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PROJECT PARTICIPANTS. The development of the City of Mayer 2040 Comprehensive Plan is the result of the input of many participants including citizens, staff, elected officials, citizen commissions, and other stakeholders. The list of participants is as follows:

City Council & Staff:

Mike Dodge, Mayor
Erick Boder, Council Member
Elizabeth Butterfield, Council Memeber
Nikki McNeilly, Council Member
Tice Stieve-McPadden, Council Member
Margaret McCallum, City Administrator

Planning Commission:

Tom Stifter, Chairperson
Les Hahn, Vice Chairperson
Barney Johnson, Commissioner
Patty Lanting, Commissioner
Rod Maetzold, Commissioner
Don Wachholz, Commissioner
Erick Boder, Council Liaison

Economic Development Authority:

Tim Duckworth, Member
Nikki McNeilly, Member
Tice Steive-McPadden, Member
Tom Stifter, Member
Scott Wakefield, Member

Parks and Recreation Commission:

Troy Congdon, Commission Member
Alisa Johnson, Commission Member
Dan Pohl, Commission Member
Mike Wegner, Commission Member
Elizabeth Butterfield, Council Liaison

Other:

Citizens of Mayer
City Staff
John Anderson, Associate with Municipal Development Group, Inc. - Planning Consultant
David Martini with Bolton & Menk - City Engineer

MUNICIPAL
DEVELOPMENT GROUP, LLC

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CHAPTER 1 - INTRODUCTION

I. PURPOSE

The City of Mayer Comprehensive Plan is a dynamic planning tool intended to guide the future growth and development of the city. The Comprehensive Plan is based on local and regional historical facts, trends, and governmental planning standards. This Comprehensive Plan for Mayer, Minnesota is reflective of the community planning process conducted from 2016 to 2018. Pursuant to Minnesota Statutes 462.355 and 473.864, the City of Mayer has identified a need to proactively plan for areas beyond the city limits and ensure utilities, transportation, parks and various land uses are planned accordingly.

This Comprehensive Plan, utilizing information from the Metropolitan Council's System Statement for Mayer. This Plan recognizes and analyzes population, household and employment projections and their impact on local and regional infrastructure systems including transportation, wastewater, surface water, water and regional parks. It also considers the impact growth, within and around Mayer, will have on Carver County and the region.

As a means of classifying and analyzing historical information, an inventory of pertinent data has been compiled. The Comprehensive Plan identifies the type, amount, and pattern of growth that has taken place within the City and utilizes this information for the planning of future growth. Accordingly, the Comprehensive Plan provides a knowledge base for instituting a hierarchy of policies that will assist the community in processing a variety of development issues on a defined policy level. This information and policy base will allow decision-makers to evaluate and guide proposals benefiting the residents of Mayer, and fulfilling the City's goals and objectives. The plan includes proposed land uses outside of the city's current corporate boundaries. This does not require this land to be developed, but establishes policies and recommendations to guide the development when it does occur. While the plan is intended to serve as a twenty plus year guide, it should be reviewed and updated as needed to adequately address development as it happens.

II. CONTENTS OF THE PLAN

This Comprehensive Plan encompasses eight general categories of information separated into individual chapters in addition to this chapter. The following is a overview of each chapter of this plan.

1. This **Introduction** (Chapter 1) includes the purpose of the plan, the scope of the plan, the history and regional setting of the community. This section also includes a review of the Planning Framework which identifies the methods employed to obtain information for the Comprehensive Plan including statistical data and community input.

2. The **Land Use** (Chapter 2) section includes elements that inventory existing land uses, identify potential infill or redevelopment areas and evaluates future land uses. Natural resources that indicate the geographical nature of the community in terms of a regional context along with an evaluation of the physical aspects of the City such as soils information, topographical elements and physical barriers to development. This section also discusses municipal boundary expansion and defines a growth area outside of the

current municipal limits in which future growth is anticipated, and where the city is able to service growth with future utilities. Consistent with Metropolitan Council goals, the Land Use Section strives to create "livable neighborhoods, easy access to jobs, connect street patterns and protect natural resources." Policies for boundary expansion or annexation are discussed as are demographic trends and projections are also included that contain historic and projected population and household information as it relates to growth, age characteristics, education, occupation and income level.

3. A section on **Transportation** (Chapter 3) includes information on the current transportation system, categorizes the current street system, identifies future collector and arterial streets, includes existing and projected traffic counts, addresses local, regional and state transportation plans which impact Mayer, and establishes access management policies as well as overall transportation policies for future transportation planning in the region. This section includes information on regional facilities including principal arterial highways, metropolitan transit services and facilities, and the region's aviation facilities.

4. A section pertaining to **Water Resources** (Chapter 4), includes policies and strategies on water supply, wastewater and surface water and local strategies to address these. This includes a comprehensive sanitary sewer plan which identify areas to be serviced by the public wastewater system, standards for operation of private systems and identification of areas not suitable for public or private systems. The local water management plan addresses water quality and quantity issues, while the water supply plan ensures a safe and sufficient water supply now and in the future.

5. The **Parks and Trails** (Chapter 5) section includes an inventory of existing park and recreational amenities in the City, an analysis of future needs and policies relating to the future parks, trails and other recreational offerings in the City and the regional plans. This section recognizes the importance parks and trails have on the quality of life and the livability and sustainability of the community. This section recognizes the local amenities as well as the importance of regional planning for park and trail resources.

6. A **Housing** (Chapter 6) section addresses the life cycle housing options available in the community. This section evaluates the current housing stock, evaluates housing trends, reviews land use options and establishes housing objectives and policies to help encourage a full range of housing types for the changing demographics and economic conditions in the community. This section includes existing housing needs, projected housing needs and an implementation plan.

7. A section on **Resilience** (Chapter 7) addresses the City's strategies to face climate changes and reduce the impacts through conscious climate adaptation and resilience planning. This includes strategies to reduce greenhouse gas (GHG) emissions, land use development patterns and ability to respond to changing conditions.

8. An **Economic Competiveness** (Chapter 8) section includes a review of various economic statistics, a review of the EDA and economic development policy statements relative to the General Commerce District, the Central Business District, and the Commercial/Industrial District. This section focuses on activities and organizations that directly aim to retain, attract, and grow businesses that bring wealth into the City and region.

9. Most components of the comprehensive plan identify what your community intends to do over the next thirty years. The **Implementation** (Chapter 9) portion of the plan lays out how your community intends to do it and when infrastructure investments will occur. The implementation plan needs to describe the local ordinances, design standards, policies, public programs, and capital improvement plans for local systems that ensure implementation of your comprehensive plan and protection of public infrastructure.

   Official controls are locally adopted ordinances, policies, design guidelines, fiscal tools, and other regulations that direct, guide, and assist in development decisions in your community and help to implement your plan. Your official controls may also need to be updated to remove conflict with new policy direction as outlined in MN Statute 473.865.

III. HISTORY AND REGIONAL SETTING

A. HISTORY. The Carver County Historical Society reports that Carver County has been home to many different cultures. The Carver County Historical Society's sesquicentennial publication entitled *"An Invitation to Take a Driving Tour of Carver County"* reports one of the earliest native cultures in the area was the Woodland Culture which existed between approximately 1200 BC and 1700 AD. The Woodlanders' nomadic hunting and gathering patterns depended on the seasons and land resources, much like the Dakota Indians who used the land for hunting and temporary lodging. The Traverse de Sioux Treaty opened the area for settlement by pioneers. Many initial settlers in the County were from the east or immigrants from Germany and Sweden.

Mayer, 1889

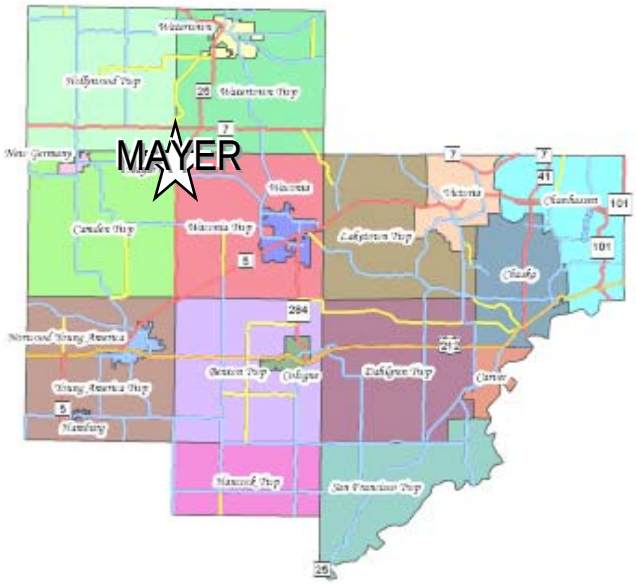
The first settlers in the Mayer area settled in an area known as the "Big Woods" or as the Dakota called it, "Chatonka". Newspaper records at the Carver County Historical Society specifically relating to the town of Mayer date back to the late 1870's but the Carver County Historical Society reports the first claim in the community of Mayer was staked by Fred and Jacob Haueter in 1857. Swiss immigrant John Buhler, came to the area and laid out the town called Helvetia. The name Helvetia comes from the country of Switzerland, where John Buhler was from. Besides creating the layout for the town, Buhler also operated one of the many general stores in town and the post office was established in 1875.

The town of Helvetia began to wither due to tough times, but this all changed when the railroads came to Carver County and the town of Helvetia moved to the site of modern day Mayer. With the move, local railroad officials changed the name from Helvetia to Mayer, after the Road Master of the Great Northern Railroad. In 1885, the Hutchinson line of the Great Northern Railroad was established and in 1886 the railway opened for business. The railroad was an active force in the town until 1985 when the Burlington Northern Railroad sought to abandon the track through Mayer. The City of Mayer was platted in July of 1888 and the first lumber company was established by Gustav Lenz in 1889. The lumber company, which remains today, was a vital force in the emerging town as were the presence of a hotel/saloon (Gatz, Stender, Hahn), a grocery store (Mayer Station, Ninnemann), a blacksmith shop (Hein), a meat market (Schwerdfeger), an elevator (Gatz), a creamery (Hahn, Gongoll) and a shoemaker (Zastrow). With all of these businesses establihsed in Mayer, the primary occupation within the area was still agriculture. This lasted for a century, but relatively recently this changed as now most residents work for businesses in the Twin Cities Metropolitan Area.

With the coming of the railroad and the growth of Mayer, one of the major issues to be addressed was schooling. In the 1880's, around the time the railroads were coming into town, Mayer created its first school and with that its own school district. Public School District 73 erected its first school building in 1887. A newer building was constructed in 1916, which lasted until the consolidation of the district with neighboring Watertown. The Watertown-Mayer School District was formed in 1971. Today in Mayer, another school that students may attend is Mayer Lutheran High School. This school was founded in 1961.

The City of Mayer officially incorporated in August of 1900. Inaugural elections were held on September 10, 1900 with the following officers elected: President: Fred Scheidegger; Recorder: G.A. Gatz; Treasurer: G.J. Lenz; Trustees: Fred Hein, Rudolph Kratzke and Gottfried Rolf; Constable: Louis Hahn. Although there are several buildings with historic roots within the City there are no buildings within the City listed in the National Register of Historic Places.

Carver County

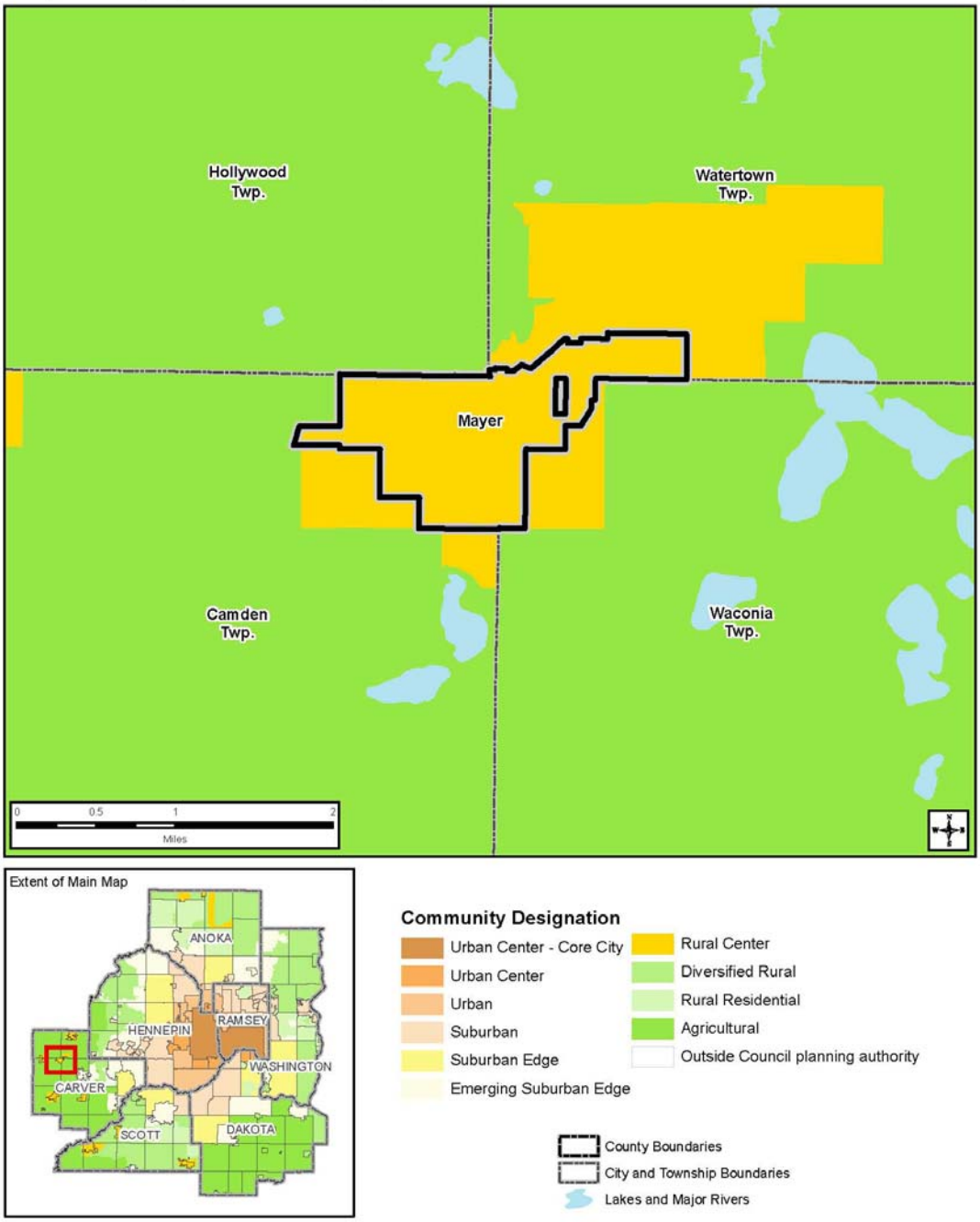


B. REGIONAL SETTING. Mayer is located within the seven county Minneapolis & St. Paul metropolitan area and both Carver County and the City of Mayer are within the jurisdiction of the Metropolitan Council. The City is classified as a Rural Center, with its own water and sanitary sewer systems, while the surrounding townships are classified as Agricultural.

The City itself is situated in northwestern Carver County approximately 30 miles west of Minneapolis. Located directly on the intersecting corners of four townships, Hollywood, Watertown, Camden and Waconia, the community is located on State Highway 25 and just south of State Highway 7, a designated principal arterial. Two county roads are also located within the City, County Road 23 and 30.

Community Designation

City of Mayer, Carver County



IV. PLANNING FRAMEWORK

This Comprehensive Plan is the product of several entities and systematic, ongoing, forward-looking processes including:

2010 Census. Information on population, demographics, housing and employment, from the 2010 Census has been incorporated into the various sections of the 2040 Comprehensive Plan.

MN State Demographer Projections. The Minnesota State Demographer's and Metropolitan Council population estimates and projections to the year 2040, for the City of Mayer and Carver County, have been incorporated into the Demographic Trends and Projections section.

Building Permit Records (2005-2015). Historical building construction, including new home construction and commercial/industrial construction, from City building permits, is incorporated into the Housing and Land Use sections.

Comprehensive Housing Needs Assessment for Carver County, Minnesota. The Carver County Community Development Agency engaged the services of Maxfield Research to identify the housing needs in Carver County. The Study projects housing demand for each community in Carver County from 2014 to 2020, from 2020 to 2030 and from 2030 to 2040. It also provides recommendations on the amount and types of housing that could be built to satisfy demand from current and future residents.

City of Mayer Utility Plans. The following studies and plans were reviewed and incorporated into the 2040 Comprehensive Plan: Water Supply Plan, Water Resource Plan, Sanitary Sewer Plan.

Transportation Plan. A transportation plan was incorporated as chapter 3 of 2040 Comprehensive Plan and includes coordination with the Carver County transportation plan.

A. PLANNING PROCESS. This plan evolved through a participatory process that included:

- Community survey. A community survey was prepared and distributed and seven responses were received.

- Public meetings, including:
  A land use visioning session held on November 1, 2016. Four people attended.
  An open house held on ____, 2019.
  A public hearing held on ____, 2019.

- Focus Group Meetings with City Committees including the:
  Economic Development Authority (EDA)
  Parks and Recreation Commission

- City staff, consultant/engineer participation.

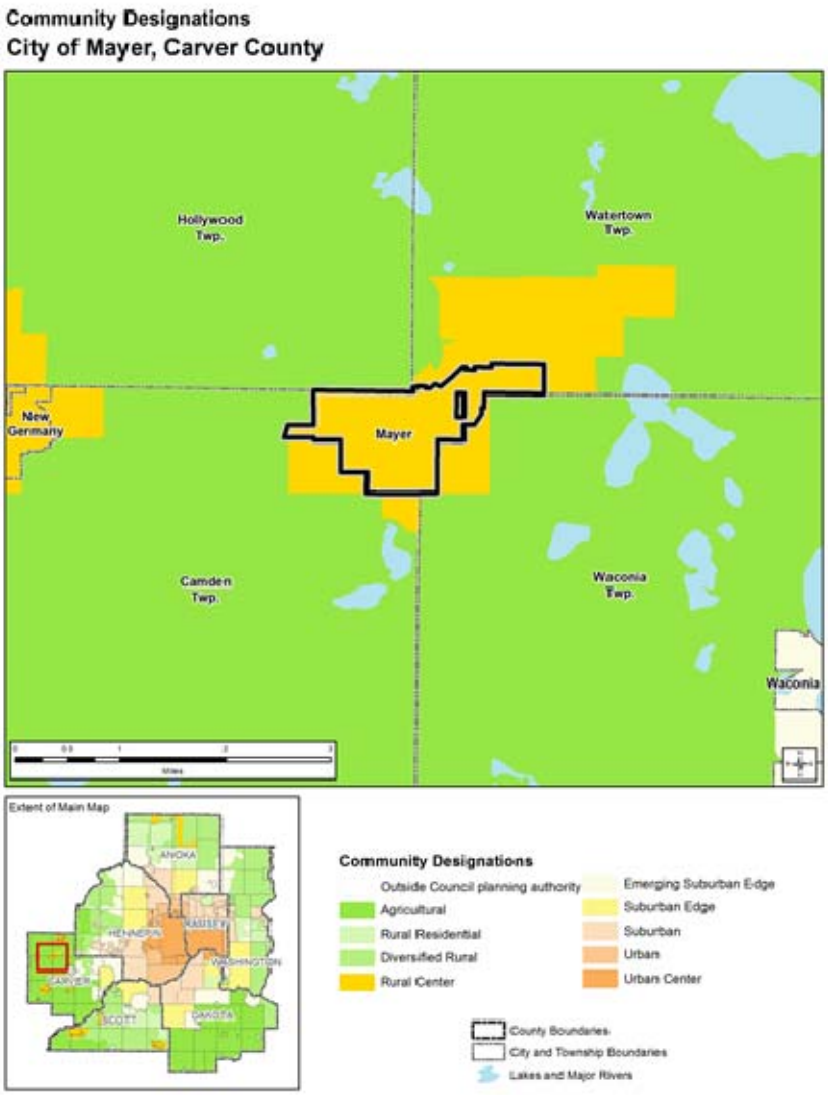
- Regular meetings with a Comprehensive Planning Committee (Planning Commission) from April, 2016 to July, 2017.

CHAPTER 2 - LAND USE

I. FORECASTS AND COMMUNITY DESIGNATION

Mayer is recognized by the Metropolitan Council as a Rural Center, which is surrounded by a designation of agricultural in the surrounding townships. This designation has been incorporated into the Plan. In order to analyze future housing, park and recreation, governmental, utility, and transportation needs of Mayer, it is important to review historic trends that have occurred and review projections for future population and employment growth of the community. The information contained in this chapter has been obtained through statistical data released by the United States Census Bureau, the State Demographer's Office, the Metropolitan Council, and the City of Mayer, including building permit activity. The forecasts and community designation section provides an overview of the population and household characteristics, estimates, and projections for the City of Mayer.

Map 2-1: Community Designation of the City of Mayer



A. COMMUNITY INPUT

As part of this Comprehensive Plan process, community input as to the future land use of the City was gathered through a visioning meeting process held on November 1, 2016. During that meeting, questionnaires and a survey was distributed asking questions such as what types of development that would be supported, what issues should be prioritized and the current situation, and future outlook for issues within the City. Some of the responses are listed below.

Please rate the current situation for each area in the City.					
Policy Area	Very Poor	Poor	Fair	Good	Excellent
Vitality of the Downtown	0 (0.0%)	4 (57.1%)	3 (42.9%)	0 (0.0%)	0 (0.0%)
Neighborhood Quality	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (85.7%)	1 (14.3%)
Farmland Preservation	1 (14.3%)	0 (0.0%)	4 (57.1%)	1 (14.3%)	1 (14.3%)
Housing Affordability	0 (0.0%)	0 (0.0%)	5 (71.4%)	2 (28.6%)	0 (0.0%)
Economic Opportunity	2 (28.6%)	4 (57.1%)	1 (14.3%)	0 (0.0%)	0 (0.0%)
Housing Quality	0 (0.0%)	1 (14.3%)	2 (28.6%)	3 (42.9%)	1 (14.3%)
Urban Aesthetics	1 (14.3%)	0 (0.0%)	4 (57.1%)	2 (28.6%)	0 (0.0%)
Traffic Flow	1 (14.3%)	1 (14.3%)	3 (42.9%)	2 (28.6%)	0 (0.0%)
Open Space	0 (0.0%)	0 (0.0%)	4 (57.1%)	3 (42.9%)	0 (0.0%)
Recreation Opportunities	0 (0.0%)	3 (42.9%)	1 (14.3%)	2 (28.6%)	1 (14.3%)
Water Quality	0 (0.0%)	1 (14.3%)	2 (28.6%)	1 (14.3%)	3 (42.9%)
Public Safety	0 (0.0%)	0 (0.0%)	2 (28.6%)	2 (28.6%)	3 (42.9%)
Urban Land Consumption	0 (0.0%)	2 (33.3%)	3 (50.0%)	0 (0.0%)	1 (16.7%)
Infrastructure	0 (0.0%)	1 (14.3%)	2 (28.6%)	3 (42.9%)	1 (14.3%)

Please rate the future outlook for each area in the City.					
Policy Area	Very Poor	Poor	Fair	Good	Excellent
Vitality of the Downtown	0 (0.0%)	2 (28.6%)	2 (28.6%)	2 (28.6%)	1 (14.3%)
Neighborhood Quality	0 (0.0%)	1 (14.3%)	1 (14.3%)	4 (57.1%)	1 (14.3%)
Farmland Preservation	1 (14.3%)	0 (0.0%)	5 (71.4%)	0 (0.0%)	1 (14.3%)
Housing Affordability	0 (0.0%)	0 (0.0%)	4 (57.1%)	2 (28.6%)	1 (14.3%)
Economic Opportunity	1 (14.3%)	2 (28.6%)	1 (14.3%)	2 (28.6%)	1 (14.3%)
Housing Quality	0 (0.0%)	0 (0.0%)	2 (28.6%)	4 (57.1%)	1 (14.3%)
Urban Aesthetics	1 (14.3%)	0 (0.0%)	2 (28.6%)	3 (42.9%)	1 (14.3%)
Traffic Flow	1 (14.3%)	2 (28.6%)	1 (14.3%)	2 (28.6%)	1 (14.3%)
Open Space	0 (0.0%)	0 (0.0%)	3 (42.9%)	3 (42.9%)	1 (14.3%)
Recreation Opportunities	1 (14.3%)	0 (0.0%)	4 (57.1%)	1 (14.3%)	1 (14.3%)
Water Quality	0 (0.0%)	1 (14.3%)	1 (14.3%)	2 (28.6%)	3 (42.9%)
Public Safety	0 (0.0%)	0 (0.0%)	2 (28.6%)	3 (42.9%)	2 (28.6%)
Urban Land Consumption	0 (0.0%)	0 (0.0%)	5 (83.3%)	0 (0.0%)	1 (16.7%)
Infrastructure	0 (0.0%)	2 (28.6%)	0 (0.0%)	3 (42.9%)	2 (28.6%)

What in your opinion is the city's sentiment toward the growth of retail and service business outside of the downtown? (7 responses received)

a. There is a general consensus that is should be restricted.	0	0.0%
b. There is consensus that it should be restricted in some cases.	0	0.0%
c. There is much disagreement on the issue.	1	14.3%
d. There is a consensus it should be encouraged in some cases.	2	28.6%
e. There is a general consensus it should be encouraged.	4	57.1%

What in your opinion is the city's sentiment toward the growth of industrial establishments? (7 responses received)

a. There is a general consensus that is should be restricted.	0	0.0%
b. There is consensus that it should be restricted in some cases.	1	14.3%
c. There is much disagreement on the issue.	0	0.0%
d. There is a consensus it should be encouraged in some cases.	0	0.0%
e. There is a general consensus it should be encouraged.	6	85.7%

What in your opinion is the city's sentiment toward residential development? (7 responses received)

a. There is a general consensus that is should be restricted.	0	0.0%
b. There is consensus that it should be restricted in some cases.	0	0.0%
c. There is much disagreement on the issue.	1	14.4%
d. There is a consensus it should be encouraged in some cases.	3	42.8%
e. There is a general consensus it should be encouraged.	3	42.8%

What is your attitude toward development?					
Type of Development	Strongly Discourage	Discourage	Neutral	Encourage	Strongly Encourage
Downtown Commercial	0 (0.0%)	0 (0.0%)	1 (14.3%)	1 (14.3%)	5 (71.4%)
Highway Commercial	0 (0.0%)	0 (0.0%)	1 (14.3%)	2 (28.6%)	4 (57.1%)
Industrial	0 (0.0%)	0 (0.0%)	2 (28.6%)	0 (0.0%)	5 (71.4%)
Residential	0 (0.0%)	0 (0.0%)	2 (28.6%)	3 (42.8%)	2 (28.6%)
Multiple Family Housing	1 (14.3%)	1 (14.3%)	4 (57.1%)	0 (0.0%)	1 (14.3%)
Affordable Housing	1 (14.2%)	2 (28.6%)	2 (28.6%)	0 (0.0%)	2 (28.6%)

Which of these issues should be a priority in the City?					
Issue	Low Priority	Not Important	Medium Priority	Somewhat Important	High Priority
Improve Traffic Routes ban Sprawl	1 (14.3%)	1 (14.3%)	3 (42.9%)	0 (0.0%)	2 (28.6%)
Limit Urban Sprawl	1 (14.3%)	2 (28.6%)	1 (14.3%)	1 (14.3%)	2 (28.6%)
Secure Annexation Agreements	0 (0.0%)	1 (16.7%)	2 (33.3%)	2 (33.3%)	1 (16.7%)
Make Land Available for Residential Development	0 (0.0%)	1 (16.7%)	1 (16.7%)	3 (50.0%)	1 (16.7%)

Issue	Low Priority	Not Important	Medium Priority	Somewhat Important	High Priority
Curtail Loss of Agricultural Land to Urbanization	0 (0.0%)	3 (50.0%)	2 (33.3%)	0 (0.0%)	1 (16.7%)
Reduce Housing Costs	0 (0.0%)	1 (14.3%)	3 (42.9%)	1 (14.3%)	2 (28.6%)
Increase Infrastructure (water, sewer) capacity	0 (0.0%)	0 (0.0%)	3 (42.9%)	2 (28.6%)	2 (28.6%)
Downtown Preservation/Revitalization	0 (0.0%)	0 (0.0%)	4 (57.1%)	1 (14.3%)	2 (28.6%)
Cope with Lack of Government Funding	0 (0.0%)	0 (0.0%)	4 (57.1%)	2 (28.6%)	1 (14.3%)
Avoid Destruction of Wildlife Habitat	0 (0.0%)	0 (0.0%)	5 (71.4%)	1 (14.3%)	1 (14.3%)
Avoid Destruction of Wetlands	0 (0.0%)	0 (0.0%)	5 (71.4%)	0 (0.0%)	2 (28.6%)
Prevent Water Pollution	0 (0.0%)	0 (0.0%)	2 (28.6%)	2 (28.6%)	3 (42.9%)
Protect Groundwater Supply (volume)	0 (0.0%)	0 (0.0%)	2 (28.6%)	2 (28.6%)	3 (42.9%)
Eliminate City Government 'Red Tape'	0 (0.0%)	1 (14.3%)	3 (42.9%)	2 (28.6%)	1 (14.3%)
Prevent General Decline of City	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (57.1%)	3 (42.9%)
Provide Sufficient Low Income Housing	2 (28.6%)	2 (28.6%)	2 (28.6%)	1 (14.3%)	0 (0.0%)
Reverse Government Encroachment on Property Rights	1 (14.3%)	2 (28.6%)	3 (42.9%)	0 (0.0%)	1 (14.3%)
Preserve Environmentally Sensitive Land	0 (0.0%)	2 (28.6%)	2 (28.6%)	1 (14.3%)	2 (28.6%)
Embrace 'Green' Design/Development Concepts	0 (0.0%)	1 (14.3%)	3 (42.9%)	1 (14.3%)	2 (28.6%)

Overall, a couple of items that stood out from the responses was the encouragement of commercial and industrial development especially the downtown area. Low density residential development was also encouraged, however responses for multiple family housing and affordable housing were more widely spread with numerous responses for discourage and strongly discourage.

A couple of the high priorities that were listed included preventing the general decline of the City, protect the groundwater supply, prevent water pollution and to make land available for residential development.

Participants were also asked to list the strengths and challenges in Mayer. The responses are as follows.

<u>Strengths</u>
Schools (2)
Roads allow for easy commute (3)
Quiet/safe community (2)
Parks (2)
Small town feel
Financially stable and fiscally responsible
Businesses in town are stable
Trunk Highway 25 business exposure

<u>Challenges</u>
Need to add commercial development (4)
Need to add industrial development (2)
Need broadband infrastructure (2)
How to attract new and diverse residents
Need to grow the downtown (2)
Traffic
School district infrastructure
Need to meet the needs of new residents

Friendly people

No office space

B. DEMOGRAPHIC TRENDS AND PROJECTIONS SUMMARY

- **Population**. The MN Department of Administration State Demographic Center estimated that the City of Mayer's population as of 2016 was 1,995, an increase of 14.1% or 246 residents from the 2010 Census population of 1,749.

- **Households**. The MN State Demographic Center estimated 662 households with 3.0 people per household in Mayer in 2016. This is an increase of 463 households from the 2000 U. S. Census, which reported 199 housing units and 73 households, and an increase from the 2010 U. S. Census, which reported 589 households.

- **Population and Household Projected Growth**. The Metropolitan Council System Statement projects a 2040 population of 2,950 with 1,200 households.

- **Age** distribution statistics indicate the City of Mayer had a median age of 30.8 years (2010 Census). This is younger than Carver County's median age of 36.9 years; Minnesota's median age of 37.6 years and the U.S. median age of 37.4 years per the 2010 Census.

- **Gender.** 2010 Census information identifies a gender distribution of 48% female (839) to 52% male (910) within the City of Mayer, illustrating a slightly different female to male ratio of Carver County (50.3% female to 49.7% male). The Carver County ratio is similar to Minnesota (50.4% female to 49.6% male).

- **Income.** The 2010-2014 American Community Survey estimated a median household income in the City of Mayer of $91,771 and median family income of $96,875 in 2014. This was the highest median household income and third highest median family income (Carver County $100,921 and Waconia $96,940) of the jurisdictions polled. According to the 2010-2014 American Community Survey, 1.4% of the population in Mayer was below the poverty level in the last twelve months.

- **Employment.** The 2010-2014 American Community Survey estimates 1,240 people (67.8% of the population of Mayer) 16 years and older in the labor force. The unemployment rate as of 2014 stands at 3.5%.

- **New Construction.** Residential new construction accelerated in the City of Mayer from 2001 to 2007. A total of 417 new housing units were constructed in Mayer from January 1, 2001 through December 31, 2007, 69.2% of the new housing units constructed since 1990. Housing starts have been increasing since 2015 with an average of 31 new dwelling units being constructed per year from 2015 to 2017. The average value of all residential units created since 2000 in Mayer was $176,055.

- **Owner Occupied Versus Rental.** A total of 89.3% of the occupied housing units in Mayer are owner-occupied, the remaining 10.7% are currently rented. When compared with similar communities in Carver County, the City of Mayer has a somewhat higher percentage of owner occupied units. The housing mix in Mayer is dominated by the presence of single-family detached units.

- **Household Types.** 2010 Census household profile information reports 80.0% of all households were family households (related by blood, marriage, adoption) and 20.0% were non-family households. The City of Mayer has a higher percentage of family households than Carver County where just 74.1% of the households are family households.

- **Household Makeup**. Census 2010 statistics indicate 70.8% of all family households consist of married couple households. Children 18 years and under reside in 48.4% of all households. Mayer has a higher percent of married couple households than the state of Minnesota (50.8%).

- **Education.** According to the American Community Survey 5-year Estimates, in 2014 there were 1,079 people in Mayer 25 years of age and older. Of these, 96.4% graduated from high school, the highest percentage of all the jurisdictions polled. A total of 36.0% of the population obtained bachelors degrees or higher, once again higher than every other jurisdiction polled except Carver County (45.0%)

- **Ancestry.** 2000 Census statistics indicate approximately 46.1% of Mayer residents classify themselves as from German decent. Other prominent ancestries include: Norwegian (15.7%), Swedish (7.3%) and Irish (5.7%). Most (96.0%) speak one language (English) in the home.

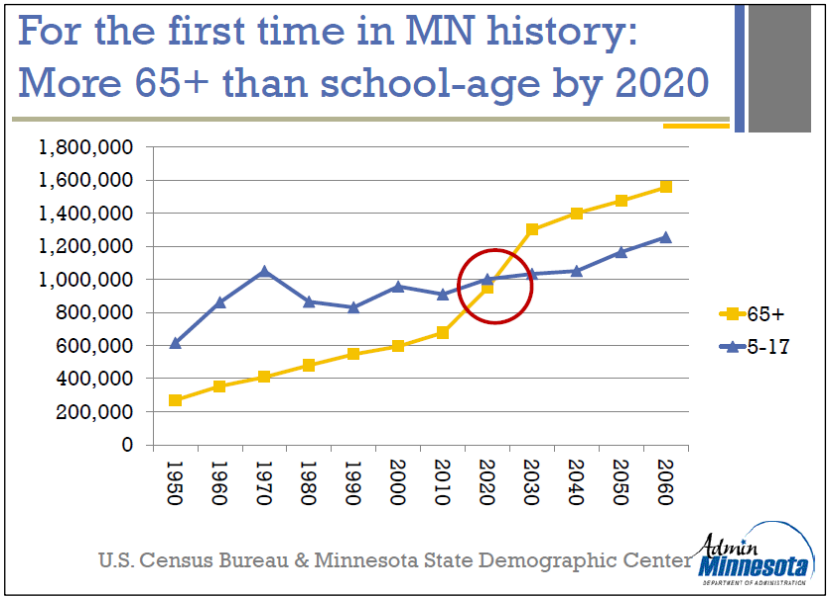
C. POPULATION TRENDS – REGIONAL AND STATE

A. POPULATION TRENDS. The Minnesota State Demographic Center's most recent population estimate for Minnesota in the year 2014 was about 5,453,218 persons. Minnesota's population is projected to grow from about 5.45 million people in 2014 to 6.19 million people by 2040. Carver County was the second fastest growing county in the state from 2010 to 2014, growing by 6.7% during that time period. The other counties in the top five for growth were Scott (6.8%), Hennepin, (5.1%), Washington (4.6%) and Wright (4.2%).

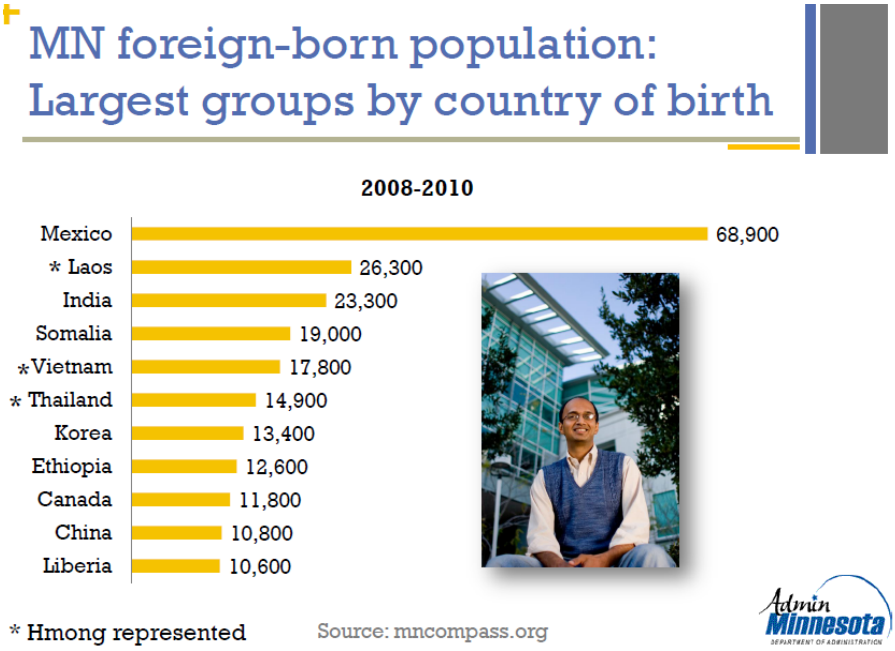
The population is aging. The median age in Minnesota was 35 years old in 2000. This increased to 37 years of age in 2011. The Minnesota State Demographer projects "unprecedented increases in Minnesota's 65+ age population."[1]

The MN State Demographer predicts that by 2020, there will be more senior citizens aged 65+ years than there will be school aged children. Planning communities that address this changing demographic is important. This includes addressing the types of housing offered, park and recreational opportunities, access to goods and services, types of businesses, and impacts on employment.

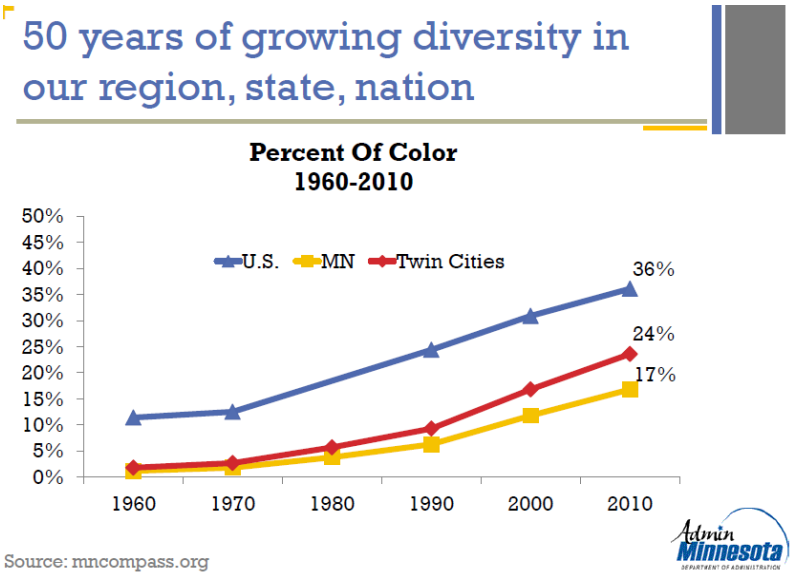
[1] MN State Demographic Center, February 12, 2013 "How Social, Economic & Demographic Changes are Transforming Minnesota" PowerPoint



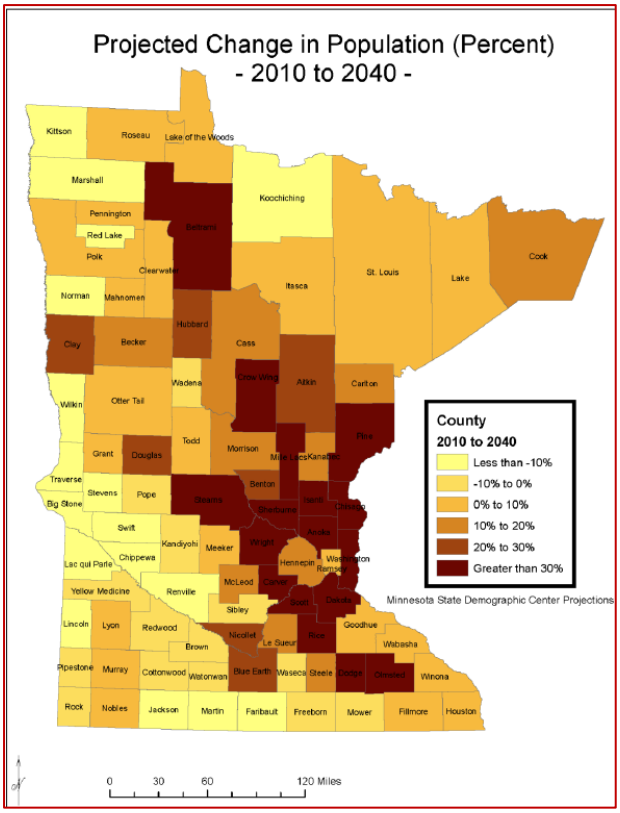
More diversity. According to the MN Department of Administration, "3% of adults 85+ years are people of color (2011 data), while 30% of children under the age of 5 are people of color." The chart below, from mncompass.org, illustrates the countries in which MN foreign born population are from.



