Knob Rd. & Mendota Heights Road: This vacant 5-acre site is bounded by Highway 13 on the west, and an unnamed extension of Perron Road right-of-way to the north. The property is owned and adjacent to Lloyd's BBQ business to the south. Site is guided for industrial use.

4) Highway 55 and Northland Drive. This 2.2-acre site is vacant and guided industrial.

5) Bourn Lane Site (city-owned properties). This 14.8-acre area on Bourn Lane and Lemay Lake Road consists of nine separate parcels, all owned by the City. The site is guided for Business use.

6) 1179 Centre Pointe Circle. This 3.6-acre site is one of two vacant parcels in the Centre Pointe Business Park. The site is guided for Limited Business.

7) Centre Pointe Curve & Lexington. This 2.1-acre site is currently vacant and located on the south frontage road to Highway 62. The site is guided Limited Business.

8) Victoria Curve & Glenhill Road. This 6.3-acre site is vacant and guided Low Density Residential.

9) Lexington & Highway 13. Three single family parcels totaling 3.1 acres are surrounded on three sides by multi-family development. The site is guided for LR-Low Density Residential use.

10) 2015 & 2021 Victoria Road South. Two large single family parcels totaling 3.5 acres on the north frontage road to Highway 62. The site is guided for LR-Low Density Residential use.

11) 1026, 1032, & 1036 Dakota Trail. Three single family parcels totaling 2.5 acres on Dakota Trail, the south frontage road to Highway 62, are adjacent to commercial parcels and are guided for Low-Density Residential use.

12) Lexington Avenue & Wagon Wheel Trail. Bounded by Lexington, Wagon Wheel Trail and I-35E, and adjacent to the Lexington Heights Apartments. The site is guided for LR-Low Density Residential use.

13) SE Quadrant of I-35E interchange and Mendota Heights Road: This 2.4-acre vacant parcel is guided for Limited Business use.

14) Vacant Parcel – South of Visitation School: The Sisters of the Visitation Monastery own this 28.1-acre vacant parcel on Mendota Heights Road and I-494 just west of Dodd Road. It is one of the largest vacant parcels in the City and is guided as Public/Semi-Public use.

15) 750 Mohican Lane: This property consists of two parcels (one vacant/one developed) containing 7.2 acres of total land area in the Friendly Hills neighborhood. Both are located behind residences on Mohican Lane and Pagel Road. The property is guided for LR-Low Density Residential use.

16) 2455 Delaware Avenue. This is a 2.5 acre, single-family parcel, and is guided for LR-Low Density Residential use.

17) Dakota County CDA. This area consists of two separate parcels totaling 11.9 acres owned by Dakota County, part of former reserved highway right-of-way that was never used. The property is guided for Low Density Residential use.

18) Mendota Plaza Area. There are three (3) vacant parcels in and around the Mendota Plaza: (i) a 2.05 acre parcel located northwest of the new The Reserve of Mendota Village apartments; (ii) a 2.1-acre parcel on South Plaza Drive and South Plaza Way; (iii) a 2-acre parcel at the end of South Plaza Drive, owned by Dakota County CDA. All three parcels are guided and zoned MU-Mixed Use.

19) Village Lots (City-Owned properties). These city-owned properties consists of four vacant parcels totaling 1.7 acres, which are located in The Village center development on the east side of Dodd Road (Hwy 149) and north of Maple Street. The City has been actively marketing the property as a site for high-density residential or mixed-use development.

20) Wachtler & Wentworth. This 2.7-acre residential property in the NE quadrant of Wachtler and Wentworth Avenues adjacent to Wentworth Park is guided for LR-Low Density Residential use.

21) Somerset Area. This area has been referred to as the "Superblock" due to its collection of large residential lots. It consists of over 20 separate parcels on approximately 90 acres located directly south of Somerset Country Club and Golf Course. The area is developed with single family homes on large lots with private septic systems. The neighborhood is bounded on the east by Delaware Avenue, the north by Wentworth Avenue, and the south and west by smaller single family lots. The neighborhood contains significant wetlands and woodlands. The area is guided Rural Residential use. Due to the existing large lot configuration, the area has the potential to be further subdivided, provided public sewer, water and road systems would be extended to the area.

22) 1170 Dodd Road. This property consists of approximately 3.7 total acres. The property is guided Low Density Residential use.

City of Mendota Heights

Focus Areas Map

Infill Sites and/or Redevelopment Areas

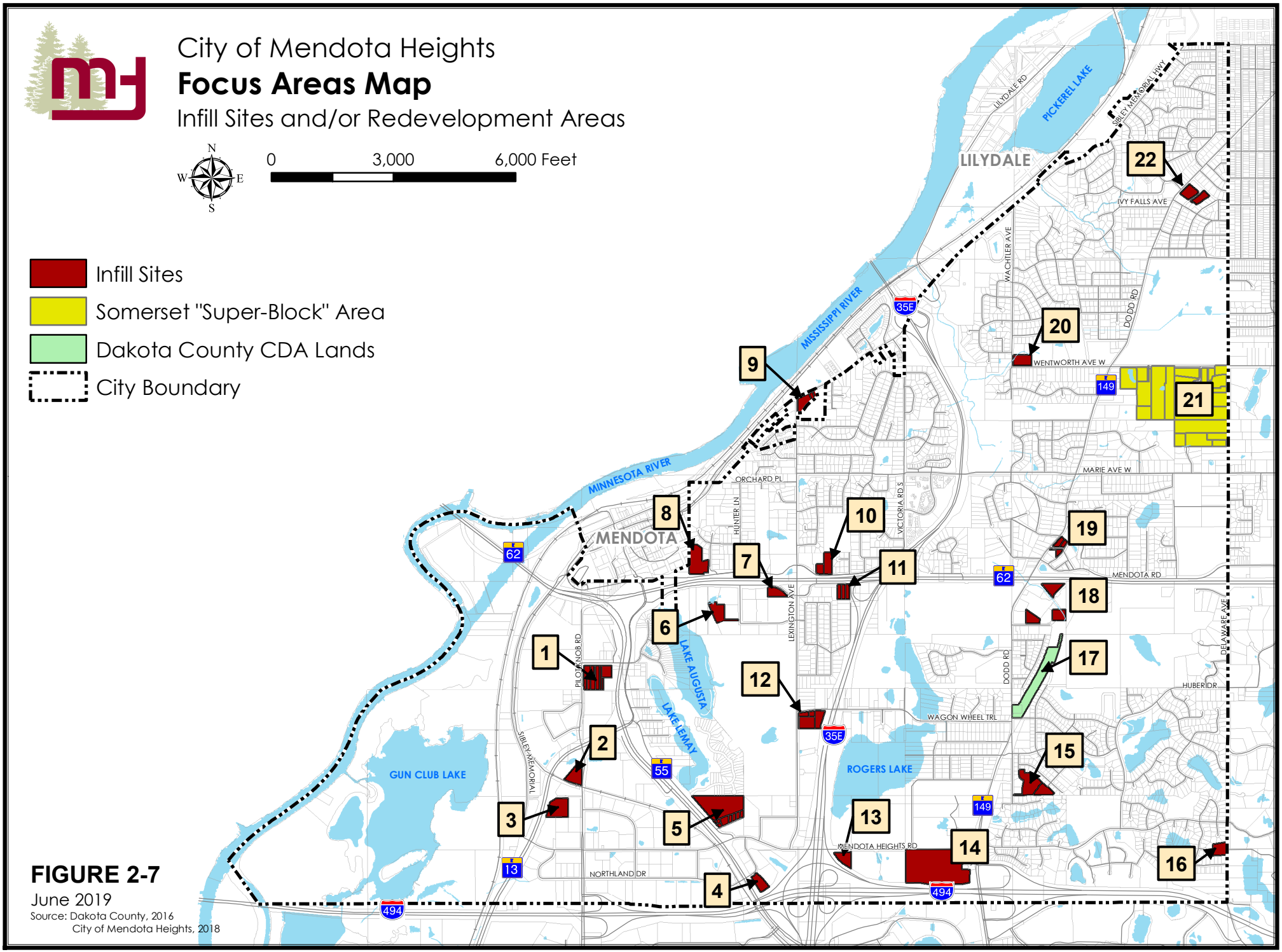


FIGURE 2-7

June 2019

Source: Dakota County, 2016
City of Mendota Heights, 2018

3

Transportation

Mendota Heights is strategically located within the regional roadway system, with access to major highways connecting to both downtown Minneapolis and downtown St. Paul, MSP Airport, and all parts of the region in all directions. The completion of Interstates 494 and 35E in the late 1980's altered the physical environment of Mendota Heights. The highway systems have connected the community to the region, and this improved access has contributed to growth of the residential, commercial, and industrial base of the community; but these major transportation systems have also increased air, noise, and water pollution in parts of the community. This chapter of the plan addresses transportation in many forms – automobiles, transit, bicycles and pedestrians, aviation, and freight.

GOALS and POLICIES

GOAL 3.1: Provide a safe, high quality, and cost effective multi-modal transportation system.

Policies:

3.1.1 Transportation improvements will be coordinated with the plans of MnDOT, Dakota County, Metropolitan Council, and adjoining communities.

3.1.2 When feasible, the City will support regional improvements to major transportation facilities serving the city.

3.1.3 New construction techniques, technologies, and environmental sustainability will be incorporated in planning transportation facilities.

3.1.4 A network of sidewalks and trails will be constructed in all new developments and redevelopments, where practical and feasible.

3.1.5 Developers will be required to provide the transportation facilities within and adjacent to new subdivisions, including rights-of-way, roadways, and bicycle and pedestrian facilities necessary to support their development.

3.1.6 Existing transportation facilities will be maintained so as to preserve or improve service levels and minimize life-cycle costs, including an ongoing pavement management program for city streets.

3.1.7 Where practical and feasible, planning for roadway improvements will include landscaping, street lighting (where deemed appropriate), and other aesthetic improvements.

3.1.8 Advocate for transportation improvements outside of Mendota Heights, as identified in the Dakota County Regional Roadway Visioning Study.

3.1.9 Investigate funding alternatives that would reduce or eliminate the need for special assessments.

GOAL 3.2: Expand transit options serving Mendota Heights.

Policies:

3.2.1 The City will continue to support and participate in efforts to implement proposed improved transit service in the City.

3.2.2 The City will support the appropriate transit agencies in the seeking of county, regional, state or federal funding to expand transit services in and around the city.

3.2.3 The City will support park and ride facilities if demand is met or requested by the residents and/or local businesses.

Transportation Analysis Zones

In order to develop forecasts and plan for regional roads and highways, the Metropolitan Council needs to know the demographic forecasts for smaller geographic areas known as *Traffic Analysis Zones* (TAZ).

The ***Traffic Analysis Zones Map - FIGURE 3-1*** illustrates the eighteen zones currently located within the City of Mendota Heights. Within each zone the allocation of the Metropolitan Council's 2040 population, household, and employment forecasts are shown for each TAZ. The distribution of future growth within these areas reflects the communities overall land use planning efforts.

City of Mendota Heights

Traffic Analysis Zones Map with Metropolitan Council Projected 2040 Population and Employment

N W E S

0 3,000 6,000 Feet

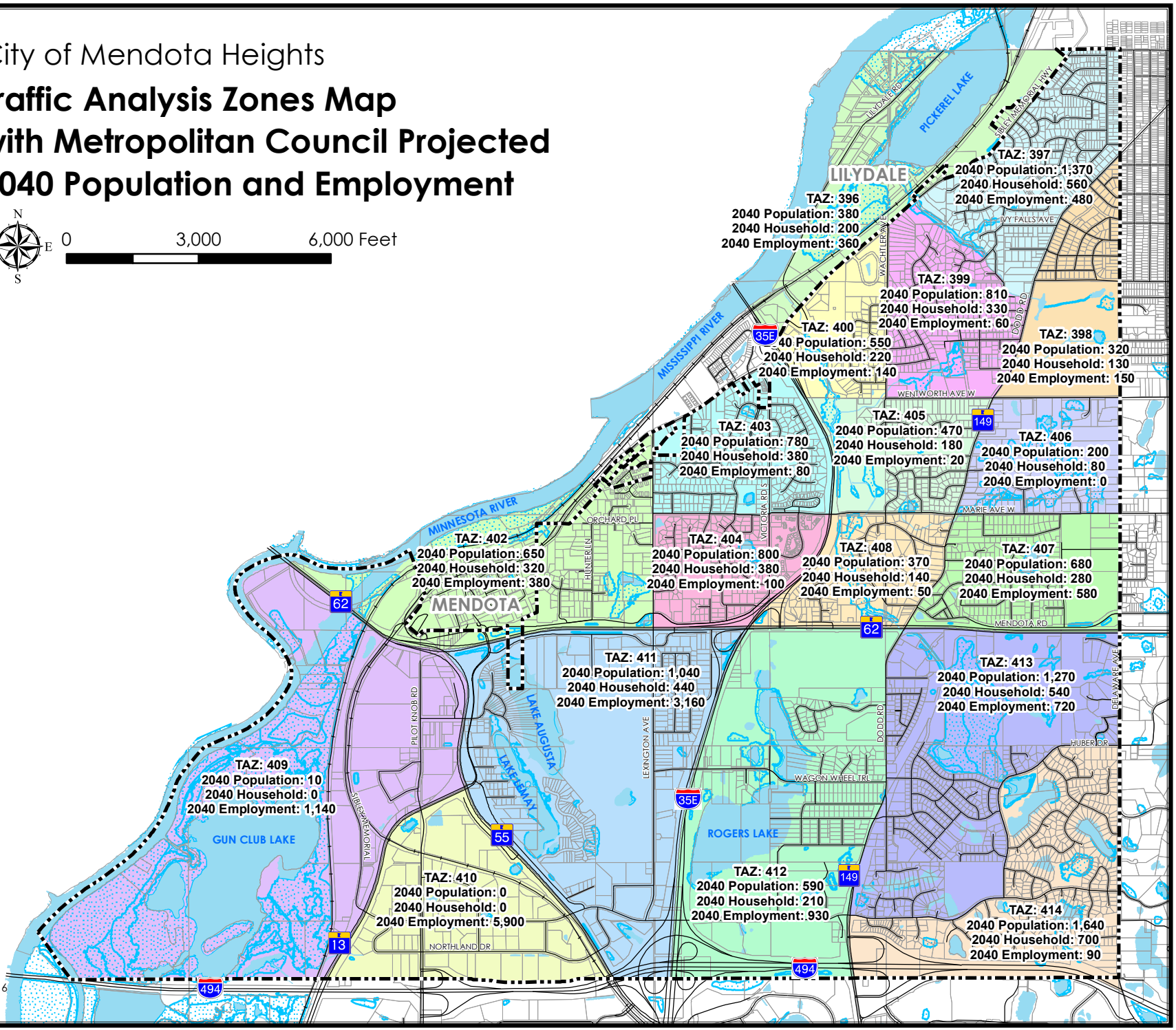


FIGURE 3-1

June 2019

Source: Metropolitan Council, 2016

Functional Classification System

Mendota Heights' street system consists of Principal Arterials, "A" Minor Arterials, "B" Minor Arterials, and community collectors, and a series of local streets. The ***Transportation System Map - FIGURE 3-2*** illustrates the classification of the roads within the City of Mendota Heights.

- ### Principal Arterials

  Interstates 494 and 35E, State Trunk Highway (TH) 55, and the western part of Highway 62 (formerly Highway 110) – from 35E to TH 55 – are all designated Principal Arterials. Interstate 494 forms the southern boundary of the City, while Interstate 35E bisects the City from east to west. Highway 62 bisects the community from north to south, with Highway 55 further dividing the southwestern part of Mendota Heights.

- ### Arterial Roadways

  "A" Minor Arterials are further classified as minor augmenters, minor relievers, and minor expander roads. The definitions of these classes are outlined in the Metropolitan Council's 2040 Transportation Policy Plan. The major function of an arterial road is to move traffic from the smaller community collector roads to principal arterials as efficiently as possible. The "A" Minor Arterials within the City of Mendota Heights are Highway 62, (35E to Delaware Avenue), Dodd Road (Highway 149), Highway 13 (Highway 55 to Interstate 494), and Pilot Knob Road or County Road 31 (Interstate 494 to Highway 13). Wentworth Ave West (Dodd Road to Delaware Avenue) is the only roadway currently classified as a "B" Arterial Roadway.

  Arterial roadways, except county roads, are maintained by the Minnesota Department of Transportation (MnDOT). Traffic on both principal and arterial roadways within the city limits has increased steadily over the last ten years.

- ### Community Collectors

  Community collector streets are broken down by major collectors and minor collectors. The City of Mendota Heights does not have any minor collectors. Delaware Avenue functions as a major collector on the City's eastern border. It is otherwise known as County Road 63. Other roads within Mendota Heights that are designated as Collector Streets are: Lexington Avenue or County Rd 43, Mendota Heights Road, Marie Avenue, Sibley Memorial Highway, and Highway 13 (Highway 55 to Sibley Memorial Highway). County Roads 8 (Wentworth Avenue and Wachtler Avenue), 63 Delaware Avenue), 43 (Lexington Avenue) and 31 (Pilot Knob Road) are all maintained by Dakota County.

City of Mendota Heights
Transportation Systems Map

0 3,000 6,000 Feet

#,### = 2016 Traffic Volumes (AADT)

#,### = Projected 2040 Traffic Volumes (AADT)

#,### = Projected 2040 Traffic Volumes (AADT) without Delaware Avenue Interchange

- 2-Lane Roadway
- 4-Lane Roadway
- 6-Lane Roadway
- Principal Arterial
- A Minor Augmentor
- A Minor Reliever
- A Minor Expander
- B Minor Arterial
- Major Collector
- Minor Collector
- Local Road
- Railroad
- City of Mendota Heights

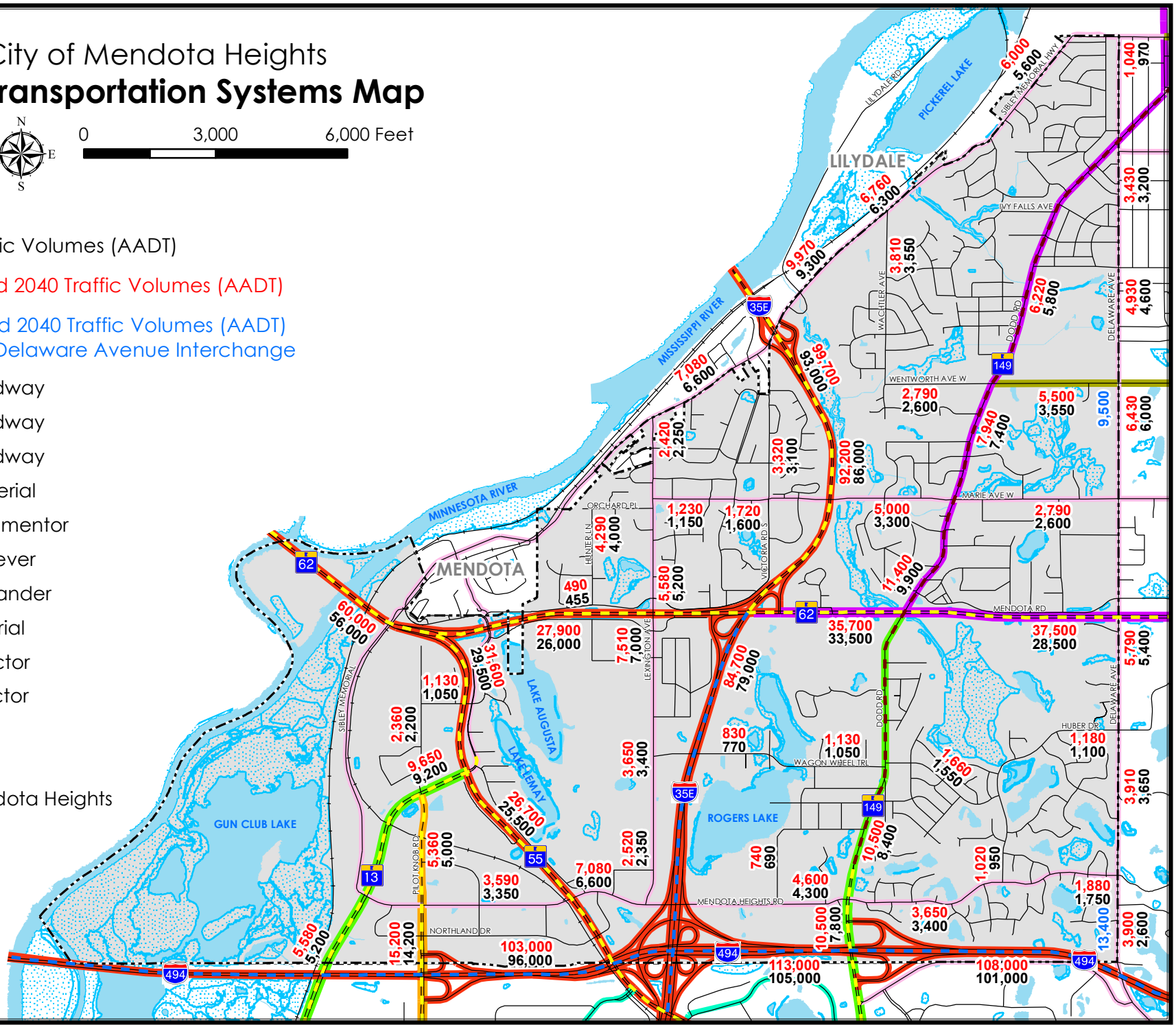


FIGURE 3-2

June 2019

Source: MNDOT, 2016; Stantec

Traffic Volumes

The Transportation System Map illustrates the current daily traffic counts, the forecasted 2040 traffic volumes, both in average annual daily trips (AADT), and the existing number of lanes for each roadway

Transportation Issues

Mendota Heights commissioned a North-South Mobility Traffic Study to compile data from existing traffic studies into one complete study for the city to use in identifying needed improvements.

Previous Studies

The need for this study was prompted in response to multiple major growth plans surrounding the study area. Inver Grove Heights Northwest Expansion and the Minnesota Vikings Headquarters and Mixed-Use Development Alternative Urban Area-Wide Review (AUAR) planning documents identified traffic and impacts for each development respectively, but neither document examined the combined impact of both developments. The intersections for each study were also primarily south of I-494 along Dodd Road and Argenta Trail and did not fully consider the impacts of traffic traveling to the north of the study areas into the city of Mendota Heights.

In addition to the two AUARs, this study also incorporated two other Mendota Heights' expected future developments. These impact studies and other past studies that were used to provide a basis for this project included:

- Inver Grove Heights Northwest Expansion AUAR (Sept 2007)
- Regional Roadway System Visioning Study (Aug 2010)
- Vikings Headquarters & Mixed-Use Development AUAR (April 2016)
- Mendota Plaza Expansion Traffic Impact Study (Aug 2016)
- Dodd Road Trail Feasibility Study (Nov 2017)
- Linden Street Senior Housing Traffic Impact Study (Dec 2017)
- Viking Lakes Event Travel Demand Management Plan (Jan 2018)

Study Intersections

Key intersections in the study area were identified by Mendota Heights' staff that could be impacted by future development. These intersections included the following list on each study corridor:

- **Dodd Road** at:
  - I-494 South Ramps
  - I-494 North Ramps
  - Mendota Heights Road
  - Lake Drive
  - Wagon Wheel Trail/Decorah Lane
  - South Plaza Drive
  - Highway 62 (formerly Highway 110)
  - Market Street
  - Maple Street
  - Marie Avenue
  - Wentworth Avenue

- **Delaware Avenue** at:
  - O'Neill Drive
  - Mendota Heights Road
  - Huber Drive / Charlton Road
  - Highway 62

- **Mendota Heights Road and Lake Drive**
- **Lake Drive and Swan Drive**

Existing Traffic Operations

Existing traffic operations were analyzed to identify intersection delay and level of service (LOS) based on Highway Capacity Manual (HCM) guidance. LOS grade values correspond to specific traffic characteristics within a given system. At intersections, LOS is a function of average vehicle delay. For two-way stop controlled intersections, minor approach delay is reported in addition to intersection LOS results. LOS "E" or worse, according to MnDOT standards, is considered deficient under normal traffic operations.

Results of the existing traffic operations analysis identified several intersections and operational deficiencies in the study area. Noteworthy deficiencies include:

- Dodd Road at Highway 62 has unacceptable operations in the AM peak hour and approaching capacity in the PM peak hour. The queues in the AM peak hour spill back to cause unacceptable conditions and block movements at Market Street.
- Delaware Avenue at Highway 62 is approaching capacity.

Existing Traffic Control

Warrant analysis results showed that signal warrants were met for all existing signalized intersections. For the un-signalized intersections that were analyzed, existing all-way stop intersections at Marie Avenue and Wentworth Avenue met Multi-Way Stop Application (MWSA) and 70% signal warrants for four hour and peak hour conditions. The remaining two way stop control intersections did not meet signal or MWSA warrants under their current volume conditions.

Future Conditions

Traffic projections were developed for 2040 to evaluate operating conditions under both existing and proposed roadway infrastructure. Multiple 2040 traffic scenarios were developed to determine the impact from major developments that are under construction or planned in the area.

2040 Base Scenario

- Based on traffic projections from 2030 Dakota County Comprehensive Plan extrapolated to 2040.
- Includes planned Mendota Plaza development near Dodd Road and Highway 62.
- Does not include the new Viking Lakes development (Minnesota Vikings practice facility and adjacent development) or the planned Inver Grove Heights Northwest Expansion.

2040 Build AUAR (No Interchange) Scenario

- Includes 2040 base scenario traffic growth assumptions as well as traffic generated by the Viking Lakes site and Inver Grove Heights Northwest Expansion. Trip generation for the Viking Lakes and Inver Grove Heights Northwest Expansion sites are based on information in the respective AUAR documents for each site.
- Does not assume a future Argenta Trail/I-494 Interchange.
- Assumes the most densely developed Viking Lakes scenario that was considered in the AUAR.

Viking Lakes Development Details

The Viking Lakes development is in the southeast quadrant of the I-494 and Dodd Road interchange. The site will include the new Minnesota Vikings practice facility and associated office space, other offices not affiliated with the Vikings, hotels, retail, and apartments.

During typical operating conditions (i.e., no major events occurring at the Vikings facilities), the following traffic volumes are expected to be added to the surrounding roadway network compared to existing conditions:

- 40,000 daily trips
- 3,100 AM peak hour trips (74 percent entering/26 percent exiting)
- 3,800 PM peak hour trips (35 percent entering/65 percent exiting)

Viking Lakes Event Traffic

As part of a separate study, a Travel Demand Management Plan was developed for the Viking Lakes site to best accommodate traffic during atypical event conditions such as Vikings training camp, high school athletic events, concerts, etc. This event plan looked at events between 500 and 7,200 attendees for existing events and up to 21,000 attendees for future events. However, vehicle traffic to and from the event site will be much lower due to transit/walk/bike and vehicle occupancy which decreases the maximum vehicles to 2,495 for existing events and 7,280 for future expanded capacity events.

Many events will occur during off-peak time periods, during weekends, midday, or evening, where total volume splits using Dodd Road or Delaware Avenue are expected to be less than peak volumes. Therefore, the *North-South Mobility Study* will only evaluate typical operating conditions in the area. Results from the ongoing Travel Demand Management Plan will be considered in recommendations made in the *North-South Mobility Study* to ensure consistency between analyses and recommendations across studies.

Inver Grove Heights Northwest Expansion Development Details

The planned development covers a 3,140-acre area in Inver Grove Heights that is generally bound by I-494, Argenta Trail, TH 55, and Babcock Trail. Land uses include low, medium, and high density residential, commercial, office/industrial, public/institutional, and open space.

The development is expected to add the following traffic volumes to the surrounding roadway network:

- 102,200 daily trips
- 5,300 AM peak hour trips (49 percent entering/51 percent exiting)
- 8,400 PM peak hour trips (47 percent entering/53 percent exiting)

Traffic Forecasts

Traffic projections for both 2040 Base Scenario and 2040 Build Scenario conditions were developed based on trip generation assumptions that are described above. This included the development of 2040 daily traffic projections as well as AM and PM peak hour turning movement projections.

Origins and destinations of site generated trips were assumed after a review of prevailing traffic patterns and previous documentation. Adjustments were made based on existing regional travel patterns which differed slightly from the Viking

Lakes AUAR. It is expected that six percent of Vikings Lakes development traffic will use Dodd Road and nine percent will use Delaware Avenue between I-494 and Highway 62. Six percent (6%) of Inver Grove Heights Northwest Expansion development traffic will use Delaware Avenue to the north of I-494.

Future Traffic Operations

Increased traffic volumes through 2040 are expected to trigger many operational deficiencies throughout the study area, especially in the 2040 Build Scenario with added traffic from the Viking Lakes and Inver Grove Heights Northwest Expansion developments. The 2040 Build Scenario is expected to trigger LOS F at all Dodd Road study intersections north of Wagon Wheel Trail and at all Delaware Avenue/Argenta Trail study intersections, except at Huber Drive.

Daily trips on Dodd and Delaware are projected to increase to levels creating unacceptable conditions at various city intersections. Although some solutions lie within the city itself, rising levels of "pass through" traffic from development to the south of the city need to be addressed. This must be accomplished through a regional traffic plan that involves Mendota Heights, Inver Grove Heights, Eagan, MnDOT and Dakota County. This should be a formal process with clear goals and objectives.

Future Traffic Control

Minnesota Manual on Uniform Traffic Control Devices (MUTCD) warrants were evaluated with projected 2040 volumes to identify potential traffic control revisions throughout the study area.

Intersections that were identified as being deficient in existing or 2040 conditions were analyzed under several options to provide improvements to the intersection. Several options per intersection were identified as possible improvements, with a recommended option being identified for each intersection. To maintain a complete corridor vision, intersections were grouped together based on their existing control and location. High level cost estimates were included for comparison purposes only. They represent high-level estimates and do not include right-of-way costs.

MN Highway 62 Intersections

The MN HWY 62 intersections with Dodd Road and Delaware Avenue are both high traffic volume intersections. With 37,500 daily entering vehicles at Dodd Road and 35,000 daily entering vehicles at Delaware Avenue, both intersections are approaching the capacity of their existing 4-Lane highway footprint. With 2040 volumes identifying growth up to 50,000 daily entering vehicles for both intersections, an alternative corridor design or interchange will likely be necessary in the future.

Market, Maple, and South Plaza Drive

The four intersections adjacent to the Highway 62 and Dodd Road intersection were identified as having deficient 2040 intersection operations. Dakota County recommends at least 1/4 mile spacing for signals along a major arterial roadway precluding a signal at either Market Street or North Plaza Drive. The queuing from Highway 62 would also impact closely spaced signals. If all four access locations were unchanged, signal warrants for the four intersections are expected to not be met. However, if access is reduced at Market Street and N Plaza Drive, the resulting traffic shifts would warrant signals at Hilltop Road/Maple Street and South Plaza Drive.

The results of the analysis showed that when queuing was minimized at Dodd Road and Highway 62 that operations were generally acceptable at South Plaza Drive, Market Street, and Maple Street. By reconfiguring to a reduced access design, delays at the study intersections were decreased from unacceptable to acceptable conditions. Although right-in right-out access at N Plaza Drive was modeled and preferred, the option of keeping southbound access into Mendota Plaza should be considered in the future.

Marie and Wentworth

Dodd Road intersections with Marie Avenue and Wentworth Avenue are both slightly skewed all-way stop controlled intersections. With volumes on Marie and Wentworth expected to increase from 3,000-4,000 existing to 5,000-6,000 in 2040 cross street traffic will drive the need for an alternative intersection that will benefit both safety and operations.

Wagon Wheel Trail and Decorah Lane

With MnDOT's 2018 TH 149 reconstruction project, Wagon Wheel Trail and Decorah Lane will be reconstructed into a three-lane segment with a pedestrian crossing median between the intersections. This improvement is a near-term solution to increase both vehicle and pedestrian safety at the intersection. However, as volumes increase on Dodd Road this intersection will have future unacceptable operations and long-term alternatives will need to be considered.

Delaware Avenue

Delaware Avenue is expected to see the highest percentage increase in development traffic in the study area. Volumes are expected to increase from 3,000 daily trips to more than 13,000 daily trips in the full build scenarios. If these volumes are not mitigated, Delaware Avenue will be at capacity with several intersections that have unacceptable conditions. The future Argenta Trail interchange in the adjacent City of Inver Grove Heights, is expected to be installed at or near a location 1,500 feet east of the existing overpass on I-494. This new

intersection location is the preferred option; the City of Mendota Heights supports the location and building of this intersection. It is expected that 90 percent of development traffic using Delaware Avenue will be shifted to using the Argenta Interchange restoring the acceptable operations of the corridor in the 2040 Base Conditions. If the interchange is not built, long-term alternatives and options will need to be explored and considered by the City and affected jurisdictions.

Multimodal Considerations

Although this study was focused on identifying vehicular traffic due to regional development, bike and pedestrian facilities are an important consideration for the final corridor vision. In depth pedestrian and bike facilities were not analyzed as part of the current study (as a previous trail study was finished in Nov 2017). Many of the alternative recommendations will coincide with multimodal improvements and will be analyzed in depth during preliminary design of the concepts.

The *Dodd Road Trail Feasibility Study* (Nov 2017) identified Dodd Road as a major N-S regional trail facility. The existing facilities are mostly on-street trails (wide shoulders) however north and south of Highway 62 there are existing sections of off-street trails. A Pedestrian/Bike tunnel was just recently constructed under Highway 62 connecting these two segments. Trail crossings were also proposed at Wagon Wheel Trail / Decorah Lane as part of the TH 149 resurfacing project in addition to existing crossings at Mendota Heights Road, South Plaza Drive, and Marie Avenue. The recommendations of the study were to build several additional sections of off-street trail segments along Dodd Road with public support as construction would require property owners to sell property or easements for the trail segments.

Due to the limited right-of-way along Delaware Avenue, pedestrian accommodations in the study area between I-494 and Highway 62 would be constrained by roadway grade profiles and right-of-way needed from property owners. Existing off-street trails on Huber Drive and Mendota Heights Road allow connections from Delaware Avenue to the west and serve as alternative multimodal routes to the narrow corridor.

Access Management

Access management is the planning, design, and implementation of land use and transportation strategies that maintain a safe flow of traffic while accommodating the access needs of adjacent development.

The Minnesota Department of Transportation (MnDOT) has set up access management guidelines which provide numerous benefits such as, reduce congestion and crashes, preserve road capacity and postpone the need for roadway widening, improve travel times for the delivery of goods and services, ease movement between destinations, and support local economic development.

To provide safe and convenient travel within the City, access management guidelines will be applied when making development decisions. MnDOT access management guidelines will be incorporated into this Comprehensive Plan update.

MnDOT Access Management Guidelines

1. Think land use AND transportation.

Before approving a subdivision or rezoning, consider what road design and improvements will be needed to support the development and link it to the surrounding area.

2. Identify and plan for growth areas.

Incremental and uncoordinated development will not lead to a livable community or a healthy business climate. Support economic growth by planning and investing in a local road network to support development.

3. Develop a complete hierarchy of roads.

A viable community requires a variety of roadways organized as an integrated system. Highways and arterials are needed for longer, higher speed trips. Local streets and collectors provide access to homes and businesses. Recognize that different roads serve different purposes.

4. Link access regulations to roadway function.

Access requirements in zoning and subdivision regulations should fit each roadway's functional classification. Recognize that the greatest access control is needed for those roads intended to serve longer, higher speed trips.

5. Avoid strip development. Promote commercial nodes.

Commercial development can be located adjacent to and visible from the highway, but should be accessed via a system of parallel local roads and side streets that complement the state highway system.

6. Connect local streets between subdivisions.

Give residents convenient options for travel from one neighborhood to another by connecting local streets from one subdivision to the next.

7. Design subdivisions with access onto local streets.

Avoid lot designs with driveways that enter onto major state or county highways. Orient business and residential driveways to local streets that feed onto the highway at a few carefully designed and spaced intersections.

8. Practice good site planning principles.

Locate entrances away from intersection corners and turn lanes. Provide adequate space on the site for trucks to maneuver and for vehicles to queue at drive-through windows without backing or stacking on the roadway. Adjacent businesses should provide shared driveways and cross access, so customers can make multiple stops without entering the arterial.

9. Correct existing problems as opportunities arise.

Adopt a long range vision for improving access along older, developed corridors. Correct unsafe accesses as individual parcels expand or redevelop. Work with affected property owners to consolidate driveways and provide internal access between parcels. Fill in the supporting roadway network with local access roads as part of the redevelopment process.

10. Coordinate local development plans with Mn/DOT and county road agencies.

Share plans for subdivisions, rezonings, and site plans with affected road authorities early in the development process. Contact Mn/DOT and the County Highway Department to talk about long range plans and development needs.

Bicycles and Pedestrians

Mendota Heights installed its backbone trail system in 1989 as part of an approved referendum. The backbone trail system connects residents to amenities throughout the city. In addition to city trails, Dakota County provides regional trail connections identified as greenways. Dakota County Trails are noted as follows:

Big Rivers Regional Trail

Located along the northern edge of Dakota County from Eagan to Lilydale, the Big Rivers Regional Trail is a scenic 4 1/2-mile paved trail that overlooks the confluence of the Minnesota and Mississippi Rivers.

The trail also links to the 72-mile Mississippi National River and Recreation Area, hundreds of miles of trails throughout the greater Twin Cities area and historic landmarks including Fort Snelling, Pike Island and, one of Minnesota's oldest settlements, the city of Mendota.

The Big Rivers Trailhead provides access to a nearly flat paved trail built on an abandoned railroad bed. Highway 55 in Mendota Heights, Interstate 494 in Eagan, and Interstate 35E in Mendota Heights are additional access points to the Big Rivers Regional Trail.

Mendota-Lebanon Hills Greenway

The Mendota-Lebanon Hills Greenway is proposed to travel 8.5 miles through Mendota Heights, Inver Grove Heights, and Eagan. Today, the landscape is largely suburban. Remaining agricultural areas, primarily in Inver Grove Heights' Northwest Area, are expected to develop over the next 20-30 years. This will allow for future development patterns in this area to be organized around and shaped by the greenway's natural, cultural, and recreational amenities. An underpass crossing of Highway 62 was opened in 2017.

River to River Greenway

The "River to River Greenway" connects Lilydale, Mendota Heights, West St. Paul and South St. Paul. The trail is in place between Robert Street and the Mississippi River in South St. Paul. Future construction projects will link Valley Park in Mendota Heights to the area near Dodge Nature Center in West St. Paul.

These and all other trail systems throughout the community are further described and illustrated in the Bicycle Facilities and Plan – FIGURE 4-2, contained in the following Chapter 4: Parks and Trails.

Transit Plan

Public Transit Service

Mendota Heights is within Market Area II and Market Area III of the Transit Market Area classifications, as illustrated in the ***Existing Transit Map - FIGURE 3-3***. Market Area II provides a network of local buses accommodating different trip purposes as demand warrants. Limited stop services connect major destinations. Market Area III emphasizes commuter express bus service with suburban local routes providing basic coverage. General public dial-a-ride services supplement where regular-route service is not available.

Regularly scheduled transit route service is provided by the Metropolitan Council Transit Operations (MCTO). There are six (6) transit routes that operate within the City of Mendota Heights. These bus routes provide service to downtown Minneapolis, St. Paul, the University of Minnesota, the Mall of America, as well as other suburban areas, including Eagan, Inver Grove Heights, and West St. Paul. Several express routes, as well as local limited routes, are available for use by community residents. The City does not have designated Park and Ride facilities or MnPASS lanes. The City will support park and ride facilities if demand is met or requested by the residents and/or local businesses

Metro Mobility, which serves people who need specially-equipped vehicles for transportation, is offered throughout the Twin Cities and within the Metropolitan Urban Service Area. Transportation services for seniors and persons with disabilities is provided by Dakota Areas Resources and Transportation for Seniors. DARTS Loop Transportation services are provided in the neighboring communities of West St. Paul and South St. Paul, which offers transit options for residents tailored to the community preferences, with affordable all-you-can ride fares, and allows riders to get on and off any stops along a continuous one-hour LOOP route. The City of Mendota Heights should explore or seek reliable transit and transportation alternatives for its residents, especially as the community's population ages.

City of Mendota Heights

Existing Transit Map

N W E S

0 3,000 6,000 Feet

- Transit Stops
- Transit Routes
- Planned Express Bus Corridor
- City of Mendota Heights
- Open Water

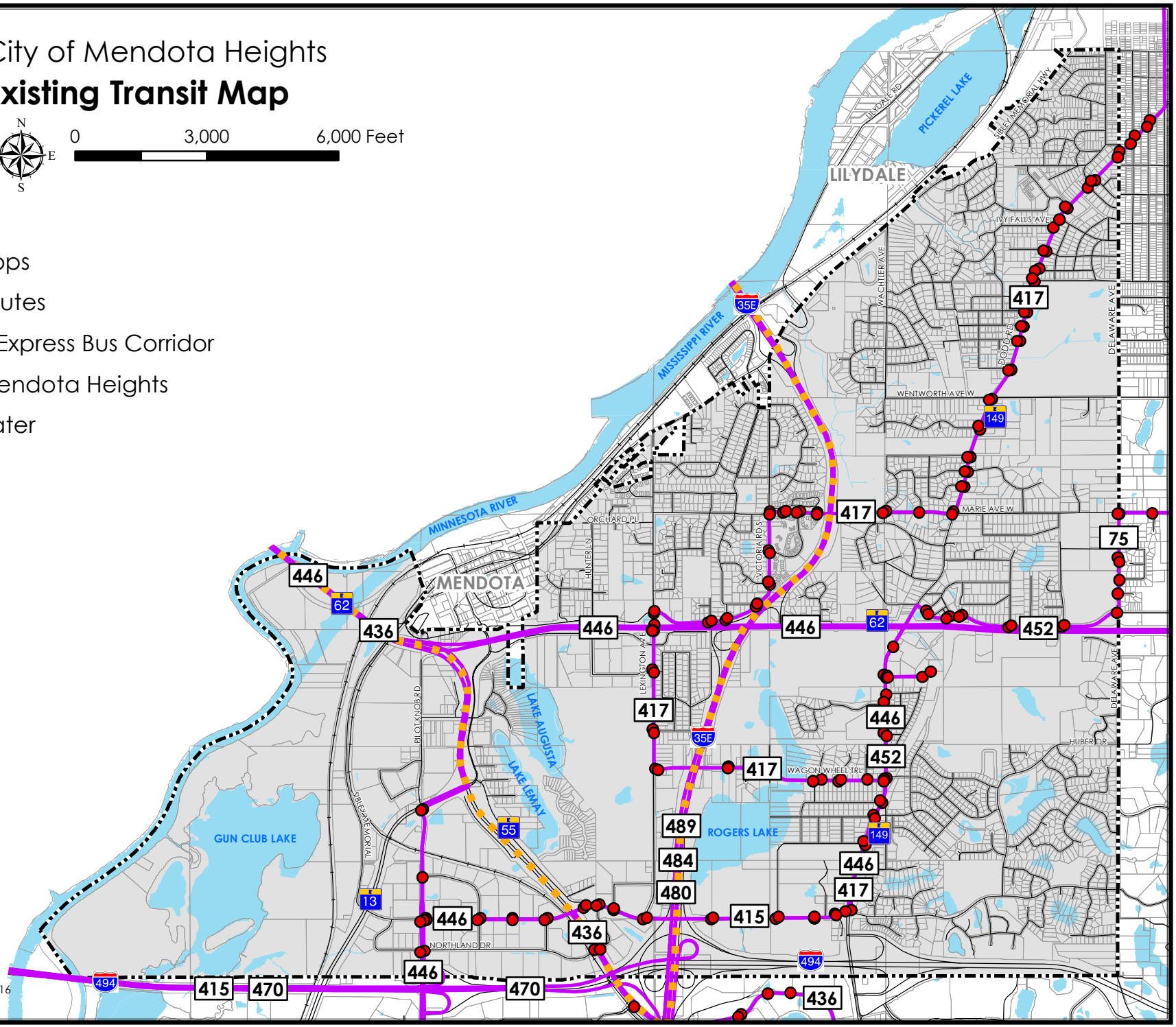


FIGURE 3-3

June 2019

Source: Metropolitan Council, 2016

Robert Street Corridor Transit Feasibility Study

(Prepared for Dakota County Regional Rail Authority by URS Corporation, CR Planning, Connetics Transportation Group, 2008)

The Robert Street Corridor in Dakota County extends from Union Depot in St. Paul to Rosemount. The corridor is bound by I-35E on the west and the Mississippi River on the east. Existing and projected conditions such as population and employment growth, changing demographics, limited transit service coverage, increased roadway congestion, and lack of planned roadway improvements drove the need to consider transportation alternatives.

Short and medium term recommendations were formulated to correspond with the long term vision for the Robert Street corridor. Short term recommendations focus on enhancements to the existing bus service and commencing studies of land use and parking policies. Medium term recommendations require additional sources of funding to significantly expand bus services. The long term vision of the Robert Street Corridor is to build a transit way from downtown St. Paul to Rosemount linking major destinations.

The proposed Robert Street transit way alignment is east of the City of Mendota Heights. However, the long term vision would directly affect the roadways within city limits. The plan presents a limited stop Bus Rapid Transit (BRT) line on Highway 62 and an express bus route on TH 55 which would connect to the existing Light Rail Transit (LRT). The citizens of Mendota Heights would also benefit from additional park and ride facilities within nearby cities.

Aviation Plan

Mendota Heights benefits from its close proximity to Minneapolis-St. Paul International Airport (MSP) but is also directly affected by aircraft operations. Residents and businesses have easy and quick access to a major international airport. However, aircraft noise is a major issue for some in Mendota Heights because of the detrimental impacts of increased operations on the quality of life in existing neighborhoods and the impact of land use compatibility guidelines and noise contours on development options.

Since the opening of the "North-South" runway, previous issues with the distribution of air traffic have been reduced. All residential areas in Mendota Heights were in conformance with the original aviation guidelines and their previous projections of air noise and air traffic. Mendota Heights was the only city that adopted the original Metropolitan Council noise zones and guidelines and is the only city to adopt and enforce a Noise Attenuation Ordinance.

The Runway Use System at MSP relies heavily on "land compatibility" as a guiding principle for departure determination, thereby increasing the volume of traffic and the percentage of exclusive use of the southeast corridor, which was zoned commercial/industrial in cooperation with regional and local planning agencies. This increased traffic has impacted existing compatible residential neighborhoods in Mendota Heights.

The City of Mendota Heights has worked strenuously to address airport noise issues. A citizen Airports Relations Commission has been established by Mendota Heights to provide recommendations to the City Council on airport issues. This plan is a compilation of the City's work and history regarding the airport, a set of *policies and actions* to guide future decisions on airport, a description of the conflicts with other agencies responsible for airport impacts, and a discussion of the potential land use impacts from agency requirements. In addition to these local efforts, the City has adopted a zoning ordinance consistent with federal requirements for height control jurisdictions. The City refers to and utilizes the ***MSP Airport Safety Zones, Noise Contours and Airspace Limits Map – FIGURE 3-4*** when analyzing or approving new developments in these airspace zones.

City of Mendota Heights

MSP Airport Safety Zones, Noise Contours, and Airspace Height Limits Map

N W E S

0 3,000 6,000 Feet

2018 Actual DNL Contour

- 60 DNL
- 65 DNL
- 70 DNL

2025 Forecasted DNL Contours

- DNL 60 DNL
- DNL 65 DNL
- DNL 70 DNL
- Airspace Zone Limit
- AirSpace Contours
- MSP Safety Zone B
- MSP Safety Zone C

DNL: The day-night sound level, or 24-hr. equivalent continuous sound level (time averaged A-weighted sound level) from 12:00 midnight to 12:00 midnight, obtained after the addition of 10 dBA to sound levels measured from 10:00 P.M. to 7:00) A.M.

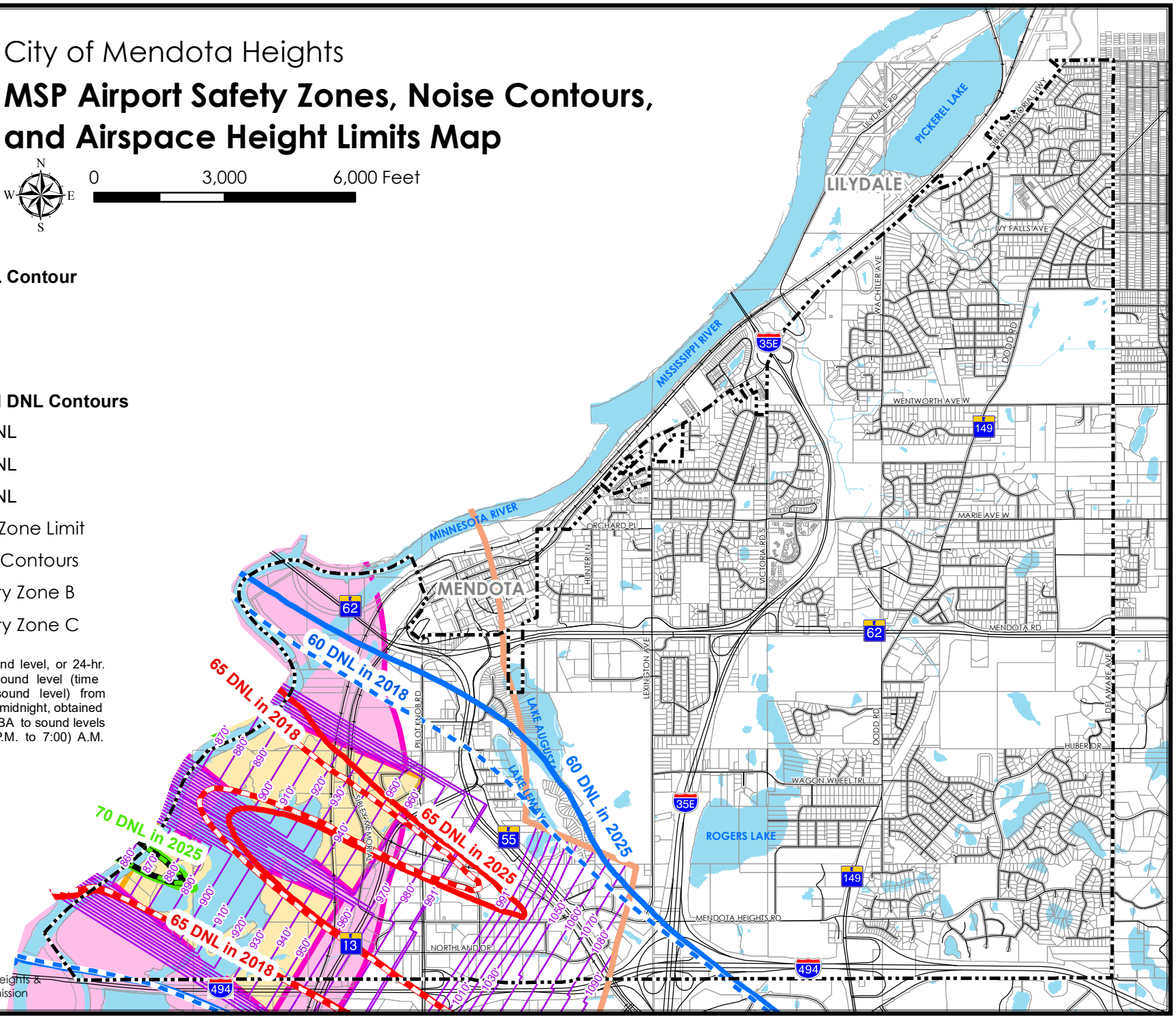


FIGURE 3-4

June 2019

Source: City of Mendota Heights & MetropolitanAirport Commission

AVIATION-RELATED GOALS & POLICIES

GOAL 3.3: Reduce negative airport impacts in Mendota Heights; and work diligently with all noise issues and agencies to decrease aircraft noise in volume and to decrease the area of noise impacts.

Aircraft Noise Policies

3.3.1 Increase public participation and representation through the Noise Oversight Committee (NOC) and the Metropolitan Airports Commission (MAC).

3.3.2 Achieve noise reduction through advocating modified takeoff procedures and corridor compliance.

3.3.3 Monitor the continued implementation of the Minneapolis/St. Paul (MSP) airport Comprehensive Plan.

3.3.4 Advocate for specific noise control measures through operational changes and advanced technology.

3.3.5 Notify and work with MnDOT in the event that potential airspace obstructions are encountered.

History of Noise Reduction Efforts

The City of Mendota Heights has addressed aircraft noise issues in several ways, including the following formal actions:

1. Membership in the NOC.
2. Modification of the Land Use Plan consistent with the established aircraft flight corridor.
3. Adoption of the Aircraft Noise Attenuation Ordinance.
4. Establishment of the citizen Airports Relations Commission (ARC) to study airport issues and make recommendations to the City Council.
5. Agreement to a contract with MAC prohibiting construction of a third parallel runway.

The City has worked through the various agencies on issues including: modification of aircraft landings and departures, supporting the installation of

ANOMS, supporting the prohibition of Stage II aircraft, and educating homeowners about the Part 150 program.

The City of Mendota Heights planned its land use according to the flight corridor, as originally established, and adopted land use guidelines into an ordinance format in 1987. Operations have strayed to existing residential areas outside of the planned corridor however, significantly impacting several neighborhoods.

Impacts of Future Land Use Planning

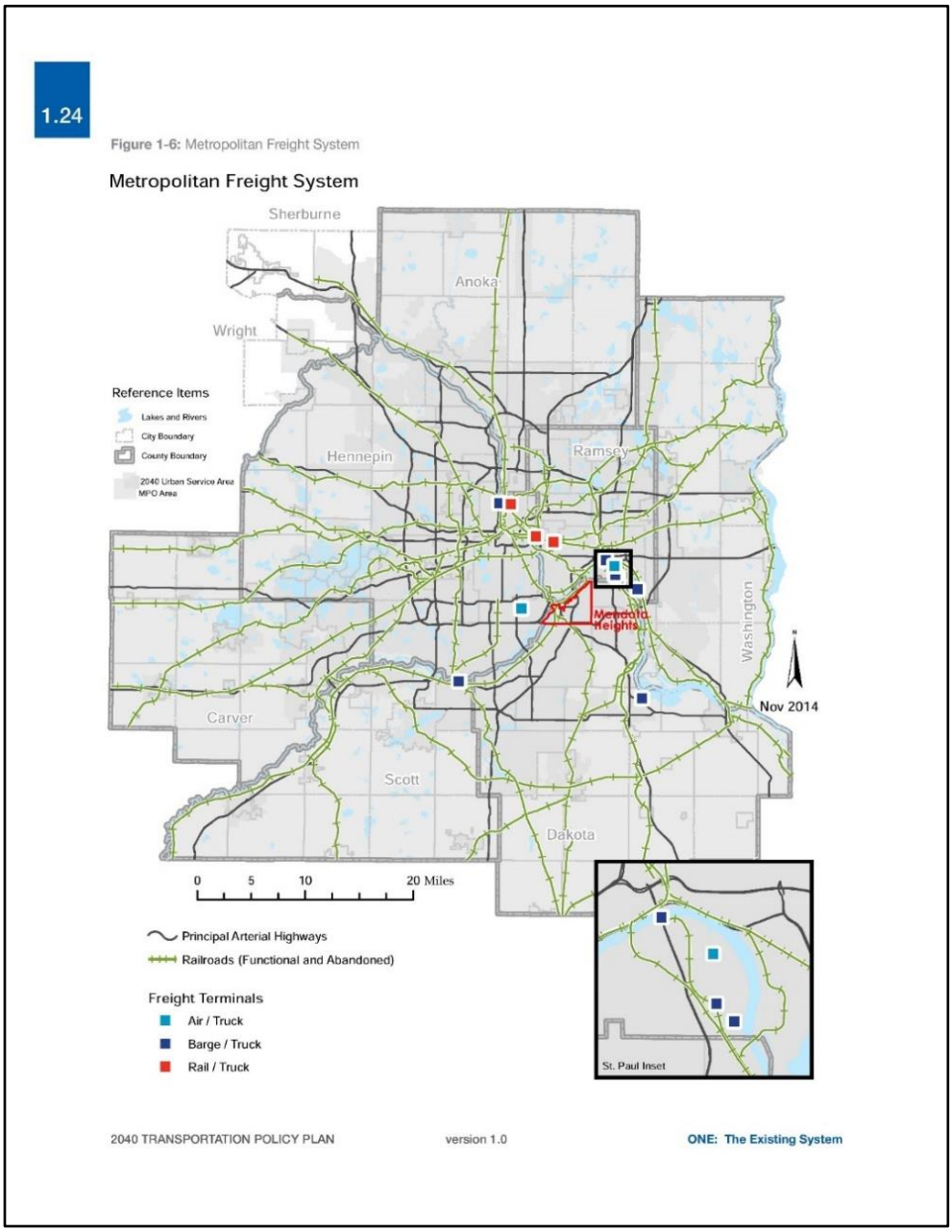
Mendota Heights has planned its land uses in relation to the City's experience with aircraft noise and the airport's aviation guidelines. New development and redevelopment in the areas affected by air noise is closely scrutinized and has been accomplished with success through strict adherence to site planning and building design regulations.

The City of Mendota Heights has adopted the Metropolitan Council's model Sound Attenuation Ordinance and has enforced the provisions of this ordinance for all building permits in the Noise Zones since 1986. Town home projects are considered to be consistent with the Aviation Policy compatibility guidelines for Noise Zone 4, which allows residential land uses, as a conditional use. The conditional use for residential land use in Noise Zone 4 is satisfied through the enforcement of the City's Sound Attenuation Ordinance, thereby, allowing residential construction to meet the Aviation Guide Plan's land use compatibility guidelines.

Freight Plan

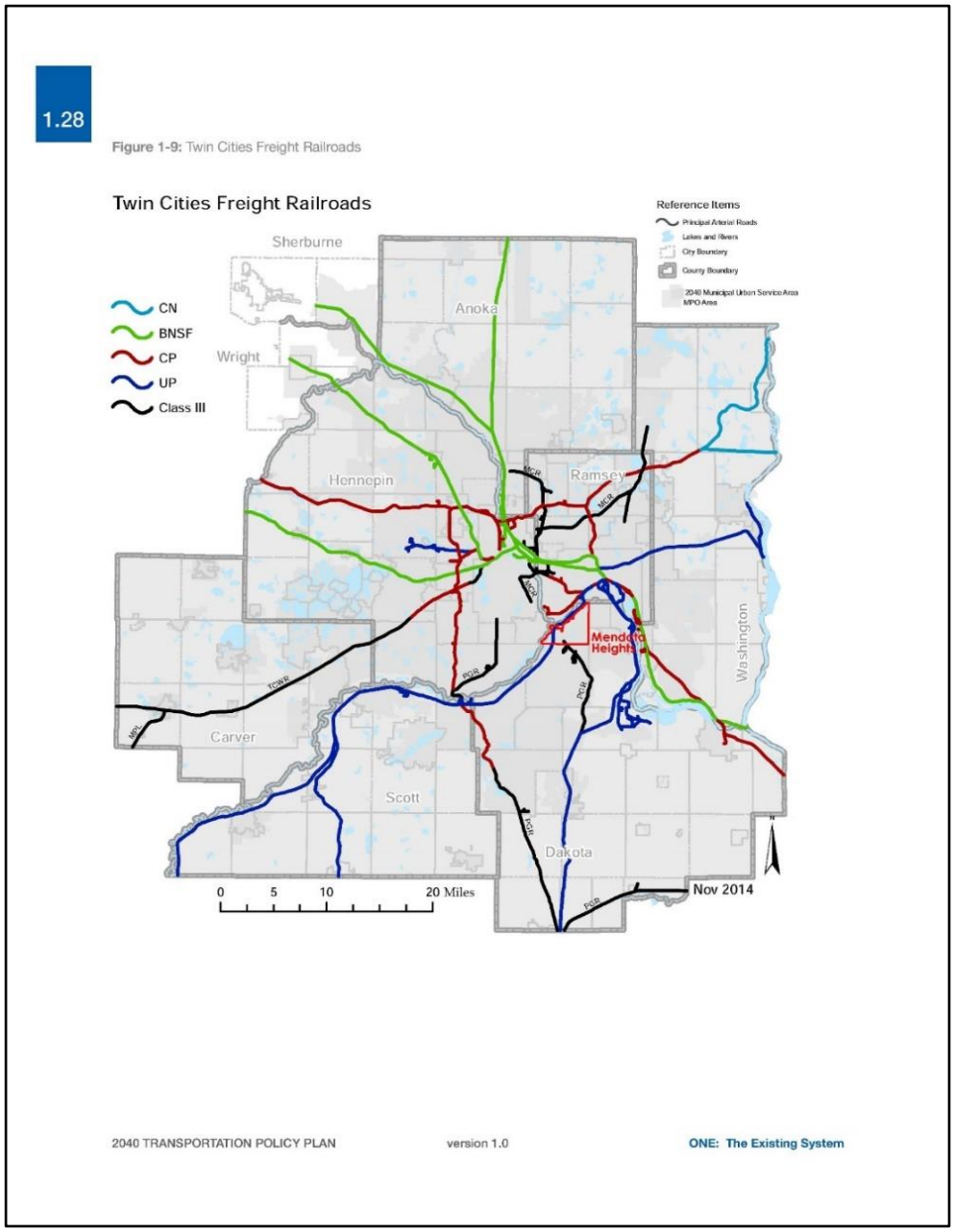
Freight is an important aspect in supporting a community by providing residents and business with the goods and materials they need. The Twin Cities area is a primary freight hub for the upper Midwest region. Roadways, railroads, barges, and air are the four modes of freight transportation within the Twin Cities Metro area. Mendota Heights does not have any Air/Truck, Barge/Truck, or Rail/Truck freight terminals. See **Figure 3-5** below.

Figure 3-5 Metropolitan Freight Systems



Truck freight primarily impacts the city with two US Interstates located within the city limits. I-494 and -35E both carry large amounts of commercial commerce to and from the downtown Minneapolis/St. Paul area (see Existing Roadway Functional Classification Map for HCAADT volumes). No local roadways have been identified as creating significant issues for the movement of goods within the City of Mendota Heights. See **Figure 3-6** below.

Figure 3-6 Twin Cities Freight Railroads



4

Parks and Trails

The City of Mendota Heights boasts a variety of recreational and open space opportunities, including access to regional trails, riverside and lakeside parks, scenic bluffs and a nature preserve among their recreation facilities. These facilities represent unique features in a park system that helps to shape the character of Mendota Heights beyond the ordinary. They offer a visual identity to the city, in addition to contributing to the quality of life for those who live here. Mendota Heights has over 771 acres of parks and open space, which includes City parks, active and passive recreation areas, along with other state and private parks and open spaces.

The 33 miles of city trails and bicycle facilities located adjacent to roadways or meandering through the bounty of open space in the community offer an excellent opportunity for exercise and relaxation. Opportunities are available for walking, bicycling, bird watching and nature hikes.

In addition to parks, the City is also home to three golf courses: Mendakota Golf Course, Somerset Golf Course, and the Mendota Heights Par 3 golf course.

GOALS and POLICIES

GOAL 4.1: Provide a park system that is safe, accessible, and equitable in its offerings to all Mendota Heights' residents and visitors.

Policies:

4.1.1 Create and maintain a park system that provides the optimum amount of active and passive open space for the enjoyment of all Mendota Heights residents.

4.1.2 Provide facilities and programs that allow people of varying ages and abilities to participate.

4.1.3 Build, maintain and retrofit park facilities and equipment to be safe for all users.

4.1.4 Plan and build safe connections for pedestrians and bicyclists within and between park facilities and major destinations in the community.

4.1.5 Strive to make all facilities and programs open and welcoming to people of all ages and diverse backgrounds.

GOAL 4.2: Provide a park system that assures high quality facilities, buildings, grounds, trails, amenities, and natural settings.

Policies:

4.2.1 Keep the park system up-to-date in terms of facilities, activities and programs that are responsive to the community's needs and wishes.

4.2.2 Support the park system adequately through the facilities, activities and programs offered.

4.2.3 Provide bicycle amenities in parks and along trails.

4.2.4 Provide a sustainable funding stream and operate the park system in a fiscally sound manner, including taking advantage of available grants.

Goal 4.3: Use the park system as a means to enhance and sustain the environment of each neighborhood and the city as a whole.

Policies:

4.3.1 Provide facilities, programs and opportunities in the park system that bring people together and create community.

4.3.2 Ensure that stormwater is managed in park facilities in a manner that protects and preserves water quality and the ecology of the watershed.

4.3.3 Strive to make all park facilities, equipment and construction projects and materials environmentally friendly and sustainable.

Goal 4.4: Cooperate with Dakota County and surrounding communities in park and recreation facilities and programming.

Policies:

4.4.1 Support the Dakota County 2030 Greenway Corridors Plan/Vision.

4.4.2 Continue to cooperate with South St. Paul, West. St. Paul and other neighboring communities on park and recreation programs and facilities.

4.4.3 Encourage the preservation of open space by private property owners and the City.

4.4.4 Explore new opportunities and continue to work cooperatively with School District #197, St. Thomas, Visitation, Fort Snelling State Park, and other entities to provide maximum recreational opportunities and avoid duplication.

4.4.5 Improve and expand safe bicycle and pedestrian connections to City parks and other community destinations.

Previous Development

Previous Comprehensive Plans and Park Plans have guided the City in the development of its park system. As development has occurred, parkland has been dedicated to provide residents with recreational opportunities. Since the adoption of the 1979 Comprehensive Plan, the City has made improvements to many parks and has developed the following new parks: Copperfield Ponds, Hagstrom-King, Kensington, Mendakota, Sibley, Valley View Heights, and Victoria Highlands. The location of these new parks closely resembles Plan recommendations and reflect the City's commitment to providing park services to all residents as opportunities arise.

Not only has the City made improvements and developed new parks, it has also made efforts to maintain and protect existing open space. The City purchased the 17-acre Mendota Heights Par 3 Golf Course. The City also joined with other public entities and purchased the 25.5-acre Pilot Knob area, which will be retained as open space. Protection of the Pilot Knob area as an important Dakota site has been identified as a critical issue for many residents in the city.

Existing City Park Facilities and Types

Mendota Heights currently has 756.7 acres of lands dedicated to city parks, golf courses, and open space. The city also features part of the Fort Snelling State Park within their boundaries, totaling an additional 771.2 acres.

The City has 17 public parks throughout the community, including Historic Pilot Knob. These parks contain over 295 acres of land area. A brief discussion of the three types of parks that typically comprise a local park system is provided below. The descriptions and standards should serve as a guide. Other factors, such as proximity to regional or county parks, financing, or major trends in recreation, will also influence the evolution of the City's park system. Regional and State parks are discussed later in this chapter.

1) Neighborhood Park

Neighborhood parks are the basic unit of the park system and serve as the recreational and social focus of the neighborhood. They accommodate a wide variety of age and user groups, including children and adults. They create a sense of place by bringing together the unique character of the site with that of the neighborhood. Mendota Heights should seek to achieve a balance between active and passive neighborhood parks. Neighborhood parks range from 5-30 acres and serve a ½ mile area. Communities often will operate a joint neighborhood park with the school district and elementary schools. The City's neighborhood parks include Friendly Hills, Hagstrom-King, Ivy Hills, Marie, Valley View Heights, Victoria Highland, and Wentworth.

2) Community Park

Community parks are designed to meet the recreational needs of several neighborhoods or larger segments of the community. They are intended for ball fields and larger athletic facilities or community gatherings. They can also be designed to preserve unique landscapes and open spaces. They serve a one-half mile to five mile radius. The City's community parks include Kensington, Valley, Roger's Lake, Mendakota, and Sibley Athletic Complex.

The city also provides an off-leash dog park only, located off Acacia Blvd., south of the Historic Pilot Knob area. This 3.7 acre tract of city-owned lands was approved as a temporary dog park under an interim use permit in 2015, and this permit expires in 2020. The City has not yet determined if this dog park will continue, or allow the lands to be developed into an industrial use, which is what the site is zoned and guided for under this 2040 Plan.

3) Natural Resource Area

Natural resource areas are areas set aside to preserve significant or unique landscapes. They are often, but not always, properties unsuitable for development with steep slopes, drainage ways, and ravines or wetlands. In addition, there may be locations where local tree protection, shoreland and critical area ordinances, or state and local wetland ordinances restrict development in some way. Natural Resource areas include Friendly Marsh, Copperfield Ponds, Valley Park, Pilot Knob Preservation, and Dodge Nature Center.

The City's ***Parks and Facilities Table 4-1*** on the following page identifies the various parks and open spaces throughout the city, along with their general locations and facilities offered:

TABLE 4-1

City of Mendota Heights Parks & Facilities Table	Acres	Nature Areas	Trails	Softball or Baseball	Soccer	Tennis	Basketball	Volleyball	Playground Equipment	Picnic Area/Shelter	Hockey/Skating Rinks	Parking	Fishing Dock/Piers	Restroom Facilities
Civic Center (next to City Hall)	4		X	X								X		X
Copperfield Ponds (east of Huber Dr. at Cheyenne Ln)	24.9	X [P]	X											
Friendly Hills Park (South of Decorah Ln. - east of Pueblo Ln.)	15.5	X [P]	X	X		X	X [3]		X	X	X	X		X
Friendly Marsh Park (north of Cheyenne Ln. between Apache & Huber)	33.4	X [P]	X											
Hagstrom-King Park (555 Mendota Heights Rd)	9.6	X [P]	X	X			X [3]		X			X		X
Historic Pilot Knob (2100 Pilot Knob Rd. - Acacia Blvd. & Pilot Knob)	25.5	X	X									X		
Ivy Hills Park (645 Butler Ave. – between Butler & Maple Park Dr.)	9.3	X [P]	X	X		X	X [3]		X	X		X		X
Kensington Park (2627 Concord Way / 640 Mendota Heights Rd.)	14.6	X [P]	X		X [F]				X	X [E]		X		X [C]
Marie Park (1780 Lilac Ln. – NW corner of Lilac & Marie Ave.)	6.2	X [P]		X		X	X		X		X	X		X
Mendakota Park (SW Corner of Dodd Road & Mendakota Dr.)	19.7		X	X	X [Y]		X	X	X	X [E]		X		X [C]
Roger's Lake Park (1000 Wagon Wheel Trail- east of I-35E)	9.2	X	X				X [3]	X [4]	X	X [E]		X	X	X
Sibley Athletic Complex [1] (Henry Sibley High School - Marie & Delaware)	11		X	X	X [F]	X [2]						X		X [C]
Market Square Park (The Village of Mendota Heights)	0.5									X		X		
Valley Park (821 Marie Ave – east of I-35E)	94.4	X	X	X		X	X [3]		X	X		X		X
Valley View Heights (SE corner of Cullen Ave. & Timmy St.)	0.7		X				X [3]		X					
Victoria Highland Park (1700 Diane Rd.-between Victoria, Douglas & Diane)	6.7		X	X			X [3]		X			X		X
Wentworth Park (739 Wentworth Ave.)	10.5	X [P]	X	X		X	X [3]		X	X	X	X		X
TOTAL	295.7													

1. Sibley Athletic Complex is a joint use facility owned and operated by ISD #197
2. ISD #197 maintains 12 tennis courts at Henry Sibley High School
3. Half-court only.
4. Sand volleyball court – all others on grass.

E = Electrical service. **P** = Pond/Natural areas. **F** = Full size soccer field(s). **Y** = Youth soccer fields. **C** = Comfort station – Permanent toilet facility

Trail Facilities

Trails for biking, walking, and roller blading are very popular. There are 28.5 miles of off-road trails and 4.9 miles of wide shoulders and on-street bicycle facilities currently in portions of the City's neighborhoods. These trails are both off- and on-road and serve as important connections for recreational opportunities and travel.

Improved trail connections are important in Mendota Heights because many residential areas are divided by highways and arterial roads. Access to the Big Rivers Regional Trail is difficult due to the significant elevation changes. As a result, many areas of the community cannot be easily accessed on bikes, roller blades or foot from other areas of the community. Additional or improved trail connections are needed to provide residents access to City parks and other recreational opportunities in the region.

Regional Trails

Big Rivers Regional Trail: Developed in 1996 by Dakota County along the old Union Pacific Railroad right-of-way, this trail enables residents to bike, walk, and roller blade along the Minnesota and Mississippi Rivers. This trail serves as an important link to other communities and has greatly improved the awareness and accessibility of the River.

River-to-River Greenway: This trail serves as a link from Big Rivers Regional Trail through Valley Park to West St. Paul and to South St. Paul.

Local Trails and On-street Facilities

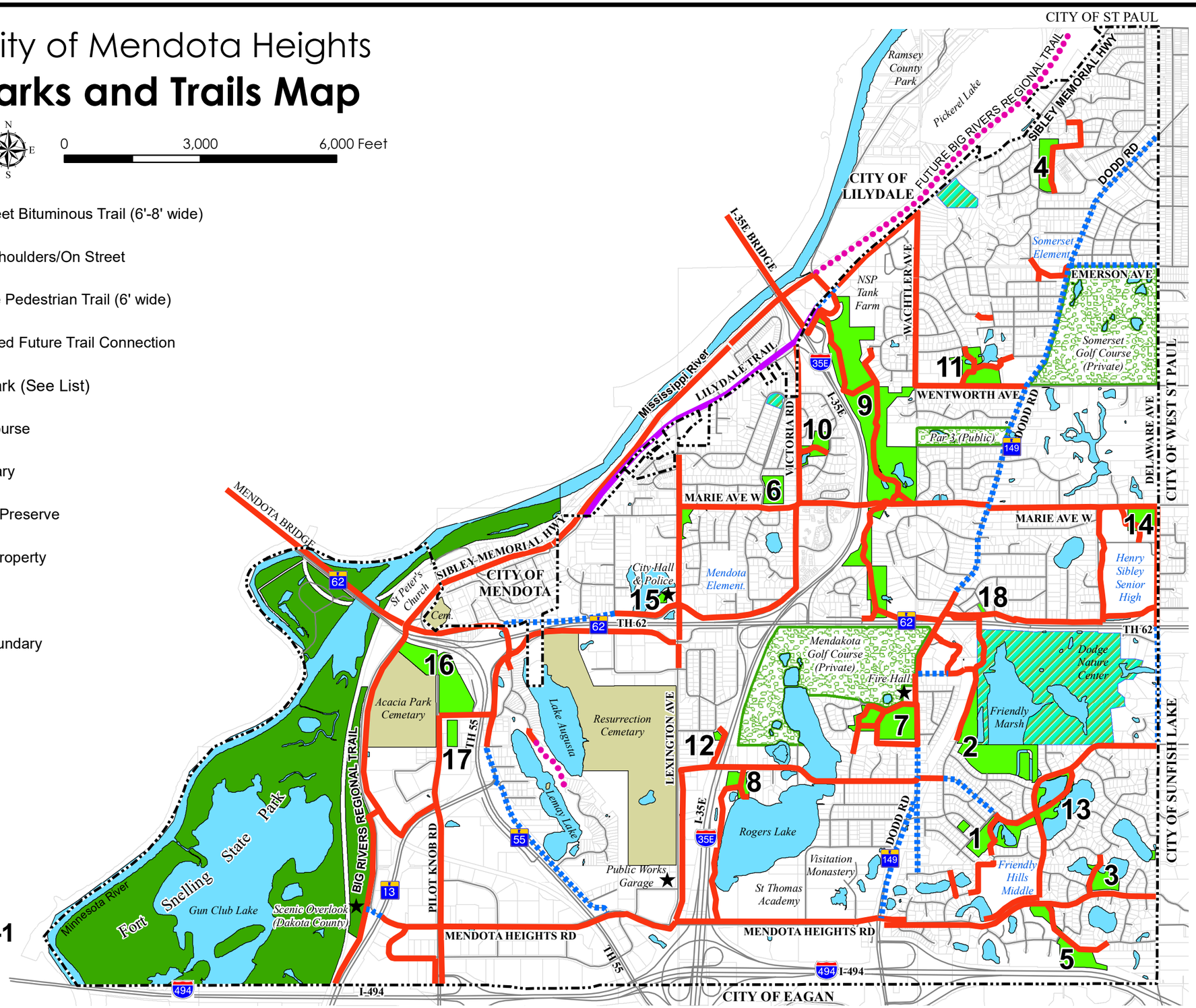
Mendota Heights has a network of paved and on-street bicycle facilities connecting different neighborhoods in the city. Most bicycle and pedestrian facilities in the city are off-street six to eight-foot-wide bituminous trails. There are also a few on-street bicycle facilities in the community, along Dodd Road, Delaware Avenue, and Decorah Lane.

City parks and trails, including other natural resource areas, are illustrated in the following ***Parks and Trails Map - FIGURE 4-1.***

City of Mendota Heights
Parks and Trails Map

0 3,000 6,000 Feet

- Off Street Bituminous Trail (6'-8' wide)
- Wide Shoulders/On Street
- Lilydale Pedestrian Trail (6' wide)
- Proposed Future Trail Connection
- City Park (See List)
- Golf Course
- Cemetary
- Nature Preserve
- State Property
- Water
- City boundary



Parks

1) Friendly Hills Park
2) Friendly Marsh Park
3) Hagstrom King Park
4) Ivy Hills Park
5) Kensington Park
6) Marie Park
7) Mendakota Park
8) Rogers Lake Park
9) Valley Park
10) Victoria Highland Park
11) Wentworth Park
12) Valley View Heights Park
13) Copperfield Ponds
14) Sibley Park
15) Civic Center Ball Park
16) Historic Pilot Knob
17) Acacia Off-Leash Dog Park
18) Market Square Park

PARK & TRAIL NOTES:

1) ***Public Schools in "Blue" text have public playgrounds.***
2) ***Neighborhood concrete sidewalks are not shown on plan.***
3) ***Copperfield Pond trail is a gravel trail.***

FIGURE 4-1
June 2019

Source: City of Mendota Heights, Dakota County Surveying & Land Information Department

Future Park and Trail Needs

Future Park Needs

The City of Mendota Heights is committed to developing and enhancing its park and open space system. City Park needs can be determined by evaluating the number, size, and accessibility of parks. The city meets the National Recreation and Park Association's recommendation of park land and acreage and will continue to reserve city-owned lands and explore options for expanding additional park and recreation space in the city.

Future Trail Connections

As part of their 2040 Regional Parks Policy Plan, the Metropolitan Council identified future regional trail opportunities and priority trail corridors. The Regional Bicycle Transportation Network (RBTN) consists of a series of prioritized Tier 1 and Tier 2 corridors and routes. The goal of the RBTN is to establish an integrated network of on-street bikeways and off-road trails which move bicyclists more efficiently and encourage the implementation of future bikeways. Mendota Heights has approximately 6 roadways within Tier 1 RBTN alignments and 1 roadway within Tier 2 RBTN alignments. Providing connections north-south and east-west through Mendota Heights will be critical. Planned trail connections are noted as follows:

Dodd Road Trail Corridor: Dodd Road runs approximately 3.8 miles north-south the entire length of the City. Approximately one mile of this corridor is served by an existing trail or by a funded trail that will be constructed in 2019. Mendota Heights analyzed 2.8 miles of the corridor between Delaware Avenue and Marie Avenue and between Wagon Wheel Trail and Mendota Heights Road.

Planned Bike Lane – Annapolis Street: a bike lane located along Annapolis Street at the City's northern border (*now under construction*).

Mendota-Lebanon Hills Greenway: The Mendota-Lebanon Hills Greenway is proposed to travel 8.5 miles through Mendota Heights, Inver Grove Heights, and Eagan. Today, the landscape is largely suburban. Remaining agricultural areas, primarily in Inver Grove Heights' Northwest Area, are expected to develop over the next 20-30 years. This will allow for future development patterns in this area to be organized around and shaped by the greenway's natural, cultural, and recreational amenities.

River to River Greenway: The River to River Greenway connects Lilydale, Mendota Heights, West St. Paul and South St. Paul. The trail is in place between Robert Street and the Mississippi River in South St. Paul. Future construction

projects will link Valley Park in Mendota Heights to the area near Dodge Nature Center in West St. Paul.

Eagan Soo Line Trail: The City of Eagan and Dakota County have initiated a trail feasibility study in the general area where I-494, I-35E, and TH 55 all come together. This corridor has been identified as a potential regional trail greenway that would connect the Big Rivers and the Mendota-Lebanon Regional Trail corridors. The initial alignment being evaluated includes an abandoned railroad line and two railroad bridges owned by MnDOT. Areas within or adjacent to Highway 55 and I-494 right of way are also identified.

These and all other trail systems throughout the community are further described and illustrated in the below **Bicycle Facilities and Plan** – **FIGURE 4-2.**

City of Mendota Heights

Bicycle Facilities and Plan Map

0 3,000 6,000 Feet

- Metropolitan Council Tier 1 RBTN Alignments
- Metropolitan Council Tier 2 RBTN Alignments
- Metropolitan Council Tier 1 Priority Regional Bicycle Transportation Corridor
- USBR 45 Mississippi River Trail Bikeway

Bikeway Inventory:

- Existing Bike Lane
- Planned Bike Lane
- Existing Paved Trails
- Existing Non-Paved Trail
- Planned Paved Trail
- Existing Roadway with Shoulder >= 5'
- Other Bicycle Facilities
- City Boundary

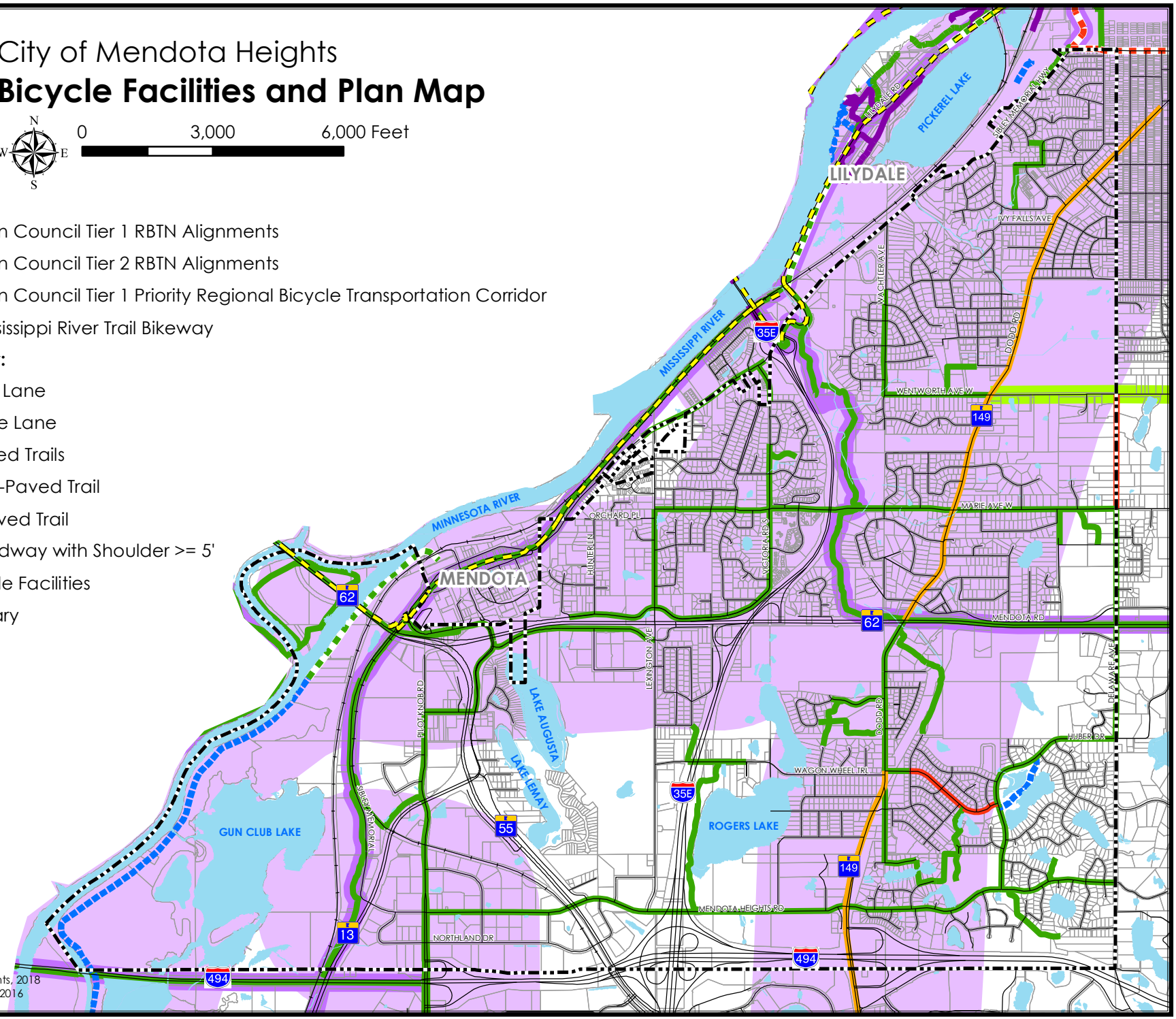


FIGURE 4-2

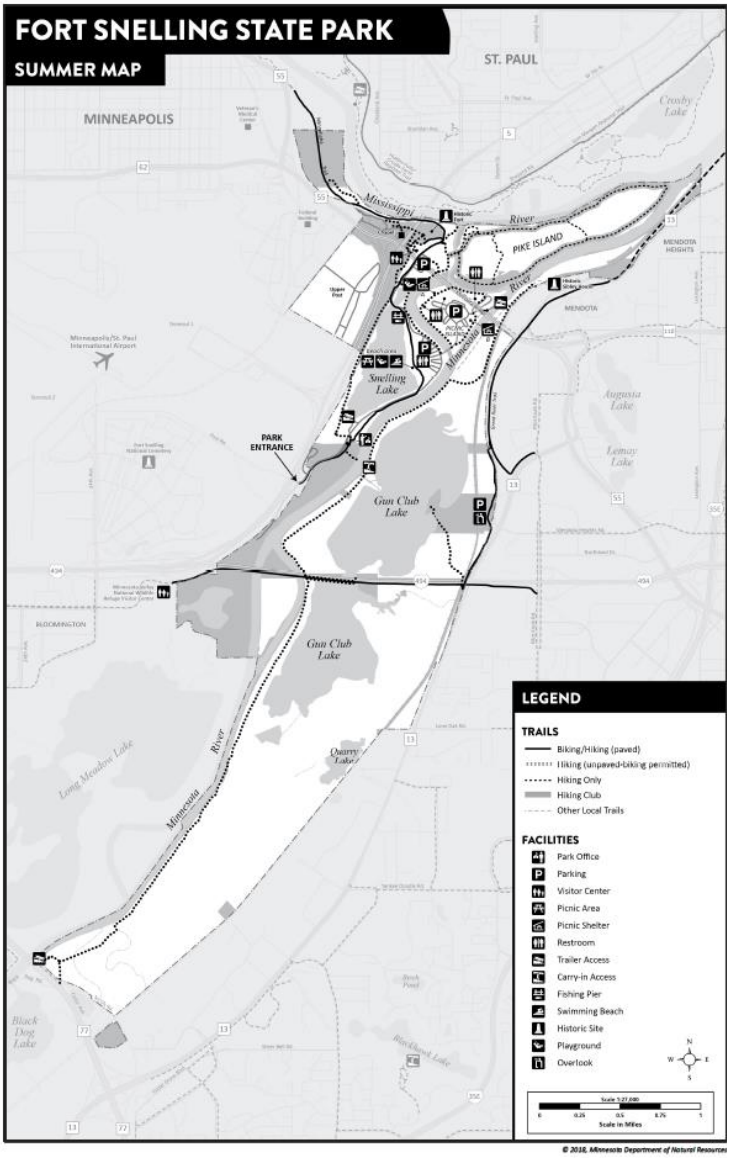
June 2019

Source: City of Mendota Heights, 2018
Metropolitan Council, 2016

State, Regional, and Private Parks and Open Spaces

In addition to the City's parks, there are numerous regional, county and private facilities within or near the City's borders:

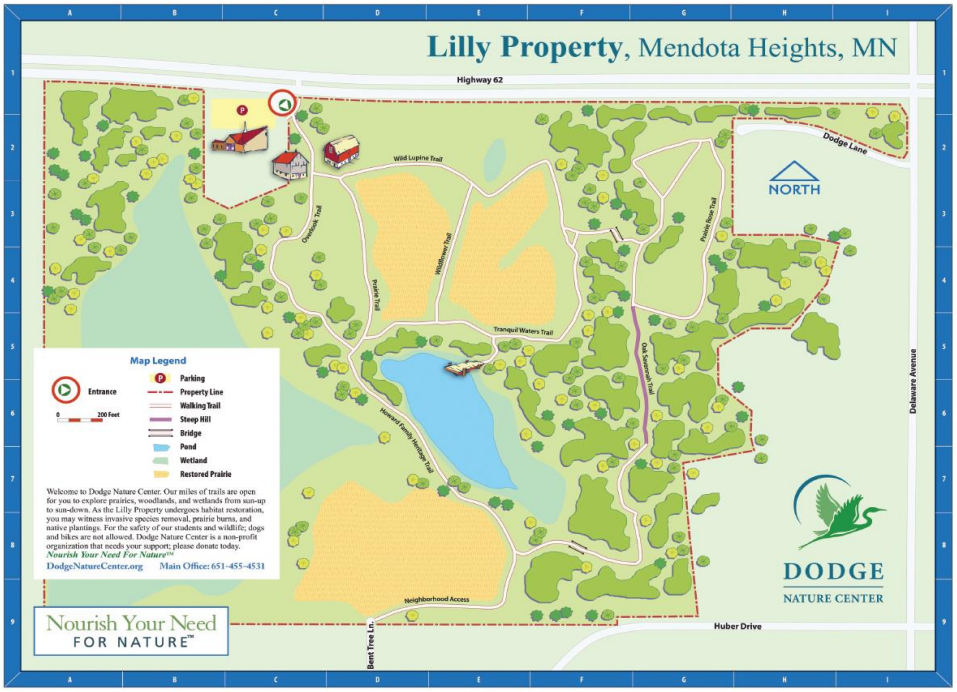
Fort Snelling State Park



As noted earlier in this chapter, Fort Snelling State Park is the largest park in Mendota Heights with 771 of its 2,642 acres located in the city. It provides outdoor recreation opportunities and natural resource conservation for the public and is considered part of the regional recreational open space system. Fort Snelling State Park is a recreational state park offering swimming, large group and family picnic grounds, a boat launch, interpretive center and historical areas, trails, and scenic overlooks. Most of the park's active facilities are located on the Bloomington side of the River, requiring most Mendota Heights residents to drive or bike across the I-494, I-35E, and Mendota bridges to access the park. The Mendota Heights portion of the park is left primarily as a natural area as it contains extensive floodplain marsh habitat. Facilities located in Mendota Heights support less intensive uses, such as biking, hiking, cross country skiing, and fishing. The Sibley and Faribault historic sites are also located on the Mendota Heights side.

Dodge Nature Center

The Dodge Nature Center, also referred to as the "Lilly Property", is a 170-acre private nature preserve area and facility of the city, generally located at the southwest corner of Highway 62 and Delaware Avenue. The nature center is dedicated to the restoration of native plants and animal communities. The center provides excellent educational programs and events for the public, including habitat restoration projects, invasive species removal demonstrations, prairie burns, and native plantings. There are no visitor buildings or restrooms at this location. Trails are open during daylight hours every day of the week; and there are no fees to hike at Dodge Nature Center.



Source: Dodge Nature Center Website

Historic Piot Knob

As was noted in Chapter 1, Oȟéyawahe/Pilot Knob is generally located south and west of Highway 55, north of Acacia Boulevard and east of Pilot Knob Road. The 112 acres site is listed on the National Register of Historic Places, and provides an excellent opportunity for the public to visit and experience historic views of the surrounding areas, and learn more about the history and culture of this significant and sacred place. Pilot Knob is a wonderful natural place to read the landscape; watch migratory birds; and to learn more about prairie and oak savanna restoration work currently in progress. Pilot Knob provides a small vehicle parking area, with walking trails, interpretive areas, and gathering spaces. Refer to the image ***Oȟéyawahe/Pilot Knob Historic Landscape Plan: Issues and Opportunities Map – FIGURE 4-3.***

SRF Consulting Group, Inc
10699 | 071318

Oȟéyawahe / Pilot Knob Historic Landscape Plan: Issues and Opportunities Key Map

Great River Greening
City of Mendota Heights

FIGURE 4-3
June 2019

GREAT RIVER GREENING

5

Housing

The health and character of a community may also be measured by its housing stock. Vital cities provide a variety of housing choices and work to ensure that existing housing is well maintained. The City of Mendota Heights must also encourage that new housing addresses the changing needs of the community. Existing and future residents are looking for more services and amenities near where they choose to live, including convenient shopping options and easily-accessible walking and biking trails. Housing has evolved into more than a place to live, but a community in which to thrive.

Where people live is important. For many Americans, a high-quality environment, walkable neighborhoods and diversity make a neighborhood a great place to live. Mendota Heights supports life-cycle housing options for current residents to stay in the city regardless of changes in family size, income, aging, or other issues, and be welcoming to everyone who wish to live in Mendota Heights.

This chapter includes goals and policies to promote housing opportunities in Mendota Heights, followed by an assessment of existing housing stock, tenure, and affordability.

GOALS and POLICIES

Goals, policies, and programs shall be identified to assist the City of Mendota Heights in decision-making regarding the preservation of its current housing stock and the development of new units. Goals and policies typically address development and redevelopment expectations, housing maintenance and preservation, and density and diversity of housing type.

GOAL 5.1: Preserve and improve existing neighborhoods and housing units.

Policies:

5.1.1 Continue to enforce housing maintenance and zoning codes.

5.1.2 Explore options for flexibility in Zoning Code standards and encourage reinvestment in existing houses.

5.1.3 Partner with Dakota County, the Metropolitan Council, the State of Minnesota and other agencies that provide housing rehabilitation programs and services.

5.1.4 Protect public safety by requiring owners to repair substandard housing or as a last resort, abate and demolish dangerous housing.

5.1.5 Develop a housing maintenance program that promotes and requires safe homes and attractive neighborhoods.

GOAL 5.2: Meet future needs with a variety of housing products.

Policies:

5.2.1 Encourage life-cycle housing opportunities in Mendota Heights of various forms and tenures that allow residents to remain in the community throughout their lives. This includes:

i. Maintenance of existing entry level housing.

ii. Construction of move-up single family development that supports life-cycle housing.

iii. Construction of various types of senior housing, including senior ownership units, senior rental units, memory care and assisted living units.

iv. Support the development of a mix of affordable housing opportunities for all income levels, age groups, and special housing needs.

5.2.2 Encourage environmentally sustainable housing development and construction practices.

5.2.3 Provide for housing development that maintains the attractiveness and distinct neighborhood characteristics in the community.

5.2.4 Support the maintenance and rehabilitation of the community's existing housing stock.

5.2.5 Periodically assess the housing needs in the community, including for the elderly, disabled, active retirees, and other groups with special housing needs to determine development priorities and to formulate strategies to meet those needs and maintain an adequate and quality housing supply.

Assessment of Housing Stock

The following includes an assessment of the current housing stock within the City of Mendota Heights. It includes information on the tenure of occupants; the number, type, and age of housing units; and housing costs. The remainder of the Housing Plan addresses affordable housing needs, goals and policies of the City, and an implementation section identifying ways to address the City's housing needs.

Housing Types and Tenure

Housing Types by Units in Structures in Table 5-1 below illustrates the existing housing types by the units in the structure. According to the 2016 American Community Survey, 98.5 percent of the total housing units in Mendota Heights were occupied, while only 1.5 percent were vacant.

Out of the occupied housing units in the City, 88 percent are owner-occupied, while only 12 percent are renter-occupied. This is compared to the national average of 63.4 percent of the occupied housing units in the United States being owner-occupied, while 36.4 percent are renter-occupied (*Source: American Community Survey, 2012-2016 estimates*). Mendota Heights is well above the national average for owner-occupied housing units. The majority of housing units in the City are single-family, detached structures, with multi-family properties and single-family attached homes being other common unit types in the city.

Table 5-1: Housing Type by Units in Structure

	Single Family		Two Unit	Three + Unit	Mobile Home	**Total**
	Detached	Attached				
Number of Units	3,362	623	19	680	9	**4,693**
Percent of Stock	71.6%	13.3%	0.4%	14.5%	0.2%	**100%**

Source: Metropolitan Council, American Community Survey, 2016

Age of Housing

Mendota Heights experienced a rapid pace of housing construction, starting in the 1940s and continuing through the 1950s. During this time period (1940 to 1959), 850 housing units were constructed. This pace slowed in the 1960s, but started picking up again in the 1970s, when 662 housing units were constructed. Housing construction peaked in the 1980s when 1,162 housing units were built. This number accounts for twenty-seven percent (27%) of the total housing units that were constructed in 2000 and prior. Between 1990 and 1998, another 910 housing units were constructed within the City. The number of housing units slowed in the 2000s, as the amount of vacant land available within the City was minimal. Housing stock age is illustrated in the ***Housing Age Map - FIGURE 5-1*** (below).

City of Mendota Heights

Age of Housing Stock Map

N W E S

0 3,000 6,000 Feet

- Built before 1970
- Built between 1970 and 1980
- Built between 1980 and 1990
- Built between 1990 and 2000
- Built after 2000
- City Boundary
- Open Water

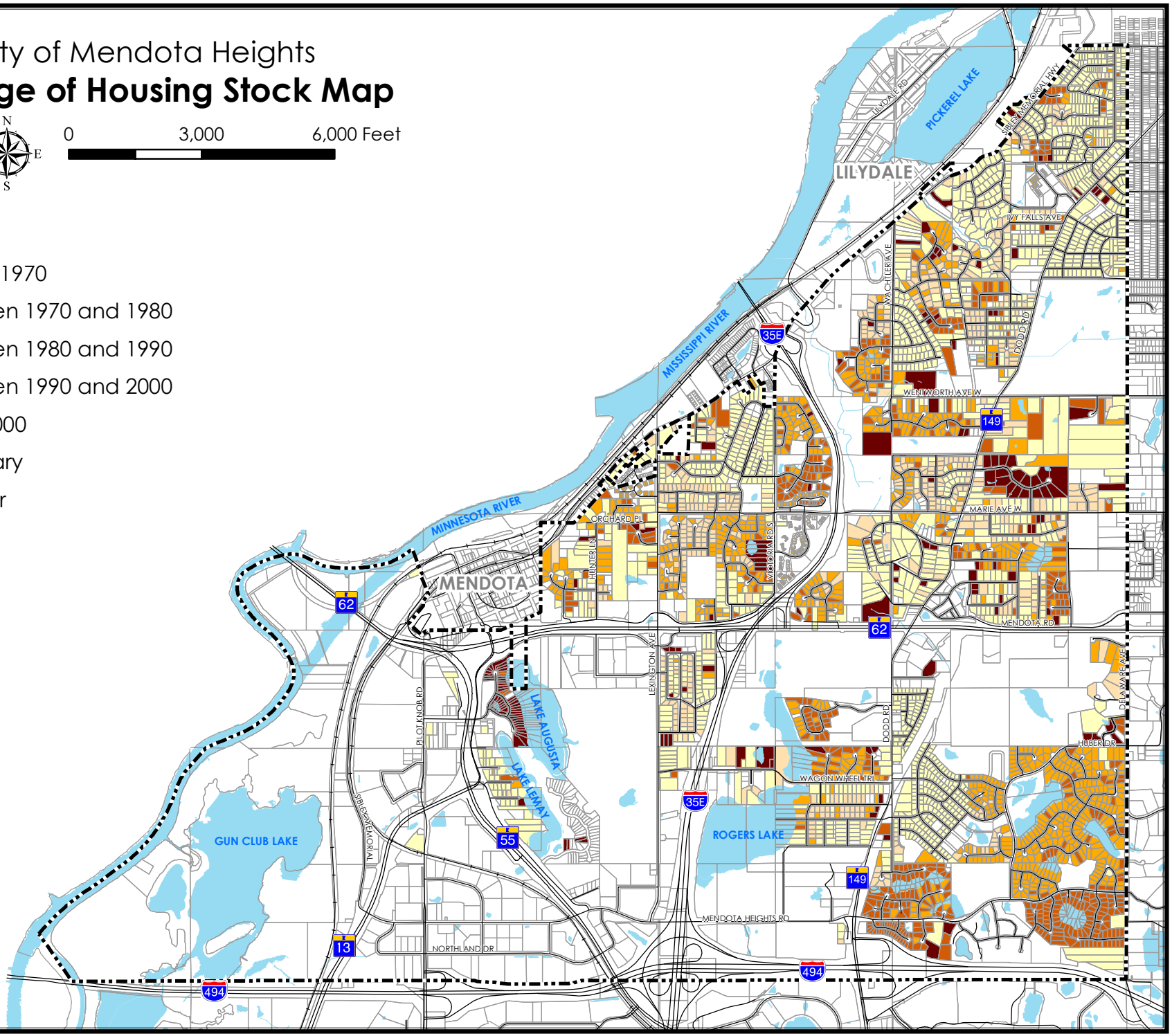


FIGURE 5-1

June 2019

Source: Dakota County, 2016

Housing Value and Rent

The median home value in Mendota Heights is $351,100, which is much higher than the Dakota County median value of $226,900 and much higher than the Twin Cities Metropolitan Area median of $212,600. Compared to other communities in the region, Mendota Heights' housing values are above average. Housing values in Mendota Heights are mapped in Figure 5-2.

Table 5-2: Median Housing Values in and around Mendota Heights

Community	Median Housing Value
Mendota Heights	$351,100
Eagan	$251,500
Inver Grove Heights	$216,400
Dakota County	$226,900
Twin Cities Metropolitan Area	$212,600

Source: American Community Survey, 2016

The median rent in Mendota Heights is $1,097 per month, which is higher than the Twin Cities Metropolitan Area ($916) and higher than Dakota County ($1,003). Compared to other communities in the area, Mendota Heights' median rent is slightly higher. This may be attributed to the large number of single family homes that are rented in the City as well as the development of new, market rate apartment units in the Plaza neighborhood. Table 5-3 includes median monthly rents in nearby communities.

Table 5-3: Median Rent in and around Mendota Heights

Community	Median Monthly Rent
Mendota Heights	$1,097
Eagan	$1,074
Inver Grove Heights	$990
Dakota County	$1,003
Twin Cities Metropolitan Area	$916

Source: American Community Survey, 2016

Housing Affordability

Affordable Housing Stock in Mendota Heights

The Metropolitan Council defines an "affordable" home as one costing $85,500, for households making less than 30 percent Area Median Income (AMI), a home costing $153,000 for households making 31-50 percent AMI, and a home costing $240,500 for households making 51-80 percent AMI. In Mendota Heights, the median home value is $351,100, indicating that much of the City's housing stock is unaffordable at 80 percent AMI or lower. Housing affordability is discussed later in this chapter. These characteristics are summarized in Table 5-4 for homes in Mendota Heights.

Table 5-4: Affordable Housing Stock in Mendota Heights

Total Number of All Housing Units	4,693		
Number of Affordable Units	**At or below 30% AMI**	**31-50% AMI**	**51-80% AMI**
	50	311	1,053
Number of Publicly Subsidized Units	**Senior Housing**	**People with Disabilities**	**All other publicly subsidized units**
	110	0	24

Source: Metropolitan Council

Cost Burdened Households

Many residents in communities across the Twin Cities experience challenges affording their housing costs. The Department of Housing and Urban Development (HUD) defines housing to be affordable if the residents do not pay more than 30 percent of their income towards housing costs. Housing costs can include rent or mortgage payments, utility bills, HOA fees or other fees associated with living in the home. Residents who pay more than 30 percent are considered "Cost-burdened". In Mendota Heights, over seven hundred households (16.8 percent of households) are considered to be cost-burdened. Table 5-5 describes the cost burdened households by median income level.

Table 5-5: Housing Cost Burdened Households

Household Income Level	**Number of Cost-burdened Households**
At or below 30% AMI	229
31 to 50% AMI	270
51 to 80% AMI	237
Total Households	**736**

Source: Metropolitan Council

Housing Projections and Need

Although the City of Mendota Heights is relatively built out, it will still need to accommodate for new residents of all socioeconomic backgrounds. The Metropolitan Council encourages Mendota Heights to supply 23 new units of affordable housing (at or below 80 percent AMI) by 2040. The units are to be affordable at different levels, described below in Table 5-6.

Table 5-6: Affordable Unit Allocations for Mendota Heights

Household Income Level	Number of Units
At or below 30% AMI	18
31 to 50% AMI	2
51 to 80% AMI	3
Total Households	**23**

Source: Metropolitan Council

Strategies to Promote a Diverse Housing Stock

In order for Mendota Heights to meets its goals and policies pertaining to housing, and especially to accommodate the projected needs of affordable housing units, the City can rely on a number of existing programs and policies to promote housing stock diversity. Numerous efforts are available for Mendota Heights to employ in order to facilitate the construction of affordable housing and to expand local housing options including regional, state, and national programs, fiscal devices, official controls, and land use regulation.

Livable Communities Act

In 1995, Minnesota Legislature created the Livable Communities Act (LCA) as defined by MN State Statute 473.25. The LCA is a voluntary, incentive-based approach to help the Metro Area communities address affordable and lifecycle housing needs. The LCA provides funds to communities to assist them in carrying out their development plans for affordable housing and creation of new jobs.

Participation in the Local Housing Incentives Program portion of the LCA requires communities to negotiate housing goals with the Council and prepare a Housing Action Plan.

Livable Communities Demonstration Accounts (LCDA)

LCDA funds support regional growth strategies promoting development and redevelopment that make efficient and cost-effective use of urban lands and infrastructure; improve jobs, housing, transportation, and service connections; and expand affordable and lifecycle housing choices in the region. The funds are available to municipalities that participate in the Local Housing Incentives Program of the Livable Communities Act (LCA). The LCDA is open to local housing and redevelopment authorities, economic development authorities or port authorities in LCA-participating cities, or to counties on behalf of projects located in LCA-participating cities.

As the name of the account suggests, LCDA funds are intended to be used for projects that demonstrate innovative and new ways to achieve and implement the statutory objectives, not merely to fill project funding needs.

Local Housing Incentive Account (LHIA)

LHIA grants help to produce new and rehabilitated affordable rental and homeownership, promote the Council's policy to expand and preserve lifecycle and affordable housing options to meet changing demographic trends and market preferences, and support the region's economic competitiveness.

Tax Base Revitalization Account (TBRA)

The TBRA provides funds to clean up polluted land to make it available for economic redevelopment, job retention, and job growth, or the production of affordable housing to enhance the tax base of the recipient municipality. TBRA funds are raised by a legislatively authorized levy capped at $5 million annually.

If the TBRA project includes a housing component, a portion of the housing is required to be affordable. Ownership units are considered affordable if they can be purchased by buyers earning 80% of the area median income (AMI). Affordable rental units are those renting at the Low-Income Housing Tax Credit rent limits based on 50% of the AMI.

Community Development Block Grant (CDBG) Program

The CDBG Program is provided through the U.S. Department of Housing and Urban Development. The CDBG program is a flexible program that provides communities with resources to address a wide range of unique community development needs. The CDBG program works to ensure decent affordable housing, to provide services to the most vulnerable in our communities, and to create jobs through the expansion and retention of businesses.

Fiscal Devices

Fiscal devices, such as revenue bonds, tax increment financing, or tax abatement can be used to help ease the construction and availability of affordable housing in the City of Mendota Heights.

Official Controls

Official controls and land use regulation can be used to assist in the construction of affordable housing units. Controls and regulations can also be used to simplify the process of expanding local housing options.

The following is a list of official controls that the City of Mendota Heights can use to implement its housing goals and policies: Zoning Ordinance, Subdivision Ordinance, Building Codes, Design Requirements, lot splits and new home construction, and the actual approval process itself. These regulatory tools impact the type and cost of new housing.

6

Economic Development

A strong community is not simply about housing and parks but also economic vitality. Mendota Heights seeks to support its community through a diverse mix of commercial offerings, retention and expansion of job-generating businesses, and preserving land for commercial and industrial activities that is adequately buffered from nearby residential areas.

Regional Context

The Metropolitan Council recommends including an economic development element in local comprehensive plans to achieve regional goals for economic competitiveness. Providing great locations for businesses to succeed, particularly industries that export products or services beyond our region and bring revenue and jobs into the region, is a significant need. The Metropolitan Council defines two key terms related to this element:

- Economic Competitiveness – Examining and strengthening the ability of the region to compete effectively and prosper in the global economy.
- Economic Development – Activities that directly aim to retain, attract, and grow businesses that bring wealth into a community or region.

While the City focuses its efforts on growing businesses within its own boundary, it is also important to understand the context for that growth within the region and work with regional partners to achieve shared success.

Part of the regional context for Mendota Heights is its excellent location within the regional roadway network and its proximity and easy access to MSP International Airport. Both are critical to cities within the regional economic environment.

Economic Development topics addressed in this chapter include:

- Economic Overview
- Redevelopment and Business Development
- Education and Workforce
- Economic Information, Monitoring, and Strategic Initiatives

GOALS and POLICIES

GOAL 6.1: Promote Economic Development in Mendota Heights through a comprehensive approach to business needs.

Policies:

6.1.1 Manage growth and land resources to ensure an appropriate mix of developments and, where possible, land to secure new business investments.

6.1.2 Retain the present industrial and commercial base and encourage companies with their expansion needs where appropriate.

6.1.3 Attract quality businesses consistent with the City's target market to areas available for development.

6.1.4 Explore options for sites and buildings to meet the demand for commercial and industrial development.

6.1.5 Maintain an infrastructure system to meet the needs of current businesses and facilitate future growth.

6.1.6 Address unique development challenges including the reuse and redevelopment of vacant buildings.

6.1.7 Foster private investment and economic activity without compromising community objectives to maintain and enhance Mendota Heights' environment.

GOAL 6.2: Promote Business Attraction, Retention, and Expansion In Mendota Heights.

Policies:

6.2.1 Identify target markets and prepare and implement a marketing plan to attract businesses that fit this market.

6.2.2 Work with local businesses and industry to ensure needs for expansion and development are adequately met and maintain an open line of communication with the business sector through the Business Retention and Expansion Program.

6.2.3 Continue to actively provide information and market Mendota Heights to commercial brokers and retail businesses in order to expand retail and service opportunities in the City.

6.2.4 Work cooperatively with local business groups, the school district, and area colleges and universities to provide training for workers, which in turn will help develop skills needed for sustaining productive workforce for existing and future Mendota Heights businesses.

GOAL 6.3: Promote Economic Development through Public Financing Tools.

Policies:

6.3.1 Periodically review economic development opportunities, such as incentive programs from county, regional, state, and federal agencies.

6.3.2 Review new and innovative economic development incentives proposed by existing and future businesses in Mendota Heights.

6.3.3 Pursue outside funding sources to develop or redevelop land for commercial and industrial uses, such as Metropolitan Council Livable Communities Demonstration Account and Tax Base Revitalization Account, Dakota County Community Development Agency (CDA), Minnesota Department of Employment and Economic Development, and other applicable grants.

GOAL 6.4: Continue to develop and redevelop community commercial areas that serve the whole community.

Policies:

6.4.1 Provide and support commercial areas to supply convenience goods and services for residents of Mendota Heights.

6.4.2 To mitigate conflicts between commercial and residential development, require appropriate land use transitions at the edges of residential neighborhoods through the use of setbacks, screening, buffering and fencing.

6.4.3 Require sidewalk connections along major streets leading up to neighborhood commercial centers and direct connections from the public sidewalk to the storefronts.

GOAL 6.5: Continue to develop business and industrial park areas that provide jobs and serve the local and regional economy.

Policies:

6.5.1 Provide opportunities for new industrial development and expanded employment opportunities to create livable-wage positions in Mendota Heights and the redevelopment of existing industrial uses to serve existing businesses in the community.

6.5.2 Provide attractive, planned environments as a means to induce employers to locate within the city.

6.5.3 Continue to provide and enforce standards for industrial developments that improve the appearance and character of industrial properties.

6.5.4 Provide high quality public services and infrastructure in all commercial and industrial districts.

Economic Overview

A 2016 report by Tangible Consulting Services evaluated the market and development conditions in preparation for the comprehensive plan update (see attached **Appendix-B**). It overviewed the unique demography and economic base that characterized the city and investigated the market and development factors that will shape future growth in housing, retail, and industrial development.

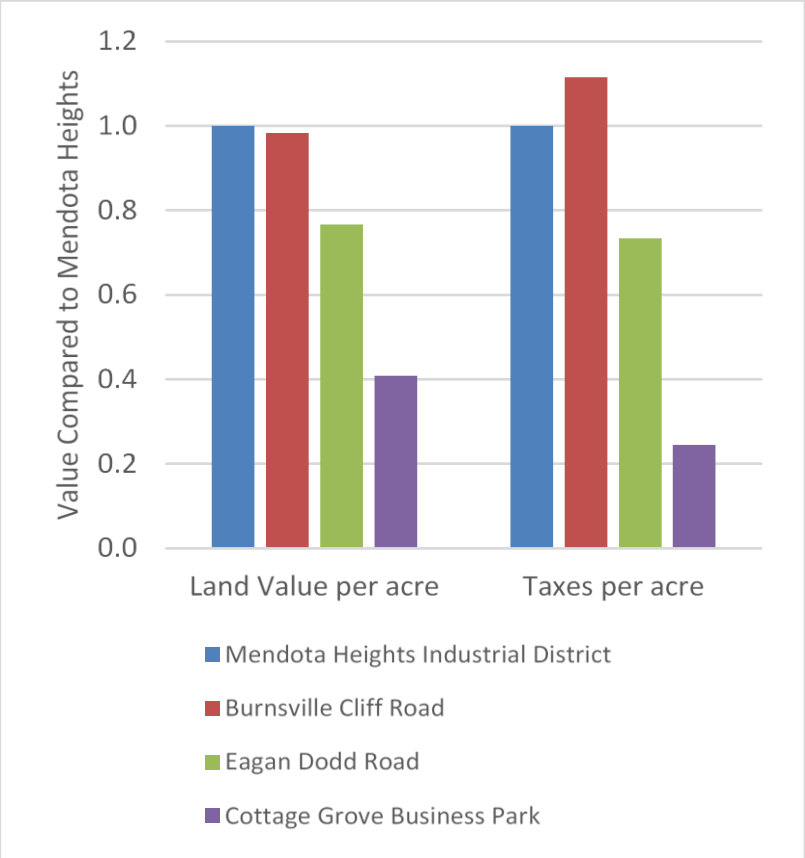
Mendota Heights is essentially developed. While that status limits opportunities for new development, there is a need to stay viable and attractive as the demographics of the Minneapolis-St. Paul metropolitan area shift. The population is growing, it is aging, and more households will be renters. Choices about purchasing and employment will also evolve. Decisions about housing redevelopment, retail support and location, and office and employment opportunities will influence Mendota Heights' character as a desirable place to live.

Redevelopment and Business Development

Opportunities for business investment will likely include retail, business, office and industrial uses. Retail areas in Mendota Heights benefit from their visibility from the heavily traveled Highway 62 corridor. They also benefit from their distance from other retailers. Their distance from retail centers in the nearby communities of Eagan and West St. Paul gives Mendota Heights' retailers a corner on neighborhood goods and services for residents in the surrounding neighborhoods. These locational characteristics are likely to keep the areas strong into the future. Mendota Heights is more limited in its prospects for destination retail given its competition in this category in surrounding communities.

The Mendota Heights Industrial District (MHID) is an important contributor to the tax base compared to nearby competing areas. It is in the South Central industrial submarket of the Twin Cities which encompasses West St. Paul, South St. Paul, Inver Grove Heights, Eagan, Apple Valley, and Burnsville. New industrial development in the South Central Submarket is coming online more slowly than in the metro area overall.

Figure 6-1: Industrial Comparison Areas



The Mendota Heights Industrial District is attractively positioned for continued business occupancy due to its central location in the region, proximity to the airport, flat topography, diversity of existing tenants, and available utilities. A major challenge is the limited opportunity for on-site facility expansion and very few sites for new industrial development.

The office buildings in the Mendota Heights Industrial District and the Centre Pointe Business Park operate in a different competitive environment than the industrial facilities. Vacancy rates tend to be higher in office properties. Office developments typically cluster into specialized areas or recognized districts within the metropolitan area, due to transit availability and proximity to amenities.

Office buildings in Mendota Heights' two districts are 20 years old on average and together offer around 1.4 million square feet of floor area. Market indicators are mixed for office buildings in Mendota Heights – the 2016 vacancy rate is lower than the metro as a whole but rents are also lower.

Retail Redevelopment Opportunities

While there are limited opportunities for additional retail in Mendota Heights, two exist:

- Expanding retail opportunities beyond what is already planned at Mendota Plaza and The Village at Mendota Heights along Highway 62 at Dodd Road.
- Better capturing the daytime population at the Mendota Heights Industrial District. Small footprint retail and restaurants could better serve these employees.

Industrial Redevelopment Opportunities

The Mendota Heights Industrial District Redevelopment Plan makes several recommendations for actions to strengthen the area's attractiveness to industrial users and invite building renovation and improvement. These include:

- Explore ways to communicate, brand, and promote the Industrial District;
- Consider city policies toward redevelopment incentives, which will provide a positive impact on future projects or existing business expansion projects; and
- Consider investments in broadband and other technology infrastructure as necessary to ensure the area is competitive and serves the business needs.

Office Redevelopment Opportunities

To support continued viability of the office areas in Mendota Heights, consideration could be given to actions such as:

- Strengthen the office identity and branding of the southern part of the Mendota Heights Industrial District; let the district be part of the broader Eagan/Mendota Heights office district; and
- Build the amenity base of the area with the addition of some retail and restaurants, even if the opportunities to do so are limited.

Education and Workforce

A strong, educated workforce supports local businesses and gives Mendota Heights' residents an opportunity to work and go to school close to home. If a community has daytime workers, it leads to more retail and restaurant offerings since those businesses can now capture a daytime crowd in addition to evenings and weekends. Additionally, residents who can work close to home reduce transportation costs and gain more time in their day that would have otherwise be spent on long commute.

Education

Mendota Heights is served by public schools, including Somerset Elementary, Mendota Elementary, Friendly Hills Middle School and Henry Sibley High School, all of which are part of Independent School District 197. The City is also home to St. Thomas Academy and Convent of the Visitation School.

There are currently no post-secondary schools located in Mendota Heights, but the city's central location in the Twin Cities offers many easily accessible post-secondary options.

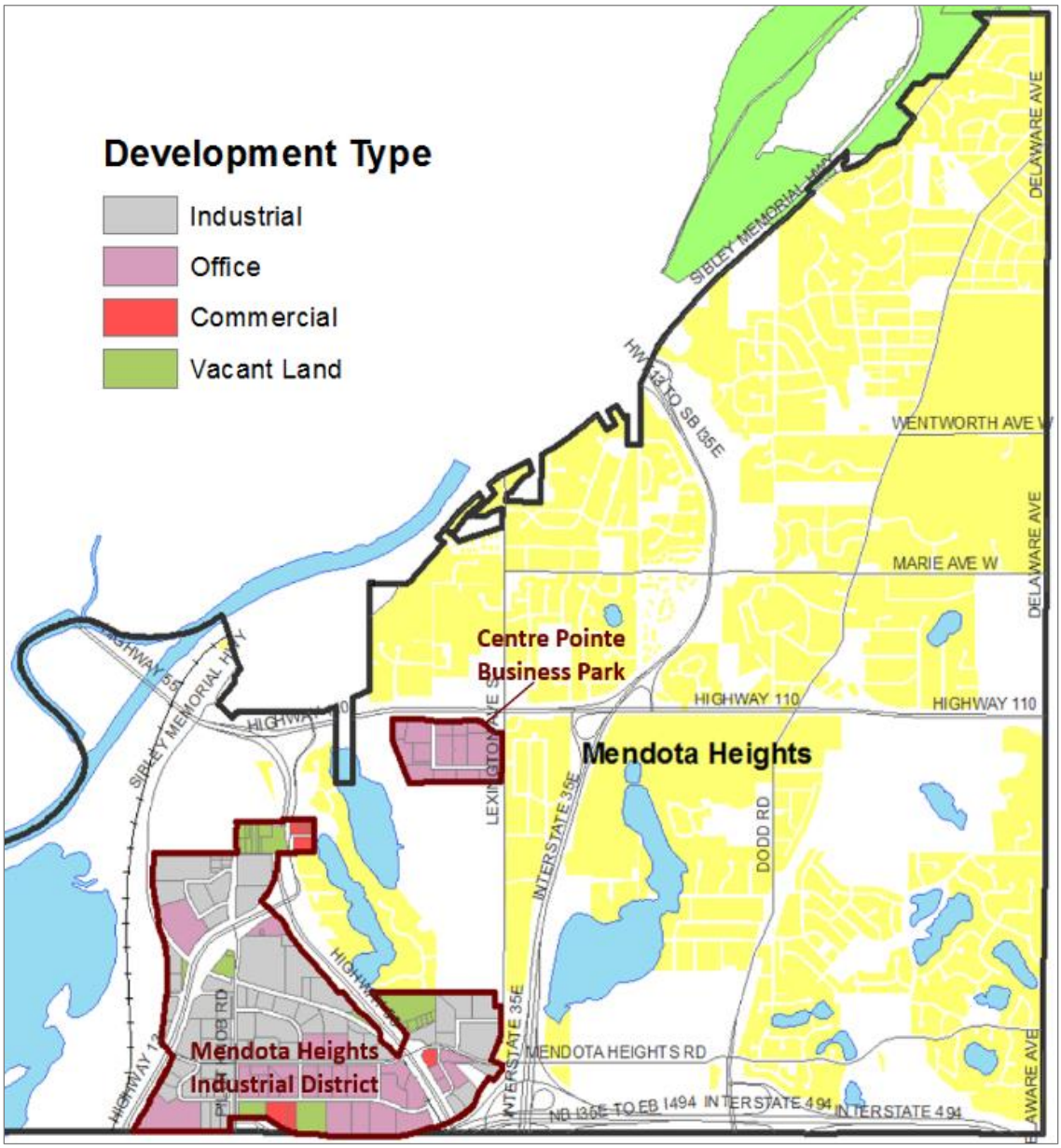
Workforce

Mendota Heights has a unique employment profile for a Twin Cities suburb. Businesses in Mendota Heights offer a high number of good-paying jobs and there are almost two jobs in Mendota Heights for every employed person who lives in the city. However, most Mendota Heights workers commute to jobs outside of the city. Of the roughly 5,500 workers who live in Mendota Heights, almost 95% go to work at a location outside the city limits. Only around 300 residents work at a business in Mendota Heights.

While some jobs are in neighborhood serving retail businesses and the community's educational institutions, the great majority of jobs in Mendota Heights are in the industrial facilities and offices in the city's industrial and office areas.

The majority of employment in Mendota Heights is focused in two distinct areas – the Mendota Heights Industrial District and the Centre Point Business Park.

Figure 6-2: Office and Industrial Context



Source: Mendota Heights Assessor Data

Businesses in the Mendota Heights Industrial District (MHID) offer over 7,000 principal jobs. The MHID is home to a mix of industrial and office developments. The Centre Pointe Business Park offers around 800 jobs. The business park was developed in the 1990s and 2000s and is comprised entirely of office buildings. Industrial and office jobs tend to pay a living wage which are higher on average than jobs in some other sectors such as retail stores and services.

Economic Information, Monitoring, and Strategic Initiatives

Through a partnership with the Dakota County Community Development Agency (CDA) and the Metropolitan Consortium of Community Developers (MCCD), the City makes available a certified "Open to Business" consultant to offer free services to local businesses. The service is free to any Mendota Heights business or resident. Experts help businesses plan by providing information on business start-up or acquisition, creating a business plan, evaluating financials, and analyzing the viability of commercial sites.

The West St. Paul Work Force Center is a valuable tool for local job seekers and businesses searching for employees in the surrounding communities. Part of a larger initiative sponsored by the Minnesota Department of Employment and Economic Development (DEED), job seekers have access to job search coaching, information for veterans and people who require special services, training programs for in-demand occupations, and a free online job bank. Businesses can get help finding workers, developing a workforce strategy, locating and expanding their business, and data analysis on the local labor market.

The City also partners with the Dakota County CDA on strategic initiatives such as:

- Investing in transportation;
- Coordinating strategic infrastructure and land development;
- Linking workforce development and economic development;
- Building the capacity to respond to business prospects;
- Providing quality workforce housing; and
- Strengthening development-related research and policy capacity.

7

Natural Resources

The City of Mendota Heights is fortunate to have a wide variety of Natural Resources. These natural resources are an important recreation, aesthetic, and ecological asset to the community of Mendota Heights. During the City's developing stages, a strong emphasis was placed on preserving high quality open spaces and woodland areas. Residents enjoy numerous lakes, streams, wetlands, open spaces, parks, trails, and the Mississippi and Minnesota Rivers. These natural areas provide tremendous benefits to the community and its residents and are an important focal point of Mendota Heights.

Photo courtesy of Rachel Quick

Protect, Connect, Restore and Manage Ecosystems, Plant Communities and Species

The quality of life for the community of Mendota Heights highly depends on how it manages its natural resources—the air, minerals, land, water, and biota that form the foundation to life in the City. This Chapter is a guide for managing the City's natural resources in a sustainable way. It will help protect and enhance residents' quality of life for current and future generations by suggesting strategies to protect, connect, restore and manage ecosystems, plant communities, and species.

Purpose

The environmental benefits provided by the community's natural resources are essential for human life. Protecting and preserving these natural resources require preventing, and providing treatment for, potential harmful pollutants that can adversely affect the health of our air, water, and soil. Some of the strategies for addressing pollutants include, but are not limited to: stormwater infiltration and treatment, providing flood control, providing and preserving healthy soil for plants, and providing and preserving habitat for pollinators and wildlife. Natural resources can also provide economic value, recreation, health benefits, and aesthetic beauty. Healthy natural resources help ensure that Mendota Heights has a high quality of life that can be sustained far into the future.

GOALS and POLICIES

GOAL 7.1: Develop a professional, comprehensive, strategic Natural Resources Management Plan for City-wide natural areas and natural resources.

Policies:

7.1.1 Develop capabilities to monitor and implement the Natural Resources Management Plan through City Staff expertise, as well as through partnerships with community groups, volunteers, and adjacent communities and agencies, thus recognizing the interconnectedness of ecosystems.

7.1.2 Implement a formal Natural Resources Management and Sustainability Commission to aid in the execution of the strategic Natural Resources Plan. This Commission may begin as a Task Force, whose charge would be to establish the by-laws and city ordinance necessary to establish this commission.

7.1.3 Develop site-specific management plans that identify and prioritize opportunities to enhance and protect the City's high-quality areas and address significant issues, such as: vegetation plans, tree planting plans, tree inventories, green infrastructure, surface waters, roadside restoration, wildlife management, tree diseases, pests, and invasive species.

7.1.4 Establish and continually update priorities for sites, including public parks and open space, and management activities.

7.1.5 Develop and continually maintain tracking of management activities, using frameworks such as Geographic Information Systems (GIS) to gather, manage, and analyze data.

7.1.6 Develop and implement City strategies to increase tree canopy, during existing operational, new development, and redevelopment activities.

7.1.7 Seek partnerships and grant opportunities to help implement natural resources goals.

7.1.8 Work with Dakota County and other agencies to maintain and/or acquire, where feasible, natural greenway corridors to foster ecosystem continuity.

7.1.9 Protect steep slopes, bluffs, and other sensitive areas from erosion and other threats, specifically throughout the development process.

7.1.10 Encourage and promote the use of conservation design principles.

7.1.11 Explore the opportunity to develop a Natural Resource Matching Fund and work with agency partners to achieve the vision & goals of the Natural Resources Management Plan.

GOAL 7.2: Protect, connect, restore, buffer, and manage natural areas, wildlife habitat, and other natural resources, for high ecological quality and diversity of plant and animal species.

Policies:

7.2.1 Monitor new developments for restoration and invasive plant management.

7.2.2 Monitor tree disease and pest outbreaks (i.e. Emerald Ash Borer) with the implementation of control and replanting programs, such as an Integrated Pest Management program, for current tree diseases as well as emerging diseases and pests.

7.2.3 Continue to partner with outside agencies and community groups to monitor and control invasive species and noxious weeds.

7.2.4 Restore areas throughout the City with pollinator-friendly or native species to protect and enhance habitat for native pollinators and birds in accordance with City Resolution 2015-79 (**see Appendix - D**).

7.2.5 Monitor wildlife populations and address over-population as needed.

7.2.6 In new development and redevelopment, retain mature trees that have high ecological value, replace lost trees, and plant additional trees if not present originally.

7.2.7 Explore the development of ordinances and or policies that establish minimum soil standards for development and redevelopment that can support turf, plantings, and/or healthy turf alternatives.

7.2.8 Look for opportunities to reduce or minimize impervious cover City-wide.

7.2.9 Emphasize the use of, and identify areas including public open space and park land, that could be restored to include native species, pollinator plants, wildlife habitat, or turf alternatives.

7.2.10 Prior to approval of landscape and development plans, work with applicants to encourage the preservation and installation of high ecosystem value communities.

7.2.11 Encourage avenues for homeowners to take on ownership of, and responsibility for, boulevard trees where the location of the tree is considered appropriate as well as an overall community benefit.

7.2.12 Implement the strategic planting of trees to avoid monoculture plantings and choose tree species identified as most resilient to changing climate and weather patterns.

GOAL 7.3: Protect and restore the natural ecological functions of the City's water resources with emphasis on the improvement of stormwater management.

Policies:

7.3.1 Explore and develop operational and procedural modifications to better enhance and support the thriving of the natural environment.

7.3.2 Work with partners to implement projects and develop and support programs that encourage infiltration, to reduce stormwater runoff and pollution to water-bodies.

7.3.3 Work with partners to monitor Aquatic Invasive Species (AIS). Set goals for AIS removal and management, and reintroduction of native species. Educate lakeshore owners and residents about AIS.

7.3.4 Identify areas within the City, including public and private land that are lacking adequate stormwater treatment, and other stormwater BMPs. Implement projects to establish functioning stormwater treatment in order to protect and improve the City's water resources.

7.3.5 Implement the City's Local Surface Water Management Plan (LSWMP) through the use of ordinances, policies, and development standards.

7.3.6 Carry out steps toward meeting the Minnesota Pollution Control Agency's (MPCA) *Swimmable, Fishable, Fixable* water quality standards.

7.3.7 Manage public riparian areas to be resilient to stormwater runoff.

7.3.8 Improve the process for review and inspection of native planting and permanent stormwater Best Management Practices on development projects to increase successful establishment.

GOAL 7.4: Enhance and provide public education and understanding of nature, natural systems, and environmental issues by providing programs, materials, and information; while promoting a culture of stewardship on public and private lands.

Policies:

7.4.1 Educate adults, families, schools, community groups, and staff on natural resources topics, improving compliance and understanding of environmental regulations and requirements.

7.4.2 Continue to develop, improve, and expand audiences through the use of diverse methods of education and outreach including: programs, field trips, brochures, exhibits, signage, articles, website, video, social media, service learning, and community gatherings and events.

7.4.3 Collaborate with other agencies, such as Watershed Districts, Watershed Management Organizations, and surrounding County and Metropolitan Cities to share information and ideas regarding natural resources.

7.4.4 Develop and promote stormwater educational outreach programs, using available programs offered through outside agencies, and utilizing volunteer groups such as Master Gardeners, Master Water Stewards, and Master Naturalists.

7.4.5 Implement, encourage, and sustain collaborative City programs such as residential curb-cut raingardens and green infrastructure, throughout road re-construction projects.

7.4.6 Educate homeowners, commercial and institutional property owners, and City Public Works Staff, on turf management Best Management

Practices (BMPs), as well as lawn alternatives, to reduce the amount of traditional turf throughout the City.

7.4.7 Develop a Natural Resources webpage on the City's website that offers City resources, community updates and activities, volunteer opportunities, links to useful resources, and other topics as they relate to natural resources.

7.4.8 Provide education and training on tree care for private landowners.

7.4.9 Engage residents in the strategic planting of trees in order to encourage a more diverse, native community forest.

7.4.10 Develop material (print as well as electronic media) to teach property owners environmentally friendly 'backyard' practices, including but not limited to: sustainable lawn care, native plantings, drought-tolerant landscaping, rain gardens, proper disposal of yard and animal waste, and composting.

7.4.11 Educate residents, developers, and others on the impact of noise, and other forms of pollution (i.e. light, air quality, heat, etc.).

7.4.12 Provide programs to support residents in their stewardship efforts. Explore innovative ideas and opportunities to serve the community in stewardship efforts such as grant and rebate programs, curb-side buckthorn pick-up program, City-sponsored tree sale, etc.

7.4.13 Develop and implement City-led initiatives to engage citizens in the stewardship and care of natural areas and infrastructure through programs such as Adopt-a-Park, Adopt-a-Roadside Pollinator Planting, Adopt-a-Boulevard, Adopt-a-Tree, and Adopt-a-Storm Drain.

7.4.14 Implement, evaluate, or enhance citizen participation in monitoring programs such as the Wetland Health Evaluation Program (WHEP), State and Metropolitan Council water monitoring programs, as well as other Citizen Science monitoring programs that monitor vegetation, aquatic invasive species, as well as those programs that monitor wildlife such as birds, bats, bees, aquatic wildlife, and insects

7.4.15 Encourage citizen engagement in the City's annual Municipal Separate Storm Sewer System (MS4) Permit meeting and process, and use this as a forum to share concerns, discuss proposed community initiatives, and offer suggestions concerning stormwater.

GOAL 7.5: Address issues that impact air quality, light pollution, and noise pollution, such as vehicle emissions, traffic flow, air traffic, lighting, and street design.

Policies:

7.5.1 Evaluate proactive solutions to air quality issues such as the installation of an electric vehicle charge stations, and mass transit options.

7.5.2 Consider taking an advocacy role to encourage the MPCA and the Minnesota Department of Health to address air quality issues and improve air quality.

7.5.3 Strive to monitor and limit community exposure to excessive noise levels and review and evaluate current City policies and ordinances regarding noise.

7.5.4 Develop ordinances that proactively and effectively deal with noise pollution and its impact on all facets of the community, including human, ecological, safety, security, and energy.

7.5.5 Encourage use of research-based systems, such as Backlight-Uplight-Glare (BUG) that reduce light pollution and provide guidelines for effective control of unwanted or unhealthy light for residents, as well as wildlife.

7.5.6 Develop ordinances that proactively and effectively deal with light pollution within the city and work with neighboring communities to coordinate lighting solutions and address its impact on all facets of community: human, ecological, safety, security, and energy.

7.5.7 Increase efforts to provide healthier lighting solutions for residents and the preservation of the City's natural assets.

Mendota Heights Natural History and Landscape

General Topography and Drainage

The City of Mendota Heights is located near the confluence of the Minnesota and Mississippi Rivers in northern Dakota County. The topography of the City of Mendota Heights varies greatly, from floodplains of the Minnesota and Mississippi Rivers to the primary and secondary bluffs of these rivers. The topography of Mendota Heights includes rolling to hilly terrain interspersed with poorly drained depressions that form many ponds and small lakes. Steep slopes occur along the Minnesota and Mississippi river bluffs on the western and northern borders of the City. The majority of the City is dominated by relatively flat terrain at an elevation approximately 200 feet above the river. Mississippi and Minnesota River floodplain also exists on the City's western border. Elevation in the City ranges from approximately 690 feet along the Minnesota River to approximately 1,030 feet along the City's northern border with West St. Paul, as illustrated in the ***Topography Map – FIGURE 7-1***.

The surficial geology of Mendota Heights consists of glacial and alluvial (outwash) deposits which cover most of the City. The City of Mendota Heights is within the Twin Cities Formation of the Eastern St. Croix Moraine geomorphic area. This area was formed at the southern extent of the Superior and Rainey glacial lobes as they flowed side by side as a single lobe and then terminated to form the St. Croix Moraine. As the glacier retreated and melted, it left behind areas of outwash and till deposit formations. The area of outwash formations that is located in the western portion of the City is comprised of silt, sand, and gravel that were carried, sorted, and deposited by glacial melt-water. The area of till formations located in the eastern two-thirds of the City is composed of unsorted clay, silt, sand, and boulders transported and deposited by glacial ice. Silt and sand lenses are interspersed throughout this formation.

The original terrain and vegetation of the area were mainly altered for purposes of farming when the area was first settled. Marshes and wetlands were left relatively undisturbed except for a few ditching projects. More detailed information on the drainage system of the City can be found in the City's 2018 Surface Water Management Plan (SWMP).

Soils

The Soil Conservation Service has identified the following soil associations within the City of Mendota Heights:

- Nearly Level Soils on the Floodplains. This area is on the floodplains of the Minnesota and Mississippi Rivers, mostly located in the Fort Snelling State

Park. The area consists of mixed Alluvial sand and some Sawmill soils. Colo soils, Riverwash, and Peat Muck are also present.

- Light Colored, Rolling to Hilly Soils. This general area is in the Morainic part of the County. It is characterized by steep slopes and numerous poorly drained depressions. The soils are extremely variable in depth, texture, and productivity. The major soils include Scandia Kingsley, Hayden, and Burnsville series. Included are soils of the Freer and Adolph series.

- Light Colored to Moderately Dark Colored, Rolling to Loose Hilly Soils on Till. In topography and texture, this soil association is mostly the light colored rolling high soils described above. Most of the soils develop from calcareous materials. The major soils in the area include the Hayden, Burnsville, Lester series.

City of Mendota Heights

Topography Map

N
W E
S

0 3,000 6,000 Feet

- 50' Contour Lines
- Elevation up to 700'
- Elevation 700' - 750'
- Elevation 750' - 800'
- Elevation 800' - 850'
- Elevation 850' - 900'
- Elevation 900' - 950'
- Elevation 950' - 1,000'
- Elevation above 1,000'
- City Boundary
- Land Parcel Line
- Open Water

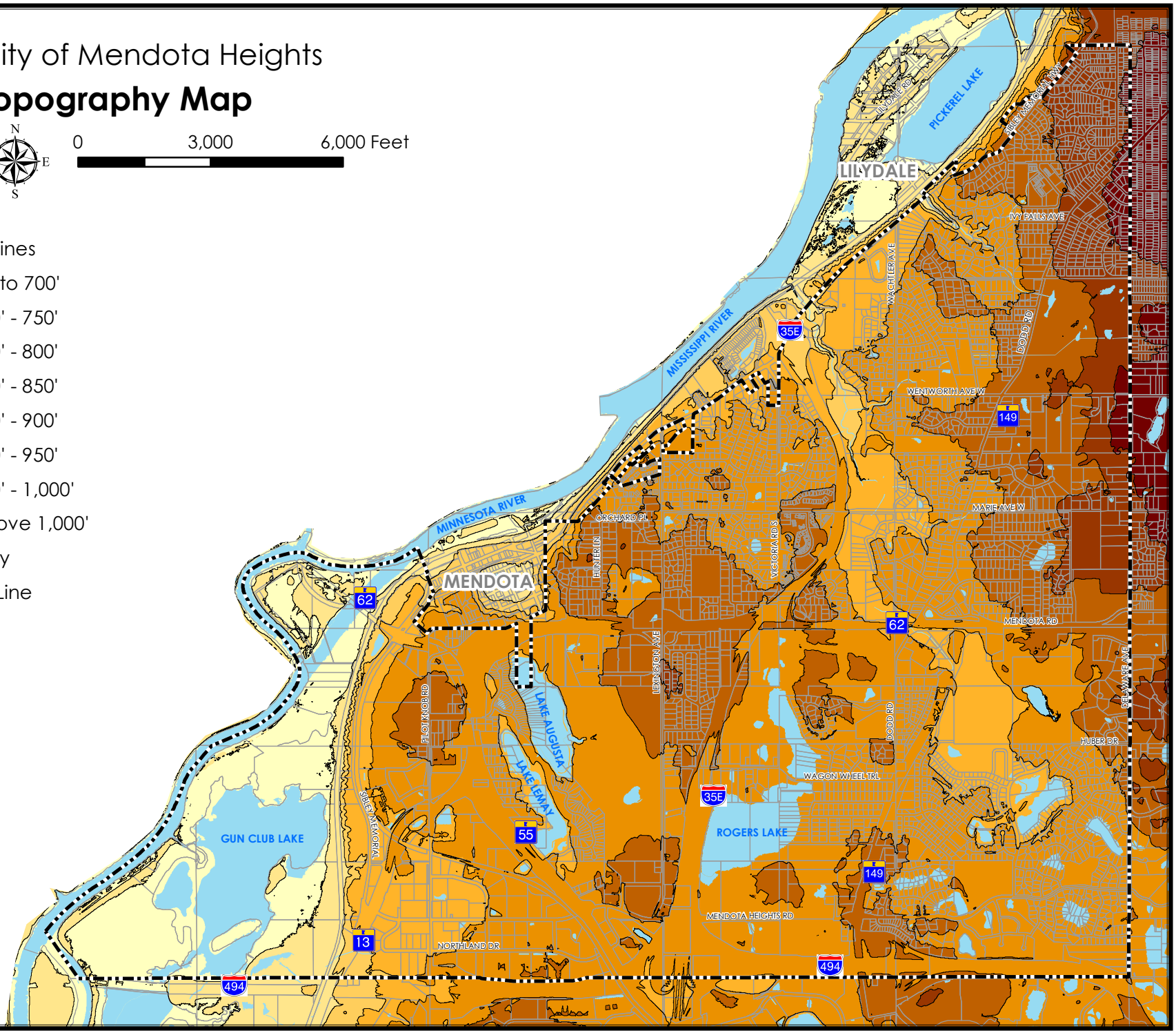


FIGURE 7-1

June 2019

Source: City of Mendota Heights, Dakota County, 2016

Rivers, Streams, Lakes, and Wetlands

The City of Mendota Heights has many water resources available for the use and enjoyment of its residents. These include rivers, lakes, wetlands, and streams that are important surface water resources within the community. Many of these major water resources are State of Minnesota Public Waters and are protected as such. Additional and more comprehensive information regarding the City's surface water resources, and surface water resources related issues; including impaired waters, assessments, and subsequent action steps can be found in the City's 2018 Surface Water Management Plan (*attached as **APPENDIX – B** of this plan*).

Lakes

Lake Augusta

Lake Augusta is a Minnesota Department of Natural Resources (DNR) public water, identified as Public Water 81P. It is a land-locked lake, with a maximum depth of 33 feet, a median depth of approximately 18 feet, and an area of approximately 44 acres. The area of its watershed is approximately 410 acres, giving a watershed to lake-ratio of 9.3 to 1.

Source: Dakota County GIS

Lake Augusta is included in the State's Impaired Waters List for Nutrients Impairment, and as a result has been approved for a Total Maximum Daily Load Study. The City has partnered with the Lower Mississippi Water Management Organization to conduct a feasibility study for Lake Augusta, to potentially address the issues of erosion, nutrients, and the possibility of creating an outlet.

Lemay Lake

Lemay Lake is a Minnesota DNR Public Water, identified as Public Water 82W, and is located in the upper reaches of the Industrial Park drainage district. It is a

shallow lake with a maximum depth of approximately 13 feet. Shallow lakes are typically dominated by wetland habitat that provide critical resources for fish and wildlife. Lemay Lake has a watershed of 98.5 acres with a surface area of 30 acres, giving a watershed to lake-ratio of 3.3 to 1. The lake drains via an outlet that extends under Hwy 55.

Source: City of Mendota Heights

Gun Club Lake

Gun Club Lake and the stream that serves as its outlet are DNR public waters, identified as Public Water 78P. The lake resides within the floodplain of the Minnesota River, and is located in the Lower Minnesota River Watershed District. The lake discharges to an unnamed stream that flows to the Minnesota River. Although Gun Club Lake resides within city limits, it is managed by Fort Snelling State Park.

Source: Dakota County GIS

Rogers Lake

Roger's Lake is a DNR Public Water (80P). It is a shallow lake, with a maximum depth of 8 feet. Its surface area is approximately 114 acres, with a watershed of approximately 366 acres, giving it a watershed to lake-ratio of 3.2 to 1. The lake discharges to the City's storm sewer system along Wagon Wheel Trail.

Source: City of Mendota Heights

Friendly Marsh and Copperfield Ponds

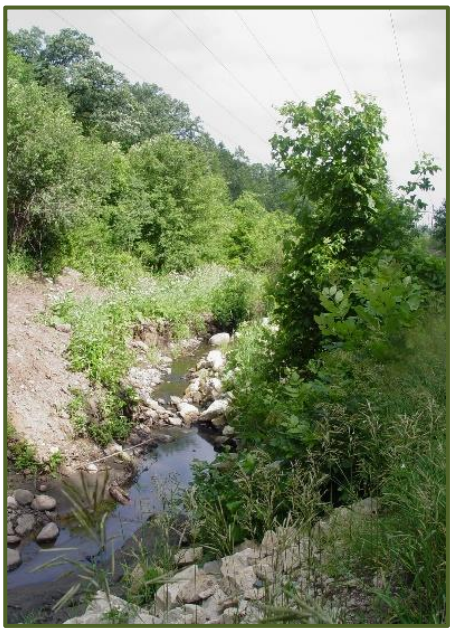
This lake consists of three separate basins referred to as the Copperfield Ponds, which contain the two upper basins; and Friendly Marsh, which is the lower basin, and has a normal water level of approximately two feet lower in elevation than the two upper basins. The upper two basins are separated by a narrow isthmus, and connected by a culvert. These three basins are identified as Minnesota DNR Public Water 103P. Given the differences in normal water level elevations for each of these three basins, the hydrologic model considers these three separate basins.

Source: City of Mendota Heights

Streams and Rivers

Interstate Valley Creek

Interstate Valley Creek is an intermittent stream that begins near the intersection of Highway 62 (formerly 110) and Highway 149 (Dodd Road) at the outlet of Friendly Marsh. The creek flows northward, and generally parallels Interstate 35E. A portion of the creek is identified as a DNR Public Water, and is also on the State's Impaired Waters List for the pollutant E-coli. A Total Maximum Daily Load Study has been approved for this creek as a result. Interstate Valley Creek has the single largest watershed within the City of Mendota Heights. Its watershed also includes areas within the cities of Inver Grove Heights, Sunfish Lake, and West St. Paul.



Source: City of Mendota Heights

Ivy Falls Creek

Ivy Falls Creek is an intermittent stream that begins within the Somerset Golf Course and flows northwest, discharging to Pickerel Lake in the City of Lilydale. The gradient of the creek is steep; dropping 180 feet in elevation from Dodd Road to Highway 13, and flows over a 50-foot waterfall before terminating in Pickerel Lake. This steep gradient makes the creek susceptible to erosion.

Source: City of Mendota Heights

Minnesota and Mississippi Rivers

The Minnesota and Mississippi Rivers are Minnesota Public Waters within the City of Mendota Heights, but the shorelines of these rivers are under the jurisdiction of, and managed by, Fort Snelling State Park.

Source: City of Mendota Heights

Wetlands

Wetlands are an important surface water resource and significant asset to the City and its residents. They provide a variety of benefits and functions including filtering stormwater pollutants, providing flood protection and storage, and providing wildlife habitat and recreational enjoyment. The City contains many wetland areas that vary in quality. Most are impacted by stormwater runoff, with some receiving direct input from storm pipes. Wetland areas are protected under the Minnesota Wetland Conservation Act (WCA) and Minnesota Rule 8420. The City Council is also the Local Government Unit for Mendota Heights, and is responsible for administrating the Wetland Conservation Act (WCA) within the City. In accordance with State Rules and the Minnesota WCA, the City has adopted and maintained a Wetlands Systems Ordinance under City Code Title 12-2-1 and provides for Wetland Protection under City Code Title 14-1-9, all of which help ensure the preservation and enhancement of the functions and values of its wetlands.

It is anticipated that the Wetland Management Plan, through wetland inventorying, will provide a planning tool for the City to use for future projects that may affect wetlands. The inventory of wetlands will allow the City to identify restoration areas within public lands, enhance wetland value for wildlife, provide and enhance recreational values of wetlands, designate wetland restoration or enhancement opportunities, protect wetlands and adjacent resources that provide valuable ecological support, and provide stormwater protection.

The City is also an active participant in the Wetland Health Evaluation Program (WHEP), which engages citizens in evaluating and monitoring the health of wetland areas throughout the City.

The City's ***Wetland Map - Figure 7-2*** is included herein and also included as part of the City's 2018 Surface Water Management Plan (SWMP). More detailed information on the City's wetlands can be found in the 2018 SWMP, included as **Appendix - C**

Floodplain

Although the City of Mendota Heights is located in close proximity to the Mississippi River and the Minnesota River, floodplain does not exist within developed areas of the City. As the Floodplain map portrays, there is floodplain on both sides of the Mississippi River and Minnesota River, within the cities of St. Paul, Lilydale, Mendota, and Eagan. This floodplain makes up the majority of the northwest boundary of the City.

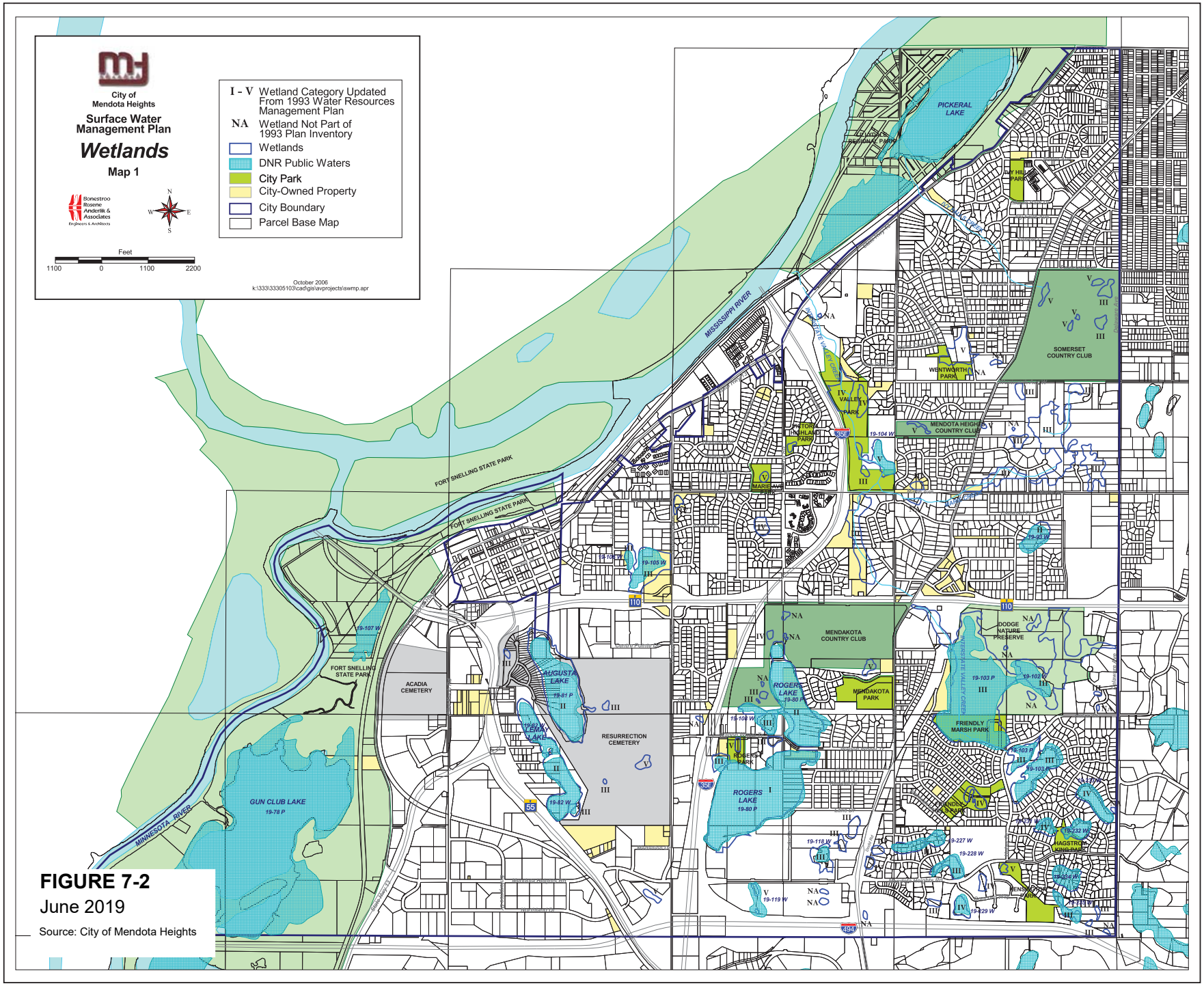


FIGURE 7-2

June 2019

Source: City of Mendota Heights

Watersheds

Mendota Heights is part of two watersheds: The Lower Mississippi and Lower Minnesota River watersheds, which are illustrated on the ***Hydrography Map – Figure 7-3***.

The Lower Mississippi River Watershed Management Organization (LMRWMO) encompasses 50 square miles in Dakota and Ramsey Counties. Other surrounding communities include: Inver Grove Heights, Lilydale, St. Paul, South St. Paul, Sunfish Lake, and West St. Paul. The LMRWMO was established by a Joint Powers Agreement in 1985. The watershed contains well-drained soils with many small depressions and steep slopes. Issues of concern include water quality, erosion control, wildlife habitat and water recreation.

The Lower Minnesota River Watershed District (LMRWD) is located in the southwest part of the Twin Cities metropolitan area along the Minnesota River. The district boundaries encompass an area of 64 square miles of Carver, Hennepin, Dakota, Scott, and Ramsey counties, which includes the Minnesota River Valley from Fort Snelling, at the confluence of the Minnesota and Mississippi rivers, upstream to Carver, Minnesota. The width of the district includes the bluffs on both sides of the Minnesota River within this reach of the river. The City of Mendota Heights entered into an agreement with the Lower Minnesota River Watershed District in 2005. Issues of concern include dredging, spoil site acquisition, and bank erosion control.