According to the MN State Demographer, "In 1920, about 1 in 5 Minnesotans was foreign-born; today about 1 in 14 are (2010-2012). Behind English, the most common languages spoken in the homes of Minnesotans five (5) years and older are Spanish (about 198,000 speakers), Hmong (54,000 speakers), and Somali (37,000 speakers) (data from 2010-2012)."



Population shifts. The US Census Bureau reports the largest population shifts were within the metropolitan areas in Minnesota. Carver County experienced 29.7% growth from 2000 to 2010 and is expected to grow 65.9% from 2010 to 2040.



Local trends. Table 2-1 shows the changes in population that have taken place over time in Mayer and the surrounding townships and cities. Comparisons also are made with Carver County and the State of Minnesota. The population of Mayer saw tremendous growth from 2000 to 2010 but has slowed down and is more similar to the neighboring

communities over the last few years and that is expected to continue, although Mayer still has the highest percent change from 2010 to 2016.

TABLE 2-1: LOCAL POPULATION TRENDS

Geographic Area	2000	2010	Change 2000-2010	Percent Change 2000-2010	2016 Estimate	Change 2010-2016	Percent Change 2010-2016
Mayer	**554**	**1,749**	**1,195**	**215.7%**	**1,995**	**246**	**14.1%**
Cologne	1,012	1,519	507	50.1%	1,703	184	12.1%
Hamburg	538	513	-25	-4.6%	502	-11	-2.1%
New Germany	346	372	26	7.5%	422	50	13.4%
Norwood Young America	3,108	3,549	441	14.2%	3,757	208	5.9%
Waconia	6,814	10,697	3,883	57.0%	12,166	1,469	13.7%
Watertown	3,029	4,205	1,176	38.8%	4,286	81	1.9%
Camden Township	955	922	-33	-3.5%	976	54	5.9%
Hollywood Township	1,102	1,041	-61	-5.5%	1,025	-16	-1.5%
Waconia Township	1,284	1,228	-56	-4.3%	1,219	-9	-0.7%
Watertown Township	1,432	1,204	-228	-15.9%	1,217	13	1.1%
Carver County	70,205	91,042	20,837	29.7%	100,621	9,579	10.5%
Minnesota	4,919,479	5,303,295	383,816	7.8%	5,528,630	225,335	4.2%

Source: U. S. Census Bureau & Minnesota State Demographer Center

According to information in the 2000 & 2010 U.S. Census and the MN Department of Administration State Demographic Center, the population of the City of Mayer increased by 215.7 % from 554 persons in 2000 to 1,749 persons in 2010 and another 14.1% from 1,749 persons in 2010 to 1,995 persons in 2016. Carver County also experienced growth during the past decade from 70,205 in 2000 to 91,042 in 2010 (29.7% increase).

B. HISTORICAL POPULATION ANALYSIS. Census data demonstrates significant growth since the year 2000. The following Table 2-2 illustrates growth trends in Mayer as compared to the County as a whole and the City percent of the Carver County population.

TABLE 2-2: HISTORICAL POPULATION COMPARISON

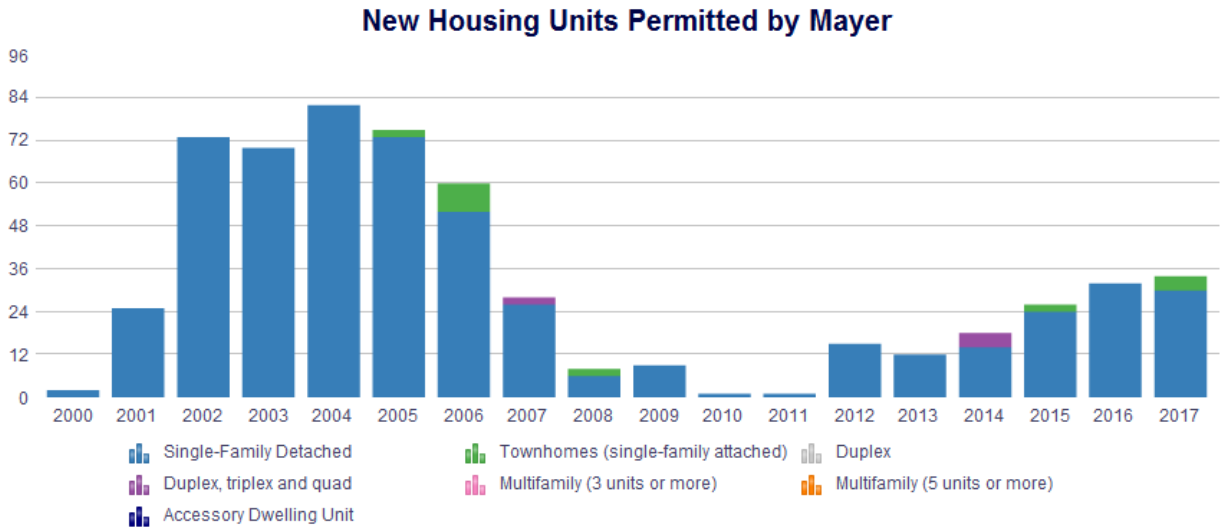
Year	City of Mayer	Percent Annual Change	Percent Annual Change	Carver County	Percent Annual Change	Percent Annual Change	City Percent of County Population
1970	325	-	-	28,331	-	-	1.1%
1980	388	19.4%	1.9%	37,046	30.8%	3.1%	1.0%
1990	471	21.4%	2.1%	47,915	29.3%	2.9%	1.0%
2000	554	17.6%	1.8%	70,205	46.5%	4.7%	0.8%
2010	1,749	215.7%	21.57%	91,042	29.7%	3.0%	1.9%

Source: U. S. Census Bureau Decennial Census

Mayer experienced steady growth until after 2000, when the population more than tripled in a ten-year period. Since that time, growth has slowed to a more similar rate comparable to the pre-2000 period, as shown in Table 2-2. When compared to historical populace, the City of Mayer experienced rapid growth during that time period and became a larger portion of the county population.

Table 2-2 also illustrates that the County has been growing in population at a relatively steady rate over the last four decades.

C. HISTORICAL BUILDING TRENDS. In projecting the future, it is important to review the historical building trends in the community. As reflected in the graph and table below, Mayer's new single-family housing construction peaked between 2001 and 2007, with the recession greatly impacting new construction in 2008-2012. Since 2012, new single family construction has rebounded, and in 2015 new dwelling unit construction consisted of twenty-four single family detached and two detached housing units. The overall value of the new residential construction in Mayer peaked in 2004 at $13,832,334. The per unit values tended to increase from 2004 through 2009, then they began to fall for a few years. Starting in 2012, new home building permits began increasing again.



Source: Metropolitan Council Residential Building Permit Survey

TABLE 2-3: RESIDENTIAL DWELLING UNIT CONSTRUCTION SUMMARY

Year	New Dwelling Unit Total Valuation	Number of New Home Building Permits	Average Dwelling Unit Valuation
1990	$ -	4	$ -
1991	$ -	3	$ -
1992	$ -	8	$ -
1993	$ -	2	$ -
1994	$ -	4	$ -
1995	$ -	2	$ -
1996	$ -	1	$ -
1997	$ -	0	$ -

Year	New Dwelling Unit Total Valuation	Number of New Home Building Permits	Average Dwelling Unit Valuation
1998	$ -	1	$ -
1999	$ -	0	$ -
2000	$400,000	2	$200,000
2001	$3,598,000	25	$143,920
2002	$10,299,000	71	$145,056
2003	$11,404,000	70	$162,914
2004	$13,832,334	85	$162,733
2005	$12,699,299	73 detached / 2 attached	$169,324
2006	$11,675,251	53 detached / 10 attached	$185,321
2007	$4,921,086	26 detached / 2 attached	$175,753
2008	$1,590,374	6 detached / 4 attached	$159,037
2009	$1,579,545	9 detached	$175,505
2010	$135,619	1 detached	$135,619
2011	$272,000	1 detached	$272,000
2012	$2,276,934	15 detached	$151,796
2013	$2,181,220	12 detached	$181,768
2014	$3,357,762	14 detached / 4 attached	$186,542
2015	$5,707,363	24 detached / 2 attached	$219,514
2016	$8,193,584	32 detached	$256,050
2017	$7,636,421	31 detached / 4 attached	$218,183
Totals	$101,759,792	603 dwelling units	$176,055

Source: City of Mayer Building Permit Records

Table 2-3 reveals:

- A total of 603 new housing units were constructed in Mayer from January 1, 1990 through December 31, 2017.
- The average number of new residential dwelling units created over the twenty-eight year period was 21.5 units per year
- A total of 417 new housing units (77.8%) were constructed in Mayer from January 1, 2001 through December 31, 2007. A seven year window of the twenty-eight year period.
- The average value of all residential units created since the year 2000 in Mayer was $176,055.
- The most recent yearly average value for the thirty-five units constructed in 2017 was $176,055.
- All residential units created in Mayer in the years selected were single family units (attached and detached). No multiple family units were created in the community in the previous twenty-eight years.

By comparing the building permits historically issued with the population estimates and projections, trends begin to form as to the future growth of the city as well as future land consumption. Future land consumption is an important part of projecting the future growth of a city, and if you can project your growth as to whether it is single family, multiple family, commercial or industrial, you can estimate the acreage that will be needed in the future. This is discussed in detail latter on in this chapter.

D. POPULATION AND HOUSEHOLD PROJECTIONS

Projections of population and households in Mayer were developed by the US Census Bureau Decennial Census, Metropolitan Council Annual Estimates, Metropolitan Council Forecasts, and the Minnesota State Demographic Center. These forecasts were developed through the analysis of local and regional trends and policies and through the application of economic and demographic principals. Specific data applied to the projections include residential building permits issued, historical population/household patterns and trends, trends in average household size, and sub-regional migration patterns.

A. METROPOLITAN COUNCIL PROJECTIONS. Mayer is located within the Metropolitan Council jurisdiction; therefore, the Met Council has included Mayer in its planning projections. As indicated in the following Table 2-4, the Metropolitan Council projects a 2040 population for Carver County of 161,240 or 77.1% growth from 2010 to 2040, while the City of Mayer is projected to grow 68.7% during that same timeframe. It is projected Mayer will continue to represent between 1.8% and 1.9% of the county's total population and households and offer approximately 0.4% of the employment in the county, with slight decreases as 2040 approaches.

TABLE 2-4: POPULATION, HOUSEHOLD AND EMPLOYMENT PROJECTIONS CARVER COUNTY AND CITY OF MAYER

Forecast Year	Carver County Pop-ulation	Mayer Pop-ulation	Carver County House-holds	Mayer House-holds	Carver County Employ-ment	Mayer Employ-ment	Mayer % of County Pop.	Mayer % of County House-holds	Mayer % of County Employ-ment
2010	91,042	1,749	32,891	589	31,836	151	1.9%	1.8%	0.5%
2020	108,520	2,070	40,940	750	42,190	180	1.9%	1.8%	0.4%
2030	135,960	2,520	52,180	980	46,900	190	1.9%	1.8%	0.4%
2040	161,240	2,950	62,590	1,200	52,240	200	1.8%	1.9%	0.4%

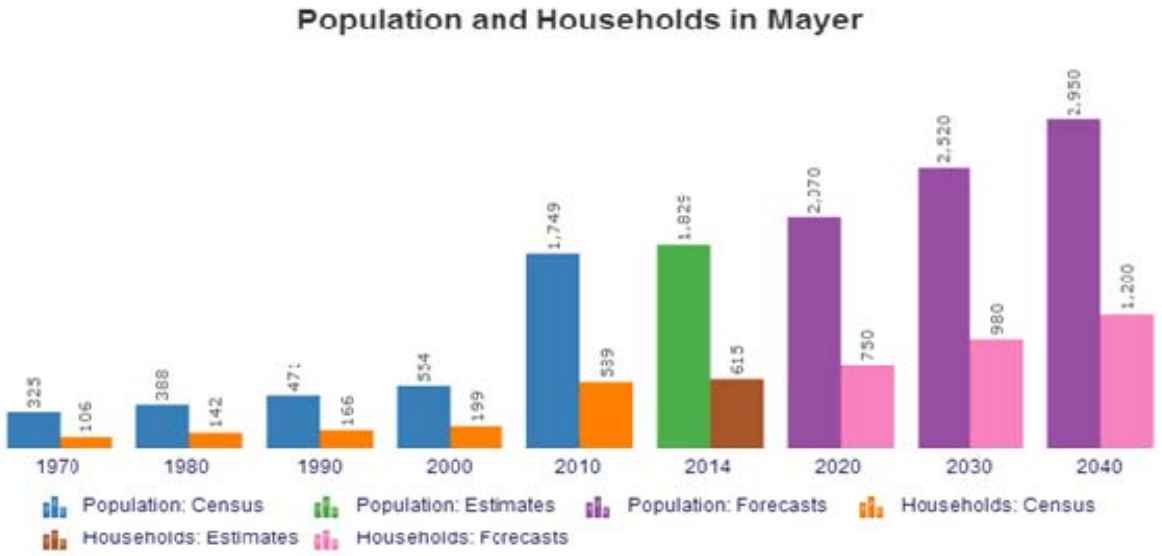
Source: U. S. Census Bureau Decennial Census, Metropolitan Council Annual Estimates and Metropolitan County Forecasts

The graph below includes historical population trends as well as projections for population and household growth. These projections are based on a method of forecasting known as the cohort-survival method. The cohort-survival method takes the existing population by age and sex and projects it forward using assumptions about rates of births, deaths, and migration for five-year age groups, by gender. Past trends for these age-specific rates are analyzed and future assumptions regarding these rates provide input to the model. Recent birth, death, and migration rates are given the greatest weight in developing assumptions about the future. The Metropolitan Council has noted a projected decrease in household size between 2010 and 2040 due to the aging baby-boomer. In 2010, Mayer had an average 2.97 people per household. This is projected to

decrease to 2.46 people per household in 2040. Carver County has 2.77 people per household in 2010 and 2.56 people per household in 2040.

B. POPULATION PROJECTIONS. Projections are estimates of future populations based on statistical models that extrapolate past and present trends into the future. Projections can be created through very simple or very complex calculations. The type of calculations used is based on the available data and desired use of the projection. Forecasts are also estimates of a future population based on statistical models. Forecasts, however, include additional adjustments made to reflect assumptions of future changes. It is noted that actual population, household and employment projections are affected by a number of factors including things outside of the City's control such as state and nation economy, gas prices, interest rates, etc, but are also affected by local factors such as development fees, availability of municipal utilities such as sanitary sewer and water, and zoning regulations.

The role that population projections play is central for forecasting future municipal services, and infrastructure, and future retail, commercial and industrial market potential. Projections of population and households in Mayer were obtained from Metropolitan Council. The population projections are through the year 2040 in ten year increments, while the historical numbers used were based on the US Census Bureau Decennial Census. Mayer will use these projections to ensure municipal infrastructure is adequately planned for. The construction of infrastructure is proposed to occur as actual growth occurs.



Source: US Census Bureau Decennial Census, Metropolitan Council Annual Estimates and Metropolitan Council Forecasts

Table 2-5 that follows includes population projections for Mayer and its neighboring cities and townships, as well as Carver County and the State of Minnesota. Mayer is projected to be one of the slower growing cities within the Mayer area at 47.9% between the years 2016 to 2040. This is a slower pace of growth than Carver County (60.2%) but much faster than the State of Minnesota (11.9%) and the four neighboring townships, which are projected to grow anywhere from 21.4% (Waconia Township) to a 13.9% decrease in population (Camden Township). It should be noted that in Table 2-1 Mayer had the fastest rate of growth of all of these communities (14.1%), from 2010 to 2016. If this

projected population growth occurs, Mayer would be the third smallest city in Carver County by the year 2040, ahead of Hamburg (600) and New Germany (700).

TABLE 2-5: POPULATION PROJECTIONS FOR MAYER AND SURROUNDING JURISDICTIONS

City	2010	2016 Estimate	2020	2030	2040	Percent Increase 2016-2040
Mayer	**1,749**	**1,995**	**2,070**	**2,520**	**2,950**	**47.9%**
Cologne	1,519	1,703	2,100	2,940	3,910	129.6%
Hamburg	513	502	510	550	600	19.5%
New Germany	372	422	440	590	700	65.9%
Norwood Young America	3,549	3,757	4,580	7,200	9,200	144.9%
Waconia	10,697	12,166	14,200	20,600	24,000	97.3%
Watertown	4,205	4,286	4,900	6,200	7,200	68.0%
Camden Township	922	976	900	860	840	-13.9%
Hollywood Township	1,041	1,025	1,030	1,130	1,170	14.1%
Waconia Township	1,228	1,219	1,320	1,430	1,480	21.4%
Watertown Township	1,204	1,217	1,160	1,120	1,100	-9.6%
Carver County	91,042	100,621	108,520	135,960	161,240	60.2%
Minnesota	5,303,295	5,528,630	5,687,161	5,974,304	6,189,207	11.9%

Source: U. S. Census Bureau Decennial Census, Metropolitan Council Annual Estimates, Metropolitan Council Forecasts and The Minnesota State Demographic Center

C. HOUSEHOLD GROWTH. Various data sources can be reviewed to provide a profile of the households in Mayer. The U. S. Census Bureau data indicates the number of households within the City almost tripled, increasing 196.0% from 199 in 2000 to 589 in 2010. The household estimates show that the number of household in Mayer grew to 662 in 2016, a 12.4% increase, much slower than the previous ten years. Household growth is expected to continue into the future with 750 households projected for 2020, 980 projected for 2030 and 1,200 projected for 2040. A breakdown of projected household growth by community is shown in Table 2-6.

TABLE 2-6: HOUSEHOLD PROJECTIONS FOR MAYER AND SURROUNDING JURISDICTIONS

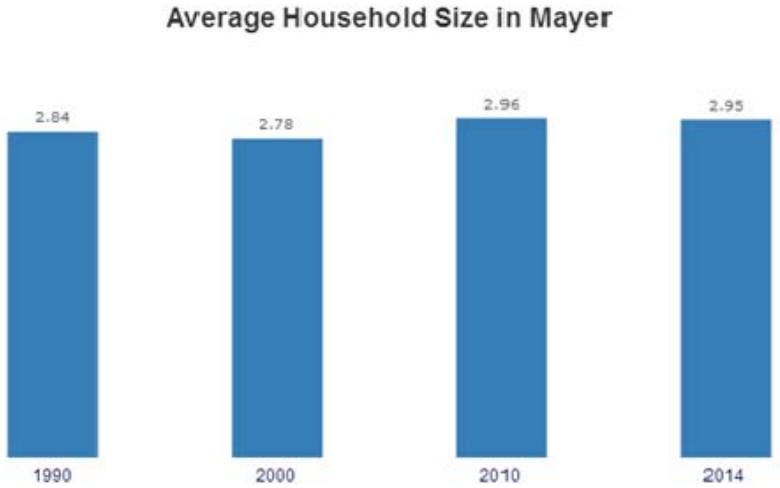
City	2010	2016 Estimate	2020	2030	2040	Percent Increase 2016-2040
Mayer	**589**	**662**	**750**	**980**	**1,200**	**81.3%**
Cologne	539	593	800	1,170	1,600	169.8%
Hamburg	201	203	210	230	250	23.2%
New Germany	146	165	190	270	330	100.0%
Norwood Young America	1,389	1,491	1,900	3,030	3,900	161.6%
Waconia	3,909	4,471	5,400	8,000	9,500	112.5%
Watertown	1,564	1,603	1,900	2,500	2,900	80.9%

City	2010	2016 Estimate	2020	2030	2040	Percent Increase 2016-2040
Camden Township	329	345	340	340	340	-1.4%
Hollywood Township	387	388	410	470	500	28.9%
Waconia Township	434	435	490	560	600	37.9%
Watertown Township	468	480	490	500	500	4.2%
Carver County	32,891	36,162	40,940	52,180	62,590	73.1%

Source: U. S. Census Bureau Decennial Census, Metropolitan Council Annual Estimates, Metropolitan Council Forecasts and The Minnesota State Demographic Center

The number of households in Mayer is expected to increase by 538 households between 2016 and 2040, an 81.3% increase. This is a slower rate of increase than most of the other cities in the area but faster than Carver County (73.1%) and the neighboring townships. Cologne (169.8%), New Germany (100.0%), Norwood Young America (161.6%) and Waconia (112.5%) are all expected to have household increases over one hundred percent.

The City's average household size has fluctuated: 3.07 persons per household in 1970, 2.73 persons per household in 1980, and 2.84 persons per household in 1990. The 2000 Census placed the average household size at 2.78, but the Metropolitan Council's 2004 estimate notes a statistically significant reduction in the number of persons/household to 2.36. Although the decrease in household size from 2000 to 2004 follows national trends during that time period, the average household size has increased since then to 2.96 persons per household in 2010 and even 3.0 persons per household according the Minnesota State Demographic Center Estimate in 2016. These increases follow the pattern of more families with school age children moving to the community. The 2010 Mayer average is higher than both the Carver County average of 2.74 persons per household and the State of Minnesota average of 2.48 persons per household as shown in Table 2-7.



Source: US Census Bureau Decennial Census and Metropolitan Council Annual Estimates

TABLE 2-7: AVERAGE PERSONS PER HOUSEHOLD 2010

Geographic Area	Persons Per Household
Mayer	**2.96**
Cologne	2.82
Hamburg	2.55
New Germany	2.55
Norwood Young America	2.55
Waconia	2.70
Watertown	2.65
Camden Township	2.80
Hollywood Township	2.69
Waconia Township	2.83
Watertown Township	2.61
Carver County	2.74
Minnesota	2.48

Source: U. S. Census Bureau Decennial Census

The existing house stock within the community can provide important insight both projecting future household types and identifying potential opportunities related to promoting a variety of life-cycle housing. A diversity of housing options prevents a polarization of residents into one age or income group. Table 2-8 illustrates differences in owner occupied versus renter occupied housing within Mayer and the neighboring jurisdictions as well as the Carver County and the State of Minnesota. The 2010 Census reports a total of 63 renter occupied units in the City of Mayer. This represents 10.7% of the total 589 occupied housing units within the City. The statistics indicate a high concentration of owner occupied housing options within Mayer compared to most of the surrounding communities, Carver County, and the State of Minnesota.

TABLE 2-8: COMPARISON OF SELECTED HOUSING CHARACTERISTICS, 2010

Geographic Area	Total Housing Units	Total Occupied Housing Units	Percent Occupied Housing Units	Owner Occupied Units	Percent Owner Occupied	Renter Occupied Units	Percent Renter Occupied
Mayer	**619**	**589**	**95.2%**	**526**	**89.3%**	**63**	**10.7%**
Cologne	562	539	95.9%	465	86.3%	74	13.7%
Hamburg	222	201	90.5%	168	90.5%	33	16.4%
New Germany	168	146	86.9%	115	78.8%	31	21.2%
Norwood Young America	1,472	1,389	94.4%	1,001	72.1%	388	27.9%
Waconia	4,112	3,909	95.1%	3,002	76.8%	907	23.2%
Watertown	1,697	1,564	92.2%	1,234	78.9%	330	21.1%
Camden Township	343	329	95.9%	308	93.6%	21	6.4%
Hollywood Township	406	387	95.3%	342	88.4%	45	11.6%
Waconia Township	451	434	96.2%	401	92.4%	33	7.6%

Geographic Area	Total Housing Units	Total Occupied Housing Units	Percent Occupied Housing Units	Owner Occupied Units	Percent Owner Occupied	Renter Occupied Units	Percent Renter Occupied
Watertown Township	495	468	94.5%	429	91.7%	39	8.3%
Carver County	34,536	32,891	95.2%	26,846	81.6%	6,045	18.4%
Minnesota	2,347,201	2,087,227	88.9%	1,523,859	73.0%	563,368	27.0%

Source: U. S. Census Bureau Decennial Census

E. POPULATION CHARACTERISTICS

A. HOUSING VACANCY. Of the total 619 housing units accounted for in the 2010 US Census, 95.2% were occupied (589 units) with just 4.8% vacant (30 units). The vacancy rate among rental units was 3.1% while the rate among owner-occupied units was 3.3%. Rental and owner occupied vacancy rates in the community are very low and are probably even lower today than in 2010. A housing market with a healthy housing vacancy rate is typically described as one with between five and seven percent of housing units vacant. When the vacancy rates decrease significantly, the market may no longer function efficiently due to a low supply and high demand. As a result, prices may be pushed higher than the natural equilibrium, which in turn affects the rental market and lower-income households.

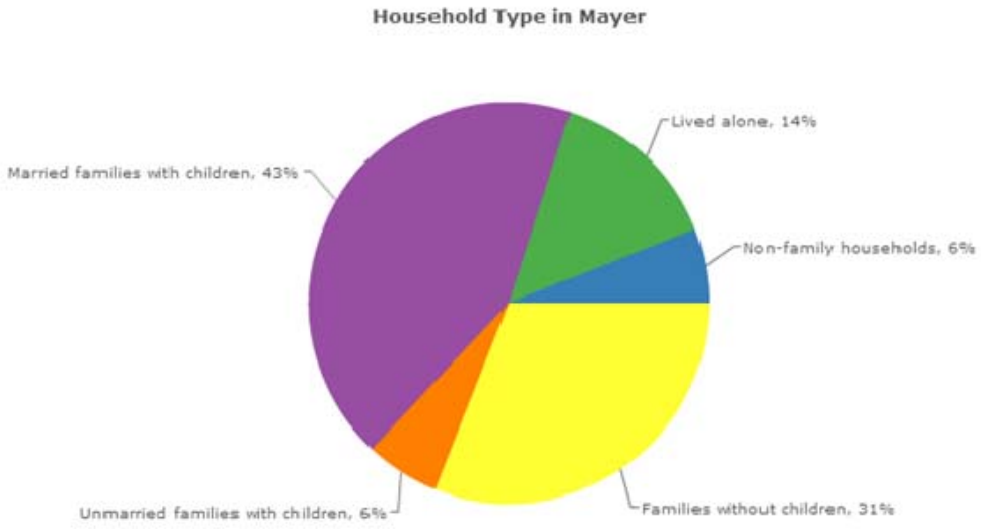
B. HOUSEHOLD TYPE. The 2010 Census numbers indicate that of the 589 housing units occupied within the City of Mayer, 80% were family households while 20% were non-family households. The City of Mayer has a less diverse mixture of family and non-family households when compared the adjacent communities and is actually more in line with the adjacent townships than similar cities in the area. As illustrated in Table 2-9, ratio of family to non-family households in Mayer is significantly higher than the county and state average.

TABLE 2-9: HOUSEHOLD TYPE COMPARISON

Geographic Area	Family Households	Percent	Non-family Households	Percent	Total
Mayer	**471**	**80.0%**	**118**	**20.0%**	**589**
Cologne	398	73.8%	141	26.2%	539
Hamburg	134	66.7%	67	33.3%	201
New Germany	99	67.8%	47	32.2%	146
Norwood Young America	954	68.7%	435	31.3%	1,389
Waconia	2,748	70.3%	1,161	29.7%	3,909
Watertown	1,075	68.7%	489	31.3%	1,564
Camden Township	265	80.5%	64	19.5%	329
Hollywood Township	300	77.5%	87	16.1%	387
Waconia Township	364	83.9%	70	22.4%	434
Watertown Township	363	77.6%	105	25.9%	468
Carver County	24,738	74.1%	8,513	35.4%	32,891
Minnesota	1,349,015	64.6%	738,212	31.3%	2,087,227

Source: U. S. Census Bureau Decennial Census

The 2010 Census indicates 70.8% of all family households consist of married couple households, and children 18 years and under reside in 50.4% of all households. Mayer has a significantly higher percent of married couple households (50.8%) and households with children under 18 years of age (31.6%) than the state of Minnesota. Households with individuals under the age of eighteen (297 households, 50.4%) significantly exceeds the number of households with individuals over the age of sixty-five (72 households, 12.2%). The significant increase households with children under the age of 18 and decrease in percent of households with individuals over the age of 65 from the 2000 Census indicates an influx into the community of families with school aged children.



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

TABLE 2-10: FAMILIES BY PRESENCE OF CHILDREN & FAMILY TYPE

Households by Type	Number
Total Households	589
Total Family Households	471 (80.0%)
Total Family Households with children under 18 years old	285 (48.4% of all Family Households)
Married Couple-Family Household, with and without children	417 (70.8% of all Family Households)
Married Couple-Family Household with own children under 18 years old	252 (42.8% of all Family Households)
Female householder, no husband present with children under 18 years old	27 (4.6% of all Family Households)

Source: U. S. Census Bureau Decennial Census

C. GENDER. As defined in the latest Census in 2010, the gender distribution in the City of Mayer is 48.0% female (839) to 52.0% male (910), illustrating a slightly lower female to male ratio than Carve County (50.3% female to 49.7% male), State of Minnesota (50.4% female to 49.6% male) and the United States (50.8 % female to 49.2% male) averages.

D. AGE. The City of Mayer had a median age of 30.8 years according to the 2010 Census. That is down from the 35.4 median age reported in the 2000 Census, further backing up the notion that a large influx of families with children under the age of 18 moved into the city since the year 2000. This is quite a bit lower than both Carver County (36.9) and the State of Minnesota (37.6). The median age in the U.S. in 2010 was 37.4 years old.

Table 2-11 identifies the age distribution within Mayer and Carver County. The highest concentration of people in Mayer is within the 0 to 9 and 25 to 34 age groups, while in Carver County it is in the 5 to 14 and 35 to 54 age groups.

TABLE 2-11: MAYER AND CARVER COUNTY AGE GROUP DISTRIBUTION

Age Group (Years)	Mayer 2010 Census	Percent of Total Population	Carver County 2010 Census	Percent of Total Population
Under 5	229	13.1%	6,725	7.4%
5 to 9	175	10.0%	7,902	8.7%
10 to 14	109	6.2%	7,988	8.8%
15 to 19	87	5.0%	6,552	7.2%
20 to 24	62	3.5%	3,931	4.3%
25 to 29	192	11.0%	5,025	5.5%
30 to 34	222	12.7%	5,805	6.4%
35 to 39	161	9.2%	6,524	7.2%
40 to 44	111	6.3%	7,916	8.7%
45 to 49	126	7.2%	8,664	9.5%
50 to 54	70	4.0%	7,193	7.9%
55 to 59	61	3.5%	5,348	5.9%
60 to 64	42	2.4%	3,762	4.1%
65 to 69	38	2.2%	2,485	2.7%
70 to 74	26	1.5%	1,675	1.8%
75 to 79	12	0.7%	1,364	1.5%
80 to 84	13	0.7%	1,083	1.2%
85 and older	13	0.7%	1,100	1.2%
TOTAL	**1,749**	**100.0%**	**91,042**	**100.0%**

Source: U. S. Census Bureau Decennial Census

As indicated in Table 2-12, the Minnesota State Demographic Center projected the population of Carver County to increase only 36.9% from 2010 to 2040 to a total population of 124,672 while the Metropolitan Council has projected a 65.9% from the year 2014 to the year 2040 or 64,078 people to a 2040 projected population of 161,240. While Table 2-12 uses the Minnesota State Demographic Center's projections, the purpose of the table is to highlight the aging of the population. It is important to note the significant increase in population in the 55 to 85+ year old groups with over 300% increases in some of the senior age categories for Carver County. Not all Carver County age groups are projected to increase, with the biggest decreases in the 45-49 and 50-54 age groups with 24.9% and 19.1% decreases. The projected aging of the population will

require changes in the types of housing available, public transportation, and recreational opportunities.

TABLE 2-12: CARVER COUNTY POPULATION PROJECTIONS BY AGE

Age Group	2010	2020	2030	2040	2010 - 2040 Percent Change
0-4	6,725	6,575	7,389	7,262	8.0%
5-9	7,902	6,427	6,883	7,563	-4.3%
10-14	7,988	7,116	6,503	7,431	-7.0%
15-19	6,552	9,374	6,965	7,542	15.1%
20-24	3,931	6,785	5,505	4,985	26.8%
25-29	5,025	4,575	6,900	4,591	-8.6%
30-34	5,805	5,817	8,353	7,191	23.9%
35-39	6,524	7,253	6,427	8,880	36.1%
40-44	7,916	6,080	5,772	8,435	6.6%
45-49	8,664	7,159	7,216	6,505	-24.9%
50-54	7,196	8,684	6,033	5,824	-19.1%
55-59	5,348	9,093	7,082	7,259	35.7%
60-64	3,762	7,401	8,587	6,068	61.3%
65-69	2,485	5,067	8,947	7,086	185.2%
70-74	1,675	4,004	7,249	8,557	410.9%
75-79	1,364	2,700	4,929	8,840	548.1%
80-84	1,083	1,551	3,840	7,051	551.1%
85+	1,100	1,274	1,912	3,602	227.5%
Total	**91,042**	**106,935**	**116,492**	**124,672**	**36.9%**

Source: Minnesota State Demographic Center and U. S. Census Bureau Decennial Census

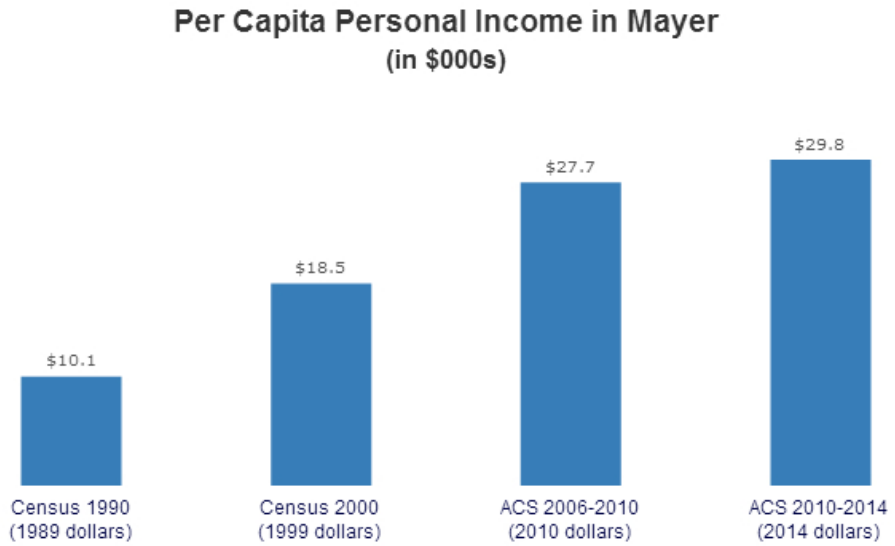
F. INCOME. The U. S. Census Bureau 2010-2014 American Community Survey 5-Year Estimates for 2014 reports a median family income in Mayer of $96,875.00, above average when compared to most of city's and township's in the area. Table 2-13 below illustrates the per capita income, median household income, and median family income of Mayer and the neighboring jurisdiction, Carver County, and the State of Minnesota.

It is noted that household income includes the income of the householder and all other individuals fifteen (15) years old and over in the household, whether they are related to the householder or not. Because many households consist of only one person, average household income is usually less than average family income. Family income is that of the incomes of all members fifteen (15) years old and over related to the householder.

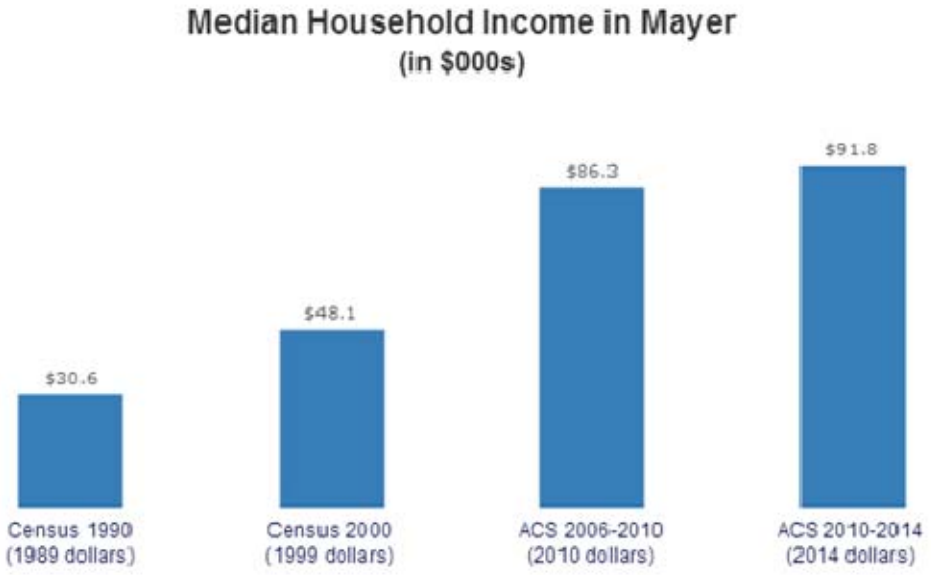
TABLE 2-13: INCOME COMPARISON, 2014

Area	Per Capita Income	Median Household Income	Median Family Income
Mayer	**$29,788**	**$91,771**	**$96,875**
Cologne	$27,709	$77,438	$88,241
Hamburg	$30,797	$60,833	$81,250
New Germany	$21,000	$52,955	$61,786
Norwood Young America	$24,977	$64,470	$76,348
Waconia	$32,324	$78,086	$96,940
Watertown	$32,281	$67,721	$87,534
Camden Township	$33,317	$74,500	$79,688
Hollywood Township	$36,300	$80,268	$89,688
Waconia Township	$37,826	$85,938	$96,103
Watertown Township	$39,963	$74,583	$89,063
Carver County	$38,638	$86,391	$100,921
Minnesota	$31,642	$60,828	$76,190

Source: U. S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

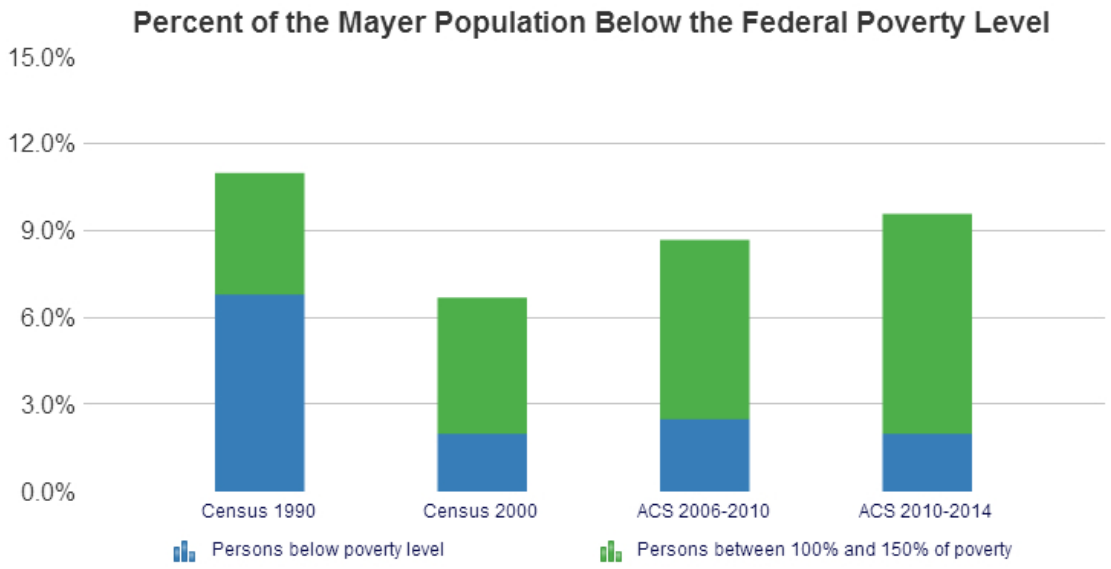


Source: US Census Bureau Decennial Census and American Community Survey



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

The U. S. Census Bureau 2010-2014 American Community Survey 5-Year Estimates for 2014 reveals 1.4% of the families in Mayer are living below the poverty level in the last twelve months. Poverty is defined on a sliding scale by size of family and number of related children under the age of 18. It is noted poverty thresholds for 2015 as defined by the U.S. Census are $12,331 per year for one person under the age of 65 and $11,367 per year for one person 65 years or older. For a family unit of five with three related children, the poverty threshold $28,286. per year.



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

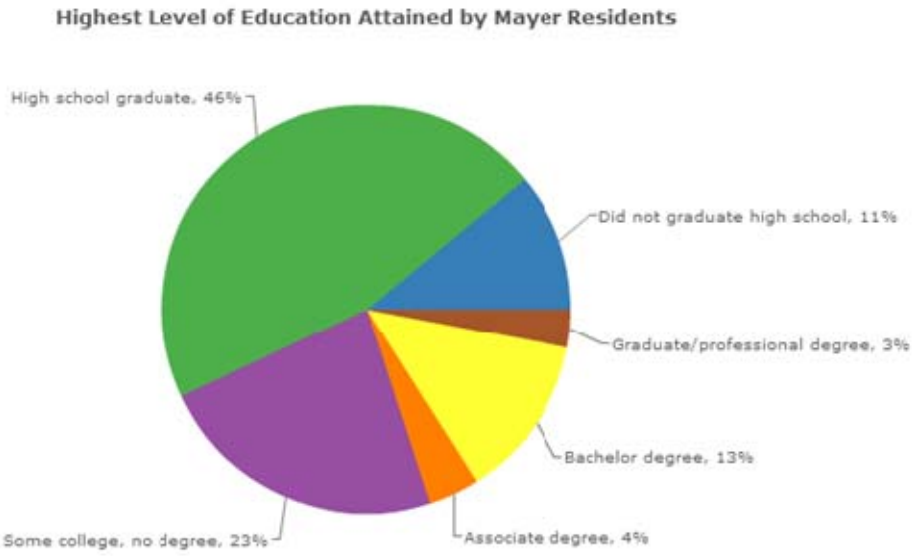
G. EMPLOYMENT. Employment statistics from the U. S. Census Bureau 2010-2014 American Community Survey 5-Year Estimates for 2014 indicate 1,240 people (67.8% of the population) are aged 16 and over. Of all persons over sixteen years of age, 86.5% are in the labor force and 83.4% are employed. This means the unemployment rate is 3.5%. When comparing this to Carver County, whose population 16 and over is 70,237 (72.3%), only 76.1% are in the labor force with 72.5% employed for a 4.8% unemployment rate.