City of Mendota Heights

Hydrography Map

0 3,000 6,000 Feet

- Watershed Boundary
- Open Water
- Wetland
- 100-Year Floodplain
- 500-Year Floodplain
- City Boundary

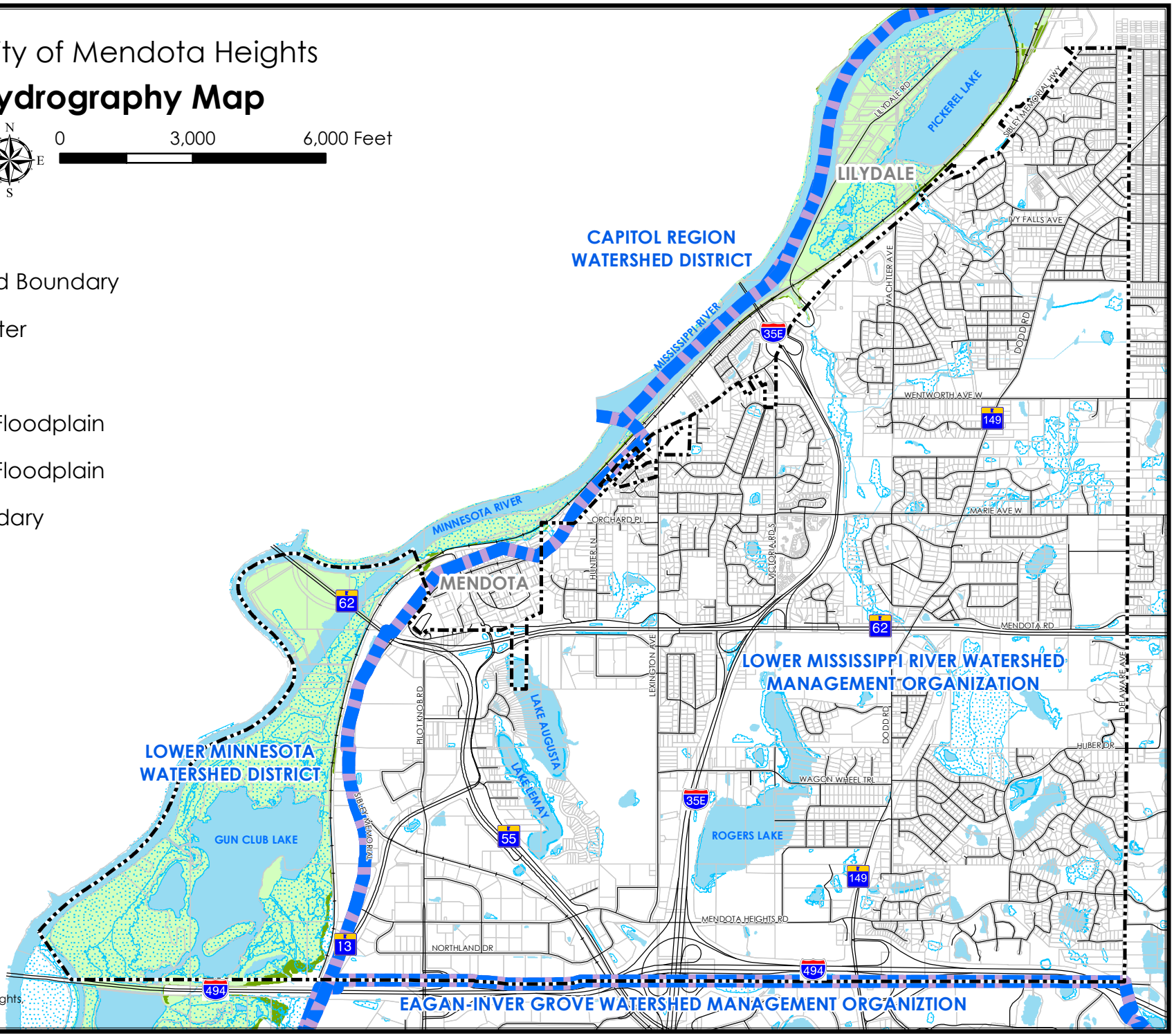


FIGURE 7-3

June 2019

Source: FEMA, City of Mendota Heights, Dakota County, 2018

Significant Vegetation

The City of Mendota Heights contains a wide variety of forested areas including a large amount of floodplain forest along the Mississippi and Minnesota Rivers. There is a large area of altered, non-native deciduous forest on the east side of Gun Club Lake. The ***Significant Vegetation Map – FIGURE 7-4*** illustrates the location of wooded and forested areas throughout the City.

A Minnesota Land Cover Classification System (MLCCS) search was performed for the areas below the bluffs. The bluffs themselves are upland areas. The MLCCS Summary Table below (City of Mendota Heights 2018 SWMP, Section 2.6) provides a list of the land cover types below the bluffs and the area of each type that falls within the Mendota Heights City limits. Of special note is the presence of a calcareous seepage fen prairie. The Lower Minnesota River Watershed District considers calcareous fens to be high priority areas for wetland preservation and restoration.

MLCCS Summary of Areas Below the Bluffs for Mendota Heights

Land Cover Description	Total Area (acres)
Oak (forest or woodland) with 11-25% impervious cover	1.9
51% to 75% impervious cover with deciduous trees	18.0
Pavement with 91-100% impervious cover	2.5
Short grasses with sparse tree cover on upland soils	10.2
Short grasses on upland soils	5.5
Oak forest	3.9
Floodplain forest	209.8
Lowland hardwood forest	6.1
Aspen forest - temporarily flooded	1.5
Mixed hardwood swamp - seasonally flooded	7.2
Altered/non-native deciduous woodland	2.8
Altered/non-native dominated temporarily flooded shrubland	0.8
Willow swamp	3.3
Medium-tall grass altered/non-native dominated grassland	12.8
Temporarily flooded altered/non-native dominated grassland	2.0
Calcareous seepage fen prairie subtype	37.0
Mixed emergent marsh - seasonally flooded	62.5
Mixed emergent marsh	106.4
Mixed emergent marsh - intermittently exposed	57.2
Mixed emergent marsh - permanently flooded	22.1
Grassland with sparse deciduous trees - altered/non-native dominated vegetation	3.4
River mud flats	3.6
Slow moving linear open water habitat	139.3
Limnetic open water	145.1
Palustrine open water	41.6

City of Mendota Heights

Significant Vegetation Map

N W E S

0 3,000 6,000 Feet

- Altered/Non-Native Deciduous Forest
- Altered/Non-Native Deciduous Woodland
- Altered/Non-Native Mixed Woodland
- Aspen Forest
- Floodplain Forest
- Lowland Hardwood Forest
- Maple-Basswood Forest
- Oak Forest
- White Pine-Hardwood Forest
- Mesic Prairie
- Open Water
- Wetland
- City Boundary

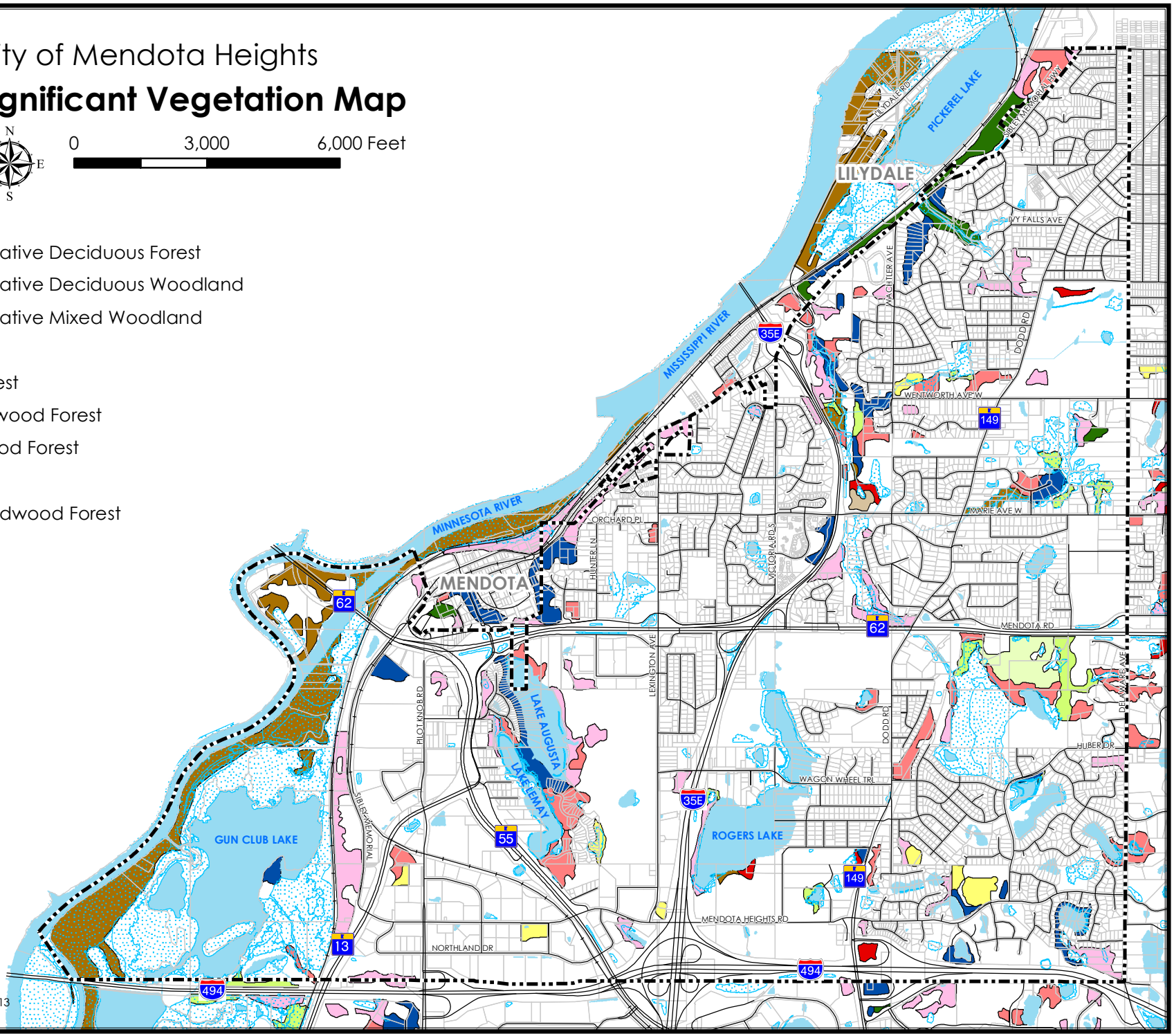


FIGURE 7-4

June 2019

Source: Dakota County MLCCS, 2013

A variety of vegetation also surrounds Lake Augusta and Lemay Lake, including the following: altered/non-native deciduous forest, altered/non-native deciduous woodland, oak forest, native dominated disturbed upland shrubland, and aspen forest.

The east side of 35E within the City of Mendota Heights, just before entering Lilydale, contains a variety of vegetation, from altered/non-native deciduous forest, altered/non-native deciduous woodland, altered/non-native mixed woodland, oak forest, floodplain forest, and lowland hardwood forest. There are also pockets of a variety of forests and woodlands between 35E and the boundary with West St. Paul and Sunfish Lake, especially surrounding the water features.

Site Classifications and Natural Resources Issues

Natural areas abound in Mendota Heights on public as well as on private lands. The City manages natural resources at both the site level and by broad, City-wide natural resource issues, through City policies and ordinances, collaboration with other agencies and citizen groups, and the use of adopted plans and guidance documents.

Parks and Trails

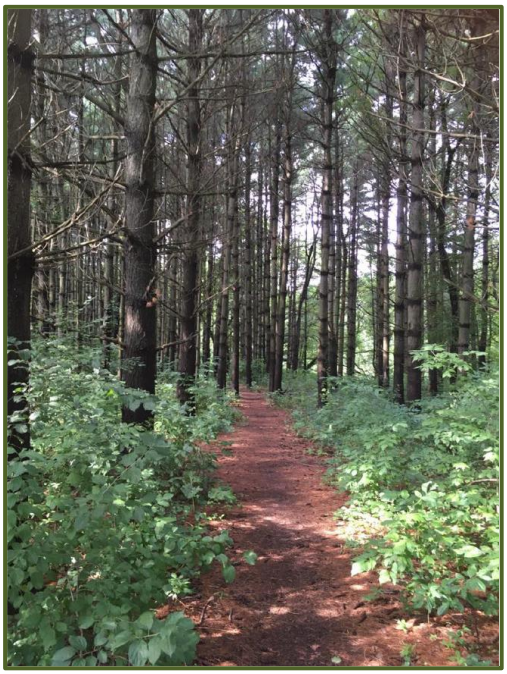
Some of Mendota Heights' Parks have areas of woodland or naturalized landscapes. Park natural areas with high ecological quality should be prioritized and actively managed.

Open Spaces

There are many other City-owned natural areas that are not part of Mendota Heights' Park System. Many of these contain wetlands or steep slopes. Some have high quality oak woodlands. Open spaces provide habitat, natural resource connections, stormwater management, and visual interest. Some open space sites have moderate to high ecological quality and should be inventoried and identified on an ecological overlay as part of the City GIS mapping and asset inventory. Active management is needed to sustain these high quality resources.

City-wide Natural Resources Issues and Natural Resources

Trees and Urban Forest



Mendota Heights' urban forest includes boulevard trees, park trees, woodlands, and trees on private property. The City's forestry program includes: trimming and removal of trees on City property, tree planting on City property, diseased tree inspection and management when feasible, and education and outreach.

In 2017, Emerald Ash Borer was documented for the first time in Mendota Heights. The City began ash tree removals on City property in December 2017, and will continue management into the future. The City anticipates it will lose most of its ash trees to this invasive insect.

Given the proximity of Mendota Heights to the Mississippi and Minnesota Rivers and accompanying tree-lined bluffs, the City has an opportunity and responsibility to protect and enhance native species of trees in the City. The management, removal, and replacement of invasive trees and shrubs with native species helps sustain the City's natural resources, the river bluffs, critical areas, ecological communities, as well as quality of life for the community.

Urban Wildlife

Large areas of contiguous habitat are needed for healthy, diverse wildlife. The City's approach to wildlife management is on providing habitat for wildlife. While the City does not manage for particular species, it does strive to manage for and increase native plant diversity to provide higher quality habitat for native pollinators. The City became a Pollinator Friendly City in 2016 (*see Resolution 2016-01, adopted January 5, 2016 and Pollinator Friendly Native Plantings List – **APPENDIX C***). In accordance with that policy, and best practices for protecting and increasing native pollinators, the City will continue its efforts to protect native pollinators as well as other beneficial insects.

Urban wildlife can sometimes become a nuisance by damaging gardens, congregating in yards, or creating public safety issues. The City has a deer

management program in Valley Park which monitors deer population and uses annual bow-hunt removals. The City does not have removal programs for geese, turkey, beaver or other wildlife.

Meadows and Prairies

Source: City of Mendota Heights

Historically, Mendota Heights had several areas of native grassland prairie. Much of that has been lost to development, although there may be some small fragmented areas that remain within the City as illustrated on the ***Significant Vegetation Map – FIGURE 7-4.***

Prairies and meadows are beneficial to native pollinators and other wildlife such as non-migratory and migratory birds, as well as for stormwater infiltration, filtration, and interception. Reestablishing native meadows and prairies throughout the City will help create contiguous pollinator corridors, provide sustainable management practices, and cost savings measures.

Private Property

Private, residential, commercial, industrial, and other land uses are an integral part of the City's overall ecosystem and play an important role in the health of birds, pollinators, wildlife, water quality, and more. The City will engage in outreach activities, various collaborative opportunities for home and business owners (e.g., curb-cut raingardens with road reconstruction projects), and educational forums, in order to enhance knowledge, encourage environmentally sustainable behaviors, build community, and enhance the overall health of the City's ecosystem.

Invasive Vegetation

Invasive vegetation is vegetation that is non-native (or alien) to the ecosystem under consideration; and whose presence or introduction causes, or is likely to cause, economic or environmental harm or harm to human health. Controlling invasive vegetation before it becomes widespread is more effective and less costly than managing it after widespread establishment. The City is committed to control or eradicate invasive species on the State Noxious Weed list.

Surface Water Quality

The City has a diverse collection of surface water resources within its boundaries including lakes, streams, rivers, and wetlands. Protecting these resources requires ensuring that the storm water that enters these surface waters does not degrade, or further degrade, the health of the City's surface water resources and the aesthetic, ecological, and recreational benefit they provide. The City utilizes a variety of strategies to monitor and protect its surface water resources including:

- Collaboration with other government agencies, community groups, and citizens to help monitor and protect these resources.
- The City uses its current Surface Water Management Plan (SWMP) as a guide to conserve, protect, and manage the City's surface water resources.
- The City of Mendota Heights holds a required National Pollution Detection and Elimination System (NPDES Phase II) Municipal Separate Storm Sewer System (MS4) permit (see the SWMP, within the Appendix) with the Minnesota Pollution Control Agency, that includes an evaluation of the City's stormwater system, and a Surface Water Pollution Prevention Plan (SWPPP), that identifies Best Management Practices, goals, and actions for implementation.
- The City works in conjunction with Watershed Districts, Watershed Management Organizations, and other government agencies to establish strategies for addressing its impaired waters. Surface waters are designated as impaired if they do not meet State standards for their designated use due to a specific pollutant or stressor. Impaired Waters within Mendota Heights include the Minnesota River, Interstate Valley Creek, and Lake Augusta.
- The City also has adopted water resources management ordinances and policies that include Title 14, Chapter 1 of City Code: *Stormwater Management, Illicit Discharge, Soil Erosion, and Sedimentation*, which establishes standards and specifications for conservation practices and planning activities to protect and enhance water quality.

Issues and Opportunities

The City of Mendota Heights finds it critical to prioritize projects to protect and manage the most important sites to make the best use of funding and staff time. The science of managing natural systems continues to evolve. The City will continue to cultivate strong partnerships with other agencies, non-profits, and citizen groups to seek expertise in the management of its natural resources. Additionally, the City will strive to educate residents on environmental issues and foster stewardship and volunteerism.

Grants for enhancing natural areas that are available through State, County, and other agencies should be vetted on an ongoing basis by City staff. The City should inventory and track natural resource assets such as open space sites, public trees, and permanent stormwater Best Management Practices (BMPs). This will provide an opportunity to better manage these resources. The City should also manage all of its surface water resources using scientifically based, common sense approaches that meet or exceed regional, state, and federal regulatory requirements.

8

Resilience

Resilience can be defined as the ability to recover from difficulties – the ability to return to a sense of normalcy. Preventing disasters is the first priority but responding effectively to disasters is also essential to be resilient.

Between 2012 and 2018 alone, Mendota Heights faced three serious emergencies, two of which were weather-related, the other infrastructure related. To be resilient Mendota Heights needs to anticipate disasters and be ready to respond to catastrophic events. In the wake of climate change, our community's resiliency will likely be challenged, since extreme weather is likely to continue with increased frequency. This chapter outlines reactive strategies for handling emergency services in the event of disaster as well as proactive strategies for mitigating the effects of climate change.

The world's climate is changing, and the growing frequency and large-scale impact of severe weather events demonstrates the importance of building a foundation of resilient systems to meet ordinary and extraordinary circumstances.

Resilience is not a required element for the 2040 comprehensive plans in the region, but Mendota Heights is committed to investing in resilience. Supporting resilience strategies will protect local and regional vitality for future generations by preserving our capacity to maintain and support our region's well-being and productivity. Considerations of vulnerabilities in resilience strategies, and response to those vulnerabilities, will strengthen community preparedness and response to climate impacts.

The Resilience update for Mendota Heights primarily focuses on goals and policies related to:

1) **Hazard mitigation and emergency response;**
2) **Climate action;**
3) **Resilient energy; and**
4) **Resilient food systems.**

Additional chapters within the Mendota Heights 2040 plan also contribute to building resilience in Mendota Heights, which include Land Use; Natural Resources; Parks and Trails; Transportation; and Economic Development.

Hazard Mitigation & Emergency Response

Dakota County Hazard Mitigation Plan

In 2016, Dakota County developed an All-Hazard Mitigation Plan. This plan incorporated numerous cities and townships in Dakota County and was developed to identify and prepare for a variety of hazards such as flooding or tornadoes before they occur. The purpose of the plan is to reduce the loss of lives and property damage in the event of a hazard occurring in the area. The All-Hazard Mitigation Plan includes a list of goals, objectives and strategies for the county to better prepare and coordinate efforts for disasters. The goals of the plan include:

1) Reduce Hazard Risks and Impacts;
2) Build on Existing Efforts; and
3) Share Information and Raise Awareness.

This plan serves as a framework for managing public and private investment in the face of a changing climate and more severe storm events.

Mendota Heights Emergency Operation Plan

The Emergency Operations Plan (EOP) was written to ensure a coordinated, effective response by elected officials and city staff to disasters that create significant disruption and stress to community resources. The plan was written per state and federal law to describe proper management of a given emergency or disaster. The purpose of the plan is to:

1) Maximize the protection of life and property;
2) Stabilize incidents;
3) Effectively respond to an emergency or disaster;
4) Ensure the continuity of government and continuity of services; and
5) Provide recovery and restoration of services

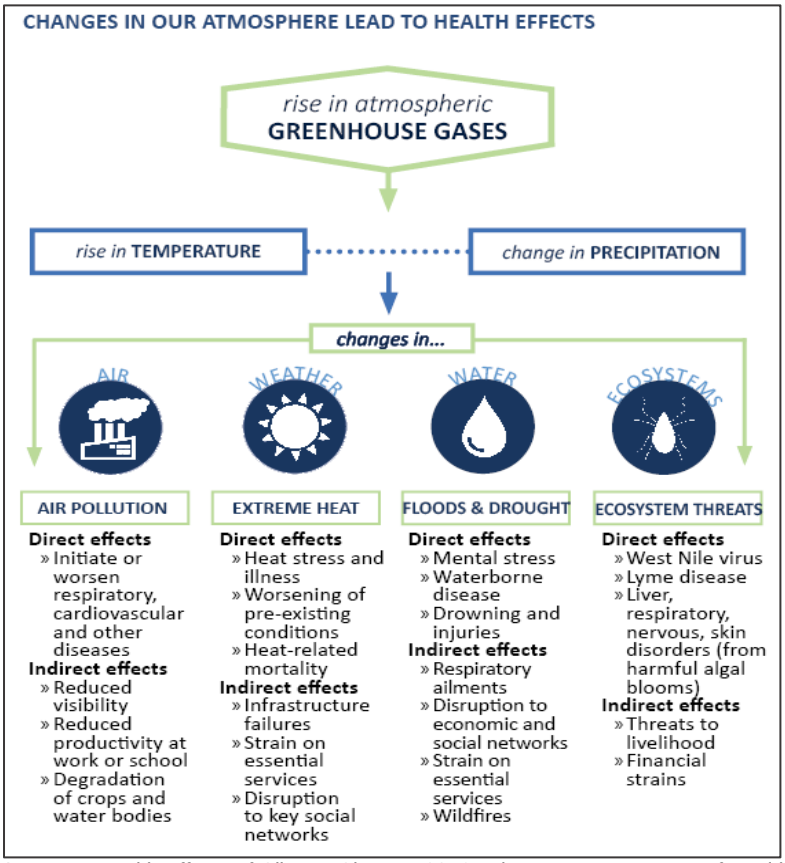
This framework is intended to account for resources and procedures that will allow for the effective response to an emergency or disaster.

Climate Action

Minnesota, Dakota County, and the City of Mendota Heights are already experiencing the impacts of a changing climate. Climate trends suggest that in the next 50 years we will experience increased precipitation, hotter summers, warmer and wetter winters, and more severe weather events. These changes can damage infrastructure, disrupt essential services, drain resources and impact a City's capacity to respond to citizen's needs.

These climate changes are also expected to have substantial impacts on public health and emergency responders as a result. Direct impacts include increases in injuries and deaths attributed to extreme heat events, extreme weather events (e.g., floods), air pollution, and vector-borne and other infectious diseases (see ***Figure 8-1*** below). Climate resilient communities can prevent the worst public health and economic impacts of climate change by effectively adapting the built environment to climate change and reducing greenhouse gas emissions to mitigate the impacts of climate change.

Figure 8-1



Source: Health Effects of Climate Change, 2016. Minnesota Department of Health. www.health.state.mn.us/divs/climatechange/climate101.html

Many of the solutions to reducing impacts are already a part of our municipal government expertise. In many instances, responding to climate change does not require large scale changes to municipal operations, but simply requires adapting existing plans and polices to incorporate knowledge about changing levels of risk across key areas such as public health, infrastructure planning and emergency management. Strategies which strengthen resilience in time of emergency also help communities thrive even more during good times.

➢ Population Vulnerability Assessment & Climate Adaptation Framework

A Population Vulnerability Assessment and Climate Adaptation Framework may seek to:

- *Increase awareness of potential climate impacts and population vulnerabilities;*
- *Increase inclusion of climate adaptation dialogue within City planning and decision making processes;*
- *Strengthen adaptive capacity based on the best available information on regional climate change projections and impacts;*
- *Outline priority risks, vulnerabilities, and possible near-term actions;*
- *Lay the foundation for the development of implementation plans that consider available resources and prioritize the most effective actions from a cost and benefit perspective; and*
- *Prevent or reduce the risks to populations most vulnerable to the impacts of climate change.*

A Population Vulnerability Assessment describes how climate affects the community and region of today, and the changes and impacts expected over the coming decades, and includes identifiers of population vulnerabilities.

A Climate Adaptation Framework provides recommended Adaptation Goals as well as a menu of Adaptation Strategies. The City can enact these climate resilience goals and strategies to reduce the impact of climate change, improve public health, and expand the local economy. Across all of these goals, there are four priority areas of action.

1) *Assess vulnerabilities - especially among populations most vulnerable to climate change impacts.*
2) *Train and educate local officials, planners, and community organizations*
3) *Incorporate climate vulnerabilities into existing planning documents.*
4) *Develop partnerships to fund on-going research and implementation*

GOALS and POLICIES – Hazard Mitigation & Climate Action

GOAL 8.1: Protect and maintain infrastructure and constructed systems that provide critical services.

Policies:

8.1.1 Assess public buildings and sites for vulnerabilities to extreme weather and make improvements to reduce or prevent damage and sustain function. Increase the resilience of natural and built environment to more intense rain events and associated flooding.

8.1.2 Improve the reliability of back-up energy for critical infrastructure. Support well-planned improvements to the private utility and communications networks that provide efficiency, security and needed redundancy.

8.1.3 Continue to explore and incorporate new and emerging technologies to construct, rehabilitate, maintain and manage public assets and infrastructure in an efficient, cost effective manner.

8.1.4 Support the efforts of residents and businesses to plant and install new trees-in areas with low coverage, areas with high heat vulnerability, or areas exposed to more vehicle exhaust.

GOAL 8.2: Proactively maintain public health and safety during extreme weather and climate-related and other unforeseen events.

Policies:

8.2.1 Continue to work with Dakota County in updating the All-Hazard Mitigation Plan and partner to ensure essential needs of all residents are met during an emergency.

8.2.2 Investigate funding opportunities to support the City's resilience efforts.

8.2.3 Consider conducting a Population Vulnerability Assessment and Climate Adaptation Framework plan to outline priority vulnerabilities and identify available resources to strengthen community capacity to respond.

8.2.4 Designate appropriate facilities that will be made available to the public as community safe shelters and arrange for adequate provisions and backup power.

8.2.5 Coordinate with emergency dispatch and first responders to address the specific concerns of residents who may be more vulnerable in each type of event.

GOAL 8.3: Promote social connectedness and build an engaged community of resilience.

Policies:

8.3.1 Strengthen working relationships with community organizations to support the most at-risk residents.

8.3.2 Promote education and outreach with the community on the health impacts and risk mitigation of air pollution, longer allergy seasons, extreme heat, water quality changes, and vector-borne disease.

8.3.3 Promote and report on the City's sustainability and resilience projects and initiatives.

8.3.4 Review ordinances with respect to recreational fires and particulate emissions and update as needed to protect and maintain healthy air quality.

8.3.5 Review emergency communications procedures to ensure the public is adequately informed in the event of an emergency. Develop a communications plan for the residents to inform them in the event of an emergency.

Resilient Energy

Local renewable energy resources are abundant and readily available for economic capture. Renewable energy resources currently available in Mendota Heights include solar, with the potential to incorporate wind, biomass, geothermal, and efficiency resources (e.g. building improvements for energy efficiency). All of these resources should be evaluated for use at residential, private and community scale. Mendota Heights desires to set goals and policies that treat sustainable local energy resources as an economically valuable local resource. Strategies to reduce energy consumption including alternative modes of transportation must be initiated.

➢ Renewable Energy Efforts in Mendota Heights

The City of Mendota Heights is committed to a resilient future, including promoting renewable energy where feasible. The City has existing code language supporting residential rooftop and ground-mounted solar development throughout the community. Although solar energy systems are allowed in all zoning districts, systems must be accessory to the primary land use. Large-scale commercial solar farms or gardens are not currently allowed in Mendota Heights. The ordinance also addresses building-integrated solar systems and passive solar energy systems. As stated in the goals for this chapter and emphasized in the code of ordinances, Mendota Heights supports the development of solar energy systems that result in a net gain in energy and do not have negative impacts on surrounding uses and surrounding solar access. This Plan also includes information on gross solar resources to provide data context to these recommendations.

➢ Gross and Rooftop Solar Resources

The Metropolitan Council has calculated the gross and rooftop solar potential for the City of Mendota Heights to identify how much electricity could be generated using existing technology. The gross solar potential and gross solar rooftop potential are expressed in megawatt hours per year (Mwh/yr), and these estimates are based on the table in ***FIGURE 8-2*** (below):

Figure 8-2

Community[1]	Gross Potential (Mwh/yr	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr)[2]	Rooftop Generation Potential (Mwh/yr)[2]
Mendota Heights	12,356,007	945,566	1,235,600	94,556

[1] There are a few communities where generation potential calculations could not be produced. There are areas within some maps where data was unusable. These areas were masked and excluded from gross rooftop potential and generating potential calculations.

[2] In general, a conservative assumption for panel generation is to use 10% efficiency for conversion of total insolation into electric generation. These solar resource calculations provide an approximation of each community's solar resource. This baseline information can provide the opportunity for a more extensive, community-specific analysis of solar development potential for both solar gardens and rooftop or accessory use installations. For most communities, the rooftop generation potential is equivalent to between 30% and 60% of the community's total electric energy consumption. The rooftop generation potential does not consider ownership, financial barriers, or building-specific structural limitations.

Source: Metropolitan Council

Developed areas with low building heights and open space areas have the highest potential for solar development in the City. Many of the developed neighborhoods and some natural areas in Mendota Heights do not have high gross solar potential due to existing tree cover. This gross development potential is illustrated on the ***Gross Solar Potential Map – Figure 8-3***

City of Mendota Heights
Gross Solar Potential Map

N
W E
S

0 3,000 6,000 Feet

City Boundary

Gross Solar Potential
(Watt-hours per Year)

High : 1276135

Low : 900001

Solar Potential under 900,000 watt-hours per year

County Boundaries

City and Township Boundaries

Wetlands and Open Water Features

University of Minnesota U-Spatial Statewide Solar Raster.

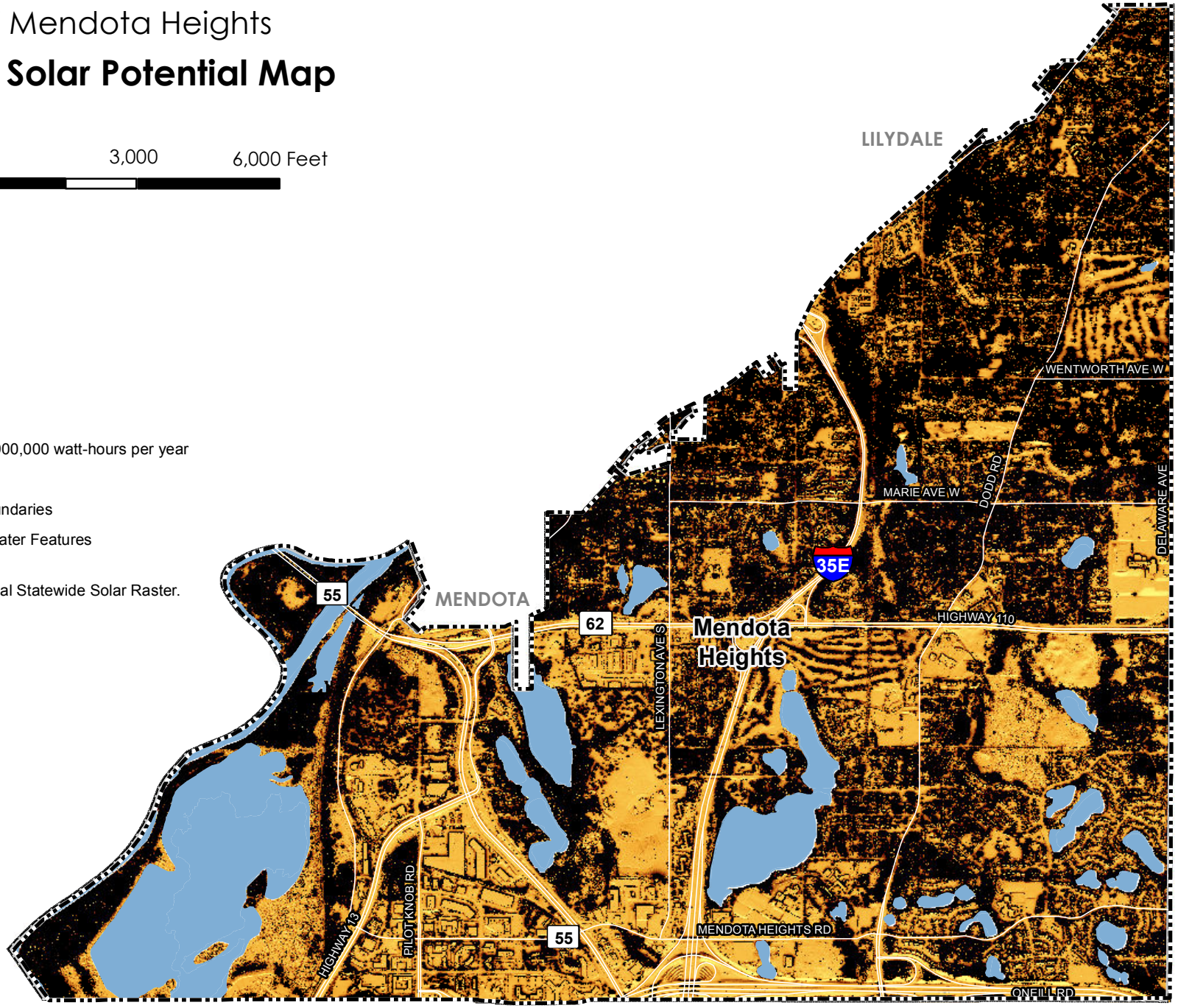


FIGURE 8-3

June 2019

Source: Metropolitan Council

The City is committed to demonstrating and providing solar development within the community and on city-owned properties. In 2017 through 2018, the city worked with a solar energy consultant group to provide up to 140-KW of solar energy production at various city-owned sited, including a 40-KW solar field at City Hall, a 60-KW rooftop system at the Public Works facility, and two smaller 20-KW rooftop systems at the Par 3 Gold Course and Fire Station facility, respectively. Images of the City Hall field and rooftop system at Public Works are shown below:

City Hall Solar Field

Public Works Facility – Rooftop Solar Panels

➢ Alternative Transportation

In our daily lives, a large portion of the energy we consume is a result of the way we move through our community. The mode of transportation in which we chose impacts the amount of energy we use. By supporting alternative modes of transportation, the City helps to enable its citizens to make choices that reduce energy consumption. The utilization of modes of transportation that require less energy than single-occupancy automotive vehicles reduces dependency on finite resources and reduces emissions of greenhouse gasses. See the Transportation Chapter for specific goals and policies.

GOALS and POLICIES - Resilient Energy

GOAL 8.4: Continue to support, plan for, and encourage the use of solar energy as a renewable energy source.

Policies:

8.4.1 Encourage the development and use of active and/or passive solar energy systems.

8.4.2 Encourage the installation of solar energy system options, for space heating and cooling and hot water heating in residential, commercial and industrial buildings.

8.4.3 Consider a site-specific solar energy capacity study for industrial and/or commercial sites to identify the most beneficial placement for solar Photo-Voltaic (PV) development.

8.4.4 Provide information on grants and incentives for alternative energy.

GOAL 8.5: Adopt climate mitigation and/or energy independence goals to reduce greenhouse gas emissions.

Policies:

8.5.1 Explore and investigate means to track city vehicles and facility emissions to formulate a baseline and establish greenhouse gas reduction goals every 5 to 10 years to assure progress in City emission reductions.

8.5.2 Explore collaborating regionally to reduce greenhouse gas emissions.

8.5.3 Begin the application process to the Minnesota Green Step Cities Program.

8.5.4 Encourage alternative fuel stations, electric vehicle charging stations, and supporting infrastructure at commercial sites, office sites, parking ramps and residential sites.

GOAL 8.6: Support long-range planning efforts to build the community's renewable energy capability and maximize the benefits of renewable energy development.

Policies:

8.6.1 Regularly review renewable energy policies and programs, including the alternative energy systems ordinance (§12-1D-18).

8.6.2 Support mass transit goals as detailed in Transportation Section 3.

8.6.3 Prioritize infrastructure improvements that support walking and biking as an integral part of the transportation system.

Resilient Food System

The well-being of our residents is vital to long-term sustainability and prosperity of our community. Local planning policies can reduce or reinforce structural barriers that prevent our food supply from being as healthy, equitable, affordable, and resilient as we would like it to be. By prioritizing policy initiatives at a local level that support a robust food infrastructure, Mendota Heights can help improve the quality of life for its residents and leave a legacy of health for future generations.

Small Scale Food Production in Mendota Heights

The City of Mendota Heights has an opportunity to build from established food system policy efforts, currently including:

- Keeping Chickens: The City permits residents to keep up to six female chickens for individual egg production (§12- 1D-3). The City's code specifies coop and run requirements as well as guidance on proper care and the permitting process for domestic chickens on residential lots.
- Farming Operations: Existing farms are permitted in the City, with the exception of animal farming (§12-1D-8). Farmers may also sell products produced at an on-site farm stand.
- Beekeeping: The City of Mendota Heights allows for the keeping of honey bees on parcels of 50-acres or more in the R-1 Residential Zone (Sect. 12-1E-3C). The acreage limitation was established to minimize the impact honey bees may have on native bees by outcompeting them for food resources, and transmitting diseases to native bees.

Access to Food Markets

There are no grocery stores or supermarkets within the City of Mendota Heights. Although such markets exist in neighboring municipalities, access to those stores is largely dependent on the automobile. As the population ages, access via automobile may become problematic. An important consideration is the city support of local food markets by residents.

Disposal of Food Waste and Organic Recycling

The City of Mendota Heights participates in Dakota County's curb-side recycling program and residents can opt-in to participating in the County's organics drop off program in West St. Paul. Businesses are also eligible to participate in recycling programs with the County to further reduce waste in the City. As technology advances, the City will study the feasibility of introducing curb-side organic recycling programs as has been done in other municipalities in efforts to reduce waste.

GOALS and POLICIES – Resilient Food System

GOAL 8.7: Explore opportunities to support land use guidance and regulations to support practices that integrate healthy food production in residential settings and support food-related businesses and activities.

Policies:

8.7.1 Support the development of a Mendota Heights Farmers Market as an accessible and reliable source for local, healthy food.

8.7.2 Support innovative local food production solutions such as aquaponics, hydroponics, indoor agriculture, backyard gardening and composting, community gardens, and urban farming, where appropriate.

8.7.3 Encourage edible and pollinator-friendly landscapes on residential properties.

8.7.4 Support innovative practices such as mobile food markets and mobile food pantries/food shelves that can bring food closer to elderly and other under- resourced residents.

GOAL 8.8: Promote responsible waste disposal and study feasibility of improving systems that encourage residents to make responsible decisions.

8.8.1 Promote use of County Organics drop-off station.

8.8.2 Study feasibility of organics pick-up in the years to come as technology advances and is more readily available.

8.8.3 Educate on and support back-yard composting in efforts to reduce waste.

9

Critical Area

Pursuant to the Critical Areas Act of 1973 and Executive Orders in the 1970s, the State of Minnesota established the Minnesota River Corridor Critical Area Plan (MRCCA) to protect and preserve the natural, scenic, recreational, and transportation resources of Mississippi River as it travels through the Twin Cities. The MRCCA covers a 72-mile stretch of the Mississippi River through the Twin Cities Metropolitan Area, comprising 54,000 acres of land in 30 local jurisdictions from Dayton in the north to Hastings in the south.

The purpose of the MRCCA is to:

- Protect and preserve the Mississippi River and adjacent lands that the legislature finds to be unique and valuable state and regional resources for the benefit of the health, safety, and welfare of the citizens of the state, region, and nation;
- Prevent and mitigate irreversible damages to these state, regional, and national resources;
- Preserve and enhance the natural, aesthetic, cultural, and historical values of the Mississippi River and adjacent lands for public use and benefit;
- Protect and preserve the Mississippi River as an essential element in the national, state, and regional transportation, sewer and water, and recreational systems; and
- Protect and preserve the biological and ecological functions of the Mississippi River corridor.

The MRCCA is important because of its many significant natural and cultural resources, including scenic views, water, navigation, geology, soils, vegetation, minerals, fauna, cultural resources, and recreational resources. The MRCCA is home to a full range of residential neighborhoods and parks, as well as river-related commerce, industry, and transportation facilities.

In 2016, the Minnesota Department of Natural Resources (DNR) revised the rules and regulations governing development within the MRCCA which have been incorporated into this plan and will be implemented in the City's zoning ordinance after plan approval.

Local communities within the corridor are required to complete a MRCCA plan as a chapter of their Comprehensive Plan. The rules also require local governments to update their MRCCA plans and MRCCA ordinances for consistency with the rules.

MRCCA in Mendota Heights

The City of Mendota Heights finds that the Mississippi River corridor as it exists within the metropolitan area and the city is a unique and valuable local, state, regional and national resource. The river is an essential element in the local, regional, state and national transportation, sewer and water and recreational system and serves important biological and ecological functions. The prevention and mitigation of irreversible damage to this resource and the preservation and enhancement of its natural, aesthetic, cultural and historic values is in furtherance of the health, safety and general welfare of the city.

Generally, the boundaries of the MRCCA in Mendota Heights are situated along the Mississippi River corridor, starting at Fort Snelling State Park / Interstate 494 to the south and extends northwesterly along this natural corridor and Sibley Memorial Highway (State Highway 13) for approximately 5 miles, and to the northerly boundary line of the city at Annapolis Street. The MRCCA boundary fluctuates in width along this corridor from one-tenth (1/10) to one-third (1/3) of mile in width in areas. A majority of this land is used for single-family residential purposes or public park land. ***FIGURE 9-1*** illustrates the general area of MRCCA boundaries in around St. Paul (including Mendota Heights) and ***FIGURE 9-2*** illustrates the general MRCCA boundaries in and around Mendota Heights.

Mississippi River Corridor Critical Area (MRCCA) District Map - St. Paul
Minnesota Rules, part 6106.0100

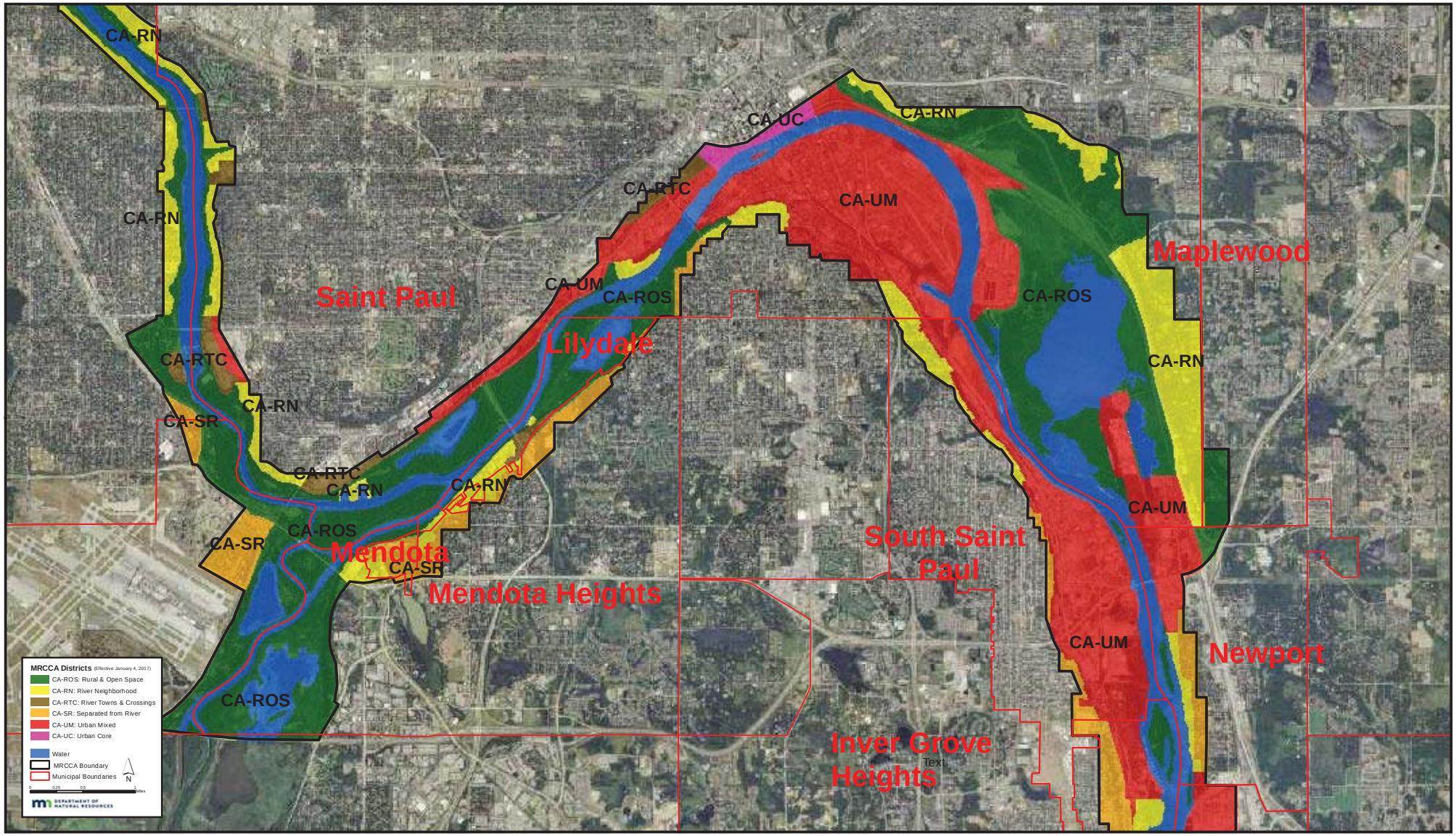


FIGURE 9-1

June 2019

Source: Metropolitan Council

City of Mendota Heights

Mississippi RIver Critical Area District Map

N W E S

0 3,000 6,000 Feet

MRCCA DISTRICTS

- CA-ROS Rural & Open Space
- CA-RN River Neighborhood
- CA-SR Separated from River
- CA-RTC River Towns & Crossing
- City boundary
- Open Water

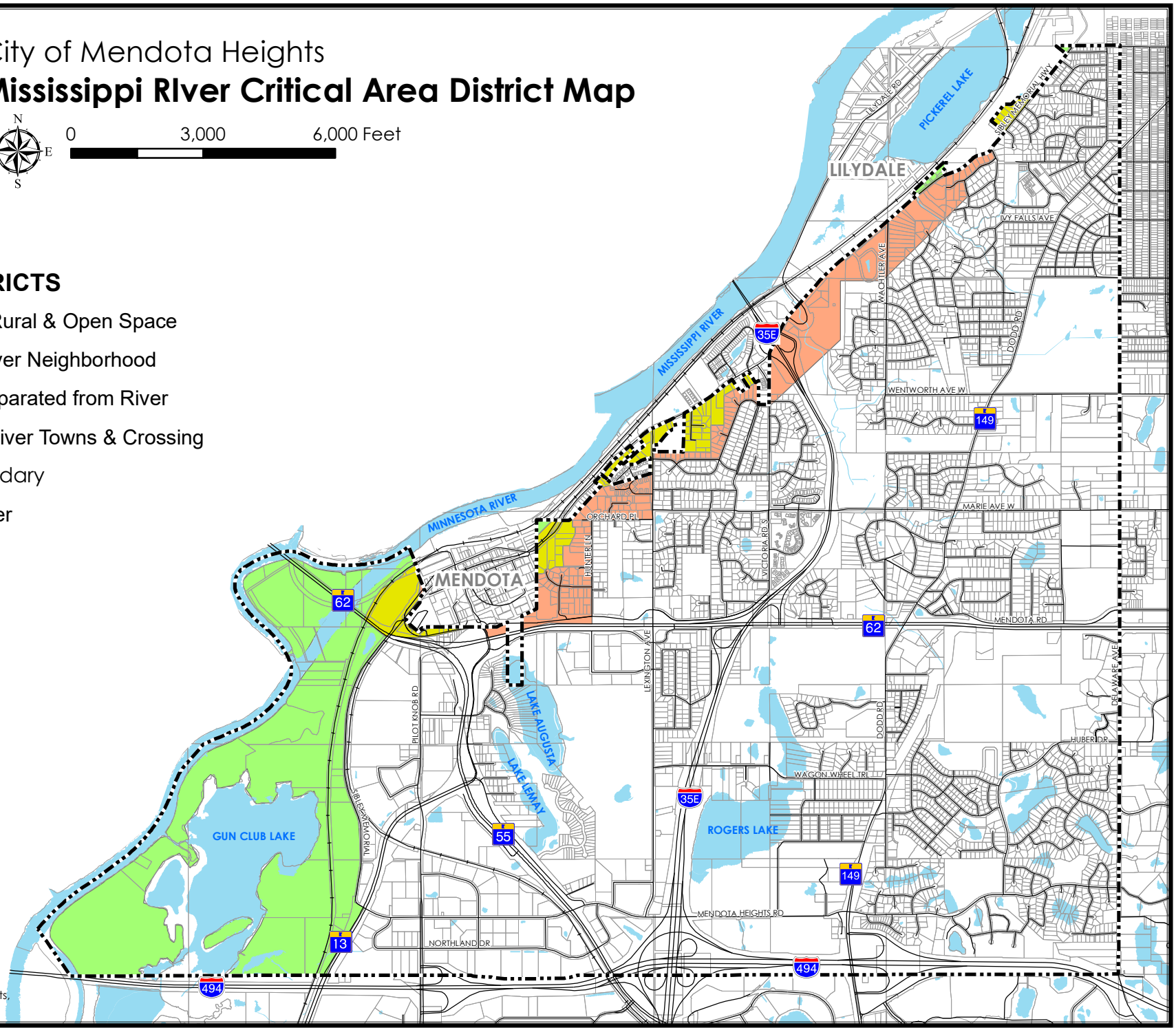


FIGURE 9-2

June 2019

Source: City of Mendota Heights, Dakota County, 2017

MRCCA DISTRICTS

The Minnesota Rules define six districts within the overall MRCCA designation. These districts are characterized by the various natural and built features of the river corridor. Most standards and requirements outlined in the rules apply uniformly throughout the corridor. However, certain requirements such as structure setbacks, bluff standards, building height limits, additional subdivision standards, and the amount of open space required for development vary by district.

There are three (3) MRCCA districts present in Mendota Heights.

1. Rural and Open Space District (CA-ROS):

Rural and Open Space District (CA-ROS): The CA-ROS district is characterized by rural low density development patterns and land uses, and includes land that is riparian or visible from the river, as well as large, undeveloped tracts of high ecological value, floodplain, and undeveloped islands. Many primary conservation areas exist in this district.

The “rural and open space” district has the lowest level of development of all of the proposed districts within the MRCCA. To preserve the rural and open space characteristics of this district and its unique recreational value, a structure height of 35-feet is proposed for this district. This district includes agricultural and rural residential areas, parkland and natural areas adjacent to the river. This height is intended to keep structures at or below the level of the tree line and is consistent with height restrictions in most of the local zoning standards that apply in these areas

The CA-ROS district must be managed to sustain and restore the rural and natural character of the corridor, and to protect and enhance existing habitat, public river corridor views, and scenic, natural and historic areas. In Mendota Heights, the CA-ROS district encompasses primarily the Fort Snelling State Park area (including Gun Club Lake) and a small area of Lilydale/Harriet Island/Cherokee Park property located on the north side of Hwy. 13, between Wachtler Avenue and Sylvandale Road. These districts comprise of 950 acres of vacant, open and natural land areas.

2. River Neighborhood District (CA-RN):

River Neighborhood District (CA-RN): The CA-RN district is characterized by residential neighborhoods that are riparian or readily visible from the river or that abut riparian parkland. Characterized by its physical and visual distance from the Mississippi River. The district includes land separated from the river by distance, topography, development, or a transportation corridor. The land in this district is not readily visible from the Mississippi River.

The DNR Statement of Need and Reasonableness (SONAR) outlines height limits for the CA-RN District, which in this case is a 35-foot height limit for all residential "river neighborhood" districts. The height limit is intended to allow a typical two-story single-family dwelling without breaking the top of the tree line. This height restriction is consistent with existing structure heights in residentially zoned neighborhoods and height restrictions in most of the local zoning standards that apply in these areas. The City of Mendota Heights intends to preserve and maintain a 25-foot height (maximum) standard for all single-family dwellings as currently provided for in the city's Zoning Ordinance, or the adopted height standards for any underlying zoning district inside the CA-RN district.

The CA-RN district must be managed to maintain the character of the river corridor within the context of existing residential development, and to protect and enhance habitat, parks and open space, public river corridor views, and scenic, natural, and historic areas. Minimizing erosion and the flow of untreated stormwater into the river and enhancing shoreline habitat are priorities in this district. In Mendota Heights, the CA-RN district encompasses approximately 220 acres of area (*to be verified in GIS*).

3. Separated from River District (CA-SR)

Separated from River District (CA-SR): This district includes non-riparian land that is separated from the Mississippi River by distance, development, or transportation infrastructure. Because of this separation, underlying zoning standards govern height, with the stipulation that structure height must be compatible with the existing tree line, where present, and surrounding development.

The DNR Statement of Need and Reasonableness (SONAR) further describes height restrictions for the CA-SR District. The "separated from river" district includes non-riparian land that is separated from the Mississippi River by distance, development, or transportation infrastructure. Because of this separation, underlying zoning standards govern height, with the stipulation that structure height must be compatible with the existing tree line, where present, and surrounding development. The City of Mendota Heights intends to preserve and maintain a 25-foot height (maximum) standard for all single-family dwellings as currently provided for in the city's Zoning Ordinance, or the adopted height standards for any underlying zoning district inside the CA-SR district.

The CA-SR district provides flexibility in managing development without negatively affecting the key resources and features of the river corridor. Minimizing negative impacts to primary conservation areas and minimizing erosion and flow of untreated storm water into the Mississippi River are priorities in the district. In Mendota Heights, this district covers the greatest acreages of the two districts and comprises of 325 acres (*to be verified in GIS*).

MRCCA with Future Land Use and Zoning

The planned land uses within the MRCCA districts in Mendota Heights are a mix of existing and planned low-density residential area; small segments of existing and planned medium-density residential areas; a small area of limited business area; and a large public recreation/open space area in and around Fort Snelling Park/Gun Club Lake.

As part of their comprehensive planning process, the City of Mendota Heights has developed a 2040 Planned Future Land Use Map. The map illustrates planned land uses including single and multi-family residential, commercial, public and open space area. Most of the city area inside the MRCCA boundary is predominantly developed with single-family housing, though there are small commercial and mixed-use areas along the Highway 13 (Sibley Memorial Highway) and near the Highway 13/I-35E interchange. Most of the Park and Open Space areas include the Fort Snelling State Park and Lilydale/Harriet Island Regional Park, and other lands along the Mississippi River.

These planned future land uses correspond appropriately to the districts that the Minnesota Department of Natural Resources (DNR) has developed. Future land uses in each of these districts are listed below.

Rural and Open Space District CA-ROS: Future land uses include parks and open spaces.

River Neighborhood District CA-RN: Future land uses include single-family, multi-family, and parks and open spaces.

Separated from River District CA-SR: There are a large number of parcels in the MRCCA district with planned future land uses of single-family and a very limited number of multi-family residential uses.

A map illustrating the 2040 Future Land Uses along with an overlay mapping of all applicable MRCCA districts is illustrated on the ***MRCC Boundary with 2040 Future Land Use Map – Figure 9-3*** (below).

City of Mendota Heights

MRCCA Boundary with 2040 Future Land Use Map

N W E S

0 3,000 6,000 Feet

- Mississippi River Critical Area Layer
- RR - Rural Residential
- LR - Low Density Residential
- MR - Medium Density Residential
- HR - High Density Residential
- LB - Limited Business
- B - Business
- MU - Mixed Use
- I - Industrial
- P/S - Public/Semi-Public
- P - Park & Open Space
- Open Water
- City boundary

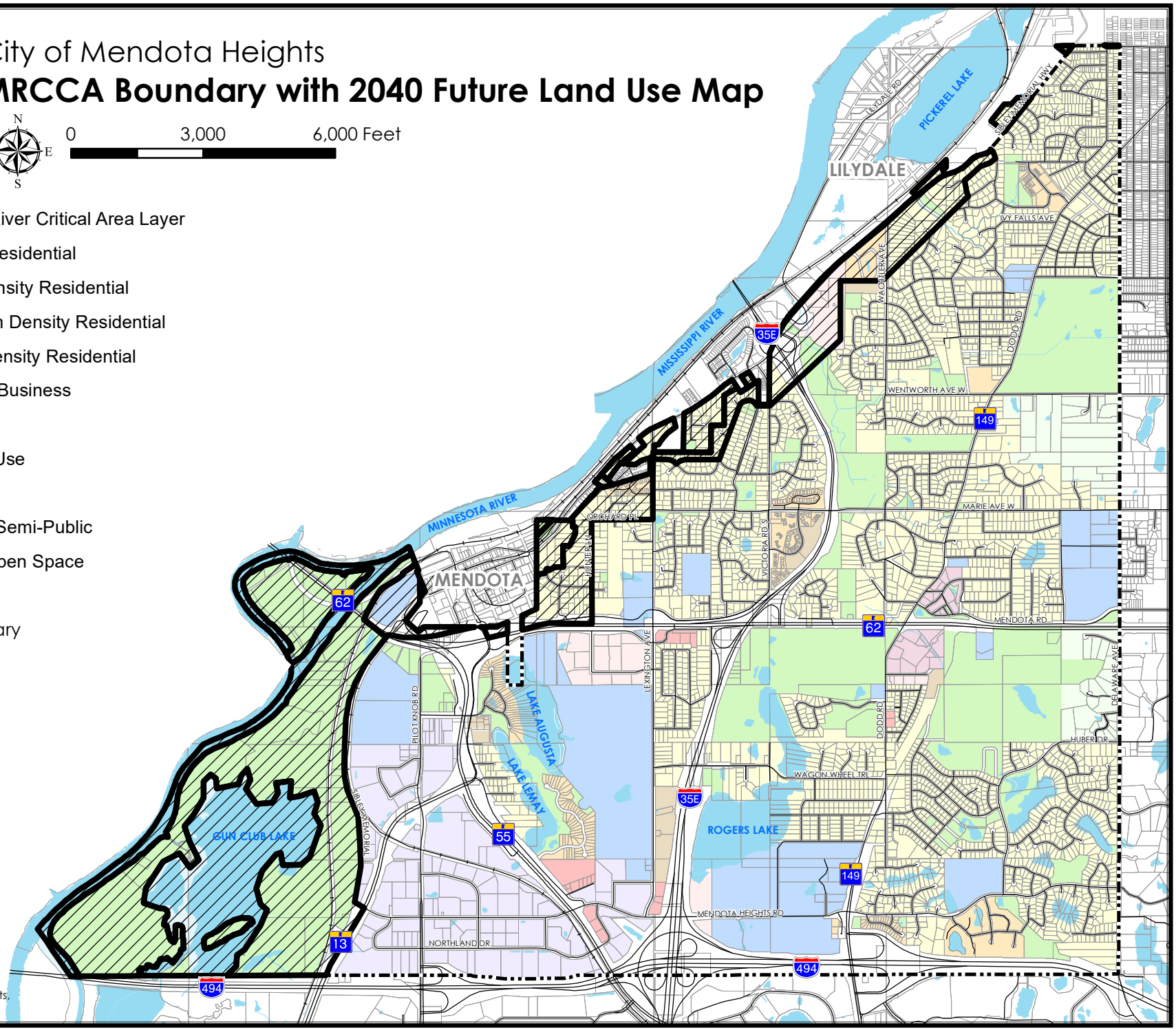


FIGURE 9-3

June 2019

Source: City of Mendota Heights, Dakota County, 2017

As an implementation step of this Plan, the City will fully evaluate its preferred dimensional requirements for the property for any new developments and redevelopment of lands, and will work with the DNR on proper steps to incorporate flexibility within the MRCCA ordinance to address this particular area. Most of the properties located in this MRCCA boundary are planned and guided for low-density residential uses, which are primarily developed with single-family uses. The City will work with property owners through the MRCCA ordinance preparation process to understand existing conditions of the property within the CA-RN and CA-SR districts, and identify any potential conflicts with the existing standards and how to address non-conforming uses within the district.

Table 9-1. Category Comparisons

MRCCA District	Future Land Use Map Categories	Existing Land Uses
CA-RN River Neighborhood District	• Low Density Residential	• Single Family Residential • Park / Open Space
CA-SR Separated from River District	• Low Density Residential • Medium Density Residential • Limited Business (Commercial) • Rights-of-way	• Single Family Residential • Medium Density Residential • Park, Recreational or Preserve • Rights of way

GOALS and POLICIES

GOAL 9.1: Guide land use and development and redevelopment activities consistent with the management purpose of each district.

Policies:

9.1.1 Adopt a new MRCCA ordinance overlay district compliant with the goals and policies of the MRCCA plan, and with Minnesota Rules, part 6106.0070, Subp. 5 - Content of Ordinances; and work with the Minnesota DNR on flexibility with the ordinance as noted in previous sections of this Plan.

9.1.2 Update zoning map to reflect new MRCCA districts.

9.1.3 Ensure that information on the new MRCCA districts and zoning requirements is readily available to property owners to help them understand which ordinance requirements - such as setbacks and height requirements - apply to their property for project planning and permitting.

9.1.4 Work with the DNR on height standards to determine appropriate height restrictions, particularly on redevelopment areas with existing site constraints.

PRIMARY CONSERVATION AREAS (PCA)

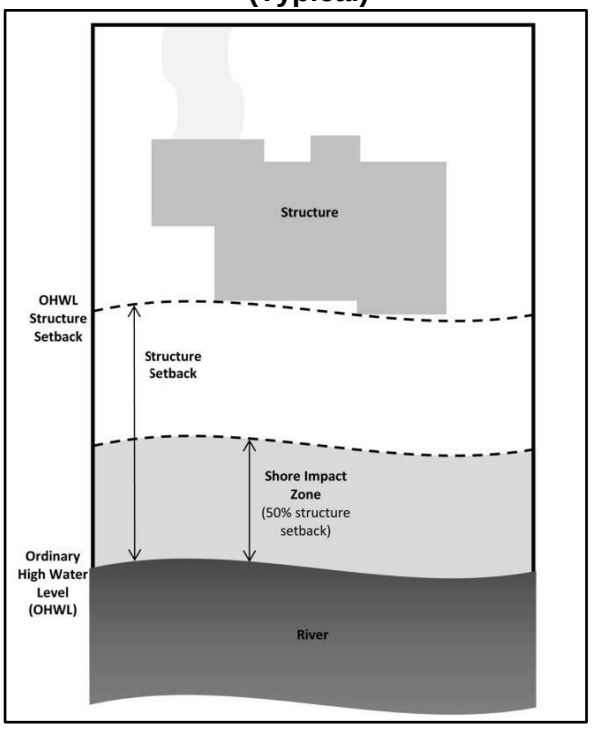
General Overview

As the DNR's Statement of Needs and Reasonableness (SONAR) defines it, the term "primary conservation areas" (PCAs) addresses the key natural and cultural resources and features managed by MRCCA rules. These features are given priority consideration for protection with regard to proposed land development, subdivision, and related activity. PCAs include Shore Impact Zones (SIZ), Bluff Impact Zones (BIZ), floodplains, wetlands, gorges, areas of confluence with tributaries, natural drainage routes, unstable soils and bedrock, native plant communities, cultural and historic properties, significant existing vegetative stands, tree canopies and "other resources" identified in local government MRCCA plans.

Shore Impact Zone

Shore Impact Zones (SIZs) apply to the Mississippi and all of its backwaters, as well as to its four key tributaries, including the Crow, Rum, Minnesota, and Vermillion rivers. They include land along the river's edge deemed to be environmentally sensitive and in need of special protection from development and vegetation removal. A typical shore impact zone (SIZ) is a "buffer" area that is required between the water's edge and the area where development is permitted (see Figure 9-4 right); and is the focus of many of the MRCCA rule standards for land alteration and vegetation management.

Figure 9-4. Shoreland Impact Diagram (Typical)



Mendota Height's zoning map and the related Critical Corridor Area map will provide a detailed delineation of the boundary of the MRCCA, however, there are

no additional shore impact zones or shoreland regulations identified or included in the City's zoning ordinance or this plan. The only area of "shoreland" is along the Fort Snelling State Park/Gun Club Lake region located within the city, of which no development has or will take place.

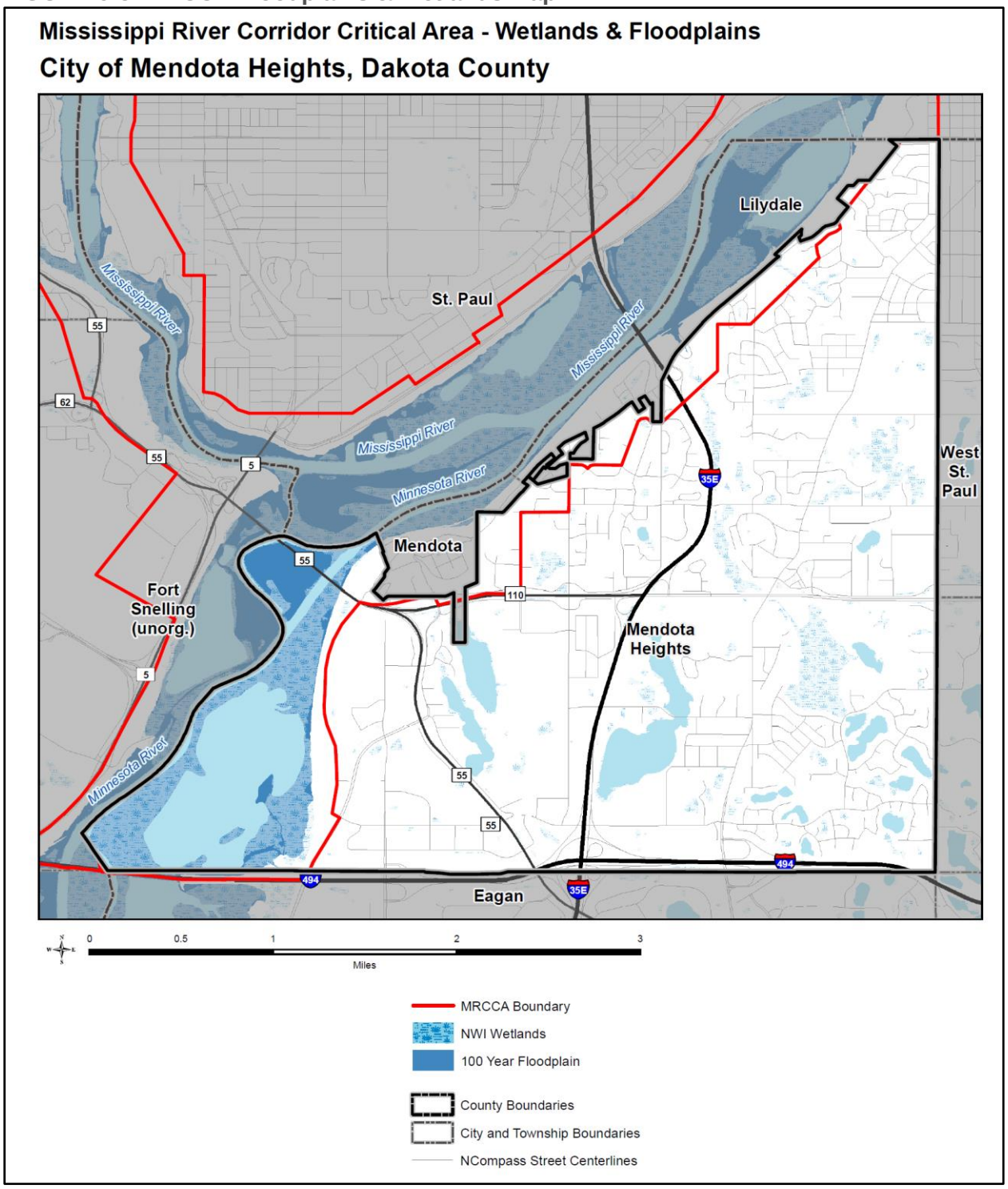
Nevertheless, recognizing a shore impact zone would highlight the importance of protecting the river shore from development and vegetative removal, maintaining a buffer area between the river banks and urban development. Adding ordinance requirements for the shore impact zone should be considered by the City for inclusion in the zoning ordinance update.

Floodplains & Wetlands

Although the City of Mendota Heights is located in such close proximity to the Mississippi River and the Minnesota River, there is no floodway within the City boundaries. As the Floodplain map portrays, there is floodway on both sides of the Mississippi River and Minnesota River, but within the cities of St. Paul, Lilydale, Mendota, and Eagan. The floodway basically follows the northwest boundary of the City. Refer to the MRCCA ***Wetlands & Floodplains Map – FIGURE 9-5 and FEMA Floodplain Map – FIGURE 9-6.***

There are a number of known wetlands identified within the MRCCA boundary in Mendota Heights. These wetlands and water features have been identified and mapped, and are made part of the city's Surface Water Management Plan, which is made part of Chapter 7 – Natural Resources – FIGURE 7-2.

FIGURE 9-5. MRCCA Floodplains & Wetlands Map



City of Mendota Heights

FEMA Floodplains Map

N W E S

0 3,000 6,000 Feet

100-Year Floodplain

500-Year Floodplain

Open Water

City Boundary

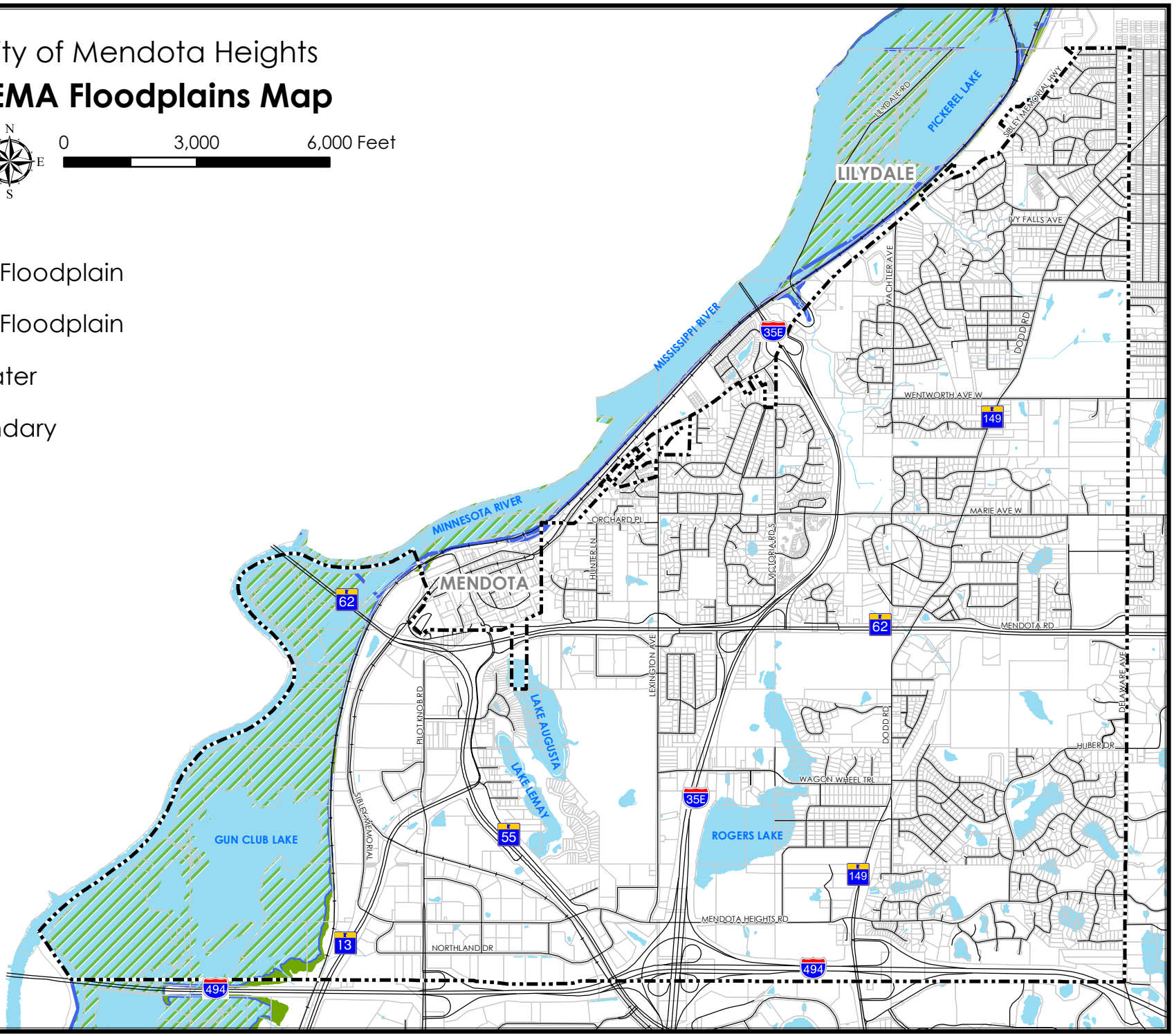


FIGURE 9-6

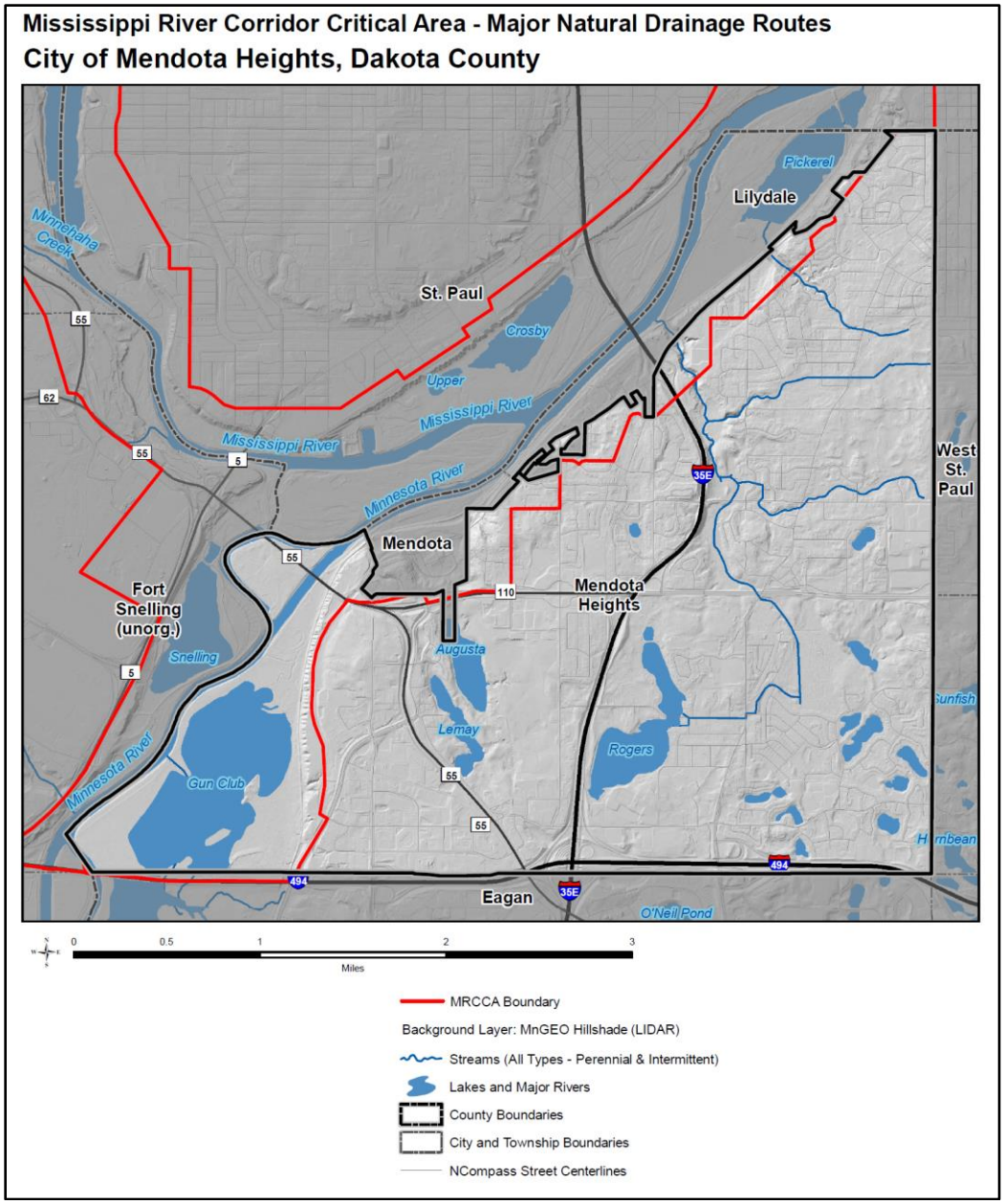
June 2019

Source: City of Mendota Heights, Dakota County, 2018

Natural Drainage Ways

Natural drainage ways are linear depressions that collect and drain surface water. They may be permanently or temporarily inundated. There are a few identified natural drainage routes that flow from some of the city's own water features and eventually towards the Mississippi River. The city's existing topography acts provides a natural northward flow pattern for most of these waterways, and the proximity of Interstate 494 to the south acts as a significant barrier to natural drainage to the south or into adjacent communities. See ***MRCCA – Major Natural Drainage Routes Map – FIGURE 9-7*** (below).