H. EDUCATIONAL ATTAINMENT. The City of Mayer is part of the Watertown/Mayer School District, ISD #111. Students are grouped to maximize their educational and social development. The primary school serves Pre-K and Kindergarten. The elementary school serves grades 1-5, the middle school serves grades 6-8, and the high school serves grades 9-12. Over 1,500 students attend our schools, and the district's enrollment has increased 3-4% per year since 2001-02.

According to the U.S. Census Bureau, 2010-2014 American community Survey 5-Year Estimates, in the year 2014 the City of Mayer had 544 people aged three years and older who were currently enrolled in everything from nursery school, preschool, kindergarten, grades 1-12, college undergraduate and graduate, professional school. These students were enrolled as follows:

Level of School/Type of School	Number	Percent
Nursery school/ preschool	73	13.4%
Kindergarten	63	11.6%
Grades 1-4	130	23.9%
Grades 5-8	95	17.5%
Grades 9-12	100	18.4%
College or Graduate School	83	15.3%
Total Enrolled in School	544	100.0%

According to the U.S. Census Bureau 2010-2014 American community Survey 5-Year Estimates, in the year 2014 in the City of Mayer there were 1,079 people in Mayer 25 years of age and older. Of these, 96.4% graduated from high school. Of those not graduating, 0.7% completed less than 9 years of education and 2.9% completed between 9 and 12 years of education. Of those who did receive a diploma, 28.6% of those 25 years and older obtained bachelors degrees while 7.3% obtained a graduate or professional degree.



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

The following Table 2-14 compares the educational attainment of Mayer compared to the neighboring jurisdictions, Carver County, and the State of Minnesota. As you can see, the City of Mayer compares very favorably with the highest percentage of those with a high school diploma (96.45) and ranks second with the highest percentage of those with a bachelor's degree or higher (36.0%) only to Carver County as a whole (45.0%)

TABLE 2-14: EDUCATIONAL ATTAINMENT COMPARISON 2014

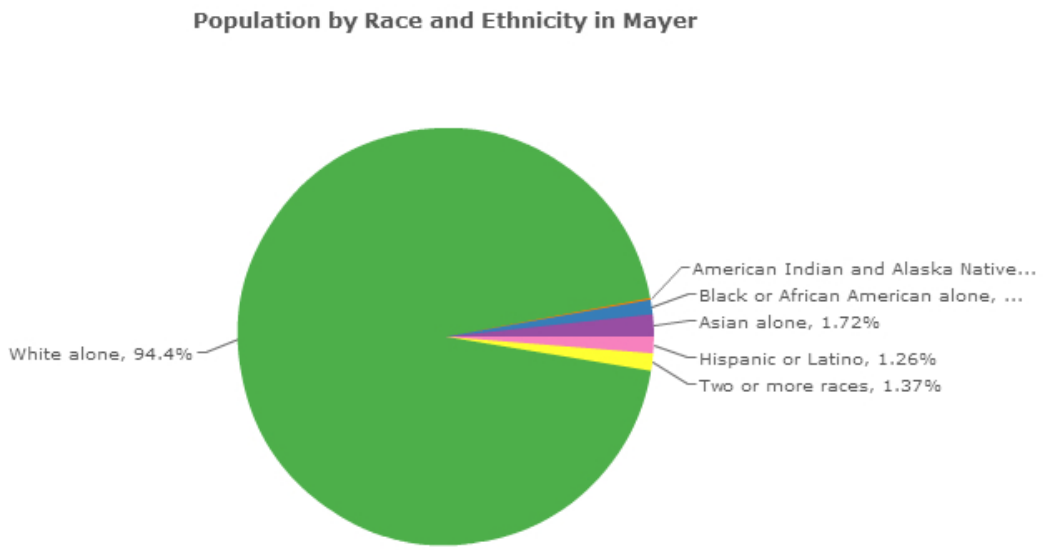
Area	With Diploma	Without Diploma	Bachelor's Degree or Higher
Mayer	**96.4**	**3.6**	**36.0**
Cologne	92.3	7.7	28.2
Hamburg	94.0	6.0	13.1
New Germany	89.4	10.6	14.4
Norwood Young America	90.9	9.1	18.7
Waconia	95.9	4.1	32.4
Watertown	91.3	8.7	29.5
Camden Township	95.1	4.9	19.9
Hollywood Township	95.2	4.8	18.1
Waconia Township	95.9	4.1	32.4
Watertown Township	91.2	8.8	17.8
Carver County	95.5	4.5	45.0
Minnesota	92.3	7.7	32.2

Source: U. S. Census Bureau Decennial Census and 2010-2014 American community Survey 5-Year Estimates

I. **RACE AND ETHNICITY.** The 2010 Census statistics indicate 1,665 of the 1,749 residents (95.2%) of Mayer residents classify themselves as white or Caucasian, 1.7% (30) of the population is Asian, 1.1% (20) of the population is Black or African American, 0.1% (2) of

the population as American Indian or Alaskan Native and, 0.3% (5) of the population classify themselves as some other race. Of the total population, 22 people or 1.3% classify themselves as Hispanic or Latino.

Ancestry was also reported in the 2010 Census, and those statistics indicates the most common ancestry in Mayer was German, which accounted for 46.1% or 826 of the residents. This was followed by Norwegian at 15.7% (282 people), Swedish at 7.3% (130 people), Irish at 5.7% (102 people), French at 5.1% (92 people), Polish at 4.6% (83 people), American at 3.6% (65 people), English at 3.3% (59 people), and both Dutch and Italian at 3.1% (56 people). The remaining responses on ancestries were spread between eight other ancestries. Most people over the age of 5 (96.0%) speak English in the home. The majority of the other languages spoken at home were Asian and Pacific Islander languages (1.4%) and Spanish (1.8%).



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

II. EXISTING LAND USE

A. EXISTING LAND USE

Total acreage of all the land uses within current Mayer city limits is nearly 900 acres, which does not include right-of-way. The primary land use within the existing City limits is agricultural/undeveloped property. Commercial and Industrial development has historically happened in two areas of the City, along Trunk Highway 25 in the downtown area and more recently in the Sell Commercial/Industrial Park on the southeast edge of the City. Single family detached residential uses are being built in the large developments (Coldwater Crossing, Hidden Creek, and Fieldstone) that were developed just before the downturn in the economy about ten years ago. Table 2-15 lists the existing land uses in the City as of the end of the year of 2017 by acreage and percentage. Map 2-2 shows the existing land uses within the City of Mayer. Table 2-16 shows the acreage and percentage of existing land uses within the area in Watertown Township that Mayer has zoning control over.

TABLE 2-15: CITY OF MAYER EXISTING LAND USE (2017)

Land Use	Acres	Percent of Total
Agricultural/Undeveloped	386.3	43%
Single Family Detached Residential	290.2	32%
Two-Family & Townhouse Residential	3.5	0.4%
Multi-Family Residential	1.5	0.2%
Commercial	22	2%
Industrial	22	2%
Public & Quasi Public	53.3	6%
Open Space/Restricted Development	39.1	4%
Parks & Greenways	73.4	8%
Open Water	2.8	0.3%
Total	894	100%

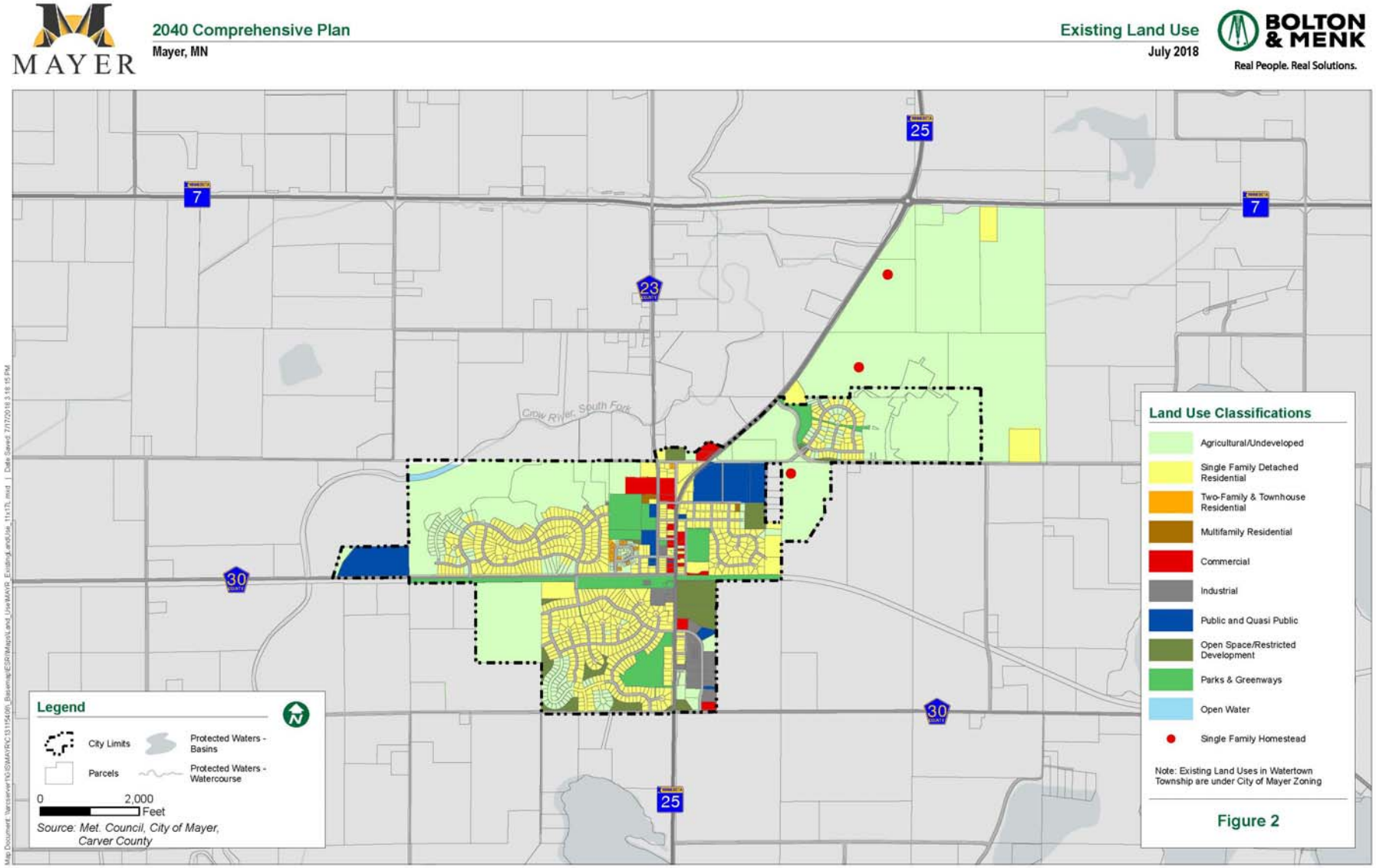
Source: Bolton & Menk, Inc.

TABLE 2-16: EXISTING LAND USE IN WATERTOWN TOWNSHIP UNDER MAYER ZONING CONTROL

Land Use	Acres	Percent of Total
Agricultural/Undeveloped	366.97	95%
Single Family Detached Residential	20.15	5%
Total	387.1	100%

Source: Bolton & Menk, Inc.

Map 2-2: Existing Land Use, City of Mayer



Following is a description of each of the existing land uses within Mayer.

A. **AGRICUTURAL/UNDEVELOPED.** This land use is the largest land use in the city at 386 acres or 43 percent of the City's total acreage. Agricultural land uses primarily consist of land that will someday be developed to urban densities with municipal services. This land use acts as a transition zone between the developed areas of the City and the rural areas of the townships surrounding Mayer. There are only two areas of agriculture within the City, a parcel to the west of the Hidden Creek development, and a parcel south of the Fieldstone development by 62nd Street. As property is annexed into the city, additional agricultural land may be added.

   Undeveloped or vacant land is the other part of this land use category. The largest portions of undeveloped land exist in parts of two developments, Fieldstone and Coldwater Crossing. These are areas that were previously preliminary platted, and in some case partially graded, but never officially final platted. Since areas like this were graded for development, they are typically not farmed. It is expected that these properties will someday be developed. Vacant lots are also included in the land use category. There are approximately 150 vacant, platted, residential lots and numerous commercial, industrial, and institutional lots located throughout the city.

B. **SINGLE FAMILY DETACHED RESIDENTIAL.** Single family detached residential land uses consist of single family dwelling units not attached to other dwelling units. Single family uses, the second largest land use in the City, comprise 290 acres or 32 percent of the City's total land area.

   More aged housing stock is primarily centered on smaller lots in areas of the City's original plats near the downtown area. More recently, newer single family homes have been constructed on the edges of the City in the Fieldstone (north side), Coldwater Crossing (west side), and Hidden Creek (south side) developments. Much of the single family housing is in good condition. However, there are some homes that are in need of maintenance or rehabilitation within the older areas of the City.

C. **TWO-FAMILY AND TOWNHOUSE ATTACHED RESIDENTIAL.** Two-family and townhouse residential make up less than one percent of the land use within the city (3.5 acres) and is the second smallest land use within in the city. This use consists of duplexes and attached townhouse residential dwelling units attached on one or more sides. These uses are limited in their location to the Sunset Meadows plat, which consists to two-family homes and two duplexes within the older area of the city.

D. **MULTI-FAMILY RESIDENTIAL.** Multi-family units consist of apartments, senior housing complexes, condominiums, and other multi-family type structures. This use is the smallest land use in the city making up less than one percent or 1.5 acres of the land within the City. There is one location of these units within Mayer just north of city hall on Bluejay Avenue. As the general population ages in the coming years, a higher demand for multiple family senior units may arise. Multi-family uses may also be used as a buffer between the lower density single family detached and two-family and townhouse attached neighborhoods and commercial or industrial uses.

E. **COMMERCIAL.** Commercial land uses comprise about 22 acres or two percent of the City's land use inventory. There are two distinct types of commercial uses, downtown commercial and highway commercial. Downtown commercial, also know as the central

business district, traditionally consists of the town center while the highway commercial exists along the major thoroughfares of the City.

Downtown commercial areas are typically designed and intended as a specialized district directed to serve pedestrians in a compact central area of the City. Downtown commercial provides for a high-density shopping and business environment, especially stressing the pedestrian function and interaction of people and businesses, rather than being heavily oriented toward the use of automobiles. Downtown commercial in Mayer is clustered along Trunk Highway 25. There are several single family detached residential uses mixed in with the downtown commercial uses that are planned to someday be converted to commercial. The downtown commercial district is the original commercial destination that served the City.

Highway commercial is designed and intended to promote the development of uses that require a large concentration of automobile traffic. This use is also designed to accommodate commercial activities that may be incompatible with the uses permitted in the downtown commercial areas and whose services are not confined to any one neighborhood or community. The highway commercial uses are located along the west side of Trunk Highway 25 near the north end of the City with a few commercial uses located in the Sell Commercial/Industrial park on the southeast side of Mayer.

The City's zoning ordinance has established three commercial zoning districts to fit the two different types of commercial uses, which are defined as follows:

Commercial District	**Intent**	**Type**
C-1 General Commerce District	To provide appropriate areas in proximity to thoroughfares for commercial retail and service establishments that are oriented to the motoring public are not compatible with the desired character of the downtown.	The C-1 district corresponds to highway commercial uses.
C-2 Central Business District	To recognize the existing "downtown" area of Mayer and its function as a social, trade, and service center for residents of the city and surrounding agricultural areas	The C-2 district corresponds to downtown commercial uses.
C/I Commercial/ Industrial District	To provide land in proximity to major thoroughfares for the development of certain activities that will strengthen local employment opportunity and tax base of the city. Such a zone will be characterized by a positive overall visual appearance that is compatible with the predominant residential aesthetic character of the city.	The C/I district corresponds to highway commercial uses

F. INDUSTRIAL. At this time, industrial uses are concentrated along Trunk Highway 25 in the southern part of the city. Most of the industrial uses are located along Shimmcor Street in the Seller Commercial/Industrial development. This use consists of about 22 acres or two percent of the City's existing land use. The intent of the industrial use is to provide land in proximity to major thoroughfares for the development of certain activities that will strengthen local employment opportunity and tax base of the city.

G. PUBLIC AND QUASI PUBLIC. Public and quasi public land uses are the fourth largest land use in Mayer. Public and quasi public land uses occupy 53 acres or six percent of the total existing land uses in the city. Public and quasi public uses provide opportunities for

government facilities, schools, churches, hospitals, libraries, and other similar public and institutional uses. This use is spread throughout the city and consists of the Zion Lutheran church and school, city hall, Mayer Lutheran High school, and city facilities such as the water tower and wastewater treatment plant.

H. **OPEN SPACE/RESTRICTED DEVELOPMENT.** This use is similar to parks and greenways but consists of non-useable space such as stormwater retention ponds and areas covered by wetlands or floodplain. This use in many cases is combined with parks because of their proximity. This land use consists of 39 acres or four percent of the total land use in the city and are spread throughout the city.

I. **PARKS AND GREENWAYS.** Park and greenway land uses include city parks and areas like the Dakota Rail Regional Trail. This is the third largest land use in the city. At this time, there are five main parks within the City: Discovery Park in the Fieldstone development, Meadow Park in the Hidden Creek development, West Ridge Park just to the east of Trunk Highway 25, Old Schoolhouse Park southwest of the Community Center, and Bluejay Park next to the water plant. These parks are spread throughout the city, while the Dakota Rail Regional Trail runs east/west through the middle of the city. There are a few other trail greenways in the Fieldstone and Hidden Creek developments. Parks and Greenways consist of 73 acres or eight percent of the existing land use in the City.

J. **OPEN WATER.** Water is included as a land use and makes up only 2.8 acres of the City and is the second smallest land use in Mayer. Water includes lakes, rivers, and some wetlands. In Mayer, the only open water is the South Fork of the Crow River that runs through the very northwest corner of the City. It is possible that as property is annexed into the City that more open water will be added. There are other instances of open water existing in the form of stormwater ponding, but these uses are considered part of the open space/restricted development land use category.

B. VACANT AND UNDEVELOPED LAND

The following Table 2-17 shows the number of existing platted residential lots available within Mayer. As of December 31, 2017 there were 150 existing residential lots available. This includes the newly platted Hidden Creek 7th Addition and Coldwater Crossing 7th Addition, which added a total of 66 additional lots.

Table 2-17 also shows the potential future residential lots in the Coldwater Crossing and the Fieldstone neighborhoods as well as other vacant property located in the City. These vacant properties have the potential to add approximately another 486 lots on roughly 276 acres to the City's residential lot inventory. Some of these projects like Fieldstone and Coldwater Crossing were projects that at one time were preliminary platted but have since expired. It is expected that someday these sites will be redeveloped in a similar pattern as the previous developments, as is the case with Coldwater Crossing where a new developer has purchased the property and started a new approval process.

As of December 31, 2017, there is approximately 7.43 acres of commercially or industrially zoned land available throughout Mayer. All of this acreage consists of individual lots ready for development rather than raw land that still needs to be subdivided. The City will need to look at either zoning or platting more land for commercial and industrial purposes, which most likely will included annexation, discussed more below.

TABLE 2-17: VACANT LOT AND LAND INVENTORY - DECEMBER 31, 2017

FINAL PLATTED LOTS - RESIDENTIAL	REMAINING LOTS		COMMENTS
Coldwater Crossing 3rd Addition	3		Single Family Detached
Coldwater Crossing 6th Addition	6		Single Family Detached
Coldwater Crossing 7th Addition	28		Single Family Detached
Hidden Creek 3rd Addition	1		Single Family Detached
Hidden Creek 4th Addition	1		Single Family Detached
Hidden Creek 6th Addition	22		Single Family Detached
Hidden Creek 7th Addition	38		Single Family Detached
Fieldstone	24		Single Family Detached
Fieldstone 2nd Addition	1		Single Family Detached
Sunset Addition	26		Two Family Attached
TOTAL	150		
UNDEVELOPED PROPERTY - RESIDENTIAL	**ACREAGE**	**LOTS**	**COMMENTS**
Coldwater Crossing Future Phases	107.99	152	152 lot preliminary plat has expired but the 7th addition was recently approved using previous preliminary plat layout
Fieldstone Future Phases	80.69	161	161 lots at 2 lots per gross acre
14025 62nd Street	31.91	63	63 lots at 2 lots per gross acre
1452 Hidden Crossing	5.18	10	10 lots at 2 lots per gross acre
Hidden Creek West	49.91	100	Concept plan approved in 2008 for 100 lots
TOTAL	275.68	486	
UNDEVELOPED PROPERTY - COMMERCIAL/INDUSTRIAL	**ACREAGE**		**COMMENTS**
185 7th Street NE	0.83		Vacant property zoned C-1 General Commerce
214 Ash Avenue N	0.71		Vacant property zoned C-2 Central Business District
Sell Commercial Industrial Park 2nd Add	5.89		Five vacant lots zoned C/I Commercial/Industrial (one lot currently being used for outdoor storage)
TOTAL	7.43		
Source: Municipal Development Group, LLC Inventory - January 30, 2018 Note: 2 lots per gross acre was used for undeveloped property - residential calculations			

III. FUTURE LAND USE

A. FUTURE LAND USE PLAN

The City of Mayer experienced rapid growth between 2000 and 2010, due to both annexation and new development. While the City is still growing, growth is taking place at a much slower pace. There are several opportunities for development and expansion of the City, thus the need for a future land use plan to guide development and expansion in a safe and efficient manner. The current ratio of residential to commercial and industrial acreage in the City of Mayer is 87% residential to 13% commercial and industrial. Additional commercial and industrial land is desired in the future land use plan to support the City's tax base.

It is noted that market conditions will have a major impact on development as the City progresses toward the year 2040. Interest rates, land/material prices, inflation, and gas prices, among other factors, will significantly impact buyer preferences and help to shape ultimate development and land use patterns.

The future land use plan has been developed based on:

1. Ability to serve current and future areas with municipal sanitary sewer.

2. Desire for additional commercial and industrial land to support the City's tax base.

3. Tiering land uses with more intense land uses adjacent to arterials and collector streets and more compatible land uses adjacent to each other. This is identified as a preferred method versus mixed land uses.

4. Land topography and natural resources.

5. Community input in the process through surveys, community input meeting, and monthly Planning Commission meetings.

The Future Land Use Plan, shown as Map 2-3, identifies desired or proposed land uses within the City of Mayer and 2040 urban growth boundary, discussed in detail in the following section. Table 2-18 shows the acreage and percentage of planned land uses by category.

Map 2-3: Future Land Use Plan for 2040, City of Mayer

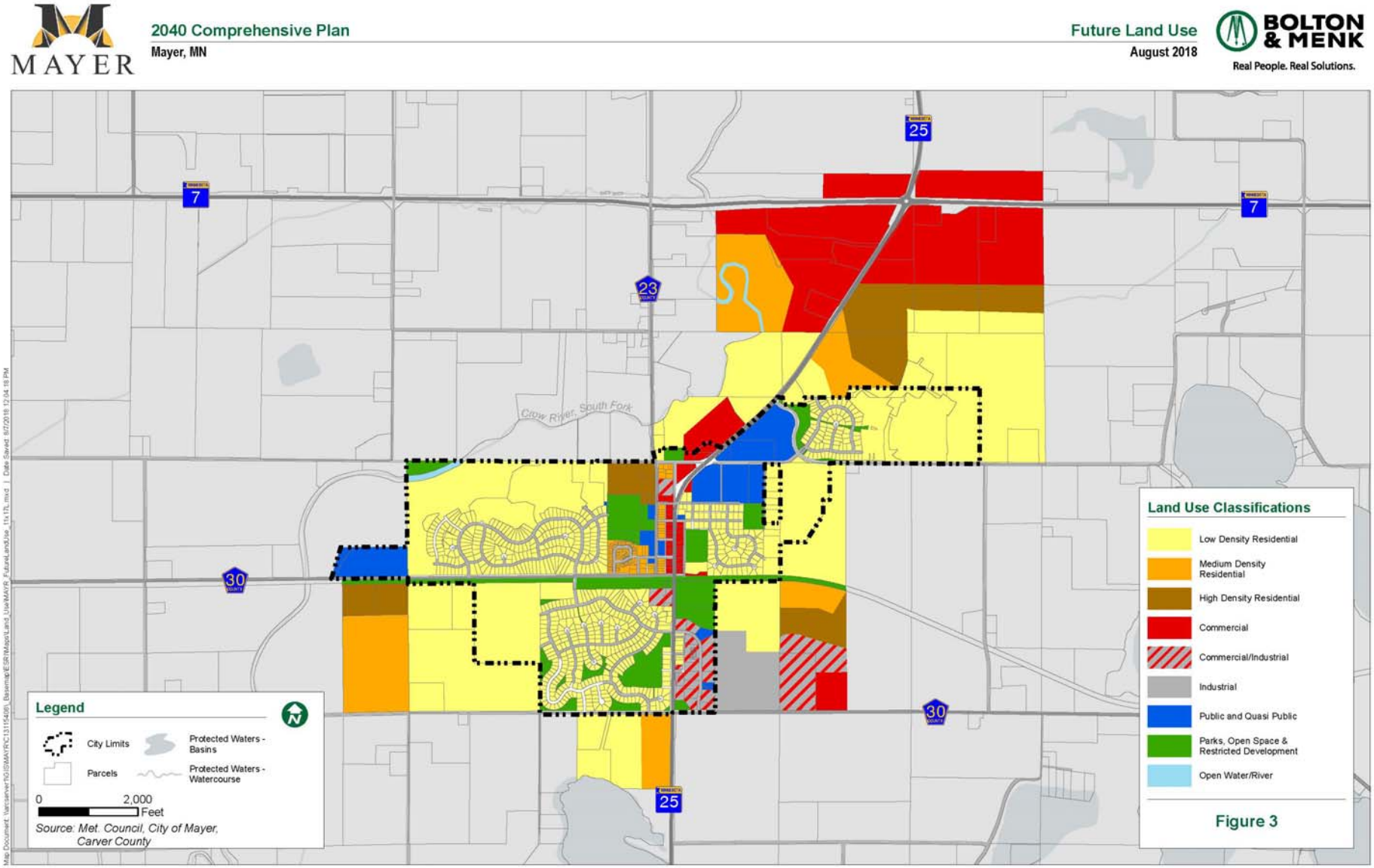


TABLE 2-18: CITY OF MAYER PLANNED LAND USE

Future Land Use Classification	Gross Acres	Percent of Total
Low Density	978.9	50.5%
Medium Density	194	10%
High Density	139.98	7.2%
Commercial	319.4	16.5%
Commercial/Industrial	62.7	3.2%
Industrial	41.9	2.2%
Park, Open Space/Restricted	111.8	5.8%
Public/Quasi-Public	76.4	3.9%
Water	7.3	0.4%
Total	1,938.8	100%

Source: Bolton & Menk, Inc.

Each of the proposed land use classifications, identified below, has corresponding zoning district(s), as shown in Table 2-19.

Table 2-19: Future Land Use and Zoning Classification Matrix

Future Land Use Classifications	Zoning Classification
Low Density Residential	A Agriculture District, R-1 Low Density Residential District and R-2 Medium Density Residential District
Medium Density Residential	R-2 Medium Density Residential District and R-3 Multiple-Family Residential District
High Density Residential	R-3 Multiple-Family Residential District
Commercial	C-1 General Commerce District, C-2 Central Business District and C/I Commercial/Industrial District
Commercial/Industrial	C-1 General Commerce District, C-2 Central Business District and C/I Commercial/Industrial District
I Industrial	C/I Commercial/Industrial District
Public and Quasi-Public	P/I Public/Institutional
Parks, Open Space and Restricted Development	A Agriculture District, R-1 Low Density Residential District, R-2 Medium Density Residential District, R-3 Multiple-Family Residential District and P/I Public/Institutional
Open Water/River	No specific district applies

Each of the future land use classifications could be further subdivided, but to simplify the future land use map, only nine classifications were used. The following descriptions include the purpose, density, minimum development requirements, utility availability, and typical uses of each future land use classification.

A. **Low Density Residential.** This classification provides for a range of lower density housing opportunities. This is the largest land classification on the Future Land Use Plan with a large portion of the land within the City boundary already being developed as such. The

majority of planned low density residential land use is located within the adjacent townships, with small areas within the City boundary available, located southeast of the Fieldstone development, west of the Hidden Creek development, and northwest of the Coldwater Crossing development.

Single family detached homes, two-family attached homes (duplex and twin homes), manufactured homes, and detached townhomes are typically allowed in this classification. Other uses that relate well to single family are also permitted such as churches, schools, and municipal buildings. Agricultural uses are also common, but are seen as a temporary use until such time the property develops. Land within this category should be served with municipal utilities, and low density residential ranges from 1 to 3.9 units per acre. Mixed use developments with higher density and a mix of housing styles, values, and architecture may be realized under planned unit development zoning.

B. **Medium Density Residential.** This classification provides for a broader range of housing options at a higher density than the low density residential land use. Medium density residential can act as a buffer between the low density residential and high density residential and even commercial or industrial classifications. Typical uses include two-family attached homes (duplex and twin homes), attached housing (townhomes and apartments) not exceeding four units per building, small lot detached townhomes, and manufactured home parks. Mixed use developments with a mix of housing styles including detached single family and two-family attached homes (duplex and twin homes), values, and architecture may be realized in this classification under planned unit development zoning. Medium density residential uses range from 4 to 9.9 units per acre. All land within this classification should be served with municipal utilities.

C. **High Density Residential.** This classification provides for a broader range of housing options at the highest density and typically acts as a buffer between all other residential uses and commercial and industrial uses. Typical uses include attached housing (townhomes and apartments) exceeding four units per building, condominiums, apartments, and manufactured home parks. Mixed use developments with a mix of housing styles and commercial buildings with different values and architecture may be realized in this classification under planned unit development zoning. High density residential uses have densities of 10 units per acre to 22 units per acre. All land within this classification should be served with municipal utilities.

D. **Commercial.** This classification includes a wide range of commerce, entertainment, retail, dining, office, and uses that provide services, goods, and employment opportunities. The classification is found primarily along the major collector and arterial roadways within the City and urban growth area. There are two types of commercial activities in this classification, highway commercial and downtown commercial.

<u>Highway Commercial:</u> The highway commercial land use is intended to provide for the establishment of motor vehicle oriented or dependent high intensity commercial and service activities. This land use is located along the highest traveled corridors, such as Trunk Highway 7, Trunk Highway 25, and County Road 30 and are dependent upon municipal utilities.

<u>Downtown Commercial:</u> Downtown commercial is typically identified as the “heart of the city” and is a mixed use, pedestrian oriented area. In Mayer, Ash Avenue (TH 25) is the main corridor through the downtown commercial area. The downtown commercial area should provide a gathering place for community civic events, provide access and

exposure to the public arts, and include unique restaurants, niche retail, office space, and retail that supports the residential neighborhood. Downtown commercial areas are very intensely developed, usually with no setback or lot coverage requirements and may contain multi-story buildings with housing opportunities on the upper floors. Residential dwelling units may be permitted in downtown commercial areas through a conditional use permit. Density of any permitted residential dwellings can vary depending whether the building is newly developed or an existing building. Downtown commercial areas can be marketed as a unique regional amenity not found in other suburban mixed use developments and should focus on pedestrian access.

E. **Commercial/Industrial.** The Commercial/Industrial classification provides for a mixture of commercial and light industrial activities. The intent of this classification is to provide land in proximity to major thoroughfares for the development of certain activities that will strengthen the local employment opportunity and tax base of the City. These areas are proposed primarily in the southeast quadrant of the City along Trunk Highway 25, the future Trunk Highway 25 bypass, and County Road 30. Such a zone will be characterized by a positive overall visual appearance that is compatible with the predominant residential aesthetic character of the City. This designation gives flexibility to the City to either allow for light industrial uses or commercial uses depending how development patterns occur. Commercial uses will be oriented towards highway commercial uses while industrial uses will be light industrial or warehousing in nature. All land within this classification should be served with municipal utilities.

F. **Industrial.** The industrial classification is proposed to be light industrial in nature. At this time, there is no specific industrial district within the zoning ordinance. It is proposed that an industrial district is developed and added to the zoning ordinance for specific areas designated industrial on the Future Lane Use Map. An industrial district would include the more typical small manufacturing businesses intended to have an office/warehousing character. Often, these uses require truck traffic, so good access to the transportation system is expected. The proposed industrial areas are located between the existing Trunk Highway 25 corridor and the future Trunk Highway 25 bypass to the east. Adjacent uses are proposed to be mostly commercial/industrial uses, so there will be limited conflicts with existing or future residential areas. All land within this classification should be served with municipal utilities.

G. **Public and Quasi-Public.** This classification includes all the public and public related uses within Mayer. It is unique in that the primary objective of this classification is the provision of services, frequently on a nonprofit basis, rather than the sale of goods or services. It is intended that uses will be compatible with adjoining development, and they normally will be located along arterial or major collector streets with the full availability of municipal utilities. Specific uses can include government facilities, churches, schools, cemeteries, libraries, post offices, and hospitals. These uses require municipal services and can be located with other types of uses including residential. This use may also overlap with the Parks, Open Space, and Restricted Development uses due to park or playground facilities being located on the same property as the building itself, as is the case with the school facilities in Mayer.

H. **Parks, Open Space, and Restricted Development.** This classification identifies City or publically owned parks and recreation lands, stormwater ponding facilities, and areas that are restricted to minimal development due to the presence of wetlands, floodplains, steep slopes, or other natural features. This use can include both public or private open space and is intended to provide for the preservation of sensitive natural areas and the

protection and enhancement of wildlife habitat and greenway corridors. Both passive and active parks and natural areas are included and depending on what facilities are located at a park, municipal utilities are not required but can be needed if restroom facilities are utilized. Often, these areas are located within the floodplain or shoreland and can include wetlands and stormwater ponds, which do not allow for any other type of use other than open space or restricted development. Trails can be incorporated through these areas as a connection from one location to another.

I. **Open Water/River.** This land use category is limited in scope since it only includes natural features like the South Fork of the Crow Wing River and few of the small DNR protected wetlands in the vicinity of the City. These water bodies are sometimes included with the acreage of the neighboring properties or they can have its own acreage as a public water body. This is one of the smallest land uses within the City and urban growth area.

At the time of this comprehensive plan update, there are two overlay districts in Mayer that further guide land use within the City to achieve city goals and protect valuable resources and assets.

Shoreland: The Legislature of Minnesota has delegated responsibility to local governments of the state to regulate the subdivision, use, and development of the shorelands of public waters and thus preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of shorelands, and provide for the wise use of waters and related land resources. Shoreland areas in the City of Mayer include the South Fork of the Crow River.

Planned Unit Development: PUDs are intended to encourage the efficient use of land, resources, and public utilities, and encourage innovation in planning and development. PUDs can be to accommodate a single family subdivision or mixed use development, including a variety of housing types at a higher density than permitted in standard zoning and commercial, retail, or office uses.

Map 2-4 highlights the development constraints within and surrounding the City of Mayer. Additional regulations and restrictions may be required for development or redevelopment to occur within development constraint areas. While development constraints do not necessarily mean development is prohibited, it does mean the intensity of development may be restricted by requiring additional setbacks, density, etc. by using overlay zoning districts, described above.

Map 2-4: Development Constraints

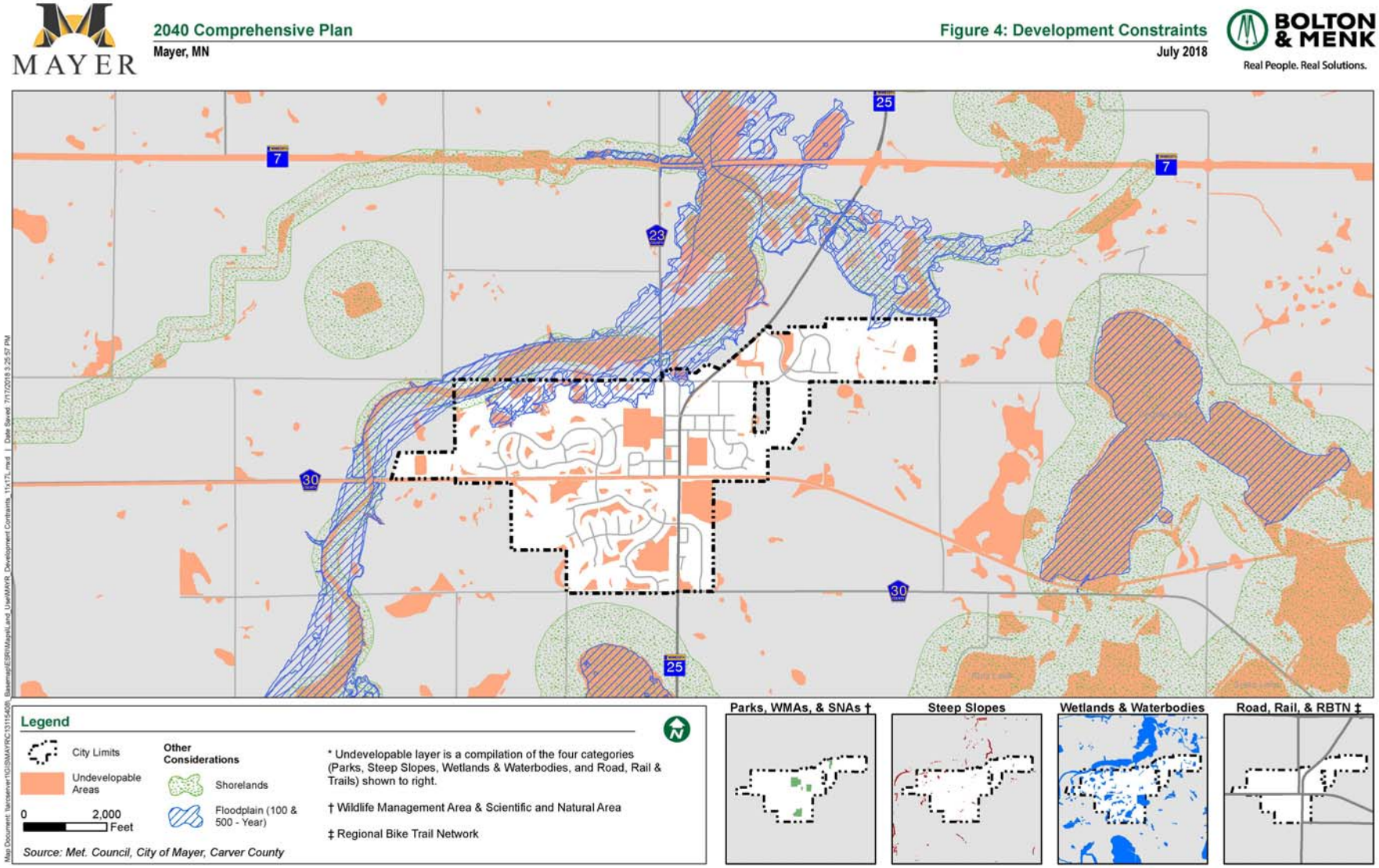


Table 2-20 summarizes the developable land available by decade in future land use classifications, based on the Future Land Use plan and development constraints/non-developable land such as wetlands, steep slopes, and road-right-of-way, as well as existing development. Development is forecasted for each decade at the densities detailed below in Tables 2-22 and 2-23, adding to the total amount of non-developable land in each land use classification. Forecasted development is based on the projected housing and employment needs (as projected in Table 2-4, Forecasted Population, Households, and Employment), minimum densities and lot sizes in each land use district, and anticipated distribution of the projected housing development and employment between each land use district. Table 2-24 below details the total, undeveloped acres within the City's 2040 urban growth boundary.

Table 2-20: Guided Land Use Acres

Future Land Use Category	2017 (current city limits)		2020		2030		2040	
	Developable Acres	Non-Developable Acres	Developable Acres	Non-Developable Acres	Developable Acres	Non-Developable Acres	Developable Acres	Non-Developable Acres
Low Density Residential	49.48	290.23	583	396	537.9	441	494.9	484
Med Density Residential	5.8	3.47	142.1	51.9	118.2	75.84	95.2	98.8
High Density Residential	4.7	1.51	124.0	16.0	114.4	25.57	105.2	34.7
Commercial	0	21.99	279.6	39.9	278.2	41.27	276.8	42.7
Commercial/ Industrial	12.1	0	60.0	2.7	59.7	3.0	59.5	3.2
Industrial	0	21.98	38.5	3.4	38.5	3.4	38.5	3.4
Public/Quasi Public	0	53.34	0	78.26	0	78.26	0.0	78.26
Park, Open Space/Restricted	0	112.45	0	116.29	0	116.29	0	116.29
Water	0	2.64	0	5.71	0	5.71	0	7
Total	72.03	507.61	1,227.17	709.96	11,46.86	790.27	1,070.13	868.29

B. DENSITY CALCULATIONS

Based on the above future land use plan and land use calculations, residential and commercial land use requirements have been calculated to help Mayer plan for and meet Metropolitan Council projections for population, households, and employment.

A. Residential. Table 2-21 below shows the existing net residential density in the City of Mayer. Using the current total residential land acreage and the total number of housing units, the overall residential density is 2.5 units per acre.

Table 2-21: Existing Net Residential Density

Existing Land Use	Number of Units	Gross Acres	Undevelopable Acres*	Net Acres	Net Density Units/Acre
Single Family Detached/Low Density	655	290.2	16	274	2.4
Two Family/ Medium Density	16	3.5	0	3	4.6
Multifamily/High Density	20	1.5	0	2	13.3
Total	691	295	19	279	2.5

*Undevelopable includes wetlands, steep slopes, parks, and road right-of-way

To meet 2040 population and household projections and maintain a modest vacancy rate, the City of Mayer will need to add approximately 545 housing units by 2040. To help estimate the acreage needed to accommodate this growth, Table 2-22 shows the planned density range for each residential land use category. According to Metropolitan Council policy, Rural Center communities like Mayer should strive to achieve an average density of 3 units per acre.

Table 2-22 also shows the approximate number of acres needed to accommodate projected housing needs in each residential zoning district. Residential development is anticipated to take place in all residential zoning districts in an orderly manner. These calculations do not include potential PUD density bonuses or any residential development that could occur as a result of conditional use permits outside of residential land use categories. Actual acreage needed to accommodate the number future households and their locations will be influenced by market forces and average household size.