FIGURE 9-7. MRCCA Natural Drainage Ways



Bluffs & Bluff Impact Zones

According to Minnesota Rules 6106.0050, subp. 10, a "bluff" is defined as a natural topographic feature having either of the following characteristics:

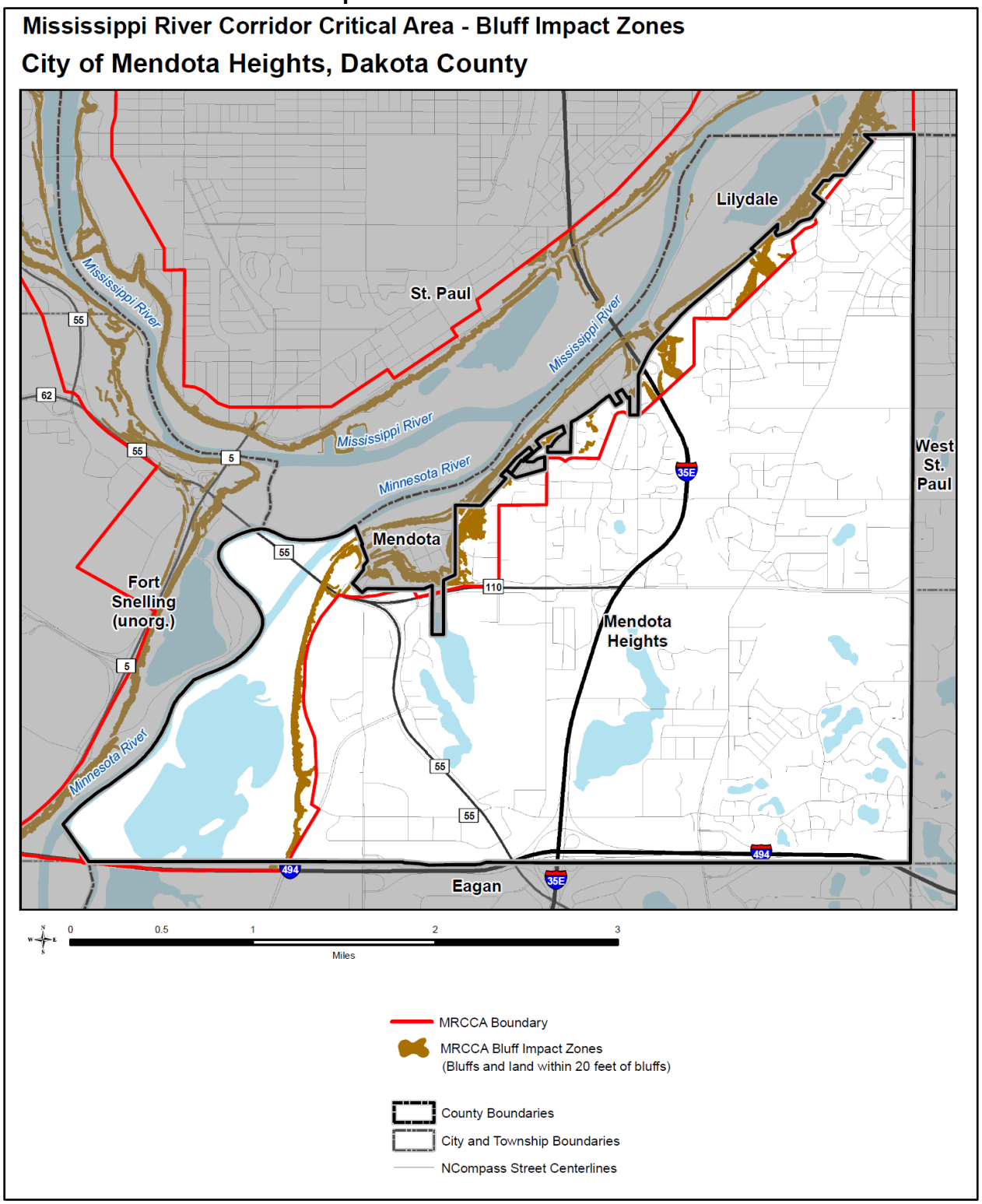
A. *a slope that rises at least 25 feet above the ordinary high water level or toe of the slope to the top of the slope; and the grade of the slope from the ordinary high water level or toe of the slope to the top of the slope averages 18 percent or greater, measured over a horizontal distance of 25 feet; or*

B. *a natural escarpment or cliff with a slope that rises at least 10 feet above the ordinary high water level or toe of the slope to the top of the slope with an average slope of 100% or greater.*

The development and land use standards tied to the Bluff Impact Zone (BIZ). In the MRCCA, rules are more restrictive than those in the shoreland rules. They prohibit the placement of structures, land alteration, vegetation clearing, stormwater management facilities, and most construction activities in the BIZ. However, some limited exceptions to these restrictions, such as for public utilities and recreational access to the river, are allowed. This greater degree of protection is necessitated by development pressures on bluffs throughout the river corridor and the susceptibility of these features to erosion and slope failure.

Mendota Heights has several areas or narrow strips of land identified as a BIZ within the MRCCA boundary. See ***MRCCA – Bluff Impact Zones Map – FIGURE 9-8.***

FIGURE 9-8. MRCCA – Bluff Impact Zones



Native Plant Communities & Significant Existing Vegetative Stands

Native plant communities are plant communities that have been identified as part of the Minnesota biological survey. They represent the highest quality native plant communities remaining in the MRCCA. Significant vegetative stands are plant communities identified by the National Park Service that are largely intact, connected and contain a sufficient representation of the original native plant community. Much of this vegetation contributes to the scenic value of the MRCCA.

Mendota Heights has one large area of native plant communities within the city and its MRCCA boundaries, which primarily encompasses Fort Snelling Park/Gun Club Lake reserve. There are also a number of significant [existing] vegetative stands in the MRCCA. Refer to ***MRCCA – Native Plant Communities and Significant Existing Vegetative Stands Map – FIGURE 9-9***.

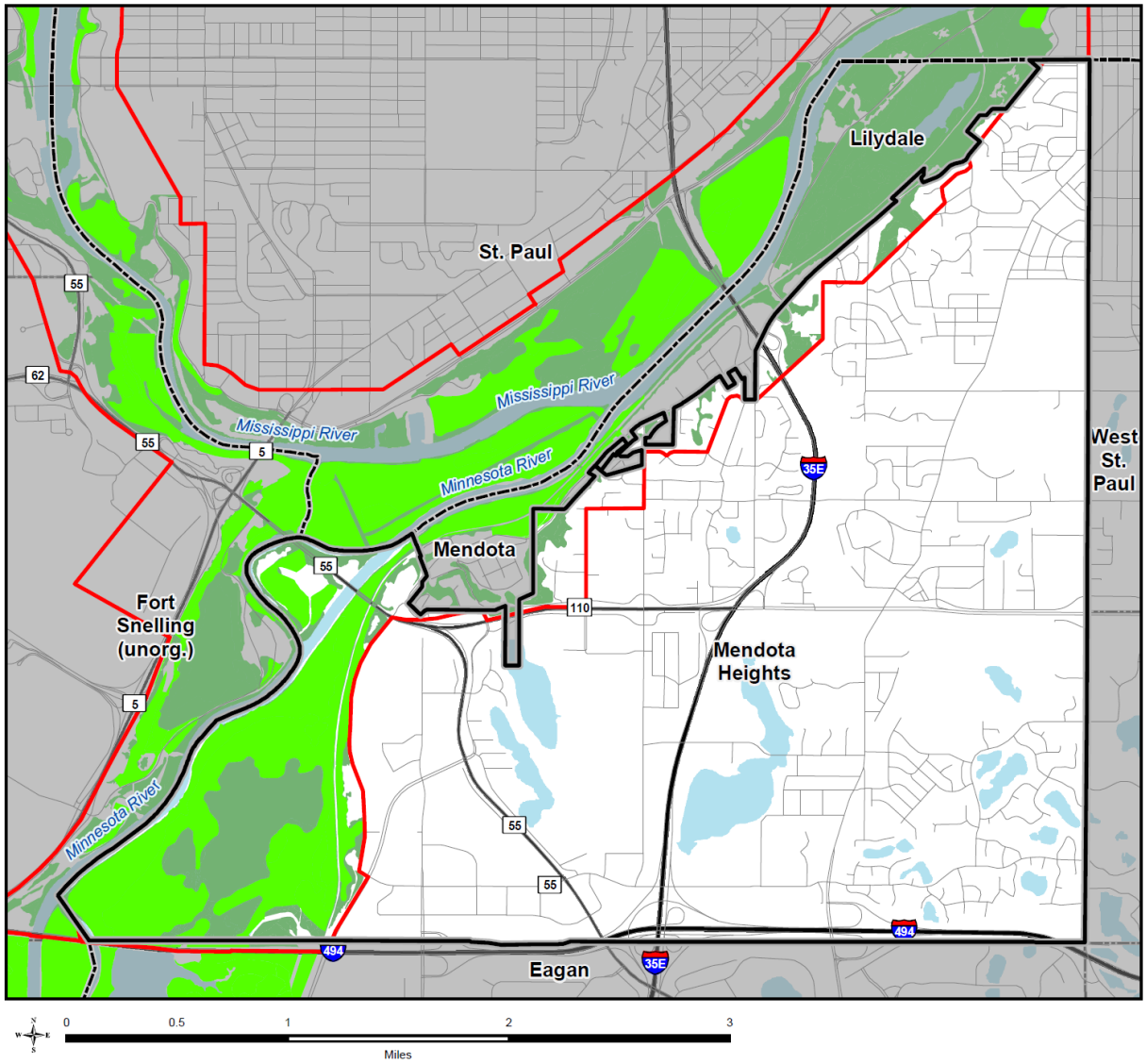
The corridor generally exhibits a mostly wooded and natural vegetative character, with a variety of other vegetative environments like prairie, shrubs and wetlands. These wooded areas are mostly located within or near the Fort Snelling/Gun Club lake area, and in smaller developed and undeveloped area inside the MRCCA boundary. Tree species include oaks, maples, cottonwood, elms, and Linden (basswood) trees along with a wide variety of evergreen trees such as white pine, black hill spruce, blue spruce and others. Unfortunately, the corridor is also impacted by some invasive species, such Siberian elms, black locusts, and buckthorn.

Regardless of these desired and invasive plants, these wooded and vegetative areas systematically provide limited animal habitat areas, and offer natural erosion control measures, especially those located on slopes and bluffs. Previous and current efforts to prevent and control elm and oak tree diseases have been generally effective in preserving these forested resources. Throughout the course of the years, the city has carefully regulated all new development and redevelopment sites within the Mississippi Critical Corridor Area, and the regulations have controlled the loss of woodland and other significant vegetation on bluff areas and slopes whenever land development was requested.

FIGURE 9-9. MRCCA Native Plant Communities & Vegetation Map

Mississippi River Corridor Critical Area - Native Plant Communities and Significant Existing Vegetative Stands

City of Mendota Heights, Dakota County



MRCCA Boundary
DNR Native Plant Communities
MRCCA Significant Existing Vegetative Stands
County Boundaries
City and Township Boundaries
NCompass Street Centerlines

Cultural & Historic Properties

There are no known cultural or historic properties within the MRCCA of Mendota Heights.

The City of Mendota Heights does not have an official control for historic preservation. As opportunities for preservation are discovered, the City will handle them on a case-by-case basis, drawing from the resources such as the Minnesota Historical Society, Dakota County, and community/non-profit organizations.

According to the Minnesota Historical Society, the following property is the only property listed on the National Register of Historic Places:

- ***Fort Snelling – Mendota Bridge*** – Is a steel-reinforced, continuous-arch concrete bridge located on Minnesota Highway 55 over the Minnesota River. It was built in 1925-26, according to the plans prepared by Walter Wheeler and C.A.P. Turner. The bridge was reconstructed between 1992 and 1994, reflecting the original design.

- ***St. Peter's Church*** – This church complex includes one of the oldest church buildings used by Minnesota's early settlers of the Mendota area, and is still in use today. Growth of the congregation has resulted in the addition of several other buildings on the site, although the historic building remains in use.

- ***Pilot Knob*** – Currently restored and protected to its pre-development condition, the Pilot Knob area, just off of the east end of the Mendota Bridge, has special historical meaning through a wide spectrum of Minnesota history. The City and other public agencies have acquired much of the property and are adding interpretive facilities to the site as opportunity permits

Public River Corridor Views

Public river corridor views (PRCVs) are views toward the river from public parkland, historic properties, and public overlooks, as well as views toward bluffs from the ordinary high water level of the opposite shore, as seen during the summer months. PRCVs are deemed highly valued by the community and are worth protecting because of the aesthetic value they bring to the MRCCA.

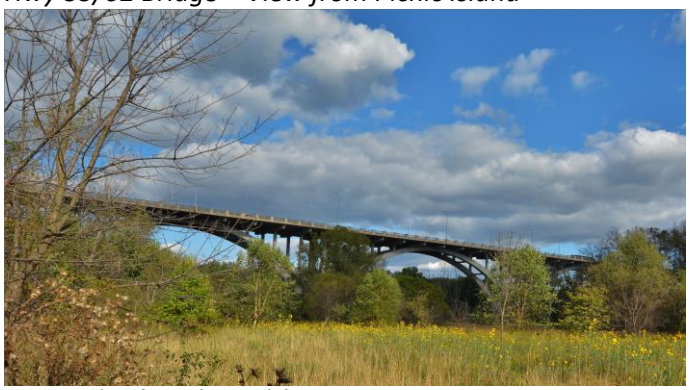
Views Toward the River from Public Places

The existing tree coverage and topography in Mendota Heights limits some views toward the Mississippi River from public places and in certain private properties within the MRCCA boundary. One particular public view that exists is located near the intersection of Sibley Memorial Highway and State Highway 13.

The view is valuable to Mendota Heights because it includes both a view of the Mississippi River corridor, Gun Club Lake preserve and part of the City of St. Paul skyline.

Another important view is from 1) Picnic Island looking east across the Minnesota River towards the cities of Mendota and Mendota Heights and, 2) Views from Picnic Island looking north towards Pike Island and the Mississippi River bluffs along Shepard Rd. in St. Paul.

Hwy 55/62 Bridge – View from Picnic Island



Source: City of Mendota Heights

GOALS and POLICIES - PRIMARY CONSERVATION AREAS

GOAL 9.2: Protect PCAs and minimize impact to PCAs from public and private development and land use activities (landscape maintenance, river use, walking/hiking, etc.).

Policies:

9.2.1 Adopt a new MRCCA ordinance overlay district compliant with the goals and policies of the MRCCA plan, and with Minnesota Rules, part 6106.0070, Subp. 5 - Content of Ordinances; and work with the Minnesota DNR on flexibility with the ordinance as noted in previous sections of this Plan.

9.2.2 Support mitigation of impacts to PCAs through, subdivisions/PUDs, variances, CUPs, and other permits.

9.2.3 Prioritize the restoration and protection of Native Plant Communities and natural vegetation in riparian areas a high priority during development.

9.2.4 Support alternative design standards that protect the Local Government Units (LGU's) identified PCAs, such as conservation design, transfer of development density, or other zoning and site design techniques that achieve protection or restoration of primary conservation areas

9.2.5 Protect and prioritize through permanent protection measures, such as public acquisition, conservation easement, deed restrictions, etc., which protect PCAs in the corridor.

PRIMARY CONSERVATION AREA - Implementation Actions

- Ensure that information on the location of PCAs is readily available to property owners to understand how PCA-relevant ordinance requirements, such as vegetation management and land alteration permits, apply to their property for project planning and permitting.
- Establish procedures and criteria for processing applications with potential impacts to PCAs, including:
    - Identifying the information that must be submitted and how it will be evaluated,
    - Determining appropriate mitigation procedures/methods for variances and CUPs; and

- Establishing evaluation criteria for protecting PCAs when a development site contains multiple types of PCAs and the total area of PCAs exceed the required set aside percentages.

- Developing administrative procedures for integrating DNR and local permitting of riprap, retaining walls and other hard armoring.

(Note: Application procedures are a required element of MRCCA ordinance review and approvals.)

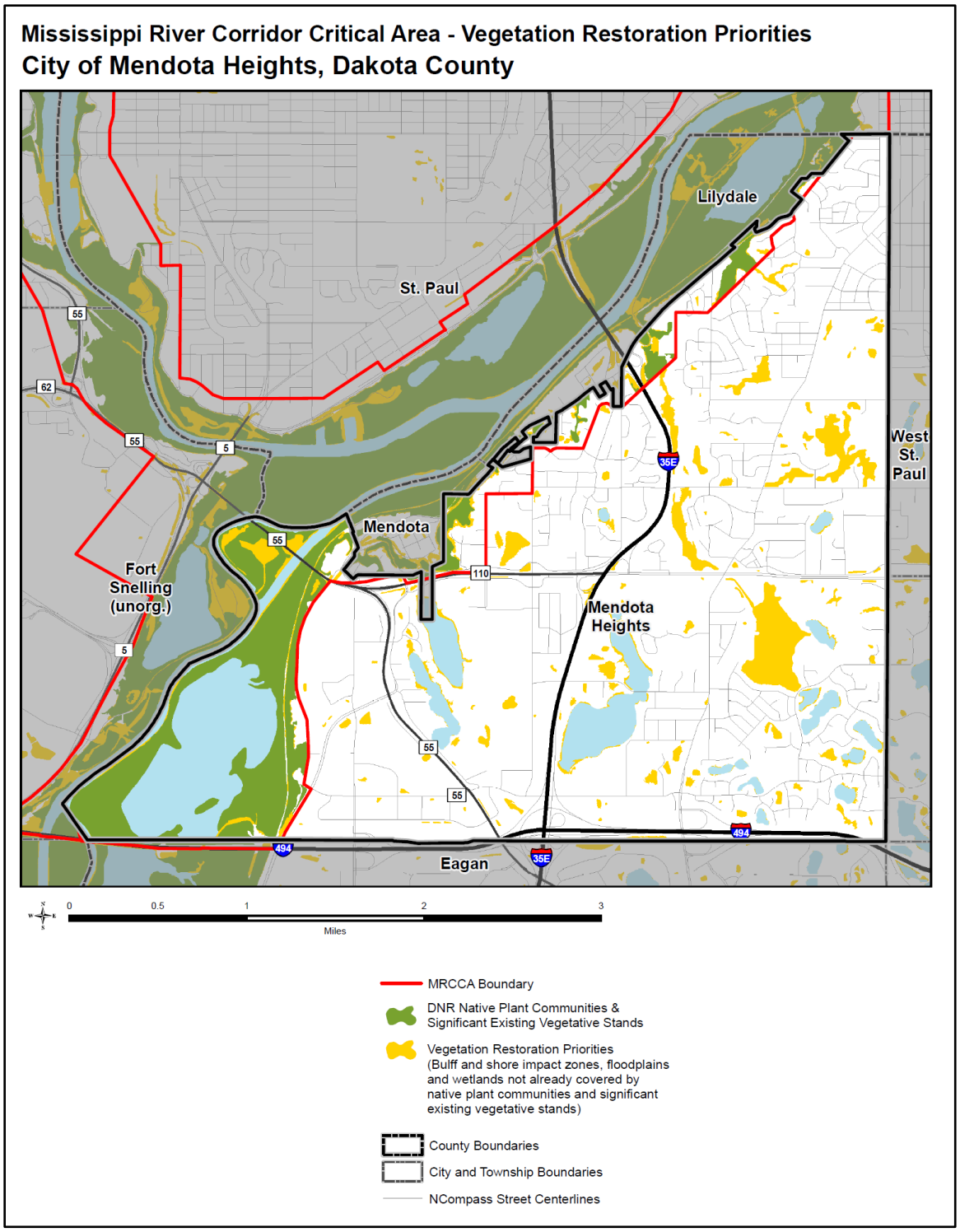
PRIORITIES FOR RESTORATION

General Overview

Natural vegetation is critical to the health of the ecosystem along the Mississippi River corridor, providing important habitat for area wildlife and natural function of plant and waterway systems. The Minnesota DNR has identified a number of high priority areas for restoration of natural vegetation, not only within the established Critical Corridor Area, but in other areas throughout the city, including lakes, streams, wetlands, and drainage ways. These areas were determined based on identifying existing significant stands of vegetation, areas of erosion, and areas of needed stabilization.

MRCCA requires communities identify areas that are priorities for restoration due to poor quality natural vegetation or bank erosion issues. Much of the critical corridor area is wooded and vegetated, with a large expanse of open space and park or vegetated residential land. If development or redevelopment occurs within MRCCA, protection of existing vegetation or restoration will be required in accordance with MRCCA ordinance requirements. Mapping for Mendota Heights was completed by MnDNR and Metropolitan Council. Refer to ***Vegetation Restoration Priorities Map – FIGURE 9-10***.

FIGURE 9-10. MRCCA Vegetation Restoration Priorities Map



GOALS and POLICIES - Restoration

Goal 9.3: Protect native and existing vegetation during the development process and require restoration if any is removed by development. Priorities for restoration shall include stabilization of erodible soils, riparian buffers and bluffs or steep slopes visible from the river.

Policies:

9.3.1 Seek opportunities to restore vegetation to protect and enhance PRCVs identified in this plan.

9.3.2 Seek opportunities to restore vegetation in restoration priority areas identified in this plan through the CUP, variance, vegetation permit and subdivision/PUD processes.

9.3.3 Sustain and enhance ecological functions (habitat value) during vegetation restorations.

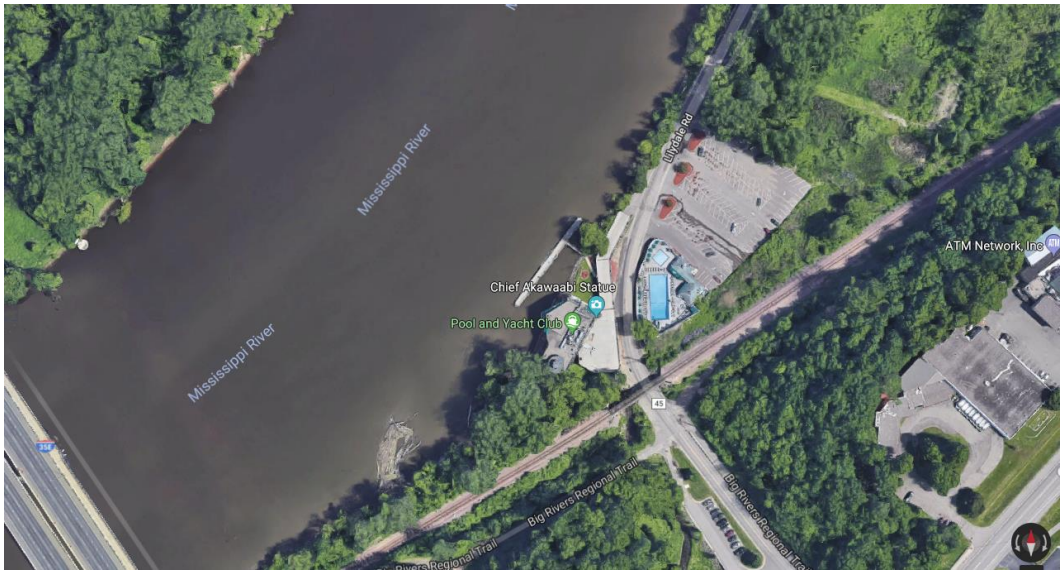
9.3.4 Evaluate proposed development sites for erosion prevention and bank and slope stabilization issues and require restoration as part of the development process.

Restoration Implementation Actions

- Ensure that information on the location of natural vegetation restoration priorities is readily available to property owners to understand how relevant ordinance requirements apply to their property for project planning and permitting.
- Establish a vegetation permitting process that includes permit review procedures to ensure consideration of restoration priorities identified in this plan in permit issuance, as well as standard conditions requiring vegetation restoration for those priority areas. (Note: vegetation permitting process is a required element of MRCCA ordinance.)
- Establish process for evaluating priorities for natural vegetation restoration, erosion prevention and bank and slope stabilization, or other restoration priorities identified in this plan in CUP, variances and subdivision/PUD processes. (Note: A process for evaluating priorities is a required element of MRCCA ordinance review and approval.)

SURFACE WATER USES

Mendota Heights has very little surface water use in the MRCCA other than recreational motorboats and small paddle crafts such as canoes and kayaks. There are no public boat launches or marinas in Mendota Heights; however there is a small private marina/boat dock associated with the Pool and Yacht Club in the City of Lilydale (located just east of the I-35E bridge crossing), and which some residents of Mendota Heights belong and enjoy.



Source: Google Maps

There is limited barge traffic that passes Mendota Heights, heading west on the Minnesota River to Ports Bunge and Cargill in Savage, and a loading facility in Burnsville just west of I-35W..

No additional policies or implementations actions are applicable for surface water use for MRCCA in the City of Mendota Heights.

WATER-ORIENTED USES

General Overview

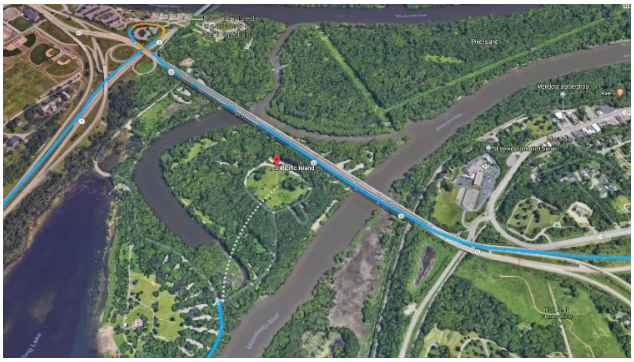
Water-oriented uses within the Mississippi River Corridor are very limited within Mendota Heights. Most of the land adjacent to the river is primarily in the Gun Club Lake and Fort Snelling State Park preserve area on the far west edge of the community. There are no proposed new water-oriented uses for the City in the 2040 planning period.

OPEN SPACE & RECREATIONAL FACILITIES

General Overview

Open space and recreational facilities, such as parks, trails, scenic overlooks, natural areas, and wildlife areas add to the quality of a community. One purpose of a MRCCA plan is to promote the protection, creation, and maintenance of these features and locations in each community along the metropolitan Mississippi River corridor.

Fort Snelling State Park


Source: Google Maps

Fort Snelling State Park, with 611 of its 2,642 acres located in the City, is considered the largest in Mendota Heights. This park provides outdoor recreation opportunities and natural resource conservation for the public and is considered part of the regional recreational open space system. Fort Snelling State Park is a recreational state park offering swimming, large group and family picnic grounds, a boat launch, interpretive center and historical areas, trails, and scenic overlooks.

A passive recreation area located within the boundaries of Mendota Heights, but situated across the Minnesota River is an area known as Picnic Island. This 75-acre tract of land appears to have been created or carved out by an “oxbow lake” feature in the Minnesota River corridor, and is located underneath the Highway 62/55 Bridge. The site is accessed from Hwy. 5 in St. Paul, off the Post Road/Snelling Lake Road exit ramp.

Most of the park’s active facilities are located on the Bloomington side of the River, requiring most Mendota Heights residents to drive or bike across the I-494, I-35E and Mendota bridges. The Mendota Heights portion of the park is left primarily as a natural area as it contains extensive floodplain marsh habitat. Facilities located in Mendota Heights support less intensive uses, such as biking, hiking, cross country skiing, and fishing. The Sibley and Faribault historic sites in the City of Mendota Heights are also located on the Mendota Heights side of the River.

Harriet Island-Lilydale Regional Park

Located just north of Mendota Heights, this park is managed by the City of St. Paul. The lower portion of the park in the City of Lilydale is planned to remain passive open space. A beach and concessions area are planned, but eventual development is highly unlikely due to wetland issues. The area also has a ramp for boat access to the River. A trail through the park, separate from the roadway, is planned to link St. Paul to the *Big Rivers Regional Trail*.

10

Implementation

The following chapter outlines an implementation methodology for the Mendota Heights Comprehensive Plan and offers tools to assist the public and private sectors in the realization of the community vision. While many implementation strategies will be the responsibility of the City of Mendota Heights or other public-sector partners, many of the directives will take a cooperative effort over time from business owners, property owners, and private developers.

The tables on the following pages outline by chapter how the recommendations in this Plan can begin to be realized, defining the implementing body and timeframe for implementation.

Chapter 1: Introduction and Background

Summary

Chapter 1 serves as the introduction of the Comprehensive Plan, identifying existing conditions, history and development, a vision and mission, and key issues of the Plan. The Chapter also includes a natural resource inventory and demographic trends in the city. The vision and mission serve as the framework for the plan and are integrated throughout each of the content areas (chapters 2 through 9). The vision and mission are high-level, aspirational goals for Mendota Heights, to be implemented through the Plan's goals and policies.

Goals and Policies to be implemented

- No goals in this chapter, no implementation steps are required

CHAPTER 2: LAND USE

Summary

Chapter 2 provides an overview of existing and planned future land use in Mendota Heights. Because it is the most wide-reaching of any of the plan chapters, the land use goals and policies address numerous topics including land use, zoning, community character, redevelopment, and the impacts of the Minneapolis-St. Paul International Airport. At a basic level, State law requires zoning to reflect a City's future land use plan. There are numerous implementation strategies that were developed for this chapter, reflecting the various goals, policies, and land use plans.

Goals and Policies to be implemented

- **Implementation Goal 2.1:** The land use plan will serve as the foundation for land use decisions in Mendota Heights.
- **Implementation Goal 2.2:** Preserve, protect, and enrich the mature, fully developed residential environment and character of the community.
- **Implementation Goal 2.3:** Support industrial and commercial development in designated areas.
- **Implementation Goal 2.4:** Reduce the impact of aircraft noise within the community.

Other implementation steps

- Future Land Use Map – implement the future land use plan by updating the existing zoning map and code to reflect new land use changes.

LAND USE IMPLEMENTATION GOALS TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
The land use plan will serve as the foundation for land use decisions in Mendota Heights	Goal 2.1	City Staff, Planning Commission	Ongoing	High
Preserve, protect, and enrich the mature, fully developed residential environment and character of the community	Goal 2.2	City Staff, Planning Commission	Ongoing	High
Support industrial and commercial development in designated areas	Goal 2.3	City Staff, Planning Commission	Ongoing	Medium
Reduce the impact of aircraft noise within the community	Goal 2.4	City Staff; Airport Relations Commission	Ongoing	Medium
Implement the future land use plan by updating the existing zoning map and code to reflect new land use changes		City Staff, Planning Commission	Short-term (1 year)	High

CHAPTER 3: TRANSPORTATION

Summary

Chapter 3: Transportation addresses all aspects of the transportation system including roadways, rail, freight, and transit. The goals and policies in this section emphasize an efficient multi-modal system that works for residents, employees and visitors to Mendota Heights. Many public entities have authority over transportation elements in the city, so all parties will need to work in partnership to implement the transportation recommendations. From the public side, the primary implementation tool for infrastructure improvements is the City's Capital Improvement Plan (CIP). Federal, State, and local grants may also be a possibility should an opportunity for funding become available.

Goals and Policies to be implemented

- **Implementation Goal 3.1:** Provide a safe, high quality, and cost effective multi-modal transportation system.
- **Implementation Goal 3.2:** Expand transit options serving Mendota Heights.
- **Implementation Goal 3.3:** Reduce negative airport impacts in Mendota Heights; and work diligently with all noise issues and agencies to decrease aircraft noise in volume and to decrease the area of noise impacts.

Other implementation steps

- Implement roadway projects as identified in the City's CIP and Comprehensive Plan.
- Implement the future transportation network as designated in the Comprehensive Plan and on the future roadway and transit facility maps.

TRANSPORTATION IMPLEMENTATION TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
Provide a safe, high quality, and cost effective multi-modal transportation system	Goal 3.1	City Staff	Ongoing	Medium
Expand transit options serving Mendota Heights	Goal 3.2	City Staff, Planning Commission; Metro Transit	Ongoing	Medium
Reduce negative airport impacts in Mendota Heights; and work diligently with all noise issues and agencies to decrease aircraft noise in volume and to decrease the area of noise impacts	Goal 3.3	City Staff; Airport Relations Commission	Ongoing	Medium
Implement roadway projects as identified in the City's CIP and Comprehensive Plan		City Staff; City Council	Medium-term (5 years)	High
Implement the future transportation network as designated in the Comprehensive Plan and on the future roadway and transit facility maps		City Staff; Planning Commission	Long-term (10+ years)	Medium

CHAPTER 4: PARKS AND TRAILS

Summary

The parks and trails chapter of the Comprehensive Plan addresses existing parks, natural areas, and trails within the City of Mendota Heights. The city is also home to three golf courses which serve local and regional visitors. Goals and policies in this chapter emphasize creating an integrated network of park facilities and connecting to amenities, such as the Mississippi and Minnesota Rivers and regional park and trail systems.

Goals and Policies to be implemented

- **Implementation Goal 4.1:** Provide a park system that is safe, accessible, and equitable in its offerings to all Mendota Heights' residents and visitors.
- **Implementation Goal 4.2:** Provide a park system that assures high quality facilities, buildings, grounds, trails, amenities, and natural settings.
- **Implementation Goal 4.3:** Use the park system as a means to enhance and sustain the environment of each neighborhood and the city as a whole.
- **Implementation Goal 4.4:** Cooperate with Dakota County and surrounding communities in park and recreation facilities and programming.

Other implementation steps

- Implement park and trail improvements and planning projects as outlined in the City's CIP, Comprehensive Plan, and bicycle facilities map.

PARKS & TRAILS IMPLEMENTATION TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
Provide a park system that is safe, accessible, and equitable in its offerings to all Mendota Heights' residents and visitors	Goal 4.1	City Staff, Parks Commission	Ongoing	High
Provide a park system that assures high quality facilities, buildings, grounds, trails, amenities, and natural settings	Goal 4.2	City Staff, Parks Commission	Ongoing	High
Use the park system as a means to enhance and sustain the environment of each neighborhood and the city as a whole	Goal 4.3	City Staff, Parks Commission	Ongoing	Medium
Cooperate with Dakota County and surrounding communities in park and recreation facilities and programming	Goal 4.4	City Staff	Ongoing	Medium
Implement park and trail improvements and planning projects as outlined in the City's CIP, Comprehensive Plan, and bicycle facilities map		City Staff, Parks Commission	Long-term (10+ years)	Medium

CHAPTER 5: HOUSING

Summary

The housing chapter of the Comprehensive Plan addresses existing and future housing needs for residents of Mendota Heights. In addition to goals and policies developed by the community, the Metropolitan Council has placed affordable housing requirements on the City which will need to be met by 2040. The goals and policies in this chapter address preserving existing housing stock while providing diverse stock for young homeowners, seniors, and move-up housing.

Goals and Policies to be implemented

- **Implementation Goal 5.1:** Preserve and improve existing neighborhoods and housing units.
- **Implementation Goal 5.2:** Meet future needs with a variety of housing products.

Other implementation steps

- Explore ways to encourage 23 new affordable housing units by 2040, as per requirements from the Metropolitan Council.
- Seek funding opportunities to develop an affordable and diverse housing stock including funds from the Livable Communities Act, Local Housing Initiative Account, or Tax Base Revitalization Account.

HOUSING IMPLEMENTATION TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
Preserve and improve existing neighborhoods and housing units	Goal 5.1	City Staff	Ongoing	High
Meet future needs with a variety of housing products	Goal 5.2	City Staff	Ongoing	Medium
Explore ways to encourage 23 affordable housing units by 2040, as per requirements from the Metropolitan Council		City Staff, Dakota County CDA Staff; Metropolitan Council Staff	Long-term (10+ years)	Low
Seek funding opportunities to develop an affordable and diverse housing stock including funds from the Livable Communities Act, Local Housing Initiative Account, or Tax Base Revitalization Account		City Staff, Metropolitan Council Staff	Ongoing	Low

CHAPTER 6: ECONOMIC DEVELOPMENT

Summary

Chapter 6: Economic Development summarizes existing market conditions in Mendota Heights, identifies redevelopment areas in the city, and identifies roles that the City can take to attract new businesses to the community. Goals and policies in this chapter emphasize business attraction and retention and commercial/business park areas in the community.

Goals and Policies to be implemented

- **Implementation Goal 6.1:** Promote economic development in Mendota Heights through a comprehensive approach to business needs.
- **Implementation Goal 6.2:** Promote business attraction, retention, and expansion In Mendota Heights.
- **Implementation Goal 6.3:** Promote economic development through Public Financing Tools.
- **Implementation Goal 6.4:** Continue to develop and redevelop community commercial areas that serve the whole community.
- **Implementation Goal 6.5:** Continue to develop business and industrial park areas that provide jobs and serve the local and regional economy.

Other implementation steps

- Implement recommendations identified in the existing Mendota Heights Industrial District Redevelopment Plan, including branding, redevelopment incentives, and investments in broadband.
- Focus job-based redevelopment and commercial investment in the existing Mendota Heights Industrial District.

ECONOMIC DEVELOPMENT IMPLEMENTATION TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
Promote economic development in Mendota Heights through a comprehensive approach to business needs	Goal 6.1	City Staff	Ongoing	Medium
Promote business attraction, retention, and expansion In Mendota Heights	Goal 6.2	City Staff	Ongoing	High
Promote economic development through Public Financing Tools	Goal 6.3	City Staff, Planning Commission	Ongoing	Low
Continue to develop and redevelop community commercial areas that serve the whole community	Goal 6.4	City Staff, Planning Commission	Ongoing	Medium
Continue to develop business and industrial park areas that provide jobs and serve the local and regional economy	Goal 6.5	City Staff, Planning Commission	Ongoing	Medium
Implement recommendations identified in the existing Mendota Heights industrial district redevelopment plan, including branding, redevelopment incentives, and investments in broadband		City Staff	Ongoing	Medium

CHAPTER 7: NATURAL RESOURCES

Summary

Natural resource protection is critical for the City of Mendota Heights. Chapter 7: Natural Resources Plan identifies critical water, open space, and recreational areas in the community and issues these areas face. Goals and policies in this chapter emphasize protecting and enhancing existing natural areas, providing habitat to support biodiversity and developing a full natural resource plan for the City. Other goal areas in the chapter address public education and reducing air, noise, and light pollution.

Goals and Policies to be implemented

- **Implementation Goal 7.1:** Develop a professional, comprehensive, strategic Natural Resources Management Plan for City-wide natural areas and natural resources.
- **Implementation Goal 7.2:** Protect, connect, restore, buffer, and manage natural areas, wildlife habitat, and other natural resources, for high ecological quality and diversity of plant and animal species.
- **Implementation Goal 7.3:** Protect and restore the natural ecological functions of the City's water resources with emphasis on the improvement of stormwater management.
- **Implementation Goal 7.4:** Enhance and provide public education and understanding of nature, natural systems, and environmental issues by providing programs, materials, and information; while promoting a culture of stewardship on public and private lands.
- **Implementation Goal 7.5:** Address issues that impact air quality, light pollution, and noise pollution, such as vehicle emissions, traffic flow, air traffic, lighting, and street design.
- Implement a formal Natural Resources Management and Sustainability Commission to aid in the development and execution of the strategic Natural Resources Plan.
- Improve and implement the City's Surface Water Management Plan (SWMP).

NATURAL RESOURCES IMPLEMENTATION TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
Develop a professional, comprehensive, strategic Natural Resources Management Plan for City-wide natural areas and natural resources.	Goal 7.1	City Staff, Natural Resources Commission, City Council	Medium-term (5 years)	High
Protect, connect, restore, buffer, and manage natural areas, wildlife habitat, and other natural resources, for high ecological quality and diversity of plant and animal species.	Goal 7.2	City Staff, Natural Resources Commission, City Council	Ongoing	High
Protect and restore the natural ecological functions of the City's water resources with emphasis on the improvement of stormwater management.	Goal 7.3	City Staff	Ongoing	High
Enhance and provide public education and understanding of nature, natural systems, and environmental issues by providing programs, materials, and information; while promoting a culture of stewardship on public and private lands.	Goal 7.4	City Staff	Ongoing	Medium
Address issues that impact air quality, light pollution, and noise pollution, such as vehicle emissions, traffic flow, air traffic, lighting, and street design.	Goal 7.5	City Staff, Planning Commission, Natural Resources Commission	Medium-term (5 year)	Medium
Implement a formal Natural Resources Management and Sustainability Commission to aid in the development and execution of the strategic Natural Resources Plan.		City Staff, City Council	Short-term (1-year)	High
Improve and implement the City's Surface Water Management Plan		City Staff	Medium-term (5 years)	High

CHAPTER 8: RESILIENCE

Summary

Chapter 8: Resilience addresses the unique challenges Mendota Heights will face in the future regarding climate change. Although Resilience is not a required element for the 2040 comprehensive plans in the region, Mendota Heights is committed to investing in resilience. Supporting resilience strategies will protect local and regional vitality for future generations by preserving our capacity to maintain and support our region's well-being and productivity. Goals and policies in this chapter address infrastructure, public health, and health and safety during extreme weather events.

Goals and Policies to be implemented

- **Implementation Goal 8.1:** Protect and maintain infrastructure and constructed systems that provide critical services.
- **Implementation Goal 8.2:** Proactively maintain public health and safety during extreme weather and climate-related and other unforeseen events.
- **Implementation Goal 8.3:** Promote social connectedness and build an engaged community of resilience.
- **Implementation Goal 8.4:** Continue to support, plan for, and encourage the use of solar energy as a renewable energy source.
- **Implementation Goal 8.5:** Adopt climate mitigation and/or energy independence goals to reduce greenhouse gas emissions.
- **Implementation Goal 8.6:** Support long-range planning efforts to build the community's renewable energy capability and maximize the benefits of renewable energy development.
- **Implementation Goal 8.7:** Explore opportunities to support land use guidance and regulations to support practices that integrate healthy food production in residential settings and support food-related businesses and activities.
- **Implementation Goal 8.8:** Promote responsible waste disposal and study feasibility of improving systems that encourage residents to make responsible decisions.

RESILIENCE IMPLEMENTATION TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
Protect and maintain infrastructure and constructed systems that provide critical services	Goal 8.1	City Staff	Ongoing	High
Proactively maintain public health and safety during extreme weather and climate-related and other unforeseen events	Goal 8.2	City Staff, City Council	Ongoing	High
Promote social connectedness and build an engaged community of resilience	Goal 8.3	City Staff	Ongoing	Medium
Continue to support, plan for, and encourage the use of solar energy as a renewable energy source	Goal 8.4	City Staff	Ongoing	Medium
Adopt climate mitigation and/or energy independence goals to reduce greenhouse gas emissions	Goal 8.5	City Staff, Planning Commission	Ongoing	High
Support long-range planning efforts to build the community's renewable energy capability and maximize the benefits of renewable energy development	Goal 8.6	City Staff	Medium-term (5 years)	Medium
Explore opportunities to support land use guidance and regulations to support practices that integrate healthy food production in residential settings and support food-related businesses and activities	Goal 8.7	City Staff, Planning Commission	Medium-term (5 years)	Low
Promote responsible waste disposal and study feasibility of improving systems that encourage residents to make responsible decisions	Goal 8.8	City Staff, Planning Commission	Short-term (1-year)	High

CHAPTER 9: CRITICAL AREA

Summary

The Critical Area Plan is a required plan for communities located along the 72-mile stretch of the Mississippi River in the Twin Cities. The Metropolitan Council and Department of Natural Resources have identified numerous issues that must be addressed in the Critical Area Plan, each with their own goals and policies. These required issues include:

- Critical Area Districts
- Primary Conservation Areas
- Restoration

Goals and Policies to be implemented

- **Implementation Goal 9.1:** Guide land use and development and redevelopment activities consistent with the management purpose of each district.
- **Implementation Goal 9.2:** Protect Primary Conservation Areas (PCA's) and minimize impact to PCAs from public and private development and land use activities (landscape maintenance, river use, walking/hiking, etc.).
- **Implementation Goal 9.3:** Protect native and existing vegetation during the development process and require restoration if any is removed by development. Priorities for restoration shall include stabilization of erodible soils, riparian buffers and bluffs or steep slopes visible from the river.

Other implementation steps

Restoration Implementation Steps:

- Ensure that information on the location of natural vegetation restoration priorities is readily available to property owners to understand how relevant ordinance requirements apply to their property for project planning and permitting.
- Establish a vegetation permitting process that includes permit review procedures to ensure consideration of restoration priorities identified in this plan in permit issuance, as well as standard conditions requiring vegetation restoration for those priority areas. (Note: vegetation permitting process is a required element of MRCCA ordinance.)

- Establish process for evaluating priorities for natural vegetation restoration, erosion prevention and bank and slope stabilization, or other restoration priorities identified in this plan in CUP, variances and subdivision/PUD processes. (Note: A process for evaluating priorities is a required element of MRCCA ordinance review and approval.)

CRITICAL AREA IMPLEMENTATION TABLE

Item/Action	Goals	Implementing Body	Timeframe	Priority Level
Guide land use and development and redevelopment activities consistent with the management purpose of each district.	Goal 9.1	City Staff, Planning Commission	Ongoing	High
Protect Primary Conservation Areas (PCA's) and minimize impact to PCAs from public and private development and land use activities (landscape maintenance, river use, walking, hiking, etc.)	Goal 9.2	City Staff, Planning Commission	Ongoing	High
Protect native and existing vegetation during the development process and require restoration if any is removed by development. Priorities for restoration shall include stabilization of erodible soils, riparian buffers and bluffs or steep slopes visible from the river.	Goal 9.3	City Staff, Planning Commission	Ongoing	High
Adopt a new MRCCA ordinance overlay district compliant with the goals and policies of the MRCCA plan, and with Minnesota Rules, part 6106.0070, Subp. 5 - Content of Ordinances; and work with the Minnesota DNR on flexibility with the ordinance as noted in previous sections of this Plan.		City Staff, Planning Commission; MN Dept. of Natural Resources Staff	Short-term (1 year)	High
Update zoning map to reflect new MRCCA districts		City Staff, Planning Commission	Short-term (1 year)	High

APPENDIX – A: LIST OF PUBLIC INFORMATION MEETINGS, PUBLIC HEARINGS; PRESENTATION MATERIALS; & FEEDBACK INFORMATION

- **April 25, 2017 – Planning Commission Meeting**: first discussion of 2040 Comprehensive Plan Update.
- **September 26, 2017 – Planning Commission Meeting:** discussed 2040 Plan's Proposed Vision & Goals.
- **October 11, 2017 – Planning Commission Workshop Meeting:** discuss 2040 Comprehensive Plan Update; Issues, Visions & Goals; first SWOT Analysis completed.
- **October 14, 2017 – Fire Department Community Open House**
- **October 24, 2017 – Planning Commission Meeting:** continued discussion of Proposed Vision, Mission Statement & Goals/Policies.
- **Public Information/Public Engagement Meetings** - for the residents and stakeholders:
  - ***Thursday, November 2nd - 5:00 – 8:00 pm. – City Hall Council Chambers***
  - ***Wednesday, November 8th - 5:00 – 8:00 pm. – Somerset Elementary School***
  - ***Wednesday, November 15th - 5:00 – 8:00 pm. – Friendly Hills Middle School***
- **January 9, 2018 – Parks and Recreation Commission Meeting:** Presentation of the Draft Parks and Trails Plan.
- **January 23, 2018 – City Council Meeting:** presentation of the 2040 Plan Draft Goals and Policies.
- **February 27, 2018 – Planning Commission Meeting:** discussed 2040 Comp Plan input summary; comments from community meetings/online; Ch. 1 Background Draft.
- **April 5, 2018 – Planning Commission Workshop Meeting:** discussed 2040 Comprehensive Plan Update.
- **April 24, 2018 – Planning Commission Workshop Meeting**: discussed 2040 Comprehensive Plan Update.
- **August 8, 2018 – Planning Commission Workshop Meeting:** discussed 2040 Comprehensive Plan Update.

- **August 22, 2018 – Planning Commission Workshop Meeting:** discussed 2040 Comprehensive Plan Update.

- **September 13, 2018 – Planning Commission Workshop Meeting:** discussed Draft Revisions from the previous August 22, 2018 PC Workshop; discussed new Ch. 7 Natural Resources Plan and Ch. 8 Resiliency Plan.

- **September 25, 2018 – Planning Commission Meeting PUBLIC HEARING:** Discussed the Land Use Plan and Transportation Plan elements of the 2040 Comprehensive Plan.

- **October 15, 2018 - Joint Planning Commission and City Council Workshop Meeting:** discussed the 2040 Comprehensive Plan Updates.

- **October 23, 2018 – Planning Commission - PUBLIC HEARING:** discussed 2040 Comprehensive Plan updates.

- **November 11, 2018 – Planning Commission Workshop Meeting:** discussed updated Ch. 7 Natural Resources; Ch. 8 Resiliency; and other chapters.

- **December 13, 2018 – Planning Commission Meeting: PUBLIC HEARING:** discussed Ch. 2 - Land Use revisions; Ch. 7 - Natural Resources revisions; Ch. 8 – Resiliency; discussed other chapters.

- **January 22, 2019 – Planning Commission Meeting - PUBLIC HEARING:** discussed the proposed 2040 Comprehensive Plan.

- **February 20, 2019 – Planning Commission Workshop Meeting:** discussed updates to the 2040 Comprehensive Plan

- **February 26, 2019 – Planning Commission Meeting - PUBLIC HEARING:** discussed updates to the 2040 Comprehensive Plan.

- **March 18, 2019 – Planning Commission Workshop Meeting:** discussed all chapters (including appendices etc.) of the 2040 Comprehensive Plan.

- **March 26, 2019 – Planning Commission PUBLIC HEARING:** discussed Final Draft of the 2040 Comprehensive Plan.

- **April 15, 2019 – Planning Commission Workshop Meeting:** discussed all chapters (including appendices etc.) to the 2040 Comprehensive Plan.

- **April 23, 2019 – Planning Commission Meeting - PUBLIC HEARING:** recommended approval of the Draft 2040 Comprehensive Plan.

- **June 4, 2019 – City Council Meeting**: city council approves the Draft 2040 Comprehensive Plan; directs plan to be distributed to adjacent/affected jurisdictions and agencies.

APPENDIX -B

Background Report:

Market and Development Context

In support of:

2040 Mendota Heights Comprehensive Plan

Prepared for:

City of Mendota Heights, MN

December 2016

Prepared by:

Tangible Consulting Services

Stantec, Inc

TANGIBLE
Consulting Services

Stantec

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Introduction

Purpose

The purpose of this background report is to outline the economic context that will shape the future in Mendota Heights. It overviews the unique housing and economic base that characterizes the city and provides analysis of opportunities and challenges for Mendota Heights.

The report supports the Mendota Heights 2040 comprehensive and long-range planning process that will establish goals for future redevelopment and policy decisions in Mendota Heights. This report is based on several types of information: market research, a review of existing reports, interviews with local developers and real estate professionals, and direct observation.

Mendota Heights is a fully developed suburb. While that status limits opportunities for new development, there is a need to stay viable and attractive as the demographics of the Minneapolis-St. Paul metropolitan area shift. The population is growing, it is aging, and more households will be renters. Choices about purchasing and employment will also evolve. Decisions about housing redevelopment, retail support and location, and office and employment opportunities will influence Mendota Heights' character as a desirable place to live.

This report considers the housing, retail, industrial and office development sectors. It looks at regional trends, as well as conditions in Mendota Heights. It evaluates strengths and weaknesses of Mendota Heights locations with respect to these development sectors, and evaluates opportunities for additional growth and development.

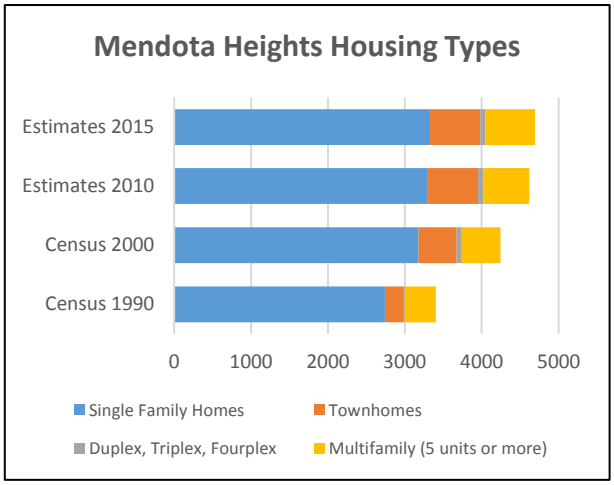
As the Mendota Heights comprehensive planning process progresses, the analysis and findings in this report will serve to inform decision-making. They will be further modified and augmented through the process of developing the comprehensive plan, based on discussion with policymakers, stakeholders, and others.

Residential Market Context

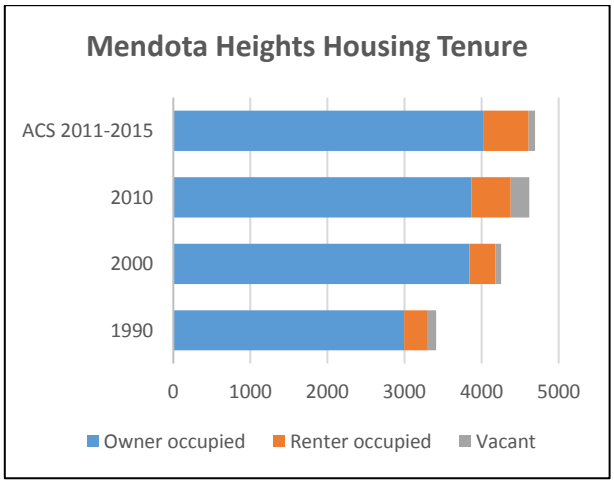
Existing Conditions

Mendota Heights is a fully developed first-ring suburb. Its abundance of open space, lakes and wooded areas give it a distinctly suburban and in some areas rural feel. Yet its central location gives it excellent access to downtown St. Paul and the greater metropolitan area.

Housing in Mendota Heights is predominantly single family. Eighty percent of residential land is guided for low density housing, with an allowed 2.9 housing units/acre. (Source: 2030 Comprehensive Plan) Nine percent is guided rural residential which allows 1.1 units/acre. The remaining 11% of residential land is guided for medium to high density housing.



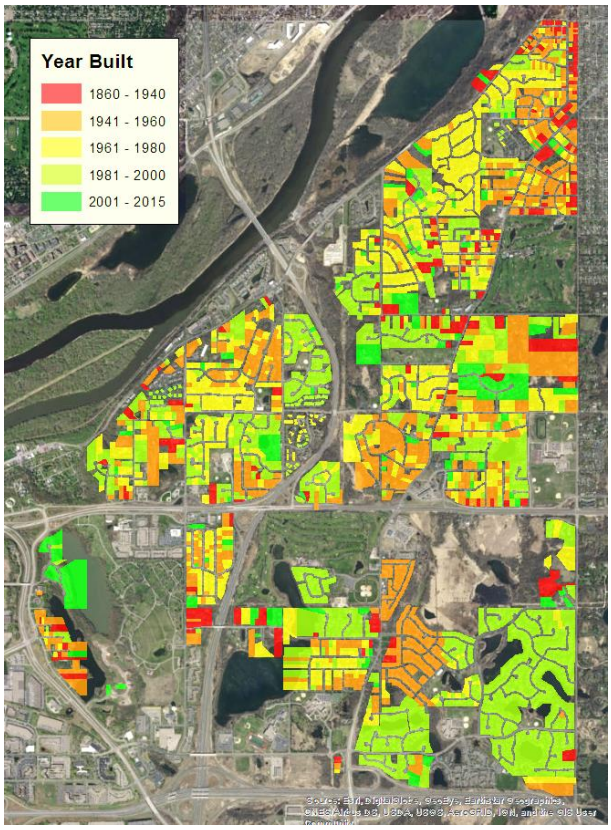
Around 70% of existing housing units are single family homes. Roughly 15% are townhomes, and 15% are in apartment buildings.



Owner occupied housing predominates. Less than 15% of housing units are renter occupied.

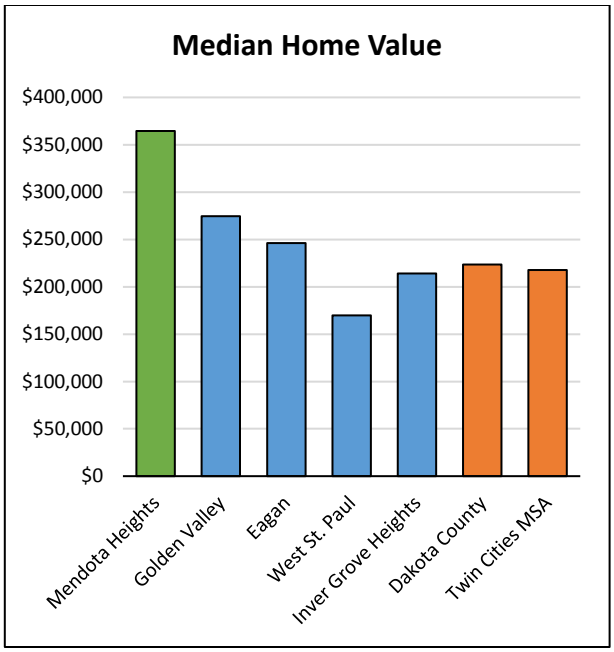
Single family housing. Residential neighborhoods throughout the City are strong. Homes are generally well maintained. The great majority were built in the last 50 years, as illustrated in the map below. A smaller number of homes are older than that, and go back to the late 1800s and early 1900s. They are scattered throughout the community, but most are in the northeast area.

Housing Development by Decade: Single Family Homes and Townhomes



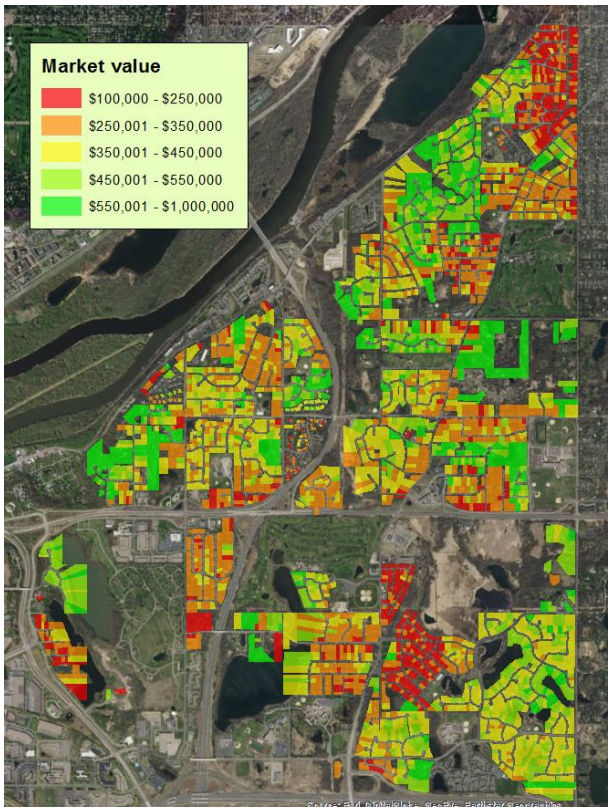
Source: Mendota Heights Assessor Data

Homes in Mendota Heights are valued markedly higher than that of homes in neighboring communities, or homes in the Metropolitan Area as a whole. The median value of a single family home in Mendota Heights in 2015 was approximately $360,000. High home values are correlated with the higher household incomes that are typical in Mendota Heights.



Source: American Community Survey, 2011-2015

Market Value:
Single Family Homes and Townhomes



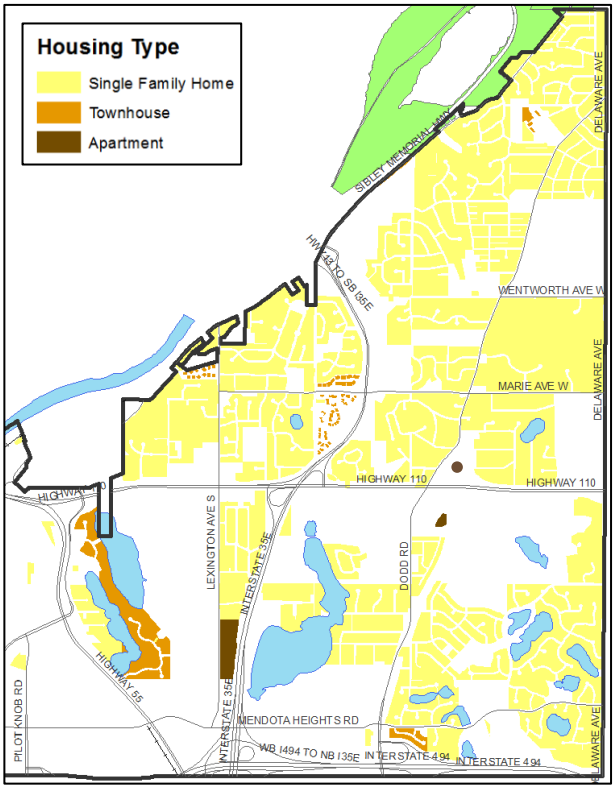
Source: Mendota Heights Assessor Data

The map of homes by value shows a similar pattern to the map of homes by age. Higher value homes tend to be in the neighborhoods that were developed most recently.

Multifamily housing. Although single family housing predominates in Mendota Heights, the city offers some townhome communities, as well as a few apartment and condominium buildings. There are four existing apartment developments in Mendota Heights. Three are for seniors. One is for general occupancy.

An additional four-story apartment building with 139 units is being developed in the Hwy 110/Dodd Road area.

Residential Context Map



Source: Mendota Heights Assessor Data

Housing Needs

Mendota Heights' housing stock of mostly single family, owner-occupied homes is valued by City residents, and is a good fit for upper income, family households. It offers more limited options, however, for a range of other household types.

With a metropolitan household that is aging and diversifying, the interest in a broader set of housing choices will increase. Broadening the housing types available in Mendota Heights may be beneficial for attracting younger couples and families, and providing opportunities for older residents who are transitioning from large single family homes.

Few opportunities are similarly available for the moderate to average income households that may serve as teachers in the City's schools, or be employed in some of the City's industrial businesses. The following two chart show the affordability of the City's existing housing, and the number of housing units that are publicly subsidized.

Housing Units Affordable to Households with Income:	
At or below 30% AMI	42
30% - 50% of AMI	180
51% - 80% of AMI	995
(AMI: 2016 area median income in Twin Cities for a household of four is $85,800)	

Source: Metropolitan Council

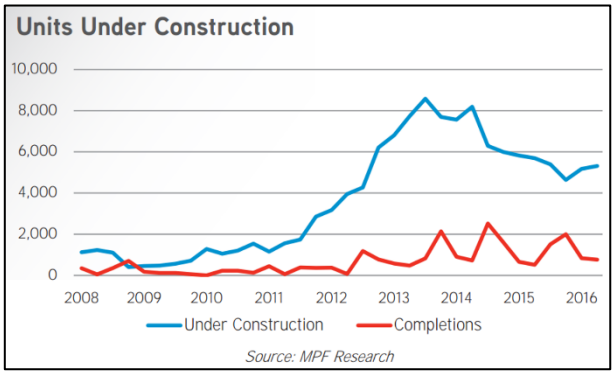
Publicly Subsidized Housing Units	
Total Housing Units	4,676
Total Publicly Subsidized Units	134
Public Subsidized Senior Units	110

Source: Metropolitan Council

Market Dynamics – Regional

A shift from owner occupied housing to rental housing has been occurring since the Great Recession, and is continuing in 2017. This is partly due to the reduced ability of some households to meet the financial requirements of purchasing a home, and more stringent mortgage qualification requirements. But it also reflects changes in preferences—that is, an increased preference for renting versus owning one's home. Aging population, the lifestyle choices of many millennials, and economic factors have made rental housing an increasingly popular choice.

Twin Cities Apartments:
Under Construction and Completed

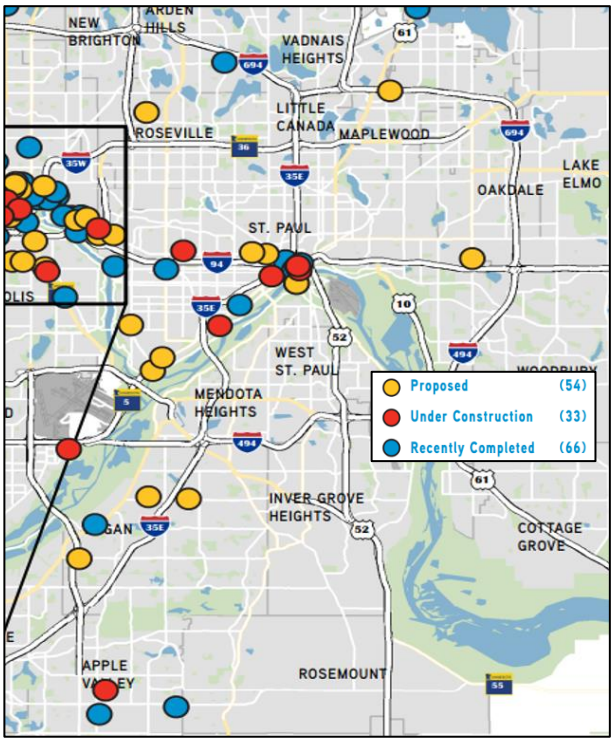


In the Twin Cities, developers have responded to the surge in demand for rental housing by developing more rental housing—most commonly high-amenity, market rate apartments.

Condominium development has lagged—partly because of reduced demand, but also because production has been constrained by state statutes that govern developer liability. If liability statutes are loosened, that would open the door to increased condominium production.

Apartment development has been largely focused in the strongest urban locations in the Metro—most notably downtown Minneapolis and St Paul, and strong urban transit and commercial nodes. There has been some suburban apartment development as well, and suburban development is increasing.

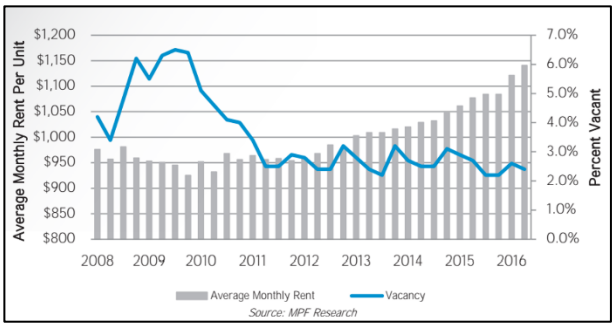
Twin Cities Apartments:
Eastern Metro Construction Activity, 2016



Source: Colliers International

The surge in apartment supply has not yet quenched the demand. From the 12 months from Fall, 2015 through Summer, 2016, over 5,000 new units were constructed in the Twin Cities metro, and close to 4,000 units were already scheduled to be delivered in the 12 months through Summer, 2017.

Twin Cities Apartments:
Average Rent and Vacancy



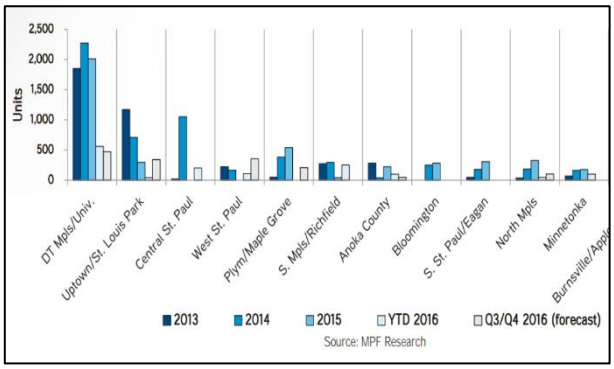
Apartment rents have continued to rise. Vacancy rates continue to be low overall, but a bifurcation has emerged between Class A and Class C buildings. Perhaps because there has been little construction of non-luxury apartments, there is a particularly low

vacancy rate in pre-1970s apartment buildings (98.7%), which are predominantly Class C buildings. The average vacancy rate in apartment buildings built after 2000 (mostly Class A buildings) is now over 5%.

Market Dynamics – Mendota Heights

As indicated in the following chart and map, the suburban communities around Mendota Heights are experiencing some apartment development in recent years. (Mendota Heights is in the S. St. Paul/Eagan Submarket in the following chart.)

Apartment Unit Completions by Year



Source: Colliers International

Multifamily (MF) Apartment Construction around Mendota Heights Since 2010

Source: CoStar

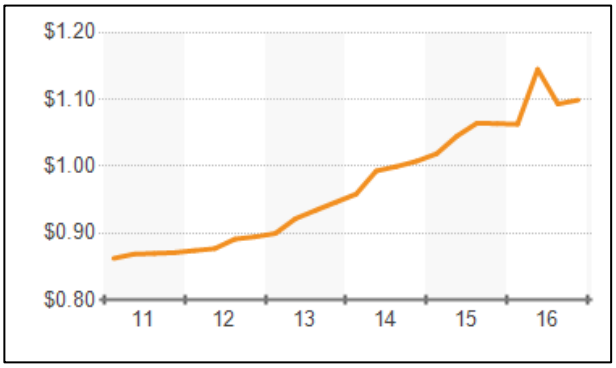
Market indicators. Demand for existing multifamily development seems strong. Although Costar only tracks two of the four existing apartment buildings in Mendota Heights, those buildings experience very low vacancy. The housing that was built at The Village at Mendota Heights was sold and occupied, even though some of it came online just before the start of the recession.

Mendota Heights Apartment Vacancy

Source: Costar

Rents for multifamily units have been increasing steadily and in 2016 are at $1.10 per square foot.

Mendota Heights Apartment Asking Rents (per Square Foot)



Source: CoStar

The market is strong enough to have attracted new market rate multifamily housing. A four story apartment building with 139 units is under construction near Hwy 110 and Dodd. It overlooks Dodge Nature Center and will be connected via pedestrian bridge to Mendota Plaza.

Additional apartment and condo development seems likely to be supported by the market in certain locations in the community. But development opportunity sites in Mendota Heights are hard to find.

Development Considerations

Strengths and weaknesses. Mendota Heights has important locational strengths and weaknesses for attracting housing development, and residential population. Strengths include:

- Its stable **single family neighborhoods**
- Its **central location** in the metropolitan area, with excellent transportation connections in all directions.
- **Proximity** to both downtown St. Paul and downtown Minneapolis.
- **High quality schools**, including three high schools—Henry Sibley, and St. Thomas Academy, and Visitation—which have regional reputations.
- **Good quality neighborhood retail** at Highway 100 and Dodd, including the unique retail environment offered by The Village, a mixed-use shopping area north of Hwy 110 and Dodd.
- **High quality natural amenities i**ncluding Dodge Nature Center, two golf courses, lakes and other natural areas, and proximity to the Mississippi River and trails.

Challenges include:

- Limited options for **transit service** are available.
- Lack of **retail goods and services, restaurants and entertainment**, beyond those that are available at Highway 110 and Dodd Road.

Development opportunities. Because Mendota Heights is fully developed, there is little opportunity for additional development of single family homes. Because there are few new home opportunities this close to the center of the metro, homes that are developed would likely be quite marketable.

The proposed At Home Apartments development at Highway 110 and Dodd Road shows that Mendota Heights can attract the type of high amenity apartment construction that is being built in other parts of the region. It will build on the success of the housing that was built at The Village in Mendota Heights. It's notable that new housing is being concentrated at the location in Mendota Heights where there are the strongest retail amenities and dining opportunities. Additional apartment development at this commercial node would likely be attractive and marketable, if suitable sites can be identified or assembled.

Other locations where housing development may be viable in the coming decades include the following.

- Underdeveloped locations near Augusta or Lemay Lake.
- Existing golf course land, if its financial viability declines in the future.

The attractiveness of existing housing in Mendota Heights, and the ability to attract new housing, would benefit from steps taken to strengthen the amenity base—particularly with respect to transit availability, and retail, dining and entertainment options. Strengthening these amenities may be important to maintaining Mendota Heights desirability and attractiveness as the tastes and demographic character of the Twin Cities evolves over the coming decades.

Retail Market Context

Existing Conditions

A city's retail areas play an important role in its identity and attractiveness. Retail development in Mendota Heights is almost entirely focused at the crossroads of Highway 110 and Dodd Road. Two retail areas are present at this intersection – The Village at Mendota Heights, north of Hwy 110 at Dodd, and Mendota Plaza, across Hwy 110 to the south. These developments have distinctly different characters.

The Village at Mendota Heights. The Village at Mendota Heights was developed over the period of 2001 to 2007. It is a neighborhood center in its scale of development, and the type of stores that anchor the development. But it has a destination market draw. Many of its customers come from Eagan, or from east and west of Mendota Heights, arriving via Highway 110.

The Village at Mendota Heights

The Village is a mixed-use area of retail and office, townhomes and condominiums, senior apartments, and a park. A unique, "new urbanist" style of development, it is a high density, walkable area that provides the opportunity to live close to shopping and offices, or park in the one of the parking lots and stroll along storefront-style stores, offices and restaurants. This "experience retail" can retain its attractiveness through shifts in the retail landscape, because it has a character that cannot be replicated through online purchasing.

Mendota Plaza. Mendota Plaza is a more traditional neighborhood center. It is a strip center anchored by a Walgreens, a natural food store, a fitness facility and a restaurant. It has 60,000 square feet of retail floor area with surface parking in front of the stores. It was renovated within the past ten years, and is currently undergoing an 11,000-square foot expansion in conjunction with the development of a four story, 139-unit apartment building just to the east of the existing development along Highway 110. A pedestrian bridge will connect the apartments across a wetland area to Mendota Plaza. Another key factor in the expansion is the addition of driveway access into Mendota Plaza from Hwy 110.

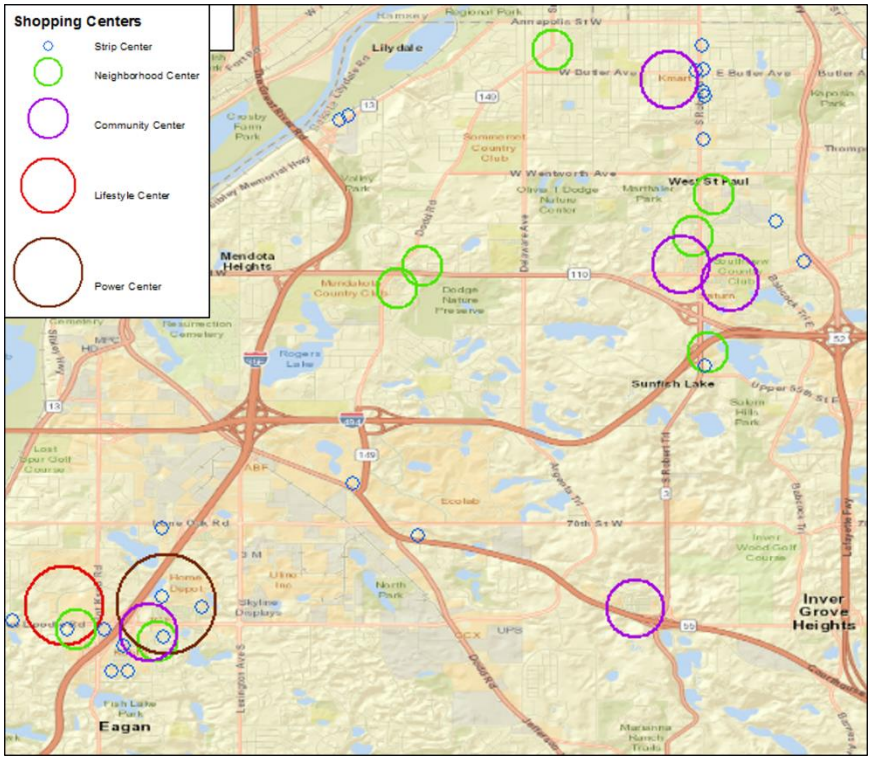
Mendota Plaza

A regional trail is being developed that will cross Highway 110 at this location via a tunnel under Highway 110. Connecting to the Mississippi River in one direction, and the City of Eagan in another, the trail will effectively connect the two retail areas for bicyclists and pedestrians.