Table 2-22 – Residential Density Calculations

Future Land Use Category	Unconstrained, Undeveloped Acres	Density Range (units/acre)		Projected New Units	Minimum Acres	Maximum Acres	Anticipated Density (units/acre)
		Min	Max				
Low Density	598	1	3.9	104	26.55	103.55	1
Medium Density	147	4	9.9	221	22.3	55.18	4
High Density	127	10	22	221	10.03	22.07	10
Total	873	-	-	545	58.88	180.80	3.01

The City of Mayer has designated more residential land within the 2040 urban growth boundary than needed to meet population and household projections. This was done to accommodate flexibility in development, since there are many areas in the City prime for development, and there is no timeline for identified redevelopment areas. As discussed in more detail below, the City has sewer and water capacity to easily and efficiently accommodate residential growth in many different areas of the City. It is not anticipated that all identified residential areas will develop or redevelop by 2040; rather, it is to permit

residential development or redevelopment where the market demands to meet the City's housing needs.

B. **Employment.** To meet 2040 employment projections, the City of Mayer will need to add about 49 jobs by 2040. To help estimate the acreage needed to accommodate this growth, the Metropolitan Council has provided estimates for the number of employees per square feet in various industries. Square footage ranges from 556 square feet per job at the low end (medical clinics) to 2,500 square feet per job at the high end (hotels). Using this and the City's impervious surface coverage as guidance, shown in Table 2-23, an estimate of jobs per square feet can be used to project future employment based on future land use designations and planned development.

These calculations, shown in Table 2-23, show the approximate number of acres needed to accommodate projected employment growth in each zoning district. The jobs needed in each zoning district are estimates for planning purposes, based on the amount of zoned, developable land in each land use category. Actual acreage needed to accommodate jobs will greatly depend on the types of businesses starting or expanding in Mayer. These calculations do not include remote telecommuting, home occupations, or permitted employment opportunities in other zoning districts, all of which will influence the number of acres needed to accommodate employment in Mayer.

Table 2-23 – Employment Density Calculations

Future Land Use Category	Density Range (jobs/acre)		Maximum Lot Coverage	Jobs Needed	Minimum Acres	Maximum Acres	Unconstrained, Undeveloped Acres
	Min	Max					
Commercial	8	33	75%	25	1	4.2	259
Commercial/ Industrial	6	33	NA	12	0.4	2	40.3
Industrial	6	13	85%	12	1.1	2.4	40.9
TOTALS	-	-	-	49	2.5	8.5	340.3

Based on the guided land use and available developable acres, the City of Mayer has sufficient acreage within the 2040 urban growth boundary to accommodate projected population, household, and employment growth. Since all above calculations were based on minimum densities, there may be more developable land available in the City of Mayer through 2040 and beyond, should development occur at higher densities.

C. IDENTIFYING AN URBAN GROWTH AREA

As part of this future land use and comprehensive plan, a future urban growth boundary was developed by the City of Mayer based on the location of current and future sewer and water treatment facilities, proximity to existing development, and existing and future arterial and collector streets. The future land use map addresses specific land uses within the City boundary and urban growth boundary.

State statutes give the City of Mayer legal authority for land use decisions within the urban growth area (up to two miles from the City boundary), provided the township(s) have not adopted their own zoning and subdivision ordinances. The City currently has zoning control over a large portion of the identified urban growth area within Watertown Township. This

area was part of the previously approved concept plan for Fieldstone development located south of Trunk Highway 7, west of Trunk Highway 25, and north of 62nd Street. The entire area is currently zoned Agricultural with the intent to preserve its undeveloped state until development at urban densities with public sanitary sewer and water occurs.

The City has identified that annexation agreements are the preferred method for addressing the nature and direction of future land use within the defined urban growth area. At this time, the City has annexation agreements with Camden, Waconia, and Watertown Townships for the areas identified in the 2030 growth boundary, shown in Map 2-5.

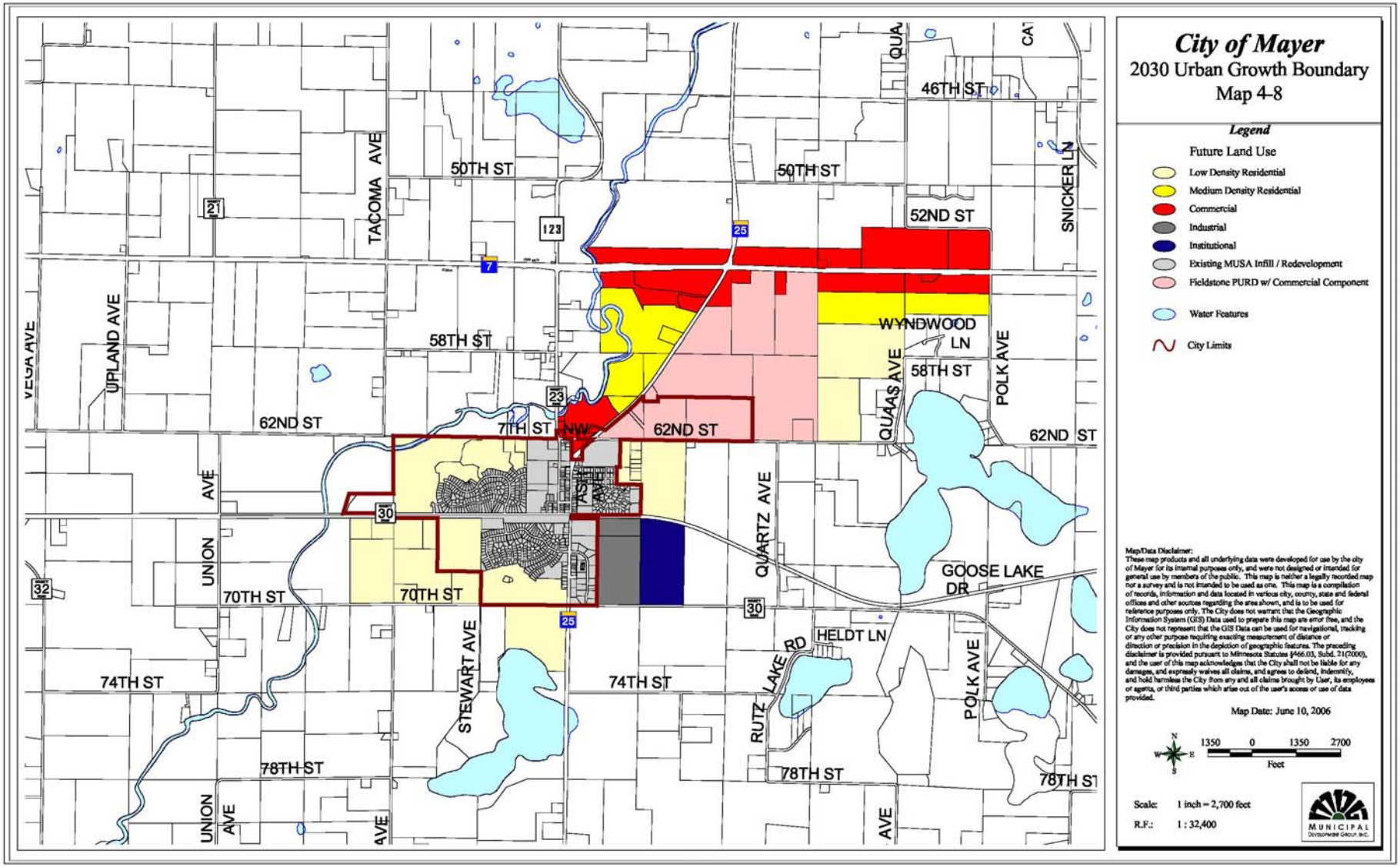
It should be noted that these existing agreement areas are slightly different than the proposed 2040 urban growth boundary shown above in Map 2-3. The areas within the 2030 growth boundary that are not included in the City of Mayer's 2040 urban growth boundary are shown for reference, since the City still has standing agreements with neighboring township for these areas. The City's reasoning behind the change in urban growth boundaries is to develop a more contiguous city boundary to connect existing and future neighborhoods rather than stretching city limits along the TH 7 and TH 25 corridors. This is also to reflect smaller growth projections, since the City is not expected to grow at the pace that was projected in the 2030 comprehensive plan.

The areas designated within the 2040 urban growth boundary are the main growth areas for the City of Mayer through 2040. These areas consist of land suitable for development within Mayer and in the following townships: Camden, Waconia, and Watertown. The urban growth boundary incorporates the following principles:

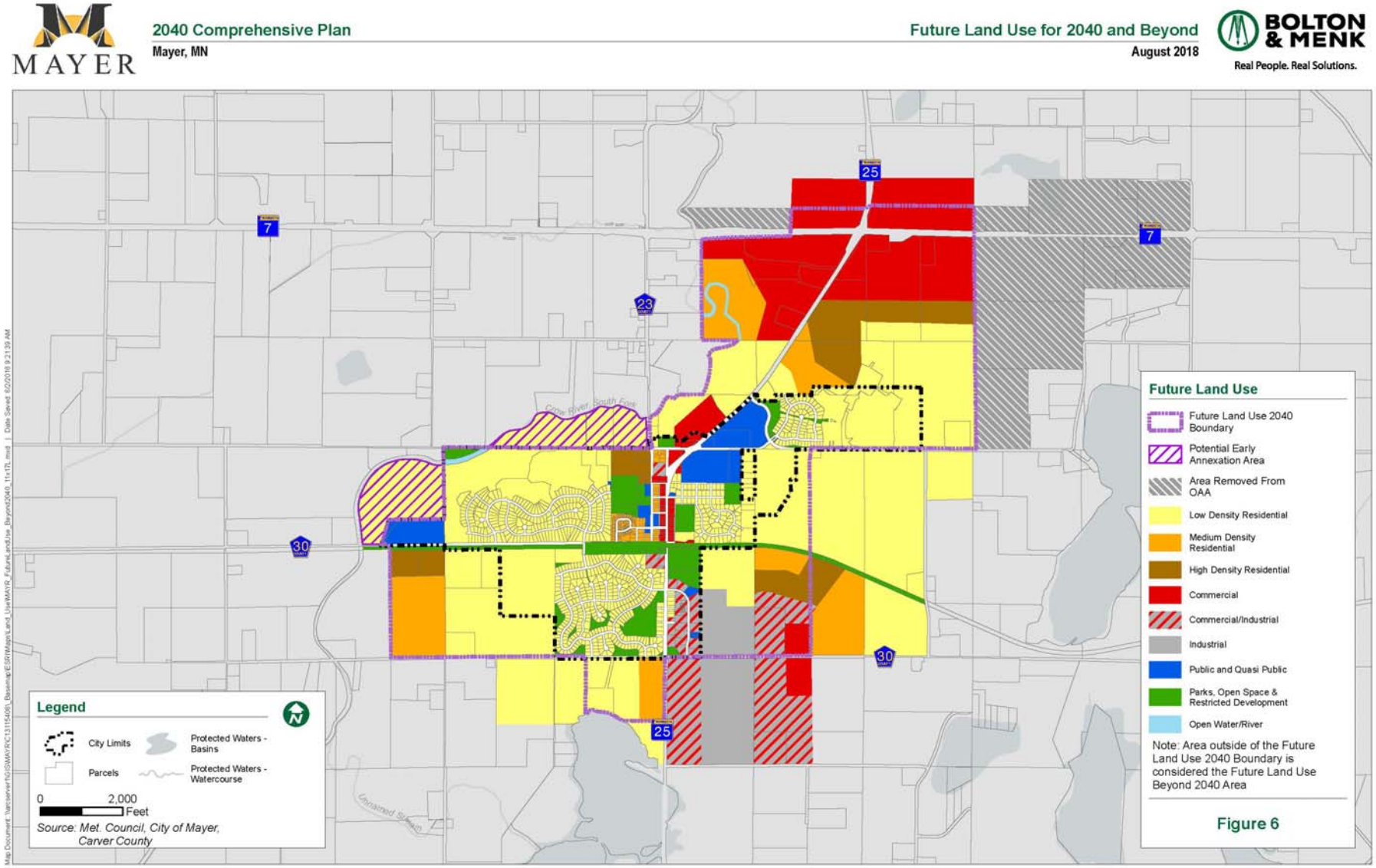
- Growth should create a compact, continuous settlement pattern.
- Adjacent land uses should be compatible in terms of density and type of land use with both existing and proposed development.
- Buffers must be created to allow for transition between conflicting land uses or development patterns.
- Development should be consistent with open space guidelines to maintain neighborhood character and property values.
- Development occurs where there is availability and capacity of infrastructure (roads, water/sewer lines etc.).
- The land is suitable for development based on natural features (topography, soil, flood plain, wetlands etc.).
- The urban growth area will accommodate projected growth in population and employment.
- The urban growth area within the boundary will have access to and from major highways (Trunk Highway 7, Trunk Highway 25, and County Road 30).

Additionally, the City of Mayer has identified areas in adjacent townships for long-term growth beyond 2040. These areas are shown in Map 2-6 as the Beyond 2040 Growth Area to provide more flexibility in planning for the future and to help ensure the compatibility of land uses. Currently, there are no annexation agreements with Camden, Hollywood, Waconia, or Watertown Townships for these identified areas. The inclusion of these long-term, future growth areas should guide annexation agreements, zoning and subdivision review and approvals, and infrastructure investments in this area. These areas are <u>not</u> included in any of the 2040 land use plans or calculations. As part of this planning process, the city will negotiate orderly annexation agreements with the affected townships.

Map 2-5: 2030 Urban Growth Boundary for the City of Mayer



Map 2-6: Urban Growth Boundary and Beyond 2040 Growth Area for the City of Mayer



The developable area in the 2040 urban growth boundary is approximately 1,229 acres. The Beyond 2040 Growth Area would add an additional 781 developable acres to the City, should annexation agreements be secured for all identified areas. This is detailed in Table 2-24.

TABLE 2-24: LAND USE IN CITY OF MAYER GROWTH BOUNDARIES

Future Land Use Classifications	Within Existing City Boundary		Within 2040 Growth Boundary		Within Future Growth Area (2040+)	
	Gross Acres	Net Unconstrained Acres*	Gross Acres	Net Unconstrained Acres*	Gross Acres	Approx. Net Unconstrained Acres*
Low Density Residential	290	274	704.7	598.4	497	445
Medium Density Residential	3.5	3.5	190.7	146.9	51	51
High Density Residential	1.5	1.5	138.5	127.3	13.7	13.7
Commercial	22	21.8	297.7	259.4	80	73
Commercial/Industrial	0	0	41.4	40.3	120	117
Industrial	22	21.2	41.9	40.9	75.8	73.7
Park and Open Space+	116.3	0	0	0	8.1	8.1
Public/Quasi-Public	53	48.8	23.4	20.7	0	0
Water	3	0	4	0	0	0
Total Acres	**511.3**	**371**	**1,444**	**1,229**	**845.6**	**781.3**

Source: Bolton & Menk, Inc. Calculations
* Constraints considered include wetlands, slopes, right-of-way, etc.
+Parks and open space locations discussed in the detail in the Parks, Trails, and Recreation Chapter

D. STAGED DEVELOPMENT AND REDEVELOPMENT

The 2040 urban growth boundary for the City of Mayer depicted in Figure 6 also serves as the 2040 staging area. The staging area is intended to guide the contiguous pattern and location of growth based on current development patterns and the availability of infrastructure. The goal of the staging area is to manage growth and guide the provision of infrastructure at a rate that is consistent with forecasted growth while responding appropriately to market conditions.

The City's sewer system has the potential capacity to develop the entirety of the 2040 urban growth boundary at maximum densities, discussed more in the Water Resources Chapter; actual capacity capabilities will depend on the types of businesses, services, and residences that develop. The sewer system is anticipated to reach capacity as the Beyond 2040 Growth Area is developed and incorporated into Mayer city limits.

Additionally, the City currently has annexation agreements for all lands within the 2040 urban growth boundary. The areas in the Beyond 2040 Growth Area are currently outside the City's jurisdiction, but the City is working with neighboring townships to secure orderly annexation agreements. The identified potential early annexation areas are currently outside the city

limits and the 2040 urban growth boundary. However, the parcels are owned by the same developer as adjacent land within city limits. Depending on development proposals, these potential areas could be incorporated into the city limits prior to 2040 and develop alongside adjacent property to be more efficient with development and infrastructure costs. There is sufficient capacity in the City's sewer and water systems to accommodate this potential development within the 2040 planning time frame. Areas in existing annexation agreements but not intended for future development by the City of Mayer are included in the staging map for reference only.

The staging plan cannot force development to occur but can be used as a tool to guide development appropriately. It should be clear that while there are legitimate reasons why cities want stage and time growth in an orderly and contiguous manner, there is nothing about adopting a staged growth plan that forces private property owners to sell their land before they wish to do so.

Table 2-25 shows the approximate number of existing housing units and developed acres in each future land use category. Also shown are the number of planned housing units or jobs and the maximum acreage needed to accommodate those units or jobs within each decade consistent with Metropolitan Council growth projections. Cumulative acreage for all developable land use categories is provided above in Table 2-20. Actual development may not occur as projected in this table.

Table 2-25: Future Land Use Units/Jobs/Acres

Within Municipal Service Area	Density Range Units/Acre		Existing/ Developed (2017)		2020		2030		2040	
Residential Land Uses	**Min**	**Max**	**Units**	**Acres**	**Units**	**Acres**	**Units**	**Acres**	**Units**	**Acres**
Low Density	1	3.9	655	274	15	15	45	45	43	43
Medium Density	4	9.9	16	3	33	8	96	24	92	23
High Density	10	22	20	2	33	3	96	10	92	9
Residential Subtotal	-	-	691	279	82	27	237	79	227	75
Average Density (units/acre)	-	-	2.5		545 new units/181 acres = 3 units/acre					
Commercial/ Industrial Land Uses	**Estimated Employment/ Acre**		**Jobs**	**Acres**	**Jobs**	**Acres**	**Jobs**	**Acres**	**Jobs**	**Acres**
Commercial	8	33	76	22	8	1.4	8	1.4	9	1.4
Industrial	6	13	75	22	12	2.4	0	0	0	0
Commercial/ Industrial	6	33	0	0	9	1.5	2	0.3	1	0.2
Commercial/ Industrial Subtotal	-	-	151	44	29	5.2	10	1.7	10	1.6
Average Density	-	-	3.4		5.58		5.8		6.25	
Public/Quasi Public Land Uses	-		**Acres**			**Acres**		**Acres**		**Acres**
Public & Quasi Public	-		53.34		-	24.9	-	0	-	0
Parks, Open Space, & Restricted Development	-		112.45		-	3.13	-	0	-	0
Total Acres per Decade	-		505			60.33		80.31		76.73

Redevelopment/Infill Potential

The City should emphasize the use of currently available sites within the service area prior to the development of alternative sites. The development of sites within the serviced area will ensure prudent land management, assist in the prevention of 'leap-frog' type development and ensure maximum cost effectiveness for community residents. Additionally, efforts shall be made to ensure proper placement and phasing of urban expansion and the maintenance of existing and future land use compatibility.

Some potential redevelopment areas are located in or near the existing downtown area. By focusing on the redevelopment areas/parcels in the more established areas of the City, the City should promote the following to achieve this:

1. Encourage the removal of existing buildings that have exceeded their useful life, or;

2. Encourage or participate in the removal of those which are deemed to have a "blighting effect" upon adjacent properties and/or present nuisance conditions that pose a threat to health and safety of citizens, and

3. Promote appropriate re-uses for under-utilized properties.

E. ANNEXATION

It is noted that the Mayer Comprehensive Plan is not an annexation agreement, nor is it a substitute for such an agreement.

State Statutes 462.358, Subd. 1 states,

> *"A municipality may by resolution extend the application of its subdivision regulations to unincorporated territory located within two miles of its limits in any direction but not in a town which has adopted subdivision regulations; provided that where two or more noncontiguous municipalities have boundaries less than four miles apart, each is authorized to control the subdivision of land equal distance from its boundaries within this area."*

This would require subdivisions within two miles of the City to require compliance with the City's subdivision ordinance, including design standards for streets, stormwater drainage, etc. This may cause some rural developments to be financially not feasible or minimize development within the two-mile radius. The City of Mayer would like to comment on projects proposed within the township in order to protect roadway corridors and ensure the proposed use is consistent with the proposed future land use map. The City does not wish to impose all city subdivision ordinance requirements on developments in the townships.

The City of Mayer currently has orderly annexation agreements in place with Camden, Waconia, and Watertown Townships. The areas included in these agreements are mapped in Map 2-5, the City's 2030 Urban Growth Boundary.

As discussed above, the City of Mayer has identified additional growth areas that can serve the City's needs beyond 2040, shown in Map 2-6. Areas outside the City limits and the 2030 Urban Growth Boundary are currently under township jurisdiction, and there are no orderly annexation agreements in place for areas in the Beyond 2040 Growth Area. The City of Mayer will work with Camden, Hollywood, Waconia and Watertown Townships to procure orderly annexation agreements for these identified areas. As these areas are within two miles of the existing city limits, the City of Mayer would like to comment on projects proposed within the township in order to protect roadway corridors and ensure the proposed use is consistent with the proposed future land use map.

<u>Municipal Boundary Expansion Policies</u>
City of Mayer Expansion and Annexation Policies:

1. Land immediately adjacent to the City limits shall be annexed into the corporate limits prior to development. Annex land as the land is about to become urban or suburban in nature or if surrounded by city limits.

2. The City will allow residential, commercial, and industrial growth consistent with the land use designations and transportation plan identified in the future land use and transportation plans.

3. Residential growth, consistent with practices that preserve natural resources, will be allowed.

4. Work in cooperation with Camden, Hollywood, Waconia, and Watertown Townships to develop joint annexation agreements.

At the time of this comprehensive plan update, Carver County is also their updating their comprehensive plan, which includes townships. According to the County's draft 2040 policy, the County will support annexation of land into a municipality under the following conditions:

- The annexation is consistent with the municipal and township land use plans and annexation agreements.
- The area to be annexed is a logical expansion of the municipality.
- Urbanization is to occur within a timely manner.
- Municipal services (central sewer and water at a minimum), provided by the annexing municipality, will be available at the time of development.
- Planning for stormwater runoff and protection of natural resources will be completed prior to development.
- The annexation of additional land is necessary to accommodate development, and the supply of developable land within the city is extremely limited.

F. FUTURE LAND USE POLICIES

Overall Land Use Concepts

Participants in the comprehensive planning process have expressed a desire to retain the "small town", quiet, and safe atmosphere while expanding the current mix of commercial offerings, addressing limited parks and recreation amenities and addressing future transportation needs. The following guiding principals have also been considered:

- ***Retain the spirit of a small town*** – The goal of retaining the small town atmosphere is included through a logical pattern of future land use along with a transportation system to support the various land uses, parks, and recreation to offer quality of life amenities.
- ***A place for people to gather*** – Downtown Mayer historically served as the center or focus of the community. Participants in the comprehensive planning process have expressed a desire to enact stronger aesthetic or building requirements and preserve the downtown for pedestrian-oriented businesses versus vehicular-oriented businesses. Identifying locations for future highway commercial nodes and adoption of policies relating to the downtown will assist in accomplishing this goal.

- ***A well-balanced tax base*** – In order to assist with the fiscal health of the City and discourage the future development of a bedroom community for other suburbs with employment offerings, a range of land uses including commercial and industrial have been planned for.

- ***A proactive position on future growth*** – The future land use plan includes projections and growth boundaries intended to serve the City to the year 2040. As market demands change, the plan may need periodic review and updates. The future land use plan has included recommendations to complete comprehensive water, sanitary sewer, and stormwater management plans and identify future transportation or collector street locations to encourage proactive planning of land uses with infrastructure.

Residential Land Uses

The City currently has three residential zoning districts to accommodate a range of housing types and densities. As previously noted, the City is projected to add about 545 housing units by 2040. Policies and objectives for existing and future residential areas have been developed to protect the integrity of residential neighborhoods and the character of Mayer.

EXISTING RESIDENTIAL NEIGHBORHOOD OBJECTIVES

1. Encourage the continued maintenance and quality of existing neighborhoods.
   - Implementation: Planning Commission and City Council.

2. Minimize the number of non-conforming residential lots, setbacks, and uses.
   - Implementation: Planning Commission and City Council.

3. Minimize the development of incompatible land uses adjacent to and traffic through residential neighborhoods.
   - Implementation: Planning Commission and City Council.

EXISTING RESIDENTIAL NEIGHBORHOOD POLICIES

1. Monitor the quality of housing stock and develop and enforce codes and ordinances relating to outdoor storage, etc.

2. Research the desirability of applying for Small Cities Development funds or similar grants for housing rehabilitation as a means of encouraging on-going maintenance of older housing stock.

3. Discourage through traffic on local residential streets while preserving emergency access by following a transportation plan that includes a recommended collector street system.

4. Prohibit non-residential land use intrusions into residential neighborhoods and require appropriate buffering and/or screening between non-compatible land uses.

5. Require infill residential units to be compatible in use and scale with the surrounding neighborhood.

6. Continue to upgrade infrastructure such as streets (including curb and gutter), water, and sewer in existing neighborhoods as needed.

7. Restrict home occupations to businesses customarily found in homes that employ only household residents and do not sell products or services to customers at the premises.

NEW RESIDENTIAL NEIGHBORHOOD OBJECTIVES

1. Plan residential areas to encourage neighborhood unity and cohesiveness while protecting the integrity of the natural environment and providing access to other community amenities.
   - Implementation: Park and Recreation Commission, Planning Commission, and City Council.

2. Provide a variety of life-cycle housing for the diverse needs of the community.
   - Implementation: Planning Commission, City Council, and Carver County CDA.

NEW RESIDENTIAL NEIGHBORHOOD POLICIES

1. Incorporate natural features into new residential neighborhoods while protecting the features through ordinances.

2. Limit access points directly onto arterial streets or collector streets by requiring driveway accesses and lots to front local streets within the subdivision.

3. Require the development of parks, trails and/or sidewalks along collector streets to service neighborhoods and provide access to other community amenities such as places of commerce, educational facilities, and larger community parks.

4. Plan residential subdivisions while following the comprehensive transportation plan, which includes a recommended collector street system, to encourage connection of neighborhoods to commercial areas and arterial streets.

5. Consider the changing housing needs of the growing community and review residential housing land areas to accommodate the changing needs and demands.

6. Avoid locating all multiple-family housing in one concentrated area.

Commercial Land Uses

Currently, 22 acres (2 percent) of the City's land inventory is commercial The City's Zoning Ordinance includes two commercial zoning districts, the C-1 Highway Commercial District and the C-2 Downtown Business District. Downtown commercial development will be focused on redevelopment rather than new development, so additional acreage is not anticipated in this district. Therefore, most new commercial land in the City is anticipated to be for highway commercial expansion. The future land use map illustrates nearly 300 additional commercial acres, with most of that being planned near the MN Highway 7 and MN Highway 25 intersection.

Mayer's downtown commercial district has historically served as the heart of the community. Public input relating to the desire to protect and maintain this central village atmosphere occurred during the planning process. Redevelopment of the downtown and planning new commercial areas that provide links and continuity to the downtown were discussed. Due to limited sites available in the downtown for larger uses and those requiring off-street parking,

highway commercial areas along MN Highway 25 have been discussed in recent years, including the annexation of neighboring townships, which have more direct access to major roads. The expansion of commercial areas outside of the downtown is expected to continue as the City grows. The following objectives and policies have been prepared for each unique commercial area.

DOWNTOWN COMMERCIAL OBJECTIVES

1. Continue to promote and develop downtown Mayer as the center of the community, a focal point for government, community social activities, retail, and commerce.
   - Implementation: City of Mayer Economic Development Authority, Business Community, Planning Commission, and City Council.

2. Promote the expansion of the downtown on sites identified for potential redevelopment.
   - Implementation: City of Mayer Economic Development Authority, Business Community, Planning Commission, and City Council.

3. Develop a downtown redevelopment plan and coordinate potential funding sources to encourage participation such as a Small Cities Development Grant, low interest loan program, and tax incentives.
   - Implementation: City of Mayer Economic Development Authority, Business Community, Planning Commission, and City Council.

4. Provide and enhance convenient and aesthetically pleasing parking areas for customers and employees.
   - Implementation: Business Community, Planning Commission, and City Council.

5. Promote land uses that will reinforce business synergy.
   - Implementation: Planning Commission and City Council.

DOWNTOWN COMMERCIAL POLICIES

1. Continue to encourage private sector rehabilitation and renovation of existing buildings in the downtown.

2. Encourage the use of upper levels of commercial buildings for office and/or residential uses.

3. Continue, through the City of Mayer Economic Development Authority and business organizations, to promote unified commercial and service events to attract customers to the downtown.

4. Monitor traffic and provide safe and convenient access to businesses for vehicular and pedestrian traffic.

5. Continue, through the Zoning Ordinance, to require design standards for new and remodeled buildings to ensure the building mass, scale, and façades are compatible with existing buildings.

6. Continue to offer and develop on-street parking for business patrons as well as municipal parking lots to accommodate overflow and employee parking.

7. Develop a landscape plan to make the parking lot in the general downtown district more aesthetically pleasing while allowing it to remain user friendly and provide an efficient flow of traffic.

HIGHWAY COMMERCIAL OBJECTIVES

1. Provide commercial areas for businesses that are more vehicle-oriented and require larger sites.
   - Implementation: Planning Commission and City Council.

2. Minimize traffic conflicts within commercial areas.
   - Implementation: City of Mayer Public Works, Carver County Public Works, MN/DOT, Planning Commission, and City Council.

3. Provide pedestrian linkages between highway commercial areas, downtown, and residential areas.
   - Implementation: City of Mayer Public Works, Carver County Public Works, MN/DOT, Planning Commission, and City Council.

HIGHWAY COMMERCIAL POLICIES

1. Minimize direct access from commercial areas onto MN Highway 25.

2. Link the existing downtown and highway commercial district with unique design features including ornamental streetlights, pavers, signage, and similar design patterns.

3. Plan future commercial areas with frontage or backage roads that allow access to future areas.

4. Encourage pedestrian connections between commercial areas to allow customers to walk between business areas.

Industrial Land Uses

At this time, there is no specific industrial district within the zoning ordinance. However, 22 acres (2 percent) of the City's land inventory is commercial/industrial in nature. Future land use categories will be specified for the Commercial/Industrial and the Industrial land uses. The actual amount of industrial land required will depend upon the size of the industrial user, whether or not land is available at a competitive cost when compared to neighboring communities, and other economic factors.

INDUSTRIAL DEVELOPMENT OBJECTIVES

1. Continue, through the City, Mayer EDA, and Carver County CDA, to take a proactive approach to business retention and expansion.
   - Implementation: Mayer EDA, Carver County CDA, and City Council.

2. Promote light industrial development that is compatible with the environment and adjacent land uses that does not negatively impact the City's infrastructure.

- Implementation: Mayer EDA, Carver County CDA, and City Council

3. Promote industrial development that pays employees a livable wage.
   - Implementation: Mayer EDA, Carver County CDA, and City Council.

INDUSTRIAL DEVELOPMENT POLICIES

1. Consider economic incentives for attract industries that will contribute substantially to the City's tax and employment bases without substantial negative impacts on the city's infrastructure.

2. Design new industrial park areas to minimize impact on environmental features such as wetlands and creeks.

3. Design new industrial park areas to discourage industrial traffic from traversing through residential neighborhoods.

4. Minimize the impact of industrial properties on adjacent land uses by continuing to require additional setbacks and screening and/or fencing.

5. Consider requiring landscaping within industrial parks as a part of the Zoning Ordinance to improve the aesthetic appeal of the district.

Public Land Uses

The public and quasi-public land use constitutes about 6% of the total existing land use.

PUBLIC LAND USE OBJECTIVES

1. Provide needed public facilities to support current and future growth.
   - Implementation: City of Mayer Public Works and City Council.

PUBLIC LAND USE POLICIES

1. Begin planning for future public facilities and new infrastructure upgrades, such as wells or water towers as the City continues to grow.

2. Work in cooperation with other public agencies s to coordinate rather than duplicate public space such as meeting rooms, etc.

3. Provide sufficient land for future public facilities, including utility sites and buildings.

4. Retain City governmental administrative offices in the downtown business district to support the downtown as a focal point for services.

Parks and Open Space

Park and Open Space land uses include local parks and DNR owned property. The Subdivision Ordinance, at the time of the Comprehensive Plan update, requires 0.016 acres of the gross area per resident in all new subdivisions to be dedicated for public recreation space, school sites, or other public use. As an alternative, the subdivider may pay a sum up to $400 per expected resident in the proposed subdivision. The money is then deposited in a fund dedicated to the City's Park and Recreation Program. Based on current park dedication policy, it is estimated that between roughly 8.6 to 15.4 additional acres of park

and open space will be needed to support additional residential acreage and projected growth of roughly 540 residents by 2040.

Since the City cannot predict whether developers will dedicate land or pay funds to the City, future park land is not shown on the future land use map. It is anticipated that new park land will occur in residentially zoned areas of the city. There is sufficient land in each residential land use category to accommodate park and open space. Locations of parks will be determined based on need and availability of land. It is recommended the City plan for the higher amount of potentially needed park space as parks have been identified as an area to expand and develop to offer residents a better park system.

PARK AND RECREATION OBJECTIVES

1. Expand the quality of life offered by parks and recreational amenities in the City of Mayer as it continues to grow.
   - Implementation: Park and Recreation Commission, MnDNR, Planning Commission, and City Council.

2. Improve the quality of Mayer's existing parks.
   - Implementation: Park and Recreation Commission, Planning Commission, and City Council.

3. Take better advantage of the South Fork of the Crow River with the addition of parks on the river.
   - Implementation: Park and Recreation Commission, MnDNR, Planning Commission, and City Council.

4. Provide park and recreation opportunities for all ages of the population.
   - Implementation: Park and Recreation Commission, Planning Commission, and City Council.

PARK AND RECREATION POLICIES

1. Continue to require park land dedication and/or fees to add parks and recreational amenities in new growth areas.

2. Plan for trail and/or sidewalk connections from neighborhoods to parks and linkages between parks, including better vehicular access to the parks.

3. Develop a capital improvement plan and work with local organizations to upgrade existing parks.

4. Offer park activities that take advantage of the South Fork of the Crow River, such as a fishing pier and picnic areas.

5. Offer park and recreational amenities for all age groups, such as playground equipment for children, athletic fields for adults, and passive recreation for seniors.

Urban Reserve

The Beyond 2040 Growth Area is dedicated to the long term growth of Mayer post 2040. At this time, this area contains approximately 846 acres and is currently rural or agricultural in nature. As part of this plan, it is suggested that this land be left as is for the time being with no

specific objectives and policies to be included, since it will be well into the future before the property is projected to be served by City services.

IV. NATURAL RESOURCES

Natural resources and physical features of the City of Mayer are simultaneously a bountiful resource and a factor limiting development or redevelopment. With the increasing affluence and people's growing desire to reside and work in cities in the metropolitan area with high scenic amenities, it is imperative that Mayer plan for the protection of its natural resources. The Natural Resources section provides background information on the City of Mayer's physical profile that is intended to assist in guiding growth and preserving natural resources.

Within the Forecasts and Community Designation section of this Plan, it is noted that Mayer is projected to increase 68.7% in population, from 1,749 in 2010 to 2,950 by 2040. Planning efforts should address the projected growth while considering water resources, soils, geology, topography, drainage, wildlife and rare species, natural scenery, forests, prairies, and native plant communities.

This section recognizes the importance of sustainable development, which can be defined as

> *"development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."* (Minnesota Legislature, 1996.)

The perspective of sustainability calls upon us to invest our time and energy in efforts which simultaneously strengthen the environmental, economic and social dimensions of any issue.

The Natural Resources section of this chapter includes:

1. The City's physical profile including information on the physical profile, surface water resources, air quality, and development constraints.

2. Natural Resource objectives and recommendations.

A. PHYSICAL PROFILE

A. SIZE. According to the 2010 Census, the City of Mayer is comprised of 1.42 square miles of land area (908.8 acres) with 1,258 people per square mile. This is an increase in the City's physical size of 0.98 square miles (627.2 acres) in 2000. Of that total, approximately 3.24 acres featured surface water, which is the South Fork of the Crow River. There are no other significant water areas currently within the City.

As illustrated in the following Table 2-26, the annexation of several parcels has changed the footprint of the corporate boundaries since 1995 by the addition of almost 700 acres from three of the four adjacent townships. No annexation has occurred in Hollywood Township to date, although a large potion of Mayer corporate limits abuts Hollywood Township's border.

TABLE 2-26: MAYER ANNEXATIONS SINCE 1995

Year	Acres	Township
1995	217.00	Camden
1997	67.00	Camden
1997	38.50	Waconia
1997	9.80	Waconia
1998	14.50	Camden
2000	22.00	Camden
2001	11.88	Camden
2003	55.00	Camden
2003	10.00	Waconia
2003	1.70	Watertown
2003	60.00	Watertown
2004	0.60	Waconia
2004	2.66	Watertown
2005	3.00	Watertown
2005	9.00	Waconia
2006	5.00	Waconia
2006	91.23	Watertown
2006	2.00	Camden
2007	31.91	Waconia
2007	10.73	Waconia
2010	5.00	Waconia
2011	30.00	Camden
2011	1.00	Waconia
TOTAL	**699.51**	

Source: Minnesota Office of Administrative Hearings

B. ECOLOGICAL PROVINCE AND SUBSECTION. The Minnesota Department of Natural Resources and the U.S. Forest Service have developed an Ecological Classification System (ECS) for ecological mapping and landscape classification in Minnesota. This system follows the National Hierarchical Framework of Ecological Units. Ecological land classifications are used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. The system uses associations of biotic and environmental factors, including climate, geology, topography, soils, hydrology, and vegetation. The United States contains eight levels of ECS units. Six of these levels occur in Minnesota with the largest being Provinces, followed by Sections, Subsections, Land Type Associations, Land Types, and Land Type Phases.

Provinces are units of land defined using major climate zones, native vegetation, and biomes such as prairies, deciduous forests, or boreal forests. Minnesota contains four Provinces: Eastern Broadleaf Forest, Prairie Parkland, Laurentian Mixed Forest, and Tallgrass Aspen Parklands. Mayer is located in the Eastern Broadleaf Forest Province. This province is located in the states of Minnesota, Iowa, Wisconsin, Michigan, Ohio, New York, Illinois, Indiana, Kentucky, Tennessee, Missouri, and Arkansas. In Minnesota, this

Province covers nearly 12 million acres and serves as a transition zone between the semiarid portions of the state that was typically prairie to the west and the conifer-deciduous forests to the northeast. Major landforms include lake plains, outwash plains, end moraines, ground moraines, and drumlin fields.

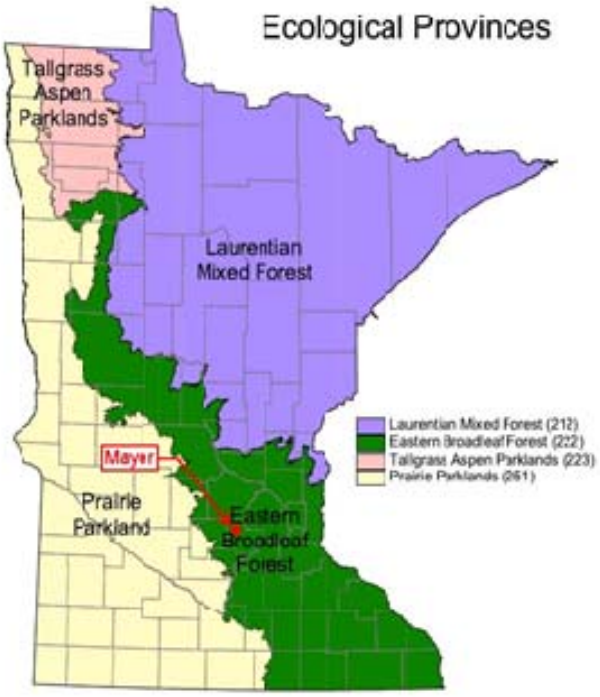
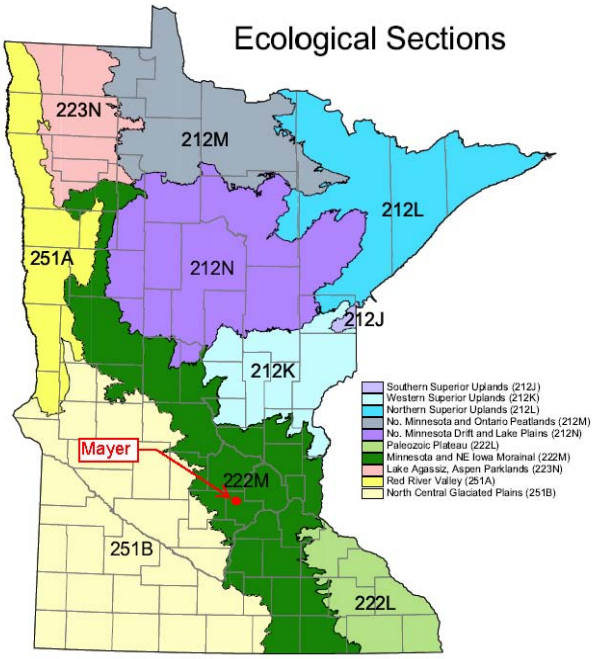


Figure 2-1 Minnesota Ecological Provinces



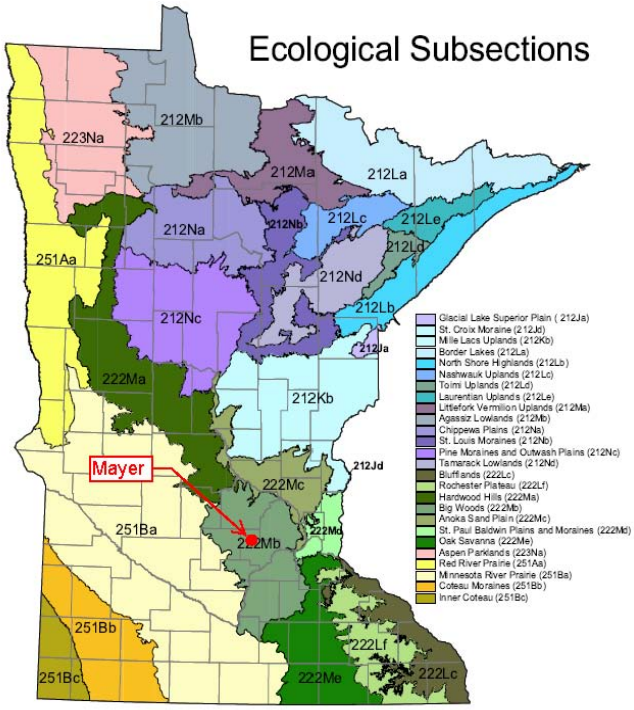
Minnesota and NE Iowa Morainal Section

Source: MNDNR

According to the DNR, Provinces are broken into Sections that are further defined by the origin of glacial deposits, regional elevation, distribution of plants, and regional climate. Minnesota has ten Sections, and Mayer is located in the Minnesota and NE Iowa Morainal Section. The Minnesota and NE Iowa Morainal Section is a long band of deciduous forest, woodland, and prairie that stretches nearly 350 miles from Polk County in northwestern Minnesota to the Iowa border. Woodland and forest dominated sites in the section where fire was uncommon or rare. Fine-textured drift deposited in hummocky moraines supported mesic forests dominated by sugar maple, basswood, American elm, and northern red oak. Even small reductions in fire frequency afforded by streams, lakes, or topographic breaks permitted the formation of forest on finer-textured soils. Once formed, these forests were highly resistant to burning.