Market Dynamics – Regional

Competitive Retail Context. The location of Mendota Plaza and The Village at Mendota Heights, relative to other retail areas in the area, has an important impact on the opportunity for additional retail development in Mendota Heights. The Retail Context Map illustrates the shopping centers in and around Mendota Heights, which are tracked by Costar according to type of center. Centers are given circular symbols that are illustrative of the size of the center. Large circles indicate regional centers. Small circles illustrate neighborhood-oriented retail centers.

Retail Context Map



The City of Eagan, south of Mendota Heights is becoming a destination retail powerhouse on the scale of Woodbury. It added a new major retail development, Central Park Commons, on the former Lockheed Martin site at Pilot Knob Road and Yankee Doodle Road, west of Interstate 35E. That development includes a Hy-Vee grocery store, Marshalls, and other destination retailers. Twin Cities Premium Outlets is located a little further south at the intersection of Highways 13 and 77. The new Vikings headquarters and training facility, to be located near Interstate 494 at the intersection of Dodd Road and Lone Oak Parkway, will include office, retail, residential, hospitality and a conference center, and will become a destination in the region. The Eagan Promenade offers another cluster of destination retailers and restaurants at Yankee Doodle Road, east of I-35E.

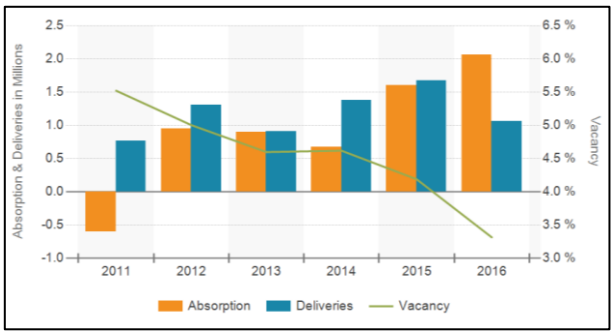
The retail offerings at these centers draw shoppers from Mendota Heights. New retail development tends to build on existing retail strength. So the retail primacy of Eagan dampens the attractiveness of Mendota Heights for destination oriented retailers.

To the east, along Robert Street in West St Paul, there is a less upscale set of destination retail areas. The section of Robert Street between Wentworth and Marie Avenues hosts a Walmart, Target, and Lowe's. The Signal Hills Shopping Center is at South Robert Street and Butler Avenue.

The competing destination retail areas in Eagan and West St Paul, along with a scarcity of suitable retail locations in Mendota Heights, make it difficult to expand the retail footprint in Mendota Heights. On the other hand, the distance from Mendota Heights retail areas to competing retail areas in Eagan and West St Paul buffer the Mendota Heights retail areas from competition, and protect their long-term viability—since neighborhood centers offer goods and services that people don't generally drive great distances for.

Regional market indicators. The Twin Cities retail market has been reaping the benefits of the economic recovery. Absorption of retail space has been strong over the past five years, to the point that average retail vacancy metro-wide is at a very low 3.6%. And retail development has followed, reaching a post-recession high in 2016.

Retail Vacancy, Absorption and Deliveries
Twin Cities Metro



Source: Costar

Average asking rents per square foot have remained pretty steady over the same period at around $13.50 per square foot.

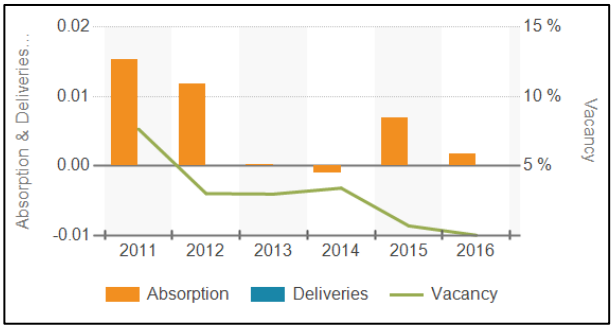
Retail Asking Rents Per Square Foot
Twin Cities Metro

Source: CoStar

Market Dynamics – Mendota Heights

Market indicators. Though limited in scale, the retail areas in Mendota Heights are outperforming the metropolitan area as a whole. Costar data shows that the retail areas at Highway 110 and Dodd Road have continued to attract retail shops and services to the point where there is no vacancy in the two retail centers. No new retail has been constructed over the past five years, but that will change with the addition to Mendota Plaza.

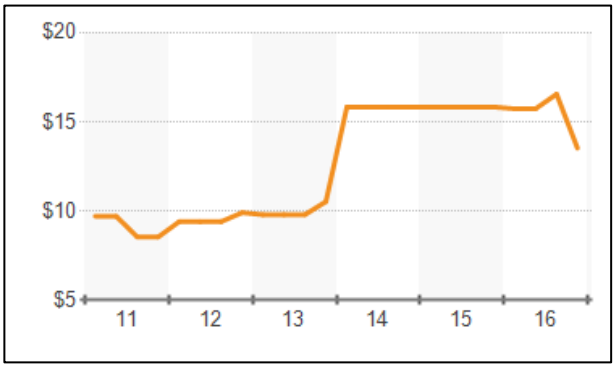
Retail Vacancy, Absorption and Deliveries
Mendota Heights



Source: CoStar

Asking rents at these centers, at around $15 per square foot, are higher than the metro average of $13.50 per square foot.

Retail Asking Rents Per Square Foot
Mendota Heights



Source: CoStar

Development Considerations

Strengths and weaknesses. The retail areas in Mendota Heights benefit from their visibility from the heavily traveled Highway 110 corridor. Highway 110 carries a daily traffic volume of 20,000 to 30,000 ADT (average daily trips). They are the first retail center of any size on Highway 110 after crossing the Mendota Bridge from Minneapolis or Richfield. They also benefit from their distance from competing retail areas. In a sense, their distance from the centers in Eagan and West St Paul gives them a monopoly on neighborhood goods and services for residents in the surrounding neighborhoods. These locational characteristics are likely to keep the areas strong into the future.

Another foundational strength of Mendota Heights retail is the relatively high income of its residents, relative to the metro area. Residents have the purchasing power to support neighborhood retail goods and services, as well as some distinctive restaurants and night spots.

Mendota Heights is more limited in its prospects for destination retail. It is not likely to be able to develop a strong destination retail area, given the strength of destination retail areas in the surrounding communities.

Development opportunities. There are limited opportunities for additional retail in Mendota Heights, and these include:

- At Mendota Plaza and The Village at Mendota Heights, limited opportunity may emerge for additional retail expansion, beyond what is already planned.
- There is a daytime population at Mendota Heights Industrial District which is underserved by restaurants and retail amenities. Although land is not available that would support the development of a large-scale retail center, there are several locations where a small footprint of retail could be developed to serve the district.

Prospects for retail growth would be strengthened by increased housing, particularly that which is in close proximity to the retail expansion area. Retail areas can also be strengthened by building additional connections to them. Increasing bike and pedestrian connections from neighborhoods to existing retail may bring a different type of customer traffic, and strengthen the appeal of Mendota Heights to families.

Industrial and Office Market Context

Employment in Mendota Heights

The Minneapolis–St. Paul economy continues to boast one of the lowest unemployment rates in the country, currently hovering around 3.4 percent. Over 28,000 jobs were added in the last 12 months, and the metropolitan area benefits from the headquarters of 16 Fortune 500 companies as well as large local employers like the University of Minnesota. The local workforce ranks 11th in the country in terms of education, with 41 percent achieving a bachelor's degree or higher. The average annual household income is $69,000, topping the national average by 29 percent.

Mendota Heights has a unique employment profile for a Twin Cities suburb. Businesses in Mendota Heights offer a high number of good-paying jobs. And there are almost two jobs in Mendota Heights for every employed person who lives in Mendota Heights.

While some jobs are in neighborhood serving retail businesses, and in its educational institutions, the great majority of jobs in Mendota Heights are in the industrial facilities and offices in the City's industrial and office areas.

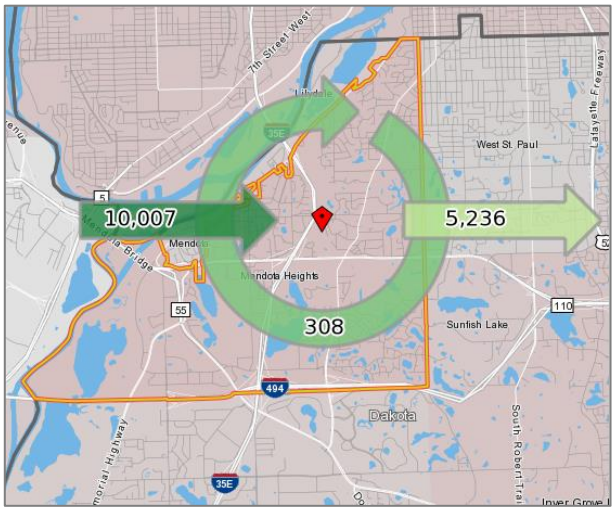
Industry mix. Mendota Heights has a quite different business profile than the metropolitan area as a whole. It has a relatively small footprint in sectors that are commonly strong, such as health care, educational services, and retail. It has an unusual concentration of businesses and employment in the following industrial sectors:

- Transportation and Warehousing
- Administration and Support
- Professional, Scientific, and Technical Services
- Finance and Insurance

Source: OnTheMap, US Census Bureau

Inflow/Outflow. Most Mendota Heights workers commute to jobs outside of Mendota Heights. Of the roughly 5,500 workers who live in Mendota Heights, almost 95% go to work at a location outside the City. Around 300 Mendota Heights residents work at a business in Mendota Heights.

Mendota Heights Job Inflow/Outflow

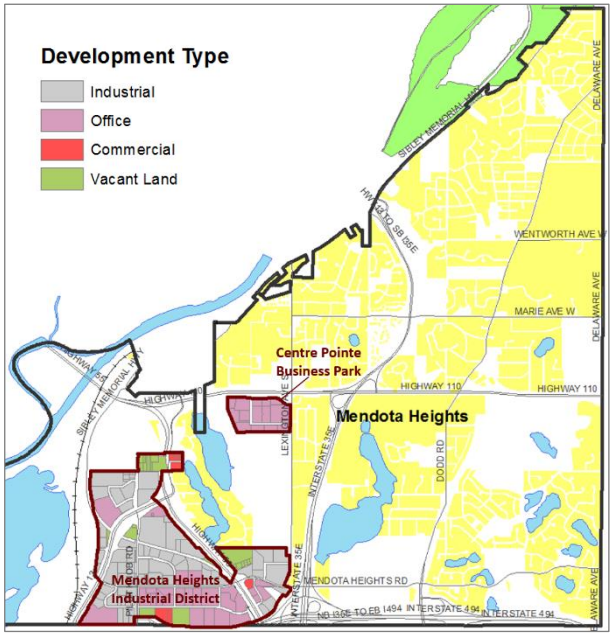


Source: OnTheMap, US Census Bureau

Location of industrial and office development. The majority of employment in Mendota Heights is focused in two distinct areas—the Mendota Heights Industrial District, and the Centre Pointe Business Park.

Businesses in the Mendota Heights Industrial District (MHID) offer over 7,000 principal jobs. The MHID is home to a mix of industrial and office developments. Industrial development (that is, a facility that includes a warehouse or production component in addition to any finished office space) is most common. But there are also a number of buildings that are strictly office buildings, without a warehouse component.

Industrial and Office Context Map

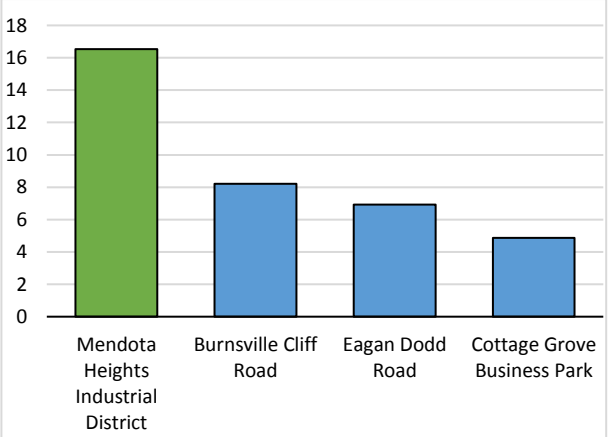


Source: Mendota Heights Assessor Data

The Centre Pointe Business Park offers around 800 jobs. The business park was developed in the 1990s and 2000s, and is comprised entirely of office buildings.

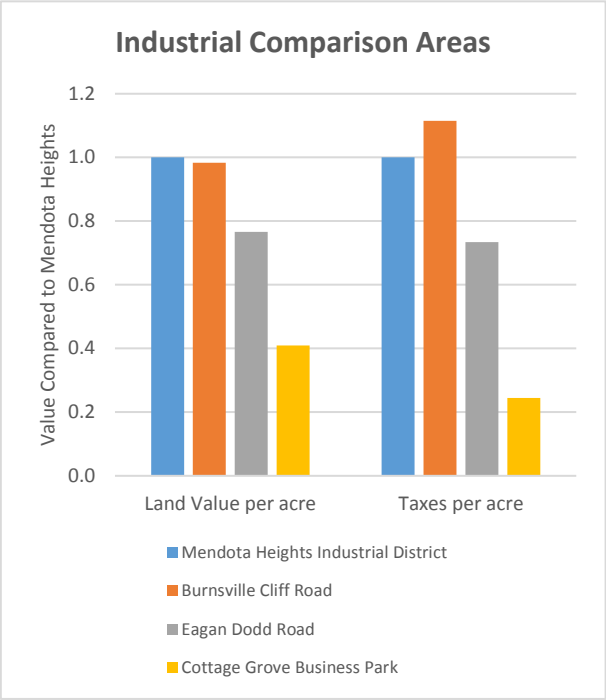
Public benefits of employment areas. The Mendota Heights Industrial District offers a greater job density than many comparable industrial areas. This is partly due to the prevalence of office buildings in the District. Industrial and office jobs tend to pay a living wage which are higher on the average than jobs in some other sectors such as retail stores and services.

Jobs per Acre



Source: OnTheMap, US Census Bureau

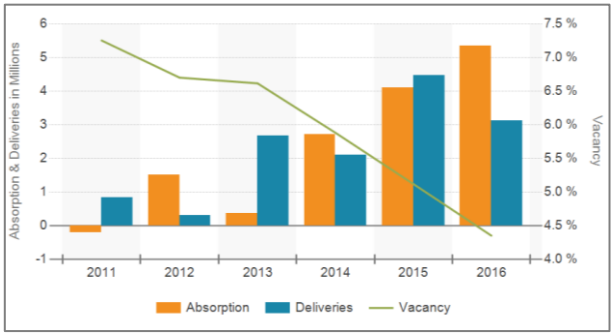
The Mendota Heights Industrial District is also an important contributor to the tax base.



Industrial Market – Regional

Metropolitan Area. The Twin Cities is a growing region with a vibrant and diversified economy—factors which support a positive long-term outlook for industrial development in the region.

Industrial Absorption & Deliveries: Twin Cities

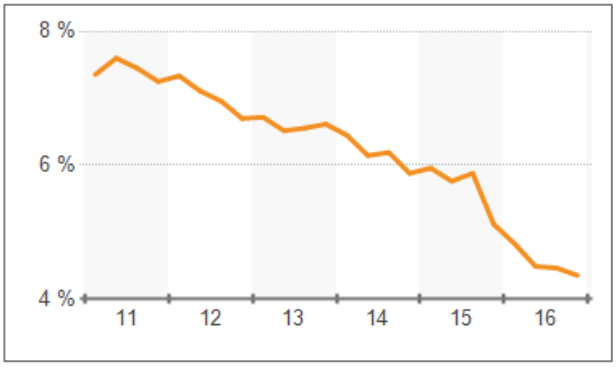


Source: Costar

Market conditions have strengthened in the industrial market. Metro-wide, there has been positive and strengthening absorption of industrial space over the past five years. New development of industrial space region-wide is at around 3 million square feet per year over the last four years. That's up from around 0.5 million square feet per year in the preceding three years. But there's still room to grow, since the historic average is around 5 million square feet of new industrial space per year.

The ongoing absorption of industrial space over the last few years demonstrates a growing demand for the space, which manifests itself in two ways. First, the vacancy rate for industrial property has dropped over the past few years to under 5%.

Industrial Vacancy: Twin Cities



Source: Costar

And second, average rents have been gradually rising, to a current blended rent rate of $6.50 per square foot.

Industrial Asking Rents: Twin Cities

Source: Costar

Increasing rents lead to the development of new space, since stronger rents support a financial return for new development.

South Central Submarket. Mendota Heights is in the South Central industrial submarket of the Twin Cities, as defined by Costar. The South Central Submarket encompasses cities such as West St Paul, South St Paul, Inver Grove Heights, Eagan, Apple Valley and

Burnsville, which are situated south of the Minnesota River and west of the Mississippi.

The South Central Submarket is performing very similarly to the Twin Cities market as a whole, with an overall vacancy rate that has dipped to around 4%. Average asking rents are around $6.30, which is a little lower than the Twin Cities average rent. New industrial development in the South Central Submarket is coming online more slowly than in the metro area overall. Only three quarters of the last 12 have seen 100,000 or more square feet of new industrial product.

Industrial Market – Mendota heights

Strengths and weaknesses. Industrial development in Mendota Heights is located almost entirely in the 425-acre Mendota Heights Industrial District. Strengths and weaknesses of the area were assessed by a recent survey of stakeholders as part of the creation of the Mendota Heights Industrial District Redevelopment Plan. Strengths included:

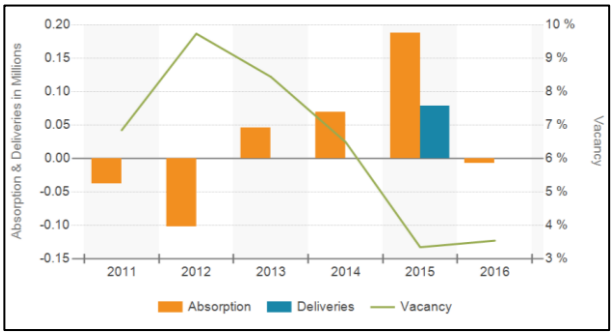
- Centrality of the location in the region
- Airport proximity and access
- Connection to regional transportation network
- Flat topography
- Well buffered from residential areas
- Utility availability
- Reasonable tax rate
- Diversity of tenants in the district

This impressive set of positive attributes makes the area highly attractive for industrial businesses. The district also has some weaknesses.

- Limited opportunity for on-site facility expansion
- Lack of retail or dining amenities
- Absence of sidewalks
- Airport noise
- Limited transit access for workers

Market indicators. Overall, these attributes result in strong utilization of the industrial space in the District, which has seen positive absorption over the last three years. The vacancy rate has correspondingly declined to around 3%, which is lower than that of the metropolitan area as a whole.

Industrial Vacancy
Mendota Heights Industrial District



Source: Costar

Area demand has also resulted in an increase in average asking rents in recent years to over $10 per square foot.

Industrial Asking Rents
Mendota Heights Industrial District

Source: Costar

Development considerations. The Mendota Heights Industrial District is attractively positioned for continued business occupancy, but there is not a lot of opportunity for new industrial development. Some properties can accommodate facility expansion, and that may well be pursued by the property owner or business tenant.

The Mendota Heights Industrial District Redevelopment Plan makes several recommendations for actions to strengthen the area's attractiveness to industrial users, and invite building renovation and improvement. These include:

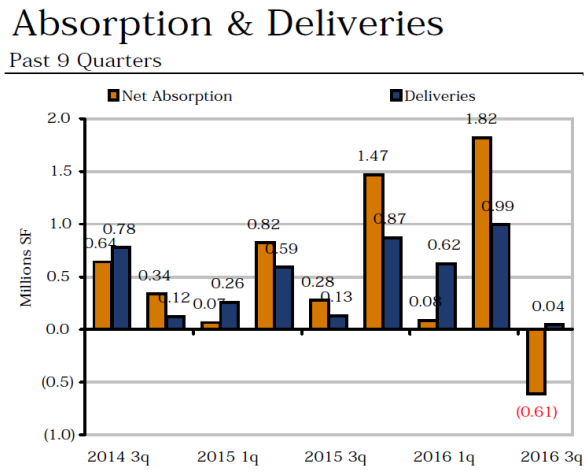
- Explore ways to communicate, brand, and promote the Industrial District
- Consider city policies toward redevelopment incentives to potentially implement on future projects

- Consider investments in broadband and other technology infrastructure as necessary to ensure the area is competitive and serves the business needs

Office Market – Regional

The office buildings in the Mendota Heights Industrial District, and the Centre Pointe Business Park operate in a different competitive environment than the industrial facilities. Vacancy rates tend to be higher in office properties. There is a cachet effect that groups office development into clusters or districts within the metropolitan area. Transit availability, and proximity to amenities, are more important for attracting office tenants than they are for attracting industrial businesses.

The following chart shows Twin Cities office space absorption over the past 9 quarters. There is a clear pattern of positive absorption of space, aside from the most recent quarter. This has brought the overall Twin Cities office vacancy rate down to around 7.5%.



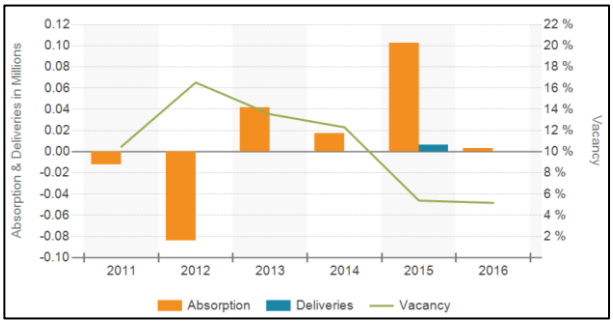
Metropolitan area rents vary by building class. They currently average around $25 per square foot for Class A office space, around $17.50 for Class B space, and around $15 for Class C space.

Office Market – Mendota heights

The office buildings in the Mendota Heights Industrial District and Centre Pointe Business Park are 20 years old on average. Together they offer around 1.4 million square feet of floor area. Buildings range in size from 6,000 square feet to 130,000 square feet. Many buildings are occupied by a single tenant, and many others have multiple tenants.

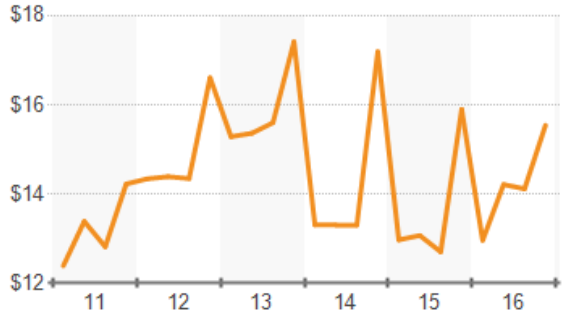
Market indicators are mixed for the office buildings in Mendota Heights. The vacancy rate in 2016 is lower than the metropolitan area as a whole. But rents are also lower than the metropolitan average.

Office Absorption, Deliveries and Vacancy Mendota Heights



Source: Costar

Office Average Asking Rent Mendota Heights



Source: Costar

Development considerations. The office districts in Mendota Heights have some strengths and face some challenges. As is true for industrial businesses, centrality in the region, and access to the freeway transportation network are significant strengths. However, the weaknesses of the area are more detrimental to the viability and attractiveness of the area to office tenants than they are for industrial

businesses. The relative lack of amenities in or near the Mendota Heights Industrial District was cited as a particular concern by real estate professionals that were interviewed for this report. Offices at the Centre Pointe Business Park are better situated in this respect than those in the Mendota Heights Industrial District.

Other liabilities, such as airport noise, and the limited nature of transit service, have a dampening impact on the Mendota Heights office market.

The Mendota Heights Industrial District Redevelopment Plan suggested consideration of guiding land along Interstate 494 for office development over the long term, as opposed to a mix of office and industrial. This may strengthen the attractiveness of the area to office users, and clarify an office-oriented brand for the southern part of the industrial district. On the other hand, the market support for additional office development in the area is not assured.

To support continued viability of the office areas in Mendota Heights, consideration could be given to actions such as:

- Strengthen the office identity and branding of the southern part of the Mendota Heights Industrial district. Let the district be part of a broader Eagan/Mendota Heights office district
- Build the amenity base of the area with the addition of some retail and restaurants, even if the opportunities for doing this are limited

APPENDIX - C

SURFACE WATER MANAGEMENT PLAN

July 2018

Prepared for:
City of Mendota Heights
1101 Victoria Curve
Mendota Heights, MN 55118

WSB PROJECT NO. 1735-04

SURFACE WATER MANAGEMENT PLAN

FOR THE

CITY OF MENDOTA HEIGHTS, MINNESOTA

July 2018

Prepared By:

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GLOSSARY OF TERMS

DEFINITIONS

100-year Flood: A flood that statistically has a one percent (1%) chance of occurring in any given year.

1-year, 10-year, and 100-year Rainfall: A rainfall event that has a 100 percent, ten percent (10%), and one percent (1%) chance respectively, of happening in any given year.

Alluvial: Made up of the material—such as sand, silt, or clay—deposited on land by streams.

Aquatic Macrophyte: A plant that grows in or near water.

Bounce: The elevation difference between the normal water level (NWL) and the water level after a particular storm event.

Buffer Strip: An area of permanent vegetation that helps to control air, soil, and water quality along with other environmental problems.

Calcareous Seepage Fen: A rare and distinctive wetland characterized by a substrate of non-acidic peat and dependent on a constant supply of cold, oxygen-poor groundwater that is rich in calcium and magnesium bicarbonates. (Source: http://www.bwsr.state.mn.us/wetlands/Calc_fen-factsheet.pdf)

Dredge: Removal of sediments and debris from the bottom of a waterbody.

Environmental Protection Agency (EPA):

Fen: A low and marshy or frequently flooded area of land.

Floatables: Solid water-borne litter and debris, mainly from street litter.

Floodplain: Any land area susceptible to being inundated by floodwaters from any source.

Floodway: The channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Freeboard: The vertical separation between the high water level (HWL) of the simulated rainfall or runoff event and the lowest ground elevation adjacent to a structure.

Hydraulic: Related to the conveyance of liquids through pipes and channels.

Hydrologic: Related to the occurrence, circulation, distribution, and effects of water on the earth's surface, in the soil and underlying rocks, as well as in the atmosphere.

Illicit Discharge: Any direct or indirect non-stormwater discharge to the storm drain system.

Impaired Waters: A body of water that is too polluted or otherwise degraded to meet the water quality standards set by the State of Minnesota.

Infiltration: Wter passing through a substance (generally soil) by filtering or permeating.

Inlet: A place of entry into a waterbody.

Land Locked Basin: Basins where no outlet exists below the proposed or existing structures.

GLOSSARY OF TERMS

Municipal Separate Storm Sewer System (MS4): The system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains).

National Pollutant Discharge Elimination System (NPDES) Permit: A permit issued by the EPA that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area.

Noxious: Harmful, poisonous, or very unpleasant.

Outfall: A place where a river, drain, or sewer empties.

Overland Drainage: Flow of water over the land, downslope toward a waterbody.

Ponding: The pooling of runoff in flat areas or depressions from which it cannot drain out.

Riprap: Loose stone used to form a foundation for a breakwater or other structure.

Runoff: Precipitation and other surface drainage that is not infiltrated into or otherwise retained by the soil, concrete, asphalt, or other surface upon which it falls.

Skimmers: Structures that confine floatables that may otherwise enter a downstream pond or lake.

Stormwater Pollution Prevention Plan (SWPPP): A document which describes the best management practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site, and the actions to eliminate or reduce pollutant discharges to stormwater, stormwater conveyance systems, and/or receiving waters to the maximum extent practicable.

Stormwater: Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation.

Surficial Geology: Unconsolidated deposits of variable content and texture that overlie the bedrock surface. Major textural categories include alluvium, terraced sands and gravels, loess, till, and outwash.

Swale: A graded, shallow trench along the land's contour, used to manage stormwater runoff and increase infiltration.

Turbulence: Unsteady movement of air, water, or other fluid.

Watershed: All lands which are enclosed by a continuous hydrologic drainage divide and lay upslope from a specified outlet point.

GLOSSARY OF TERMS

ACRONYMS

BMP – Best Management Practice

BWSR – Board of Water and Soil Resources

cfs – cubic feet per second

CMP – Corrugated Metal Pipe

DNR – Department of Natural Resources

DWSMA - Drinking Water Supply Management Area

EOF – Emergency Overflow

ESC – Erosion and Sediment Control

FEMA – Federal Emergency Management Agency

fps – feet per second

GIS – Geographical Information System

HWL – High Water Level

HSG – Hydrologic Soil Group

ISTS – Individual Sewage Treatment Systems

LGU – Local Governmental Unit

LID – Low Impact Development

LIDAR – Light Detection and Ranging

LMRWD – Lower Minnesota River Watershed District

LMRWMO – Lower Mississippi River Watershed Management Organization

LSWMP – Local Surface Water Management Plan

MDH – Minnesota Department of Health

MIDS – Minimal Impact Design Standards

MLCCS – Minnesota Land Cover Classification System

MnDOT – Minnesota Department of Transportation

MnRAM – Minnesota Routine Assessment Method

MNRRA – Mississippi National River and Recreation Area

MPCA – Minnesota Pollution Control Agency

GLOSSARY OF TERMS

MS4 – Municipal Separate Storm Sewer System

NOAA – National Oceanic Atmospheric Administration

NPDES - National Pollutant Discharge Elimination System

NURP – Nationwide Urban Runoff Program

NWI – National Wetlands Inventory

NWL – Normal Water Level

OHWL – Ordinary High Water Level

P8 – Program for Predicting Polluting Particle Passage through Pits, Puddles, and Ponds

ppb – parts per billion

PWI – Protected Waters Inventory

RCP – Reinforced Concrete Pipe

SWCD – Soil and Water Conservation District

SWMP – Surface Water Management Plan

SWPPP – Stormwater Pollution Prevention Plan

SWU – Stormwater Utility

TCMACMP - Twin Cities Metropolitan Area Chloride Management Plan

TMDL – Total Maximum Daily Load

USACE – US Army Corps of Engineers

USEPA – US Environmental Protection Agency

WCA – Wetland Conservation Act

WHEP – Wetland Health Evaluation Program

WHPP – Wellhead Protection Plan

WMAt – Winter Maintenance Assessment tool

WRMP – Water Resources Management Plan

SECTION 1

1. EXECUTIVE SUMMARY

The purpose of this plan is to describe how the current Surface Water Management Plan when combined with the City policy and procedures meets statutory, rule, and Metropolitan Council requirements. The purpose of this Surface Water Management Plan is broad and the goal is to guide the City in managing its surface and groundwater resources. This will enable the City to develop drainage facilities in a cost-effective manner, while maintaining or improving the quality of its water resources.

1.1. Purposes

The City of Mendota Heights' Surface Water Management Plan (also referred to as the plan, SWMP, City plan, local plan) is a local management plan that meets the requirements of Minnesota Statutes 103B.235, Minnesota Rules 8410, the Lower Mississippi River Watershed Management Organization Third Generation Watershed Management Plan (dated August 2011, as amended August 2015) and the Lower Minnesota River Watershed District's Third Generation Watershed Management Plan (dated November 2011, as amended June 2015). The purpose of the SWMP is to serve as a guide in conserving, protecting, and managing the City's surface water resources. This plan is an update to the 2006 Local Surface Water Management Plan (LSWMP) and includes updates to the City's HydroCAD Model as well as the incorporation of a P8 Urban Catchment water quality model.

The City submits its SWMP to the Metropolitan Council, the Lower Mississippi River Watershed Management Organization, and the Lower Minnesota River Watershed District for their review. The watershed organizations have 60 days for their review after written receipt of the City SWMP. Metropolitan Council provides comments within 45 days. Metropolitan Council directs its comments to the watershed organizations which then consider these comments in formulating their own.

1.2. Surface Water Management Responsibilities and Related Agreements

The City of Mendota Heights is party to two separate joint powers agreements related to surface water management:

1. With the cities of St. Paul, Lilydale, Mendota, Mendota Heights, Sunfish Lake, West St. Paul, South St. Paul, and Inver Grove Heights establishing the Lower Mississippi River Watershed Management Organization (LMRWMO).
2. With the cities of Bloomington, Burnsville, Carver, Chanhassen, Chaska, Eagan, Eden Prairie, Lilydale, Mendota, Mendota Heights, Minneapolis, Savage, and Shakopee establishing the Lower Minnesota River Watershed District (LMRWD).

The City also has an agreement with both the LMRWMO and LMRWD establishing the City as the Local Government Unit for administering the Wetland Conservation Act (WCA) within the City.

Upon approval of this SWMP by the two watersheds with jurisdiction over the City, it is the City's intent to maintain its current permitting powers through its Permit for Land Disturbing Activities. Currently, the LMRWMO and LMRWD do not issue permits, so no impact to these organizations would occur. The watersheds would continue in their role as project review agencies.

The City of Mendota Heights is responsible for construction, maintenance, and operation of the City's stormwater management systems (e.g., ponds, BMP, mechanical structures, sump manholes, pipes, channels) in accordance with its MS4 Permit.

1.3. Metropolitan Council Requirements

Metropolitan Council's 2040 Water Resources Management Plan expands upon the requirements of Rule 8410 as follows:

1. Communities must commit to a goal of no adverse impacts (non-degradation) for area water resources.
2. The assessment of problems and corrective actions must include Total Maximum Daily Load (TMDL) considerations.
3. Require infiltration of the first half inch of runoff from impervious areas created by projects where there are A and B soils.
4. Require infiltration in wellhead protection areas be based on City's wellhead protection plan.
5. Communities with trout streams must identify actions to reduce thermal pollution.
6. Communities must meet state requirements for development near outstanding resource value waters.
7. Communities must consider stormwater management practices that promote infiltration and filtration including the reduction of impervious surface.
8. Include information of types of Best Management Practices (BMPs) used to improve stormwater quality and quantity including maintenance schedules.

1.4. Plan Structure

The Mendota Heights SWMP is divided into six sections:

- ***Section 1 Executive Summary*** provides background information and summarizes the plan contents.
- ***Section 2 Land and Water Resource Inventory*** presents information about the topography, geology, groundwater, soils, land use, public utilities, surface waters, hydrologic system and data, and the drainage system.
- ***Section 3 Agency Cooperation*** outlines other governmental controls and programs that affect stormwater management.
- ***Section 4 Assessment of Problems and Issues*** presents the City's water management related problems and issues.
- ***Section 5 Goals and Policies*** outlines the City's goals and policies pertaining to water management.
- ***Section 6 Implementation Program*** presents the implementation program for the City, which includes defining responsibilities, prioritizing, and listing the program elements.

1.4.1. Background

This report provides the City of Mendota Heights with a SWMP that serves as a guide to managing the City's surface water system, and brings the City into compliance with Minnesota Statutes. This plan is an update to the 2006 LSWMP. The plan will guide stormwater activities in the City for the next 10 years (2018-2027). Periodic amendment to the SWMP will likely occur in the intervening 10 years so that the SWMP remains current to watershed plan amendments and Metropolitan Council requirements.

The City of Mendota Heights (population 11,172) is located in northern Dakota County at the confluence of the Mississippi and Minnesota Rivers (**Figure 1**). Mendota Heights is a well-established community that is fully developed. The City has put emphasis on high quality residential neighborhoods, open space and parks, and well-planned commercial and industrial areas.

The Township of Mendota was organized in 1858. After World War II, the area experiencing rapid growth and the need for community planning and services prompted a portion of the original township to incorporate as the Village of Mendota Heights in 1956. The Village of Mendota Heights became the City of Mendota Heights in 1974. Mendota Heights is a first-ring suburb located between the City of West St. Paul and Sunfish Lake to the east, Minneapolis – St. Paul International Airport and Fort Snelling to the West, City of Eagan to the south, and City of St. Paul to the north.

Mendota Heights falls within two watershed districts: Lower Mississippi Watershed Management Organization and the Lower Minnesota River Watershed District. This plan addresses the rules and regulations put forth by the both.

The City of Mendota Heights is considered fully developed. **Section 2.3** of this plan discusses land use in the City.

1.4.2. Summary of Implementation Section

Section 6 of this plan presents the implementation program for the City of Mendota Heights, which includes defining responsibilities, prioritizing, and listing the program elements. Table 6.1, outlines the projects, programs, studies, and Storm Water Pollution Prevention Plan (SWPPP) activities that have been identified as a priority to address water resource needs and problem areas within the City**.**

SECTION 2

2. LAND AND WATER RESOURCE INVENTORY

2.1. Land Use

Figure 1 provides the land use classifications for the City of Mendota Heights, and comes directly from the City's 2030 Comprehensive Plan (Comprehensive Plan). The Comprehensive Plan states that the City of Mendota Heights is predominantly developed. However, the City has maintained substantial areas of public open space, wetlands, lakes, bluffs and wooded areas that give the impression of a lower density of development. According to the Comprehensive Plan, the City will strive to maintain and enrich the mature, fully developed residential environment by preserving natural features and the environment while promoting high quality and well-functioning developments.

The Comprehensive Plan provides a significant amount of narrative and statistical detail on existing and proposed land use and the reader is referred to that document for more information on land use planning. There are a few areas of note that relate to surface water management, one of which is the concentrated industrial area between Highway 13, Highway 55, and Interstate 494. Having a concentrated area of impervious area can be opportunity for regional stormwater treatment when new development occurs, but it can also be a potential hotspot for stormwater pollution and management issues.

The Comprehensive Plan references "focus" areas, or areas remaining to be developed. The focus areas in the Comprehensive Plan are Pilot Knob and Acacia Site, Somerset Area, St. Thomas/Visitation Campuses, Dodd/Highway 110, Furlong District, and "Infill" Sites (any property that has the opportunity to develop, or redevelop, beyond its current level). These focus areas have the potential to play an important role in the management of surface water during the next ten years. As the sites develop and potentially impact water quality and public safety, it will be essential that guidelines and best management practices, as outlined in this SWMP, are followed by developers.

The hydrologic modeling that supports the SWMP used the land use that was used in the 2006 Local Surface Water Management Plan hydrologic model. A combination of aerial photos, the land use classification map, and as-built drawings were used to determine hydrologic characteristics of the full development landscape.

Changes from undeveloped land uses—such as natural and agricultural—to more heavily developed land uses —such as low, medium and high density residential and commercial—have a pronounced effect on hydrology. The increased impervious surface associated with the urban land uses leads to higher runoff peak flows and increased runoff volumes. The City is unique in that although it is mostly developed, the land use consists of large areas of institutional land, resulting in less impervious area and more green and open space.

2.2. Topography and Watersheds

The surficial geology of Mendota Heights consists of the glacial and alluvial (outwash) deposits which cover most of the City. Most of Mendota Heights is rolling to hilly terrain interspersed with poorly drained depressions that form many ponds and small lakes. The Comprehensive Plan provides additional detail on the general topography of the City.

The City of Mendota Heights is located near the confluence of the Minnesota and Mississippi Rivers in northern Dakota County. Steep slopes occur along the Minnesota and Mississippi river bluffs along the west and north border of the City. Elevation in the City ranges from approximately 690 feet along the Minnesota River to approximately 1,030 feet along the City's border with West St. Paul. The steep slopes along the river bluffs often result in challenges during hydrologic design and planning to prevent erosion. Additionally, at the bottom of the Minnesota River Bluff adjacent to

Highway 13 is the Gun Club Lake Fen, a calcareous fen with rare and important indicator vegetation for the ecosystem. There has been significant work by LMRWD to improve and protect this resource, which includes special considerations when managing stormwater discharge into the area.

The City's hydrologic system is part of both the Mississippi River and Minnesota River watersheds. The City resides within one watershed management organization and one watershed district. The southwestern portion of the City resides in the LMRWD. The remaining portion of the City lies within the LMRWMO. **Figure 2** shows jurisdictional boundaries for the two watershed organizations within the City.

The City of Mendota Heights has contour data that cover the entire City and is based on 2011 LIDAR (Light Detection and Ranging) data. Information regarding the City's surficial and bedrock geology and aquifers is available in the Dakota County Geologic Atlas from the Minnesota Geological Survey.

2.3. Soils

Soils of the Mendota Heights area are classified into three associations of multiple soil series:

- Kingsley-Mahtomedi Association
- Waukegan-Wadena Hawick Association
- Colo-Algansee-Minneiska Association

Information about each of the soils in these associations area available from the Soil Survey of Dakota County (SCS 1983). **Table 2.1** shows the drainage characteristics of each soil series from the above associations. The drainage nature of the soil is important for determining surface water runoff from a given area. If the soil is well-drained, a significant portion of the precipitation will be infiltrated into the ground, whereas if a soil is very poorly drained much more precipitation becomes runoff. The Hydrologic Soil Group (HSG) defines a soil's propensity to generate runoff for a given runoff event. More information about HSG and their properties can be found in the Minnesota Pollution Control Agency's (MPCA) Minnesota Stormwater Manual (http://stormwater.pca.state.mn.us/).

Table 2.1
Soil Series Characteristics

Soil Series	Drainage Characteristic	Hydrologic Soil Group
Kingsley	Deep, well drained	B
Mahtomedi	Deep, excessively drained	A
Waukegan	Deep, well drained	B
Wadena	Deep, well drained	B
Hawick	Deep, excessively drained	A
Colo-Algansee-Minneiska (alluvial soils)	Poor to moderately well drained	B/D

When development or redevelopment occurs within areas of well-drained soils, infiltration shall be considered on a case by case basis. **Section 5.3.2** discusses the City's approach to infiltration.

2.4. Existing Flood Insurance Studies

A search of the Federal Emergency Management Agency (FEMA) website showed no flood insurance studies for the City of Mendota Heights, other than those for the Mississippi and Minnesota Rivers. The Flood Insurance Rate Map for Mendota Heights is effective as of December 2, 2011. Mendota Heights is community number 270110.

2.5. Key Water Resources

Surface waters throughout the City are available for the use and enjoyment of its residents. Many of surface waters that provide an aesthetic amenity to the community also double as a means of access for stormwater to wind its way towards its outfall. These major water resources tend to be State of Minnesota public waters. Below is a brief summary of the major surface water resources. The public waters are labeled with their Public Waters Inventory (PWI) number.

Augusta Lake (PWI #19-81P)
Lake Augusta is a Minnesota Department of Natural Resources (DNR) public water. It is a deep lake with a maximum depth of 33 feet, and an area of 44 acres. The area of its watershed is 410 acres.

LeMay Lake (PWI #19-82W)
This lake is considered a public water wetland by the Minnesota DNR. It is a shallow lake and drains to an outlet under Highway 55. LeMay Lake is next to a residential neighborhood.

Gun Club Lake (PWI #19-78P)
Gun Club Lake and the stream it discharges to are both public waters. The lake is located along the Minnesota River within its floodplain. This lake discharges to an unnamed stream that flows to the Minnesota River, and although it is located in the City, it is managed by Fort Snelling State Park.

Rogers Lake (PWI #19-80P)
A shallow lake with a maximum depth of eight feet, Rogers Lake covers a surface area of approximately 114 acres. It discharges to a storm sewer pipe along Wagon Wheel Trail.

Interstate Valley Creek
This creek is an intermittent stream that begins near the intersection of Highway 110 and Highway 149 (Dodd Road) at the outflow point of Friendly Marsh. The creek flows northward, generally parallels Interstate 35E. Interstate Valley Creek is the single largest watershed within the City of Mendota Heights, and includes areas within the cities of Inver Grove Heights, Sunfish Lake, and West St. Paul.

Ivy Falls Creek
Ivy Falls Creek is an intermittent stream that begins at the Somerset Golf Course. The gradient of the stream is steep, it drops down 180 feet in the 3,000 feet from Dodd Road to Highway 13, including a 50-foot drop at Ivy Falls. The steep gradient has allowed erosion problems to occur. The creek eventually discharges to Pickerel Lake in the City of Lilydale.

Minnesota and Mississippi Rivers
Both of these rivers are Minnesota public waters. Shorelines of both of these rivers are found within city limits, but these shorelines are also in Fort Snelling State Park. The Minnesota and Mississippi River shorelines that are within the City's limits are managed by Fort Snelling State Park and the St. Paul Parks and Recreation Department.

2.5.1. *Impaired Waters*

The MPCA lists the following water bodies located within or near the City as being impaired, meaning that the waters are too polluted or otherwise degraded to meet the water quality standards set by governing bodies:

Table 2.3
Summary of Impaired Water Bodies

Impaired Water Body	Impairment
Minnesota River (ID 07020012-505)	• Turbidity (1996) • Dissolved Oxygen (1998) • Mercury in water column and fish tissue (1998) • Polychlorinated biphenyls (PCB) in fish tissue (1998)
Mississippi River (ID 07010206-509)	• Fecal Coliform (1998) • PCB in fish tissue (2006)
Augusta Lake (ID 19-0081-00)	• Nutrient/eutrophication biological indicators (2010)
Unnamed Creek (ID 07010206-542)	• E.Coli

The locations of these impaired water bodies are shown on the water resource problem areas map (**Figure 3, Appendix A**). For more information on impaired waters and TMDL Plans visit the MPCA website http://www.pca.state.mn.us/. The MPCA website contains an *Impaired Waters Viewer*, an interactive map that can be used to view impaired waters and their updated water quality data, as well as their updated TMDL Plans.

In addition to the water bodies listed above, the City is upstream of other reaches of the Mississippi River. The City may be required to implement the TMDL plans for these water bodies once complete.

2.6. Natural Communities and Rare Species

A Minnesota Land Cover Classification System (MLCCS) search was performed for the areas below the bluffs, where land cover is divided into levels of importance and type. The bluffs themselves are upland areas. **Table 2.2** shows a listing of the land cover types below the bluffs and the area of each type that falls within the Mendota Heights City limits. Of special note is the presence of calcareous seepage fen prairie. The LMRWD and the MLCCS consider calcareous fens to be high priority areas for wetland preservation and restoration.

Table 2.2
MLSS Summary of Areas Below the Bluffs
City of Mendota Heights

Land Cover Description	Total Area (acres)
Oak (forest or woodland) with 11-25% impervious cover	1.9
51% to 75% impervious cover with deciduous trees	18.0
Pavement with 91-100% impervious cover	2.5
Short grasses with sparse tree cover on upland soils	10.2
Short grasses on upland soils	5.5
Oak forest	3.9
Floodplain forest	209.8
Lowland hardwood forest	6.1
Aspen forest - temporarily flooded	1.5
Mixed hardwood swamp - seasonally flooded	7.2

Altered/non-native deciduous woodland	2.8
Altered/non-native dominated temporarily flooded shrubland	0.8
Willow swamp	3.3
Medium-tall grass altered/non-native dominated grassland	12.8
Temporarily flooded altered/non-native dominated grassland	2.0
Calcareous seepage fen prairie subtype	37.0
Mixed emergent marsh - seasonally flooded	62.5
Mixed emergent marsh	106.4
Mixed emergent marsh - intermittently exposed	57.2
Mixed emergent marsh - permanently flooded	22.1
Grassland with sparse deciduous trees - altered/non-native dominated vegetation	3.4
River mud flats	3.6
Slow moving linear open water habitat	139.3
Limnetic open water	145.1
Palustrine open water	41.6

2.6.1. Water Quality Data

Water quality data for the City can be obtained from the MPCA's Environmental Data Access site and up to date information is located on their website. This data provides a snapshot of overall water quality and health of local waterbodies. This database is utilized by participating agencies to compile water quality testing data and is almost entirely used for the storage of water quality parameters. This water quality monitoring information/data and monitoring locations can be found at the MPCA's Environmental Data Access site at https://www.pca.state.mn.us/water/water-monitoring-and-reporting.

The LMRWD and LMRWMO also monitor creeks and lakes within Mendota Heights. Citizens can visit the respective websites for the most recent monitoring report.

2.7. Groundwater and Water Supply

Various agencies are responsible for groundwater management and protection. The DNR regulates groundwater usage rate and volume as part of its charge to conserve and use the waters of the state. Suppliers of domestic water to more than 25 people or applicants proposing a use that exceeds 10,000 gallons per day or 1,000,000 gallons per year must obtain a water appropriation permit from the DNR. Many of the agencies charged with regulating water usage are currently involved in assessing and addressing concerns of water usage. When and where feasible, the City of Mendota Heights will work with the associated agencies to be good stewards of water resources. The Minnesota Department of Health (MDH) is the official state agency responsible for addressing all environmental health matters, including groundwater protection. For example, the MDH administers the well abandonment program, and along with the Minnesota DNR, regulates installation of new wells. The MPCA administers and enforces laws relating to pollution of the state's waters, including groundwater. The Minnesota Geological Survey provides a complete account of the state's groundwater resources. Dakota County has statutory responsibilities for groundwater management contained in its Environment and Natural Resource Management Policy Plan (adopted and approved in 2006). Dakota County is currently revising the county comprehensive plan, which is scheduled to be submitted for the Board of Water and Soil Resources (BWSR) approval in 2018.

At this time the City of Mendota Heights is not aware of any Drinking Water Supply Management Areas (DWSMAs) within the City's boundaries. However, parts of the City have been flagged as significantly vulnerable to groundwater contamination. Refer to the Dakota County Comprehensive Plan for the most up to date information on DWSMAs and groundwater status.

2.8. Hydrologic System and Data

The City has been divided into four major watershed areas: Gun Club Lake, Ivy Falls Creek, Mississippi Bluffs, and Interstate Valley Creek. Each of these four watershed areas have HydroCAD models that were updated from the 2006 LSWMP for the 2018 SWMP to include the new NOAA Atlas 14 Precipitation Frequency Estimates. The updated HydroCAD Models were used to develop a P8 Urban Catchment Model. Modeling results and discussion can be found in **Appendix E**, and narrative on the City's Hydrologic System can be found in **Section 4.3.**

2.9. NPDES MS4 Permit

The City is holder of an NPDES MS4 Permit, which includes a SWPPP. The City completed a reauthorization in 2013, that included an evaluation of the City's stormwater system, resulting in a final SWPPP that includes existing and proposed BMPs, responsible persons, measurable goals, and timelines for implementation.

2.10. Water Resource Management Ordinances and Policies

The City Ordinance for Mendota Heights includes *Stormwater Management, Illicit Discharge, .* The City Ordinance can be found online at the City of Mendota Heights website, and includes sections on construction site management stormwater, illicit discharge and storm sewer connection regulations, and post-construction stormwater runoff regulations.

SECTION 3

3. AGENCY COOPERATION

There are several local, state, and federal agencies that have rules and regulations related to local water management. The City recognizes the roles of these other agencies and will cooperate, coordinate, and partner when possible with these agencies.

This SWMP is in conformance with, but does not restate, all other agency rules that are applicable to water resource management. The following agencies deal with or regulate water resources throughout the City:

- Minnesota Department of Health (www.health.state.mn.us)
- Minnesota Pollution Control Agency(www.pca.state.mn.us)
- Board of Water and Soil Resources (www.bwsr.state.mn.us) and the Wetland Conservation Act (www.bwsr.state.mn.us/wetlands/wca/index.html)
- Minnesota Department of Natural Resources (www.dnr.state.mn.us)
- US Army Corps of Engineers (www.mvp.usace.army.mi)
- Minnesota Department of Agriculture (www.mda.state.mn.us)
- US Fish and Wildlife Service (www.fws.gov)
- Dakota County Soil and Water Conservation District (http://www.dakotaswcd.org/)
- Lower Mississippi River Watershed Management Organization (http://www.dakotaswcd.org/watersheds/lowermisswmo/)
- Lower Minnesota River Watershed District (http://www.watersheddistrict.org/)
- Minnesota Environmental Quality Board (www.eqb.state.mn.us)
- Metropolitan Council (www.metrocouncil.org)

While these other agencies' rules, policies, and guidelines are not all restated in this SWMP, they are applicable to projects, programs, and planning within the City. The MPCA Minnesota Stormwater Manual, which is a document intended to be frequently updated, is also incorporated by reference into this SWMP and can be found at www.pca.state.mn.us/water/stormwater/stormwater-manual.html.

3.1. County, State, and Federal Agency Requirements

This section of the SWMP presents a synopsis of the current agency requirements while acknowledging the existence of other requirements that may be applicable. The City is committed to the preservation and enhancement of its wetlands and water resources through full compliance with local, state, and federal wetland regulations.

3.1.1. Minnesota Department of Natural Resources

Types 3, 4, and 5 wetlands are protected by statute at the state level. These are areas typically recognized as wetlands and are generally characterized by open water and emergent vegetation throughout most of the year. The state has jurisdiction over only those wetlands appearing on the State's inventory of protected waters. Further, wetlands in the inventory are generally those in excess of ten acres in rural areas or in excess of two and a half acres in municipalities and incorporated areas. **Figure 6** shows the DNR protected waters within the Mendota Heights SWMP study area.

If an area meets the jurisdictional criteria but is not on the State's inventory, it is not regulated by the DNR. If it does not meet the statutory criteria but is listed on the inventory, it still is subject to DNR regulation. There is currently no mechanism for adding wetlands to or deleting wetlands from the inventory. The inventory was begun in the late 1970s and all state inventories were completed during the early 1980s. The DNR rules specify that permits may not be issued for any project except those that provide for public health, safety, and welfare. Any private development projects are effectively excluded from permit consideration by this requirement.

The western portions of the City abutting the Minnesota River are located in the Mississippi River Critical Area Corridor. According to the DNR:

> The purposes of designating the Mississippi River and this portion of the Minnesota River as a state critical area include the following:
>
> a) protecting and preserving a unique and valuable state and regional resource for the benefit of the health, safety, and welfare of the citizens for the state, region, and nation;
> b) preventing and mitigating irreversible damage to this resource;
> c) preserving and enhancing its natural, aesthetic, cultural, and historical value for public use;
> d) protecting and preserving the river as an essential element in the national, state, and regional transportation, sewer and water, and recreational systems; and protecting and preserving the biological and ecological functions of the corridor.
>
> The DNR has three primary roles for the Mississippi River Critical Area Program. The DNR has undertaken the mandate of reviewing existing ordinances that affect lands within the Mississippi River Critical Area Corridor for their compliance with state critical area standards and guidelines. Technical assistance for ordinance development will be provided to local communities to ensure adoption and approval of a compliant state critical area ordinance or any ordinance amendments. DNR will also provide individualized technical assistance for amending existing ordinances or developing proposed ordinances that will be consistent with the voluntary Mississippi National River and Recreation Area (MNRRA) Comprehensive Management Plan policies.
>
> In addition, adoption or amendment of plans and ordinances affecting lands within the Mississippi River Critical Area Corridor and relating to Executive Order 79-19 purposes and standards are effective only after approval by the DNR. The DNR reviews the plans and ordinances to ensure their consistency with the provisions of Executive Order 79-19, following an evaluation by the Metropolitan Council.
>
> In communities where critical area plans and ordinances have become effective, the local governmental unit also must notify the DNR area hydrologist at least 30 days before action is taken for all development applications or variances requiring a public hearing or discretionary action. In communities where plans and regulations have not been adopted or approved, the DNR is also to be notified about additional types of projects listed in the Interim Regulations. DNR will review and comment on the project's compliance with critical area and state requirements and MNRRA policies, as well as provide technical assistance as requested. Notice of the final action is to be sent to the DNR.
>
> The City of Mendota Heights has adopted appropriate rules and ordinance to serve as the local government unit (LGU) conducting critical area review and implementation. As the Minnesota DNR adopts new rules the City will in turn revise its rules and ordinance to remain the LGU. In cases where a large subdivision of land might occur within the Critical Area, the City would transfer its review authority to the Minnesota DNR.

The other powers and duties of this Minnesota state agency and its commissioner are wide-ranging. As they affect surface water management within the City they include:

- Regulation of all public waters inventory waterbodies within the City – to the extent of

their ordinary high water level (OHWL).
- Regulation of certified floodplains around rivers, creeks, lakes and wetlands.
- Management of the Flood Hazard Mitigation program.
- Shoreland Management.

3.1.2. US Army Corps of Engineer (USACE)

The Environmental Protection Agency (EPA) and the USACE regulate the placement of fill into all wetlands of the U.S. In 1993, the definition of "discharge of dredged material" was modified to include incidental discharges associated with excavation. This modification of the "discharge of dredged material" definition meant that any excavation done within a wetland required the applicant to go through Section 404 permitting procedures. In 1998, however, this decision was modified so that excavation in wetlands is now regulated by the USACE only when it is associated with a fill action.

3.1.3. Board of Water and Soil Resources (BWSR)

The local and regional wetland rules are governed by the WCA. The WCA, passed in 1991, extends protection to all wetlands unless they fall under one of the exemptions. The WCA follows a "no net loss" policy. The wetlands covered under the WCA must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland of at least equal public value under an approved replacement plan. Replacement ratio is typically two acres created for every one acre filled for wetland impacts.

A designated LGU is responsible for making exemption and no-loss determinations as well as approving replacement plans. Currently, Mendota Heights acts as the LGU for the WCA within the City's subdivision authority.

The powers and duties of BWSR include:

- Coordination of water and soil resources planning among counties, watersheds, and local units of government.
- Facilitation of communication among state agencies in cooperation with the Environmental Quality Board.
- Approval of watershed management plans.

3.1.4. Minnesota Pollution Control Agency (MPCA)

The MPCA implements provisions of Section 404 of the Clean Water Act with guidance from the EPA through a permitting process. The Section 404 permit also requires a Section 401 water quality certification before it is valid. The EPA has given Section 401 certification authority to the MPCA.

The powers and duties MPCA and its commissioner include:

- Fulfilling mandates from the EPA, particularly in regard to the Clean Water Act.
- Administration of Mendota Heights' NPDES Phase II MS4 permit.
- Administration of the NPDES construction site permit program.
- Administration of the NPDES industrial site discharge permit program.
- Development of TMDLs for waterbodies and watercourses in Minnesota (often in conjunction with other agencies or joint powers organizations such as watersheds).

3.1.5. Environmental Protection Agency (EPA)

As it relates to surface water management within Mendota Heights, the EPA is charged with interpreting and applying aspects of the Clean Water Act. This has led to the City's need for its NPDES MS4 permit. Total maximum daily load limits, a new initiative mandated by the EPA, also stem from the EPA's role as steward of the Clean Water Act.

3.1.6. Lower Minnesota River Watershed District (LMRWD) and Lower Mississippi River Watershed Management Organization (LMRWMO)

The powers and duties of these Minnesota statutory authorities include:

- Approval authority over local water management plans.
- Ability to develop rules regarding management of the surface water system.
- Ability to determine a budget and raise revenue for the purpose of covering administrative and capital improvement costs.
- Regulation of land use and development when one or more of the following apply:
  - The City does not have an approved local plan in place.
  - The City is in violation of their approved local plan.
  - The City authorizes the watershed toward such regulation.
- Other powers and duties as given in statute and joint powers agreements.

3.1.7. State and Federal Jurisdictional Boundaries for Public Wetlands and Waters

Wetlands are delineated in accordance with the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1987). Wetlands must have a predominance of hydric soils. Hydric soils by definition are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, under normal circumstances, a prevalence of hydrophytic (water tolerant) vegetation typically adapted for life in saturated soil conditions. The USACE and the BWSR regulate wetlands as defined by a jurisdictional delineation.

For wetlands that fall under the Minnesota DNR jurisdiction, the OHWL determines the boundary of the Minnesota DNR's jurisdiction. The OHWL is established by the DNR.

3.1.8. Dakota County

Dakota County Soil and Water Conservation District (SWCD) sits on the Technical Evaluation Panel for administration of the WCA.

3.1.9. Metropolitan Council

Metropolitan Council, through Metropolitan Council Environmental Services, serves as a review agency for local surface water management plans. They also review and approve municipal comprehensive plans and have a prominent role in the Mississippi River Critical Area Corridor as described on the DNR website:

> "The Metropolitan Council reviews existing plans that affect lands within the Mississippi River Critical Area Corridor. Technical assistance is provided to assist communities in amending or adopting plans to become consistent with Executive Order 79-19 standards and guidelines and any voluntary MNRRA Comprehensive Management Plan policies. The council reviews all critical area plans and ordinances and makes an evaluation to DNR prior to the approval decision. In addition, the council administers the pass-through funds from the National Park Service to provide financial assistance to communities wishing to revise their plans and ordinances. The council is also involved with oversight of the Metropolitan Land Planning Act."

SECTION 4

4. ASSESSMENT OF ISSUES

Section 4 is an assessment of existing and potential local water resource-related issues that are known as of 2018. These issues have been identified based on an analysis of the land and water resource data collected during the preparation of this SWMP and through information provided by the City, its residents, and the watershed organizations. A description of any existing or potential issue within the City has been listed and potential future corrective actions have been incorporated into an implementation plan in **Section 6**. Refer to **Figure 5** for the location of many of the issues discussed below.

4.1. Water Quality Assessments

4.1.1. City Assessment

The City investigated the location of stormwater discharge into a fen that is located near the southwest part of the City. The assumption was that the stormwater was discharging to the Fort Snelling State Park Fen, which is a Restricted Discharge Water under the City's National Pollutant Discharge Elimination System (NPDES) permit. But the investigation determined that the stormwater discharge flowed to the Gun Club Lake Fen, which is not a Restricted Discharge Water.

The City prepared a self-assessment as part of developing its SWPPP. In that self-assessment, a list of potential sources or types of pollution was developed. The City does not know of a particular source or type of pollution that is prevalent within the City. Although it is not a list of actual pollution occurrences, the list repeated below does provide information for consideration and management..

- At Ivy Park Pond, there appears to be a problem where skimmers are collecting excessive floatables. A significant portion of stormwater entering the pond comes from West St. Paul. Increased maintenance attention is paid to this location.
- Lawn and landscape fertilizers are a potential source of pollution. The City purchases and uses only phosphorous-free products. The application of fertilizers containing phosphorus is currently prohibited by state law unless the results of a soil test show that phosphorus is indeed the limiting nutrient for turf growth.
- A typical salt is used on the streets. The City recognizes chloride pollution as a water quality issue, and is looking at alternative deicing products to reduce salt and sediment in stormwater and reduce street sweeping costs. Additionally, the City is looking to incorporate the Twin Cities Metropolitan Area Chloride Management Plan to reduce salt use during winter applications.
- Emergency fuel dumping from aircraft flying into the Minneapolis-St. Paul International airport is a potential source of pollution. In the past, citizens have reported strong jet fuel odors believed to be from fuel dumping. Fuel dumping is not known to be a frequent problem.
- Pet waste is recognized as a nuisance and a pollution source. Signs in parks instruct pet owners to clean up after their pets, as required by ordinance. Waste from geese is considered a serious problem. Geese use the City's lakes and ponds throughout the year.
- Failing septic systems are a potential source of pollution, although not currently perceived to be a problem. Approximately 40 septic systems exist in the City. City ordinance requires inspections of the systems. The Mendota Heights ordinance that regulates septic systems is identical to that of Dakota County and meets all Metropolitan Council and MPCA requirements.
- Soil erosion along the bluffs and at construction sites is a potential source of pollution. The storm sewer system contains some hanging outfalls, and there is scour around some outfalls.

4.1.2. Clean Water Act Assessments

The Impaired Waters List, also known as the 303(d) list from the applicable section of the federal Clean Water Act, records waters that do not currently meet their designated use due to the impact of a particular pollutant or stressor. If monitoring and assessment indicate that a water body is impaired by one or more pollutants, it is placed on the list. At some point after being added to the list, a strategy would be developed that would lead to attainment of the applicable water quality standard. The process of developing this strategy is commonly known as the TMDL process and involves the following phases:

1. Assessment and listing
2. TMDL study
3. Implementation plan development and implementation
4. Monitoring of the effectiveness of implementation efforts

Responsibility for implementing the requirements of the federal Clean Water Act falls to the US Environmental Protection Agency (USEPA). In Minnesota, the USEPA delegates much of the program responsibility to the MPCA.

Information on the MPCA program can be obtained at the following web address:
https://www.pca.state.mn.us/water/total-maximum-daily-load-tmdl-projects

A map of impaired waters in Mendota Heights and TMDL's can be found at the following web address:
https://www.pca.state.mn.us/water/impaired-waters-viewer-iwav

Table 4.1 Lists the 303(d) impaired waters within the City of Mendota Heights

Table 4.1
303(d) 2016 Final List of Impaired Waters
Within the City of Mendota Heights

Water Body	**Year First Listed**	**Assessment Unit ID #**	**Affected Use**	**Pollutant or Stressor**	TMDL start/TMDL complete
Minnesota River	1998	07020012-505	Aquatic life	Dissolved oxygen	2004*/-
Minnesota River	1998	07020012-505	Aquatic consumption	Mercury in water column	2008*/-
Minnesota River	1998	07020012-505	Aquatic consumption	Mercury in fish tissue	2008*/-
Minnesota River	1998	07020012-505	Aquatic consumption	PCB in fish tissue	1998/2025
Minnesota River	1996	07020012-505	Aquatic life	Turbidity	2014/2019
Augusta Lake	2010	07010206-506	Aquatic Recreation	Nutrient/Eutrophicatio n Biological Indicators	2010/2014

**TMDL Plan has been approved but has not been started.*

Upstream from the Mendota Heights city limits, the Mississippi River is also listed as impaired (assessment unit ID 07010206-509). This listing could potentially affect management of drainage that directly discharges to the river. The river's affected uses are aquatic consumption and aquatic recreation. The pollutants or stressors that have been identified as causing these impairments are:

- Mercury in fish tissue
- PCB in fish tissue
- Fecal Coliform

The absence of a waterbody from the 303(d) list does not necessarily mean the waterbody is meeting its designated uses. It may be that it has either not been sampled or there is not enough data to make an impairment determination. Additionally, where mercury is identified as a stressor, the TMDL approach will be regional in nature as mercury is most commonly an air-borne pollutant.

City of Mendota Heights Actions: It remains to be seen how the TMDL issues will be resolved for the Minnesota River and the Mississippi River. Each river's basin encompasses a significant portion of the state of Minnesota. It remains to be seen whether the TMDLs for the rivers will be implemented basin-wide or along specific reaches

4.1.3. Lower Mississippi River Watershed Management Organization (LMRWMO)

The LMRWMO has assessed the water quality of select lakes and ponds within its jurisdiction. It was noted in the LMRWMO Watershed Management Plan (WMP) that, generally, additional water quality data needs to be collected. The LMRWMO WMP noted that water quality assessments should be performed on Roger's Lake in Mendota Heights. According to the WMP, this lake formerly supported a public swimming beach and is popular among local residents for panfish fishing. Water quality monitoring data should be collected to classify the lake and watch trends. Interstate Valley Creek and Augusta Lake are also noted as a resource of concern for water quality problems.

In 2014, LMRWMO completed a Watershed Restoration and Protection Strategy (WRAPS) Report that includes water quality data for Lake Augusta and Rogers Lake, a TMDL for Lake Augusta. The WRAPS Report can be found at LMRWMO's website.

4.1.4. Lower Minnesota River Watershed District (LMRWD)

Within the LMRWD's WMP, there is an emphasis on assessing water quality within the Minnesota River. Water quality assessment data is available for the Minnesota River and many of its tributary streams within the WMP.

4.2. Water Quantity Assessments

4.2.1. City Assessments

Since the City prepared its 2006 Water Resources Management Plan (WRMP), no new water quantity assessments have been conducted. This does not mean that the City has not been addressing new water quantity issues, only that these have not been significant enough in scope to warrant mention in this SWMP.

4.2.2. Lower Mississippi River Watershed Management Organization (LMRWMO)

In its WMP, the LMRWMO assessed intercommunity surface water management issues that the watershed should resolve. In addition, the LMRWMO Plan requires that member cities prioritize shoreland areas for restoration. Item 4 in Table 6.1 shows that the City plans to allocate funds to address issues of shoreland erosion along Interstate Valley Creek, the priority area, for bank stabilization projects. **Table 4.2** summarizes these issues, which are related to flooding and erosion.

Table 4.2
Erosion and Flooding Issues Related to the City of Mendota Heights

Name	Location	Issue	Status
Interstate Valley Creek Watershed	Interstate Valley Creek north of Marie Avenue. Watershed includes Inver Grove Heights, Sunfish Lake, Mendota Heights, and West St. Paul	Erosion	Ongoing issue which has been addressed in some select locations. Additional stream bank stabilization projects will likely be needed.

4.2.3. Lower Minnesota River Watershed District (LMRWD)

Figure 5 shows the Mendota Heights drainage system in some detail. One of the primary discharges from this system occurs through a 54-inch pipe into the Minnesota Department of Transportation (MnDOT) system adjacent to and under Trunk Highway 13. The highway system carries MnDOT and Mendota Heights runoff water into the Quarry Island fen, as indicated by the flow arrows on **Figure 5**. The Quarry Island fen lies within the jurisdiction of the LMRWD and the district is considering whether to pursue a detailed assessment and monitoring program for this fen. Regardless of what the watershed does toward studying the area, it is highly likely that the LMRWD and DNR will pursue a project to reroute this drainage around the fen and into Gun Club Lake. The City and MnDOT are likely to be financial participants in this project when it becomes a reality. The City's share of the project cost could be substantial. Given this, the implementation section of this SWMP includes an item for the Quarry Island fen storm drainage project with an unknown date for implementation

4.3. System Description

This subsection describes the surface water management system for the City of Mendota Heights. The SWMP area was organized into four major topographic watersheds:

- Interstate Valley Creek Watershed
- Ivy Falls Creek Watershed
- Mississippi River Bluffs Watershed
- Gun Club Lake Watershed

The Interstate Valley, Ivy Falls Creek, Mississippi River Bluff, and Gun Club Lake topographic watersheds generally lie within the LMRWMO jurisdiction.

Each major watershed was divided into drainage districts. The drainage districts are generally drawn to encompass all drainage to a particular pond, wetland, or lake. The City's 1993 Plan identified 14 major drainage districts. To simplify the modeling nomenclature and allow easier cross referencing between the model and **Figure 5**, drainage districts within this SWMP carry the

suffix of one of the four major topographic watersheds. **Table 4.3** provides a summary of the cross references between the 1993 Plan's districts and the major watershed suffix used in this SWMP.

Table 4.3
Drainage Districts and
Areas within the City of Mendota Heights

Drainage District	Abbreviation	Acres
Rogers Lake	IV	475
Southeast	IV	506
Friendly Marsh	IV	654
East Marie	IV	331
West Marie	IV	209
Lower Interstate Valley	IV	829
Ivy Falls Creek	IF	434
East Highway 13	MB	35
Central Highway 13	MB	121
West Highway 13	MB	228
Augusta Lake	GC	442
Minnesota River Bluffs	GC	176
Industrial Park	IP	473
I-494	GC	285
Highway 110	MB	206
South Highway 13	GC	131

The following sections describe each drainage district in detail. **Figure 5** in **Appendix A** includes areas for the subwatersheds within each major watershed. **Appendix E** includes the pond data.

4.3.1. Interstate Valley Creek Watershed (IV)

The Interstate Valley Creek Watershed consists of all areas that drain to the point where Trunk Highway (TH) 13 crosses Interstate Valley Creek. The watershed's total area is approximately 4,224 acres, of which 3,004 acres are in Mendota Heights, 414 acres are in West St. Paul, 676 acres are in the City of Sunfish Lake (including the 234-acre Sunfish Lake Watershed, which is landlocked), and 130 acres are in Inver Grove Heights.

Interstate Valley Creek is an intermittent stream that begins near the intersection of TH 110 and TH 149 (Dodd Road) at the outflow point of a large wetland (Friendly Marsh). The creek flows northward under TH 110 through a 72-inch reinforced concrete pipe (RCP) culvert. From TH 110 the creek flows 1.9 miles through Valley Park before discharging to the Mississippi River. The creek flows through culverts at Marie Avenue, at a bicycle path crossing downstream of Marie Avenue, and at Lilydale Road.

Because of its relatively large size, the portion of the Interstate Valley Creek Watershed within Mendota Heights is divided into six drainage districts.

<u>Rogers Lake Drainage Subwatershed</u>

The Rogers Lake Drainage Subwatershed is nearly fully developed. This district consists of Rogers Lake and the area that drains to the lake. Rogers Lake is the district's major hydrologic feature. The lake consists of two basins which are divided by Wagon Wheel Trail. A 73-inch span arch pipe culvert connects the two basins. The outlet of Rogers Lake is via a 30-inch RCP that connects to a storm sewer system that discharges to the Friendly Marsh District, as shown on **Figure 5**.

West of I-35E, the land use is predominantly single-family residential, while east of I-35E a large part of the upland in this area consists of the Mendakota Country Club golf course. Single-family homes and schools exist in the district south and east of Rogers Lake. A small area south of the lake and adjacent to I-35E is undeveloped but planned as office/industrial land use.

Southeast Drainage Subwatershed

The Southeast Drainage Subwatershed mostly consists of single-family homes. Within Sunfish Lake and Inver Grove Heights, 693 acres are tributary to the Southeast Drainage Subwatershed though 234 acres of this tributary area is actually landlocked by Sunfish Lake. This drainage flows from the City of Sunfish Lake into the Southeast Drainage Subwatershed through two separate culverts under County Road 63 (Delaware Avenue). Drainage from this district flows to the Friendly Marsh Drainage Subwatershed.

Friendly Marsh Drainage Subwatershed

The Friendly Marsh Drainage Subwatershed is generally located south of TH 110 and west of Delaware Avenue. Open space is a significant land use in this district due to the presence of the Dodge Nature Center. Single-family residential is the other predominant land use. This district receives drainage from approximately 301 acres in the cities of Sunfish Lake and West St. Paul via two culverts under Delaware Avenue. Water from the Rogers Lake and the Southeast Drainage Subwatershed also discharges into the Friendly Marsh Drainage Subwatershed. The subwatershed discharges to the Lower Interstate Valley Drainage Subwatershed. Friendly Marsh is a ditched wetland that serves as the headwaters to Interstate Valley Creek.

West Marie Avenue Drainage Subwatershed

This watershed is located along Marie Avenue, generally west of I-35E. The predominant land use is single- and multiple-family residential. This watershed discharges to the Lower Interstate Valley Drainage Subwatershed.

East Marie Avenue Drainage Subwatershed

The East Marie Avenue Drainage Subwatershed is located along Marie Avenue east of Interstate Valley Creek. Marie Creek flows through this district. The predominant land use is single-family residential. Drainage from approximately 169 acres in West St. Paul is tributary to this drainage subwatershed. The stormwater runoff from the East Marie Avenue Drainage Subwatershed discharges to the Lower Interstate Valley Drainage Subwatershed.

Lower Interstate Valley Drainage Subwatershed

Significant open areas exist along Interstate Valley Creek and at two golf courses located in this subwatershed. Drainage from 57 acres in West St. Paul enters this subwatershed as well as from the Friendly Marsh, West Marie Avenue, and East Marie Avenue Drainage Subwatersheds. The predominant drainage feature in this district is Interstate Valley Creek, which runs northward adjacent to I-35E. Interstate Valley Creek discharges to the City of Lilydale and then to the Mississippi River.

4.3.2. Ivy Falls Creek Watershed (IF)

The Ivy Falls Creek Watershed resides within the cities of Mendota Heights and West St. Paul. The City of West Paul has approximately 274 acres tributary to Ivy Falls Creek. The

predominant land use is single-family residential. The northern portion of the Somerset Country Club golf course lies in this watershed.

Ivy Falls Creek is an intermittent stream that begins in Somerset Golf Course. The streambed drops approximately 180 feet along its 3,000-foot length from Dodd Road to TH 13, including a 50-foot drop at Ivy Falls. Because of this steep gradient, erosion has occurred along the creek.

4.3.3. Mississippi River Bluffs Watershed (MB)

This watershed consists of the various small drainage routes along the Mississippi River bluffs. These drainage routes discharge water to culverts under TH 13 to the City of Lilydale. Areas that drain to either Interstate Valley Creek or to Ivy Falls Creek are not included in this watershed. The drainages in this watershed have similar features; they all include a small area above the bluffs which then drains down the bluffs to ditches and culverts along TH 13. Because of the steep slopes in this watershed, the water flows quickly and erosion and flooding problems exist in some of these drainage routes. The watershed is divided into four drainage subwatersheds.

West Highway 13 Drainage Subwatershed

The West Highway 13 Drainage Subwatershed runs along the south side of TH 13 from the City of Mendota Heights border with the City of Mendota east to I-35E. The drainage discharges through six culverts beneath TH 13 to Lilydale. Approximately 20 acres of this drainage subwatershed are in Lilydale.

Central Highway 13 Drainage Subwatershed

The Central Highway 13 Drainage Subwatershed is located between the Ivy Falls Creek and Interstate Valley Creek watersheds, south of TH 13. Discharge from this subwatershed occurs through two culverts beneath TH 13.

East Highway 13 Drainage Subwatershed

The East Highway 13 Drainage Subwatershed is located at the northern tip of Mendota Heights. Approximately 25 acres of West St. Paul is tributary to the district. The drainage from this subwatershed discharges to Lilydale through an 18-inch culvert under TH 13.

Highway 110 Drainage Subwatershed

The Highway 110 Drainage Subwatershed drains through a series of ditches and ponds before discharging to the Mississippi River via a culvert that passes through the City of Mendota. The eastern extent of this drainage subwatershed is approximately at the intersection of Highway 110 and Victoria Road.

4.3.4. Gun Club Lake Watershed (GC)

This watershed is in the west part of the City and includes all of the area in Mendota Heights that is within the LMRWMO and part of the area which is within the LMRWD. This watershed has five drainage subwatersheds.