Sections are further divided into Subsections, and Minnesota has 26 Subsections. Subsections are units within Sections defined using glacial deposition processes, surface bedrock formations, local climate, topographic relief, and the distribution of plants, especially trees. Mayer is located in the Big Woods Subsection. Topography is characteristically gently to moderately rolling across this subsection. Soils were formed in thick deposits of gray limy glacial till left by the retreat of the Des Moines lobe. Red oak, sugar maple, basswood, and American elm were most common in this dominantly

forested region. Presently, much of the region is farmed.



Big Woods Subsection

Source: MNDNR

The primary landform in the Big Woods Subsection is a loamy mantled end moraine associated with the Des Moines lobe of the Late Wisconsin glaciation. Parts of the moraine have ice disintegration features. The dominant landscape feature is circular, level topped hills bounded by smooth side slopes. Broad level areas between the hills are interspersed with closed depressions containing lakes and peat bogs. Drainage is often controlled by the lake levels (Dept. of Soil Science, Univ. of Minn., 1973).

Depth to bedrock in the Big Woods Subsection varies from 100 to 400 feet (Olsen and Mossler 1982). Underlying bedrock includes Ordovician and Cambrian sandstone, shale, and dolomite to the south and Cretaceous shale, sandstone, and clay to the north (Morey 1976).

The soils in the Big Woods Subsection are dominantly loamy, with textures ranging from loam to clay loam (Dept. of Soil Science, Univ. of Minn., 1973). Parent material is calcareous glacial till of Des Moines Lobe (Late Wisconsin glaciation) origin. They are classified primarily as Alfisols (soils developed under forests). There are some Mollisols (soils developed under grassland) on the west side of the subsection.

Annual precipitation in the Big Woods Subsection ranges from 29 inches in the west to 31 inches in the east, with growing season precipitation ranging from 12 to 13 inches. Growing season length is approximately 145 to 150 days.

The Minnesota River runs through the middle of the Big Woods Subsection. The Mississippi River forms part of the eastern boundary. The other major river is the Crow River and its associated forks. The subsection has an undeveloped drainage network, due to landform characteristics. Lakes are common. There are over 100 lakes greater than 160 acres in size. Many of these are groundwater controlled with no inlets or outlets.

In the Big Woods Subsection, pre-settlement vegetation of oak woodland and maple-basswood forest were the most common vegetation types on the irregular ridges of this subsection. Based on his study of Public Land Survey notes, Grimm (1984) found the order of dominance in the sugar maple-basswood forest was elm (27%), basswood (14%), sugar maple (12%), bur oak (10%), ironwood, northern red oak, and aspen (7%). He also found that along the western margin of the subsection, aspen was most

common (53%), followed by bur oak (22%); on other margins, oak woodlands were present, dominated by a mix of aspen, red oak, bur oak, and to the east, white oak.

Present vegetation and land use consist of more than 75% of the subsection as cropland, with an additional 5 to 10% pasture. The remaining 10 to 15% of the subsection remains as either upland forest or wetland (Dept. of Soil Science, Univ. of Minnesota 1973, 1980b, 1981a). Although fire occurred within the subsection, it was much less common than on prairies to the west. This is primarily due to irregular topography and presence of lakes.

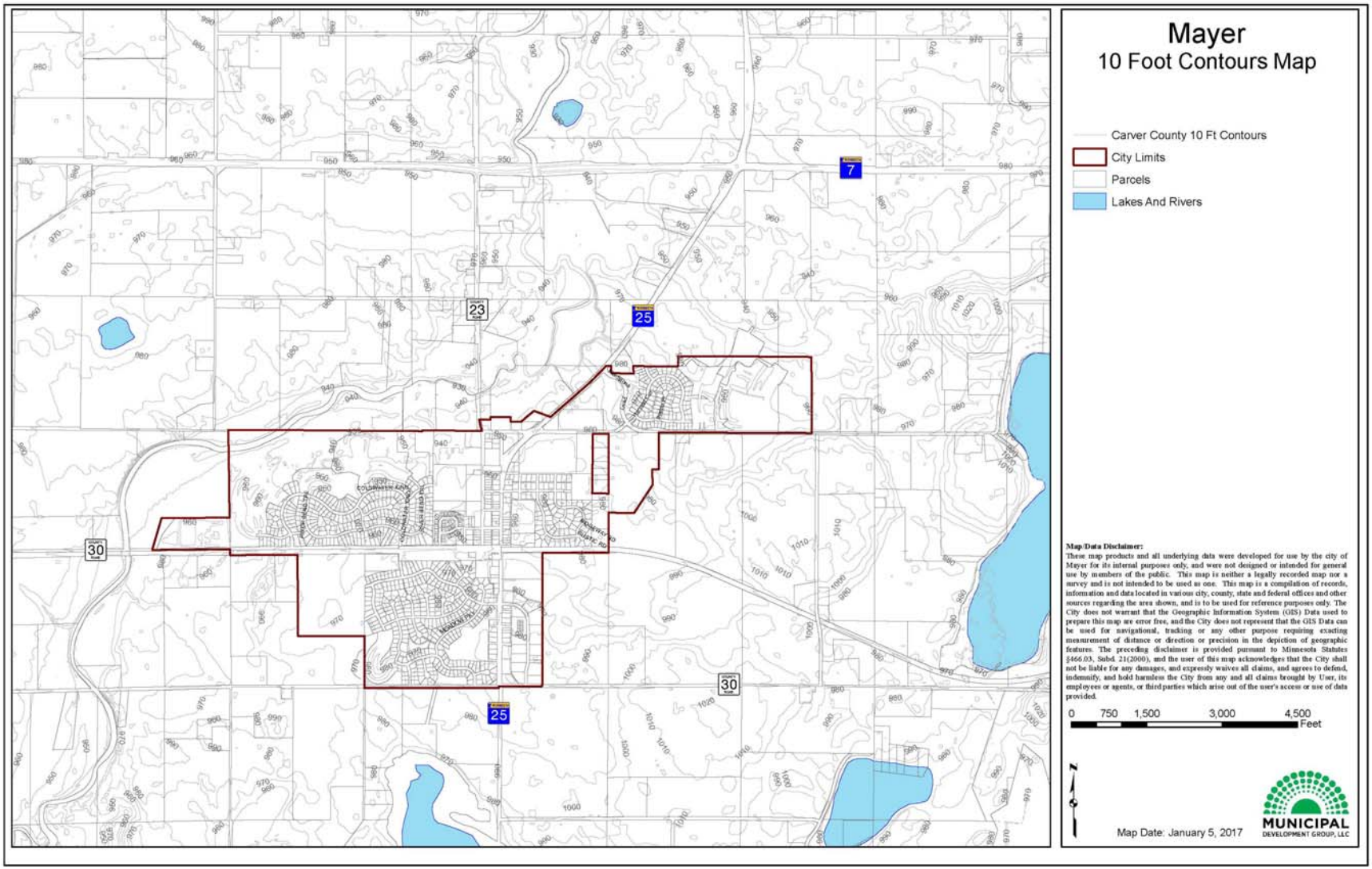
C. TOPOGRAPHY. Map 2-7 illustrates topography (10 foot contours) within the City of Mayer and portions of adjacent townships. The area within the immediate corporate limits and township sections immediately adjacent to the corporate limits feature nearly level terrain with very mild undulating fluctuations in elevation from 950 to 1000 feet above sea level. As illustrated on Map 2-7 more significant fluctuations in grade occur in the north and east of the corporate limits in Watertown and Waconia Townships, especially adjacent to surface waters and wetlands. Review of topography via examination of one or two foot contours at the time of preliminary platting will assist the City in determining whether or not significant steep slopes are present within areas contemplated for urban development.

D. VEGETATION AND RARE SPECIES. Within the corporate limits of the City of Mayer, there are distinctly wooded areas. In addition, several wooded areas exist within the townships in close proximity to the City, particularly adjacent to the South Fork Crow River, surface waters, and to wetland communities.

As mentioned earlier in this section, the City of Mayer is located within the Big Woods Ecological Subsection. On dry sites, common trees included oak, aspen, and birch; moist sites were dominated by sugar maple, basswood, elm, and ash. Pine trees were commonly interspersed with the deciduous trees. Where the forest canopy was broken/interrupted, a dense layer of tall shrubs such as prickly ash, dogwood, and the like were common. Beneath dense canopies, the shrub layer was sparse or absent. Only a small percentage of the Big Woods remains in Carver County. Preservation of existing woodlands enhances the quality of life and preserves remaining biological diversity.

According to the Minnesota County Biological Survey, there are no significant natural communities or rare species and animal aggregations within Mayer or the immediate vicinity of the City. The closest feature would be a Maple Basswood forest located just east of State Highway 25 about a mile and a half north of State Trunk Highway 7 in Watertown Township.

Map 2-7: Topography



E. SOILS. Soils are the basic resource upon which all terrestrial life depends. Many of the environmental decisions about using a resource are based on the kind of soil and the ability of the soil to support that resource use. The characteristics of the soils in the Mayer area are examined in order to make proper decisions on the use of the land and to protect the natural environment. Existing soils in the City have been principally responsible for the area's overall development pattern and may impose limitations or increased sensitivity to future urban development/redevelopment.

The Carver County Water Management Organization Comprehensive Water Resources Management Plan 2010-2020 includes the following description of soil groups found in Carver County:

Soil Group A: Soils in this group have low runoff potential when thoroughly wet. Group A soils typically have less than 10 percent clay and more than 90 percent sand and gravel and have gravel or sand textures. Water is transmitted feely through the soil.

Soil Group B: Soils in this group have moderate infiltration and transmission rate when thoroughly wetted. Group B soils consist chiefly of moderately well- to well-drained soils with moderately fine to moderately coarse textures. Water movement through these soils is moderately rapid.

Soil Group C: Soils in this group have moderately high runoff potential when thoroughly wet. Group C soils typically have loam, silt loam, sandy clay loam, clay loam, and silty clay loam textures. Water transmission through the soil is somewhat restricted.

Soil Group D: Soils in this group have high runoff potential when thoroughly wet. Group D soils typically have clayey textures. In some areas, they also have high shrink-swell potential. Soils with a depth to a water impermeable layer less than 20 inches and all soils with a water table within 24 inches of the surface are placed in this group. Water movement through the soil is restricted or very restricted.

In Mayer and the surrounding townships, the common soil groups are A/D, B and B/D. Soil Groups A/D and B/D are defined as follows: Soils are assigned to dual groups if the depth to a permanent water table is the sole criteria for assigning a soil to hydrologic group D. If these soils can be adequately drained, then they are assigned to dual hydrological soil groups (A/D, B/D, and C/D) based on their saturated hydraulic conductivity and the water table depth when drained. The first letter applies to the drained condition and the second to the un-drained condition.

The Water Resources Chapter and the Surface Water Management Plan, attached to this Comprehensive Plan as an appendix, further detail soil type locations and properties within the City of Mayer and future growth areas. The provided soil map in this chapter/appendix is reflective of U.S.G.S. datum.

B. SURFACE WATER RESOURCES

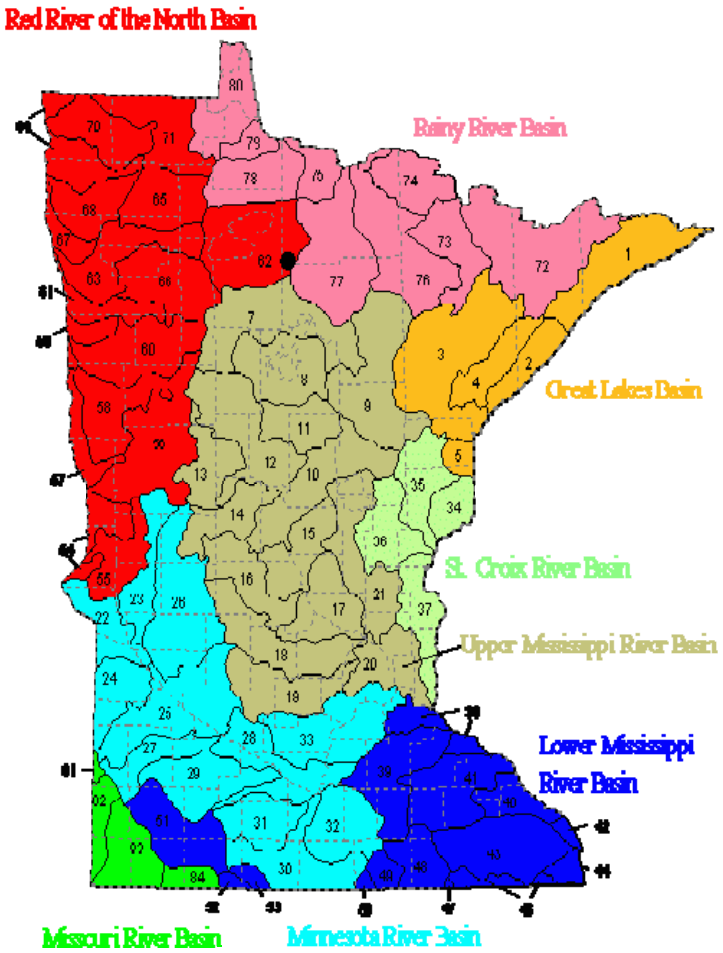
The Water Resources Chapter and the Surface Water Management Plan, attached to this Comprehensive Plan as an appendix, further detail surface water resources within the City of Mayer and future growth areas. This section provides a summary of important water resources within and adjacent to the City of Mayer.

A. WATERSHED. The term 'watershed' refers to the entire physical area or basin drained by a distinct stream or riverine system. Gravity and topography are the two major factors that define a watershed. Gravity is the unrelenting force of nature that pulls all water downhill. Topography describes the form of the land: the hills, valleys, and other features that influence where and how water will flow. After saturating the ground, rain or meltwater trickles downhill in tiny rivulets that coalesce into larger ones that eventually combine into streams. These then merge into rivers that finally flow into the ocean. (Perhaps stopping temporarily in water bodies such as lakes.) Gravity and topography help define these channels of water from the tiny to the huge and cause them to join together into stream networks. Watersheds help authorities to evaluate the quality and quantity of local water resources.

In 1979, the DNR developed a standardized set of watersheds to permit better sharing of watershed related information. In Minnesota, 81 major watersheds were delineated, and around 5,600 minor watersheds comprise these major watersheds. The highest level of watershed is the Region, and three regions are located in Minnesota: The Upper Mississippi, the Great Lakes, and the Souris-Red-Rainy. Mayer is located within the Upper Mississippi Region. Regions are then broken into subregions or basins. Within the Upper Mississippi Region, Carver County is split between the Minnesota River Basin and the Upper Mississippi River Basins. The Upper Mississippi River Basin is broken into fifteen watersheds, and Mayer is located in the South Fork Crow River Watershed. The figure at right illustrates the major basins and watersheds of Minnesota. Number 19 is the South Fork Crow River Watershed.

The Carver County Water Management Organization (CCWMO) is the responsible agency for watershed planning in an area that includes Mayer. This area includes the following watersheds: Bevens Creek, Carver Creek, East Chaska Creek, West Chaska Creek, and parts of Pioneer-Sarah and the Crow River. Within these boundaries there are 35 lakes greater than ten acres and 365 miles of stream. This area includes the entire corporate limits and all or most of Camden, Hollywood, Waconia, and Watertown Townships.

MAJOR BASINS AND WATERSHEDS OF MINNESOTA



Source: Minnesota Department of Natural

The primary purpose of the CCWMO is to fulfill the County's water management responsibilities under Minnesota Statute and Rule. The County chose this structure because it will provide a framework for water resource management as follows:

- Provides a sufficient economic base to operate a viable program.
- Avoids duplication of effort by government agencies.
- Avoids creation of a new bureaucracy by integrating water management into existing County departments and related agencies.
- Establishes a framework for cooperation and coordination of water management efforts among all of the affected governments, agencies, and other interested parties.
- Establishes consistent water resource management goals and standards for at least 80% of the County.

The CCWMO has implemented a Comprehensive Water Resources Management Plan for 2010-2020. The plan is intended to be a ten year planning document to guide watershed management organizations activities. The plan is divided into the following chapters:

1. Land and Water Resources Inventory.
2. Major Issues.
3. Implementation Program.
4. Administration.
5. Appendices.

The City requires proposed development maintain compliance with Minnesota Pollution Control Agency standards and local stormwater/erosion control ordinances/procedures. In addition, the City of Mayer maintains policies and regulations that are consistent with the CCWMO's Comprehensive Water Resources Management Plan

B. LAKES, RIVERS AND STREAMS. One notable water resource exists within the current corporate boundaries of the City of Mayer, the South Fork of the Crow River. In addition, several public surface waters exist within the four adjacent townships in relatively close proximity to the corporate limits as listed below.

TABLE 2-27: PUBLIC WATERS LAKES

Number/Name	Township	Location
10-104P (Lippert Lake)	Hollywood/Watertown	West of CR 123, north of 50th Street
10-89P (Goose Lake)	Watertown/Waconia	Southeast of Quaas Avenue, south of 58th Street
10-79P (Donders Lake)	Waconia	Northeast of CSAH 30, southeast of Goose Lake
10-82P (Swan Lake)	Waconia	Southwest of CSAH 30, east of Polk Avenue
10-103P (Berliner Lake)	Camden	West of T.H. 25, east of Tacoma Avenue
Source: Minnesota Department of Natural Resources		

Crow River (South Fork). The South Fork of the Crow River flows through the corporate limits of the City of Mayer. The river segment is classified by the Department of Natural

Resources as a 'tributary' within the City. The South Fork of the Crow River headwaters are in Wagonga Lake in central Kandiyohi County. The South Fork flows 100 miles, mostly east through Big Kandiyohi Lake, Hutchinson, Lester Prairie, Mayer, and Watertown to a confluence with the North Fork of the Crow River near Rockford. The Crow River is a tributary to the Mississippi River joining it near Rogers. The Twin Cities Metropolitan Area Aquatic Resource Assessment produced by the Metropolitan Council and dated March 2003, classifies the South Fork of the Crow River as a resource of "high recreational importance." The 'high recreational importance' classification is applied because public water access and parks sites exist, the floodway is intermediate in size, and sufficient flow for navigation is usually maintained.

C. FLOOD PLAINS. In 1969, the Minnesota Legislature enacted the State Flood Plain Management Act (Minnesota Statutes, Chapter 103F). This Act stresses the need for a comprehensive approach to solving flood problems by emphasizing nonstructural measures, such as floodplain zoning regulations, flood insurance, flood proofing, and flood warning and response planning. By law, Minnesota flood prone communities are required to: 1) adopt floodplain management regulations when adequate technical information is available to identity floodplain areas, and 2) to enroll and maintain eligibility in the National Floodplain Insurance Program (NFIP) so that people may insure themselves from future losses through the purchase of flood insurance. The Department of Natural Resources (DNR) is the state agency with the overall responsibility for implementation of the State Flood Plain Management Act.

The City of Mayer does have floodplain areas located within the City, primarily along the South Fork of the Crow River and tributaries of the river. These floodplains are shown above on Map 2-4.

D. WETLANDS. The National Wetlands Inventory illustrates a variety of wetlands of various types dispersed throughout the corporate limits and within Mayer's future growth area within the adjacent townships. Lakes and Type 3 (wet/deep marsh), Type 4 (shallow marsh) and Type 5 (shallow open water) wetlands are classified as 'public waters lakes' and 'public water wetlands' by state law. The following table illustrates public water wetlands in relatively close proximity to the current City of Mayer. Public water lakes are listed in Table 2-28 below. The Water Resources Chapter and the Surface Water Management Plan, attached to this Comprehensive Plan as an appendix, further detail wetlands within the City of Mayer and future growth areas.

TABLE 2-28: PUBLIC WATERS WETLANDS

Number/Name	Township	Location
10-158W (Unnamed)	Watertown	East of T.H. 25, north of 50th Street
10-159W (Unnamed)	Watertown	East of T.H. 25, north Hwy. 7, south 50th Street
10-168W (Unnamed)	Hollywood	North of 62nd Street, west of Tacoma Avenue
10-186W (Unnamed)	Waconia	South of projection of Polk Avenue, east of Quaas Avenue
10-81W (Root Lake)	Waconia	East of Rutz Lake, west of Polk Avenue
10-81W (Rutz Lake)	Waconia	North of 78th Street, east of Rutz Lake Road
10-175W (Unnamed)	Camden	West of Tacoma Avenue, south of 78th Street

Source: Minnesota Department of Natural Resources

F. GEOLOGY/GROUNDWATER (HYDROGEOLOGY). Subsurface geology and groundwater are important considerations for all communities as they are the source of potable (i.e. drinkable) water. Hydrogeology is the study of the interrelation of subsurface geology and water. Because the consequences of human actions and forces at work above ground have a direct impact upon our ground water resources, it is important to consider hydrogeological resources.

The groundwater system in Carver County is comprised surface bedrock (sedimentary and igneous rock) and deposits left behind by the repeated advancing/receding of glaciers. Depth from the ground surface to bedrock throughout the county varies from 100 to 500 feet. Depth to bedrock is not considered a limiting factor to urban development within the scope of this plan. Bedrock surfaces covered by glacial deposits within the vicinity of the City of Mayer are of two primary types, Jordan Sandstone and the St. Lawrence-Franconia Formation.

Jordan Sandstone: The Jordan is made up of fine to coarse-grained sandstone which occurs in much of the country. The coarse-grained sandstone allows for high transmissivity.

St. Lawrence-Franconia Formation: The St. Lawrence formation ranges in thickness from 60-75 feet and consists primarily of dolostone with intervals of siltstone and very fine grained sandstone. The upper layers also contain a thin layer of shale. The Franconia formation is as much as 140 feet thick and consists of very fined grained sandstone, shale, and some solostone. Because the contact between the Franconia and the St. Lawrence is extremely gradual and unclear, the two units cannot be mapped separately. It is the predominant type of surface bedrock in Carver County.

The upper most layer in the system is the glacial drift. Repeated advances and declines of glaciers over the last two million years, and as recently as 13,000 years ago, deposited two types of glacial drift, till, and outwash. It generally covers the underlying bedrock.

Till is unconsolidated material consisting of varying portions of clay, silt, sand, gravel, and boulders. The composition of the mixture can affect the transmission of the groundwater through the system. Till that tends to be clayey will transmit water more slowly than till with high percentages of sand and gravel. In some areas of Carver County, very heavy deposits of clay occur which severely limit the transmissivity of water. While till in an area may be clayey, there will typically be sand and gravel lenses, which can greatly affect the flow of water through the drift layer making localized groundwater flow extremely variable.

Outwash is sand and gravel material that was deposited by a stream or river. Outwash is highly permeable and will transmit water at a high rate. Areas closer to the Minnesota River show large amount of outwash deposited from the ancient glacial River Warren.

Hydrogeological conditions also determine how sensitive ground water may be to contamination by chemicals and pollutants introduced at ground level. Sensitivity to pollution is described in terms of the length of time it takes for a drop of water to cycle from absorption into the ground to discharge (removal) from an aquifer. The pollution sensitivity of an aquifer is assumed to be inversely proportional to the time of travel: shorter cycle times may indicate a higher sensitivity, longer cycle times may represent a greater travel time and increased geologic protection. Contaminants are assumed to travel at the same rate as water.

There are four pollution sensitivity categories: Very High, High, Moderate, and Low. The pollution sensitivity of an aquifer is assumed to be inversely proportional to the time of travel. Very High sensitivity indicates that water moving downward from the surface may reach the ground-water system within hours to months leaving little time to respond to and prevent aquifer contamination. Low sensitivity may take decades to centuries for the cycle to be complete, allowing enough time for a surface contamination source to be investigated and corrected before serious ground-water pollution develops. It is important to note higher pollution sensitivity categories do not mean water quality has been or will be degraded, and low sensitivity does not guarantee that ground water is or will remain uncontaminated.

Cumulatively groundwater quality is thought to be generally good; however, it is treated for iron and manganese. Groundwater in the area is generally thought to be free from contamination. The Minnesota Pollution Control Agency reports six confirmed instances of leaking underground storage tanks within the City. The sites are identified in the following Table 2-29.

TABLE 2-29: LEAKING UNDERGROUND STORAGE TANKS IN MAYER

Site and MPCA ID#	Address	Release Discovered Date	Leak Site Complete Date	Contaminated Soils Remaining
Mayer Mobil	308 Ash Avenue N	June 10, 1997	December 30, 1997	Unknown
Former AST Gas Farm	TH 25/CSAH 30	October 4, 2000	July 25, 2003	Unknown
Mid County Co-op	113 7th Street NE	Nov. 17, 2003	September 16, 2004	Yes - Diesel
City of Mayer property, former creamery	113 5th St NW	April 20, 2013	March 24, 2015	Yes - Gasoline
Former Sandblasting services	113 5th St NW	October 11, 2010	November 10, 2011	Yes - Fuel oil 1 & 2 and Gasoline
Mayer Oil Company	308 Ash Avenue N	January 26, 2012	December 12, 2013	Unknown

Source: MN Pollution Control Agency

C. AIR QUALITY

Air quality is an important and sometimes forgotten issue for communities; air pollution is increasingly a regional and global problem. The MPCA maintains a list of the top 100 location with volatile organic compound (VOC) emissions. According to the MPCA,

> *"VOC's come from industrial and commercial processes all around us. You may recognize them as the solvent-like fumes coming from materials like coatings, inks, solvents, adhesives, gasoline, and other chemicals used in everyday commerce. VOC's can be reduced by making changes to manufacturing processes and heating equipment, and through facility-wide opportunities such as purchasing safer products."*

One location was listed on the top 100 locations within Carver County, located in the City of Waconia.

D. DEVELOPMENT CONSTRAINTS

It should be noted that several of the natural features identified in this Chapter, including but not limited to water bodies, topography, soils, wetlands, floodplain, and vegetation and rare species present constraints to future development. Map 2-4 above illustrates potential constraints to development. The boundaries on the map are a compilation of floodplain areas, National Wetland Inventory areas, areas of steep slope, and DNR Public Waters Inventory data. Also included is the 100-year floodplain. Field verification was not done to determine wetland existence. It should be noted that further review of the sites identified on the map is required prior to development. This map is intended to provide a general overview. The City should require that development proposed within these areas be shown in detail as necessary to determine development suitability and protection when submitted with development proposals.

The MLCCS map produced by Carver County, and included with the maps in the Surface Water Management Plan (see appendix), are also available for the City's reference/use. The map can provide the City with valuable natural resource information when considering resource preservation standards to include in local controls and when conducting plat review.

E. NATURAL RESOURCE OBJECTIVES AND RECOMMENDATIONS

Objective 1: To the extent possible, establish a balance between promoting, protecting, enhancing, and preserving natural and physical features (including, but not limited to, woodlands, wetlands, soils, steep slopes, surface waters, groundwater) while managing requests for development and redevelopment.

Policy/Recommendations:

1. Utilize natural resource data/studies for planning and review of development and redevelopment such as soils, topography, groundwater, etc.

2. Carefully regulate development in areas adjacent to shorelands, wetlands, and flood prone areas to preserve these as attractive amenities.

3. Encourage development to conform to the natural limitations presented by topography, soils, or other natural conditions.

4. Identify and protect significant scenic areas, open spaces, historic, or archaeological sites. Emphasize proper management of open space areas in order to preserve trees, wildlife, pre-settlement (native) landscape communities, floodplain, water quality, and similar environmentally sensitive features.

Objective 2: Protect the quality and use of surface water through support and coordination with the Carver County Water Management Organization, state, and federal agencies.

Policy/Recommendations:

1. Encourage and promote land use practices to protect and improve surface water resources.

2. Evaluate the impact of stormwater runoff on surface water in the City and respective growth areas as outlined in the City of Mayer Stormwater Management Plan and

proactively implement watershed management tools developed by the Carver County Water Management Organization, as amended or updated.

3. Enforce existing regulations and develop programs and new regulations where necessary to protect surface water.

4. Support the coordination of planning and implementation efforts between the Carver County Water Management Organization, state, and federal agencies.

Objective 3: Protect and preserve groundwater supply and quality through support and coordination with Carver County Water Management Organization, state, and federal agencies.

Policy/Recommendations:
1. Protect ground resource from contamination through the continued implementation of a Wellhead Protection Plan and other programs.

2. Identify geologically sensitive areas in the City and define the limits and recharge areas of aquifers.

Objective 4: Protect air quality in the City to comply with MPCA standards.

Policy/Recommendations:
1. Review performance standards within the Zoning Ordinance to ensure that they adequately control dust and wind erosion related to land use and development activities.

2. Evaluate the impact of potential industry on the City's air quality.

Objective 5: Preserve the environment as a sustainable resource to insure both present and future generations a good quality of life.

Policy/Recommendations:
1. Continue to coordinate plans and work with all agencies responsible for the protection and restoration of our environment.

2. Continue to administer and support the state environmental review program (EAW, EIS).

3. Enforce City's regulations, including stormwater violations.

4. Continue Participation in the National Flood Insurance Program and enforcement and directives of Floodplain regulations.

Objective 6: Educate the community about its natural resource assets and encourage them to think about their use and impact on the natural resources of the community and greater areas.

Policy/Recommendations:
1. Distribute new information relating to environmental regulations to all policy makers and elected officials as it becomes available.

2. Promote environmental stewardship including reducing, recovering, and recycling waste materials at City buildings and parks.

3. Attend meetings of the Carver County Water Management Organization to share information on surface water issues and to gain better insights on surface water issues.

4. Provide developers and owners with technical assistance in applying Best Management Practices for stormwater management on road and land development projects.

5. Provide information to property owners on Conservation Easements and agencies that will assist in the management of the easements.

V. SPECIAL RESOURCE PROTECTION

Historical Properties

According to the National Register of Historic Places and the Minnesota State Historic Preservation Office (SHPO), there are no historically designated properties within the City of Mayer or the 2040 urban growth boundary. There are also no documented archeological discoveries with Mayer or the 2040 urban growth boundary.

However, the City is committed to preserving the downtown central business corridor as the historic identity of the City. Additionally, the City is committed to preserving the "small town rural atmosphere," historically defined by important topographical features, vegetation, and wildlife.

Aggregate Resources

The Metropolitan Council requires cities to identify the location of aggregate resources within the community based on Minnesota Geological survey within the Comprehensive Plan. According to the Minnesota Geological Survey, Aggregate Resources Inventory for the Metro Area, there are no identified aggregate resources within the City of Mayer or the Beyond 2040 Growth Area.

MAYER

2040 Transportation Plan

City of Mayer

5/18/18 DRAFT

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Appendix

Appendix A: Access Management Guidelines

Introduction

Overview

Mayer is a Rural Center and is anticipated to see modest population growth moving into 2040, including the anticipated annexation of surrounding townships. This spurred the creation of a 2040 Growth Boundary, included in all accompanying figures, to help the city anticipate transportation issues that will be within city limits in the future. As a Rural Center, the City of Mayer serves as a local commercial, employment, and residential activity center for rural areas in the region. As the city grows and draws in traffic from the surrounding townships, transportation needs will change and expand from current conditions.

Accommodating future growth provides a key opportunity to improve the city's transportation network. The city needs to plan for the construction of new roads, the maintenance of existing roads, safety, and overall enhancement of the transportation network for both local and regional connections. Additionally, the City of Mayer may need to assess current transportation options to ensure they align with transportation preferences of residents and are fully accessible to all members of the community. This may include expansion of multimodal options and improvements to connectivity and safety.

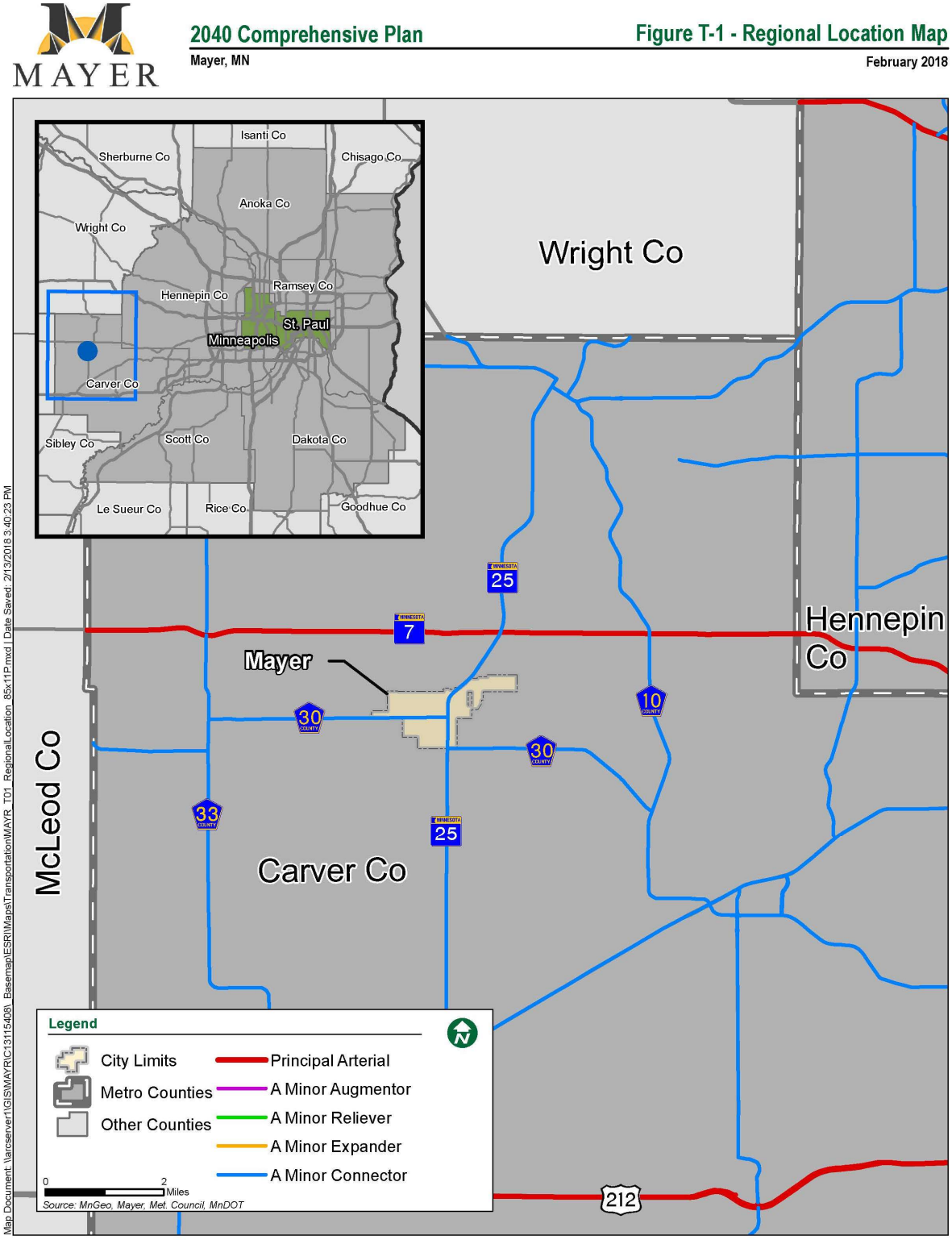
The primary purpose of this chapter is to provide guidance for city staff and elected officials regarding the implementation of effective, integrated transportation facilities and programs through the 2040 planning timeframe. This chapter is consistent with regional requirements for transportation as captured in the Metropolitan Council's 2040 Local Planning Handbook.

This chapter is organized into the following sections:

- Roadway Existing Conditions
- Summary of Relevant Transportation Studies
- Roadway System Plan
- Transit Existing Conditions and System Plan
- Non-Motorized Existing Conditions and System Plan
- Freight Plan
- Aviation Plan
- Implementation Plan

As shown above, this chapter includes all modes of travel in and around Mayer, including automobile, bicycle, pedestrian, freight, and aviation. The parks chapter has additional content relevant to the trail network.

Figure T-1– Regional Location



Existing Roadway Conditions

Existing Traffic Volumes and Crash Data

The most basic characteristic of a given roadway is the volume of traffic that it carries. Existing and forecasted traffic volumes are used to determine which roads are approaching or exceeding the capacity for which they were designed.

Existing average daily traffic volumes on roadways within Mayer are presented on **Figure T-2**. These numbers are based on the most current MnDOT data available for traffic on these roads.

Crash statistics are also used to determine which locations on the roadway network have safety concerns and need improvement. The most recent crash data for roadways are also summarized on Figure T-2. The following locations exhibited the highest crash counts:

- TH 25 & County Road/CSAH 30
- TH 25 & 2nd Street NW
- TH 25 & Hidden Creek Boulevard/Shimmcor Street
- TH 25 & TH 7 intersection

Jurisdictional and Functional Classification

Jurisdictional Classification

Roadways are classified on the basis of which level of government owns and has jurisdiction over them. Typically, roadways with higher mobility functions are under the jurisdiction of a county, regional, state, or federal level of government. Likewise, roads with a focus on local circulation and access typically are under the jurisdiction of a local government. In the City of Mayer, three jurisdictions have responsibility for the overall road network. MnDOT is responsible for TH 25, and Carver County is responsible for County Road/CSAH 30 and County Road/CSAH 23. The City of Mayer is responsible for all remaining roadways**.** In the 2040 Growth Boundary, existing roads are either under MnDOT or township jurisdiction. **Figure T-3** depicts the existing roadway jurisdictional classification system in Mayer.

Functional Classification

Individual roads and streets typically do not operate independently in any major way. Functional classification is a cornerstone of transportation planning. Within this approach, roads are located and designed to perform their designated function.

The functional classification system defines the hierarchy of roads within a network that distributes traffic from local access routes all the way up to major mobility corridors. A typical system connects neighborhood streets to collector roadways, then to minor arterials, and ultimately the Metropolitan Highway System. Roads are classified based on the degree to which they provide **access** to adjacent land uses and lower level roadways versus providing higher-speed **mobility** for "through" traffic.