Lake Augusta Drainage Subwatershed

This subwatershed consists of land that drains to Lake Augusta. Open space is the predominant land use because of the presence of Resurrection Cemetery. Industrial/office and single-family land uses are also present. Lake Augusta is landlocked, so no surface discharge occurs from the lake. Mendota Heights and the LMRWMO will work toward determining whether an outlet to Lake Augusta is necessary

Industrial Park Drainage Subwatershed

Most of the Industrial Park Drainage Subwatershed is zoned for industrial/office land use. The 30-acre Lake LeMay is the subwatershed's only major water body and is located in the northwest portion. Lake LeMay discharges to the Industrial Park storm sewer system via a 30-inch pipe that crosses under Highway 55. The outlet pipe is designed such that when water levels in Lake LeMay are below the normal water level (NWL), runoff collected by the 30-inch outlet pipe flows to Lake LeMay and not to the Industrial Park. When water levels are above the NWL, flows are routed to the Industrial Park.

The water from the drainage subwatersheds discharges through a 54-inch storm sewer to an open channel in a ditch. The ditch drains to a 66-inch culvert under TH 13 where it again flows in an open channel, and ultimately discharges to Gun Club Lake. With the exception of Lake LeMay, little stormwater storage is available in the Industrial Park Drainage Subwatershed.

Interstate 494 Drainage Subwatershed

This subwatershed district is the stretch of I-35E south of Wagon Wheel Trail. The major land use in the subwatershed is industrial/office. The runoff from this drainage subwatershed flows to the I-494 drainage system that ultimately discharges to the Minnesota River.

Minnesota River Bluff Drainage Subwatershed

This subwatershed consists of land with several drainage routes that discharge into the Minnesota River. All surface drainage in this subwatershed discharges to culverts under the Chicago and North Western Transportation Company railroad tracks. There are approximately 22 culverts under the 1.5 miles of railroad track bordering the subwatershed. Land use in this drainage subwatershed includes open space within Fort Snelling State Park, wooded bluff slope, industrial/office, highway, cemetery, and single-family residential.

South Highway 13 Drainage Subwatershed

This subwatershed is generally located along TH 13 and Highway 55, between the Minnesota River Bluff and Industrial Park Drainage Subwatersheds. This subwatershed combines its discharge flow with flows from the Industrial Park Drainage Subwatershed at the MnDOT pond located near the intersection of TH 13 and I-494. The discharge ultimately flows to Gun Club Lake.

4.4. Hydrologic Modeling Discussion

There was a modeling effort completed for the 2006 LSWMP that consisted of converting the 1993 WRMP model to the more user friendly HydroCAD modeling software, and to update the model to current conditions of the City.

The 2006 HydroCAD model was updated for this 2018 SWMP to accommodate for the new National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Frequency Estimates by defining additional stage/area and overflow routes so that the 100-year Atlas 14 rainfall can be run within the model without exceeding defined storage or outlets. **Table 4.3** shows the Atlas 14 rainfall depths that shall be used for project reviews and stormwater design. Additionally, drainage areas and land use descriptions were reviewed and corrected when discrepancies appeared. The updated hydrologic model is summarized in **Appendix E**. HydroCAD stormwater runoff hydrographs are calculated in accordance with SCS TR-20 methodology. Hydrograph routing through channels and detention basins is performed using the Dynamic-Storage-Indication method. For compliance with the MS4 permit, the City is required to develop a method to ensure that its water quality ponds function according to design. A P8 Urban Catchment Model was created and the results can be found in **Appendix E**.

Table 4.3
Atlas 14 Rainfall Depths

Storm Event	Rainfall Depth (Inches)
2-year, 24-hour	2.81
10-year, 24-hour	4.19
100-year, 24-hour	7.47

SECTION 5

5. GOALS AND POLICIES

5.1. Purpose

The primary goal of Mendota Heights' SWMP is to bring the City into statutory compliance and provide a framework for effective stormwater management. This includes guiding redevelopment activities and identifying and implementing retrofits to the existing system. These retrofits consist of both projects and programs. Additionally, the plan provides clear guidance on how Mendota Heights intends to manage surface water in terms of both quantity and quality.

The goals of Mendota Heights' SWMP are consistent with the goals of the LMRWMO and the LMRWD, while addressing the more specific and changing needs of the City. This plan is an update to the 2006 Water Management Plan and the goals of this plan were established in accordance with the guidelines contained in Minnesota Statutes 103B and Minnesota Rules 8410.

A general priority of the City is to cooperate, collaborate, and partner with other entities, such as LMRWMO, LMRWD, and the MPCA as much as possible as the City implements this plan. Cooperation, collaboration, and partnering results in projects that are less likely to conflict with the goals of the affected entities, are better able to meet long-term goals, and are generally more cost-effective.

In addition to the goals and policies contained in this section, the City will annually review and update its SWPPP to effectively manage its stormwater system and be in conformance with the NPDES MS4 Program. Refer to **Appendix B** for the most recent version of the City SWPPP.

5.2. Background

The City completed its first comprehensive plan in 1960. The City has most recently updated its comprehensive plan in 2010 with its 2030 Comprehensive Plan. The 2030 Comprehensive Plan reiterated the goals of the previous plan, while also strengthening the City's traditions and development philosophy. Open spaces and parks are deeply ingrained in the City of Mendota Heights and its comprehensive plan, and surface waters play a large role in many of those assets.

Specific to the goals and policies of this SWMP is the following policy statement from the 2030 Comprehensive Plan:

> *"Work with local and regional partners to conserve, protect and enhance the region's vital natural resources."*

The 2018 Mendota Heights SWMP expands upon the goals and objectives provided in the 2030 Comprehensive Plan, the 2006 LSWMP, and the updated Third Generation LMRWD and LMRWMO Water Management Plan.

5.3. City of Mendota Heights SWMP Goals and Policies

5.3.1. *Water Quantity*

5.3.1.1. Goal

Prevent flooding from surface flows while reducing, to the greatest extent practicable, the public capital expenditures necessary to control excessive volumes and rates of runoff.

5.3.1.2. Policies

1. All designs must use NOAA Atlas 14 Precipitation Frequency Data in stormwater design calculations and modeling.

2. Trunk storm sewers shall be designed with capacity for 100-year ponded outflows plus 10-year directly connected flows.

3. In addition to the 10-year and 100-year ponded flow primary capacity, the conveyance system shall provide capacity in excess of the 100-year event in the form of overland overflow routes or adequate surface storage volume. This surface storage volume consists of storage in street low points, within ditches, or in other transient ponding areas.

4. Proposed runoff from development and redevelopment projects shall meet or decrease peak discharge rates for the 10-year and 100-year storm events. Additionally, capacity of downstream drainage systems must be considered, and shall not exceed existing capacities.

5. Detention basins shall be designed with capacity for the critical 100-year event. At a minimum, detention basins should maintain existing flow rates for the 2-, 10-, and 100-year 24-hour rainfalls.

6. The maximum duration for rainfall critical event analysis shall be 24 hours except in cases where basins are landlocked, where back-to-back 24-hour events and the 10-day, 7.2-inch runoff event shall also be used. In all cases a hydrograph method of analysis should be used. For the 24-hour rainfall event or back-to-back 24-hour rainfall events, the Midwest and Southeast 3 (MSE3) distribution, published by the Natural Resources Conservation Service, is recommended. For shorter duration critical events, other distributions may be used with the approval of the City Engineer.

Regarding Water Quantity policies 1, 2, 3, 4, and 5—for systems designed and implemented prior to the 1993 WRMP, conveyance capacity and storage requirements may not meet these requirements. These policy statements in no way imply that the City intends to unilaterally upgrade these systems.

7. All drainage system analyses and designs shall be based on proposed full development land use patterns.

8. The amount of impervious surface increase on projects shall be reduced to the greatest extent possible for development and redevelopment projects in accordance with Low Impact Development (LID) techniques. A narrative shall be provided that addresses the consideration of LID techniques in development and redevelopment impervious surface design.

9. Intercommunity water resources issues planning shall consider alternative solutions:

   a) All drainage studies or feasibility studies, whether by a watershed organization or municipality, leading to projects in a subwatershed with an intercommunity drainage issue shall consider the impact of the project on the drainage issue and shall consider the total intercommunity project cost.

   b) Except in emergencies, no solutions or partial solutions to intercommunity drainage issues shall be implemented without prior completion of a feasibility study of options and adoption of a preferred option by the applicable watershed organization.

10. The following items shall be considered in the management of landlocked basins:

    a) The flood levels established for landlocked basins shall take into consideration the effects of water level fluctuations on trees, vegetation, erosion, and property values. Steeply sloped shorelines subject to slope failure and shoreline damage should not be in contact with floodwaters for extended periods of time.

    b) The capacity of proposed outlets to formerly landlocked basins should not be so small as to cause extended duration of High Water Levels (HWLs) that would result in damage to upland vegetation.

    c) Only the existing tributary area may discharge to a landlocked basin, unless a provision has been made for an outlet from the basin or the right to augmented storage within the basin has been secured through purchase or easement, except in cases where adverse impacts to vegetation would occur. The form of outlet may range from temporary pumps to gravity storm sewers. The outlet shall be implemented before increased water levels are likely to affect vegetation, slope stability, or property values.

    d) Critical event analysis of landlocked basins shall include the 10-day, 7.2-inch runoff event and back to back 24-hour, 100-year events.

11. When development occurs adjacent to a landlocked basin and the basin is not provided an outlet, freeboard should be determined based on one of three methods (whichever provides for the highest freeboard elevation):

    a) Three feet above the HWL determined by modeling back to back 100-year, 24-hour events;

    b) Three feet above the highest known water level; or

    c) Five feet above the HWL determined by modeling a single 100-year, 24-hour event.

    When modeling landlocked basins, the starting water surface elevation should be the basins Ordinary High Water elevation, which can be determined through hydrologic modeling or, in the case of a DNR regulated basin, from a DNR survey. Additionally, a continuous simulation of average annual rainfall conditions will also provide insight into whether significant, adverse impact to vegetation would occur due to development around the landlocked basin.

12. For basins with a suitable outlet, freeboard will be two feet above the HWL determined by modeling the 100-year critical event. Emergency overflows that are a minimum of one and a half feet below the lowest ground elevation adjacent to a structure should also be provided.

13. Adjacent to channels, creeks, and ravines freeboard will also be two feet from the 100-year critical event elevation.

14. Work with the DNR and watershed organizations on cooperative and collaborative projects in the public lands below the river bluffs.

Discussion: This policy is essentially a blanket policy covering the many subject areas for which goals have been developed. The City of Mendota Heights understands that its drainage system has the potential to damage ecologically sensitive areas below the bluffs in Fort Snelling State Park. The City envisions the State or watershed organizations as the lead on such projects.

15. New storm sewers and open channels shall be designed using a technical method approved by the MPCA Stormwater Manual such as the Rational Method or HydroCAD . Runoff Coefficient "C" shall be in accordance with the guidelines provided in the MnDOT's Drainage Manual.

16. A hydrograph method based on sound hydrologic theory shall be used to analyze runoff rates and high water levels for proposed development and redevelopment projects.

17. Water quality treatment ponds (wet ponds) shall be designed in accordance with National Urban Runoff Program (NURP) standards.

18. Drainage and utility easements shall be dedicated over newly constructed stormwater management features (volume, rate control, and water quality treatment infrastructure) including but not limited to ponds, infiltration basis, rain gardens, underground storage and treatment devices, and tree trenches. Additionally, drainage and utility easements shall be dedicated for redeveloped stormwater management features and existing stormwater management features on redevelopment sites.

Refer to the most up to date LMRWD and LMRWMO Rules on their websites.

5.3.2. *Water Quality*

5.3.2.1. Goal

Work with LMRWMO, LMRWD, and neighboring communities to maintain and/or enhance the water quality of Mendota Heights' lakes, wetlands, streams, and other water resources.

5.3.2.2. Policies

1. Given that the soils underlying the City have higher than typical infiltration capacity, infiltration is the preferred means of protecting water quality. Mendota Heights requires that stormwater infiltration facilities include sufficient water quality pretreatment (to NPDES and watershed standards) to preserve the function of these facilities. Wellhead protection areas must also be reviewed when considering infiltration.

2. Apply the MPCA's Minimal Impact Design Standards (MIDS) to new developments within the City.

    a) All new developments that create new impervious surfaces shall endeavor to retain 1.1 inches of runoff from the net increase of impervious area. The City of Mendota Heights recommends consideration of the Flexible Treatment Options Approach through MIDS. However, the City does not adopt MIDS. As an MS4, the City of Mendota Heights is required to achieve no net increase in loadings for TSS, TP, and water volume as a result of development and redevelopment activities. The City does not believe it can uniformly expect these results on individual developments and would rather manage this responsibility across the entirety of the MS4 and not on an individual

development basis. This is why practical implementation and not adoption of MIDS is preferred.

b) If a development or redevelopment site exceeds 1 acre of disturbance and is not able to retain 1.1 inches of runoff, they shall be required to meet a 50% phosphorus reduction based on existing conditions.

3. Utilize, where feasible and possible, regional stormwater detention facilities to enhance water quality by removing sediment and nutrients from runoff.

4. Support water quality monitoring efforts being undertaken by the LMRWMO and LMRWD.

5. Wherever practical, new water quality ponds will be designed and constructed to provide a water quality treatment volume equivalent to the runoff from a 2.5-inch rainfall event, or the requirements of the NPDES construction site permit, whichever leads to higher treatment capacity. In some cases, other BMPs will be used in conjunction with water quality ponds. In such cases performance of the water quality system shall be no less than the performance of a single pond designed under the 2.5-inch criterion.

6. Newly constructed ponds shall include an outlet design allowing for extended detention of the 1- to 5-year rainfall event. The hydrograph duration for pond discharge should extend a minimum of 24 hours for events within the 1- to 5-year range.

7. Outlet skimming will be required in all ponds. Skimming shall occur for up to the 5-year, 24-hour event.

8. Utilize the MPCA's Twin Cities Metropolitan Area Chloride Management Plan to reduce chloride pollution by effectively managing salt use.

Refer to LMRWD and LMRWMO Rules on the watersheds' websites for the most up to date version.

5.3.3. *Recreation and Fish and Wildlife*

5.3.3.1. Goal

Protect and enhance fish and wildlife habitats, water recreational facilities, and water resource aesthetics.

5.3.3.2. Policies

1. The neighborhood and regional benefits of wildlife habitat and aesthetics should be considered in any proposal to alter or eliminate wetlands, understanding that wetland elimination without mitigation is precluded by state law and understanding that even mitigated wetland impacts must meet strict sequencing guidelines.

2. The City will review inlets and outlets for aesthetics.

3. Mendota Heights shall seek to coordinate with the DNR regarding development of DNR public waters and public water wetlands. Notwithstanding ordinance provisions both existing and future that control development of shoreland areas, the City will seek DNR comments on development proposals adjacent to DNR public waters and public water wetlands. As part of its implementation plan the City will adopt a shoreland protection ordinance.

4. Water resources shall be maintained in such a manner as to preserve or restore their intrinsic aesthetic qualities and wildlife habitat.

5.3.4. *Enhancement of Public Participation; Information and Education*

5.3.4.1. Goal
Inform and educate the public concerning urban stormwater management and the problems pollutants cause if allowed to enter into water resources.

5.3.4.2. Policies
1. Enact a public education program based on the following objectives to reduce stormwater pollution:

   - Raise awareness of the problem and solutions
   - Promote community ownership of the all surface water features
   - Recognize responsible parties and actions to date
   - Merge public feedback into program execution

2. Enact a public education program to satisfy the minimum control measures identified in the City's NPDES permit.

3. Coordinate education efforts with the watershed organizations so that redundant efforts are avoided.

4. Report progress of meeting SWMP goals to LMRWMO and LMRWD annually.

5.3.5. *Groundwater*

5.3.5.1. Goal
Maintain and improve groundwater quality and promote groundwater recharge.

5.3.5.2. Policies
1. To the extent that Wellhead Protection Plans (WHPPs) identify areas of groundwater recharge that require protection, the City shall work with the MDH and neighboring communities in developing adequate protection measures

2. Surface water management improvements in likely recharge areas and areas of high vulnerability to chemical or petroleum spills shall be designed to assist groundwater protection. Practically, this means infiltration shall not be considered in developments that include the potential for these types of spills.

Note: The City of Mendota Heights obtains its potable water from the St. Paul Water Utility. The neighboring communities of Eagan and Inver Grove Heights have separate municipal water systems, but neither community has identified a 10-year well capture zone that overlaps into Mendota Heights. Inver Grove Heights has yet to prepare a WHPP so it remains to be seen whether Mendota Heights will be affected by a 10-year capture zone for Inver Grove Heights' wells. Since Mendota Heights is not an active participant in the MDH Wellhead Protection Program, the City will have to rely on MDH and neighboring communities to identify 10-year capture areas. To the extent that future analyses identify these areas within Mendota Heights, the City will then use its subdivision authority to properly regulate these areas.

5.3.6. *Wetlands*

5.3.6.1. Goal

Protect and preserve wetlands through administration of the WCA.

5.3.6.2. Policies

1. Act as the local government unit responsible for enforcing the WCA enacted in1991.

2. Discourage wetland disturbance. Wetlands must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland areas of equal public value, as permitted by the WCA.

3. Up to one-half acre of "debit" wetland (filled or drained) will be allowed to be replaced through wetland "credit" in a bank which is located outside of Mendota Heights' city limits, but State and County governments are exempt from this policy (M.S. 103G.222 (e)).

4. Restrict clearing and grading within close proximity of the wetland boundary to provide for a protective buffer strip of natural vegetation to promote infiltration of sediment and nutrients. In the event that grading occurs close to the wetland boundary, native plant materials shall be reestablished as a buffer strip.

5. Require that a wetland assessment be prepared for any project that includes a wetland. Minnesota Routine Assessment Methodology for evaluating wetland function (current version 3.0 but as updated in the future) is the required method of assessment.

6. Runoff shall not be discharged directly into wetlands without pretreatment of the runoff.

7. Require an average 15-foot buffer of natural vegetation above the 100-year HWL or NWL around lakes, streams and wetlands.

Refer to LMRWMO and LMRWD Rules and Standards on their websites for Wetland Management Policies within the City. The 2006 LSWMP included a Wetland Management Plan. The Wetland Management Plan was not updated as a part of this SWMP, but the 2006 version can be found in **Appendix F**.

5.3.7. *Erosion and Sediment Control*

5.3.7.1. Goal

Prevent, to the extent possible, sediment from construction sites from entering the City's surface water resources and control the erosion from drainage ways within the City.

5.3.7.2. Policies

The City's Stormwater Management, Illicit Discharge, Soil Erosion and Sedimentation Ordinance includes temporary and permanent erosion and sediment control standards that meets or exceeds standards contained in the NPDES construction site permit and watershed organization plans.

5.3.8. *Floodplains*

5.3.8.1. Goal

Control development in floodplains and floodways including those subject to FEMA studies (Mississippi and Minnesota Rivers) and those that are not regulated by FEMA studies like ponds, wetlands, lakes, and channels within the City limits.

Note: Title 12, Chapter 1, Article D, Section 11 (12-1D-11) of the Mendota Heights City Code defines permitted uses within Floodway and Floodplain Districts. Chapter 2 controls development adjacent to wetlands lakes and channels that are not a FEMA-designated floodplain or floodway. Additionally, the City will be preparing a shoreland ordinance, similar to the Minnesota DNR model ordinance that will further define limitations to development along shoreland and non-federally regulated floodplain areas.

5.3.9. *Mendota Heights NPDES Permit*

5.3.9.1. Goal
Operate and manage the City's surface water system consistent with best current practices and the City's NPDES Permit.

5.3.9.2. Policies

1. Projects to correct existing deficiencies, to the extent they are identified, will be prioritized as follows:
   - Projects intended to reduce or eliminate flooding of structures in known problem areas.
   - Projects intended to improve water quality in the City's lakes.
   - Projects intended to retrofit water quality treatment into developed areas.
   - Projects intended to reduce maintenance costs.
   - Projects intended to restore wetlands and habitat.

2. The City will actively inspect and properly operate, maintain, and repair its stormwater system. The City will follow a regular inspection, cleaning, and repair schedule. Frequency of maintenance will be event-based and informed by experience and inspection history. The City's SWPPP outlines the frequency of these activities. Section 5 of this Plan provides some guidelines on pond maintenance and inspection cycles, but the SWPPP will remain the definitive source on the City's intended maintenance and inspection schedules

3. The City will follow best management practices on its own lands and for its own projects including street reconstruction projects in accordance with the NPDES construction site permit and the City's NPDES MS4 Permit.

5.3.10. *Financial Management*

5.3.10.1. Goal
Ensure that the costs of the surface water system are equitably distributed.

5.3.10.2. Policies

1. The City will periodically update its stormwater utility rate structure to accomplish the following:

   - Meet the requirements of its NPDES permit.
   - Provide for the maintenance of ponds and outfall structures.
   - Conduct repairs to the system.
   - Update its system planning efforts.
   - Implement rainwater gardens or other water quality retrofits.

2. Use other funding sources including land sale proceeds, partner with watershed organizations, State Aid funds, grants, among other things to pay for the implementation activities, when available and appropriate.

5.3.11. *Individual Sewage Treatment Systems (ISTS)*

5.3.11.1. Goal
Ensure that ISTS that remain in the City do not constitute an environmental hazard.

5.3.11.2. Policy
Where ISTS are known to be failing and pose an imminent environmental hazard, the City will take the necessary steps to see that these systems are repaired or eliminated.

Background: Within Mendota Heights are approximately 40 ISTS. The City has an ISTS ordinance equivalent to that of Dakota County whereby property owners provide pump and inspection records to the City.

SECTION 6

6. IMPLEMENTATION PROGRAM

6.1. General

The Implementation Plan section of the Mendota Heights SWMP describes those activities and programs the City might develop to improve its surface water management program. Since Mendota Heights is largely developed, capital outlay for the trunk sewer system has already occurred so future outlay will be for upgrades and replacement. Typically, costs for upgrade and replacement would be borne by either the stormwater utility fund or would be recovered through direct assessment. Given this, a typical financing mechanism developed in most SWMPs, an area charge, is not a part of the Mendota Heights SWMP.

Table 6.1 contains a comprehensive list of the MS4 activities and projects, programs, and studies that make up the City of Mendota Heights implementation program for the next seven years (2017-2023). The program was developed by evaluating the requirements in the MS4 permit (see MS4 SWPPP Application for Reauthorization in **Appendix B**), reviewing existing information (**Section 2**), identifying potential and existing problems (**Section 4**), reviewing goals and policies (**Section 5**), and then assessing the need for programs, studies, maintenance, or projects. Costs were estimated, possible funding sources were identified, and a schedule was developed to complete the implementation activities. It is anticipated these tables will be updated/revised on a yearly basis.

This section also includes:

- An overview of the City's NPDES permit
- A discussion of operation and maintenance procedures and strategies
- An outline of an education program
- Financial considerations for the stormwater utility
- A section referencing applicable design standards for stormwater management
- A section on watershed implementation priorities
- Implementation priorities for the City

6.2. Implementation Priorities

The implementation components listed in **Table 6.1** were prioritized to make the best use of available local funding, meet MS4 Permit requirements, address existing stormwater management problems, and prevent future stormwater management problems from occurring. The City's implementation plan reflects its responsibility to protect the public health, safety, and general welfare of its citizens by addressing problems and issues that are specific to the City of Mendota Heights.

6.3. Operation and Maintenance

6.3.1. *Activities*

A stormwater system is a major investment for the City of Mendota Heights—both in terms of initial capital cost and in terms of ongoing maintenance costs—with meeting ongoing maintenance costs being the City's current challenge. Typically, system maintenance is funded by the City's stormwater utility and through the general fund.

The City's stormwater system maintenance responsibilities include the following:

- Street sweeping
- Cleaning of sump manholes and catch basins

- Repair of catch basins and manholes
- Assessing pipe condition (typically by televising)
- Inspection of storm sewer inlet and outlet structures
- Pond mowing and other vegetation maintenance
- Excavation of accumulated sediments from ponds

The City has maintained its pipe system for decades and staff has a strong grasp on the costs associated with this. As new development brings more ponds (and other BMPs) into the system, the City will find that maintenance becomes an increasingly large portion of both staff time and the overall maintenance budget. It is important to quantify the extent of this future commitment so that the funds necessary for pond maintenance activities can be collected via the storm water utility.

The management of stormwater ponds is facilitated by creation of a geographical information system (GIS) database for all stormwater system infrastructure. The City is continuing to map its system in this software by providing data for all pipes 12 inches and larger, most private and government pipes, and pond numbering. This move to GIS to track stormwater system infrastructure represents a strong step toward an interactive mapping system. Ultimately, via its stormwater management database the City could reference its maintenance records, videotapes, and maintenance costs for the stormwater system using interactive mapping. The City's NPDES permit calls for an incremental approach to mapping the existing storm sewer system.

6.3.2. *Stormwater Basins*

Stormwater basins represent a sizable investment in the City's drainage system. General maintenance of these facilities helps ensure proper performance and reduces the need for major repairs. Periodic inspections are performed to identify possible problems in and around the basin. Inspection and maintenance cover the following:

- Basin outlets
- Basin inlets
- Side slopes
- Illicit dumping and discharges
- Sediment buildup

<u>Basin Outlets</u>

A key issue with stormwater basins is ensuring that the outlets perform at design capacity. Inspection and maintenance of basin outlets address the following:

- The area around outlets is kept free and clear of debris, litter, and heavy vegetation.
- Trash guards are installed and maintained over all inlets to prevent clogging of the downstream storm sewer.
- Trash guards are inspected at least once a year, typically in the spring, to remove debris that may clog the outlet. Problem areas are addressed more frequently, as required.
- Emergency overflow outlets are provided for all ponds when possible. These are kept clear of debris, equipment, and other materials and properly protected against erosion

<u>Basin Inlets</u>

Inspection and maintenance of basin inlets address the following:

- Inlets are inspected for erosion.
  - Where erosion occurs near an inlet, energy dissipaters or riprap are installed.
- Inlets are inspected for sediment deposits, which can form at the inlets due to poor erosion practices upstream.
  - Where sediment deposits occur, these are removed to ensure design capacities of storm sewers entering the basin are maintained.

Side Slopes

Inspection and maintenance of basin side slopes address the following:

- Side slopes are kept well-vegetated to prevent erosion and sediment deposition into the basin. Severe erosion alongside slopes can reduce the quality of water discharging from the basin and require the dredging of sediments from the basin.
- Noxious weeds are periodically removed from around basins.
- Some basins located in highly developed areas require mowing. If mowing is performed, a buffer strip of 25 feet or more adjacent to the NWL is typically maintained. This provides filtration of runoff and protects wildlife habitat.

Illicit Dumping and Discharges

Inspection for and maintenance because of illicit dumping and discharges into basins address the following:

- Basins are periodically inspected for evidence of illicit dumping or discharges. The most common of these is dumping of yard waste into the basin.
- Where found, illicit material is removed, and signs are posted as needed prohibiting the dumping of yard waste.
- Water surfaces are inspected for oil sheens. These can be present when waste motor oil is dumped into upstream storm sewers.
- Skimmer structures are installed as needed at outlet structures to prevent oil spills and other floatable material from being carried downstream.
- Skimmer structures are periodically inspected for damage, particularly from freeze-thaw cycles.

Sediment Buildup

Inspection for and maintenance because of sediment buildup in basins address the following:

- Basins are inspected to determine if sediment buildup is causing significant loss of storage capacity from design levels. Excessive sediment buildup significantly reduces the stormwater treatment efficiency of water quality ponds.
- Sediment removal is performed where excessive sediment buildup has occurred. As a general guideline, ponds require dredging every 15 to 20 years. When effective, forebays are provided these may require more frequent cleaning (approximately five to seven year cycles) but tend to produce less material and have the effect of extending the maintenance cycle of ponds to as much as every 30 years.

6.3.3. *Sump Manholes and Sump Catch Basins*

Sump manholes and sump catch basins are included in storm sewer systems to collect sediments before they are transported to downstream waterbodies. These structures

keep sediments from degrading downstream waterbodies. Once sediments are transported to a lake or pond, they become much more expensive to remove.

Sediments originate primarily from road sanding operations, although construction activity and erosion can also contribute. Since these structures are designed to collect these sediments, they are routinely cleaned to provide capacity for future sedimentation. Suction vacuum equipment is typically used to clean out the structure.

6.3.4. *Storm Sewer Inlet Structures*

To fully utilize storm sewer capacity, inlet structures are kept operational in order to get runoff into the system. All efforts are made to keep catch basins and inlet flared ends free of debris and sediments so as not to restrict inflow and cause flood damage. Leaf and lawn litter are the most frequent cause of inlet obstructions. On a routine basis, City staff visually inspects inlet structures to ensure they are operational.

6.3.5. *Open Channels and Ravines*

Overland flow routes constitute an important part of the surface water drainage system. Open channels are typically vegetated and occasionally lined with more substantial materials. The lined channels typically require little or no maintenance. Vegetated channels are periodically inspected and maintained, as high flows can create erosion within the channel.

Eroded channels can contribute to water quality problems in downstream waterbodies as the soil is continually swept away. If not maintained, the erosion of open channels would accelerate and repairs would become increasingly costlier. The erosion of channels is accelerated when the channels are at steep gradients and are used for conveying urban stormwater.

6.3.6. *Piping System*

The storm sewer piping system constitutes a multimillion dollar investment for the City. The City performs a comprehensive maintenance program to maximize the life of the facilities and optimize capital expenditures. The following periodic inspection and maintenance procedures are followed:

- Catch basin and manhole castings are inspected and are cleaned and replaced as necessary.
- Catch basin and manhole rings are inspected and are replaced and/or re-grouted as necessary.
- Catch basin and manhole structures are inspected and are repaired or replaced as needed. Pipe inverts, benches, steps (verifying integrity for safety), and walls are checked. Cracked, deteriorated, and spalled areas are grouted, patched, or replaced.
- Storm sewer piping is inspected either manually or by television to assess pipe condition. Items looked for include root damage, deteriorated joints, leaky joints, excessive spalling, and sediment buildup. The piping system is programmed for cleaning, repair, or replacement as needed to ensure the integrity of the system.

6.3.7. *De-Icing Practices*

Minnesota receives approximately 54 inches of snow during a typical year. This requires a large amount of de-icing chemicals (primarily salt) to be applied to roads and sidewalks each winter.

Estimates indicate that 80 percent of the environmental damage caused from de-icing chemicals is a result of inadequate storage of the material (MPCA 1989). Improper storage as well as overuse of salt increases the risk of high chloride concentrations in runoff and groundwater. High chloride concentrations can be toxic to fish, wildlife, and vegetation.

The following procedures are used for storing de-icing chemicals in the City:

1. De-icing material and sand is stored in waterproof sheds. When and where this is not possible, stockpiles are covered with polyethylene and placed on impervious surfaces. No salty runoff water shall leave salt sheds
2. Road de-icing stockpiles are not located near municipal well areas or in other sensitive groundwater areas.

The City shall encourage businesses within the City to apply the MPCA's Twin Cities Area Chloride Management Plan, particularly the following procedures:

- Promote businesses using the Winter Maintenance Assessment tool (WMAt), a web-based tool maintained by the MPCA that helps identify opportunities to reduce salt use and save money
- Encourage businesses to use contracts that do not bill by the weight of salt used in order to reduce over-use.
- Re-use winter truck wash water for brine making, and reduce the amount of salt on a truck prior to entering the wash
- Create a chart of items to investigate that may reduce salt use/waste.

6.3.8. *Street Sweeping*

Street sweeping is an integral part of the City's effective surface water management system. It greatly reduces the volume of sediments that have to be cleaned out of sump structures and downstream waterbodies. The City has a street sweeping policy that includes at least one sweeping operation per year. Spring sweeping begins in either late March or early April after the risk of later snowfall has passed and targets sand left from winter sanding operations. Occasional fall sweeping occurs after leaf fall.

Mendota Heights does not allow residents to rake leaves into the street for municipal pick up. Dakota County and the City encourage residents toward composting their yard waste. If residents desire to have yard waste removed by their private hauler, then compostable bags or reusable containers are required. Alternately, there are composting sites within Dakota County where yard waste can be brought for a fee. Overall the City's approach to minimizing organic matter entering its stormwater system greatly reduces the incidence of inlet blockages and protects the water quality of downstream waterbodies.

The objective of the City's street sweeping and de-icing programs is to minimize impacts from leaf litter, sand, salt, and other debris on the surface waters of the City.

6.3.9. *Detection of Illicit Connections*

Mendota Heights has modified its ordinance to prohibit the dumping of hazardous material into the stormwater system. During routine inspection for inlet grates, outfalls, and other portions of the stormwater system, City staff also look for evidence of illicit discharge, dry weather flow (indicating possible sanitary sewer connections), sedimentation, and other non-point source pollution problems.

The City has started the process of mapping its storm sewer outfalls and integrating this mapping with inspection data. This effort will be concurrent with the overall storm sewer mapping effort required by the City's NPDES permit.

6.4. Education and Outreach

6.4.1. *General*

Education can play an important role in any effort to implement a surface water management program like the one outlined in this SWMP. The objectives of an education effort are different, depending on the target audience. In general, the target audience for this education program is City staff, residents, and the development community. The following sections describe why education of each of these groups is important and presents educational methods that may be used for each audience.

One of the more important aspects of education and outreach is close coordination with watershed organizations so that redundant efforts are avoided. The City should also work to raise the profile of its watershed organizations by including articles on watershed activities in its informational materials. One simple step toward stronger city/watershed partnership is providing a link to each watersheds website on the city website.

6.4.2. *City Staff*

City staff have a wide range of responsibilities for implementing this plan. These include:

- Implementing street sweeping and spill response programs.
- Implementing deicing education and outreach for residents and business owners, and by encouraging involvement in the MPCA's Twin Cities Metropolitan Area Chloride Management Plan by using their WMAt.
- Maintaining detention basin/stormwater management pond performance and system operability.
- Planning for and managing of projects to enhance pollutant removal performance, wetland quality, among other items.
- Carrying out grounds maintenance of City-owned lands/facilities in a way that sets a good example for residents.
- Utilizing BMPs in application of ice control material.
- Application of BMP policies and regulations to new and redevelopment projects.
- Planning and delivering education programs.
- Working out cooperative arrangements with regulatory and non-regulatory organizations to achieve SWMP objectives.
- Assisting the City Council in the application of the SWMP policies.

Because these responsibilities involve many different levels, City staff members are trained to have a basic understanding of the SWMP, including:

- A description of the major stormwater management issues (including known stormwater management problem areas, stormwater management expectations for new and re-development projects, incorporation of stormwater mitigation into capital improvement projects, and regulatory jurisdictions).
- The objectives and the general approach outlined in the SWMP for resolution of these issues.
- The responsibilities of the different work units in implementing the SWMP.
- The information the SWMP provides.

- Identification of in-house experts.

This information is disseminated in presentations at staff meetings, internal newsletters, and internal memos.

As part of its NPDES permit, the City has also made a commitment to continuing education for staff in stormwater management. This will take the form of attendance at conferences and workshops. As part of the SWMP effort, staff will also be trained in the use of the City's stormwater management model.

6.4.3. *City Residents*

In order to obtain the necessary political and economic support for a successful SWMP implementation, it is vital to inform City residents about basic stormwater management and water quality concepts, policies and recommendations in the SWMP, and the progress of stormwater management efforts.

Through the City's quarterly newsletter, the Heights Highlites, the City keeps residents informed of stormwater and other environmental issues particularly regarding volunteer opportunities, proper lawn care practices, and recycling and hazardous waste management information. The City website is a clearing house for information on stormwater management and will be updated to provide stormwater management articles, contact numbers for reporting illicit discharges, and other stormwater related complaints. In the near term, the City will also be providing educational brochures for residents in the City Hall lobby. These brochures will most often be from other organizations but may also be produced by the City.

The City has incorporated innovative stormwater management practices into both municipal and private development projects. In the future, the City will use these projects to highlight the benefit of certain stormwater management practices. It is important that residents know about these projects (including how they were funded) so that they have an awareness that the City is working for the public interest in protecting high priority resources and that dedicated financial resources such as revenue from the stormwater utility are being put to work.

The City and Dakota County co-sponsor a Wetland Health Evaluation Program which samples and documents the plant, frog, and invertebrate communities found in local wetlands following techniques developed by the MPCA. Information from this survey is available to City residents on the MPCA website.

The City partners with the Metropolitan Council Environmental Services Lake Monitoring and Citizen-Assisted Monitoring Program (CAMP) program, in which residents voluntarily monitor lakes, contributing to a comprehensive database that allows cities, counties, and watershed management organization to better manage and protect these lakes.

6.4.4. *Developers*

The SWMP is designed to provide the official policy direction that City staff and the City Council desire to guide stormwater mitigation for new and redevelopment projects. New construction in Mendota Heights is limited since there is limited land left to develop. Redevelopment, though, will likely occur on a regular basis.

The information contained within this plan is disseminated to developers and their

consulting engineers as early as possible in the development review process. In this way, developers know what is expected of them and can consider the requirements in their initial assessments of the site as well as incorporate the necessary BMPs in any subsequent designs. Much of the necessary information is disseminated to the developers in an information packet as part of the development submittal information they receive from the City.

While dissemination of information is valuable, there is no substitute for a meeting between key City staff and the developer as early as possible in the review process. This helps define expectations for submittals, clarify regulatory compliance issues, and provide additional detailed guidance. Developers are encouraged to do this as soon as possible after they have reviewed the SWMP information and thought about how it applies to their site.

6.5. Financing and the Stormwater Utility

6.5.1. *Current Status – Summary*

The City of Mendota Heights implemented a stormwater utility in 1993. The current quarterly residential charge is $12.00 per residential unit and according to **Table 6.2** for other land uses. The quarterly residential charge is expected to increase to $16.50 per residential unit in 2018.

Table 6.2
Storm Water Utility Rates

Property Type	Current Rate $/Acre
Business/Industrial	$121.80 ≥ 1 acre $60.90 < 1 acre
Cemetery/Golf	$10.15
Institutional	$40.60

6.5.2. *The Stormwater Utility into the Future*

To ensure that Storm Water Utility (SWU) funding keeps pace with increase in municipal maintenance responsibilities, the City should plan for the costs to conduct periodic pond maintenance. Limited data on maintenance activities has been developed by watershed management organizations. A review of this data suggests an annual maintenance budget of $1,250 per acre-foot of wet volume or $4,350 per acre of surface at NWL. Either parameter is relatively easy to track. This $1,250 per acre-foot maintenance item can be translated into a per household cost by virtue of the fact that one acre-foot is sufficient pond wet volume for 20 acres of residential development. Assuming two and a half units per gross acre, then $1,250 per year is spread among 50 units or $25 per unit per year.

Maintenance activities that involve the disposal of stormwater pond sediment have become a high cost project due to the presence of chemicals such as polycyclic aromatic hydrocarbons (otherwise known as PAHs) in stormwater runoff. The City will continue to follow guidance from the MPCA on this issue, but it is anticipated that costs for stormwater pond maintenance activities will increase in the future.

The current residential rate is $12.00 per unit per year. The current charges provide approximately $150,000 per year in revenue of which only a fraction has been used for

pond maintenance. As the City's maintenance responsibilities grow the stormwater utility funding also needs to grow to keep pace.

Mendota Heights is a regulated MS4 under the Phase II NPDES Permit. There is a cost associated with preparing an NPDES permit and the associated SWPPP. Some estimate cities the size of Mendota Heights will spend $50,000 every five years for permit preparation. For Mendota Heights, it is reasonable to assume that $10 per household will be spent every five years – adding $2 per year to the individual household's stormwater utility bill.

The NPDES permit and SWPPP commit the City to certain activities, including capital projects, for the purpose of improving the quality of the City's stormwater discharge. The USEPA has estimated that the financial commitments that City's will make may total $10 per household per year while others place this figure at $20. Since many of the activities identified by the SWPPP may already be funded (like street sweeping and pond maintenance) the $20 figure is probably too high. For the purposes of planning increases in SWU collection, **Table 6.3** summarizes the additional stormwater utility charges identified above.

Table 6.3
Future Storm Water Utility Funding

Item	Annual Charge to Single Residential Unit	Quarterly Charge to Single Residential Unit
Current commitments	$18.20	$4.50
Future pond maintenance	$32.50	$8.10
NPDES permit and SWPPP	$2.60	$0.65
NPDES permit compliance	$13.00	$3.25
Total	**$66.30**	**$16.50**

6.6. Ordinance Implementation

The City of Mendota Heights has updated their ordinance to include:

- Stormwater Management
- Illicit Discharge
- Soil Erosion and Sedimentation

This will be the City's method of instituting their site review and permitting process, and includes the submission requirements, review procedure, and enforcement policies.

By incorporating site review and comments on temporary and permanent erosion control along with illicit discharge and stormwater management, there is no need to have a separate grading permit and/or stormwater management permit. Grading and erosion control review can occur in the context of the stormwater management review and permitting process.

The ordinance references the City's Land Disturbance Guidance document (**Appendix D**), which defines the technical erosion control, sediment control, and stormwater management guidelines required to be met.

6.7. Watershed Implementation Priorities

6.7.1. *Lower Mississippi River Watershed Management Organization*

Gun Club Lake Watershed
Key Scope Items: Lake Augusta Alum Treatment

1. Continue to monitor Lake Augusta alum treatment from 2017.

Ivy Falls Creek, Interstate Valley Creek, and West/Central/East Highway 13 Watersheds
Key scope items: Ivy Hills Pond, Golf Course Pond, diversion to wetlands at Ivy Falls Creek and Interstate Valley Creek mouths, Dodge Nature Center wetland modifications, erosion problems north of Marie Avenue, Highway 110 and Dodd Road redevelopment, include benefits of Mayfield Heights diversion.

1. Water quality modeling was completed in 2003.
2. Feasibility study was completed in 2004.
3. Design and construction, based on results of feasibility study; start 2018-2032.

Interstate Valley Creek
Key scope item: Baseflow restoration and channel stabilization. Some work was completed on streambank erosion in 2006, but additional work is needed.

1. Feasibility study; start in 2018.
2. Design and construction, based on results of feasibility study; start in 2018 or later.

Key scope item: Address erosion problems in Interstate Valley Creek, north of Marie Avenue.

1. Feasibility study; start in 2018.
2. Design and construction, based on results of feasibility study; start in 2018 or later.

Rogers Lake
1. Stormwater BMPs upstream of Rogers Lake; part of the 2014 WRAPS study; anticipated to start in 2020.
2. Education and outreach; part of the 2014 WRAPS study; anticipated to start in 2020.

6.7.2. *Lower Minnesota River Watershed District*

In its 2011 Third Generation Watershed Management Plan, the District currently has no Capital Involvement Projects (CIP) directly partnering with the City, however their Gully Erosion Projects encompasses all LGUs, and will be aimed at constructing bluff stabilization projects in areas identified as having severe erosion, which could include portions of the City's bluffs.

6.8. City of Mendota Heights Implementation Priorities

Table 6.1 lists the implementation priorities for the City of Mendota Heights. A tentative timetable is included with the table. Many of the City's priorities revolve around improvements to existing stormwater infrastructure.

6.9. NPDES Permit

In 2003, the MPCA required the City to submit an NPDES Permit Application to minimize the discharge of stormwater runoff pollutants and authorize stormwater discharge from the City's MS4.

The City will use funds generated from its SWU as the primary funding mechanism for its

implementation program including; maintenance, repairs, capital projects, studies, etc. It is anticipated that the SWU will generate approximately $400,000 per year. If funds from this utility fee do not cover necessary costs, the City will consider adjusting the SWU fee to cover the costs associated with the implementation program. The City will continue to review the stormwater utility fee annually and adjust based on the stormwater related needs of the City and other available funding mechanisms. The City will also take advantage of grant or loan programs to offset project costs where appropriate and cost-effective.

6.10. Plan Revision and Amendments

The City may need to revise this SWMP to keep it current. Any significant amendments that are made to the plan must be submitted to the LMRWD and LMRWMO for review and approval before adoption by the City. The City anticipates updating the Implementation Plan annually. These changes will be submitted to the Watershed Commissions for their record but not for review and approval. The City may amend this plan at any time in response to a petition by a resident or business. Written petitions for plan amendments must be submitted to the City Administrator. The petition must state the reason for the requested amendment, and provide supporting information for the City to consider the request. The City may reject the petition, delay action on the petition until the next full plan revision, or accept the petition as an urgent issue that requires immediate amendment of the plan. The City of Mendota Heights may also revise/amend the plan in response to City-identified needs. This SWMP is intended to be in effect for 10 years (implementation program outlines cost/activities for seven years) per state statute. The SWMP will be revised/updated at that time, to the extent necessary.

TABLE 6.1

SURFACE WATER MANAGEMENT IMPLEMENTATION PLAN

No.	Project Description	Possible Funding Sources	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
1	**Annual O&M:** includes street sweeping, maintenance of sump manholes and catchbasins, storm sewer inspection, maintenance of open channels and ravines, pond vegetation maintenance, minor pond sediment removal activities, facility rent, software, MS4 reporting, rain garden projects, surface water treatment, legal publications, membership dues and part time salaries.	Stormwater Utility/Street Utility	$ 152,274.00	$ 156,842.22	$ 161,547.49	$ 166,393.91	$ 171,385.73	$ 176,527.30	$ 181,823.12	$ 187,277.81	$ 192,896.15	$ 198,683.03	See Section 6.3
2	**Education & Outreach:** includes the education of City staff on basic understanding of the SWMP, education and outreach to residents via brochues and news of stormwter BMP projects, and education for developers to help them make informed decisions on stormwater management during design, construction and post-construction	Stormwater Utility/Street Utility/ Staff Time	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	See Section 6.4; See Section 4.1.1 for specific emphasis on Chloride Management and pet waste management.
3	**Pond Maintenance:** includes feasibility and construction for major pond sediment removal activities combined with other pond improvements such as outlet repair/updates, vegetation management, and potential water quality enhancements	Stormwater Utility/Grant Funding	$ 90,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	See Section 6.3
4	**IVC Streambank Repairs:** Starting at TH110 and Dodd Road, streambank requires armoring heading to the north, multiple areas have eroded.	Stormwater Utility/Grant Funding		$ 120,000.00	$ 50,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00	See Table 4.2
5	**541 Marie Ave - Outlet Repair:** Salvage and reinstall existing outlet	Stormwater Utility/Grant Funding	$ 20,000.00										See Table 4.2
6	**Cherokee Heights Culvert Repair:** partnership with the City of St. Paul to repair existing culvert	Stormwater Utility/Grant Funding	$ 100,000.00										See Table 4.2
7	**South Plaza Drive/Mendakota Court Rehabilitation:** Storm sewer and stormwater BMPs to be incorporated into City street project. Evaluate potential undersized storm sewer	Stormwater Utility/Street Utility	$ 50,000.00										See City CIP
8	**Avanti/Twin Circle Rehabilitation:** Storm sewer and stormwater BMPs to be incorporated into City street project including 12 rain gardens	Stormwater Utility/Street Utility	$ 75,000.00										See City CIP
9	**Dodd Road Trail:** Drainage Improvements	Stormwater Utility/Grant Funding		$ 80,000.00									See City CIP
10	**Wesley Neighborhood Rehabilitation:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility		$ 25,000.00									See City CIP
11	**CenterPoint/Commerce Rehabiltation:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility			$ 50,000.00								See City CIP
12	**Lake Augusta Erosion Repairs, BMP Construction, Lake Outlet Evaluation**	Stormwater Utility/Grant Funding			$ 150,000.00								See Section 4.3.4
13	**Rogers Lake Subwatershed Assessment:** Work with LMRWMO to use the WRAPS study completed by LMRWMO in 2014 to assess and provide feasible BMP opportunities upstream of Rogers Lake.	Stormwater Utility/Grant Funding			$ 25,000.00								Section 6.7.1; LMRWMO 2014 WRAPS Study; LMRWMO Plan - Item 8 Table 6.1
14	**Sylvandale Neighborhood Rehabilitation:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility				$ 50,000.00							See City CIP
15	**Brompton/London Rehabiltation:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility				$ 50,000.00							See City CIP

No.	Project Description	Possible Funding Sources	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Comments
16	**Rogers Lake Subwatershed BMP and Education Outreach Program**	Stormwater Utility/Grant Funding				$ 100,000.00							Section 6.7.1; LMRWMO 2014 WRAPS Study; LMRWMO Plan - Item 8 Table 6.1
17	**Victoria Curve Reconstruction:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility					$ 50,000.00						See City CIP
18	**Friendly Hills Neighborhood Rehabilitation:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility						$ 100,000.00					See City CIP
19	**Curly's/Valley View Rehabilitation:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility							$ 50,000.00				See City CIP
20	**Lake Augusta Outlet:** Install lift Station to control lake elevation	Stormwater Utility/Grant Funding							$ 350,000.00				See Section 4.3.4
21	**Tilsens Neighborhood Rehabilitation:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility								$ 50,000.00			See City CIP
22	**Carmen Lane/Dakota Drive/Waters Drive:** Storm sewer and stormwater BMPs to be incorporated into City street project	Stormwater Utility/Street Utility									$ 50,000.00		See City CIP
	Total		$ 492,274.00	$ 486,842.22	$ 541,547.49	$ 571,393.91	$ 426,385.73	$ 481,527.30	$ 786,823.12	$ 442,277.81	$ 447,896.15	$ 403,683.03	

APPENDIX A

Figures

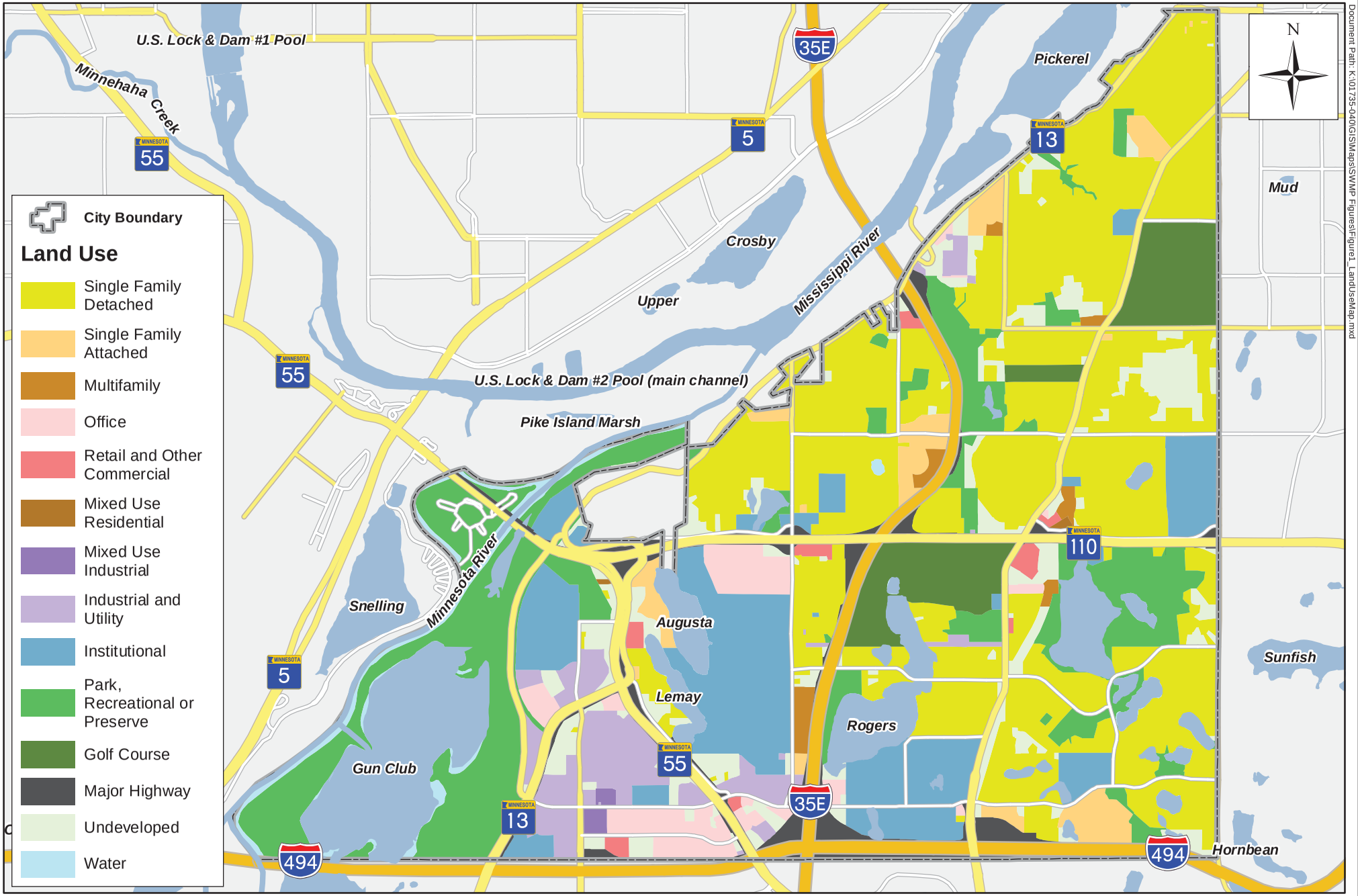

Figure 1: Land Use
Mendota Heights SWMP
Mendota Heights, MN

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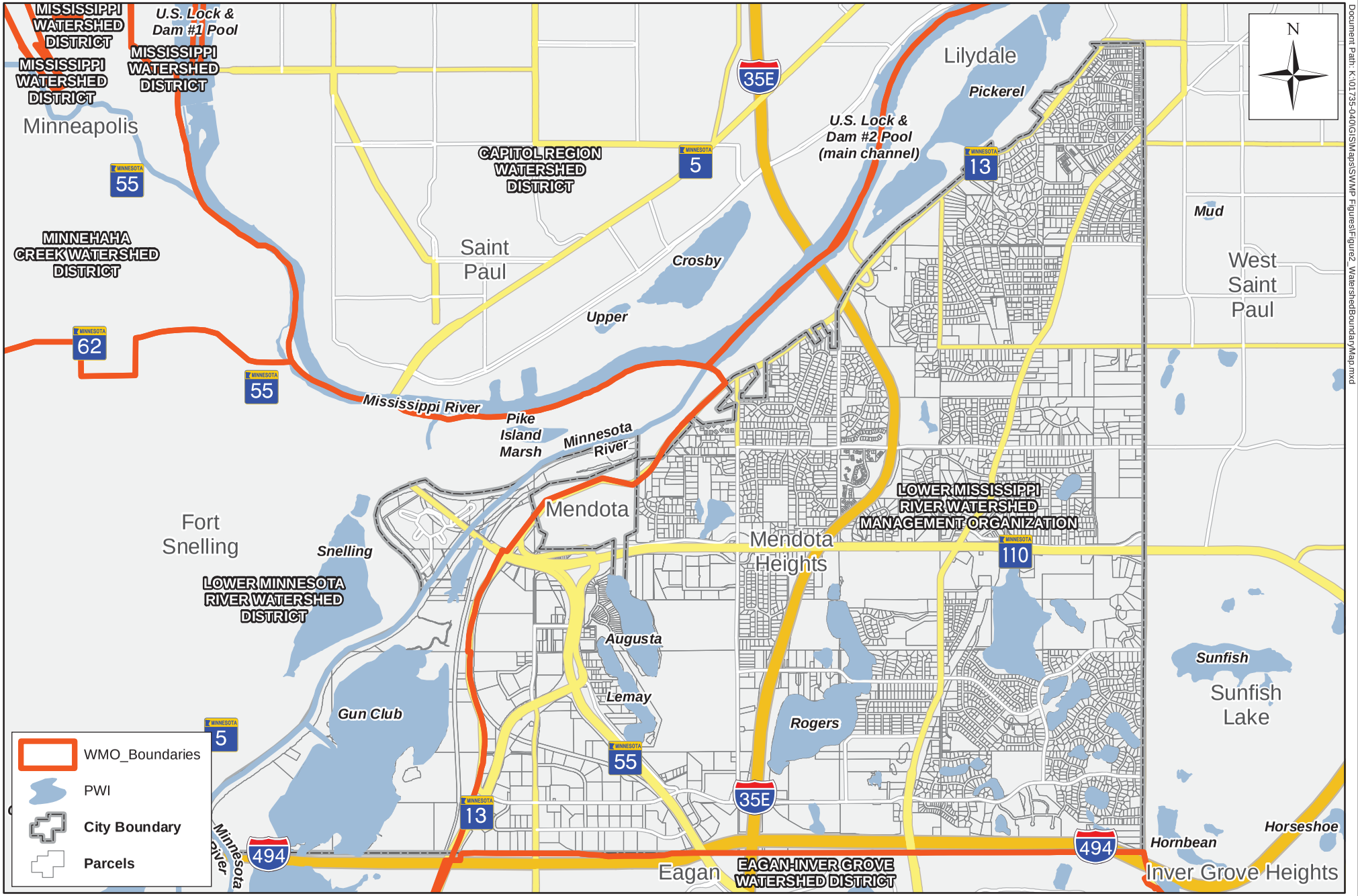

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Figure 2: Watershed Boundaries
Mendota Heights SWMP
Mendota Heights, MN

0 3,200 Feet

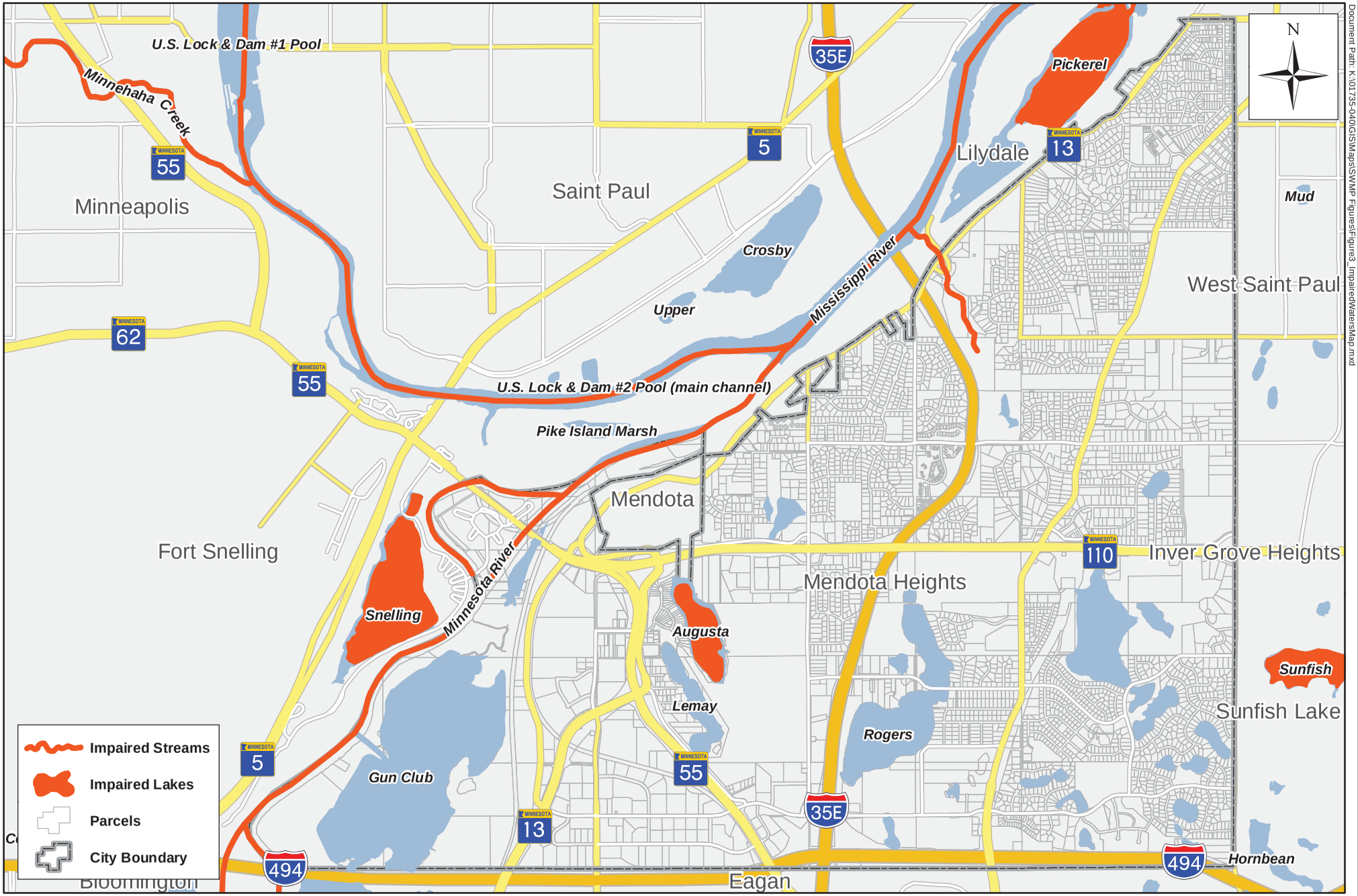

Figure 3: Impaired Waters
Mendota Heights SWMP
Mendota Heights, MN

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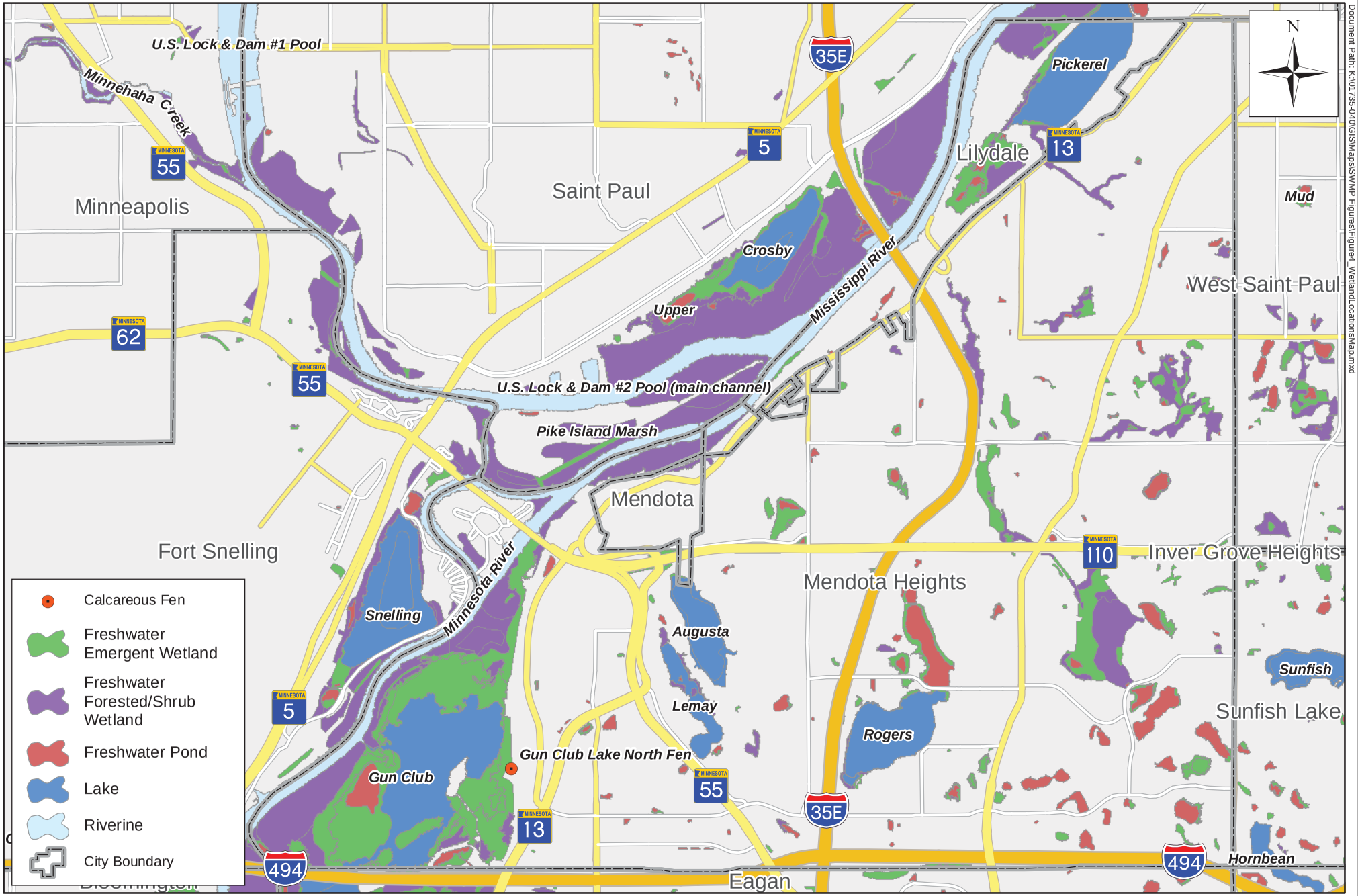


Figure 4: Wetland Locations
Mendota Heights SWMP
Mendota Heights, MN

0 3,200 Feet

Document Path: K:\017735-040\GIS\Maps\SWMP Figures\Figure4_WetlandLocationsMap.mxd

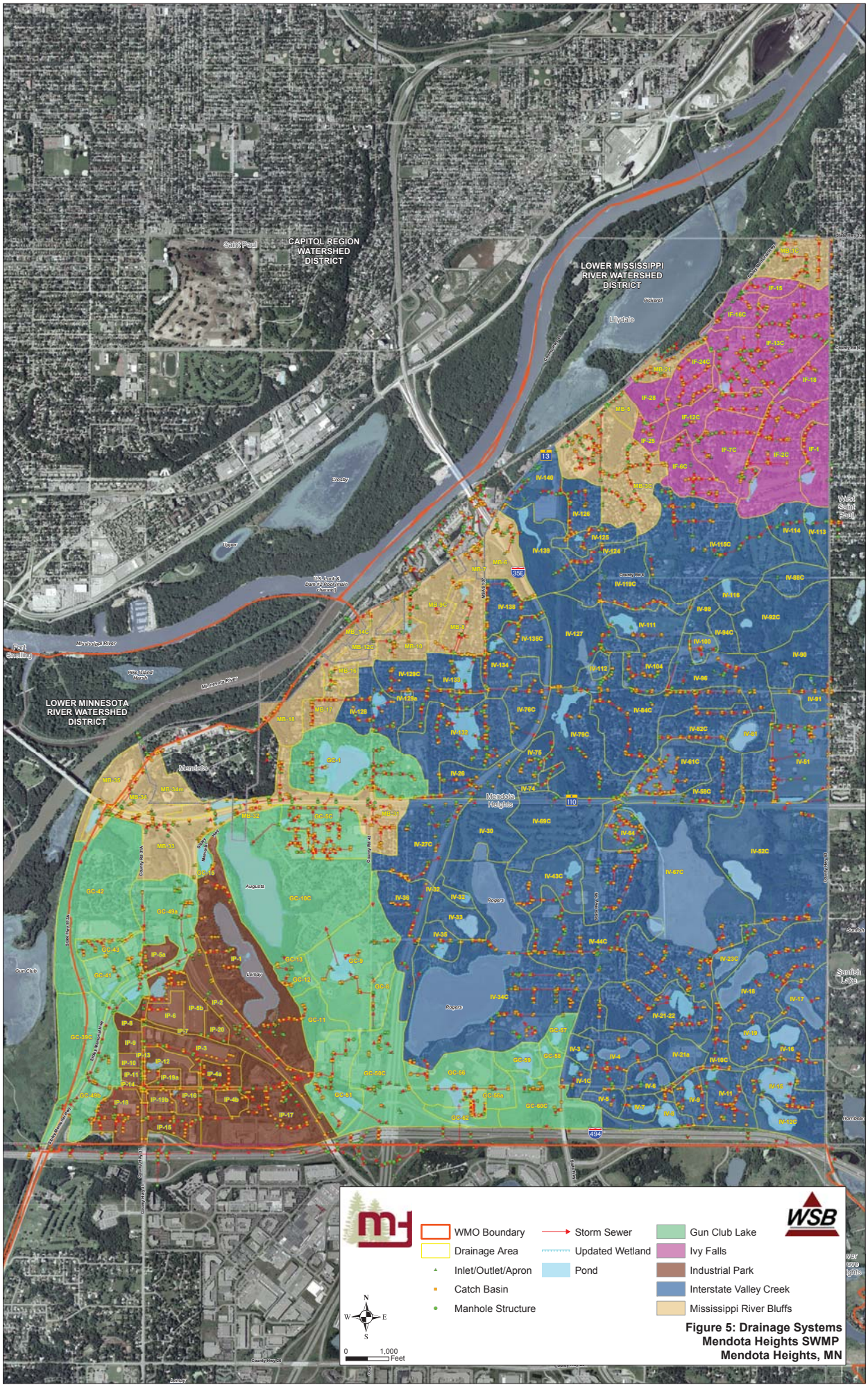
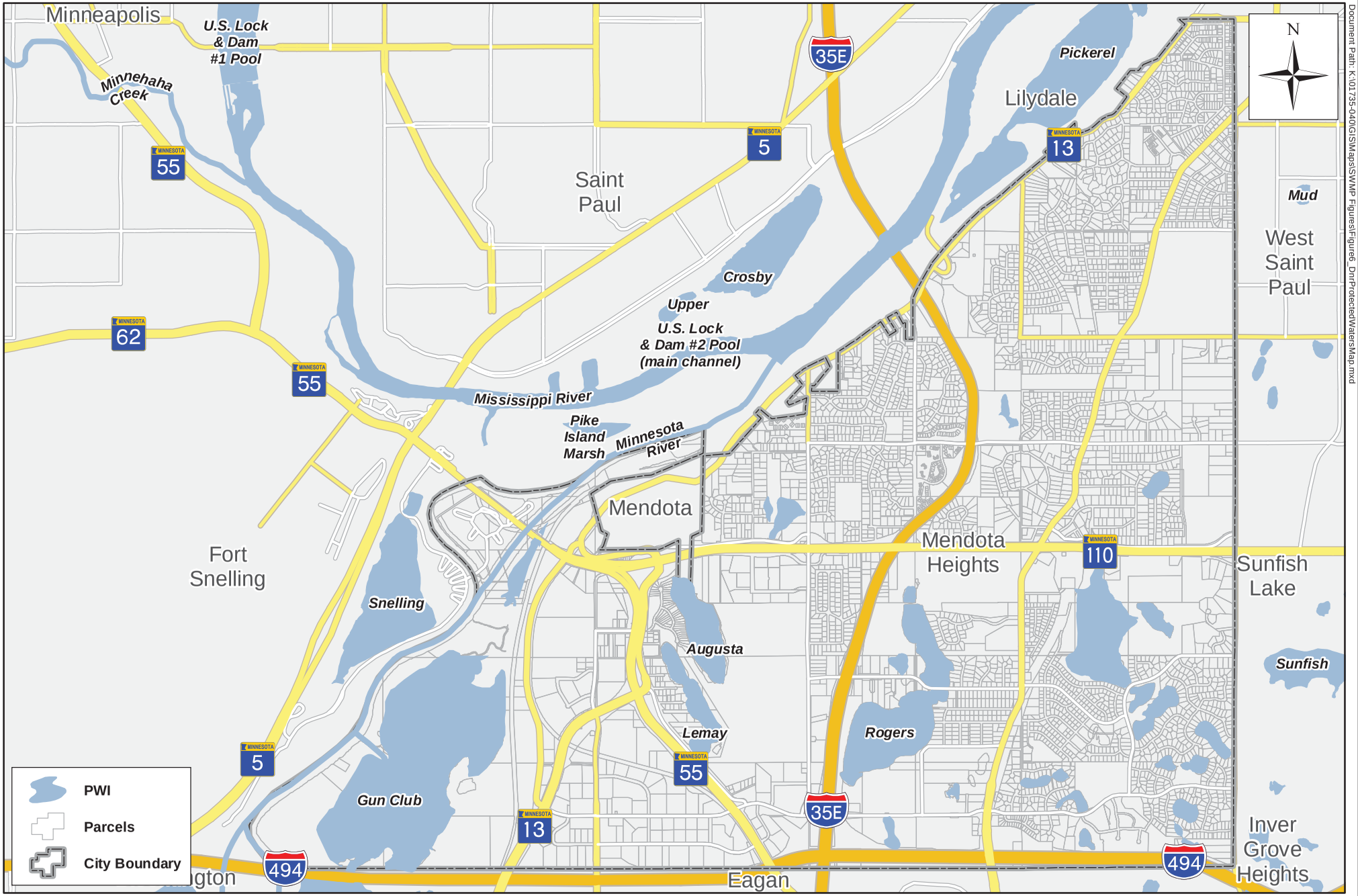


Figure 5: Drainage Systems
Mendota Heights SWMP
Mendota Heights, MN



Document Path: K:\017735-040\GIS\Maps\SWMP Figures\Figure6_DnrProtectedWatersMap.mxd

Figure 6: DNR Protected Waters
Mendota Heights SWMP
Mendota Heights, MN

0 3,200 Feet

APPENDIX B

MS4 SWPPP Application for Reauthorization and BMP Sheets

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 SWPPP Application for Reauthorization

for the NPDES/SDS General Small Municipal Separate Storm Sewer System (MS4) Permit MNR040000 reissued with an effective date of August 1, 2013

Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: This application is for authorization to discharge stormwater associated with Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program. **No fee** is required with the submittal of this application. Please refer to "Example" for detailed instructions found on the Minnesota Pollution Control Agency (MPCA) MS4 website at http://www.pca.state.mn.us/ms4.

Submittal: This *MS4 SWPPP Application for Reauthorization* form must be submitted electronically via e-mail to the MPCA at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. All questions with an asterisk (*) are required fields. All applications will be returned if required fields are not completed.

Questions: Contact Claudia Hochstein at 651-757-2881 or claudia.hochstein@state.mn.us, Dan Miller at 651-757-2246 or daniel.miller@state.mn.us, or call toll-free at 800-657-3864.

General Contact Information (*Required fields)

MS4 Owner (with ownership or operational responsibility, or control of the MS4)

*MS4 permittee name: Mendota Heights *County: Dakota
(city, county, municipality, government agency or other entity)

*Mailing address: 1101 Victoria Curve

*City: Mendota Heights *State: MN *Zip code: 55118

*Phone (including area code): 651-452-1850 *E-mail: permits@mendota-heights.com

MS4 General contact (with Stormwater Pollution Prevention Program [SWPPP] implementation responsibility)

*Last name: Ruzek *First name: Ryan
(department head, MS4 coordinator, consultant, etc.)

*Title: Assistant City Engineer

*Mailing address: 1101 Victoria Curve

*City: Mendota Heights *State: MN *Zip code: 55118

*Phone (including area code): 651-452-1850 *E-mail: ryanr@mendota-heights.com

Preparer information (complete if SWPPP application is prepared by a party other than MS4 General contact)

Last name: _____ First name: _____
(department head, MS4 coordinator, consultant, etc.)

Title: _____

Mailing address: _____

City: _____ State: _____ Zip code: _____

Phone (including area code): _____ E-mail: _____

Verification

1. I seek to continue discharging stormwater associated with a small MS4 after the effective date of this Permit, and shall submit this *MS4 SWPPP Application for Reauthorization* form, in accordance with the schedule in Appendix A, Table 1, with the SWPPP document completed in accordance with the Permit (Part II.D.). ☒ Yes
2. I have read and understand the NPDES/SDS MS4 General Permit and certify that we intend to comply with all requirements of the Permit. ☒ Yes

Certification (All fields are required)

☒ Yes - *I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted.*

I certify that based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of civil and criminal penalties.

This certification is required by Minn. Stat. §§ 7001.0070 and 7001.0540. The authorized person with overall, MS4 legal responsibility must certify the application (principal executive officer or a ranking elected official).

By typing my name in the following box, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing my application.

Name: John Mazzitello
(This document has been electronically signed)

Title: Public Works Director/City Engineer Date (mm/dd/yyyy): 12/30/2013

Mailing address: 1101 Victoria Curve

City: Mendota Heights State: MN Zip code: 55118

Phone (including area code): 651-452-1850 E-mail: johnrm@mendota-heights.com

Note: *The application will not be processed without certification.*

Stormwater Pollution Prevention Program Document

I. Partnerships: (Part II.D.1)

A. List the **regulated small MS4(s)** with which you have established a partnership in order to satisfy one or more requirements of this Permit. Indicate which Minimum Control Measure (MCM) requirements or other program components that each partnership helps to accomplish (List all that apply). Check the box below if you currently have no established partnerships with other regulated MS4s. If you have more than five partnerships, hit the tab key after the last line to generate a new row.

☐ No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
Lower Mississippi River WMO, JPA Provides Cablecast program, etc.	1,2,3,4,5
Gun Club Lake WMO (recently abolished JPA which included Eagan and Inver Grove Heights)	1,2,3,4,5
City of West St. Paul – Joint Staff training on Good House Keeping Practices	3,6
Dakota County SWCD, cooperative relationship, blue thumb, etc.	1,2,3,4,5

B. If you have additional information that you would like to communicate about your partnerships with other regulated small MS4(s), provide it in the space below, or include an attachment to the SWPPP Document, with the following file naming convention: *MS4NameHere_Partnerships.*

Also see our website @ www.mendota-heights.com. Under "Engineering" & "Storm Water Management" there are links to non-MS4partners and other sotrm water information.

II. Description of Regulatory Mechanisms: (Part II.D.2)

Illicit discharges

A. Do you have a regulatory mechanism(s) that effectively prohibits non-stormwater discharges into your small MS4, except those non-stormwater discharges authorized under the Permit (Part III.D.3.b.)? ☒ Yes ☐ No

1. If **yes:**

   a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

   ☒ Ordinance ☐ Contract language
   ☐ Policy/Standards ☐ Permits
   ☐ Rules
   ☐ Other, explain: _____

   b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

   Citation:

   Mendota Heights City Code, Title11, Chapter 6, Section 7

   Direct link:

   http://www.sterlingcodifiers.com/codebook/index.php?book_id=668

   ☒ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_IDDEreg.*

2. If **no:**

   Describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date

permit coverage is extended, this permit requirement is met:

Construction site stormwater runoff control

A. Do you have a regulatory mechanism(s) that establishes requirements for erosion and sediment controls and waste controls? ☒ Yes ☐ No

1. If **yes:**

   a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

      ☒ Ordinance ☐ Contract language
      ☐ Policy/Standards ☐ Permits
      ☐ Rules
      ☐ Other, explain: _____

   b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

      Citation:

      Mendota Heights City Code Tittle 11, Chapter 6, Section 6

      Direct link:

      http://www.sterlingcodifiers.com/codebook/index.php?book_id=668

      ☒ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_CSWreg.*

B. Is your regulatory mechanism at least as stringent as the MPCA general permit to Discharge Stormwater Associated with Construction Activity (as of the effective date of the MS4 Permit)? ☒Yes ☐ No

If you answered **yes** to the above question, proceed to C.

If you answered **no** to either of the above permit requirements listed in A. or B., describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

City code cannot fully be enforced without the adopted supplemental documents including the "Land Disturbance Guidance Document", "Surface Water Management Plan" and project specific approved SWPPP.

C. Answer **yes** or **no** to indicate whether your regulatory mechanism(s) requires owners and operators of construction activity to develop site plans that incorporate the following erosion and sediment controls and waste controls as described in the Permit (Part III.D.4.a.(1)-(8)), and as listed below:

1.	Best Management Practices (BMPs) to minimize erosion.	☒ Yes	☐ No
2.	BMPs to minimize the discharge of sediment and other pollutants.	☒ Yes	☐ No
3.	BMPs for dewatering activities.	☒ Yes	☐ No
4.	Site inspections and records of rainfall events	☐ Yes	☒ No
5.	BMP maintenance	☒ Yes	☐ No
6.	Management of solid and hazardous wastes on each project site.	☒ Yes	☐ No
7.	Final stabilization upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means.	☒ Yes	☐ No
8.	Criteria for the use of temporary sediment basins.	☒ Yes	☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

The city will update its Land Disturbance Guidance Document and Surface Water Management Plan to be as stringent as identified in the NPDES Permit within 12 months of permit coverage.

Post-construction stormwater management

A. Do you have a regulatory mechanism(s) to address post-construction stormwater management activities?
☒ Yes ☐ No

1. If **yes:**

   a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☒ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

Mendota Heights City Code Title 11, Chapter 6, Section 8

Direct link:

http://www.sterlingcodifiers.com/codebook/index.php?book_id=668

☒ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_PostCSWreg.*

B. Answer **yes** or **no** below to indicate whether you have a regulatory mechanism(s) in place that meets the following requirements as described in the Permit (Part III.D.5.a.):

1. **Site plan review:** Requirements that owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity. ☒ Yes ☐ No

2. **Conditions for post construction stormwater management:** Requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the Maximum Extent Practicable (MEP):

   a. For new development projects – no net increase from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of Total Suspended Solids (TSS).
      3) Stormwater discharges of Total Phosphorus (TP).

   b. For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

      1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).
      2) Stormwater discharges of TSS.
      3) Stormwater discharges of TP.

3. **Stormwater management limitations and exceptions:**

   a. Limitations

      1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas: ☐ Yes ☒ No

         a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.
         b) Where vehicle fueling and maintenance occur.
         c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
         d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.

      2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas: ☐ Yes ☒ No

         a) With predominately Hydrologic Soil Group D (clay) soils.
         b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.
         c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.
         d) Where soil infiltration rates are more than 8.3 inches per hour.

      3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction stormwater management ☐ Yes ☒ No

in the Permit (Part III.D.5.a(2)), the permittee's regulatory mechanism(s) may allow exceptions as described in the Permit (Part III.D.5.a(3)(b)). The permittee's regulatory mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.

4. **Mitigation provisions:** The permittee's regulatory mechanism(s) shall ensure that any stormwater discharges of TSS and/or TP not addressed on the site of the original construction activity are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:
   a. Mitigation project areas are selected in the following order of preference: ☐ Yes ☒ No
      1) Locations that yield benefits to the same receiving water that receives runoff from the original construction activity.
      2) Locations within the same Minnesota Department of Natural Resource (DNR) catchment area as the original construction activity.
      3) Locations in the next adjacent DNR catchment area up-stream
      4) Locations anywhere within the permittee's jurisdiction.
   b. Mitigation projects must involve the creation of new structural stormwater BMPs or the retrofit of existing structural stormwater BMPs, or the use of a properly designed regional structural stormwater BMP. ☐ Yes ☒ No
   c. Routine maintenance of structural stormwater BMPs already required by this permit cannot be used to meet mitigation requirements of this part. ☐ Yes ☒ No
   d. Mitigation projects shall be completed within 24 months after the start of the original construction activity. ☐ Yes ☒ No
   e. The permittee shall determine, and document, who will be responsible for long-term maintenance on all mitigation projects of this part. ☐ Yes ☒ No
   f. If the permittee receives payment from the owner and/or operator of a construction activity for mitigation purposes in lieu of the owner or operator of that construction activity meeting the conditions for post-construction stormwater management in Part III.D.5.a(2), the permittee shall apply any such payment received to a public stormwater project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e). ☐ Yes ☒ No

5. **Long-term maintenance of structural stormwater BMPs:** The permittee's regulatory mechanism(s) shall provide for the establishment of legal mechanisms between the permittee and owners or operators responsible for the long-term maintenance of structural stormwater BMPs not owned or operated by the permittee, that have been implemented to meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)). This only includes structural stormwater BMPs constructed after the effective date of this permit and that are directly connected to the permittee's MS4, and that are in the permittee's jurisdiction. The legal mechanism shall include provisions that, at a minimum:
   a. Allow the permittee to conduct inspections of structural stormwater BMPs not owned or operated by the permittee, perform necessary maintenance, and assess costs for those structural stormwater BMPs when the permittee determines that the owner and/or operator of that structural stormwater BMP has not conducted maintenance. ☒ Yes ☐ No
   b. Include conditions that are designed to preserve the permittee's right to ensure maintenance responsibility, for structural stormwater BMPs not owned or operated by the permittee, when those responsibilities are legally transferred to another party. ☒ Yes ☐ No
   c. Include conditions that are designed to protect/preserve structural stormwater BMPs and site features that are implemented to comply with the Permit (Part III.D.5.a(2)). If site configurations or structural stormwater BMPs change, causing decreased structural stormwater BMP effectiveness, new or improved structural stormwater BMPs must be implemented to ensure the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) continue to be met. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within twelve (12) months of the date permit coverage is extended, these permit requirements are met:

Mendota Heights is currently in the process of revising its Surface Water Management Plan to comply with the expanded areas of the city that will now be within the Lower Mississippi River WMO. The city intends to complete this update by 12/31/2014. It is undetermined if mitigation standards will be allowed. Items checked "no" as outlined in B.2 and B.3 will be updated for compliance with the MS4 permit within 12 months of permit coverage.

III. Enforcement Response Procedures (ERPs): (Part II.D.3)

A. Do you have existing ERPs that satisfy the requirements of the Permit (Part III.B.)? ☐ Yes ☒ No

1. If **yes**, attach them to this form as an electronic document, with the following file naming convention: *MS4NameHere_ERPs.*
2. If **no**, describe the tasks and corresponding schedules that will be taken to assure that, with twelve (12) months of the date permit coverage is extended, these permit requirements are met:

   The city will develop/adopt written Enforcement Response Procedures within 12 months of permit coverage.

B. Describe your ERPs:

In general practice the citys intent to to achieve compliance without having to initiate ERP Procedures. The first step is typically a verbal conversation about the issue. If this first step is not enough a Notice of Violation and potential stop work order is issued. Depending on the severity, frequency and urgency of the violation the city may issue a fine, perform the corrective work ourselves or if necessary pursue criminal or civil actions.

IV. Storm Sewer System Map and Inventory: (Part II.D.4.)

A. Describe how you manage your storm sewer system map and inventory:

The Mendota Heights Storm Sewer System is available in CAD, PDF, and GIS formats. The electronic database is updated annualy at a minimum.

B. Answer **yes** or **no** to indicate whether your storm sewer system map addresses the following requirements from the Permit (Part III.C.1.a-d), as listed below:

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes. ☒ Yes ☐ No
2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate. ☒ Yes ☐ No
3. Structural stormwater BMPs that are part of the permittee's small MS4. ☒ Yes ☐ No
4. All receiving waters. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C. Answer **yes** or **no** to indicate whether you have completed the requirements of 2009 Minnesota Session Law, Ch. 172. Sec. 28: with the following inventories, according to the specifications of the Permit (Part III.C.2.a.-b.), including:

1. All ponds within the permittee's jurisdiction that are constructed and operated for purposes of water quality treatment, stormwater detention, and flood control, and that are used for the collection of stormwater via constructed conveyances. ☒ Yes ☐ No
2. All wetlands and lakes, within the permittee's jurisdiction, that collect stormwater via constructed conveyances. ☒ Yes ☐ No

D. Answer **yes** or **no** to indicate whether you have completed the following information for each feature inventoried.

1. A unique identification (ID) number assigned by the permittee. ☒ Yes ☐ No
2. A geographic coordinate. ☒ Yes ☐ No
3. Type of feature (e.g., pond, wetland, or lake). This may be determined by using best professional judgment. ☒ Yes ☐ No

If you have answered **yes** to all above requirements, and you have already submitted the Pond Inventory Form to the MPCA, then you do not need to resubmit the inventory form below.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

E. Answer **yes** or **no** to indicate if you are attaching your pond, wetland and lake inventory to the MPCA on the form provided on the MPCA website at: http://www.pca.state.mn.us/ms4 , according to the specifications of Permit (Part III.C.2.b.(1)-(3)). Attach with the following file naming convention: *MS4NameHere_inventory*. ☒ Yes ☐ No

If you answered **no,** the inventory form must be submitted to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.

V. Minimum Control Measures (MCMs) (Part II.D.5)

A. MCM1: Public education and outreach

1. The Permit requires that, within 12 months of the date permit coverage is extended, existing permittees revise their education and outreach program that focuses on illicit discharge recognition and reporting, as well as other specifically selected stormwater-related issue(s) of high priority to the permittee during this permit term. Describe your **current** educational program, including **any high-priority topics included**:

   The City's educational program consists of a wide range of activities to educated city residents, community groups, business owners, city staff, elected officials, developers, and contractors on a wide range of water resources and stormwater management topics. The city will evaluate its education program annually and make updates as needed. The city does not anticipate the need for new BMPs, rather current BMPs will be refined and update as necessary to meet permit requirements.

2. List the categories of BMPs that address your public education and outreach program, including the distribution of educational materials and a program implementation plan. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the U.S. Environmental Protection Agency's (EPA) *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Quarterly Newsletter – Heights Highlights	Number of articles, number mailed
City Website – Storm water page	Implement tracking feature
Educational Brochures	Number Distributed
Annual Public Meeting	Number attended
Storm Drain Stenciling	Number Stenciled
Pagel Pond Signs	Number Posted
Water Quality Monitoring Program	Met Council CAMP, Dakota County WHEP
Public Input on Capital Improvements	Number attended to meetings
Cable access programs	Supported through LMRWMO, number times aired

BMP categories to be implemented	Measurable goals and timeframes

3. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Public Works Director/City Engineer

B. MCM2: Public participation and involvement

1. The Permit (Part III.D.2.a.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement a public participation/involvement program to solicit public input on the SWPPP. Describe your current program:

   The city holds an annual public meeting to review program details and program progress with the public. The meeting also provides an opportunity for the public to give input and/or ask questions. The meeting is noticed in the local paper following applicable public notice requirements and broadcast on the local cable access station. The city takes into consideration both written and verbal forms of public input at the meeting and throughout the year. The city maintains a phone line for use by the public to report illicit discharges, report stormwater noncompliance concerns, and/or provide input, give comments, and/or ask questions about the MS4 program.

2. List the categories of BMPs that address your public participation/involvement program, including solicitation and documentation of public input on the SWPPP. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Telephone and email hotline	Track number of issues reported, respond accordingly
Volunteer opportunities	Post opportunities on the city website, newsletter, etc.
Annual meeting	Number attended, comments received
Local cable	Broadcast public meetings, run storm water related programs
SWPPP availability	Available online and at city hall

BMP categories to be implemented	**Measurable goals and timeframes**

3. Do you have a process for receiving and documenting citizen input? ☐ Yes ☒ No

   If you answered **no** to the above permit requirement, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   Citzen input can be generated through phone, email, fax, meetings, mail, etc…The communication is typically logged in an Xcel file for future reference. Input submitted at public meetings will be recorded on the permanent minutes.

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Public Works Director/City Engineer

C. MCM 3: Illicit discharge detection and elimination

1. The Permit (Part III.D.3.) requires that, within 12 months of the date permit coverage is extended, existing permittees revise their current program as necessary, and continue to implement and enforce a program to detect and eliminate illicit discharges into the small MS4. Describe your current program:

   The City of Mendota Heights has personnel available on a normal working day basis and voice mail and email for residents to report illicit discharges, construction site sedimentation and erosion violations, other storm water related issues and to provide comments on the SWPPP. City staff keeps records of these complaints, and responds to the calls as needed. The City has an illicit discharge detection and enforcement ordinance in place that outlines in more detail the City's approach to identifying, addressing, and preventing these discharges to storm sewer. In general, when a complaint comes in, City staff will review the site, take photographs, and leave a notice or send a letter giving the owner a certain number of days to correct the problem. More urgent steps are taken if the violation is serious and/or needs immediate attention. Violators are advised that if they fail to comply, the City will correct the problem and they will be charged.

   The City maintains and annually updates a storm water system and inventory map. The map is currently maintained in AutoCAD and GIS formats and includes storm water conveyance system, ponds, water bodies, wetlands, structural pollution control devices, and outfalls. The City conducts regular inspections of its storm water system and conducts site specific inspections as reports are received. The city completes dry weather inspections of, at a minimum, 20% of the storm sewer system outfalls, as well as pond inlets and outlets each year. City staff is watchful for signs of illicit discharges while conducting daily activities. The city addresses ISTS inspections through the Dakota County Program.

2. Does your Illicit Discharge Detection and Elimination Program meet the following requirements, as found in the Permit (Part III.D.3.c.-g.)?

   a. Incorporation of illicit discharge detection into all inspection and maintenance activities conducted under the Permit (Part III.D.6.e.-f.)Where feasible, illicit discharge inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation). ☒ Yes ☐ No

   b. Detecting and tracking the source of illicit discharges using visual inspections. The permittee may also include use of mobile cameras, collecting and analyzing water samples, and/or other detailed procedures that may be effective investigative tools. ☒ Yes ☐ No

   c. Training of all field staff, in accordance with the requirements of the Permit (Part III.D.6.g.(2)), in illicit discharge recognition (including conditions which could cause illicit discharges), and ☒ Yes ☐ No

reporting illicit discharges for further investigation.

d. Identification of priority areas likely to have illicit discharges, including at a minimum, evaluating land use associated with business/industrial activities, areas where illicit discharges have been identified in the past, and areas with storage of large quantities of significant materials that could result in an illicit discharge. ☒ Yes ☐ No

e. Procedures for the timely response to known, suspected, and reported illicit discharges. ☒ Yes ☐ No

f. Procedures for investigating, locating, and eliminating the source of illicit discharges. ☒ Yes ☐ No

g. Procedures for responding to spills, including emergency response procedures to prevent spills from entering the small MS4. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer, if the source of the illicit discharge is a spill or leak as defined in Minn. Stat. § 115.061. ☒ Yes ☐ No

h. When the source of the illicit discharge is found, the permittee shall use the ERPs required by the Permit (Part III.B.) to eliminate the illicit discharge and require any needed corrective action(s). ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

In several cases the procedures are in place but may not be entirely written, or may involve written policies and procedures from multiple departments/documents. For example, spills are typically incorporated into the city Emergency Response Plan as it would be redundant to include under the storm water ordinance. The various relevant procedures will be brought together into one place and included within the City's Surface Water Management Plan. Procedures will be completed within 12 months of coverage. If it is considered necessary, changes will be incorporated into the City ordinance.

3. List the categories of BMPs that address your illicit discharge, detection and elimination program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Storm Sewer Map	Continually update, ongoing
Ordinance	Update and enforce, number of permits/sites
Site Inspections	Track the source and enforce as necessary, number inspected.
Site plan review	Ensure safe guards and hazardous are in place prior to construction
Training	Annual staff training to assist in identification of hazards.
Reporting hotline	Maintain accessibility to the public and other agencies to report issues.

BMP categories to be implemented	Measurable goals and timeframes
Receipt and consideration of Noncompliance reports	Develop written procedures

4. Do you have procedures for record-keeping within your Illicit Discharge Detection and Elimination (IDDE) program as specified within the Permit (Part III.D.3.h.)? ☐ Yes ☒ No

   If you answered **no**, indicate how you will develop procedures for record-keeping of your Illicit Discharge, Detection and Elimination Program, within 12 months of the date permit coverage is extended:

   An electronic and hard-copy list of illicit discharges is kept up to date. It needs to be modified to ensure that it includes all the information required by the Permit. Record-keeping procedures and modified forms will be developed in accordance with the Permit requirements.

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Public Works Director/City Engineer

D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

   The City of Mendota Heights has an established program and policies that effectively control construction site stormwater and provide for the necessary inspection and enforcement measures. The city's procedures for site plan review include review and approval by city staff and/or consultant. The city currently inspects construction sites to review compliance with code and permit requirements. The city's ordinance also requires contractors to conduct regular site and rainfall inspections.

   The city maintains a phone number (business hours but has voicemail) and email on their website for the public to provide input, report noncompliance and/or other construction site stormwater information 24 hours a day.

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):
   a. Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity? ☐ Yes ☒ No
   b. Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*? ☐ Yes ☒ No
   c. Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee? ☐ Yes ☒ No
   d. Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):
      1) Does your program include procedures for identifying priority sites for inspection? ☐ Yes ☒ No
      2) Does your program identify a frequency at which you will conduct construction site inspections? ☐ Yes ☒ No
      3) Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections? ☐ Yes ☒ No
      4) Does your program include a checklist or other written means to document construction site inspections when determining compliance? ☐ Yes ☒ No
   e. Does your program document and retain construction project name, location, total acreage to be disturbed, and owner/operator information? ☒ Yes ☐ No
   f. Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial? ☒ Yes ☐ No
   g. Does your program retain construction site inspection checklists or other written materials used to document site inspections? ☒ Yes ☐ No

   If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

   City ordinance states coverage must be obtained through the MPCA but does not specify the specific permit number.

   The city has a site plan review process; however, there are currently no written procedures for this process. The City will update its site plan review process to include written procedures, notifications, and documentation requirements in accordance with permit requirements. This effort will be completed within 12 months of the date permit coverage is extended.

   The city has a process for the receipt and consideration of construction site noncompliance reports and other stormwater related input; however, there are currently no written procedures for this process. The city will update its program for receipt and consideration of pubic stormwater reports to include written procedures in accordance with permit requirements. This effort will be completed within 12 months of the date permit coverage is extended.

   The city has a process for site inspections; however, there are currently no written procedures for this process. The city will update its current site inspection process to include written procedures and documentation requirements inaccordance with permit requirements.

3. List the categories of BMPs that address your construction site stormwater runoff control program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s*

(http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Ordinance	Enforce, Review and Update as needed
Site plan Review	Number reviewed, comments issued. Ongoing.
Site Inspections	Number inspected, number in violation.
Hot line/Email reporting	Maintain log and follow up actions
Education	Distribute Land Disturbance guidance document to builders and non-exempt building permits.
Wetland Permit Program	Number issued

BMP categories to be implemented	Measurable goals and timeframes
Noncompliance standards	Number received

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Public Works Director/City Engineer

E. MCM 5: Post-construction stormwater management

1. The Permit (Part III.D.5.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a post-construction stormwater management program. Describe your current program:

   The City has ordinances which establish requirements for post construction stormwater management. The City currently requires that drainage design and stormwater management meet the standards and specifications within the Surface Water Management Plan, Land Disturbance Guidance document and city ordinance and be approved by the City Engineer.

   The city's procedures for site plan review include review and approval by city staff and/or consultant.

2. Have you established written procedures for site plan reviews that you will conduct prior to the start of construction activity? ☐ Yes ☒ No

3. Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):
   a. Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any checklists used for conducting site plan reviews, and any calculations used to determine compliance? ☒ Yes ☐ No
   b. All supporting documentation associated with mitigation projects that you authorize? ☐ Yes ☒ No
   c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))? ☐ Yes ☒ No
   d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved? ☐ Yes ☒ No

   If you answered **no** to any of the above permit requirements, describe the steps that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

   The city has a site plan review process; however, there are currently no written procedures for this process. The City will update its site plan review process to include written procedures in accordance with permit requirements. This effort will be completed within 12 months of the date permit coverage is extended.

   The city currently does not allow for mitigation provisions to meet post construction stormwater requirements. The city will review its current requirements and assess whether or not to add mitigation provisions in accordance with permit requirements. This effort will be completed within 12 months of the date permit coverage is extended.

   The city will develop or update existing regulatory mechanisms to provide for the establishment of legal mechanisms between the city and owners and operators responsible for long-term maintenance of privately owned and operated structural BMPs in accordance with permit requirements. This effort will be completed within 12 months of the date permit coverage is extended.

4. List the categories of BMPs that address your post-construction stormwater management program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Ordinance	Update as necessary
Site Plan Review	Review for compliance with city regulations
Educational materials	Distribute Land Disturbance guidance document with building permits and to developers
Wetland permit Program	Number issued
Structural/Non-structural BMP's	Number/type constructed

BMP categories to be implemented	**Measurable goals and timeframes**

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

   Public Works Director/City Engineer

F. MCM 6: Pollution prevention/good housekeeping for municipal operations

1. The Permit (Part III.D.6.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement an operations and maintenance program that prevents or reduces the discharge of pollutants from the permittee owned/operated facilities and operations to the small MS4. Describe your current program:

   The following practices are implemented throughout the City facilities:

   Storage of salt under shelter roofs

   Recycling of used oil

   Readily accessible materials for spill and accident clean up at facilities

   Conduct vehicle maintenance in covered garages.

   The city conducts regular inspections of its storm water system. Staff inspects, at a minimum, 20% of the storm sewer system outfalls, as well as pond inlets and outlets each year. The city conducts regular inspections and maintenance on the entire storm sewer system as needed.

   The city currently inspects material stockpiles and handling areas on an annual basis.

   The city implements a street sweeping program for vehicle safety, pedestrian safety, water quality, and environmental reasons. Street sweeping is conducted twice annually.

   The city currently records system inspection and significant maintenance efforts in a paper format. The city is exploring options to purchase an asset management system for developing a detailed for tracking BMPs, condition of system components, and inspection and maintenance efforts

2. Do you have a facilities inventory as outlined in the Permit (Part III.D.6.a.)? ☐ Yes ☒ No

3. If you answered **no** to the above permit requirement in question 2, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

   The City will develop a facilities inventory to include city-owned facilities which contribute pollutants to stormwater discharges in accordance with permit requirements . This effort will be completed within 12 months of the date permit

coverage is extended.

4. List the categories of BMPs that address your pollution prevention/good housekeeping for municipal operations program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

   Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. For an explanation of measurable goals, refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (http://www.epa.gov/npdes/pubs/measurablegoals.pdf).

   If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	**Measurable goals and timeframes**
Training	Complete annual training effort generally in conjunction with the City of West St. Paul.
Street Sweeping	Spring and fall sweeping. Track hours & miles.
Inspection	Inspect 20% of ponds and outfalls annually.
Sump Manholes	Cleaned annually
Equipment maintenance program	Number trained, number vehicles inspected
Lawn Maintenance Program	Improved buffer strips in city parks, mow clippings into lawn, etc.

BMP categories to be implemented	**Measurable goals and timeframes**
Asset Management Software	The city is currently talking to several vendors on purchasing a software program.

5. Does discharge from your MS4 affect a Source Water Protection Area (Permit Part III.D.6.c.)? ☐ Yes ☒ No

   a. If **no**, continue to 6.

   b. If **yes**, the Minnesota Department of Health (MDH) is in the process of mapping the following items. Maps are available at http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm. Is a map including the following items available for your MS4:

      1) Wells and source waters for drinking water supply management areas identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330? ☐ Yes ☐ No

      2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13? ☐ Yes ☐ No

   c. Have you developed and implemented BMPs to protect any of the above drinking water sources? ☐ Yes ☐ No

6. Have you developed procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all permittee owned/operated ponds constructed and used for the collection and treatment of stormwater, according to the Permit (Part III.D.6.d.)? ☐ Yes ☒ No

7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas? ☒ Yes ☐ No

8. Have you developed and implemented a stormwater management training program commensurate with each employee's job duties that:

   a. Addresses the importance of protecting water quality? ☒ Yes ☐ No

   b. Covers the requirements of the permit relevant to the duties of the employee? ☒ Yes ☐ No

c. Includes a schedule that establishes initial training for new and/or seasonal employees and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements? ☐ Yes ☒ No

9. Do you keep documentation of inspections, maintenance, and training as required by the Permit (Part III.D.6.h.(1)-(5))? ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements listed in **Questions 5 – 9**, then describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

Within 12 months of extendeded permit coverage, inspection procedures and the training program/schedule already in place will be updated to reflect new Permit requirements. Within the same time frame, procedures and a schedule for determining TP and TSS treatment effectiveness of stormwater ponds will be developed. These will be documented in the Surface Water Management Plan which the City will be updating.

10. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Public Works Director/City Engineer

VI. Compliance Schedule for an Approved Total Maximum Daily Load (TMDL) with an Applicable Waste Load Allocation (WLA) (Part II.D.6.)

A. Do you have an approved TMDL with a Waste Load Allocation (WLA) prior to the effective date of the Permit? ☐ Yes ☒ No

1. If **no**, continue to section VII.
2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following naming convention**:** *MS4NameHere_TMDL.*

   This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VII. Alum or Ferric Chloride Phosphorus Treatment Systems (Part II.D.7.)

A. Do you own and/or operate any Alum or Ferric Chloride Phosphorus Treatment Systems which are regulated by this Permit (Part III.F.)? ☐ Yes ☒ No

1. If **no**, this section requires no further information.
2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.

   This form is found on the MPCA MS4 website: http://www.pca.state.mn.us/ms4.

VIII. Add any Additional Comments to Describe Your Program

11-6-7: ILLICIT DISCHARGE AND CONNECTION:

A. Objectives: The objectives prevent the introduction of pollutants to the stormwater system by any user, to prohibit illicit connections and discharges to the stormwater system, and to establish authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this chapter.

B. Discharge Prohibitions:

1. Prohibition Of Illegal Disposal And Dumping Of Substances And Materials: No person shall throw, deposit, place, leave, maintain, or store any substance upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place or upon any public or private plot of land, so that the same might be or become a pollutant, except if secured within a container or bag or contained within a lawfully established waste disposal facility.

   No person shall intentionally dispose of grass, leaves, dirt or landscape material into a water resource, buffer, street, road, alley, catch basin, culvert, curb, gutter, inlet, ditch, natural watercourse, flood control channel, canal, storm drain or any fabricated natural channel.

2. Prohibition Of Illicit Discharges: No person shall discharge or cause to be discharged into the stormwater system or watercourses any materials, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater.

a. The commencement, execution or continuance of discharge of pollutants to the stormwater system is prohibited except as follows: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, noncommercial washing of vehicles, natural riparian habitat or wetland flows, firefighting activities, and any other water source not containing pollutants.

b. Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety are allowed.

c. Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

d. The prohibition shall not apply to any nonstormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the federal environmental protection agency, Minnesota pollution control agency, or other agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the stormwater system.

3. Prohibition Of Illicit Connections: The construction, use, maintenance, or continued existence of such connections that intentionally convey nonstormwater to the stormwater system is prohibited. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of

whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

A person is considered to be in violation of this chapter if the person connects a line conveying wastewater to the stormwater system, or allows such a connection to continue.

No person shall connect or convey water from floor drains to the storm sewer system.

C. Discharge Prevention:

1. Discharge Prevention Requirements: Any property owner within the city shall comply with the following requirements to prevent discharges:

a. No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste in an area where discharge to a street, storm sewer system, or surface water body may occur. This prohibition shall apply to actual discharges as well as the potential for discharge from, for example, a septic system in a location where emergency overflow could discharge to a street, surface water body, or storm sewer system.

b. Individual sewage treatment systems must be maintained in order to prevent failure. No part of any individual sewage treatment system requiring on land or inground disposal of waste shall be located in an area where effluent could immediately or gradually reach a body of water due to the existing physical characteristics of the site or the system.

c. Recreational vehicle sewage shall be disposed of at a proper sanitary waste facility. Waste must not be discharged in an area where drainage to streets or storm sewer system may occur.

d. Water in swimming pools must sit for seven (7) days without the addition of any chlorine to allow for evaporation of the chlorine before it is discharged.

e. Runoff of water from residential properties shall be minimized to the maximum extent practicable. Paved areas must be swept prior to wash down activity. Runoff water from the washing down of paved areas on commercial or industrial properties is prohibited unless necessary for health or safety purposes and is not in violation of any other applicable regulations.

f. Mobile washing companies, such as carpet cleaning and mobile vehicle washing services, shall dispose of any wastewater to the sanitary sewer system. Wastewater shall not be discharged to the streets or storm sewer system.

g. Objects such as motor vehicle parts that contain grease, oil or other hazardous substances and unsealed receptacles containing hazardous materials shall not be stored in areas susceptible to runoff. Any machinery or equipment that is to be repaired or maintained in areas susceptible to runoff shall be placed in a confined area to contain any leaks, spills, or discharges.

h. Debris and residue shall be removed, as required below:

(1) All motor vehicle parking lots and private streets shall be swept, at a minimum of once a year in the spring, to remove debris. Such debris shall be collected and disposed of properly.

(2) Fuel and chemical residue or other types of potentially harmful material, such as animal waste, garbage or batteries shall be removed as soon as possible and disposed of properly. Household hazardous waste must be disposed of through the county collection program or at any other authorized disposal site. Household hazardous waste shall not be placed in a trash container.

D. Industrial Activity Discharges To The Storm Sewer System:

1. Any person subject to an industrial activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the city prior to allowing of discharge to the storm sewer system.

2. All facilities that have stormwater discharges associated with industrial activity must adhere to the following requirements: Any person responsible for a property or premises, which is, or may be, the source of an illicit discharge may be required to implement, at said person's expense, additional structural and nonstructural BMPs to prevent the further discharge of pollutants to the storm sewer system. These BMPs shall be part of a stormwater pollution prevention plan (SWPPP) as necessary for compliance with requirements of the NPDES permit.

E. Suspension Of Stormwater System Access:

1. Suspension Due To Illicit Discharges In Emergency Situations: The city may, without prior notice, suspend stormwater system discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent or substantial danger to the environment, or to the health or welfare of persons, or to the stormwater system or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the stormwater system or waters of the United States, or to minimize danger to persons. If authorized enforcement agency takes steps to prevent or minimize damage to the stormwater system or waters of the United States, or to minimize danger to persons, the city may bill the property owner and/or operator, or lien the subject property for the cost of the action.

2. Suspension Due To The Detection Of Illicit Discharge: Any person discharging to the stormwater system in violation of this chapter may have their stormwater system access terminated if such termination would abate or reduce an illicit discharge. The city will notify a violator of the proposed termination of the violator's stormwater system access. The violator may petition the city for a reconsideration and hearing. A person is committing an offense and is subject to misdemeanor enforcement if the person reinstates stormwater system access to premises terminated pursuant to this chapter without the prior approval of the city.

F. Monitoring Of Discharges:

1. The city shall be allowed to enter and inspect facilities and properties subject to regulation under this chapter as often as may be necessary to determine compliance with this chapter and for the purposes of inspection, sampling, examination, and the performance of any additional duties as defined by state and federal law that relate to the discharge of stormwater. If a person does not wish

to allow the city to enter a building to conduct the required activity, he or she may retain a private inspector to conduct the activity. The private inspector must have credentials that are acceptable to the city. The private inspector shall provide the city with the relevant samples, test results, reports or any other information that is being requested.

2. The city shall have the right to establish on any permitted facility such devices as are necessary in the opinion of the authorized enforcement agency solely to conduct monitoring and/or sampling of the facility's stormwater discharge.

3. The city has the right to require the discharger to install monitoring equipment to ensure discharge is in compliance with MPCA standards. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense.

4. Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the owner or operator at the written or oral request of the city and shall not be replaced. The costs of clearing such access shall be borne by the owner or operator.

5. Unreasonable delays in allowing the city access to a permitted facility is a violation of a stormwater discharge permit and of this chapter. A person who is the owner and/or operator of a facility with an NPDES permit to discharge stormwater associated with industrial activity commits an offense if the person denies the city reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this chapter.

G. Requirement To Prevent, Reduce, And Control Stormwater Pollutants By The Use Of Best Management Practices:

1. Owner Responsibility: The owner or operator of any property shall provide, at owner/operator's expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal stormwater system or watercourses through the use of structural and nonstructural best management practices (BMPs). Further any person responsible for a property or premises, which is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and nonstructural BMPs to prevent the further discharge of pollutants to the stormwater system. These BMPs are listed in the stormwater pollution prevention plan (SWPPP) and the Minnesota pollution control agency's current BMPs, and are necessary for compliance with requirements of the NPDES permit and chapter 6 of the city's surface water management plan (SWMP).

H. Watercourse Protection:

1. Owner Responsibility: Every owner of a property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within their property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly impact the flow of water through the watercourse. All owners or lessees shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

I. Notification Of Spills:

1. Notwithstanding other requirements of law, as soon as any person responsible for a facility, vehicle or operation, or responsible for emergency response for a facility or operation has knowledge of any known or suspected release of materials of any amount which are resulting or may result in illicit discharges or pollutants discharging into the stormwater system, watercourse, or waters of the United States, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify the city and other emergency response agencies of the occurrence via emergency dispatch services.

   In the event of a release of nonhazardous materials, said person shall notify the city in person or by phone no later than the beginning of the next business day.

   If the discharge of prohibited materials emanates from a commercial or industrial establishment or vehicle, the owner or operator of such establishment or vehicle shall also retain a written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least ten (10) years, or longer if required by other regulatory authority. (Ord. 421, 2-3-2009)

11-6-6: CONSTRUCTION SITE STORMWATER RUNOFF AND EROSION CONTROL:

A. Purpose: The purpose of this section is to establish regulation of land disturbing activities, preservation and enhancement of the natural environment by reducing sedimentation in streams, lakes, stormwater systems and other waterways, protection of the quality of surface water resources, preserve and protection of wildlife habitat, restore sites to reduce the negative environmental effects of land disturbing activities, provide effective practices for erosion and sedimentation control, and to comply with local, state and federal regulations.

B. Scope: Except where an exemption applies, any person proposing a land disturbing activity or whose land constitutes a land disturbing activity within the city shall apply to the city for the approval of a stormwater pollution prevention plan. No land shall be disturbed until the plan is approved by the city and conforms to the standards set forth herein.

C. Stormwater Management Permit Required:

1. Review And Approval: No person shall grade, fill, excavate, store, dispose of soil and earth materials, or perform any other land disturbing or land filling activity without first submitting a stormwater pollution prevention plan for review and approval by the city and obtaining a permit as required in this section and the requirements of section 11-6-8, "Postconstruction Stormwater Runoff", of this chapter. If the applicability requirements of this section or section 11-6-8 of this chapter apply the stormwater pollution prevention plan submittal needs only to meet the requirements of that section. The stormwater management permit is not a replacement for a conditional use permit as required in this code or a wetlands permit as required in section 12-2-6 of this code, or the requirements of the critical area district as required in title 12, chapter 3 of this code nor is it a replacement for a watershed district permit or a state NPDES permit.

2. General Exemptions: Land disturbing activities, which meet all the following criteria are exempt from the requirements of this section:

a. The disturbed or filled area is five thousand (5,000) square feet or less in area; and

b. The volume of soil or earth material stored or moved is fifty (50) cubic yards or less; and

c. No drainageway is blocked or has its stormwater carrying capacities or characteristics modified; and

d. The activity does not take place within one hundred feet (100') by horizontal measurement from the top of the bank of a watercourse, the ordinary high water mark of a water body, or the ordinary high water mark of a wetland associated with a watercourse or water body. The activity does not take place within an established 100-year floodplain; and

e. Not considered part of a larger common plan of development.

3. Categorical Exemptions: Notwithstanding the requirements of this code, the following activities are exempt from the permit requirements:

a. Emergency activities necessary to prevent or alleviate immediate dangers to life or property.

b. Activities that are under the regulatory jurisdiction of an authorized state or federal agency.

c. General farming, gardening and nursery activities.

d. Residential construction activity limited to:

(1) Additions to the existing structure,

(2) Landscaping and landscaping structures, and

(3) Construction of a garage. (Ord. 421, 2-3-2009)

D. Submission Requirements For A Stormwater Management Permit:

1. Application Items: Application for a stormwater management permit shall include submittal of stormwater pollution prevention plan which shall include:

a. Application form and fee.

b. Narrative describing temporary erosion and sediment control, permanent stabilization, pollution prevention and permanent stormwater management.

c. Site map and grading plan.

d. Temporary erosion and sediment control plan meeting the requirements of the city's land disturbance guidance document.

e. Permanent stabilization plan meeting the requirements of the city's land disturbance guidance document.

f. Permanent stormwater management measures meeting the requirements outlined in section 11-6-8 of this chapter and the city's land disturbance guidance document.

g. Work schedule.

h. Cost estimate.

i. Landscape plan showing proposed landscape improvements (plantings, seeding, sod, etc.) if applicable to the project application.

j. Lighting/photometric plan displaying proposed exterior lighting, to include light fixture type, height, and foot-candle coverage if applicable to the project application.

k. The city may require the applicant to submit additional information or data it determines necessary to complete its review. Submittals determined by the city to be incomplete or otherwise unacceptable for the purposes of this chapter shall be returned to the applicant for correction and resubmittal. (Ord. 431, 2-1-2011)

2. Fees: All applications shall be accompanied by a permit fee. Fees for permits shall be fixed and determined by the city council, adopted by ordinance and uniformly enforced. Such permit fees may, from time to time, be amended by city council ordinance. A copy of the ordinance setting forth currently in effect permit fees shall be kept on file by the city and shall be open to inspection during regular business hours.

E. Review Procedure:

1. Process: City staff will review each complete application for a stormwater management permit to determine its conformance with the provisions of this chapter. Within ten (10) working days of receiving an application, city staff will identify if additional materials are required to complete a permit application and within sixty (60) days of receiving an application, city staff shall approve, approve with conditions, or deny a stormwater management permit application.

2. Appeal: An applicant may appeal a decision of denial of a permit under this section which shall be made under the manner prescribed in section 11-6-11 of this chapter.

3. Site Review: Once a permit is granted, city staff shall inspect the property for:

a. Erosion control compliance with this code;

b. Permit conditions and site plans prior to the onset of construction; and

c. Permit conditions and site plans throughout project construction.

4. Stop Work Order: The city reserves the right to issue a stop work order for any violation of this chapter, or noncompliance with permit conditions, observed during site inspection. Stop work order shall remain in effect until identified violations or noncompliant issues have been corrected.

F. Form Of Security: Before a permit is issued, the city may require the permittee to post security in a form acceptable to the city equal to one hundred twenty five percent (125%) of the cost estimate stated in the application and agreed by the city to be the cost of the work to be done under the permit. The security may take the form of cash in United States currency or an irrevocable letter of credit issued by a financial institution in a form acceptable to the city.

1. Release Of Security:

a. Provided no action has been taken by the city to recover all or a part of the security before that determination has been made, any security deposited with the city to guarantee performance of the grading and erosion control work shall be released to the person holding the permit upon determination by the city that the conditions of the permit have been satisfactorily performed.

b. Provided no action has been taken by the city to recover all or part of the security filed by the permittee before that date, securities held to ensure the successful completion of an interim or final plan shall be released to the permittee either one year after termination of the permit or when a final plan is submitted for the unimproved site, whichever is later.

G. Suspension Of Permit: In enforcing the permit:

1. The city may suspend the permit and issue a stop work order as provided under subsection E4 of this section. Upon receipt of a stop work order, the permittee shall cease all work on the work site except for work necessary to remedy the cause of the suspension.

2. The permittee may request a reinstatement of a suspended permit upon correction of the causes for suspension and, if the conditions of the permit have been complied with in full, the city shall reinstate the permit.

3. If the permittee fails or refuses to cease work as required under subsection E4 of this section, the city shall revoke the permit.

4. The city shall not reinstate a revoked permit but shall proceed to act against the security as provided in subsection H of this section.

5. Work performed without a permit is a violation of this chapter and is subject to misdemeanor enforcement.

H. Action Against Security: The city may act against the appropriate security if any of the following conditions exist:

1. The permittee stops performing the land disturbing activities or filling, and abandons the work site prior to completion of permanent site stabilization.

2. The permittee fails to conform to the stormwater pollution prevention plan as approved, and has had its permit revoked as provided in subsection G of this section.

3. The techniques utilized for temporary or permanent stabilization fail within one year of installation or before the final plan is implemented for the site or portion of the site, whichever comes later.

4. The city determines that its actions are necessary to prevent excessive erosion from occurring on the site, or to prevent nuisance conditions from occurring on adjacent or nearby properties.

The city shall use funds recovered from the security to reimburse the city for all direct and indirect costs incurred in doing the remedial work undertaken by the city or private contractor under contract with the city. (Ord. 421, 2-3-2009)

11-6-8: POSTCONSTRUCTION STORMWATER RUNOFF:

A. Objectives: The objectives of this section are to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing in watersheds within this jurisdiction. This section seeks to meet that purpose through the following objectives:

1. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management controls and to ensure that these management controls are properly maintained and pose no threat to public safety;

2. Control stormwater runoff from development and redevelopment to reduce flooding, silt deposits and stream bank erosion, and maintain the integrity of stream channels;

3. Control nonpoint source pollution caused by stormwater runoff from development; and

4. Control the total annual volume of surface water runoff which flows from any specific site following development.

B. Applicability: The rules of applicability are as set forth in section 11-6-6, "Construction Site Stormwater Runoff And Erosion Control", of this chapter.

C. Stormwater Pollution Prevention Plan:

1. Stormwater Pollution Prevention Plan Required For All New Developments And Redevelopments: No application for development or redevelopment will be approved unless it includes a stormwater pollution prevention plan detailing how runoff and associated water quality impacts resulting from the development will be controlled or managed and contains the submission materials identified in subsection 11-6-6D of this chapter. This plan must indicate whether stormwater will be managed on site or off site and, if on site, the general location and type of practices.

   The stormwater pollution prevention plan(s) shall be referred for comment to interested agencies, and any comments must be addressed in a final stormwater pollution prevention plan. This final plan must be signed by a licensed professional engineer (PE) of the state of Minnesota.

2. Design Of Stormwater Facilities: The stormwater pollution prevention plan shall meet the design requirements outlined in the city's land disturbance guidance document.

3. Maintenance Of Existing Stormwater Facilities: Any stormwater facility in existence prior to the adoption date hereof shall be maintained by the owner of the stormwater facility and in a manner to conform to design standards for that facility. Any redevelopment of the stormwater facility shall require that the facility meet current stormwater design standards as set forth in the city's land disturbance guidance document.

   The thresholds for maintenance are triggered once sediment deposits reach a point greater than is

allowed under the design standard criteria, or such deposits begin to have a substantial effect on the water quality or holding capacity of the pond.

4. Inspection Of Stormwater Facilities: Inspection programs shall be established on a regular basis, including, but not limited to, an inspection in accordance with the schedule defined in the MPCA MS4 permit section V, part 6.b or more often if deemed necessary to ensure proper functioning of the stormwater management facility. Inspections are the responsibility of the owner of the stormwater facility and must be completed by a certified erosion control specialist in the state of Minnesota hired for that purpose. Inspection results must be completed and submitted to the city in accordance with the schedule defined in the MPCA MS4 permit section V, part 6.b from the completion of development or from the adoption date hereof for a preexisting stormwater facility.

   Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other stormwater treatment practices.

   All new and existing stormwater management facilities must undergo, at a minimum, an inspection in accordance with the schedule defined in the MPCA MS4 permit section V, part 6.b to document maintenance and repair needs and ensure compliance with the requirements of this chapter and accomplishment of its purposes. This maintenance may include: removal of silt, litter and other debris from all catch basins, inlets and drainage pipes; grass cutting and vegetation removal; and necessary replacement of landscape vegetation. Any maintenance needs found must be addressed in a timely manner, as determined by the city. The inspection and maintenance requirement may be increased as deemed necessary to ensure proper functioning of the stormwater management facility.

D. Maintenance Covenants: Maintenance of all stormwater management facilities shall be ensured through the creation of a formal maintenance covenant that must be approved by the city and recorded at the Dakota County recorder's office prior to final plan approval. As part of the covenant, a schedule shall be developed for when and how often maintenance will occur to ensure proper function of the stormwater management facility. The covenant shall also include plans for periodic inspections to ensure proper performance of the facility between scheduled cleanouts.

   The owner/operator shall show in the maintenance covenant how it will utilize best management practices (BMPs) to prevent discharge of pollutants into the stormwater system. These BMPs are listed in the city's stormwater pollution prevention plan (SWPPP) and the most current Minnesota pollution control agency BMP standards, the state of Minnesota stormwater manual and are necessary for compliance with requirements of the NPDES permit and the city's local surface water management plan. The threshold for maintenance is triggered once sediment deposition reaches a point greater than is allowed under the design standard criteria, or such deposition begins to have a substantial effect on the water quality or holding capacity of the pond.

E. Right Of Entry For Inspection: When any new drainage control facility is installed on private property, or when any new connection is made between private property and a public stormwater system, the property owner shall grant to the city the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. This includes the right to enter a property when the city has a reasonable basis to believe that a violation of this chapter is

occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of an ordinance violation.

F. Records Of Installation And Maintenance Activities: Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation, inspections, and of all maintenance and repairs, and shall retain the records for at least ten (10) years. These records shall be made available to the city during inspection of the facility and at other reasonable times upon request. (Ord. 421, 2-3-2009)

11-6-10: ENFORCEMENT:

A. Violation: Any action, failure to act or land use practice that would impair water quality if allowed to continue, shall constitute a public nuisance condition and be treated as a misdemeanor under this code.

B. Notice Of Violation: Whenever the city finds that a person has violated any section of this chapter or failed to meet a requirement of this chapter, the city shall order compliance by written notice of violation to the responsible person. Such notice may require:

1. Monitoring, analyses and reporting;

2. Elimination of illicit discharges or connections;

3. Abatement of pollution and hazards;

4. Restoration of affected property;

5. Remediation of violation;

6. Payment of a fine to cover administrative and remediation costs;

7. Loss of any posted securities;

8. Implementation of source control or treatment BMPs; and

9. Other actions as deemed necessary by the city.

If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. The notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by the city or other local governmental unit or a contractor and the expense thereof shall be charged to the violator.

C. Failure To Maintain Practices: If a responsible party fails or refuses to meet the requirements of the maintenance covenant, the city, after reasonable notice, may correct a violation of the design standards or maintenance needs by performing all necessary work to place the facility in proper working condition. In the event that the stormwater management facility becomes a danger to public safety or public health, the city shall notify the party responsible for maintenance of the stormwater management facility in writing. Upon receipt of that notice, the responsible person shall have thirty (30) days to effect maintenance and repair of the facility in an approved manner. After proper notice, the city may assess the owner(s) of the facility for the cost of repair work, and any penalties and the cost of the work shall be a lien on the property, or prorated against the beneficial users of the property, and may be placed on the tax bill and collected as ordinary taxes by the county. (Ord. 421, 2-3-2009)

11-6-11: APPEAL OF NOTICE OF VIOLATION:

Any person receiving a notice of violation may appeal the determination of the city. The notice of appeal must be received within five (5) days from the date of the notice of violation. Hearing on the appeal before the appropriate authority or designee shall take place within thirty (30) days from the date of receipt of the notice of appeal. The decision of the city or the local government unit or designee shall be final. (Ord. 421, 2-3-2009)

11-6-12: ENFORCEMENT MEASURES AFTER APPEAL:

If the violation has not been corrected pursuant to the requirements set forth in the notice of violation, or, in the event of an appeal, within five (5) working days of the decision of the city or local government unit upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above. (Ord. 421, 2-3-2009)

11-6-13: COST OF ABATEMENT OF THE VIOLATION:

Within thirty (30) days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner must file any objection to the amount of the assessment in writing with the city within thirty (30) days. If the amount due is not paid within a timely manner, as determined by the decision of the city, or by the expiration of the time in which to file an appeal, the costs shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this chapter shall become liable to the city by reason of such violation. (Ord. 421, 2-3-2009)

11-6-14: INJUNCTIVE RELIEF:

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this chapter. If a person has violated or continues to violate the provisions of this chapter, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation. (Ord. 421, 2-3-2009)

11-6-15: COMPENSATORY ACTION:

In lieu of enforcement proceedings, penalties, and remedies authorized by this chapter, the authorized enforcement agency may impose upon a violator alternative compensatory action, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, and similar programs. (Ord. 421, 2-3-2009)

11-6-16: VIOLATIONS DEEMED A PUBLIC NUISANCE:

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the

violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken. (Ord. 421, 2-3-2009)

11-6-17: CRIMINAL PROSECUTION:

Any person who has violated or continues to violate this chapter shall be liable to criminal prosecution to the fullest extent of the law. The authorized enforcement agency may recover all attorney fees, court costs, and other expenses associated with enforcement of this chapter, including sampling and monitoring expenses. (Ord. 421, 2-3-2009)

11-6-18: REMEDIES NOT EXCLUSIVE:

The remedies listed in this chapter are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies. (Ord. 421, 2-3-2009)

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 Pond, Wetland, and Lake Inventory Form

Municipal Separate Storm Sewer System (MS4) Program

Doc Type: Plans/Specifications/Maps

Name of MS4 Permittee	Date form completed	Unique ID Number	Type of Feature (Pond, Wetland or Lake)	Feature Common Name (If Applicable)	Y Coordinate (Latitude) Decimal Degrees	X Coordinate (Longitude) Decimal Degrees
City of Mendota Heights	12/30/2013	GC-P1a	Wetland	City Hall Pond West	44.8863	-93.1488
City of Mendota Heights	12/30/2013	GC-P1b	Pond	City Hall Pond East	44.8863	-93.1488
City of Mendota Heights	12/30/2013	GC-P5	Pond	Yorkton Pond	44.8824	-93.1547
City of Mendota Heights	12/30/2013	GC-P8	Pond	Lexington Apartment Pond	44.8722	-93.1465
City of Mendota Heights	12/30/2013	GC-P9	Pond	Cemetery Pond	44.8732	-93.1465
City of Mendota Heights	12/30/2013	GC-P10	Lake	Lake Augusta	44.8785	-93.1568
City of Mendota Heights	12/30/2013	GC - P11	Pond			
City of Mendota Heights	12/30/2013	GC-P15	Pond	GC-P15	44.8803	-93.1619
City of Mendota Heights	12/30/2013	GC-P41	Pond	Commerce Drive Pond #2 & 3	44.8715	-93.1706
City of Mendota Heights	12/30/2013	GC-P43	Pond	Bitminous Roadways	44.8744	-93.1728
City of Mendota Heights	12/30/2013	GC-P49d	Pond	MNDOT Pond "D"	44.8715	-93.1681
City of Mendota Heights	12/30/2013	GC-P49c	Pond	Commerce Drive Pond #1	44.8733	-93.1680
City of Mendota Heights	12/30/2013	GC-P49b	Pond	South Acacia	44.8765	-93.1649
City of Mendota Heights	12/30/2013	GC-P50C	Pond	Hillside Gables	44.8690	-93.1457
City of Mendota Heights	12/30/2013	GC-P51	Pond	Freeway Interchange	44.8646	-93.1486
City of Mendota Heights	12/30/2013	GC-P56	Pond	Towsignant Pond	44.8649	-93.1391
City of Mendota Heights	12/30/2013	GC-P56a	Pond	Ice Arena	44.8649	-93.1383
City of Mendota Heights	12/30/2013	GC-P57	Wetland	Visitation P57	44.8691	-93.1302
City of Mendota Heights	12/30/2013	GC-P58	Wetland	Visitation P58	44.8679	-93.1313
City of Mendota Heights	12/30/2013	GC-P59	Wetland	Visitation Pond	44.8671	-93.1330
City of Mendota Heights	12/30/2013	GC-P62	Pond	GC - P62	44.8637	-93.1390
City of Mendota Heights	12/30/2013	IF-P1	Pond	Somerset #1	44.9045	-93.1078
City of Mendota Heights	12/30/2013	IF-P1a	Pond	Somerset CC	44.9042	-93.1069
City of Mendota Heights	12/30/2013	IF-P4	Pond	Sommerset #2	44.9039	-93.1127
City of Mendota Heights	12/30/2013	IF-P21	Pond	Ivy Park Pond	44.9101	-93.1152
City of Mendota Heights	12/30/2013	IF-P15	Pond	Sutcliff Pond	44.9163	-93.1135

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City of Mendota Heights	12/30/2013	IF-P16	Pond	MnDOT 13 Pond	44.9137	-93.1171
City of Mendota Heights	12/30/2013	IF-P18	Pond	Burr Oak Pond	44.9102	-93.1096
City of Mendota Heights	12/30/2013	IP-P1	Lake	Lemay Lake	44.873	-93.1574
City of Mendota Heights	12/30/2013	IP-P1b	Pond	Augusta Shores	44.8789	-93.1609
City of Mendota Heights	12/30/2013	IP-P1c	Pond	Lemay Lake Road	44.8688	-93.1547
City of Mendota Heights	12/30/2013	IP-P1d	Wetland	Lemay Lake Wetland	44.8701	-93.1556
City of Mendota Heights	12/30/2013	IP-P2	Pond	Waters Drive	44.8688	-93.1588
City of Mendota Heights	12/30/2013	IP-P4	Pond	Cordon Blue	44.866	-93.1616
City of Mendota Heights	12/30/2013	IP-P5	Pond	Warehouse Pond	44.8719	-93.1658
City of Mendota Heights	12/30/2013	IP-P12	Pond	JES Pond	44.8669	-93.1661
City of Mendota Heights	12/30/2013	IP-P16	Pond	Business Park	44.8652	-93.1633
City of Mendota Heights	12/30/2013	IP-17a	Pond	Vet Pond	44.8645	-93.1546
City of Mendota Heights	12/30/2013	IP-17b	Pond	Radiology Pond	44.8645	-93.1582
City of Mendota Heights	12/30/2013	IP-17C	Pond	Northland Ponds	44.8634	-93.1577
City of Mendota Heights	12/30/2013	IV-P2	Pond	Westview Pond	44.8668	-93.1288
City of Mendota Heights	12/30/2013	IV-P3	Pond	Hazel Pond	44.8676	-93.1280
City of Mendota Heights	12/30/2013	IV-P4	Pond	Pagel Pond	44.8681	-93.1238
City of Mendota Heights	12/30/2013	IV-P5	Pond	Monet Pond	44.8651	-93.1251
City of Mendota Heights	12/30/2013	IV-P6	Pond	Bridgeview Pond	44.8668	-93.1212
City of Mendota Heights	12/30/2013	IV-P7	Pond	Arbor Pond	44.8642	-93.1227
City of Mendota Heights	12/30/2013	IV-P8	Pond	Brookfield Pond	44.8639	-93.1204
City of Mendota Heights	12/30/2013	IV-P9	Pond	Lockwood Pond	44.8656	-93.1184
City of Mendota Heights	12/30/2013	IV-P11	Pond	Kensington Park	44.8664	-93.1165
City of Mendota Heights	12/30/2013	IV-P12	Pond	Southeast Ponds	44.8636	-93.1108
City of Mendota Heights	12/30/2013	IV-P12b	Wetland	Southeast Ponds	44.8623	-93.1071
City of Mendota Heights	12/30/2013	IV-P12c	Wetland	Southeast Ponds	44.8635	-93.1079
City of Mendota Heights	12/30/2013	IV-P15	Pond	Owens Pond	44.8659	-93.1109
City of Mendota Heights	12/30/2013	IV-P16	Pond	King Pond	44.8690	-93.1095
City of Mendota Heights	12/30/2013	IV-P17	Pond	Delaware Pond 1	44.8710	-93.1084
City of Mendota Heights	12/30/2013	IV-P18	Pond	Copperfield Pond	44.8729	-93.1137
City of Mendota Heights	12/30/2013	IV-P19	Pond	Hagstrom Pond	44.8690	-93.1126
City of Mendota Heights	12/30/2013	IV-P21a	Pond	ISD 197 Friendly Hills	44.8687	-93.1199
City of Mendota Heights	12/30/2013	IV-P22	Pond	Friendly Hills	44.8711	-93.119
City of Mendota Heights	12/30/2013	IV-P24	Pond	Darsow Pond	44.8738	-93.1149

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City of Mendota Heights	12/30/2013	IV-P26	Pond	35E/110 MNDOT	44.8840	-93.1375
City of Mendota Heights	12/30/2013	IV-P32	Pond	Golf Course	44.8776	-93.1385
City of Mendota Heights	12/30/2013	IV-P33	Pond	N. Wagon Wheel	44.8759	-93.1380
City of Mendota Heights	12/30/2013	IV-P39	Lake	N. Rogers Lake (IV-P39)	44.8769	-93.1353
City of Mendota Heights	12/30/2013		Lake	S. Rogers Lake (IV - P39)	44.871	-93.1392
City of Mendota Heights	12/30/2013	IV-P39c	Pond	Golf Course	44.8806	-93.1371
City of Mendota Heights	12/30/2013	IV-P39d	Pond	S. Wagon Wheel	44.8746	-93.1375
City of Mendota Heights	12/30/2013	IV-P39e	Wetland	Rogers L. Marsh	44.8733	-93.1422
City of Mendota Heights	12/30/2013	IV-P39f	Pond	I.O.S. Pond	44.8733	-93.1421
City of Mendota Heights	12/30/2013	IV-P35	Pond	Rogers Park	44.8745	-93.1407
City of Mendota Heights	12/30/2013	IV-P36	Pond	35-E Pond	44.8721	-93.1436
City of Mendota Heights	12/30/2013	IV-P44	Pond	Mendakota Pond	44.8795	-93.1287
City of Mendota Heights	12/30/2013	IV-P50	Pond	F.M. Pond	44.8759	-93.1214
City of Mendota Heights	12/30/2013	IV-P51	Pond	Sibley H.S. Pond	44.884	-93.1094
City of Mendota Heights	12/30/2013	IV-P57	Pond	Dodge N.C. Pond	44.8793	-93.1142
City of Mendota Heights	12/30/2013	IV-P57b	Pond	Delaware Pond 2	44.8809	-93.1074
City of Mendota Heights	12/30/2013	IV-P57c	Pond	Glen Toro	44.8779	-93.1078
City of Mendota Heights	12/30/2013	IV-P57d	Pond	Glen Toro 2	44.8767	-93.1077
City of Mendota Heights	12/30/2013	IV-P63	Pond	MNDOT POND	44.8845	93.1235
City of Mendota Heights	12/30/2013	IV-P63b	Pond	Village Pond	44.8858	93.1204
City of Mendota Heights	12/30/2013	IV-P64	Pond	McDonalds Pond	44.8826	-93.1234
City of Mendota Heights	12/30/2013	IV-P64b	Pond	Plaza Pond	44.8819	-93.1225
City of Mendota Heights	12/30/2013	IV-P68	Wetland	Friendly Marsh	44.8786	-93.1191
City of Mendota Heights	12/30/2013	IV-P74	Pond	Lower Crown Point	44.8859	-93.1296
City of Mendota Heights	12/30/2013	IV-P75	Pond	Upper Crown Point	44.8878	-93.1309
City of Mendota Heights	12/30/2013	IV-P110	Pond	Valley Marsh	44.8903	-93.1292
City of Mendota Heights	12/30/2013	IV-P81	Pond	Warrior Pond	44.8881	-93.1134
City of Mendota Heights	12/30/2013	IV-P83	Pond		44.8867	-93.1214
City of Mendota Heights	12/30/2013	IV-P109	Pond		44.8908	-93.1273
City of Mendota Heights	12/30/2013	IV-P89	Wetland	Marie Marsh	44.8976	-93.1099
City of Mendota Heights	12/30/2013	IV-P90	Wetland	Marie Marsh	44.8915	-93.1076
City of Mendota Heights	12/30/2013	IV-P91	Pond	Kern Pond	44.8931	-93.1106

Name of MS4 Permittee	Date form completed	Unique ID Number	Type of Feature (Pond, Wetland or Lake)	Feature Common Name (If Applicable)	Y Coordinate (Latitude) Decimal Degrees	X Coordinate (Longitude) Decimal Degrees
City of Mendota Heights	12/30/2013	IV-P93	Wetland	Marie Marsh	44.8951	-93.1133
City of Mendota Heights	12/30/2013	IV-P93b	Pond		44.8935	-93.1128
City of Mendota Heights	12/30/2013	IV-P96a	Pond	Marie/Dodd	44.892	-93.1161
City of Mendota Heights	12/30/2013	IV-P96b	Pond	Hidden Creek #2	44.8911	-93.1199
City of Mendota Heights	12/30/2013	IV-P98	Wetland		44.8951	-93.1183
City of Mendota Heights	12/30/2013	IV-P100	Pond	Hidden Creek #1	44.8927	-93.1178
City of Mendota Heights	12/30/2013	IV-P104	Pond	Sutton/Marie Pond	44.8913	-93.1242
City of Mendota Heights	12/30/2013	IV-P111	Pond	Bachelor Ave Pond/Par 3	44.8952	-93.1244
City of Mendota Heights	12/30/2013	IV-P112	Pond	Valley Park Pond	44.8922	-93.1271
City of Mendota Heights	12/30/2013		Pond	Thompson Pond	44.9018	-93.1078
City of Mendota Heights	12/30/2013	IV-P114	Pond	Somerset #3	44.9016	-93.1104
City of Mendota Heights	12/30/2013	IV-P115	Pond	Wentworth Park	44.8995	-93.1219
City of Mendota Heights	12/30/2013	IV-P116	Pond	Wentworth Pond	44.8975	-93.1151
City of Mendota Heights	12/30/2013	IV-P125	Pond	Park Place Pond	44.9001	-93.1283
City of Mendota Heights	12/30/2013	IV-P126	Pond	Cherry Hills Pond	44.9041	-93.1296
City of Mendota Heights	12/30/2013	IV-P128	Pond	Lex./Marie Ave.	44.8903	-93.1463
City of Mendota Heights	12/30/2013	IV-P129a	Pond	Faro Pond	44.8907	-93.1436
City of Mendota Heights	12/30/2013	IV-P132	Pond	Burrows Pond	44.8887	-93.1386
City of Mendota Heights	12/30/2013	IV-P132b	Pond	Burrow Storm Pond	44.8878	-93.1378
City of Mendota Heights	12/30/2013	IV-P133	Pond	Marie Pond	44.8918	-93.1384
City of Mendota Heights	12/30/2013	IV-P134	Pond	Victoria Pond	44.8937	-93.1360
City of Mendota Heights	12/30/2013	IV-P139	Pond	Ravine Pond	44.9020	-93.1335
City of Mendota Heights	12/30/2013	MB-P3Ca	Pond	Summit #1	44.9062	-93.1279
City of Mendota Heights	12/30/2013	MB-P3Cb	Pond	Summit #2	44.9064	-93.1293
City of Mendota Heights	12/30/2013	MB-P8	Pond	Lilac Lane Pond	44.8974	-93.1383
City of Mendota Heights	12/30/2013	MB-P10	Pond	Mayfield Heights	44.8948	-93.1435
City of Mendota Heights	12/30/2013	MB-P16	Pond	Kingsley Pond	44.8919	-93.1504
City of Mendota Heights	12/30/2013	MB-P17	Pond	Val's Addition	44.8910	-93.1509
City of Mendota Heights	12/30/2013	MB-P31	Pond		44.8835	-93.1606
City of Mendota Heights	12/30/2013	MB-P31b	Pond		44.8845	-93.1474
City of Mendota Heights	12/30/2013	MB-P32	Pond		44.8826	-93.1605
City of Mendota Heights	12/30/2013	MB-P33	Pond		44.8828	-93.1716

APPENDIX C

System Design Guidelines

1. CONVEYANCE AND STORAGE SYSTEM CONCEPTS

1.1. Storm Sewer and Channels

In the Mendota Heights SWMP stormwater model, a combination of storm sewer and channels has been used to transport simulated stormwater runoff. A complete system consists of a complex web of trunks, manholes, lateral lines, overland drainage ways, catch basin leads, catch basins, pond inlets and outlets, and many other items.

Proper design of a storm sewer system requires that all sewer lines be provided with access through manholes for maintenance and repair operations. Generally, spacing of manholes should be no greater than 400 feet. Intervals on larger diameter lines can be increased when the pipes are sufficiently large for a person to physically enter the storm sewer pipe for maintenance operations. Regardless of sewer size, manholes should normally be provided at all junction points and at points of abrupt alignment or grade changes.

Although lateral systems are designed for the 10-year storm event, their performance must be analyzed for storms exceeding the design storm. Lateral and trunk pipes will surcharge when the design storm is exceeded. During surcharging, the pipes operate as closed conduits and become pressurized with different pressure heads throughout the system. Low areas that are commonly provided with catch basins become small detention ponds often performing like pressure relief valves with water gushing out of some locations. For this reason, it is extremely important to ensure that these low areas have an acceptable overland drainage route with proper transfer capacity.

At a minimum, ponding on streets must meet all of the requirements of the 100-year design criteria. For safety reasons, the maximum depth should not exceed two feet at the deepest point and the lowest ground at adjacent building elevation should be at least one and a half feet above the elevation to which water could rise before overflowing through adjacent overland routes.

All storm sewer facilities, especially those conveying large quantities of water at high velocities, should be designed with efficient hydraulic characteristics. Manholes and other structures at points of transition should be designed and constructed to provide gradual changes in alignment and grade. Pond outlet control structures should be designed to allow water movement in natural flow line patterns, to minimize turbulence, to provide good self-cleaning characteristics, and to prevent damage from erosion.

Intake structures should be liberally provided at all low points where stormwater collects and at points where overland flow is to be intercepted. Inlet structures are of special importance, since it is a poor investment to have an expensive storm sewer line flowing partially full while property is being flooded due to inadequate inlet capacity. Intake grates and opening should be self-cleaning and designed to minimize capacity reduction when clogged with twigs, leaves, and other debris.

Effective energy dissipation devices or stilling basins to prevent stream bank or channel erosion at all stormwater outfalls should be provided. The following recommendations should be kept in mind when designing an outlet:

- Inlet and outlet pipes of stormwater ponds should be extended to the pond NWL whenever possible.
- Outfalls with velocities of less than four feet per second (fps) that project flows

downstream into the channel in a direction 30 degrees or less from the normal channel axis generally do not require energy dissipaters or stilling basins, but do require riprap protection.

- Where an energy dissipater is used, it should be sized to provide an average outlet velocity of less than four fps, unless riprap is also used. In the latter case, or when discharge occurs at NWL of a pond, the average outlet velocity should not exceed six fps.
- Where outlet velocities exceed six fps, the design should be based on the unique site conditions present. Submergence of the outlet or installation of a stilling basin approved by the City is required when excessive outlet velocities are experienced.
- In the case of discharge to channels, riprap should be provided on all outlets to an adequate depth below the channel grade and to a height above the outfall or channel bottom. It should be placed over a suitably graded filter material and filter fabric to ensure that soil particles do not migrate through the riprap and reduce its stability. Riprap should be placed to a thickness at least two and a half times the mean rock diameter so as to ensure that it will not be undermined or rendered ineffective by displacement. If riprap is used as protection for overland drainage routes, grouting may be recommended.
- Overland drainage routes where velocities exceed six fps should be reviewed by the City Engineer and approved only when suitable stabilization measures are proposed.

Open channels and swales are recommended where flows and small grade differences prohibit the economical construction of an underground conduit and in areas where open channel type drainage will enhance the aesthetic qualities of a development. Whenever possible, a minimum slope of two percent should be maintained in unlined open channels and overland drainage routes. Slopes less than two percent and greater than one percent are difficult to construct and maintain and may require an underdrain system. Slopes less than one percent should not be allowed. Side slopes should be a maximum of 4:1 (horizontal to vertical) with gentler slopes being desirable. Where space permits, slopes should be cut back to match existing grade.

In general, the flatter the channel side slopes and the more meandering the channel alignment the more natural the channel will appear. Natural looking channels use significantly more space than common ditches. One method of providing this space is to incorporate greenway corridors over the channel area.

Rock riprap should be provided at all points of juncture between two open channels and where storm sewer pipes discharge into a channel. The design velocity of an open channel should be sufficiently low to prevent erosion of the bottom. Riprap or concrete liners should be provided in areas where high velocities cannot be avoided. Periodic cleaning of an open channel is required to ensure that the design capacity is maintained. Therefore, all channels should be designed to allow easy access for equipment.

Sanitary sewer manholes that could be subject to temporary inundation, due to their proximity to ponds, channels, or roadway low points, should be equipped with watertight castings. Precautions should be taken during construction to prevent the entrance of stormwater into the sanitary sewer. When access is required at all times, sanitary manholes located near ponding areas should be raised above the 100-year HWL. If access is not required, water tight castings should be installed. Future storm drainage construction should include provisions for improving the water tightness of nearby sanitary sewer manholes. All newly constructed sanitary manholes in the vicinity of ponding areas and open channels described in this report should be waterproof.

1.2. Ponds

Stormwater ponding areas are an essential part of any storm drainage system. These

areas provide locations where stormwater flows can be reduced to provide flood protection for downstream areas. The effective use of ponding areas enables the installation of outflow storm sewers and channels with reduced capacities, since the duration of the design storm is effectively increased over the total time required to fill and empty ponds. Smaller capacity trunk storm sewer and channels provide a cost savings to the City. The use of ponds to control stormwater runoff rates is a recent phenomenon. Historically, older cities have piped stormwater directly to the nearest large receiving water or river. Continued use of this practice has both cost and regulatory implications. In terms of cost, few cities have the funds necessary to build pipes that provide 100-year protection to properties. In fact, the older cities that have historically piped all their stormwater find that the systems they constructed provide nowhere near the 100-year protection found in newer cities that have used ponds. In terms of the regulatory control, many direct discharges (without ponding) to waters of the state are precluded. At present, even direct discharges to wetlands that are not considered waters of the state are regulated through the NPDES construction permit.

Cost and regulatory considerations aside, well designed ponds:

1. Improve water quality
2. Recharge the groundwater table
3. Provide aesthetic, recreational and wildlife benefits

Ponds improve stormwater quality by allowing nutrients and sediments carried by runoff to settle before discharge to important receiving waters. Groundwater recharge is increased by restricting the outflow rate from a pond, thus allowing more water to infiltrate into the soil. Careful planning of ponds can enhance a development's appeal and still provide efficient stormwater management. In fact, lots with pond frontage command a higher price than lots without.

To provide proper protection for adjacent property, the design storm for ponding areas is the maximum flood elevation obtained from analyzing 100-year critical events of different duration. Regardless the duration of the critical event, a Type II, 24-hour, 100-year rainfall event must also be analyzed. The lowest exposed elevations of structures that are adjacent to ponds should be certified by the builder during basement construction to ensure adequate freeboard.

Runoff determinations for pond design vary from those for storm sewer calculations. The critical storm for storm sewer design is the short, high intensity storm, whereas the critical storm for pond design is often of longer duration, since water is being stored for longer periods of time and released at a slower rate.

The use of HydroCAD computer modeling in the analysis of the ponding system has allowed for the efficient review of complicated routing patterns, each comprised of several ponds. The pond storage and outflow rates, adjusted by lag time, were determined by the HydroCAD program for all the ponds identified in this Plan. The lag time is significant as it represents the attenuation of peak flows at each pond and generally shows that the peaks are not occurring at the same time. This implies that the direct runoff to a pond has generally passed through to the downstream trunk system before the inflow of large volumes of runoff from upstream ponds.

2. WATER QUALITY SYSTEM CONCEPTS

The only effective way to maintain high quality water bodies is to prevent sediment, nutrients and other materials from entering the storm drainage system. Complete interception of stormwater for treatment at the point of discharge is not currently feasible, though the City encourages the implementation of techniques such as rainwater gardens,

infiltration areas, and filtration swales that capture a portion of runoff at the point of generation. Application of these small-scale techniques should be on a site specific basis.

2.1. Pollutant Control

The three main sources for degradation of water quality are:

1. Solids and associated chemicals (including calcium chloride and salt) from erosion and street sanding,
2. Composted decay around ponds, and
3. Fertilizers and other chemicals from farming practices, impervious surfaces, or lawn care.

Identification of the source and implementation of reasonable control measures can minimize the degradation of Mendota Heights' waterbodies.

In areas where development is taking place, stormwater runoff frequently contains substantial quantities of solids. Most commonly, these sediments are carried by runoff into the storm sewer from large grading sites, though fully developed areas also generate sediment loads particularly from winter sanding operations and in areas of structurally failing pipes. For developing areas, strict on-site erosion control practices are required to prevent sediments from entering downstream water bodies. Inspections should be conducted by the City to verify that the erosion control practices have been installed and maintained properly. Even with extensive erosion control practices, sediment and airborne particulates will continue to enter surface waters of the City.

The importance of erosion control measures during construction cannot be overemphasized. The BMPs recommended in the MPCA Protecting Water Quality in Urban Areas should be followed for all developments. The Minnesota general NPDES stormwater permit for construction activity requires a permit for construction activities that disturb one or more acres.

When disturbing 10 or more acres, developers are required to provide temporary settling ponds to treat the runoff from their grading sites. These ponds are intended to prevent the introduction of sediment and its associated pollution into the storm sewer system and are required to function, in their various forms, until grading has ceased and adequate cover has been established. At a minimum, these temporary sedimentation basins should meet the requirements set forth in the NPDES general permit for construction activities. When the outlet for a siltation basin, either permanent or temporary, is located below the normal water surface, the basin can also serve to confine floating solids that may otherwise enter a downstream pond or lake. This practice is typically referred to as skimming. If a hazardous material such as fuel oil were to spill, a skimmer structure would retain it within the basin and thus isolate it for easy access and prompt cleanup. Skimmer structures should be used for all constructed ponds upstream of wetlands, lakes, rivers and streams. For constructed ponds that discharge into other constructed ponds, skimmer structures are not as important.

Ideally, some sort of solids removal system should be installed wherever a storm sewer outlets into a pond. In certain cases, settling chamber (sump) type catch basins or manholes can be provided for storm sewers that discharge into ponds. These can provide effective removal of sand and gravel, which may be flushed into the storm sewer from streets and highways, but are ineffective in the removal of finer particles such as silts and clays. Use of this type of catch basin or manhole should be limited to those areas where regular maintenance is practical and to where the sump can be realistically expected to intercept sand from winter sanding operations and gravel from driveways and construction sites.

Of late a concern regarding West Nile virus and mosquito breeding habitat has called into question the use of sump manholes. The latest data suggests that many different breeding environments exist for the mosquitoes that carry the virus including ponds, wetlands, catch basins, and manholes. Obviously, eliminating these elements of the system is not feasible. Though they should be used sparingly, sump manholes should not be prohibited due to a concern over West Nile virus.

It bears repetition that a solids removal structure must be regularly maintained if it is to remain effective. Since maintenance is the controlling factor in the long term performance of sediment control measures, ponds are recommended over sump manholes. Sump manholes, if numerous, often go without maintenance. An individual pond requires more maintenance time than a sump, but system maintenance time goes down when ponds are the preferred method of sediment removal as long as pond slopes and benching allow access by maintenance equipment. For this reason sump manholes should be limited to storm sewer lines discharging directly to wetlands, lakes, rivers, streams, ravines, and constructed channels and should be avoided upstream of constructed ponds. In all cases, the location, type, and number of sediment control structures must be established at the time of final design of that portion of the storm sewer system. Maintenance of the system is discussed further in Section 6.

Even with the best and most expensive solids removal system, contamination of ponds and lakes will occur unless particular attention is paid to those activities that occur after development of a site. Developers must utilize the BMPs to minimize erosion during the mass grading phase of construction. But property owners must also use care in the development and maintenance of their lawns and open areas. Debris is frequently raked from lawns into gutters; from there, if it is not removed, it washes into the storm sewer system.