The current roadway functional classification map for Mayer as identified by the Metropolitan Council is presented on **Figure T-4.** The roadway system presently consists of three roadway functional roadway classifications:

- A Minor Arterial
- Major collector
- Local street

Figure T-2: Existing Traffic Volume and Crash Data

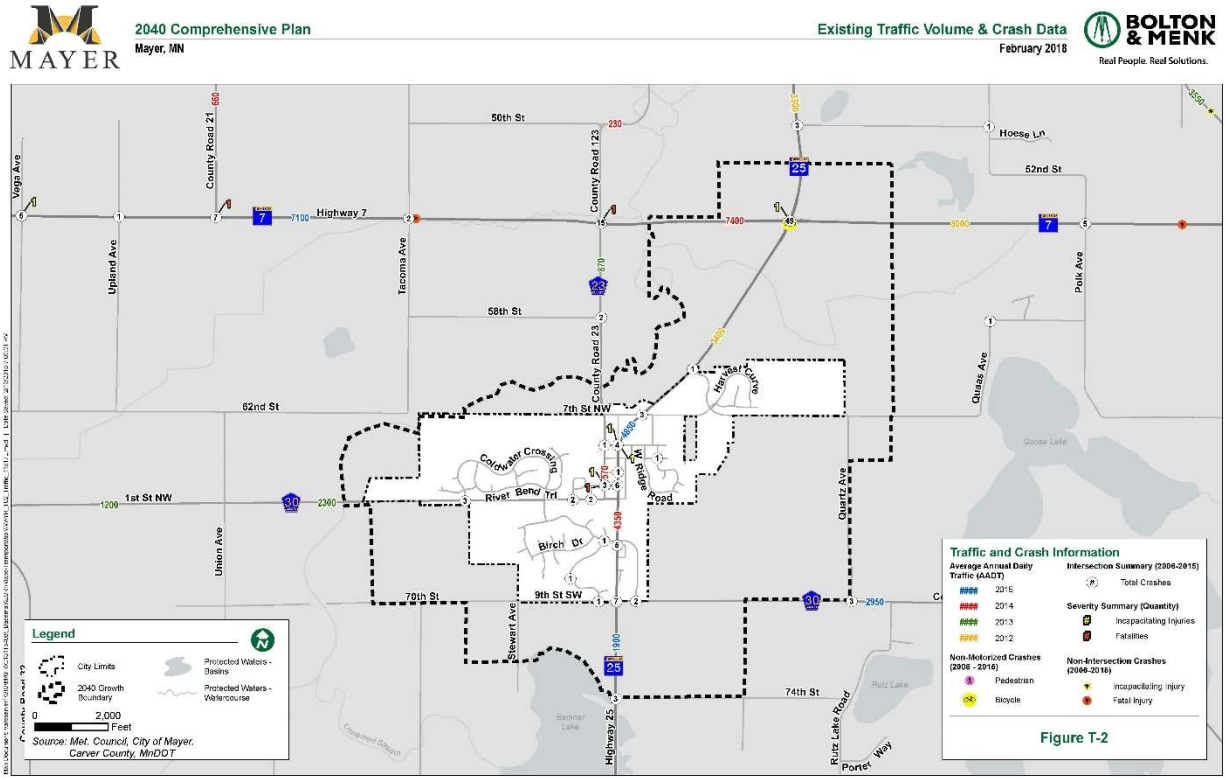


Figure T-3 – Existing Roadway Jurisdiction

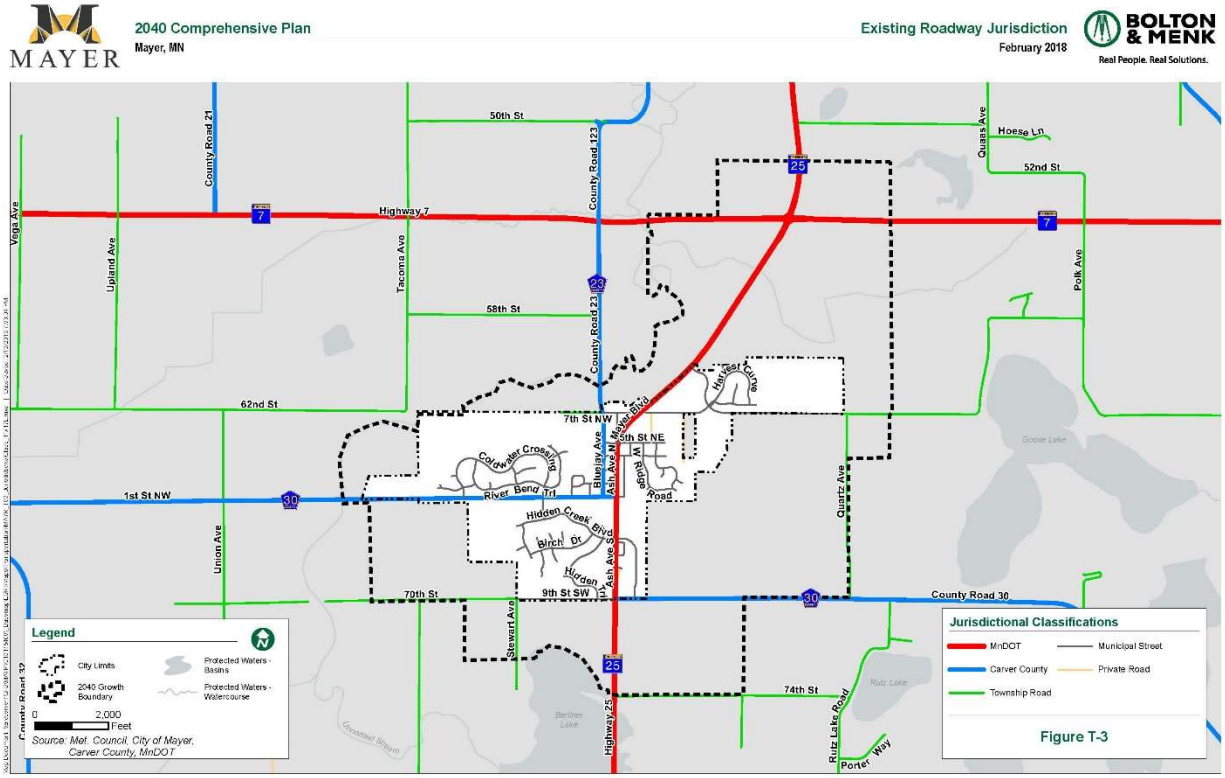
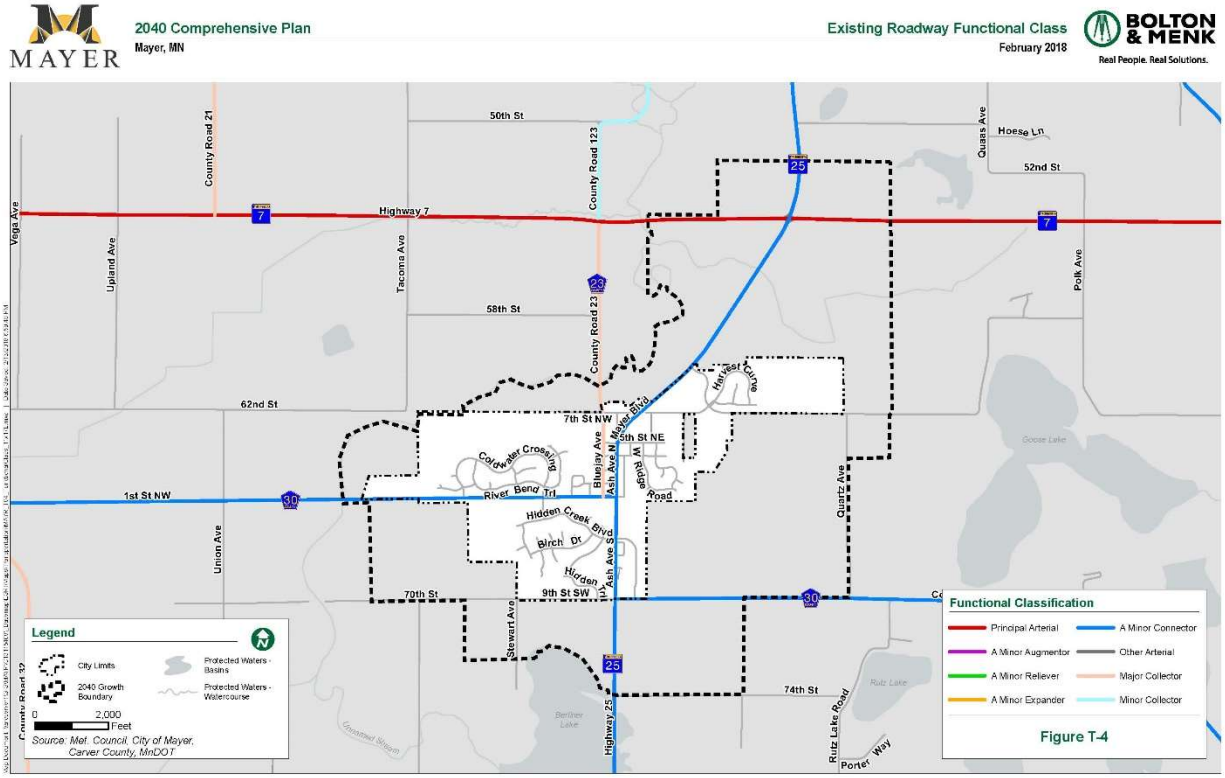


Figure T-4 – Existing Roadway Functional Class



For arterial roadways, the Metropolitan Council has designation authority. Local agencies may request that their roadways become arterials (or are downgraded from arterial to collector), but such designations or re-designations must be approved by the Metropolitan Council. The agency which has jurisdiction over a given roadway (e.g. Carver County or the City of Mayer) has the authority to designate collector status.

Principal Arterials

Principal arterials are the highest roadway classification and make up the Metropolitan Highway System. The primary function of these roadways is to provide mobility for regional trips, and they do not provide a land access function. They are intended to interconnect regional business concentrations in the metropolitan area, including the central business districts of Minneapolis and St. Paul. These roads also connect the Twin Cities with important locations outside the metropolitan area. Principal arterials are generally constructed as limited access freeways, but may also be multiple-lane divided highways. There are no principal arterial roadways in Mayer. The closest principal arterial to Mayer is TH 7, which is included in the 2040 Growth Boundary.

A Minor Arterials

These roads connect important locations within the City of Mayer to access points of the metropolitan highway system and with important locations outside the city. These arterials are also intended to carry short to medium trips that would otherwise use principal arterials. While "A" minor arterial roadways provide more access than principal arterials, their primary function is still to provide mobility rather than access to lower level roadways or adjacent land uses.

Metropolitan Council has defined four sub-categories of "A" minor arterials: reliever, expander, connector, and augmentor. These sub-categories are primarily used by the Metropolitan Council to allocate federal funding for roadway improvements. The different types to not have separate, specific design characteristics or requirements. However, they have somewhat different functions in the roadway network, and are typically found in certain areas within the region.

- **Relievers** provide supplementary capacity for congested parallel principal arterials. They are typically found in urban and suburban communities.
- **Augmentors** supplement the principal arterial system in more densely developed or redeveloping areas. They are typically found in urban communities.
- **Expanders** supplement the principal arterial system in less densely developed or redeveloping areas. They are typically found in urban and suburban communities.
- **Connectors** provide safe, direct connections between rural centers and to principal arterials in rural area without adding continuous general purpose lane capacity. They are typically found in rural communities.

As shown on **Figure T-4**, the "A" minor arterial network in Mayer is primarily connectors, providing access to other "A" minor arterials and principal arterials. Current "A" minor arterials are identified in **Table T-1**, below. There are no additional "A" minor arterials in the 2040 Growth Boundary.

Table T-1 – A Minor Arterial Roadways			
Roadway	**From**	**To**	**Number of Travel Lanes (Total)**
County Road/CSAH 30/1st Street NW	Western city limits	Eastern city limits	2
TH 25/Mayer Blvd/Ash Ave	Northern city limits	Southern city limits	2

Major and Minor Collectors

Collector roadways provide a balance of the mobility and land-use access functions discussed above. They generally serve trips that are entirely within the city and connect neighborhoods and smaller commercial areas to the arterial network. Minor collectors generally are shorter in length, with lower volumes and lower speeds than major collectors. Current major collector roadways in Mayer and the 2040 Growth Boundary are identified in **Table T-2**, below. According to the Metropolitan Council, there currently are no roadways formally designated as minor collector roadways in the city of Mayer or the 2040 Growth Boundary.

Table T-2 – Major and Minor Collector Roadways			
Roadway	**From**	**To**	**Number of Travel Lanes (Total)**
Major Collectors			
County Road/CSAH 23/Bluejay Ave N	County Road 30/1st Street NW	Northern city limit	2

Problem Issues and Locations

The planning process involved discussions with city staff, city leadership, and community stakeholders regarding transportation problems and their locations.

At present, there are few major concerns within the City of Mayer. Traffic on city roadways is relatively low volume, and there are few serious crashes. There has been discussion at the local and county level about creating a north-south bypass route for TH 25 to relieve pressure from increased traffic due to growth. However, existing and forecasted growth has been scaled back leading to a modification of this proposal to be more limited and development-driven. A previous proposal for an east-west bypass route for CSAH 30 is currently not moving forward.

The shift to include fewer new roads in the long-range plan is a countywide trend. Carver County has significantly scaled back the planned road network improvements shown in the 2030 plan, with the exception of eastern portions of the county experiencing high levels of growth and increasing congestion. This reflects scaled-back expectations of growth post-recession, as well as fiscally responsible planning for what is achievable given existing and potential funding sources. While a recent sales tax increase at the county level will fund transportation improvements, projects in the western portion of the county will predominantly be for maintenance and safety rather than capacity expansions.

There are some potential safety issues regarding intersections along TH 25 in Mayer where a number of crashes have occurred in recent years. It is recommended that the city continue to cooperate with the

county and MnDOT on monitoring crash information along the corridor, and (where feasible and appropriate) make necessary upgrades to improve safety.

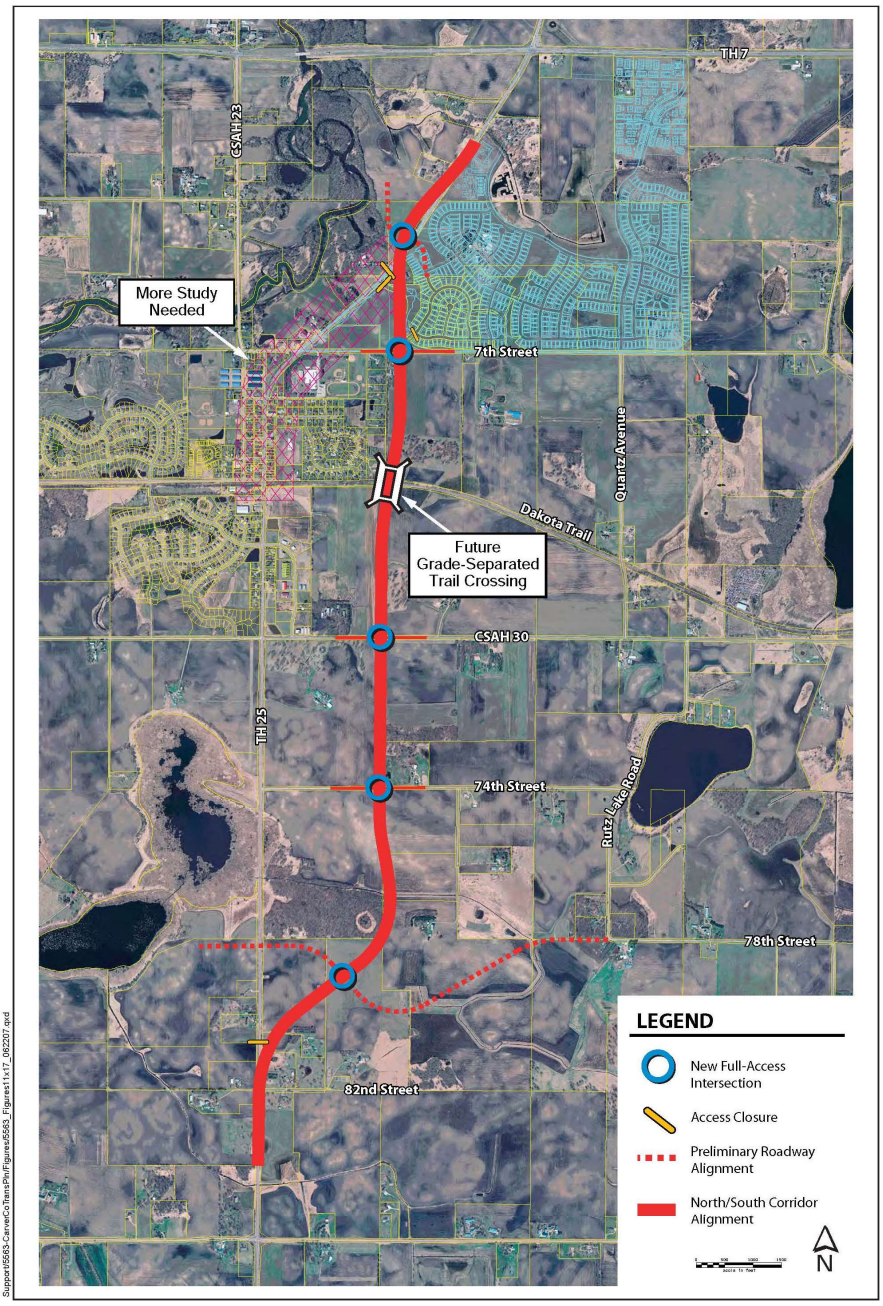
Summary of Relevant Transportation Studies

A summary of transportation studies relevant to the City of Mayer's roadway system is provided below.

Mayer North/South Corridor Study (2008)

The purpose of this study was to identify potential alignments and associated general impacts resulting from the preservation and future construction of a north/south minor arterial east of Mayer extending from 82nd Street to TH 7. At the time of the study, the Carver County traffic forecast model estimated the 2030 AADT on TH 25 through downtown Mayer would be approximately 9,100, which would create congestion and delay and would also increase current safety problems. The model indicated that the north/south corridor would attract 7,100 AADT, thus relieving TH 25 congestion and increasing mobility and safety for longer, non-local trips. A Project Management Team (PMT) composed of city, county and MnDOT officials guided the study process. The proposed alternative developed for the study is shown on the following image**.**

Since the completion of the study, there have been some changes regarding expectations for growth and development in the Mayer area, as well as countywide. While there may still be a need for new roads to serve future growth east of the city, the recommended alignment is likely to be scaled back in terms of length, and to be completed in a more incremental approach based on development. This plan is being revisited.



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5563

MAYER NORTH/SOUTH CORRIDOR PRESERVATION STUDY–ALIGNMENT ALTERNATIVE 3
CARVER COUNTY TRANSPORTATION PLAN
Carver County, Minnesota

Figure 16

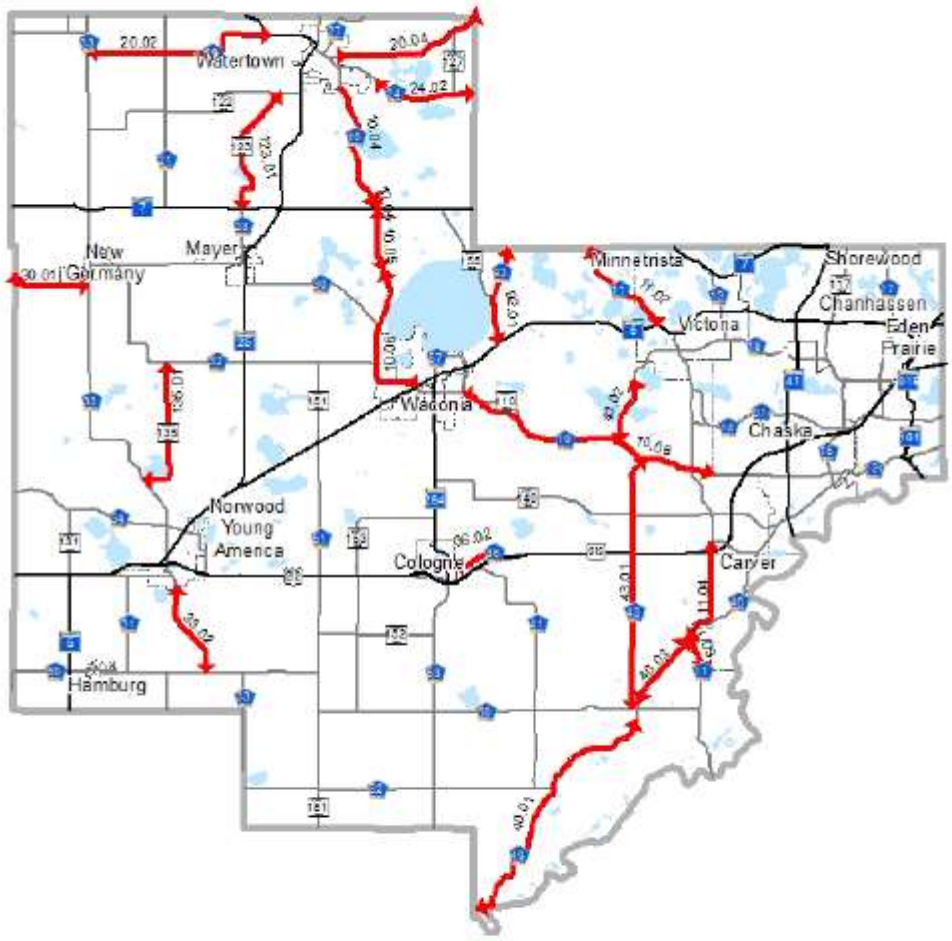
County Roadway Safety Plan (2013)

The *Carver County Roadway Safety Plan* was commissioned by MnDOT as part of a statewide highway safety planning process. This study covers the entire Carver County roadway system, and aimed to reduce the number of fatal and serious injury crashes on county highway systems. The study analyzed safety data and recommended a number of improvements. The expectation of the plan was that it would be periodically updated to reflect additional safety needs.

CSAH 30 in Mayer between the city limits and TH 25 has been identified as a moderate priority for safety improvements. This segment was evaluated for improvements to address risk of rear end/head on crashes, though it lacked the right of way to add the recommended turn lanes. The rural segment of CSAH 30 between Mayer and New Germany has been identified as well.

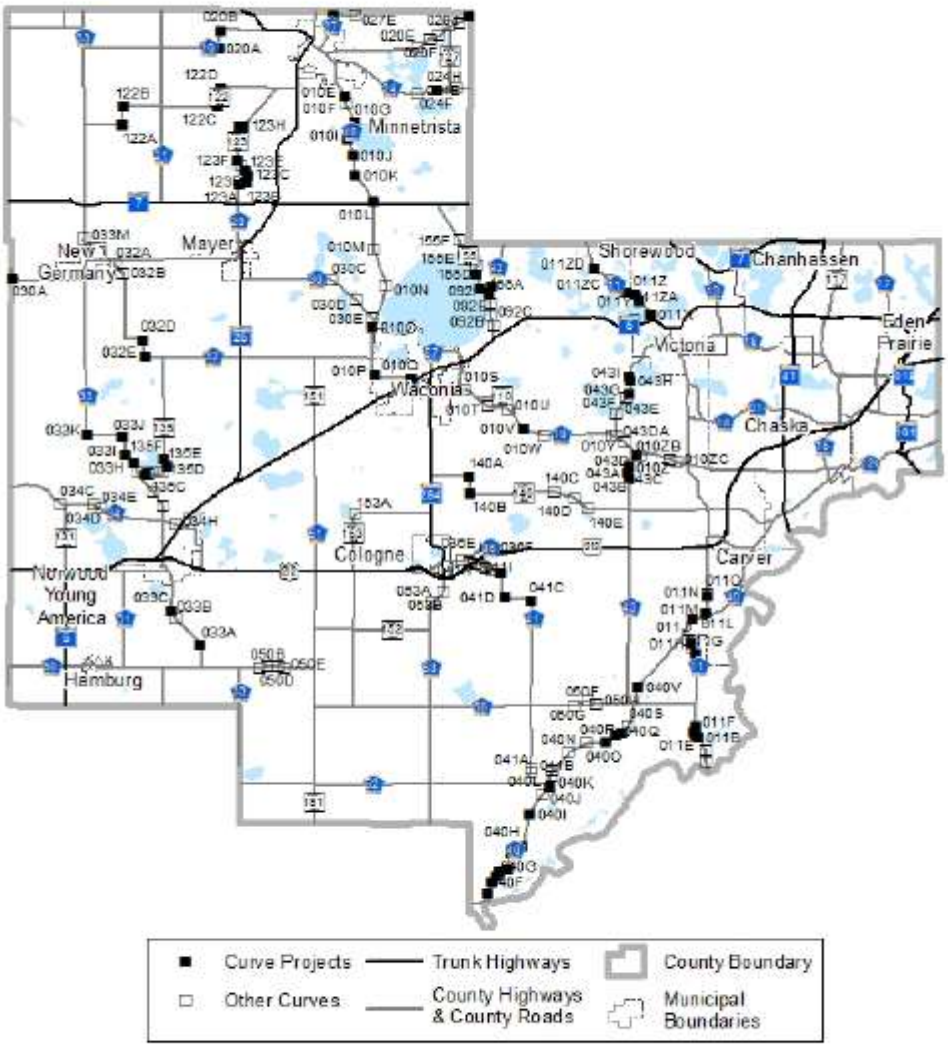
The intersection of TH 7 and CSAH 23/123 just north of Mayer was also identified as a safety concern. The study recommended installing additional street lights at the intersection.

The following images show priorities identified countywide for safety improvements.



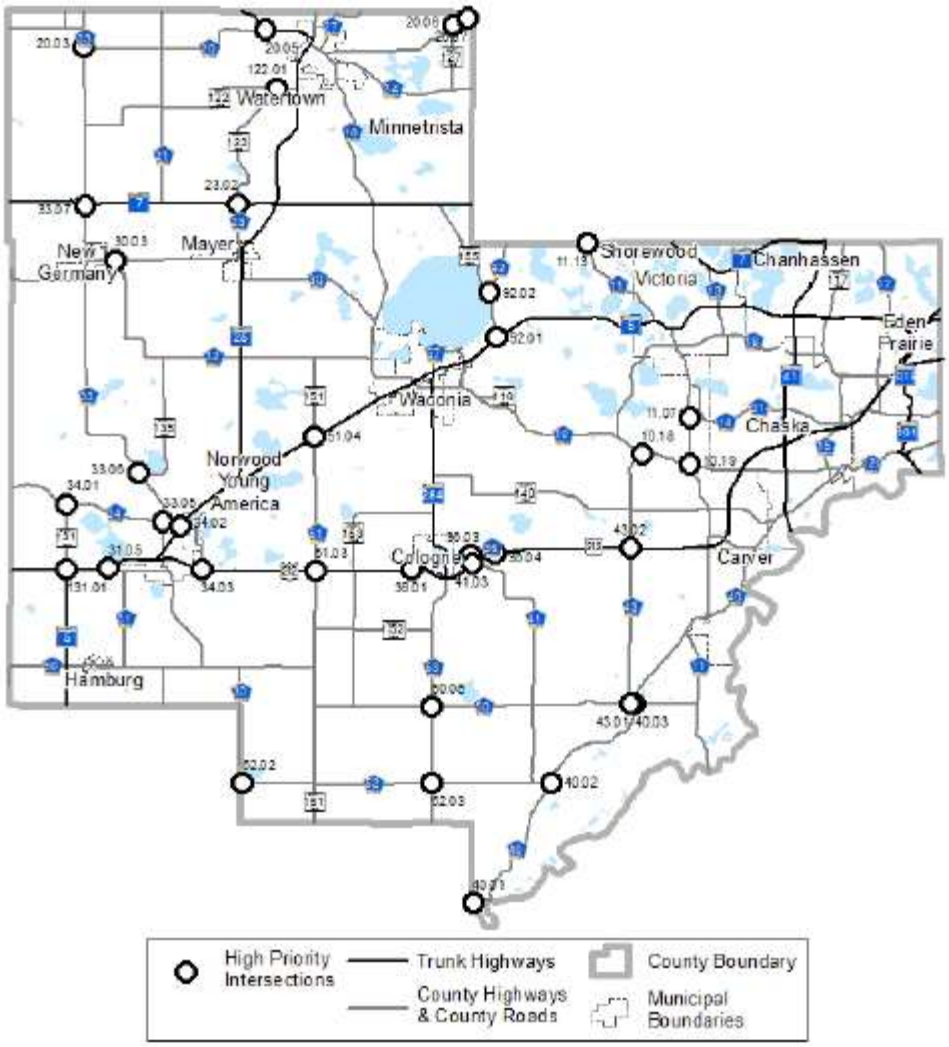
Source: CRSP Safety Analysis, 2013

Figure 4-10
Rural Segment Projects



Source: CRSP Safety Analysis, 2013

Figure 4-11
Rural Curve Projects



Source: CRSP Safety Analysis, 2013

Figure 4-12
Rural Intersection Projects

Draft 2040 Carver County Comprehensive Plan – Transportation Section (2018)

The Transportation section of the Carver County 2040 Comprehensive Plan is intended to meet regional guidelines and promote a wide range of modern, responsive, safe, and cost-effective transportation resources to support the county's rural and urban economies and growing population. This section outlines plans for county transportation facilities including principal and minor arterial highways; transit facilities; pedestrian and bicycle facilities; aviation facilities; and county freight related systems. The following provides a summary of relevant information from the Transportation Section of the Draft 2040 Carver County Comprehensive Plan:

- *Principal and Minor Arterial Highways:*
    - The Comprehensive Plan contains the Carver County 2040 Roadway Systems Plan (RSP) which identifies the following programmed pavement investment improvements:
        - TH 25 throughout the City of Mayer, City of Watertown, and Waconia Township (2019 and 2024); identified on Figure 4.1.
    - The RSP Transportation Tax Projects (2018 – 2037) Map shows CSAH 30 as a Priority B "Major Rehab" project traversing the southeastern portion of the Mayer 2040 City Growth Area.
    - Figure 4.16 illustrates the RSP Potential Jurisdictional Transfers. The following are relevant to the City of Mayer:
        - HIghway 23 from CSAH 30 and north is identified as a potential jurisdictional transfer from Carver County to the city/township.
        - TH 25 passing through Mayer is identified as a potential jurisdictional transfer from MnDOT to Carver County.
    - The 20-year Highway Resurfacing Plan (2018-2037) in the RSP identifies the following projects:
        - Highway 23 from the northern city limits to Highway 30 (2029 – 2033).
        - CSAH 30 from Highway 23 to the west (2034 – 2037).
    - The 20-year Highway Rehabilitation Plan (2018 – 2037) in the RSP identifies Highway 30 as being rehabilitated including widening shoulders.
- *Transit Facilities:*
    - Mayer is designated as Transit Market Area V and is not discussed further in Section 4.3 Transit. This designation is characterized as having the lowest potential for ridership among the Transit Market Areas and as not being well suited for fixed-route service. The emphasis on locations in Transit Market Area V is on-demand response services.
- *Pedestrian and Bicycle Facilities*:
    - TH 25 from Watertown to center Mayer is identified as a Future Linking Trail.
    - A Future Destination Trail is shown south of CSAH 30 through the 2040 City Growth Areas.
    - CSAH 30 is identified as an Existing Destination Trail
- *Aviation Facilities:*

- There is no information regarding Aviation in the Transportation Section of the Comprehensive Plan.

- *Freight Related Systems:*
  - The RSP Existing Carver County Freight Transportation Map illustrates acreage of freight generators in the city. This includes one 15 - 30 acre location on CSAH 30 on the western city limit and several 0-15 acre locations surrounding the intersection of CSAH 30 and TH 25.

Roadway System Plan

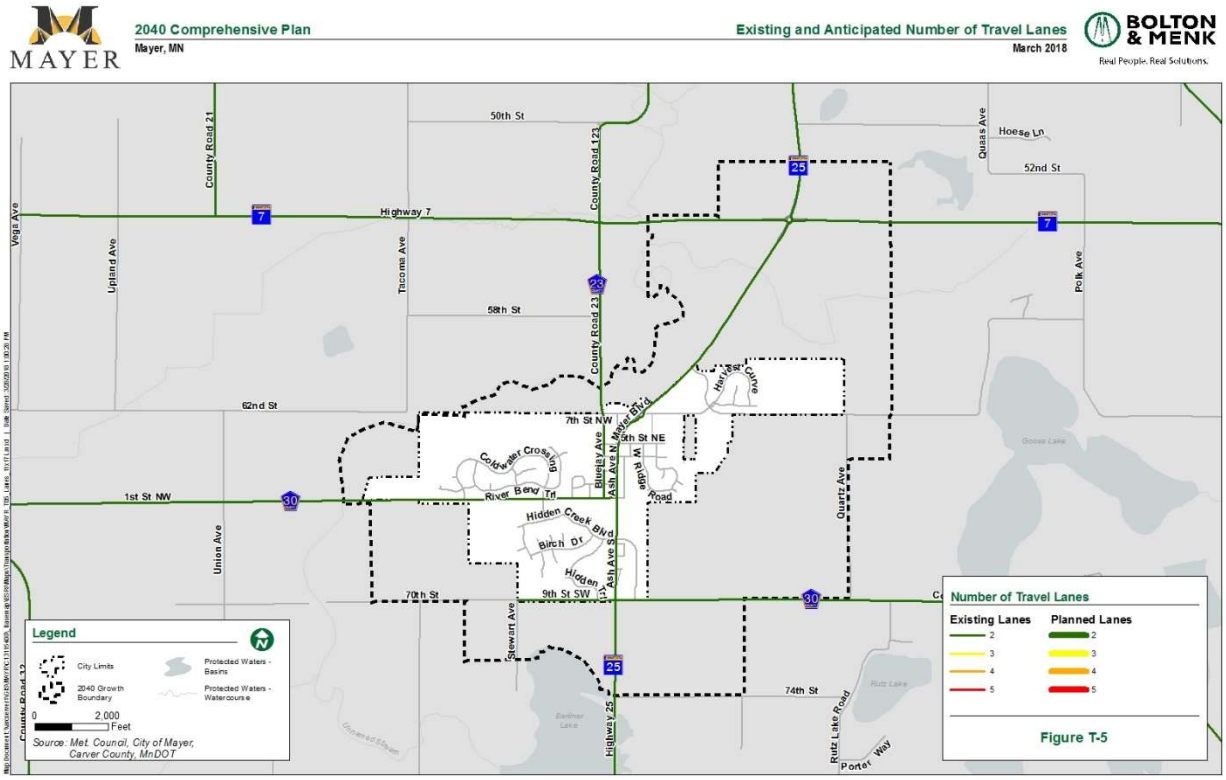
Future Roadway Network

The future roadway network analyzed in this plan addresses only existing conditions, plus any programmed improvements that would increase network capacity. Maintenance and safety upgrades, while important, do not typically add significant capacity to the system, so are not addressed at this point in the plan.

At present, there are no programmed projects to expand the capacity of the overall major roadway network serving the Mayer area by 2040. As such, the future roadway network being used to forecast traffic volumes for 2040 looks largely the same as it does today. There also are no anticipated road widenings which would add lanes.

Figure T-5 depicts existing and anticipated 2040 travel lanes on collector and arterial roadways within Mayer. All roads in Mayer have two lanes, with the exception of periodic turn lanes, and there are no programmed improvements to change this.

Figure T-5 – Existing and Anticipated Number of Travel Lanes



Forecasting Future Traffic

As part of the support for regional, county, and local transportation planning, the Metropolitan Council has developed and maintained a regional travel demand model. This model forecasts 2040 traffic volumes on major roadways throughout the Twin Cities region, based on expected population and job growth, observed travel behavior, and other factors. Since the model is mainly designed to work at the regional level, Carver County has done additional work to refine the analysis and results to provide more locally relevant forecasts for the county and its cities. The model information included in this plan is derived from the Carver County modified version of the regional model. TAZs have been modified to match city limits where possible.

Forecasts of population, households, and employment are incorporated in to the model at the level of Transportation Analysis Zones (TAZs). The TAZs for the City of Mayer, as defined by the Carver County model, are presented on **Figure T-6**. These are different than the Metropolitan Council's TAZ, namely due to the fact that Carver County has split some of the larger TAZs in the regional model to improve their ability to forecast traffic at a smaller scale, particularly in rural areas where TAZs tend to be large.

The anticipated land use patterns discussed in the land use chapter of this Comprehensive Plan were assumed for the 2040 transportation projections. The TAZ socioeconomic data projected for 2040 conditions are presented in **Table T-3**, indicating both the applicable Metropolitan Council and Carver County TAZs. This includes TAZs both in the current city limits, as well as those within the 2040 growth boundary.

The socioeconomic data in **Table T-3** were allocated through the Carver County travel demand model. As a result of how the model was created and calibrated (including splitting up some of the larger TAZs in the regional model to provide more accurate results at the local level), the socioeconomic data totals for the TAZs are slightly different than the community forecasts. However, the differences are minor enough that they do not significantly impact the overall travel model results.

Figure T-6 – Transportation Analysis Zones

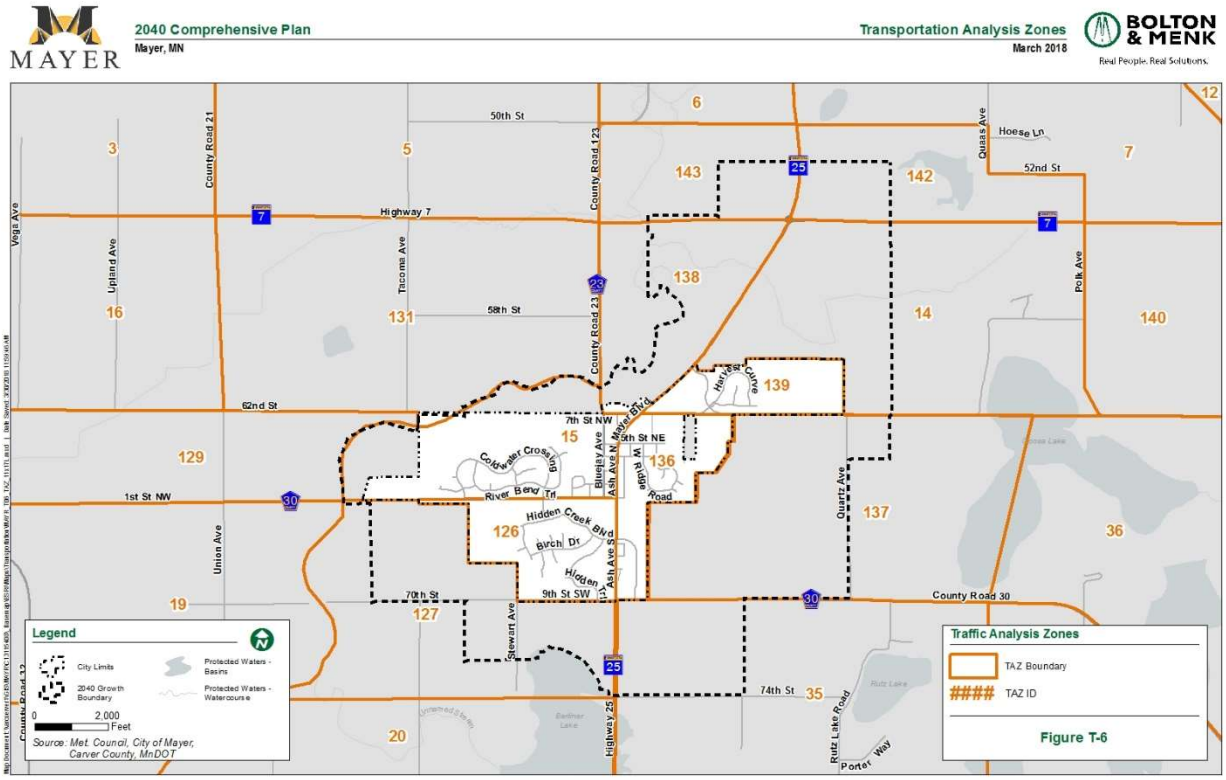


Table T-3 – 2040 Mayer TAZ Data							
Met Council TAZ	**Carver County TAZ**	**Year**	**Population**	**Households**	**Retail Jobs**	**Non-Retail Jobs**	**Total Jobs**
298	**14**	2014	51	17	0	0	0
		2020	101	42	3	5	8
		2030	290	122	4	11	15
		2040	597	256	6	17	23
299	**15**	2014	771	254	5	17	22
		2020	840	300	10	30	40
		2030	820	320	10	30	40
		2040	670	260	0	30	30
304	**126**	2014	614	201	12	12	24
		2020	623	227	7	24	31
		2030	596	234	6	19	25
		2040	483	201	5	12	17
320	**136**	2014	306	115	3	47	50
		2020	366	134	6	69	75
		2030	404	153	10	56	66
		2040	367	145	9	47	56
320	**137**	2014	48	17	0	0	0
		2020	77	29	0	11	11
		2030	116	48	0	24	24
		2040	131	57	0	33	33
298	**138**	2014	36	16	0	12	12
		2020	62	27	3	20	23
		2030	172	75	5	24	29
		2040	349	153	6	29	35
298	**139**	2014	160	52	0	0	0
		2020	123	44	0	0	0
		2030	233	88	0	0	0
		2040	405	159	0	0	0
2014 Totals			1,986	672	20	88	108
2040 Totals			3,002	1,231	26	168	194
2014-2040 Change			1,016	559	6	80	86

Source: Metropolitan Council and Carver County

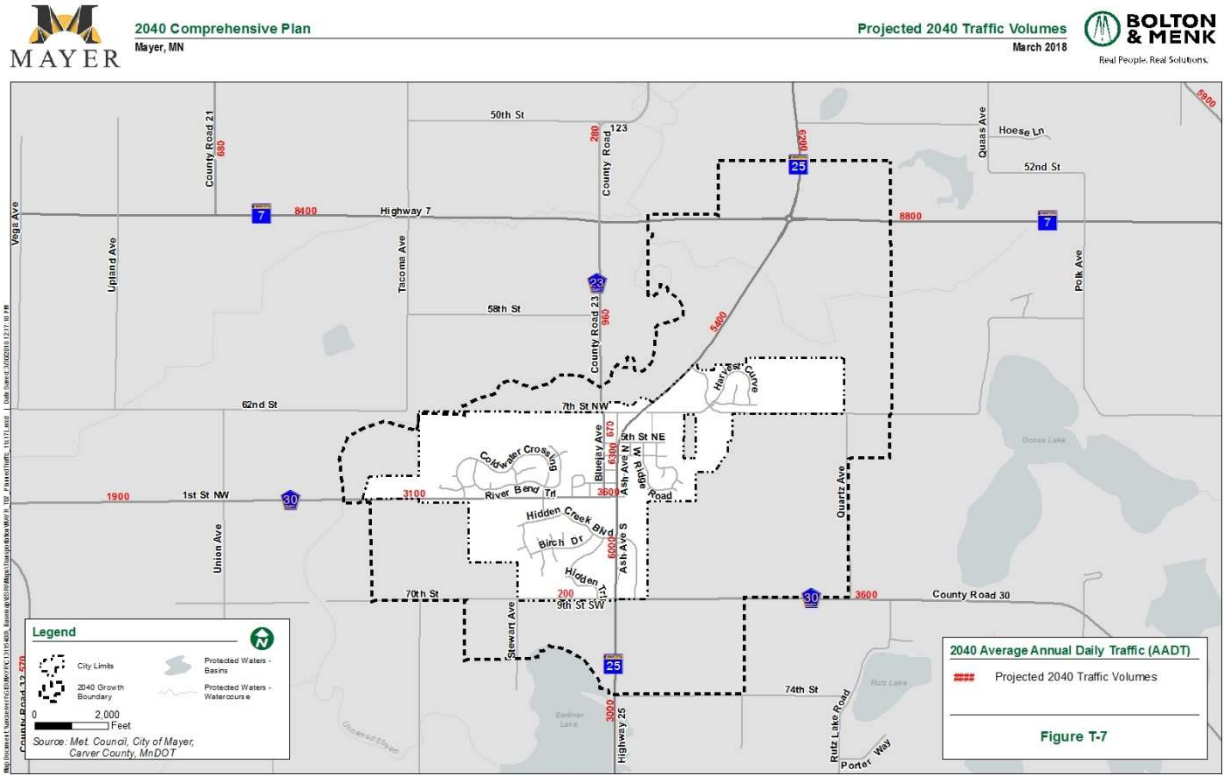
2040 Traffic Forecasts

Traffic projections for the year 2040 are from the Carver County transportation model. They were made based on modifications to the regional Metropolitan Council model. Factors considered in developing the model included:

- Historic trend analysis for volumes
- Assessment of anticipated local and regional development patterns and associated TAZ information
- Discussion and coordination with local, county, and regional staff regarding future plans and the updated regional travel demand model
- Review of other studies and plans for consistency

The 2040 traffic projections are presented on **Figure T-7**. These reflect forecasted 2040 traffic volumes on roadways that are currently funded through a capital improvement plan. These new volumes represent a moderate increase over existing levels when compared to existing volumes on **Figure 4-2** which is consistent with planned growth.

Figure T-7 – Forecasted 2040 Traffic Volumes



Future Capacity Deficiencies

All roads are designed to handle a defined level of traffic volume. Once the road begins to approach or exceed capacity, traffic movements become more difficult and congestion may result. At that point, improvements that increase traffic capacity are considered for implementation including retrofitting existing roads with additional travel lanes, adding new roads, redesigning intersections or interchanges, or other capacity-increasing improvements.

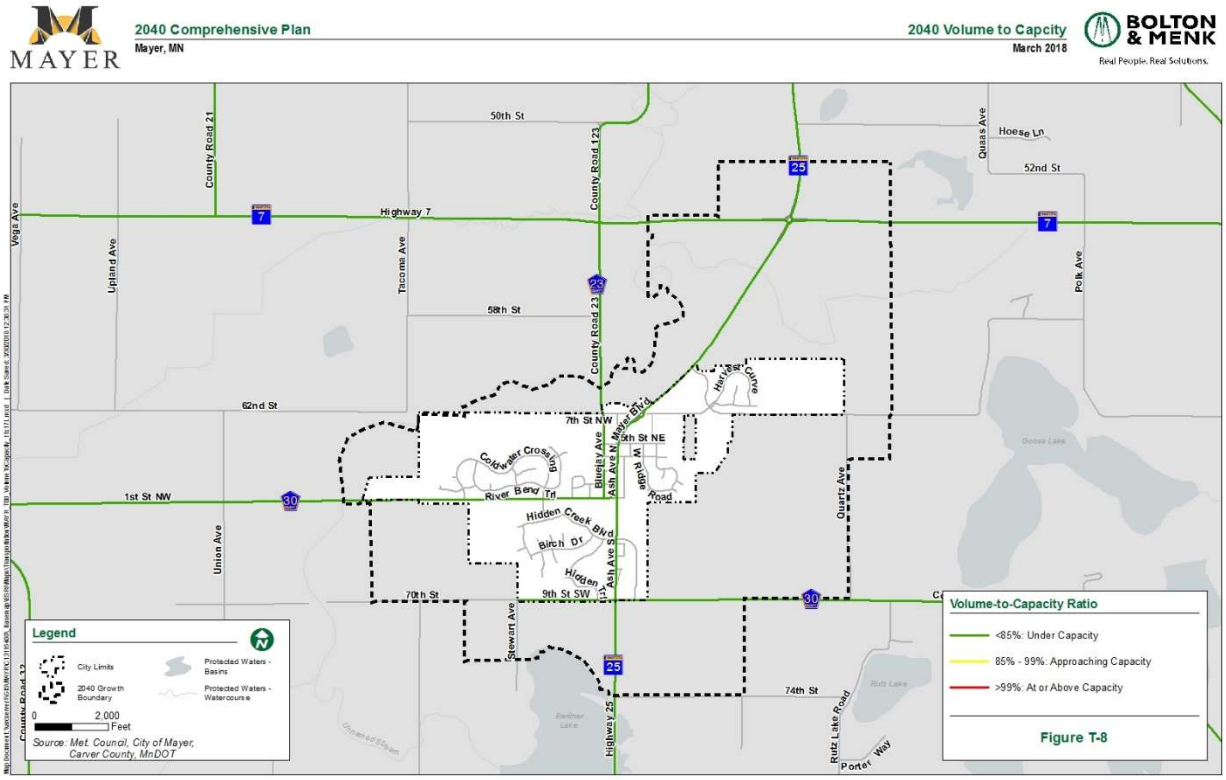
Based on projected 2040 traffic volumes and the assumed 2040 roadway network, an analysis of anticipated capacity deficiencies was performed. This analysis used the volume-to-capacity method. The volumes were taken from the 2040 projections illustrated in **Figure T-7**. The capacity is based on typical capacity levels for different non-freeway types and configurations of roadways as summarized in **Table T-4**.

Table T-4– Typical Traffic Capacity by Roadway Type/Configuration

Roadway Design	Planning Level Daily Capacity
Local	
Gravel Roadway	Up to 500
Local and Minor Collector 2-Lane	Up to 1,000
Collector and Arterial	
Urban 2-Lane	7,500 – 12,000
Urban 3-Lane or 2-Lane Divided	12,000 – 18,000
Urban 4-Lane Undivided	Up to 20,000
Urban 4-Lane Divided	28,000 to 40,000
4-Lane Freeway	Up to 70,000

Figure T-8 shows the results of this volume-to-capacity analysis. As is apparent from reviewing the map, all of the roads within Mayer are forecasted to remain below capacity in 2040. While there is definitely growth in traffic – from both local and regional sources – the volumes are still well below what the roads were designed to handle.

Figure T-8 – 2040 Volume to Capacity



Recommended Roadway System Improvements

New Roadway Segments

As noted in the capacity analysis, there is currently no anticipated need for capacity-increasing projects. However, the city is expecting to have significant population and employment growth by 2040 – with nearly 600 new households and 50 new jobs. Much of this growth is anticipated to take place in an area that currently has a limited road network.

A suitable arterial-collector system to accommodate future development and traffic patterns is necessary in the growing community of Mayer. The existing county and state highways have historically provided much of the local circulation and connectivity; however these roadways will not be capable of meeting both the future local and regional travel demands. A city collector system consisting of major collector roadways and minor collector streets is needed to provide acceptable local circulation and access to developing areas, as well as to enable the principal arterial and minor arterial roadways to serve longer, regional travel. It is not anticipated that all of the proposed collector streets will be constructed by 2040. Rather, collector streets should be constructed as development occurs.

These proposed routes are shown on **Figure T-9** and described below.

- **TH 25 east-west parallel route**. A new "A" minor arterial connector is proposed between TH 25 and 74th Street. This will form a central route for planned new development east of the existing city limits, within the 2040 growth boundary, and connect this area to the major roadway network. The route will also intersect CSAH 30. As the city continues to grow, it is possible long term that the trunk highway route could shift to this new corridor, and the old route could be turned back to the city – but this has not yet been determined.

  This route is the current iteration of the more ambitious recommended alignment in the North-South Corridor Study. It is recommended that the timing of this road be determined by the development of this area, which may mean the road is built in segments.

- **Eastern collector routes**. **Figure T-9** also shows a series of proposed major and minor collector routes throughout the eastern portion of the city's growth area. The intent is to provide access to future development throughout this area, connecting to the existing and planned arterial network. The timeline for their construction will be determined by the pace of development, and the exact location of these routes will likewise be finalized as part of the subdivision process.

- **Western collector routes**. While the area to the west of Mayer doesn't have the planned growth of the eastern side, it does have some connectivity issues. Within the city, there are only a couple crossings over the Crow River, which forms the western boundary of Mayer. These additional connections, while not proposing a new bridge, fill in some of the gaps of the network in this area.

Other Roadway Improvements

Improvements to existing roadways are also recommended. They are provided in **Table T-5**.

Table T-5 – Proposed Roadway Improvements		
Project	**Location**	**Type**
TH 25/Ash Avenue/ Mayer Boulevard	TH 7 to CSAH 30/1st Street NW	Pavement improvements
7th Street / 62nd Street	County Road/CSAH 23 to Quartz Avenue	Recommended 2-lane urban roadway network, potential intersection improvements

Additionally, there will be pavement maintenance, safety, and other improvements needed for the existing roadway network from time to time.

Intersections

It is beyond the scope of this 2040 transportation plan to perform intersection analyses with detailed recommendations. However, based on information gathered as part of this planning process, including previous studies, it is recommended that the city work with the county and MnDOT to continue to monitor safety issues at intersections along TH 25 and CSAH 30 to make improvements as needed – particularly for locations identified through the county's safety plan.

Future Functional Classification

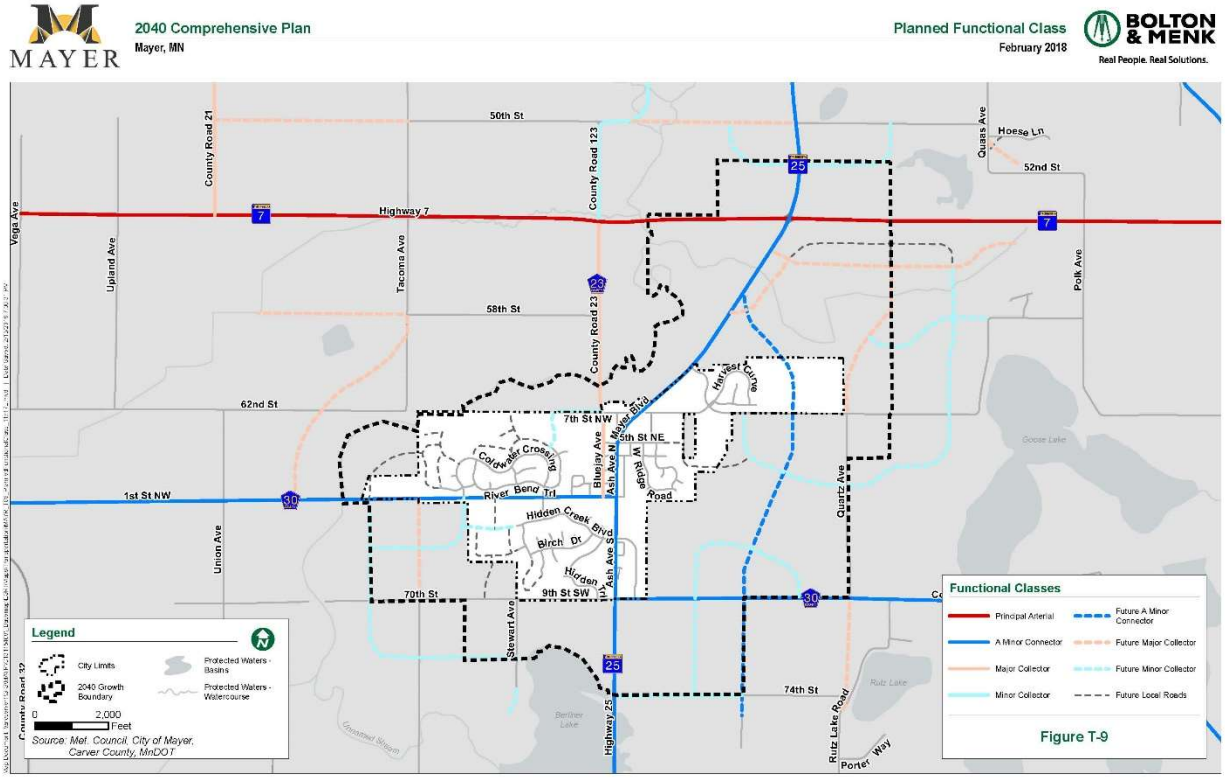
Future functional classifications for roads in Mayer are depicted on **Figure T-9.**

Re-designations of roadways involving the "A" minor arterial functional classification (e.g. from collector to arterial, from arterial to collector, or changing designations within arterial) are under the authority of the Metropolitan Council. The plan does not recommend any changes to the existing arterial network, though it does recommend the construction of new "A" minor arterial route, as described in the new roadways section above. When this roadway is constructed (timeframe will likely be development driven), the City will work with the County and Metropolitan Council regarding appropriate functional classification status.

For collector roadways, the functional class designation is under the authority of the agency which owns the given road.

This plan does not recommend any changes to the designations of existing collector roads, but does recommend the construction of additional minor and major collectors to serve new development.

Figure T-9 – Planned Functional Classification



Future Jurisdictional Classification

Jurisdictional changes are made when it is determined that a road is better maintained by another jurisdiction. Roads are sometimes turned back to local communities, and hence removed from a county or regional system. Likewise, local roads at times become county or regional routes, often in the context of new development which changes the function and usage of the roadway within the network.

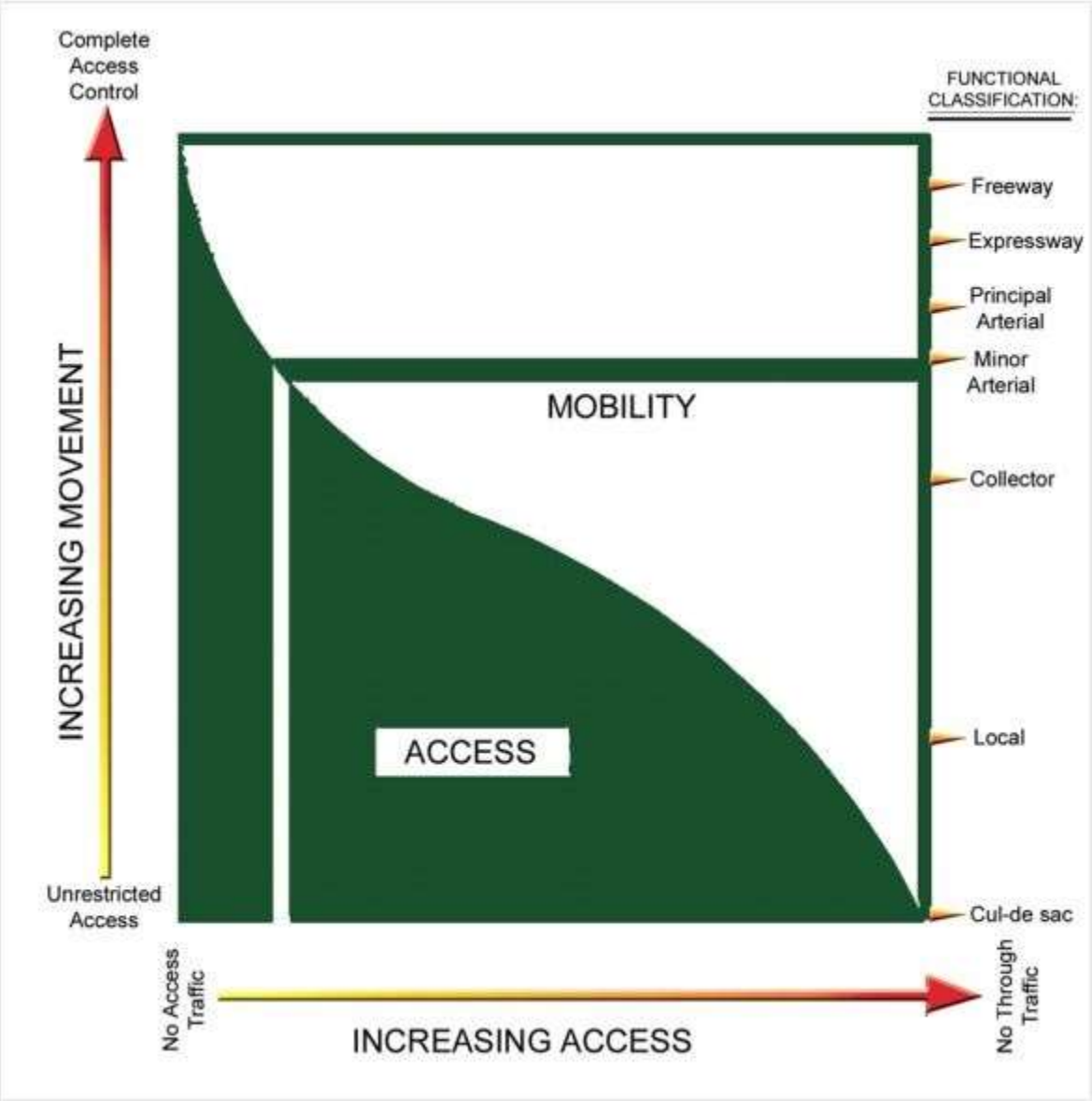
The following are two potential jurisdictional transfers being considered by the state, county, and city:

- Highway 23 from CSAH 30 and north is identified as a potential jurisdictional transfer from Carver County to the city/township.
- TH 25 passing through Mayer is identified as a potential jurisdictional transfer from MnDOT to Carver County.

Access Management

Overview

Access management refers to balancing the need for connections to local land uses (access) with the need for network-level movement (mobility) on the overall roadway system. Arterials generally have limited access in the form of driveways and low volume side streets because their role in the network is to support relatively long, high speed traffic movements; collectors allow a greater degree of access given their combined mobility/access function; and local streets have relatively few limits on access. Appropriate access control preserves the capacity on arterial and collector streets, and improves safety by separating local turning movements from higher-speed “through” traffic. Moreover, it concentrates higher volume traffic linkages at intersections controlled with traffic signals, roundabouts, or other measures.



Each access location (i.e. driveway and/or intersection) creates a potential point of conflict between vehicles moving through an area and vehicles entering and exiting the roadway. These conflicts can result from the slowing effects of merging and weaving that takes place as vehicles accelerate from a stop turning onto the roadway, or decelerate to make a turn to leave the roadway. At signalized intersections, the potential for conflicts between vehicles is increased, because through-vehicles are required to stop at the signals. If the amount of traffic moving through an area on the roadway is high and/or the speed of traffic on the roadway is high, the number and nature of vehicle conflicts are also increased.

Access Management Guidelines

MnDOT and Carver County roadways in Mayer are identified on **Figure T-3**. For these roadways, MnDOT and Carver County's access management guidelines apply, respectively. Both guidelines are included in **Appendix T-1**.

In Mayer, access standards and spacing guidelines are recommended as a strategy to effectively manage existing ingress/egress onto city streets and to provide access controls for new development and redevelopment. The proposed access standards (driveway dimensions) are based on MnDOT State-Aid design standards. **Tables T-6 and T-7** below present proposed access standards and access spacing for the Mayer roadway network.

Table T-6 – Proposed Roadway Access Standards		
Driveway Dimensions	**Residential**	**Commercial or Industrial**
Driveway Access Width	11' – 22' , 16' desired	16' – 32' , 32' desired
Minimum Distance Between Driveways	20'	20'
Minimum Corner Clearance from a Collector Street	60'	80'[1]
[1]At the discretion of the City Engineer, 80' minimum		

Table T-7 – Proposed Access Spacing Guidelines for Collector Roadways in Mayer[1]		
Type of Access	**Major Collector[2]**	**Minor Collector[3]**
Private Residential	Not Permitted	As Needed
Private Commercial or Industrial	Not Permitted	As Needed
Minimum Corner Clearance from a Collector Street	660'	300'
[1] These guidelines apply to City streets only. Carver County and Mn/DOT have access authority for roadways under their jurisdiction		
[2] Access to major collectors shall be reserved for public street access. Steps should be taken to redirect private accesses on major collectors to other local streets. New private access to major collectors shall not be permitted unless deemed necessary by the City Engineer.		
[3] Private access to minor collectors shall be at the discretion of the City Engineer. Whenever possible, residential access should be directed to non-continuous streets rather than minor collector roadways. Commercial/Industrial properties shall provide common accesses with adjacent properties when access is located on the minor collector system. Cross-traffic between adjacent compatible properties is encouraged whenever feasible.		

Geometric Design Standards

Table T-8 identifies various roadway types and the estimated daily capacities that the given roadway can accommodate within the City of Mayer and the 2040 Growth Boundary.

Table T-8 – Roadway Types and Capacities						
Functional Classification	**Facility Type**	**Typical Daily Capacity Range**			**Capacity**	**Approaching Capacity (85% of AADT)**
Local Road	Gravel Road	Up	to	500	500	450
	2-Lane Local/Residential Road	Up	to	1,000	1,000	850
Minor Collector	Rural 2-Lane	5,800	to	7,700	7,700	6,600
	Urban 2-Lane	1,300	to	1,700	1,700	1,500
Major Collector Minor Arterial Principal Arterial	Urban 2-Lane Undivided	8,900	to	10,700	11,000	10,000
	Urban 3-Lane	15,000	to	22,000	22,000	19,000
	Urban 4-Lane Undivided	18,600	to	22,300	22,000	19,000
Minor Arterial Principal Arterial	4-Lane Rural Expressway	38,300	to	60,900	61,000	52,000
	4-Lane Urban Expressway	47,500	to	67,900	68,000	58,000

County Roadways

Geometric design standards for Carver County roadways are generally based on the standards as specified by the State Aid Office. It should be noted that there are a number of roadway sections that could be chosen for county roadways. These roadways, which typically have a range of 15-18,000 ADT, can operate with 3-lane, 4-lane undivided, and 4-lane divided cross sections. Carver County and the City of Mayer will work collaboratively to determine what is most appropriate for each section.

Future Right-of-Way Preservation

MnDOT, Carver County, and the City of Mayer will work collaboratively to determine appropriate right-of-way needs and preservation for planned and future projects. The approximate location for future collector and arterial roadways which will require right-of-way dedications are shown on **Figure T-9**. The geometric design standards section indicates expected right-of-way needs by functional classification.

Walking and Bicycling

A well-developed pedestrian and bicycle network provides a way for people of all ages and abilities to travel in a way that is safe, comfortable, accessible, and active. It connects people to community destinations, improves pedestrian and bicycle safety, increases multimodal opportunities, encourages active living, and provides a community amenity.

Pedestrian Facilities

Pedestrian travel provides an alternative to driving for short distance trips, and safe connections between other modes and final destinations for longer ones. It also can serve as an amenity for residents and visitors who are looking for a safe and active means of recreation, and for businesses districts looking for street life. Dedicated pedestrian facilities also help prevent fatalities resulting from pedestrians mixing with vehicle traffic. The current and planned sidewalk system serving Mayer is depicted on **Figure T-10**.

The following criteria apply for pedestrian facilities associated with new development, as established through the Planning Commission:

- Local Streets: Five foot wide concrete sidewalks shall be located on at least one side of all local streets, except cul-de-sacs. Specific circumstances where a cul-de-sac is connected to a trail system my require a sidewalk or trail to be installed on the cul-de-sac.
- Collector Streets: Five foot wide concrete sidewalks shall be located on one side of all collector streets and a ten foot wide bituminous trails shall be located on the side opposite of the concrete sidewalk on all collector streets.
- Arterial Streets: Ten foot wide bituminous trails shall be located on both sides of all arterial streets.
- Concrete sidewalks and multipurpose bituminous trails shall be accessible by handicapped persons in accordance with Minnesota statutes section 471.464. It shall be at the City of Mayer's discretion to substitute concrete sidewalk for bituminous trails or bituminous trails for concrete sidewalks and to only require a bituminous trail or concrete sidewalk on one side of a collector street.
- The developer shall be responsible for the payment of the cost of sidewalks and multipurpose trailways.

Bicycle Facilities

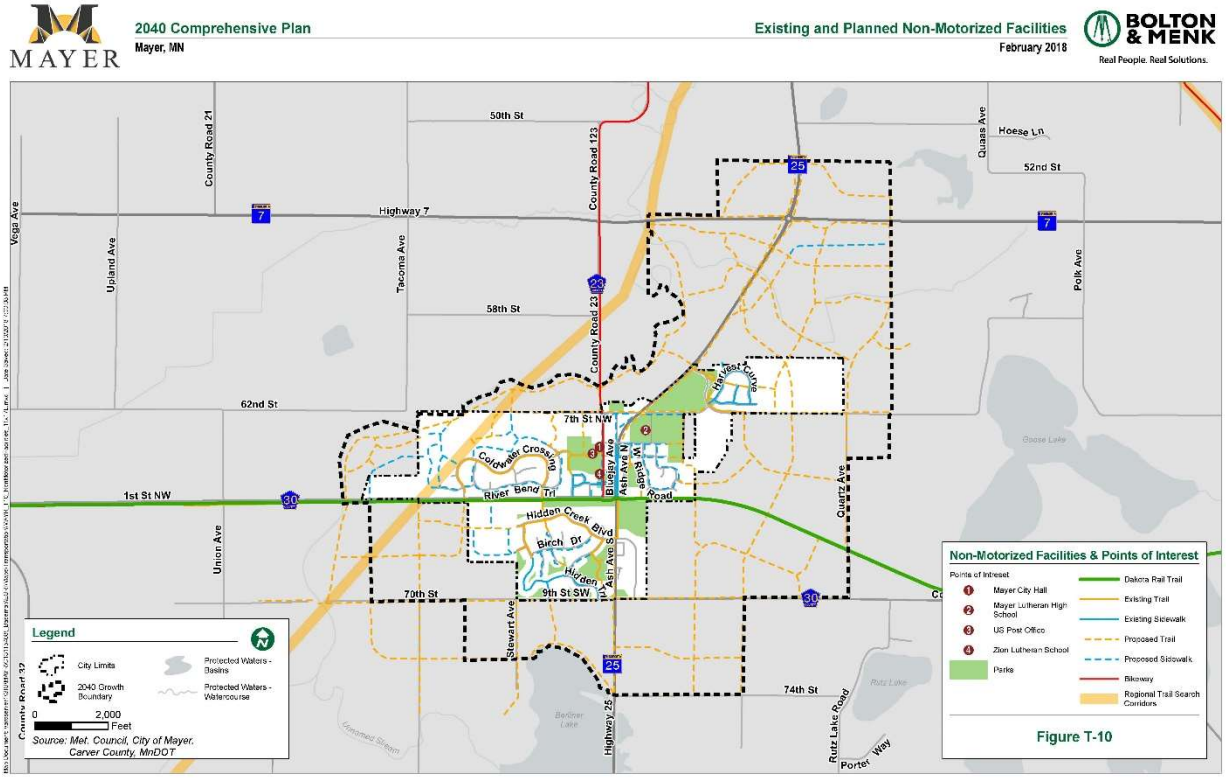
Bicycle facilities provide additional opportunities for non-motorized connectivity and travel. Bicycle trips can be longer than pedestrian trips, which opens up possibilities of both replacing auto trips and connecting to a regional network. As traffic volumes grow, having an alternative means of travel can ease pressure on roads with limited capacity. Additionally, bicycle tourism has become increasingly popular in many communities, as a low-impact way to enjoy area attractions and support local businesses.

They can also be developed as a system that is similar to road functional class – with different facility types for different travel needs. Major categories of bicycle facilities in Mayer include:

- **Off-street trails** – These trails link destinations and communities and may have a range of supporting amenities, including signage, parking, seating, and wayfinding. They may be located along major roadways, or in their own dedicated right-of-way (such as an abandoned rail corridor, as is the case with the Dakota Rail Trail). They are frequently located along higher volume and speed corridors where on-street bicycling would be less safe. Regional trails are developed and maintained at the county or regional level, and provide connections over longer distances and between cities. Local trails are maintained at the city level, and typically provide connectivity between local destinations and regional systems.
- **On-street bike lanes** – On-street bicycle facilities are typically developed by the county or municipality when funding or right-of-way constraints preclude off-street facilities – or where traffic volumes do not justify the additional investment. They can provide important local connections to the off-street system and local destinations.

Existing bicycle facilities in Mayer are depicted on **Figure T-10**. Also depicted are regional trail search corridors that would connect Mayer with other Western Carver County communities and other regional trail networks (discussed more below).

Figure T-10: Existing and Planned Non-Motorized Facilities



Regional Trail Facilities

As shown in **Figure T-10**, the main regional pedestrian and bicycle facility in the city is the Dakota Rail Regional Trail (DRT). The DRT is open from the western McLeod/Carver County line, about two miles west of New Germany. It runs 12.5 miles across Carver County, through the Cities of Mayer and New Germany and Camden, Laketown, and Waconia Townships, connecting to St. Bonifacius. In Hennepin County, the trail continues another 13 miles, through St. Bonifacius and along Lake Minnetonka and ends in Wayzata. McLeod County anticipates extending the trail westward to Lester Prairie in 2019.

The Dakota Rail Trail is a multiuse corridor that accommodates pedestrians, bicyclists, skating, and dogs. It is open daily, though Carver County does not maintain the trail corridor during the winter months. It can be accessed in Mayer at a trailhead located on the west side of the intersection of TH 25 and CSAH 30. The trailhead location includes parking, an informational kiosk, and other amenities. The DRT connects to the Western Carver County Regional Trail Search Corridor, the County Road 10 Regional Trail Search Corridor, Gale Woods Farm, and the planned Baker-Carver Regional Trail (which will connect Carver Park Reserve in Carver County to Baker Park Reserve in Hennepin County).

Regional Bicycle Transportation Network

The Metropolitan Council has reflected the need for a hierarchy of non-motorized transportation facilities through their designation of the Regional Bicycle Transportation Network (RBTN). The RBTN was developed by the Metropolitan Council through the Regional Bicycle System Study in 2014, and was incorporated into the 2040 Transportation Policy Plan. It is the Metropolitan Council's intent that the RBTN will "serve as the 'backbone' arterial system for biking in the region." The guiding principles for this network include:

- Overcome physical barriers and eliminate critical system gaps.
- Facilitate safe and continuous trips to regional destinations.
- Function as arteries to connect regional destinations and the transit system year round.
- Accommodate a broad range of cyclist abilities and preferences to attract a wide variety of users.
- Integrate and/or supplement existing and planned infrastructure.
- Provide improved opportunities to increase the share of trips made by bicycle.
- Connect to local, state, and national bikeway networks.
- Consider opportunities to enhance economic development.
- Be equitably distributed throughout the region.
- Follow spacing guidelines that reflect established development and transportation patterns.
- Consider priorities reflected in adopted plans.

The RBTN is subdivided into two tiers for planning and investment prioritization:

Tier 1 and Tier 2 Regional Bicycle Transportation Alignments reflect specific routes that have already been constructed and/or identified through local plans. Some may need little or no improvement, while others have not yet been developed. The Tier 1 subset reflects those that provide direct connections to and between regional destinations.

Tier 1 and Tier 2 Regional Bicycle Transportation Corridors are the highest priorities for regional planning

and investment, with Tier 1 being the top ones. They were chosen to reflect areas where it would be possible to attract the most riders and thereby make the biggest difference in terms of mode shifts. At present, they are shown as broad lines on the map because the exact alignment has not yet been determined.

Currently, there is no existing or planned portion of the RBTN in Mayer. However, the Dakota Trail is considered a Tier 2 RBTN alignment once it crosses over into Hennepin County, providing a connection to the larger regional network.

Facility Improvements

Planned Regional Trails

At present, there are two search corridors for the Western Carver County Trail located in or near the City of Mayer. This proposed linking trail will run north/south through Carver County, connecting the Cities of Watertown, Mayer, and Norwood Young America. The trail will also connect to existing facilities in Baylor Regional Park, the Dakota Rail Regional Trail, the Luce Line Trail, and the Twin Cities & Western Regional Trail and County Road 10 Regional Trail Search Corridors.

The alignment of this trail will depend on future development in each city and right-of-way along TH 25, which is anticipated to be used for trail development in some segments of the trail. Carver County will lead a planning process in the future to determine the alignment of the regional trail.

General Guidelines

Bikeways, sidewalks and/or multi-use trails are recommended to be adjacent to minor arterial, major collector and minor collector roadways within Mayer to accommodate pedestrian, bicycle, and other non-motorized travel in a safe and comfortable manner. These roadways carry a considerable amount of vehicular traffic and separation of vehicular and non-vehicular travel modes is recommended. At the discretion of the city, in commercial and industrial areas, the requirements for trails and sidewalks may vary to accommodate additional pedestrian and bicycle traffic to provide connectivity as illustrated in **Figure T-10**.

Along major collectors, on-street bikeways are recommended, and when possible a sidewalk on at least one side. On minor collectors, due to varying right-of-way widths and existing limitations, on-street bikeways or off-street trails or sidewalks are recommended, where right-of-way permits. When possible, pedestrian facilities on both sides of major collector roadways are recommended to allow for pedestrian travel within the corridor without introducing excessive crossing demand. With the vehicular volumes anticipated on minor collector streets, pedestrians can safely cross the roadway; however, pedestrian travel along the roadway may become less comfortable as traffic levels increase. An off-street sidewalk or trail will accommodate pedestrian travel along the corridor as well as provide a safe, comfortable link between lower volume residential streets and the other pedestrian facilities within the community.

Transit

Transit Market Area

Transit connections for Mayer are important to the community, providing a transportation alternative for workers in and around Mayer, particularly to major job centers in the Twin Cities metropolitan region. Levels of transit service in the region are determined by a series of Transit Market Areas. The Metropolitan Council has defined Transit Market Areas based on the following primary factors:

- Density of population and jobs
- Interconnectedness of the local street system
- Number of autos owned by residents

In general, areas with high density of population and jobs, highly interconnected local streets, and relatively low auto ownership rates will have the greatest demand for transit services and facilities. Transit Market Areas are a tool used to guide transit planning decisions. They help ensure that the types and levels of transit service provided, in particular fixed-route bus service, match the anticipated demand for a given community or area.

Based on this analysis, the Metropolitan Council categorizes the City of Mayer in Transit Market Area V. As identified in Appendix G of the Metropolitan Council's 2040 Transportation Policy Plan (TPP), the characteristics of this category area are as follows:

> *Transit Market Area V has very low population and employment densities and tends to be primarily Rural communities and Agricultural uses. General public dial-a-ride service may be appropriate here, but due to the very low-intensity land uses these areas are not well-suited for fixed-route transit service.*

Also from Appendix G of the 2040 TPP (Table G-2), the primary emphasis within Transit Market Area V is general public dial-a-ride services.

Current Transit Service and Facilities

Fixed Route Service

Due to its rural location, Mayer does not have any existing or planned regular route transit services. There are transit services available in Chaska, Chanhassen, and Eden Prairie, including park and ride facilities that could accommodate travelers from Mayer who wish to access metropolitan commuter bus routes.

Dial-a-Ride Service

Mayer is serviced by Transit Link, the dial-a-ride service provided through the Metropolitan Council at the County level. Transit Link provides metro-wide transit connections and access to qualifying rides, such as last mile service, connections between transit stations, or to and from area not serviced by regular bus routes. Any member of the public may reserve a qualifying ride. Upon reservation, each trip is assessed to ensure it does not overlap with regular route bus services. Starting and ending destinations must be more than ¼ mile from regular route transit in winter months (November – March)

and more than ½ mile from regular route transit in summer months (April- October). Transit Link Service does not operate on Thanksgiving Day, Christmas Day, and New Year's Day.

Transit Link fares are determined by distance traveled. Trips less than 10 miles are $2.25 one way, trips between 10 and 20 miles are $4.50 one way, and trips more than $20 miles are $6.75 one way. ADA-certified riders pay a maximum of $4.50 one way regardless of distance traveled. This fare includes transfer to a regular service route except for the Northstar Line or peak hour services.

Transit Link service offered jointly through Carver and Scott Counties, called SmartLink Transit, serves all cities and townships in Carver and Scott Counties. Service is available Monday-Friday from 6:00am – 7:00pm. Transfers between Transfer Link and regular service routes take place at one of the following transit hubs: Chanhassen Transit Station, Southwest Village, East Creek Station, Marschall Road Transit Station, Eagle Creek Park & Ride (Secondary), and Southbridge Crossing Park & Ride (Secondary Rush). The following stations in Dakota County are also available for transfer service: Burnsville Shopping Center, Burnsville Transit Station.

Metro Mobility is also available to qualified individuals with disabilities on an on-call basis throughout the seven-county metropolitan area.

Recommendations

Presently, there are no plans to extend fixed route transit service to the City of Mayer within the 2040 planning horizon.

The city will work with the county, Transit Link, and other stakeholders to ensure that the provision of dial-a-ride services is sufficient to meet the needs of area residents who need such as service, such as seniors and persons with disabilities.

Aviation

There are no airports located within or nearby Mayer. Winsted Municipal Airport, located in Winsted, is the nearest airport to Mayer within the regional airport system. Winsted Municipal Airport is located approximately 15 miles northwest of Mayer. The airport poses no potential impacts on Mayer and there are no airspace restrictions affecting development in the city. The city will notify the Metropolitan Airports Commission and MnDOT if any new structures are proposed in excess of 200 feet above ground level.

The Metropolitan Council states that each community has a responsibility to identify policies and ordinances that protect regional airspace from obstructions, including meeting any Federal Aviation Administration (FAA) notification requirements. The Transportation Policy Plan provides some guidance and resources to inform the development of ordinances and regulations. As appropriate, city ordinances to satisfy FAA requirements should be created.

Freight

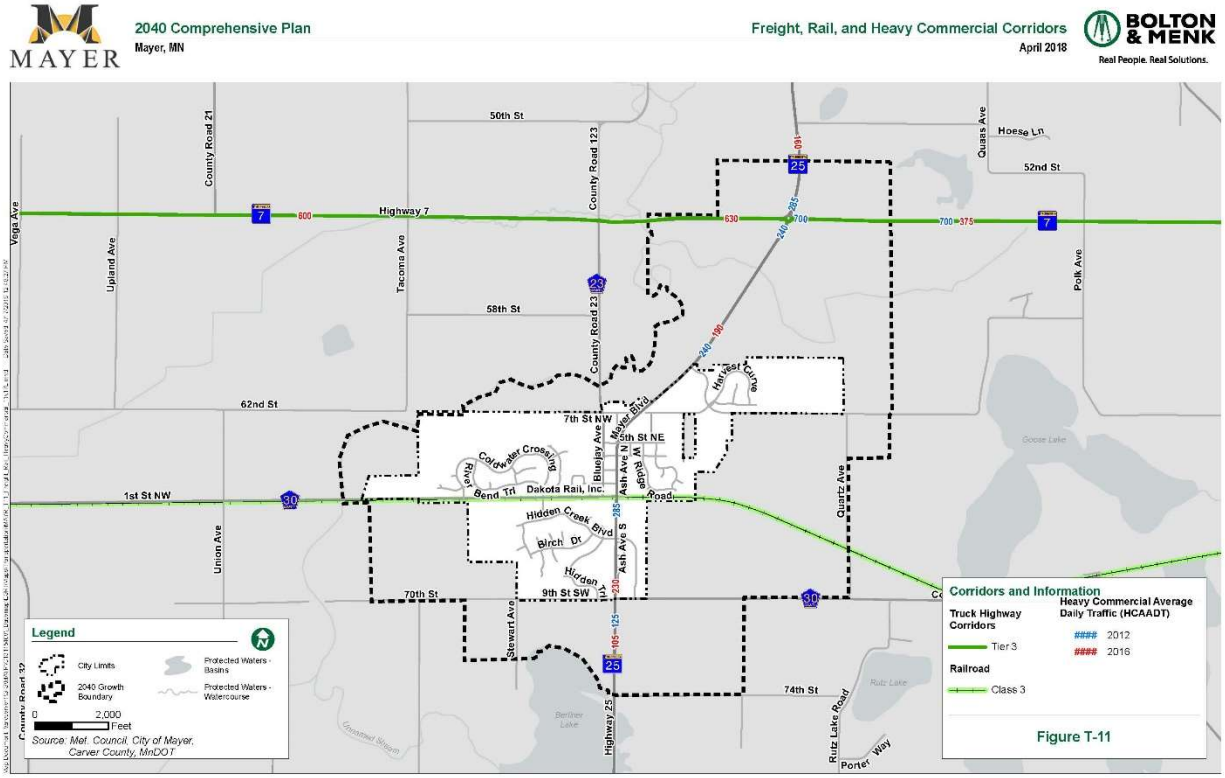
As there are no principal or minor arterials in the City of Mayer, there is limited freight traffic in the city. According to the 2016 Carver County Freight study, both County Road 15 and 125 see an average of 100 and 250 trucks per day. Segments of County Road 15 east of Commerce Boulevard/County Road 110 experience delays during both morning and evening peak travel times. This has led to decreased reliability in travel times along this stretch of road. **Figure T-11** shows heavy commercial vehicle volumes on major roadways near Mayer.

The nearest major freight corridor to Mayer identified in the *Regional Truck Freight Corridor Study* (2017) is TH 7, a Tier 3 corridor located north of city limits. Tier 3 corridors provide connections to major Tier 1 and 2 freight network routes, such as the interstate system.

There currently are no railways, barge facilities, or freight terminals in the city. The abandoned rail line running through the city has been converted into a regional trail, the Dakota Rail Trail.

The City of Mayer will work to maintain freight connections to major existing and planned employment centers in the city and region. Freight generators within the city include a location along CSAH 30 on the western edge of the city, and several smaller ones surrounding the intersection of CSAH 30 and TH 25.

Figure T-11: Freight, Rail, and Heavy Commercial Corridors



Transportation Goals and Strategies

The following goals and strategies outline the City of Mayer's plan for ensuring adequate infrastructure is available to support the growth anticipated within the 2040 Growth Boundary.

Goals

The transportation goals and implementation strategies identified have been developed to meet the needs of the land uses associated with the buildout of the 2040 Growth Boundary.

1. Transportation System – Provide a safe, cost effective, and efficient transportation system that is adequate for vehicular, pedestrian, bicycle, and truck transportation for the movement of people and goods and services in the community.
2. Maintain Existing Infrastructure – Preserve and maintain the existing transportation infrastructure to protect the significant investment, to increase its efficiency, and delay the need for improvement or expansion by use of a Capital Improvement Plan.
3. Transportation Improvement and Expansion – Improve and expand the existing transportation system as necessary to meet current and future transportation needs.
4. Alternative Modes of Transportation – Along with regional partners, explore alternative modes of transportation and technological alternatives to transportation (telecommuting) in order to reduce traffic demands in the area. As the population ages and diversifies, transit service should be considered as a potential amenity in the community. Special attention should be given to improving pedestrian and bicycle access, movement, and crossings to provide both convenience and safety.
5. Regional Transportation Planning – Cooperate on a regional level in planning and development of a transportation system, including coordination among multiple jurisdictions, public and private transit providers, and agencies at all government levels while serving the functional needs of all.
6. Regional Traffic Management – Work on a local, state, and regional level to reduce traffic congestion and safety concerns on transportation corridors.
7. Transportation and Economic Development – Create or encourage a transportation system that contributes to the economic vitality of the community by connecting people to work, shopping, and other activity generators/attractions and supports growth of commercial and industrial uses.
8. Comprehensive Transportation Planning – Approach transportation in a comprehensive manner by giving attention to all modes and related facilities, linking transportation and land use, and combining or concentrating various land use activities to reduce the need for transportation facilities.
9. Transportation Funding – Pursue a balanced approach to financing transportation and other community needs at the local level based on current availability of services and facilities and maintenance of existing infrastructure.
10. Roadway Project Coordination – Continue to coordinate future road construction and reconstruction projects with all utility service providers and Carver County to ensure efficient repair/replacement and avoid duplicate costs.

11. Capital Improvement Plan – Develop a Capital Improvement Plan that contains elements for new construction and reconstruction of the roadway system, with scheduled maintenance included in annual budgets. Street maintenance should include routine patching, crack filling, and storm sewer cleaning. The city should implement a schedule for roadway maintenance and reconstruction (e.g. seal coating every 4 to 5 years, complete reconstruction or mill/overlay every 15 to 20 years), street widening/realignment, etc.
12. Zoning and Subdivision Ordinance Update – Update the Zoning and Subdivision Ordinances to be consistent with the Transportation Plan.
13. Right-of-Way Dedication – Where appropriate, require right-of-way dedication along state, county, and local roads to meet future capacity needs.
14. Minor Collector Review – review concept plans for plat and development proposals to evaluate the distribution of minor collector roadways so as to not overburden local streets.
15. Development Driven Improvements – Work with developers to construct needed improvements prior to development.
16. Non-Development Driven Improvements – Non-development driven improvements should be prioritized and programmed in the Capital Improvement Program.
17. Assessment Policy – Develop an assessment policy for major collector and minor arterial roadways to establish expectations and ensure consistent application.
18. Developer Agreements – Utilize developer agreements as a tool to ensure improvements are constructed as agreed upon in the platting or development process.
19. Traffic Impact Study Policy – Establish a policy outlining when a traffic impact study should be conducted, including acceptable information to be contained within the study.
20. Gravel Roadway Improvements – When traffic from a proposed urban development may exceed 500 ADT, work with the developer and township to identify a strategy to upgrade and improve the gravel corridor through a joint agreement with the developer, township, and city.