Generally speaking, water quality ponding within a development has to treat storm water to the level required by the downstream receiving water body and its attendant management strategy. This SWMP calls for detention pond design according to the design program developed by William Walker. At a minimum, though, detention ponds should contain wet volume equivalent to the runoff from a 2.5-inch rainfall over their tributary area. Occasionally, with small plats (of five acres of less), water quality ponding cannot be constructed to the extent required by the SWMP without severely hampering the site development or destroying other habitat such as upland grasslands and forests.

In such cases, it is within the City’s discretion to reduce the required water quality ponding and/or require other methods such as filtration swales or filter beds.

APPENDIX D

Land Disturbance Guidance Document

Land Disturbance Guidance Document

Mendota Heights, Minnesota

May 10, 2018

Project Number: 1735-04

Land Disturbance Guidance Document

Title Sheet
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The following requirements shall be considered as the Land Disturbance Guidance Document as defined in Title 14 Chapter 1 of the Mendota Heights City code: Stormwater Management, Illicit Discharge, Soil Erosion, and Sedimentation. The requirements below are meant to serve as a general guideline and do not account for all possible site conditions or situations.

Additional measures may be necessary to meet the intent of the Mendota Heights city code. It is the obligation of the owner and designer to consider all factors contributing to erosion, flooding, and water quality impairments on the project site and include appropriate Best Management Practices for minimizing erosion and providing permanent stormwater runoff management.

1.0 Construction Site Stormwater Runoff Control

1.1 Erosion Control and Prevention Practices

a. The Permittee must plan for and implement appropriate construction phasing vegetative buffer strips, horizontal slope grading, and other construction practices to minimize erosion. All areas not to be disturbed shall be marked (e.g. with flags, stakes, signs, silt fence etc.) on the project site before any work begins. The Permittee must minimize the need for disturbance of portions of the project that have steep slopes. For those sloped areas which must be disturbed, the Permittee must use techniques such as phasing and stabilization practices designed for steep slopes (e.g., slope draining and terracing).

b. All exposed soil areas (including stockpiles) must be stabilized as soon as possible to limit soil erosion but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. For Public Waters that the Minnesota Department of Natural Resources has promulgated “work in water restrictions” during specified fish spawning time frames, all soil areas that are within 200 feet of the water’s edge, and drain to these waters must complete the stabilization activities within 24 hours during the restriction period.

c. Additional BMPs together with enhanced runoff controls are required for discharges to special waters and impaired waters. The BMPs identified for each special or impaired water are required for those areas of the project draining to a discharge point on the project that is within one mile of a special or impaired water and flows to that water.

d. The normal wetted perimeter of a temporary or permanent drainage ditch that drains water for the project site or diverts water around the project must be stabilized 200 lineal feet from the property edge or from a discharge point to a surface water. Stabilization must occur within 24 hours of connection to surface waters. Applying mulch, hydromulch, tackifier, polyacrylamide or similar erosion prevention practices is not acceptable stabilization in any part of a temporary or permanent drainage ditch or swale.

e. Pipe outlet must have temporary or permanent energy dissipation within 24 hours before connecting to surface water.

f. When possible, all slopes must be graded in such a fashion so that tracking marks made from heavy equipment are perpendicular to the slope.

g. All areas disturbed during construction must be restored as detailed in these requirements. The type of permanent restoration shall be clearly shown on the plans including but not limited to sod, seed, impervious cover and structures. A minimum of 6 inches of topsoil must be installed prior to permanent restoration. Areas in which the top soil has been placed and finish graded or areas that have been disturbed and other grading or site building construction operations are not actively underway must be temporary or permanently restored as set forth in the following requirements:

   i) Areas with slopes that area less than 3:1 must be seeded and mulched within 14 days of the area not being actively worked.

   ii) Areas with slopes that area greater or equal to 3:1 must be seeded and erosion control blanket placed within 14 days of the area not being actively worked.

   iii) All seeded area must be either mulched and disc anchored, hydro- mulched, or covered by erosion control blanket to reduced erosion and protect the seed. Temporary or permanent mulch must be disc anchored and applied at a uniform rate

of 2 tons per acre and have 90% coverage.

iv) If the disturbed area will be re-disturbed within a six month period, temporary vegetative cover shall be required consisting of an approved seed mixture and application rate.

v) If the disturbed area will not be re-disturbed within a six month period, permanent vegetative cover shall be required consisting of an approved seed mixture and application rate.

vi) All areas that will not have maintenance done such as mowing as part of the final design shall be permanently restored using an approved seed mixture and application rate.

vii) Restoration of disturbed wetland areas shall be accomplished using an approved seed mixture and application rate.

h. All erosion control measures must be maintained for the duration of the project until final stabilization has been achieved in accordance with Section 1.7. If construction operations or natural events damage or interfere with any erosion control measures, they shall be restored to serve their intended function.

i. Additional erosion control measures shall be added as necessary to effectively protect the natural resources of the City. The temporary and permanent erosion control plans shall be revised as needed based on current site conditions and to comply with all applicable requirements.

1.2 Sediment Control Practices

a. Sediment control practices must be established on all down gradient perimeters before any upgradient land disturbing activities begin. These practices must remain in place until final stabilization has been achieved in accordance with Section 1.7.

b. If down gradient treatment system is overloaded additional up gradient sediment control practices must be installed to eliminate overloading. The SWPPP must be amended to identify the additional practices.

c. There shall be no unbroken slope length greater than 75 feet with a grade of 3:1 or steeper.

d. All storm drain inlets must be protected by approved BMPs during construction until all potential sources for discharge have been stabilized. These devices must be maintained until final stabilization is achieved. Inlet protection may be removed if a specific safety concern (street flooding/freezing) has been identified.

e. Temporary stockpiles must have silt fence or other effective sediment controls on the down gradient side of the stockpile and shall not be placed at least twenty five (25) feet from any road, wetland, protected water, drainage channel, or storm water inlets. Stockpile left for more than fourteen (14) days must be stabilized with mulch, vegetation, tarps or other approved means.

f. A 50-ft natural buffer or (if a buffer is infeasible on the site) provide redundant sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water. Natural buffers are not required adjacent to road ditches, judicial ditches, county ditches, stormwater conveyance channels, storm drain inlets, and sediment basins.

g. Vehicle tracking of sediment from project shall be minimized by approved BMPs. These shall be installed and maintained at the City approved entrances. Individual lots shall each be required to install and maintained entrances throughout the construction building until a paved driveway is install.

h. Sediment that has washed or tracked from site by motor vehicles or equipment shall be cleaned from paved surfaces throughout the duration of construction.

i. Silt fence or other approved sediment control devices must be installed in all areas as shown on the SWPPP.

j. Silt fence or other approved sediment control devices shall be required along the entire curb line, except for approved opening where construction entrance will be installed or drainage flows away from curb. This device must be maintained until final stabilization is achieved.

k. Ditch checks shall be required in ditch bottoms. Spacing for the check must be as

followed:[***Height in feet*** (of the sediment device used)] ***X 100 / Slope Gradient***

l. Dust control measures, such as application of water must be performed periodically due to weather, construction activity, and/or as directed by the City.

m. Flows from diversion channels or pipes (temporary or permanent) must be routed to sedimentation basins or appropriate energy dissipaters to prevent the transport of sediment to outflow or lateral conveyors and to prevent erosion and sediment buildup when runoff flows into the conveyors.

n. A concrete washout shall be installed on projects that require the use of concrete. All liquid and solid wastes generated by concrete washout operations must be contained in a leak-proof containment facility or impermeable liner. A sign must be installed adjacent to each washout facility to inform operators to utilize the proper facilities.

o. All sediment control measures shall be used and maintained for the duration of the project until final stabilization has been achieved accordance with Section 1.7. If construction operations or natural events damage or interfere with any erosion control measures, they must be restored to serve their intended function.

p. Additional sediment control measures shall be added as necessary to effectively protect the natural resources of the City. The temporary and permanent erosion control plans shall be revised as needed based on current site conditions and to comply with all applicable requirements.

q. Restrict clearing and grading within 20 feet of an existing wetland, lake, or stream boundary to provide for a protective buffer strip of natural vegetation.

1.3 Temporary Sediment Basins

a. A temporary sediment basin (or permanent) shall be provided when 10 or more acres of disturbed soil drain to a common location prior to the runoff leaving the site or entering surface waters. The Permittee is also encouraged, but not required to install temporary sediment basins in areas with steep slope or highly erodible soils even if the area is less than 10 acres and it drains to one common area. The basins shall be designed and constructed according to the following requirements:

   i) The basins must provide storage below the outlet pipe for a calculated volume of runoff from a 2 year, 24 hour storm from each acre drained to the basin, except that in no case shall the basin provide less than 1800 cubic feet of storage below the outlet pipe from each acre drained to the basin.

   ii) Where no such calculation has been performed, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage below the outlet pipe per acre drained to the basin shall be provided where attainable until final stabilization of the site.

   iii) Temporary basin outlets will be designed to prevent short-circuiting and the discharge of floating debris. The basin must be designed with the ability to allow complete basin drawdown (e.g., perforated riser pipe wrapped with filter fabric and covered with crushed gravel, pumps or other means) for maintenance activities, and provide a stabilized emergency overflow to prevent failure of pond integrity. Energy dissipation must be provided for the basin outlet.

   iv) Temporary (or permanent) basins must be constructed and made operational concurrent with the start of soil disturbance that is up gradient of the area and contributes runoff to the pond.

   v) Where the temporary sediment basin is not attainable due to site limitations, equivalent sediment controls such as smaller sediment basins, and/or sediment traps, silt fences, vegetative buffer strips or any appropriate combination of measures are required for all down slope boundaries of the construction area and for those side slope boundaries deemed appropriate as dictated by individual site conditions. In determining whether installing a sediment basin is attainable, the Permittee must consider public safety and may consider factors such as site soils, slope, and available area on site. This determination must be documented in the SWPPP.

vi) The Permittee shall maintain the sedimentation basins and will remain functional until an acceptable vegetative cover is restored to the site, resulting in a pre-development level rate of erosion. The city will not issue building permits for lots containing sediment basins until theyhave been removed or relocated based on the projects restoration progress.

vii) Basins designed to be used for permanent stormwater management shall be brought back to their original design contours as defined in Section 1.7.

1.4 Dewatering and Basin Draining

a. If water cannot be discharged into a sedimentation basin before entering a surface water it must be treated with the appropriate BMPs, such that the discharge does not adversely affect the receiving water or downstream landowners. The Permittee must make sure discharge points are appropriately protected from erosion and scour. The discharge must be dispersed over riprap, sand bags, plastic sheeting or other acceptable energy dissipation measures. Adequate sediment control measures are required for discharging water that contains suspended soils.

b. All water from dewatering or basin draining must discharge in a manner that does not cause nuisance conditions, erosion in receiving channels, on down slope properties, or inundation in wetlands causing significant adverse impact to wetlands.

1.5 Inspections and Maintenance

a. The Permittee shall be responsible for inspecting and maintenance of the BMPs

b. The Permittee must routinely inspect the construction project once every 7 days during active construction and within 24 hours of a rainfall event of 0.5 inches or greater in 24 hours.

c. All inspections and maintenance conducted during construction must be recorded in writing and must be retained with the SWPPP. Records of each inspection and maintenance activity shall include

i) Date and time of inspection.

ii) Name of person(s) conducting the inspections.

iii) Findings of inspections, including recommendations for corrective actions.

iv) Corrective actions taken (including dates, times, and the party completing the maintenance activities).

v) Date and amount of all rainfall events 0.5 inches or greater in 24 hours.

vi) Documentation of changes made to SWPPP.

d. Parts of the construction site that have achieved final stabilization, but work continues on other parts of the site, inspections of the stabilized areas can be reduced to once a month. If work has been suspended due to frozen ground conditions, the required inspections and maintenance must take place as soon as runoff occurs or prior to resuming construction, which ever happens first.

e. All erosion and sediment BMPs shall be inspected to ensure integrity and effectiveness. All nonfunctional BMPs shall be repaired, replaced or supplemented with a functional BMP. The Permittee shall investigate and comply with the following inspection and maintenance requirements.

f. All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/3 of the height of the fence. These repairs shall be made within 24 hours of discovery, or as soon as field conditions allow access.

g. Temporary and permanent sedimentation basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 the storage volume. Drainage and removal must be completed within 72 hours of discovery, or as soon as field conditions allow access.

h. Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment being deposited by erosion. The Permittee shall remove all deltas and sediment deposited in surface waters, including drainage ways, catch basins, and other drainage systems, and re-stabilize the areas where sediment removal results in exposed

soil. The removal and stabilization shall take place within 7 days of discovery unless precluded by legal, regulatory, or physical access constraints. The Permittee shall use all reasonable efforts to obtain access. If precluded, removal and stabilization shall take place within 7 calendar days of obtaining access. The Permittee is responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work.

i. Construction site vehicle exit locations shall be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment shall be removed from all off-site paved surfaces, within 24 hours of discovery, or if applicable, within a shorter time.

j. The Permittee is responsible for the operation and maintenance of temporary and permanent water quality management BMPs, as well as all erosion prevention and sediment control BMPs, for the duration of the construction work at the site. The Permittee is responsible until another Permittee has assumed control over all areas of the site that have not been finally stabilized or the site has undergone final stabilization, and a NOT has been submitted to the MPCA.

k. If sediment escapes the construction site, off-site accumulations of sediment shall be removed in a manner and at a frequency sufficient to minimize off-site impacts (e.g., fugitive sediment in streets could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets).

l. All infiltration areas shall be inspected to ensure that no sediment from ongoing construction activities is reaching the infiltration area and these areas are protected from compaction due to construction equipment driving across the infiltration area.

1.6 Pollution Management Measures/Construction Site Waste Control

a. The Permittee must implement the following pollution prevention management measures on the site.

   i) Solid Waste- Collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes must be disposed of properly and must comply with MPCA disposal requirements.

   ii) Hazardous Materials such as oil, gasoline, paint and any hazardous substances must be properly stored, including secondary containment, to prevent spills, leaks or other discharge. Restricted access to storage areas shall be provided to prevent vandalism. Storage and disposal of hazardous waste shall be in compliance with MPCA regulations.

   iii) External washing of trucks and other construction vehicles must be limited to a defined area of the site. Runoff shall be contained and waste properly disposed of. No engine degreasing is allowed on site.

   iv) The City of Mendota Heights prohibits discharges of any material other than storm water, and discharges from dewatering or basin draining activities. Prohibited discharges include but are not limited to vehicle and equipment washing, maintenance spills, wash water, and discharges of oil and other hazardous substances.

1.7 Final Stabilization

a. The Permittee must ensure final stabilization of the project. Final stabilization can be achieved in one of the following ways.

b. All soil disturbing activities at the site have been completed and all soils will be stabilized by a uniform perennial vegetative cover with a density of at least 70 percent over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions and;

   i) All drainage ditches, constructed to drain water from the site after construction is complete, must be stabilized to preclude erosion; and

   ii) All temporary synthetic, and structural erosion prevention and sediment control BMPs (such as silt fence) must be removed as part of the site final stabilization;

and

iii) The Permittee must clean out all sediment from conveyances and from temporary sedimentation basins that are to be used as permanent water quality management basins. Sediment must be stabilized to prevent it from washing back into the basin, conveyances or drainage ways discharging off-site or to surface waters. The cleanout of permanent basins must be sufficient to return the basin to design capacity.

c. For residential construction only, final stabilization has been achieved when:

i) Temporary erosion protection and down gradient perimeter control for individual lots has been completed and the residence has been transferred to the homeowner.

ii) The Permittee must distribute the MPCA **"**homeowner factsheet**"** to the homeowner so the homeowner is informed for the need, and benefits, of final stabilization.

1.8 Training:

Training is required for those that are responsible for preparation of the SWPPP, management of the construction site and inspections.

a. The SWPPP must provide a chain of command showing who prepared the SWPPP, who is responsible for the management of the construction site and inspections.

b. The training shall consist of a course developed by a local, state or federal agency, professional organization, water management organization, or soil and water conservation district and must contain information that is related to erosion prevention, sediment control, or permanent stormwater management and must relate to the work that you are responsible for managing.

2.0 Stormwater Management Design Standards

2.1 Storm Sewer

a. Provide for overflow routes to drain low points along streets or lot lines to ensure a freeboard of 2' from the lowest ground adjacent to building and the calculated 100-year storm HWL elevation. Design criteria verifying the adequacy of the overland drainage route capacity is required calculated 100-year storm HWL elevation. Design criteria verifying the adequacy of the overland drainage route capacity is required.

b. The storm sewer alignment shall follow the sanitary sewer and watermain alignment where practical with a minimum of 10' of separation. Storm sewer placed along the curb alignment shall be along the curb opposite the watermain to maintain the 10' separation.

c. Catch basins shall be located on the tangent section of the curb at a point 3' from the point of curve. Mid-radius catch basins will not be allowed. Also, catch basins shall be designed to collect drainage on the upstream side of the intersection.

d. The maximum spacing between manholes is 400'.

e. Manhole steps will be aligned and over the downstream side of the manhole. Steps within manholes will be:
   i) 1" +/- Horizontal Alignment
   ii) 1" +/- Vertical Alignment per latest OSHA Standards

f. Any connections to existing manholes or catch basins shall be core drilled or the opening cut out with a concrete saw. No jack hammering or breaking the structure with a maul is permitted. Also, all connections to an existing system will require a manhole for access.

g. To the greatest extent possible, manholes shall be placed in paved surfaces outside of wheel paths, (3' and 9' off centerline) or other readily accessible areas.

h. Minimum pipe size shall be 12" diameter.

i. Aprons or flared end sections shall be placed at all locations where the storm sewer outlets a ponding area. All inlet/outlet flared end sections shall be furnished with hot dipped galvanized trash guards. All trash guard installations will be subject to approval by the City Engineer. The last three pipe joints from the flared end section shall be tied together.

j. Riprap and filter blanket shall be placed at all outlet flared end sections.

k. The placement of the riprap shall be by hand. The minimum class of riprap shall be MnDOT 3601.2, Class III. A design criterion justifying the size and amount of riprap is required. Geotextile material is not allowed for filter aggregate where ice action along the shore line may tear the geotextile.

l. The invert elevations of the pond inlet flared end sections shall match the NWL of the pond. Submerged outlets will only be allowed at the discretion of the City Engineer.

m. If the storm sewer is to be installed less than 10' deep within private property, the easement shall be a minimum of 20' wide with the pipe centered in the easement. If the storm sewer is 10' deep or greater, then the easement shall be twice as wide as the depth or as required by the City.

n. Junction manholes should be designed to limit the hydraulic head increase by matching hydraulic flow lines and by providing smooth transition angles.

o. In the development of any subdivision or ponding area, the developer and/or property owner is responsible for the removal of all significant vegetation (trees, stumps, brush, debris, etc.) from any and all areas which would be inundated by the designated controlled Normal Water elevation (NWL) of any required ponding easement as well as the removal of all dead trees, vegetation, etc., to the High Water Level (HWL) of the pond.

p. Outlet control structures from ponding areas are required as directed by the City. Location and appearance of outlet structures shall be subject to City approval and may require landscape screening.

q. Sump manholes with 3-foot sumps shall be constructed as the last structure that is roadway accessible prior to discharge to any waterbody.

r. Inlets should be placed and located to eliminate overland flow in excess of 1,000 feet on minor streets, or a combination of minor streets and swales, and 600 feet on collector

streets and arterials. Additionally, inlets should be located such that 3 cfs is the maximum flow at the inlet for the 10-year design storm.

2.2 Outlet and Inlet Pipes

a. Inlet and outlet pipes of stormwater ponds should be extended to the pond normal water level whenever possible.
b. Outfalls with velocities less than 4 feet per second (fps) that project flows downstream into the channel in a direction 30 degrees or less from the normal channel axis generally do not require energy dissipaters or stilling basins, but do require riprap protection.
c. Where an energy dissipater is used, it should be sized to provide an average outlet velocity of less than 4 fps, unless rip rap is also used. In the latter case, or when discharge occurs at NWL of a pond, the average outlet velocity should not exceed 6 fps.
d. Where outlet velocities exceed 6 fps, the design should be based on the unique site conditions present. Submergence of the outlet or installation of a stilling basin approved by the City is required when excessive outlet velocities are experienced.
e. In the case of discharge to channels, rip rap should be provided on all outlets to an adequate depth below the channel grade and to a height above the outfall or channel bottom. It should be placed over a suitably graded filter material and filter fabric to ensure that soil particles do not migrate through the rip rap and reduce its stability. Rip rap should be placed to a thickness at least 2.5 times the mean rock diameter so as to ensure that it will not be undermined or rendered ineffective by displacement. If rip rap is used as protection for overland drainage routes, grouting may be recommended.

2.3 Channels and Overland Drainage

a. Overland drainage routes where velocities exceed 6 fps should be reviewed by the City Engineer and approved only when suitable stabilization measures are proposed.
b. Open channels and swales are recommended where flows and small grade differences prohibit the economical construction of an underground conduit. Open channels and swales can provide infiltration and filtration benefits not provided by pipe.
c. Whenever possible, a minimum slope of 2% should be maintained in unlined open channels and overland drainage routes. Slopes less than 2% and greater than 1% are difficult to construct and maintain and may require an underdrain system. Slopes less than 1% are not allowed for lot drainage and channels designed primarily for conveyance.
d. Minimum grade for lot drainage swales and lot grading shall be 2% or greater.
e. Maximum length for drainage swales shall be 300 feet or a total of eight lots draining to a point, or as approved by the City Engineer.
f. Channel side slopes should be a maximum of 4:1 (horizontal to vertical) with gentler slopes being desirable. Where space permits, slopes should be cut back to match existing grade.
g. Rock rip rap should be provided at all points of juncture between two open channels and where storm sewer pipes discharge into a channel.
h. The design velocity of an open channel should be sufficiently low to prevent erosion of the bottom. Rip rap or concrete liners should be provided in areas where high velocities cannot be avoided.
i. Periodic cleaning of an open channel is required to ensure that the design capacity is maintained. Therefore, all channels should be designed to allow easy access for equipment.

2.4 Ponds

a. Maximum allowed pond slopes are 3:1, though 4:1 slopes are preferred. Pond slopes steeper than 4:1 shall have erosion control blanket installed immediately after finish grading. In residential areas slopes no steeper than 4:1 shall be allowed. 3:1 slopes may be allowed in “maintained” areas as approved by the City Engineer. 3:1 slopes are not allowed for road fill sections adjacent to water bodies.
b. All constructed ponds and wetland mitigation areas shall have an aquatic or safety bench around their entire perimeter. The aquatic bench is defined as follows:
    i) Cross slope no steeper than 10:1

ii) Minimum width 10 feet
iii) Located from pond NWL to one foot below pond NWL

c. All constructed ponds and wetland mitigation areas shall have a maintenance access bench around sufficient perimeter to provide access to all inlets and outlets. At a minimum the maintenance bench should extend around 50% of the basin perimeter.
d. Elevation separations of buildings with respect to ponds, lakes, streams, and storm water features shall be designed as follows:
    i) The lowest ground elevation adjacent to homes and buildings must be a minimum of two feet above the calculated 100-yr HWL or 1.5 feet above the EOF, whichever criteria leads to the higher elevation.
    ii) Landlocked lakes and wetlands require either 1) a five-foot separation between basin HWL and lowest ground elevation adjacent to building or 2) a three-foot separation between basin HWL for back to back 100- year storms and the lowest ground elevation adjacent to building or 3) three-foot separation between the highest known or recorded basin elevation in the case of large wetlands and lakes and lowest ground elevation adjacent to building. Whichever of the three methods yields the highest allowable ground at building elevation should be the one used.
e. Drainage easements for ponds, lakes, wetlands, streams etc. shall encompass an area to one foot (vertical) above the calculated 100-year HWL.
f. Maximum pond wet volume depth is 8 feet; minimum wet volume depth is 3 feet.
g. Flood bounce is defined as the vertical difference between pond NWL and pond HWL. Flood bounce shall not exceed 6 feet except in the case of regional basins, as defined by the City Engineer.
h. All ponds shall have outlet skimming for up to the 5-year event.
i. All ponds shall be graded to one-foot below design bottom elevation. This “hold down” allows sediment storage until such time as site restoration is complete.
j. The top berm elevation of ponds shall be a minimum of 1.5 feet above the 100- year pond HWL.
k. Grading shall not block or raise emergency overflows from adjoining properties unless some provision has been made for the runoff that may be blocked behind such an embankment.
l. Seeding around ponds should be MnDOT standard mix 33-261 or BWSR equivalent.

3.0 Stormwater Management Performance Measures

3.1 Volume Management

a. For development and redevelopment projects, the performance benchmark for runoff volume reduction, otherwise known as abstraction, is a volume equivalent to 1.1 inches of runoff off all new impervious surfaces. Allowable BMPs for abstracting runoff volume and methods for calculating abstraction are:
   - i) Infiltration benches adjacent to constructed ponds
   - ii) Rainwater gardens or infiltration areas separate from ponds such as depressed medians or grassed areas adjacent to parking lots and buildings
   - iii) Pervious pavement or pavers
   - iv) Vegetated swales
   - v) Constructed wetlands
   - vi) Underground storage with infiltration
   - vii) Underground storage with water recycling for irrigation
   - viii) Green roofs

b. For public linear projects these standards shall apply only to newly created impervious surfaces that exceed 10,000 square feet.

c. The amount of impervious surface increase on projects shall be reduced to the greatest extent possible for development and redevelopment projects in accordance with Low Impact Development (LID) techniques. A narrative shall be provided that addresses the consideration of LID techniques in development and redevelopment impervious surface extents.

d. For all infiltration calculations the infiltration rates in Table 3.1 shall be assumed. As an alternative, percolation tests can be conducted and submitted to determine the actual rate of infiltration after subgrading is complete.

Table 3.1 Infiltration Rates (Source: Minnesota Stormwater Manual)

Hydrologic	Soil	Corresponding Unified Soil	Infiltration
A	Gravel, sand, sandy gravel, silty gravel, loamy sand, sandy loam	GW - Well-graded gravel or well-graded gravel with sand GP - Poorly graded gravel or poorly graded gravel with sand GM – silty gravels, silty sandy gravels SW – well-graded gravelly sands	1.63
		SP – gap-graded or uniform sands, gravelly sands	0.8
B	Loam, silt loam	SM - Silty sand or silty sand with gravel	0.45
		ML - Silts, very fine sands, silty or vlayey fine sands	0.3
C	Sandy clay loam	ML – silts, very fine sands, silty or clayey fine sands	0.2
D	Clay, clay loam, silt clay loam, sandy clay, silt clay	GC – clayey gravels, clayey sandy gravels SC – clayey sands, clayey gravelly sands CL - Low plasticity clays, sandy or silty clays OL – organic silts and clays of low plasticity CH - Fat clay or fat clay with sand or gravel or gravelly fat clay OH - Organic clay or organic clay with sand or gravel or gravelly organic clay	.06

e. Infiltration areas shall be designed to infiltrate water in 48 hours.

f. Infiltration areas shall not be constructed in karst or fractured bedrock areas, nor should they be constructed adjacent to steep slopes.
g. Infiltration practices shall be left off-line until the upgradient drainage areas are stabilized.
h. The volume management standard is waived in areas of known soil contamination or for developments where the potential for spills makes infiltration inadvisable.
i. Infiltration areas shall not have a 100-year design storm flood bounce that exceeds 3 feet.
j. Pretreatment, in the form of forebays or filter strips, shall be considered for all infiltration areas.
k. For infiltration benches adjacent to ponds the following standards apply:
    i) Benches shall have slopes no steeper than 6:1 over the proposed infiltration zone. A slope of 10:1 is preferred.
    ii) Benches may be excavated and backfilled with sand or sandy topsoil to provide additional storage volume for infiltration without violating the 3 foot flood bounce requirement.
l. Porous pavement or pavers shall be considered pervious surface for the purposes of infiltration calculations.
m. Porous pavement or pavers are considered sufficient to infiltrate water off impermeable surfaces at a ratio of 5:1 (impermeable surface area to porous pavement area).

3.2 Water Quantity

a. At a minimum, proposed peak runoff rate from development and redevelopment project shall maintain or decrease existing flow rates for the 2, 10, and 100-year 24-hour rainfalls.

Table 3.2. Storm Events

Event	*Rainfall/Snowmelt depth (inches)*
2-year, 24 hour	*2.81*
10-year, 24 hour	*4.19*
100-year, 24 hour	*7.47*
100-year, 10 day snowmelt	*7.2*

b. A Rate Control Plan shall be developed for projects that disturb one or more acre of land. Public Linear Projects shall be exempt from developing a Rate Control Plan unless the project creates 10,000 square feet or more of new impervious surface. Rate Control Plan shall include the following items:
    i) Delineation of the subwatersheds contributing runoff from off-site, and proposed and existing watersheds on-site.
    ii) Delineation of existing on-site wetlands, shoreland, and/or floodplain areas. Any removal or disturbance of streambank and shoreland vegetation should be identified and avoided. Any unavoidable removal or disturbance to this vegetation must be addressed and mitigated
    iii) Stormwater runoff volume and rate analyses for existing and proposed conditions
    iv) Administrative items included in Section 4.0
    v) A narrative describing existing and proposed rate control for the site.

    Detention basins shall be designed with capacity for the critical 100-year event, which is defined as the 100-year event that produces the highest water level among a 2-hour, 6-hour, 12-hour, or 24 hour rainfall events or the 10-day, 7.2- inch snowmelt runoff event.
c. The maximum duration for rainfall critical event analysis shall be 24 hours except in cases where basins are landlocked, where back to back 24-hour events and the 10-day 7.2-inch snowmelt runoff event shall also be used. In all cases a hydrograph method of analysis

should be used. For the 24-hour rainfall event, or back to back 24-hour rainfall events, an MSE 3 distribution should be used. For shorter duration critical events other distributions may be used with the approval of the City Engineer.

d. All drainage system analyses and designs shall be based on proposed full development land use patterns.
e. Development adjacent to a landlocked basin and the basin is not provided an outlet, freeboard should be determined based on one of three methods (whichever provides for the highest freeboard elevation):
    i) Three feet above the HWL determined by modeling back to back 100- year, 24-hour events,
    ii) Three feet above the highest known water level, or
    iii) Five feet above the HWL determined by modeling a single 100-year, 24- hour event.
f. When modeling landlocked basins, the starting water surface elevation should be the basins Ordinary High Water elevation, which can be determined through hydrologic modeling or, in the case of a DNR regulated basin, from a DNR survey.
g. For basins with a suitable outlet, freeboard will be 2-feet above the HWL determined by modeling the 100-year critical event. Emergency overflows a minimum of 1.5 feet below lowest ground elevation adjacent to a structure should also be provided.
h. Adjacent to channels, creeks, and ravines freeboard will also be 2 feet to the 100-year critical event elevation.

3.3 Water Quality

a. Storm water treatment facilities constructed in Mendota Heights shall be designed according to the standards reflected in the MPCA publication Protecting Water Quality in Urban Areas, the State of Minnesota Stormwater Manual, and the design criteria from the National Urban Runoff Program.
b. A 50% reduction in total phosphorous based on existing conditions must be shown for all development, redevelopment and public linear projects that exceed 1 acre of disturbed land, unless the requirements in Table 3.3 call for increased treatment capacity. Reduction in total phosphorus can be achieved using methods approved by the State of Minnesota Stormwater Manual, including but not limited to: infiltration, biofiltration/filtration, or stormwater ponds.
c. In any case, the standard identified above that leads to the highest treatment capacity is the one required of any specific development.

4.0 Submittal Requirements

All grading, erosion control, and site restoration work should be done in accordance with the most recent additions of the MnDOT Standard Specifications for Highway Construction and the MPCA's Protecting Water Quality in Urban Areas. All projects within the City that disturb 5,000 square feet or more of land and are not exempt by the City's ordinance are required to show the following:

1. The developer shall obtain all regulatory agency permits and approvals including those from the MPCA for "General Storm Water Permit for Construction Activity."
2. Contact information for the engineering firm, developer, and owner.
3. Show City of Mendota Heights' project number on the Plan.
4. Signature of company responsible for erosion and sediment control plan preparation, implementation, and maintenance.
5. Show all erosion prevention and sediment control measures are compliant with Section 1.
6. Show first floor and basement walkout elevations.
7. A location map indicating the vicinity of the site.
8. Two-foot contour information extending a minimum of 200 feet beyond the property boundary that shows features such as buildings, structures, walls, trees, or fences and any hydrologic features such as wetlands, ponds, lakes, and streams that are wholly or partially encompassed by the project perimeter.
9. Two-foot contour information shall include the following:
    a. Existing contours
    b. Proposed contours
    c. Contour labeling
10. Directional arrows to indicate the site and lot drainage directions.
11. Details on existing wetlands, lakes, streams etc.
    a. NWL and 100-year design storm HWL
    b. Ordinary high water level, if available, for wetlands within the site
    c. Whether waterbodies are DNR protected
    d. Wetland delineations for wetlands on the site
12. Information on individual lots including:
    a. Type of structure (i.e. walkout or rambler)
    b. Lowest ground elevation adjacent to building walkout and lookout window elevations
    c. Existing and proposed lot corner spot elevations
    d. Proposed mid-point side lot spot elevations
    e. Proposed spot elevations at any high points or drainage breaks
    f. Proposed spot elevations where drainage swales intersect lot lines
    g. Proposed spot elevations where drainage and utility easements intersect with lot lines
    h. The benchmark utilized for elevation determination.
13. All easements and outlots, existing and proposed
14. If retaining walls are needed, submit detailed plans and specifications that show type and height of retaining wall. Retaining walls will not be allowed within the City's easements, unless approved with the overall subdivision grading plan.
15. All adjacent plats, parcels, property lines, section lines, streets, existing storm drains and appurtenances, and underground utilities (public and private).
16. Grading and clearing limits: details of topsoil removal, topsoil stockpiling, and topsoil re-spreading.

All development or redevelopment projects that disturb one acre or more of land or increase net impervious surface must submit the following:

1. A narrative description of existing and proposed conditions and stormwater management performance criteria evaluated for the project.
2. Drawings showing existing and proposed drainage boundaries, including watersheds contributing runoff from off-site.
3. EOF elevations and directions of flow for all street and rear yard catch basins, parking areas,

ponds, wetlands, lakes, streams, swales, etc.

4. Hydrologic and hydraulic calculations for the 2-year, 10-year, and 100-year 24- hour (MSE3distribution) rainfall event and the critical 100-year event.
5. Provide detailed hydrologic/hydraulic calculations verifying location and capacity adequacy of all overland drainage routes.
6. Show removal of all trees and brush below the controlled water level that will be impacted from existing and newly created ponding areas.
7. Show or define access routes for maintenance purposes to all inlets or outlets at ponding areas (must be no more than 10 percent grade at two percent cross slope and no less than 10-feet-wide).
8. A note for all silt fence to be installed by the contractor and inspected by the City prior to any site work.
9. A Rate Control Plan if required by Section 3.2.b

Projects that include storm sewer and water quality treatment facilities are required to show the following:

1. The developer shall obtain all regulatory agency permits and approvals necessary for the proposed construction such as DNR, USACE, or MPCA.
2. Drainage calculations shall be submitted to show the sizing of pipe, ponds, emergency overflow spillways, and catch basin interception analysis.
3. Show or define access routes for maintenance purposes to all manholes outside the public right-of-way and inlets or outlets at ponding areas (eight percent maximum grade, two percent cross slope, and ten-feet-wide). Access easements shall be dedicated at the time of final platting to provide this access.
4. The developer and/or engineer upon the completion of the construction of a designated ponding area is required to submit an as-built record plan of the ponding area certifying that the pond constructed meets all design parameters as set forth in this SWMP and its updates.

APPENDIX E

Stormwater Modeling Development and Results

1. PURPOSE AND GOALS

The purpose of updating the City's stormwater models to Atlas 14 is to determine the threshold of concern regarding Atlas 14 high water levels and policies to guide the City's response to areas where flooding has been identified. Another priority for the City is to have a P8 Urban Catchment water quality model.

2. PROCEDURES AND METHODS

The 2006 HydroCAD model was updated for this 2017 Surface Water Management Plan to accommodate for the new National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Precipitation Frequency Estimates. The updated HydroCAD model was used to develop a P8 Urban Catchment Model.

3. HYDRAULIC ANALYSIS

3.1 HydroCAD

The City of Mendota Heights provided the following HydroCAD models:

- Gun Club Lake Watershed (includes 42 subwatersheds and 22 stormwater ponds)
- Ivy Falls Creek and Mississippi Bluffs Watershed (44 subwatersheds and 16 stormwater ponds)
- Interstate Valley Creek Watershed (includes 118 subwatersheds and 66 stormwater ponds)

The models include unique subwatershed IDs that correspond to a unique pond name. Figure 1 shows each of the subwatershed areas and corresponding ponds. The overall modeled drainage and stormsewer network is also represented.

The City also provided a GIS database containing stormsewer information that was used to update the model. Pond outlet data, where available, was incorporated into the HydroCAD model.

The following Atlas 14 storm events were used for the HydroCAD modeling effort:

- 2 year, 24 hour storm event = 2.81 inches
- 10 year, 24 hour storm event = 4.19 inches
- 100 year, 24 hour storm event = 7.47 inches

The storm events were obtained from NOAA and use an MSE Type 3 distribution. Drainage areas, CN values and Tc values were included in the models provided. The updated model included reviewing and correcting drainage area boundaries and land use information when discrepancies were found between the model and on-the-ground conditions. There were very few areas that were modified. The primary objective of modifying the HydroCAD model was to have the ability to model the larger Atlas 14 storm events. This included updating pond

stage/volume rating curves, along with adding overflow elevations and routing. GIS software and Lidar data were used for determining this information.

3.2 P8

The updated HydroCAD model was used to develop a corresponding P8 model for each of the drainage areas. A discussion of the parameters used in the P8 model is provided below. P8 parameters not discussed were left at the default setting. P8 version 3.5 was used for the modeling.

- Time Steps Per Hour (Integer) – 4. Selection was based upon the number of time steps required to reduce the continuity errors greater than two percent.
- Minimum Inter-Event Time (Hours) – 10. The selection of this parameter was based upon evaluation of storm hydrographs to determine which storms should be combined and which storms should be separated to accurately depict runoff from the pond's watershed. It should be noted that the average minimum inter-event time for the Minneapolis area is 6.
- Snowmelt Factors—Melt Coef (Inches/Day-Deg-F) – 0.06. This coefficient is within the lower end of the recommended range and was selected to minimize the disparity between observed and predicted snowmelt (i.e., the coefficient lessens the number of inches of snow melted per day and increases the number of snowmelt runoff days).
- Snowmelt Factors – Scale Factor for Max Abstraction – 1. This factor controls the quantity of snowmelt runoff (i.e., controls losses due to infiltration). Selection was based upon the factor that resulted in the closest fit between modeled and observed runoff volumes.
- Particle File Selection – NURP50.PAR. The NURP 50 particle files was found to most accurately predict phosphorus loading.
- Air Temperature File Selection – MSP4999.tmp. The temperature file was comprised of temperature data from the Minneapolis-St. Paul International Airport during the period from 1949 through 1999.
- Depression Storage – 0.02 inches (assumed, based on average watershed slope).

The surface area and dead storage volume of each detention pond was determined using GIS software and Lidar data. Pond outlet and stage/discharge information was taken from the updated HydroCAD model. Infiltration was assumed only for ponds that appear to be dry, or are known to have a normal water level lower than the outlet elevation.

GIS software was used to determine the directly connected and indirectly connected impervious areas for each of the modeled ponds (devices). WinSLAMM land use descriptions and the associated watershed fractions were applied to each of the subwatershed areas to determine a composite area for indirectly and directly connected impervious areas. Pervious area curve number values were taken from the updated HydroCAD model. An impervious runoff coefficient of 98 was used in the model. The water surface area for each of the ponds was routed to each device separately, assuming that the entire water area was directly connected with zero loading to each pond. It was assumed that all of the directly connected impervious areas were not swept.

4 Results

HydroCAD and P8 results are summarized in Table E.1 included in this appendix. Output data is grouped by drainage area and tabulated for each individual subwatershed.

Pond Data & Modeling Results

Pond	Drainage Area (ac)			NWL (ft)	Outlet	Updated Outlet	Discharge Rate (cfs)			100-year HWL (ft)	Name/PWI?	Pond Type (dry basin or wet pond)	Annual Loading		% Removal		Removal	
	Direct	Ponded	TOTAL				2 year	10 year	100 year				TP (lb/yr)	TSS (lb/yr)	TP (lb/yr)	TSS (lb/yr)	TP (lb/ac/yr)	TSS (lb/ac/yr)
GUN CLUB LAKE																		
GC-P1	80.9	0.0	80.9	891.7	18" rcp		0.7	2.8	8.3	894.1	Unnamed	wet	107.1	33200.2	68.5	97.4	0.91	399.7
GC-P5	44.3	80.9	125.2	875.0	user defined	added EOF	18.4	59.4	176.4	882.4	no	wet	69.6	21572.3	22.8	64.5	0.13	111.1
GC-P10	183.0	232.5	415.6	832.5	none		0.0	0.0	0.0	835.7	Lake Augusta	wet	135.0	41896.7	0.0	0.0	0.00	0.0
GC-P8	12.7	0.0	12.7	880.0	user defined and weir	added EOF	21.1	41.8	84.5	881.2	no	wet	11.5	3559.4	39.2	70.6	0.35	197.9
GC-P9	86.3	12.7	99	859	12" rcp and weir	yes	19.6	85.2	327.0	861.8	no	wet	53.5	16633.2	54.6	86.4	0.30	145.2
GC-P11	21.0	0.0	21.0	862*	user defined and weir		6.6	19.1	48.8	867.6	no	dry	23.7	7357.5	25.0	58.0	0.28	203.6
GC-P12	5.1	21.0	26.1	862*	user defined		0.0	0.0	0.0	867.6	no	dry	6.5	2014.9	88.7	94.3	0.22	72.9
GC-P13	8.3	0.0	8.3	858*	12" rcp and weir	yes	3.2	3.7	4.8	861.9	no	dry	10.2	3153.7	34.9	67.1	0.43	255.0
GC-P57	9.4	0.0	9.4	894.4	weir		1.0	4.5	20.4	895.4	no	wet	13.3	4138.8	58.1	88.0	0.82	387.9
GC-P58	6.3	9.4	15.7	896.0	weir		0.0	0.0	0.0	895.4	no	wet	8.8	2725.7	32.9	71.2	0.18	123.8
GC-P59	15.28	15.68	30.96	881.54	user defined and weir	added EOF	5.5	12.6	31.1	886.7	Unnamed	wet	23.1	7197.7	51.4	89.8	0.38	208.8
GC-P56	56.5	5.9	62.4	858.0	24" rcp and weir		33.9	35.9	44.0	873.1	Unnamed	wet	11.0	3412.3	48.8	81.4	0.09	44.5
GC-P62	12.89	62.4	75.29	852*	user defined and weir	added EOF	39.4	53.0	72.5	857.1	Unnamed	dry	18.8	5821.4	19.4	53.2	0.05	41.1
GC-P51	47.2	0.0	47.2	852.0	user defined and weir		4.7	17.8	38.3	857.7	no	wet	64.1	19881.9	55.2	86.1	0.75	362.4
GC-P43	9.3	0.0	9.3	824.0	18" rcp		1.5	6.2	14.1	827.5	no	wet	12.9	4012.0	54.6	84.9	0.76	366.3
GC-P41	19.3	0.0	19.3	842.0	12" rcp		6.5	8.2	10.7	847.6	no	wet	27.4	8487.2	34.3	67.2	0.49	294.9
GC-P56a	5.9	0.0	5.9	873.5	12" rcp and weir		6.2	7.6	34.1	879.2	no	wet	7.7	2393.4	31.8	64.0	0.42	259.6
GC-P15	6.5	0.0	6.5	838*	user defined and weir		0.0	0.0	0.0	840.5	no	dry	9.9	3057.7	97.2	100.0	1.48	470.4
GC-P49a	72.0	0.0	72.0	841.0	18" rcp and weir	yes; added EOF	7.9	12.2	187.5	849.7	no	wet	105.5	32711.7	41.1	73.7	0.60	334.8
IV CREEK																		
IV2	11.0	0.0	11.0	892.04	12" rcp	yes	1.1	3.4	4.5	894.19	no	wet	76.6	24706.5	73.4	42	5.11	943.3
IV3	8.9	11.0	19.9	891.50	15" rcp	yes	0.6	2.9	7.0	893.02	no	wet	13.1	4232.2	72.7	40.6	0.48	86.3
IV4	36.8	29.6	66.4	873.05	15" rcp	yes	0.2	1.2	4.2	875.10	Unnamed	wet	47.1	15212.4	91.9	50.4	0.65	115.5
IV5	9.7	0.0	9.7	894.40	18" rcp	yes	0.2	1.0	6.1	895.49	no	wet	7.7	2484.4	38.5	69.2	0.31	177.2
IV6	18.3	66.4	87.4	872.23	24" rcp	yes	0.2	1.1	5.2	873.26	Unnamed	wet	29.9	9654.6	88.2	31.8	0.30	35.1
IV7	11.1	0.0	11.1	877.20	18" rcp	yes	0.1	0.7	4.5	878.42	no	wet	9.6	3093.8	96.1	69.6	0.83	194.0
IV8	16.2	11.1	27.3	875.00	21" rcp	yes	0.4	1.5	7.5	876.65	Unnamed	wet	21.1	6820.6	96.6	63.7	0.75	159.1
IV9	16.3	0.0	16.3	878.80	18" rcp	yes	0.5	2.5	10.3	880.48	no	wet	13.3	4270.4	97.4	71.2	0.79	186.5
IV11	30.0	0.0	30.0	865.56	24" rcp	yes	1.7	8.3	23.8	869.03	no	wet	17.1	5501.7	87.1	58.7	0.50	107.6
IV18	100.7	764.6	865.3	842	weir	yes	8.42	37.98	158.19	842.86	Unnamed	wet	34.7	11174.2	91.3	24.5	0.04	3.2
IV12	25.0	0.0	25.0	863.75	15" rcp		14.7	14.8	15.1	872.44	Unnamed	wet	55.7	17922.4	83.6	61.7	1.86	442.3
IV15	31.7	25.0	56.7	854.70	18" rcp		0.4	1.9	6.3	857.26	Unnamed	wet	21.4	6885.6	96.4	60.8	0.36	73.8
IV16	34.0	77.6	111.6	854.20	18" rcp	yes	0.5	2.2	9.1	855.68	Unnamed	wet	25.2	8105	95	43.6	0.21	31.7
IV19	20.9	0.0	20.9	854.80	18" rcp		0.0	0.0	1.0	855.73	Unnamed	wet	5.8	1873.9	99.9	74	0.28	66.3
IV17	35.4	522.5	557.9	850.59	24" rcp	yes	2.2	5.2	14.5	852.35	Unnamed	wet	32.4	10386.1	90.7	38.7	0.05	7.2
IV24	0	965.4	965.4	837	2-59x36 rcpa	yes	7.65	35.43	150.02	840.85	Unnamed	wet	0	0	51.9	2.4	0.00	0.0
IV51	82.3	0	82.3	900.15*	2-42" rcp and weir	yes	42.06	103.2	202.87	906.69	no	dry	111.4	35968.8	52.6	19.8	0.71	86.5
IV22	63.9	16.4	80.3	845.00	user defined		5.8	21.6	88.2	847.19	no	wet	27.8	8985	97.6	71.6	0.34	80.1
48" Huber	19.8	80.3	100.1	840.00	user defined		22.6	51.0	115.7	845.75	no	NA	0	0	0	0	0.00	0.0
IV26	33.1	0.0	33.1	804.00	user defined		5.4	15.0	40.6	891.78	no	wet	62.9	20318.7	99.4	73.9	1.89	453.6
IV57	154.6	390.0	544.6	850.00	user defined		65.9	180.2	518.6	850.88	Unnamed	wet	159.7	51463.6	90.5	62.2	0.27	58.8
IV33	18.1	0.0	18.1	875.00	user defined		3.7	12.8	40.3	875.38	Unnamed	wet	21.6	6972.4	98.5	72.7	1.18	280.1
65" I35E	58.8	0.0	58.8	888.00	user defined		29.0	72.9	175.7	893.17	no	NA	103.1	33288.9	0	0	0.00	0.0
IV61C	0.0	91.7	91.7	864.00	24" rcp	new pond added to model	0.0	0.0	4.0	865.15	no	dry	0	0	20.9	5.7	0.00	0.0
IV39	152.2	322.9	475.1	872.20	30" rcp	yes	0.7	2.4	8.8	873.76	Rogers Lake	wet	0	0	94.1	23.6	0.00	0.0
IV32	6.5	0.0	6.5	874.50	user defined		0.6	3.9	16.0	874.57	no	wet	2.2	703.4	98.9	72.6	0.33	78.6
IV63	41.3	50.4	91.7	846.66	36" rcp		40.1	94.1	264.7	858.61	no	wet	50.5	16297.1	45.2	15.2	0.25	27.0
IV81	17.3	0.0	17.3	926.40	12" rcp	yes	0.1	0.6	2.4	927.34	Unnamed	wet	168.9	54585.2	94.1	67.9	9.19	2142.4
IV36	47.4	0.0	47.4	872.88	24" rcp		3.8	13.6	24.8	878.06	no	wet	88.5	28593	86.3	57.8	1.61	348.7
IV68	263.6	2137.5	2401.1	824.80	user defined and weir		138.4	184.4	247.9	837.43	Unnamed	wet	278.3	89803	92.1	40	0.11	15.0
IV44	40.4	0.0	40.4	879.00	user defined		2.5	3.2	4.4	884.55	no	wet	39.5	12747.8	90.4	62.6	0.88	197.5
IV35	14.1	0.0	14.1	874.00	user defined		1.3	6.1	28.4	874.74	no	wet	23.7	7640.2	96.5	70.3	1.62	380.9
IV50	95.3	515.5	610.8	832.00	user defined		28.8	72.5	238.2	834.49	Unnamed	wet	130.4	42085.5	75.5	32.2	0.16	22.2
IV110	139.3	2578.8	2718.1	809.60	2 55x88 arches		217.8	419.0	658.9	817.61	no	dry	221.5	71463	20.2	2.4	0.02	0.6
IV83	33.1	17.3	50.4	862.30	30" rcp, 2 weirs		13.6	41.4	116.3	869.58	no	dry	51.3	16577.6	38	6.7	0.39	22.0
IV21A	16.4	0.0	16.4	863.2*	18" rcp		9.5	14.8	22.6	861.80	no	dry	17.4	5616.8	60	27.8	0.64	95.2
IV74	6.2	0.0	6.2	820.5*	12" rcp		2.4	5.3	8.8	826.42	no	dry	8.1	2611.4	53	20.7	0.69	87.2
IV75	16.9	0.0	16.9	820.5*	12" rcp, weir		4.4	13.1	79.6	824.43	no	dry	25.5	8224.8	55.8	22.7	0.84	110.5
IV104	24.3	0	24.3	824.70	user defined		3.37	10.09	73.02	827.71	no	wet	37.5	12122.5	84.7	56	1.31	279.4
IV112	5.2	34.7	39.9	806.0*	weir		2.7	9.0	37.7	807.06	Unnamed	dry	16	5156.3	48.4	17	0.19	22.0
IV89	17.8	0.0	17.8	941.0*	user defined		0.7	2.1	5.2	943.58	no	wet	4	1260.7	99.3	72.8	0.22	51.6
IV91	15.5	169.3	184.8	952.82	24" rcp	yes	16.2	25.0	39.1	958.40	no	wet	13	4189.4	76.8	47.7	0.05	10.8
IV109	97.0	402.9	499.9	810.10	60" rcp and user defined		54.2	198.6	662.4	816.60	no	wet	138.7	44783.1	70.9	36.7	0.20	32.9
IV90	37.1	184.8	221.9	932.0*	weir	yes	8.7	40.9	111.0	932.55	no	dry	8.6	2755.8	54	22.5	0.02	2.8

**dry basin bottom elevation*

Pond	Drainage Area (ac)			NWL (ft)	Outlet	Updated Outlet	Discharge Rate (cfs)			100-year HWL (ft)	Name/PWI?	Pond Type (dry basin or wet pond)	Annual Loading		% Removal		Removal	
	Direct	Ponded	TOTAL				2 year	10 year	100 year				TP (lb/yr)	TSS (lb/yr)	TP (lb/yr)	TSS (lb/yr)	TP (lb/ac/yr)	TSS (lb/ac/yr)
IV CREEK																		
IV111	34.7	0.0	34.7	857.40	12" rcp	yes	1.0	4.2	5.8	861.97	no	wet	32.5	10477.2	84.1	55.1	0.79	166.4
IV100	8.1	0.0	8.1	896.00	12" rcp and weir		0.6	2.6	6.0	898.98	no	wet	10.9	3507.5	89.2	61.4	1.19	264.6
IV93	57.9	17.8	75.7	931.00	user defined		1.0	2.5	4.6	934.08	no	wet	73.7	23781.9	96.5	69.7	0.94	219.0
IV113	12.2	56.6	68.8	954.80	36" rcp		2.2	4.2	43.8	959.46	no	wet	2.5	793.8	98.6	72	0.04	8.3
MARIE CREEK CULVERT	49.4	329.24	378.64	870.6	2 - 36" rcps	yes	23.44	90.92	287.45	874.76	no	wet	47.2	15209.3	26.9	3.7	0.03	1.5
IV114	25.3	68.8	94.1	938.25	36" rcp and weir	yes	2.97	12.84	74.75	939.46	no	wet	5.7	1827.4	91.7	58.4	0.06	11.3
IV98	11.8	0.0	11.8	911.0*	user defined		0.4	1.7	5.9	912.81	no	dry	17.3	5587.8	96.1	88.8	1.41	420.5
IV118	134.8	106.6	241.4	876.50	user defined and weir		0.0	22.2	294.8	880.93	no	wet	128	41297	85.4	56.4	0.45	96.5
IV116	12.5	0.0	12.5	926.00	user defined and weir		0.4	1.5	4.2	927.61	no	wet	2.4	755.5	99.2	72.4	0.19	43.8
IV125	16.1	0.0	16.1	845.00	15" rcp and weir	yes	4.7	8.8	14.7	849.96	no	wet	37.9	12226.1	70.9	40.1	1.67	304.5
IV126	23.8	16.1	39.9	804.0*	8" cmp and weir	yes	0.8	3.3	52.8	810.39	no	dry	64.6	20874.6	78.5	56.6	1.27	296.1
IV139	0.0	3742.9	3742.9	723.0*	user defined and weir		318.7	605.4	1520.8	766.59	no	dry	254.7	82200.5	6.9	0.6	0.00	0.1
IV64	17.7	0.0	17.7	828.60	6" rcp and weir		1.8	43.4	132.1	837.60	no	wet	15.4	4956.9	90.3	62.4	0.79	174.8
Ivy Falls and Miss Bluffs																		
IF 4	73.7	226.4	300.1	917	user defined and weir	yes	35.0	141.8	393.8	921.47	no	wet	76	23596.4	44.2	78.8	0.11	61.96
IF 1	27	199.4	226.4	957.35	user defined and weir	yes	57.1	97.6	147.3	964.38	no	wet	28.3	8782.8	59.2	89.4	0.07	34.68
IF 21	107.7	126.6	234.3	892	user defined and weir	yes	75.9	175.1	631.8	903.91	no	wet	157.3	48786.6	25.1	56.3	0.17	117.23
IF 15	10.7	0	10.7	941.63*	12" rcp and weir	yes	4.6	11.1	50.0	946.61	no	dry	16.5	5117.5	7.8	35.2	0.12	168.35
IF 16	19.3	10.7	30	925.0*	12" rcp and weir	yes	6.5	22.7	117.1	930.38	no	dry	30.3	9395.2	7.7	31.5	0.08	98.65
IF 18	22	0	22	968.7*	12" cmp and weir	yes	2.4	6.1	119.6	973.65	no	dry	34.3	10645.4	57.4	78.4	0.89	379.36
MB 8	34.2	0	34.2	835.4*	user defined and weir		0.0	0.0	17.5	845.35	no	dry	53.1	16469	96.1	99.3	1.49	478.18
MB 10	22.2	0	22.2	847.93	6" cmp and weir	yes	0.5	0.7	2.5	856.06	no	wet	34.9	10833.2	42.4	74.9	0.67	365.50
MB 17	15.6	0	15.6		12" rcp and weir	yes	2.9	6.7	67.4	893.43	no	dry	24.3	7548.6	14.5	45.8	0.23	221.62
MB 16	4.1	0	4.1		6" rcp and weir	yes	1.8	2.1	19.8	890.20	no	dry	2.3	724	42.6	51.5	0.24	90.94
MB 31	62.6	0	62.6	860*	24" rcp and weir		3.4	13.0	23.3	866.40	no	dry	113.7	35243.4	89.4	97	1.62	546.10
MB 32	7.2	62.6	69.8	860*	24" rcp		3.4	12.7	23.1	863.33	no	dry	12.7	3945	95.4	99.4	0.17	56.18
MB 33	60.9	69.8	130.7	788	30" rcp		4.1	16.8	38.4	793.12	no	wet	84.2	26120.4	53.5	84.4	0.34	168.67

CITY OF MENDOTA HEIGHTS
DAKOTA COUNTY, MINNESOTA

RESOLUTION 2016-01

RESOLUTION DECLARING THE CITY OF MENDOTA HEIGHTS TO BE A POLLINATOR-FRIENDLY COMMUNITY

WHEREAS, bees and other pollinators are a necessary component of a healthy ecosystem and food system, providing pollination of plants in order to grow vegetables, herbs and fruits; and

WHEREAS, pollinator populations are in sharp decline due to an ongoing loss of habitat as a result of human land practices, which is coupled with a simultaneous large-scale expansion of insecticide use by homeowners, landscapers, property managers and farmers; and

WHEREAS, neonicotinoid and other systemic insecticides have been shown to cause illness and death to bees and pollinators; and

WHEREAS, alternative land management practices are available that dramatically increase pollinator forage while decreasing maintenance costs; and

WHEREAS, the monetary and social cost of maintaining pollinator-friendly landscapes can be less expensive the than costs associated with maintaining chemically- treated monocrop landscapes; and

WHEREAS, many Mendota Heights residents and businesses are pledging to manage their land in a pollinator-friendly way; and

WHEREAS, acting in a pollinator friendly manner is not expected to inhibit any potential treatments for Emerald Ash Borer infestation.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Mendota Heights, Minnesota, that the City of Mendota Heights is hereby declared a Pollinator- Friendly Community, and that the City celebrates current policies and practices that protect and support pollinator health by minimizing the use of insecticides.

BE IT FURTHER RESOLVED that the City of Mendota Heights urges all Mendota Heights property owners, residents, businesses, institutions and neighborhoods to become more pollinator-friendly by adopting practices including:

-Committing to avoiding the use of insecticides, including systemic insecticides, on their property;

-Avoiding the planting of flowering plants which are treated with systemic insecticides;

-Planting more pollinator-supporting forage on their property, and adopting organic or chemical-free lawn and landscaping practices.

Adopted by the City Council of the City of Mendota Heights this 5th day of January, 2016.

Sandra Krebsbach, Mayor

ATTEST:

Lorri Smith, City Clerk

Native Plant List

Most of the plants listed are perennials. Forbs are herbaceous perennials. Shrubs are woody, usually less than 20 feet tall with multiple trunks. Trees are taller and usually do not form thickets. Wildlife value includes any special features of the plant which supply food or improve the habitat for birds, mammals, and beneficial insects such as parasitoids, predators and butterflies.

Zones
zone 1 upland areas, prairie, dry, sun or woodland, shade
zone 2 wet meadow, wet soil
zone 3 emergent, lake margin, shallow water
zone 4 submerged or floating leaf, aquatic

Light requirements (Sun)
❍ = full sun, ◗ = part shade, ● = shade

Growth form
fern, forb (herbaceous perennial), grass, rush, sedge, shrub, tree

Easy to grow?
y = yes

Height
maximum height in feet

prairie and woodland | wet meadow | emergent | submerged or floating leaf

Common name	Species name	Zone	Sun	Growth	Easy?	Height	Wildlife Values	Other
maidenhair fern	*Adiantum pedatum*	1	●	fern		2		
ostrich fern	*Matteuccia pensylvanica*	1	●	fern		5		
sensitive fern	*Onoclea sensibilis*	1	◗	fern	y	3		
interrupted fern	*Osmunda claytoniana*	1	◗	fern		4		interesting leaves
yarrow	*Achillea millefolium*	1	❍	forb		2	butterfly	may be weedy, medicinal, small white flowers
anise hyssop	*Agastache foeniculum*	1	❍ to ◗	forb	y	3	bee, butterfly	blue flowers, long-blooming, licorice-scented leaves
prairie onion	*Allium stellatum*	1	❍	forb		2		white or pink flowers, slender leaves
lead plant	*Amorpha canescens*	1	❍	forb	y	3	bee, butterfly	purple flowers during the buffalo mating season
thimbleweed	*Anemone cylindrica*	1	❍ to ◗	forb	y	2		white flowers in mid-spring
pasqueflower	*Anemone patens (Pulsatilla nutalliana)*	1	❍	forb		0.5	bee	signal for spring celebrations among the Dakota, mature plants difficult to transplant
wild columbine	*Aquilegia canadensis*	1	❍ to ◗	forb		2	bee, butterfly, hummingbird	red and yellow flowers with long spurs, self-sows
Canada wild ginger	*Asarum candadense*	1	◗ to ●	forb	y	0.5		ground cover, roots taste like ginger, strange brownish-red flowers
butterfly milkweed	*Asclepias tuberosa*	1	❍ to ◗	forb		3	butterfly	bright orange flowers, roots once used medicinally
heath aster	*Aster ericoides*	1	❍	forb		2	bee, butterfly	small white flowers in late fall, heather-like leaves
calico aster	*Aster lateriflorus*	1	◗ to ●	forb		4		blossoms once used to treat insanity
New England aster	*Aster novae-angliae*	1	❍ to ◗	forb		4		spreads rapidly, purple flowers in late summer, cut flower
sky-blue aster	*Aster oolentangiensis*	1	❍ to ◗	forb		2.5	bee, butterfly	blue flowers in early fall

Common name	Species name	Zone	Sun	Growth	Easy?	Height	Wildlife Values	Other
silky aster	*Aster sericeus*	1	❍	forb		1.5	bee, butterfly	purple flowers, silky gray-green leaves, once used to treat arthritis
blue false indigo	*Baptisia australis*	1	❍ to ◗	forb		3	bee	blue flowers
golden asters	*Chrysopsis villosa (Heterotheca villosa)*	1	❍	forb		2		yellow aster-like flowers
coreopsis	*Coreopsis palmata*	1	❍	forb		3		yellow flowers, short-lived but self-sows
white prairie clover	*Dalea candida (Petalostemum candidum)*	1	❍	forb		3	butterfly	
purple prairie clover	*Dalea purpurea (Petalostemum purpureum)*	1	❍	forb		3	terrific bee and butterfly plant	little purple flowers with orange pollen, leaves fragrant when crushed
showy tick-trefoil	*Desmodium canadense*	1	❍ to ◗	forb	y	5		pink flowers
dutchman's breeches	*Dicentra cucullaria*	1	◗	forb		0.5		leaves die back in summer
shooting star	*Dodecatheon media*	1	❍ to ◗	forb		1		early to bloom, slow to germinate, leaves die back in summer
purple coneflower	*Echinacea purpurea*	1	❍ to ◗	forb	y	4	butterfly	root once used for toothache, now thought to stimulate immune system
boneset	*Eupatorium perfoliatum*	1	❍ to ◗	forb	y	3	bee, butterfly	cut flower
queen-of-the-prairie	*Filipendula rubra*	1	❍	forb		6		fluffy bright pink flowers, spreads rapidly, once used as a love potion
bottle gentian	*Gentiana andrewsii*	1	❍	forb		2	bumblebee	blue flowers, seeds are slow to germinate
wild geranium	*Geranium maculatum*	1	◗	forb	y	2		pink flowers, spreads but is not invasive
prairie smoke	*Geum triflorum*	1	❍	forb	y	1		early red flowers followed by fluffy seedhead "smoke," groundcover
showy sunflower	*Helianthus laetiflorus*	1	❍	forb	y	4	bee, butterfly, bird	self-sows, cut flower
ox-eye	*Heliopsis helianthoides*	1	❍	forb	y	3	butterfly	yellow flowers, cut flower, long blooming season
round-headed bush clover	*Lespedeza capitata*	1	❍	forb		4	bee, seeds eaten by bird	
blazing star	*Liatris species*	1	❍ to ◗	forb		4	bee, butterfly, bird	pink spikes, cut flower, once fed to horses to make them run faster
Michigan lily	*Lilium michiganense*	1	❍ to ◗	forb		4		orange flowers, bulbs are edible
wild lupine	*Lupinus perennis*	1	❍	forb		2	bee	showy blue flowers in spikes, early-bloomers, self-sows
Virginia bluebells	*Mertensia virginica*	1	❍ to ◗	forb	y	2		blue flowers, plants die back after blooming
wild bergamot; beebalm	*Monarda fistulosa*	1	❍ to ◗	forb	y	2	bumblebee, butterfly	lavender flowers, leaves used to make tea, leaves tend to mildew
large-flowered beardtongue	*Penstemon grandiflorus*	1	❍ to ◗	forb		2	bumblebee, hummingbird	early showy pink flowers, will not tolerate competition
mayapple	*Podophyllum peltatum*	1	◗	forb		1		spreading ground cover, white flowers, edible fruits
Jacob's ladder	*Polemonium reptans*	1	❍ to ◗	forb	y	1		blue flowers
true Solomon's seal	*Polygonatum biflorum*	1	◗	forb		4		green flowers, blue berries, roots used medicinally
mountain mint	*Pycnanthemum virginianum*	1	❍ to ◗	forb		1.5		fragrant when crushed, white flowers
gray-headed coneflower	*Ratibida pinnata*	1	❍	forb	y	3	bee, butterfly	yellow flowers
black-eyed Susan	*Rudbeckia hirta*	1	❍	forb	y	2	bee, butterfly	yellow flowers with black center
bloodroot	*Sanguinaria canadensis*	1	● to ◗	forb		1		white flowers are short-lived, groundcover, red dye from rhizomes

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compass plant	*Silphium laciniatum*	1	❍	forb		6	bee, butterfly, bird	yellow flowers, deeply cut leaves
cup-plant	*Silphium perfoliatum*	1	❍ to ◗	forb		6	bee, butterfly	shaggy yellow flowers, prairie moths bore into stems, roots used medicinally
false Solomon's seal	*Smilacina racemosa*	1	◗	forb	y	3		white flowers followed by red berries
gray goldenrod	*Solidago nemoralis*	1	❍ to ◗	forb		2	bee, butterfly	yellow flowers in late summer, graceful form
showy goldenrod	*Solidago speciosa*	1	❍ to ◗	forb		4	bee, butterfly	yellow flowers in spikes
spiderwort	*Tradescantia ohiensis*	1	❍ to ◗	forb		1		pink or purple flowers liquefy by noon, once used as a cure for spider bites
bellwort	*Uvularia grandiflora*	1	◗ to ●	forb	y	1		nodding yellow flowers in early spring, pioneers used early shoots for greens
blue vervain	*Verbena hastata*	1	❍ to ◗	forb		4	bee, butterfly	blue flowers in spikes
hoary vervain	*Verbena stricta*	1	❍ to ◗	forb	y	4	cover	purple flowers in spikes, tolerant of disturbance
Culver's root	*Veronicastrum virginicum*	1	❍ to ◗	forb		6	bee, butterfly	white flowers in spikes, cut flower
common blue violet	*Viola papilionacea*	1	❍ to ◗	forb	y	0.5	wild turkey eat the roots	groundcover, may be invasive
bird's-foot violet	*Viola pedata*	1	❍	forb		0.5	butterfly	purple flowers in early spring, not a good competitor, leaves are food for caterpillars
golden alexanders	*Zizia aurea*	1	❍	forb	y	2.5		yellow flowers in spring, glossy leaves
big bluestem	*Andropogon gerardii*	1	❍	grass	y	8	cover, seeds	king of native grasses, red-brown in winter, leaves once applied to infected wounds
sideoats grama	*Bouteloua curtipendula*	1	❍	grass		2	cover, seeds	
switchgrass	*Panicum virgatum*	1	❍	grass		5	cover, seeds	golden or reddish in fall
little bluestem	*Schizachyrium scoparium/ Andropogon scoparius*	1	❍	grass		3	cover, seeds	reddish purple winter color
Indian grass	*Sorgastrum nutans*	1	❍	grass	y	6	cover, seeds	
New Jersey tea	*Ceanothus americanus*	1	❍ to ◗	shrub		3	bee, butterfly	white flowers in June and July, leaves once used as tea
American hazelnut	*Corylus americana*	1	❍	shrub		9	nuts	
wild plum	*Prunus americana*	1	❍ to ◗	shrub	y	20	bee, berries	fragrant white flowers, use fruit for jam
common chokecherry	*Prunus virginiana*	1	❍ to ●	shrub	y	20	berries	fragrant white flowers, use berries for jam
smooth sumac	*Rhus glabra*	1	❍	shrub	y	9		fall color, plant on steep slopes to prevent erosion
wild rose	*Rosa arkansana*	1	❍	shrub	y	3	winter food for birds	pink flowers, red hips containing vitamin C, spreads by suckers
American elderberry	*Sambucus canadensis*	1	❍ to ◗	shrub	y	9	berries	fragrant white flowers, use purple berries for jam or in muffins
American highbush cranberry	*Viburnum trilobum*	1	❍ to ◗	shrub		12	berries	white flowers, leaves turn red in fall, red berries persist through winter
climbing prairie rose	*Rosa setigera*	1	❍	shrub or vine		6	bee, butterfly winter food for birds	pink flowers, red hips
white oak	*Quercus alba*	1	❍	tree		60	acorns, nesting sites	best fall color of the oaks, plant acorns as soon as they fall
bur oak	*Quercus macrocarpa*	1	❍	tree		60	acorns, nesting sites	fine shape
red oak	*Quercus rubra*	1	❍	tree		75	acorns, nesting sites	susceptible to oak wilt
black locust	*Robinia pseudoacacia*	1	❍	tree		60	bee	fragrant white flowers

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mountain ash	*Sorbus americanus*	1	❍ to ◗	tree		30	berries	white flowers, orange berries, the rowan tree of Celtic mythology
basswood	*Tilia americana*	1	❍ to ◗	tree	y	120		tiny green fragrant flowers, inner bark used to make rope
Jack-in-the-pulpit	*Arisaema triphyllum*	1,2	❍ to ◗	forb		1.5		distinctive green flowers and red berries, tubers are edible but must be cooked
wild white indigo	*Baptisia alba (lactea)*	1,2	❍ to ◗	forb	y	2	bee	white flowers on spikes, once used for blue dye
turtlehead	*Chelone glabra*	1,2	❍ to ◗	forb		2	bee, butterfly	white or pink flowers
Joe pye weed	*Eupatorium maculatum*	1,2	❍ to ◗	forb		5	bee, butterfly	fragrant fuzzy pink flowers, Joe Pye was a Native American herbalist
prairie cord grass	*Spartina pectinata*	1,2	❍	grass		4	cover, muskrat eat roots	burned as fuel during the "Long Winter" (Laura Ingalls Wilder)
bottlebrush sedge	*Carex comosa*	2,3	❍	sedge		4	cover	
red maple	*Acer rubrum*	1,2	❍	tree		45	nesting sites	red or yellow leaves in fall
blue flag	*Iris versicolor*	2,3	❍	forb		3	bee, butterfly, cover	blue or lavender flowers
swamp white oak	*Quercus bicolor*	1,2	❍ to ◗	tree		60	acorns	tolerates wet soils, acorns once eaten by Native Americans
jewelweed	*Impatiens capensis*	2	◗	annual forb	y	4	bee	orange flowers, seed pods pop open, juice relieves itching
crested fern	*Dryopteris cristata*	2	●	fern		2	butterfly, wild turkey eat the roots	
royal fern	*Osmunda regalis*	2	❍ to ◗	fern		5		young fiddleheads are edible
marsh fern	*Thelypteris palustris*	2	◗	fern		2		
swamp milkweed	*Asclepias incarnata*	2	❍ to ◗	forb		4	bee, butterfly	rose to pink flowers, cut flower, edible flowers, roots used medicinally
scouring rush	*Equisetum hyemale*	2	❍ to ◗	forb		3		best in sandy soils, a primitive plant from the age of dinosaurs
purple avens	*Geum rivale*	2	❍	forb		1.5		
sneezeweed	*Helenium autumnale*	2	❍	forb		4		cut flower
cardinal flower	*Lobelia cardinalis*	2	❍ to ◗	forb		4	butterfly, hummingbird	bright red flowers, roots used as love charm
great blue lobelia	*Lobelia syphilitica*	2	❍ to ◗	forb		3	bee, butterfly	blue flowers in spikes, used medicinally
fringed loosestrife	*Lysimachia ciliata*	2	❍	forb	y	3	bee, butterfly	small green flowers with cut leaves, roots may contain an anti-cancer drug
tall meadowrue	*Thalictrum dasycarpum*	2	❍ to ◗	forb	y	4		
prairie ironweed	*Vernonia fasciculata*	2	❍	forb	y	5	bee, butterfly	pink flowers in late summer, cut flower
swamp saxifrage	*Saxifraga pensylvanica*	2	❍	sedge		3		green flowers in spike
smooth alder	*Alnus rugosa*	2	❍ to ◗	shrub	y	25		
Saskatoon	*Amelanchier alnifolia*	2	❍ to ◗	shrub	y	20	birds love the fruit	white flowers
meadowsweet	*Spirea alba*	2	❍	shrub		6	bee, butterfly	showy white flowers, cut flower
black ash	*Fraxinus nigra*	2	❍ to ◗	tree	y	75	seeds	pleasant aroma
black spruce	*Picea mariana*	2	❍	tree	y	45	dense cover for nesting bird	prefers acid soil
cottonwood	*Populus deltoides*	2	❍	tree	y	50		yellow in fall
black willow	*Salix nigra*	2	❍ to ◗	tree	y	60	bee, butterfly	
northern white cedar	*Thuja occidentalis*	2	❍	tree	y	30	dense cover for nesting birds, winter cover	
sweet flag	*Acorus calamus*	2	❍	forb		6		rhizomes have sweet fragrance when cut or bruised

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marsh marigold	*Caltha palustris*	2	❍	forb		1.5		shiny yellow flowers in May, foliage dies back in summer
spike rush	*Eleocharis species*	2,3	❍	rush		1.5	cover	
soft rush	*Juncus effusus*	2,3	❍	rush		3.5	cover, muskrat eat roots	
rice cutgrass	*Leersia oryzoides*	2,3	❍	grass		3		
pickerelweed	*Pontederia cordata*	2,3	❍	forb	y	3		deep blue flowers in spikes
arrowhead	*Sagittaria latifoia*	2,3	❍	forb	y	3	cover, food	
hard-stem bulrush	*Scirpus acutus*	2,3	❍	rush		8	cover, food	
Canada bluejoint grass	*Calamagrostis canadensis*	2,3	❍	grass		4	cover, food	stands up well in water
giant manna grass	*Glyceria grandis*	2,3	❍	grass		5	cover	
lake sedge	*Carex lacustris*	2,3	❍	sedge		3	cover, food	
tussock sedge	*Carex stricta*	2,3	❍	sedge		2	cover	forms hummocks
green bulrush	*Scirpus atrovirens*	2,3	❍	rush	y	4	cover	
wool grass	*Scirpus cyperinus*	2,3	❍	rush		5	cover, food	fuzzy nutlets
river bulrush	*Scirpus fluviatilis*	2,3	❍	rush		6	cover, food for muskrat	
black chokeberry	*Aronia melanocarpa*	2,3	❍	shrub		9	berries	white flowers in June followed by black fruits, glossy leaves
buttonbush	*Cephahanthus occidentalis*	2,3	❍ to ◗	shrub		9	butterfly	
red osier dogwood	*Cornus sericea (stolonifera)*	2,3	❍ to ◗	shrub	y	18	berries	red stems add winter color, twigs used to make baskets
marsh cinquefoil	*Potentilla palustris*	2,3	❍ to ◗	shrubby		1.5		red or purple flowers
pussy willow	*Salix discolor*	2,3	❍ to ◗	shrub		20	bee	fuzzy catkins are a sign of spring, cuttings can be rooted
water plantain	*Alisma plantago-aquatica*	3	❍	forb	y	2.5		
bur-reed	*Sparganium americanum*	3	❍ to ◗	forb		5	duck, muskrat	poor germination from seed
cattail	*Typha latifolia*	3		forb				
American lotus	*Nelumbo lutea*	4	❍	forb		floating	food	yellow flowers, need a rich muddy bottom, rhizomes and seeds were Native American foods
water celery	*Valisneria americana*	4		forb				
spatterdock	*Nuphar advena*	4	❍	forb		floating	food for muskrat, deer, beaver, moose and porcupine	cup-shaped yellow flowers, plant the rhizomes in mud, rhizomes are edible
white waterlily	*Nymphaea odorata*	4	❍	forb		floating	food	pure white fragrant flowers, plant rhizomes in fall in fertile mud