Strategies

Various strategies can be utilized to ensure proper transportation improvements are made to provide and protect the infrastructure investment. Astute land use planning and subdivision plat review are key to ensuring the long-term roadway network vision is developed and future traffic issues are avoided. To accomplish this, each development proposal (e.g. redevelopment of a single parcel, plat review, change of use, expansion of a business or operation, etc.) should be evaluated for consistency with the following policies/standards:

1. Work with property owners and developers to remove and/or relocate existing driveway and field approaches off non-local roads.
2. Provide road and trail connectivity between adjacent parcels.
3. Review/require access spacing that is consistent with the transportation plan.
4. Connect residential and non-residential areas.
5. Require turn and bypass lanes on non-local roads impacted by new development, including

those that are not immediately adjacent.

6. Require off-site improvements, including those in other jurisdictions, where the existing transportation network will be directly impacted by new development, including where the development is not immediately adjacent. This could include but is not limited to paving roads, repairing surfaces, fixing substandard drainage, improving sight distances, etc.
7. Require the dedication of rights-of-way for all required future transportation improvements identified in the transportation plan including trails, roads, bridges, transit facilities, drainage, utilities, and any other related improvement requiring use of a corridor/location.
8. Require the equitable participation in the construction of collector and arterial roads.
9. Review probable neighborhood traffic patterns, areas where excessive speed is possible, and the potential for pedestrian conflicts.
10. Require all local roads to be constructed to property lines, or the corresponding amounts of money be escrowed, where stub streets are proposed to adjacent properties, but are not immediately warranted.
11. Require fees, construction participation, and/or cost participation proportionately to future required infrastructure such as overpasses, interchanges, and other local/county responsibilities as afforded by law and justifiable.
12. Require traffic impact studies, including the analysis of intersections to determine the need for and contribution to intersection improvements.

Real People. Real Solutions.

SURFACE WATER MANAGEMENT PLAN

CITY OF MAYER, MN

JUNE 2018

Submitted by:
Bolton & Menk, Inc.
2638 Shadow Lane, Suite 200
Chaska, MN 55318
P: 952-448-8838

Surface Water Management Plan
Mayer, Minnesota

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

By: _____

Robert Bean, Jr., P.E.
Registration No. 40410

Date: 6/28/2018

Prepared by Bolton & Menk, Inc.

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1.0 EXECUTIVE SUMMARY

1.1 General Plan Description

The City of Mayer's Surface Water Management Plan has been developed as a guide for the Mayer City Council in its future decision making for related matters. The Plan thoughtfully considers Surface Water Management, identifies Water Resource management and the City's partners therein, includes an inventory of Land and Water Resources, raises major issues, goals, and policy objectives, begins to develop an assessment and implementation plan, and charts administrative procedures to enact the Plan.

The Surface Water Management Plan, as adopted by the City of Mayer, is intended to provide context for the future decisions the City will face. It is not intended to be an absolute document – but rather a dynamic and flexible tool which considers the ever changing pressures related to Surface Water Management. The Plan will address mandated requirements as defined by other Local, State, and Federal agencies. The City will consider these mandates carefully to ensure that its implementation is in the best interest of the broader community.

Many of the action items within the Plan require additional study – including an in-depth investigation into alternative strategies, methods, and processes. This additional study will be completed when it is determined to be most efficient and effective by the City.

The regulations outlined in this plan do not supersede those put forth by the Carver County Watershed Management Organization (CCWMO) or other Local, State, or Federal agencies. If a discrepancy exists between regulations contained in this plan and other agencies, the more restrictive requirement shall govern.

This plan is divided into eight sections as follows:

1. ***Section 1.0. Executive Summary*** provides background information and summarizes the plan contents.

2. ***Section 2.0. Surface Water Management Plan Purpose*** outlines the purpose of this plan.

3. ***Section 3.0. Water Resources Management Responsibilities and Related Agreements*** identifies resource management authority and any water resources related agreements existing between Mayer and nearby cities, state, or county.

4. ***Section 4.0. Land and Water Resources Inventory*** presents information about the topography, geology, groundwater, soils, land use, public utilities, surface waters, hydrologic system and data, as well as the existing drainage system.

5. ***Section 5.0. Major Issues, Goals, and Policies*** outlines Mayer's major issues, goals and policies, as well as implementation strategies, pertaining to water resources management.

6. ***Section 6.0. Water Resources Assessment and Implementation Plan*** presents

information about existing water resources along with current and potential issues. This section provides solutions in the form of proposed restorations or stormwater treatment improvements, provides a general opinion of probable costs, discusses funding mechanisms, identifies project partners, provides prioritization and a potential schedule for surface water management capital improvement projects, and discusses educational opportunities.

7. ***Section 7.0. Administration*** describes potential methods of ensuring that this plan is maintained and identifies a procedure to keep the modeled data current as various developments occur. This section also includes an evaluation of the implementation of this plan.

8. ***Section 8.0. Appendices*** provide a general location for attachments, relative documentation and initial modeled system data sheets.

1.2 Background

The City of Mayer (2010 census population 1,749) is located in northwestern Carver County. T.H. 25 runs north-south through the center of town. C.R. 30 enters from the east on the south side of town, joins with TH 25 to the center of town, and then runs west. Mayer's nearest incorporated neighbor is New Germany, which lies approximately 4 miles west on C.R. 30. The majority of the surrounding land use outside of the city is agriculture at this time. The study boundary has been selected to largely follow the projected 2040 City limits (**Figure 1**); however, those outside areas that contribute runoff to the city have also been included in the analysis. These outside areas were not analyzed for regional stormwater treatment, but they were included in the drainage model as they affect flows in the waterways through the study area. In addition, there are a multitude of wetlands in the surrounding area, which must be protected in accordance with the Minnesota Wetlands Conservation Act.

Mayer is completely located within the boundary of the Carver County Watershed Management Organization (CCWMO). For this plan, six major subwatershed regions were used to analyze drainage as follows (**Figure 10**):

1. *West Watershed* – Contains most of the additions of Coldwater Crossing and Hidden Creek, and drains north to the South Fork of the Crow River.
2. *Central Watershed* – Consists of most of the older portions of Mayer as well as the Sell Industrial Park and rural areas to the south and east. This watershed drains through existing drain tile and storm sewer north to the South Fork of the Crow River.
3. *East Watershed* – Includes the developed portions of the east side of the City as well as some partially developed areas outside the current City limits and drains northwest to the South Fork of the Crow River.
4. *North Watershed* – Includes the area of Mayer Lutheran High School, part of the Fieldstone subdivision and the partially developed area east of Mayer Lutheran. This area generally drains west to the South Fork of the Crow River.
5. *Fieldstone Watershed* – Includes the Fieldstone Additions, as well as future areas north to T.H. 7. This area generally drains west to the South Fork of the Crow River.
6. *Southwest Watershed* – A future development area south of 70th Street which drains south to the Berliner Lake wetland complex.

The area around Mayer is predominantly undeveloped agricultural land. The City can expand in most directions, but is limited on the north by the floodplain of the Crow River; however, care should be exercised in maintaining the naturally forested areas and providing ecological corridors and enhanced natural-area connectivity wherever feasible. Measures must be taken to manage future runoff rates and volumes to maintain the integrity of surface water bodies within and around Mayer. An ordered growth with consideration given to storm water management is the primary goal of this Surface Water Management Plan.

1.3 Major Issues

Section 5.0 outlines Mayer's major issues, goals and policies, as well as implementation strategies, pertaining to water resources management. Following is a summary of the major issues identified:

1.3.1 **Surface Water Management.** Poor management of surface water resources can lead to flooding and low water quality.

1.3.2 **Impaired Waters.** In and around Mayer, the South Fork of the Crow River is impaired for aquatic macroinvertebrate bioassessments, fish bioassessment, nutrient/eutrophication, turbidity, fecal coliform, and mercury in fish tissue, which inhibit aquatic life, recreation, and consumption.

1.3.3 **Urban Stormwater Management.** Land development substantially increases the rate and volume of surface water runoff due to the increase in impervious surfaces. Unmanaged runoff increases sedimentation, pollution, erosion, and flooding downstream and decreases groundwater recharge.

1.3.4 **Wetlands Management.** Draining, filling, or excavating wetlands significantly impacts the water quality of downstream surface waters. The loss of existing wetlands leads to increases in sedimentation, pollution, erosion, and flooding downstream and decreases the diversity and integrity of vegetation and wildlife.

1.3.5 **Upland Natural Resources.** Loss of natural upland areas can lead to a decrease in the function and quality of surface water resources.

1.3.6 **Ground Water Management.** Groundwater quality and availability can be significantly impacted by many different land use activities.

1.3.7 **Education.** Most potential contamination threats, sources of pollution, and increases in stormwater runoff to water resources are related to human activities.

1.4 Goals

Section 5.0 outlines Mayer's major issues, goals and policies, as well as implementation strategies, pertaining to water resources management. Following is a summary of the City's goals:

1.4.1 **Surface Water Management.** Maintain or improve the physical, chemical, biological, and aesthetic condition of surface water resources.

1.4.2 **Impaired Waters.** Develop and implement plans as necessary to reduce pollutant loads for waters that do not meet Total Maximum Daily Loads (TMDLs) approved by the EPA. Coordinate City efforts with applicable Implementation Plans as approved by the Minnesota Pollution Control Agency. See Section 5.2.1S for a list of approved TMDLs and Implementation Plans.

1.4.3 **Urban Stormwater Management.** Minimize and mitigate the impacts of urban stormwater runoff on water resources.

1.4.4 **Wetlands Management.** Manage and protect wetlands to maximize wetland functions and improve surface water resources.

1.4.5 **Upland Natural Resources.** Manage and protect natural upland areas adjacent to surface water resources to mitigate degradation of surface waters and increase the quantity, quality and biological diversity of natural areas.

1.4.6 **Ground Water Management.** Protect the quality and quantity of groundwater resources.

1.4.7 **Education.** Provide the public with the knowledge, skills, and motivation to protect and improve surface water and groundwater resources.

1.5 Policies and Implementation Strategies

A list of policies and implementation strategies is included in **Section 5.0** for each major issue. The policies and implementation strategies discuss responsible parties, define specific City policies, and outline strategies to implement this plan. The policies and implementation strategies are intended to guide City planning. Following is a summary of the City's policies:

1.5.1 **Surface Water Management.**

1. Continue to administer and maintain the Shoreland Overlay District ordinance to be in accordance with state regulations and the County's CWRMP.
2. Continue to administer and maintain the Floodplain Management ordinance in accordance with state regulations and the County's CWRMP.
3. Evaluate and correct flooding issues on City property as necessary to protect public safety and minimize potential for property damage.
4. Provide support to landowners in evaluating and correcting localized flooding issues.
5. Prioritize restoration of eroded areas on natural streams and/or creeks.
6. Provide support to landowners in evaluating and removing channel obstructions on natural streams and/or creeks.
7. Promote additional storage and runoff reduction through wetland restoration, regional ponding, and stream or ditch diversions.
8. Evaluate outlet control structures for performance and work with landowners, CCWMO, and/or the Minnesota Department of Natural Resources (MnDNR) to replace or repair the structures if needed.

9. Promote education regarding the benefits of proper surface water resources management.

1.5.2 **Impaired Waters.**

1. Reduce pollutant loading to Impaired Waters in order to restore water quality to State standards.
2. Promote education regarding the benefits of pollutant load reduction.

1.5.3 **Urban Stormwater Management.**

1. Continue to meet or exceed the National Pollutant Discharge Elimination System (NPDES) requirements as they apply to the City of Mayer.
2. Apply regulatory standards that help the City meet its goal for Urban Stormwater Management.
3. Prioritize potential stormwater projects that will decrease local runoff rates and volumes and increase water quality.
4. Administer and maintain the stormwater drainage system maintenance plan using the practices described in this plan.
5. Administer and maintain the road operation and maintenance (O&M) Plan using the practices described in this plan.
6. Maintain City's database for stormwater related data.
7. Promote education regarding the benefits of proper urban stormwater management.

1.5.4 **Wetlands Management.**

1. Achieve no net loss in the quantity, quality, and diversity of existing wetlands through enforcement of Wetland Management regulations.
2. Promote wetland restoration, as a way to mitigate historical impacts to wetlands and increase the quantity and quality of wetlands locally.
3. Promote education regarding the benefits of proper wetland management.

1.5.5 **Upland Natural Resources.**

1. Increase the quantity and quality of existing natural areas through enforcement of existing regulations and the participation of willing landowners in existing preservation and restoration programs.
2. Promote the restoration of natural upland areas, as a way to mitigate the degradation and fragmentation of natural resources and improve water quality of surface water resources.
3. Promote education regarding the benefits of proper natural upland management.

1.5.6 **Ground Water Management.**

1. Protect groundwater quality and groundwater supplies.
2. Promote groundwater recharge, if soil conditions allow.
3. Promote education regarding the benefits of proper groundwater management.

1.5.7 **Education.**

1. Increase public awareness, understanding, and involvement in water and natural resource issues and management.

2.0 SURFACE WATER MANAGEMENT PLAN PURPOSE

This Surface Water Management Plan (SWMP) meets the requirements of Minnesota Statute 103B.235 and Minnesota Rule 8410. Minnesota Statute 103B.201 states that the purposes of the water management programs are to:

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

This SWMP complies with Carver County Code – Section 153 – Water Resource Management Rules and the Carver County Watershed Management Organization Comprehensive Water Resources Management Plan (CWRMP).

3.0 WATER RESOURCE MANAGEMENT RESPONSIBILITIES AND RELATED AGREEMENTS

The City of Mayer is responsible for construction, maintenance, and other projects in or along the City's storm water management systems (i.e., ponds, pipes, channels, etc.). However, the City of Mayer must comply with the Carver County Watershed Management Organization Rules (County Code – Section 153), as well as the MPCA's NPDES General Stormwater Permit for Construction Activity (MN R100001). **Section 5.0** of this plan further outlines enforcement responsibilities.

The City has an agreement with Carver County regarding inspection of SSTS within City limits.

The regulations outlined in this plan do not supersede those put forth by the Carver County Watershed Management Organization (CCWMO) or other Local, State, or Federal agencies. If a discrepancy exists between regulations contained in this plan and other agencies, the more restrictive requirement shall govern.

4.0 LAND AND WATER RESOURCES INVENTORY

4.1 Physical Environment

4.1.1 Climate and Precipitation

Mayer has a Humid Continental Climate, typified by considerable seasonal temperature differences, hot and humid summers, and cold to extremely cold winters, and is located in USDA Plant Hardiness Zone 4b. Native vegetation has a seven month growing season (April to October) and crops have a five month growing season (May to September). Two-thirds of the precipitation occurs during the crop growing season, with a total of almost 32 inches annually. Refer to **Table 4-1** for a 30 year average of temperature and precipitation Data. Refer to Point Precipitation Frequency Estimates provided by the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 for estimated precipitation amounts for specific frequencies, durations, and locations at the link listed below.

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=mn

Table 4-1: 1981-2010 Monthly Climate Normals (Chaska, MN)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
Daily Maximum Temperature (°F)	26.0	30.9	43.3	60.4	72.2	81.2	85.3	82.2	74.3	61.0	42.9	29.0	57.5
Daily Minimum Temperature (°F)	6.6	11.2	23.5	36.3	48.5	57.8	62.5	60.5	51.7	39.1	25.8	11.8	36.4
Average Daily Temperature (°F)	16.3	21.0	33.4	48.4	60.3	69.5	73.9	71.4	63.0	50.1	34.3	20.4	46.9
Precipitation (in)	0.84	0.58	1.73	2.87	3.59	4.24	4.26	4.96	3.43	2.48	1.73	1.14	31.85
Snowfall (in)	10.5	7.0	8.7	2.0	0.0	0.0	0.0	0.0	0.0	0.1	9.3	8.3	45.9

Source: U.S. Climate Normals 1981-2010. National Climate Data Center

4.1.2 Topography and Drainage

The topography of Mayer is undulating, but generally sloping downhill to the northwest and the South Fork of the Crow River. The western and northeastern portions of town consist largely of newer housing developments with stormwater treatment ponds. The portion of the study area south of 70th Street drains to Berliner Lake, which then outlets to the Crow River. The entire study area is within the jurisdiction of CCWMO. Refer to **Figure 10.**

4.1.3 Geology

Refer to CCWMO's Comprehensive Water Resources Management Plan (CWRMP) for a description of Carver County geology.

4.1.4 Soils

Infiltration capacities of soils affect the amount of direct runoff resulting from rainfall. Higher infiltration rates result in lower runoff, and low infiltration rates produce high runoff volumes and high peak discharge rates. Therefore, the Natural Resource Conservation Service (NRCS) developed a system to classify the effect soil has on runoff volumes. Refer to **Table 4-2** for descriptions of each soil classification.

Table 4-2: Hydrologic Soil Groups

A	Soils in this group have low runoff potential when thoroughly wet. Water is transmitted freely through the soil. Group A soils typically have less than 10% clay and more than 90% sand or gravel and have gravel or sand textures. Some soils having loamy sand, sandy loam, loam or silt loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35% rock fragments. The saturated hydraulic conductivity of all soil layers exceeds 5.67 in/hr. The depth to any water impermeable layer is greater than 20". The depth to the water table is greater than 24". Soils that are deeper than 40" to a water impermeable layer are in group A if the saturated hydraulic conductivity of all soil layers within 40" of the surface exceeds 1.42 in/hr.
B	Soils in this group have moderately low runoff potential when thoroughly wet. Water transmission through the soil is unimpeded. Group B soils typically have between 10- 20% clay and 50- 90% sand and have loamy sand or sandy loam textures. Some soils having loam, silt loam, silt, or sandy clay loam textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35% rock fragments. The saturated hydraulic conductivity in the least transmissive layer between the surface and 20" ranges from 1.42 to 5.67 in/hr. The depth to any water impermeable layer is greater than 20". The depth to the water table is greater than 24". Soils that are deeper 40" to a water impermeable layer or water table are in group B if the saturated hydraulic conductivity of all soil layers within 40" of the surface exceeds 0.57 in/hr but is less than 1.42 in/hr.
C	Soils in this group have moderately high runoff potential when thoroughly wet. Water transmission through the soil is somewhat restricted. Group C soils typically have between 20- 40% clay and less than 50% sand and have loam, silt loam, sandy clay loam, clay loam, and silty clay loam textures. Some soils having clay, silty clay, or sandy clay textures may be placed in this group if they are well aggregated, of low bulk density, or contain greater than 35% rock fragments. The limits on the diagnostic physical characteristics of group C are as follows. The saturated hydraulic conductivity in the least transmissive layer between the surface and 20" is between 0.14-1.42 in/hr. The depth to any water impermeable layer is greater than 20". The depth to the water table is greater than 24". Soils that are deeper than 40" to a restriction or water table are in group C if the saturated hydraulic conductivity of all soil layers within 40" of the surface exceeds 0.06 in/hr but is less than 0.57 in/hr.
D	Soils in this group have high runoff potential when thoroughly wet. Water movement through the soil is restricted or very restricted. Group D soils typically have greater than 40% clay, less than 50% sand, and have clayey textures. In some areas, they also have high shrink-swell potential. All soils with a depth to a water impermeable layer less than 20" and all soils with a water table within 24" of the surface are in this group, although some may have a dual classification, as described in the next section, if they can be adequately drained. The limits on the physical diagnostic characteristics of group D are as follows. For soils with a water impermeable layer at a depth between 20-40", the saturated hydraulic conductivity in the least transmissive soil layer is less than or equal to 0.14 in/hr. For soils that are deeper than 40" to a restriction or water table, the saturated hydraulic conductivity of all soil layers within 40" of the surface is less than or equal to 0.06 in/hr.
A/D B/D C/D	Certain wet soils are placed in group D based solely on the presence of a water table within 24" of the surface even though the saturated hydraulic conductivity may be favorable for water transmission. If these soils can be adequately drained, then they are assigned to dual hydrologic soil groups (A/D, B/D, and C/D) based on their saturated hydraulic conductivity and the water table depth when drained. The first letter applies to the drained condition and the second to the undrained condition. For the purpose of hydrologic soil group, adequately drained means that the seasonal high water table is kept at least 24" below the surface in a soil where it would be higher in a natural state.

Source: Natural Resource Conservation Service

The underlying soils in and around the city are primarily Type B and Type D, with inclusions of A and C scattered throughout. Many of the Type D soils will act as Type A or B soils when containing draintiles, such as those installed for agricultural purposes. During the development process these tiles will be removed and the soils will revert back to their less-permeable state leading to increased surface runoff. Refer to **Figure 4** for location of soil types. Additional information regarding area soils can be found in the CWRMP.

4.1.5 Unique Features, Scenic Areas, & Water-based Recreation

Berliner Lake, Goose Lake, Lippert Lake, Rutz Lake, the South Fork of the Crow River, and the other surrounding lakes and wetlands provide scenic views in Mayer and water-based recreational opportunities. Several parks are scattered throughout the city. Community parks include Blue Jay Park, Discovery Park, Meadow Park, Old Schoolhouse Park, and West Ridge Park. Amenities provided by the City parks include playgrounds, benches, baseball diamonds, skateboarding, picnic areas and shelters, volleyball courts, natural spaces, trails, and basketball courts. The Dakota

Rail trail runs from east to west through the center of town and provides walking, running, and biking opportunities. Also, several regional parks and wildlife management areas are located within the county. Additional information regarding unique features, scenic areas, and water-based recreation can be found in the CWRMP.

4.2 Biological Environment

4.2.1 Land Cover

Very little of the vegetation present prior to European settlement remains in and around Mayer. Land cover now consists of mainly agricultural land, urban development, and wetlands. In 2007, all land within Carver County was mapped using the Minnesota Land Cover Classification System (MLCCS). Refer to **Figure 5** for the portion of area in and around Mayer. The MLCCS was developed by the Minnesota Department of Natural Resources (MnDNR), and categorizes all areas by type of land cover into two categories. Natural/Semi-natural areas consist of forests, grasslands, wetlands, etc, and Cultural areas consist of urban and agricultural areas. The two categories are further subdivided on the basis of plant types, soil hydrology, plant species, and amount of impervious surface. At this point the city has no goals or policies relating to these classifications; however, the city is interested in preserving critical natural areas and working with the county to establish appropriate policies. Additional information regarding land cover can be found in the CWRMP.

4.2.2 Rare, Threatened, and Endangered Species

The Department of Natural Resources' Natural Heritage and Nongame Research Program maintains a database listing rare plant and animal observations. Currently, the database does not list any instance of rare plant or animal species in and around (within an approximate 2 mile radius) the City of Mayer. Additional information regarding rare, threatened, and endangered species can be found in the CWRMP.

4.2.3 Natural Resource Assessment

Carver County completed a natural resource assessment in 2007. Utilizing the county's land cover inventory as the base, a GIS-based tool was developed to prioritize networks of connected, high quality open areas and identify areas where natural systems should be preserved or restored. The resource assessment component analyzed existing natural areas for benefits provided to both wildlife and humans and established a natural area ranking system from which land use decisions can be made. The restoration assessment component evaluated and prioritized restoration opportunities. In Mayer, the area located adjacent to the South Fork of the Crow River and the lowland extending east from the river on the northeast side of town have been assessed as moderate to high natural resource value. Several wetland areas have been assessed as low to medium natural resource value, and several wetland and woodland areas have been assessed as low to high restoration potential. Additional information regarding the natural resource assessment can be found in the CWRMP.

4.2.4 Fish and Wildlife Habitat

In and around Mayer, Berliner Lake, Goose Lake, Lippert Lake, Rutz Lake, the South Fork of the Crow River, and multiple wetlands and woodlands provide habitat for a wide variety of fish, birds, and animals. Fish species include Black Bullhead, Black Crappie, Bluegill, Brown Bullhead, Bowfin, Common Carp, Channel Catfish,

Freshwater Drum, Golden Shiner, Hybrid Sunfish, Largemouth Bass, Northern Pike, Pumpkin Seed, Walleye, and Yellow Perch. Bird species include several of both migratory and non-migratory varieties. Animal species include badger, bat, beaver, chipmunk, coyote, ermine, fox (Gray and Red), Heather vole, Least shrew, Long-tailed weasel, mink, mole, muskrat, Plains pocket mouse, porcupine, rabbit (Eastern Cottontail and White-tailed Jack), raccoon, river otter, Striped skunk, squirrel (Fox, Gray, Red, and Thirteen-lined Ground), Virginia Opossum, and white-tailed deer. Additional information regarding county fish and wildlife habitat can be found in the CWRMP.

4.3 Human Environment

4.3.1 Existing and Planned Land Use

The City of Mayer has developable space in most directions, but is limited on the north by the floodplain of the Crow River. Land use is an important factor in estimating surface water runoff, as the impervious surface associated with each land use greatly affects the amount of runoff generated. **Figure 2** exhibits existing land uses in Mayer and **Figure 3** exhibits the projected land uses for the year 2040. It is presumed that continued development will be predominantly residential with some commercial/industrial expansion to the northeast. With these projections, priority areas have been identified for future water resource improvements or enhancements. Additional information regarding existing and planned land use in the area can be found in the City of Mayer 2030 Comprehensive Plan and the CWRMP.

4.3.2 Metropolitan Urban Service Area (MUSA)

The MUSA is the area in which the Metropolitan Council oversees the planning, installation, and maintenance of regional facilities, such as sewers and highways. No portion of Mayer is located within the Metropolitan Urban Service Area. Additional information regarding the Metropolitan Urban Service Area can be found in the CWRMP.

4.3.3 Open Space and Recreation

Goose Lake and the South Fork of the Crow River provide opportunities for sport fishing and water recreational activities. Numerous city parks provide outdoor recreational opportunities, and the Dakota Rail Trail provides a location for walking, running, and biking. Also, several regional parks, trails and wildlife management areas are located within the county. Additional information regarding open space and recreation can be found in the CWRMP.

4.3.4 Potential Environmental Hazards

Potential environmental hazards within the City include known and potential sources of soil and groundwater contamination listed by the Minnesota Pollution Control Agency (MPCA), feedlots, and wells.

Known and Potential Sources of Soil and Groundwater Contamination: The MPCA maintains a database of sites with known or potential soil and groundwater contamination, including Superfund candidate sites, contaminated soil treatment facilities, leak sites, petroleum brownfields, state assessment sites, and voluntary investigation and cleanup sites. The database contains sites that have already been investigated and cleaned up, sites currently enrolled in MPCA cleanup programs, and

sites suspected of contamination but found to be clean after investigation. Additional information regarding known or potential contamination sites can also be found in the CWRMP. A complete listing of sources and interactive map is provided on the MPCA's website at the following location:

https://www.pca.state.mn.us/data/contaminated-sites-data

Feedlots: An animal feedlot is defined by MN Administrative Rule 7020.0300 as "a lot or building or combination of lots and buildings intended for the confined feeding, breeding, raising, or holding of animals and specifically designed as a confinement area in which manure may accumulate, or where the concentration of animals is such that a vegetative cover cannot be maintained within the enclosure. For purposes of these parts, open lots used for the feeding and rearing of poultry (poultry ranges) shall be considered to be animal feedlots." Due to the high density of animals and lack of vegetation in feedlots, these areas are likely to produce runoff contaminated with animal waste, sediment, and other pollutants. According to the MPCA's database, several feedlots exist in and around Mayer. Additional information regarding feedlots can be found on the MPCA's website or in the CWRMP.

Wells: Wells are common place in Carver County, and when properly installed, they pose no threat for potential contamination of groundwater. However, if improperly installed or abandoned, wells can provide a conduit for pollutants to enter groundwater. The County maintains an Index of known wells, some of which have been properly abandoned and sealed. However, those still in operation or abandoned but not properly sealed may allow for contamination of aquifers. Additional information regarding wells can be found in the CWRMP.

4.4 Hydrologic Systems

4.4.1 Surface Water Resources

Watershed Boundaries:
Surface water in Mayer drains to the South Fork of the Crow River. For this plan, the study area was divided into six subwatersheds (**Figure 10**):

1. *West Watershed* – Contains most of the additions of Coldwater Crossing and Hidden Creek, and drains north to the South Fork of the Crow River.
2. *Central Watershed* – Consists of most of the older portions of Mayer as well as the Sell Industrial Park and rural areas to the south and east. This watershed drains through existing drain tile and storm sewer north to the South Fork of the Crow River.
3. *East Watershed* – Includes the developed portions of the east side of the City as well as some partially developed areas outside the current City limits and drains northwest to the South Fork of the Crow River.
4. *North Watershed* – Includes the area of Mayer Lutheran High School, part of the Fieldstone subdivision and the partially developed area east of Mayer Lutheran. This area generally drains west to the South Fork of the Crow River.
5. *Fieldstone Watershed* – Includes the Fieldstone Additions, as well as future areas north to T.H. 7. This area generally drains west to the South Fork of the Crow River.

6. *Southwest Watershed* – A future development area south of 70th Street which drains south to the Berliner Lake wetland complex.

Stormwater Drainage and Treatment System
The areas of Mayer consisting of newer developments typically contain storm sewer in good condition, stormwater treatment ponds, and infiltration basins. The older areas of town contain few management or treatment measures. However, the storm sewer in the areas without treatment measures does effectively convey runoff. Refer to **Figure 11** for the Storm Sewer System. Refer to **Appendix F** for the Storm Treatment System Inventory and Maintenance Plan.

Public Waters
Public waters are lakes, wetlands, and watercourses that are under the regulatory jurisdiction of the Minnesota Department of Natural Resources (MnDNR). In and around Mayer, the MnDNR's Public Water Inventory identifies Berliner Lake and the South Fork of the Crow River as public waters. Refer to **Figure 6** for National Wetland Inventory and DNR Public Waters.

Lakes
Berliner Lake (Lake ID 10-0103-00): Berliner Lake is a highly eutrophic lake with a watershed comprised primarily of farmland. The DNR OHWL of the lake is 963.8, with the highest level ever recorded (since 1954) being 963.6 (1991) and the lowest level being 959.65 (1958).

Streams
South Fork of the Crow River (Stream ID 07010205-508): The South Fork of the Crow River travels southwest to northeast along the north side of town. This stretch of the South Fork of the Crow River is on the State's 303(d) Impaired Waters list for aquatic macroinvertebrate bioassessments, fish bioassessment, nutrient/ eutrophication, turbidity, fecal coliform, and mercury in fish tissue. Mercury in Fish Tissue is a widespread issue and the State has prepared a state-wide TMDL to reach mercury reduction goals. The TMDLs for the other impairments have not yet been completed. As development occurs, the fecal coliform concentration in the river should be reduced through the reduction in the amount of feedlots contributing runoff and natural fertilizer applied to fields. Additionally, as agricultural land is developed the untreated runoff currently reaching the river should have improved water quality as a result of required Best Management Practices.

Public Ditches
There are no public ditches within the City of Mayer.

Wetlands
In 1986, the Emergency Wetland Resources Act mandated the U.S. Fish and Wildlife Service to complete a National Wetland Inventory (NWI). Wetlands in Minnesota were mapped between 1991 and 1994, and the NWI map indicates potential wetlands scattered throughout the City of Mayer (**Figure 6**).

In 2003, CCWMO completed a Wetland Function and Value Assessment (WFVA) for wetlands located within their watershed. Wetlands were evaluated for surface

water runoff, flood water storage, shoreline stabilization, water quality, habitat, landscape and wetland characteristics, and aesthetics, with basins smaller than one acre being excluded from the assessment. Rankings of high, medium, or low were then assigned to each wetland or potential wetland restoration site. These rankings are now being used to apply buffer standards, for stormwater and natural resource planning for growth and redevelopment areas, and to prioritize restoration opportunities. The wetlands in and around Mayer currently vary in rank from medium to high. Also, several potential restoration sites within city limits with rankings of medium to high have been identified by the WFVA (**Figure 7**).

Floodplain

The State defines floodplain as the area covered by a flood that has a 1% chance of occurring in a given year, also known as the 100yr flood. A floodplain is divided into two parts: the floodway and flood fringe. The floodway includes the basin, river channel, and portion of the floodplain necessary to discharge the 100yr flood. The flood fringe is the portion of floodplain outside the floodway. The MnDNR oversees administration of the state Floodplain Management Program. This program promotes and ensures sound development in floodplain areas to protect public safety and health and minimize economic impacts from flood damage. Therefore, MnDNR has created minimum standards for floodplain management and requires all local floodplain regulations to be compliant with these standards. In Mayer, the area located adjacent to the South Fork of the Crow River and the lowland extending east from the river on the northeast side of town is within the 100yr floodplain, and Mayer is currently responsible for floodplain management. Refer to the following links for more information regarding the FEMA 100-year floodplain areas around the City and the City's Floodplain Management Ordinance.

https://msc.fema.gov/portal/advanceSearch#

http://library.amlegal.com/nxt/gateway.dll/Minnesota/mayer_mn/mayerminnesotacodeofordinances?f=templates$fn=default.htm$3.0$vid=amlegal:mayer_mn

Flood Insurance Studies

- The FEMA map for Mayer is dated April 16, 1976.
- FEMA Resilience Report for Carver County, MN and the communities of Carver, Chanhassen, Chaska, Cologne, Hamburg, Mayer, New Germany, Norwood Young America, Victoria, Waconia, and Watertown dated August 2012
- Preliminary Flood Insurance Study for Carver County, MN and Incorporated Areas (FIS # 27109CV000A) dated January 31, 2018

Known Flooding Issues

No current flooding issues have been identified within the study boundary. If any flooding issues are identified in the future, this section will be updated to include those issues.

Stormwater Runoff Treatment

Storm water management facilities in the newer areas of town have been constructed to meet the standards set forth in the County Ordinances current at the time of construction, and as such these areas contain wet retention ponds, rain gardens, and various other treatment facilities to provide water quality improvement. The older areas of town contain few measures for stormwater treatment, but the storm sewer adequately conveys runoff. As street and utilities are reconstructed in the older areas, stormwater management is being evaluated with each individual project. At a minimum, management of runoff is provided per minimum County Ordinances current at the time of construction. If adequate funds and space are available, additional treatment is being included to provide extra water quality benefit and help meet TMDL goals. Refer to **Figure 9** for differing areas of stormwater runoff treatment.

Water Quality Data & Monitoring Sites

Mayer does not monitor surface water resources nor is it equipped to do so. However, the City will continue to support monitoring of surface waters within the City. Data will be obtained through cooperation and coordination with other various agencies, including the CCWMO, Minnesota Pollution Control Agency (MPCA), and the Department of Natural Resources. Refer to the CWRMP for more information on water quality data and monitoring.

Impaired Waters

The Federal Clean Water Act requires states to establish water quality standards, to test surface waters, and formally list those as "impaired" that do not meet the water quality standards. Subsequent sections presents more detail on the impaired waters program and its relationship to Mayer's stormwater management program. A Total Maximum Daily Load (TMDL) study is the next step for an impaired water, although it can be delayed years after identification of the impairment. The TMDL study can result in very specific water quality obligations for Cities. Once the TMDL Study is accepted by the MPCA, an Implementation Plan must be developed to meet the obligations identified in the TMDL Study.

In and around Mayer, the South Fork of the Crow River is the only surface water listed as impaired, and no TMDL Studies or Implementation Plans have been completed yet, as of 2018. Impairments for the South Fork of the Crow River are summarized in **Table 4.3**, and the location is depicted on **Figure 8**.

Table 4-3: Impaired Waters

Waterbody/ Watercourse	DNR ID#	Listed Pollutant	Impaired Use	Year Listed	Year TMDL Approved
South Fork of the Crow River	07010205-508	Mercury in Fish Tissue	Aquatic Consumption	1998	
		Aquatic macroinvertebrate bioassessments	Aquatic Life	2016	

Waterbody/ Watercourse	DNR ID#	Listed Pollutant	Impaired Use	Year Listed	Year TMDL Approved
		Fishes bioassessments	Aquatic Life	2002	
		Nutrient/ Eutrophication	Aquatic Life	2016	
		Turbidity	Aquatic Life	2004	
		E. Coli	Aquatic Recreation	2006	

Shoreland Ordinance

The City's Shoreland Overland District is Section 152.065 of the City Code and can be found at the following link:

http://library.amlegal.com/nxt/gateway.dll/Minnesota/mayer_mn/mayerminnesotacodeofordinances?f=templates$fn=default.htm$3.0$vid=amlegal:mayer_mn

4.4.2 Groundwater Resources

Water quality of surface waters can have great effect on groundwater due to the interaction via groundwater recharge and discharge. Mayer relies strictly on groundwater (aquifers) for drinking water, and therefore, groundwater quality is equally as important as surface water quality. Multiple aquifers exist within Carver County, but the majority of wells are finished in the Prairie du Chien-Jordan Aquifer.

Wellhead Protection

The Safe Drinking Water Act requires states to implement protection programs to prevent contamination of public drinking water sources. Therefore, the Minnesota Department of Health requires public water suppliers to delineate and manage Wellhead Protection Areas (WHPA) surrounding public water sources. Mayer has an approved Wellhead Protection Plan and designated WHPA and Drinking Water Supply Management Area (DWSMA) boundaries. Mayer's DWSMA has a low vulnerability to contamination. Additional information regarding groundwater resources can be found in the City's Wellhead Protection and Water Supply Plans and the CWRMP.

5.0 MAJOR ISSUES, GOALS, AND POLICIES

The City of Mayer highly values the natural resources within its jurisdiction and seeks to protect surface and groundwater storage systems, effectively manage expenditures to correct flooding and water quality problems, prevent erosion into surface waters, promote groundwater recharge, enhance wildlife habitats and water recreational facilities, and improve the water quality of all water resources. Therefore, the following issues requiring action have been described, and each issue is followed by the City's goal, specific policies, and implementation strategies.

5.1 Surface Water Management

Issues

5.1I Poor management of surface water resources can lead to flooding and low water quality.

Goal

5.1G Maintain or improve the physical, chemical, biological, and aesthetic condition of surface water resources.

Policies

5.1.1P Continue to administer and maintain the Shoreland Overlay District ordinance to be in accordance with state regulations and the County's CWRMP.

The way shoreland areas are used and developed can affect water quality, water use, and wildlife habitat. In order to maintain or improve these areas, the County has adopted a Shoreland Management Ordinance for unincorporated areas that implements the state standards. These standards set guidelines for the use and development of shoreland property including: a sanitary code, lot sizes, water frontage, and building setbacks and heights. However, cities in the county are not covered under the county's ordinance. State law and the CWRMP require that each City within its jurisdiction also adopt a shoreland ordinance that is at least as restrictive as state standards. Mayer's ordinance must be updated to be in accordance with these requirements.

5.1.2P Continue to administer and maintain the Floodplain Management ordinance in accordance with state regulations and the County's CWRMP.

The 100-year floodplain provides significant storage and conveyance of regional floods. Per Minnesota Rule 6120, Mayer has adopted a Floodplain Management ordinance that has been approved by the Minnesota Department of Natural Resources. The standards set forth in this ordinance provide guidelines for the use and development of property within the floodplain including: establishment of zoning districts, permitted uses, conditional uses, and standards for uses.

5.1.3P Evaluate and correct flooding issues on City property as necessary to protect public safety and minimize potential for property damage.

Flooding can create public safety issues and cause significant damage to properties. Flooding issues on public property can be the result of various factors, including temporary conveyance blockages, undersized conveyances, inadequate flood storage volume, and an increase in impervious surfaces. By evaluating and correcting flooding issues on public property, the City can improve public safety during extremely wet conditions and limit potential for erosion and damage of property.

5.1.4P Provide support to landowners in evaluating and correcting localized flooding issues.

Localized flooding can cause significant damage to private properties. Localized flooding issues are usually created due to improper grading and are located outside the City's jurisdiction. By providing assistance in evaluating and correcting localized flooding issues, the City can limit erosion, sedimentation, and damage to vegetation and structures.

5.1.5P Prioritize restoration of eroded areas on natural streams and/or creeks.

Stream restoration will help achieve TMDL goals. In order to maximize benefits, restoration projects should be prioritized by considering available funding, feasibility, project partners, number of benefits provided, bioengineered solutions, and TMDL plans.

5.1.6P Provide support to landowners in evaluating and removing channel obstructions on natural streams and/or creeks.

Trees that fall into streams increase the diversity of habitat within the stream and provide cover and food for wildlife. However, accumulated vegetation can cause flooding to adjacent properties. To address channel obstructions, the County has developed guidelines for evaluation and removal.

5.1.7P Promote water quality improvement, runoff volume reduction, and additional storage through wetland restoration, regional ponding, infiltration, filtration, bioretention, and stream or ditch diversions.

By providing water quality improvement, runoff volume reduction, and additional storage, peak runoff rates and pollutants are reduced, and groundwater recharge is increased. These actions will help meet TMDL goals.

5.1.8P Evaluate outlet control structures for performance and work with landowners, CCWMO, and/or the Minnesota Department of Natural Resources (MnDNR) to replace or repair the structures if needed.

The condition of outlet control structures can have a significant impact on riparian property and wildlife habitat due to flooding or low water levels. Flooding can cause erosion, sedimentation, flooding of nesting sites and vegetation, and damage to structures. Low water levels can lower the value of recreation, impact wildlife, and reduce water supplies.

5.1.9P Promote education regarding the benefits of proper surface water resources management.

Public understanding and involvement is essential in maintaining and improving the quality of surface water resources.

Implementation Strategies

5.1.1S The City will continue to administer the Shoreland Overlay District ordinance in accordance with state and county requirements.

5.1.2S The City will continue to administer the Floodplain Management ordinance in accordance with state and county requirements.

5.1.3S The City will continue to monitor and evaluate flooding issues on City property as necessary to protect public safety and minimize potential for property damage. Flood improvement projects identified will be prioritized based on available funds, feasibility, potential project partners, and benefits provided. Once projects are identified, this plan will be updated to list projects in **Section 6.0.**

5.1.4S The City will provide assistance to landowners in evaluating and correcting localized flooding issues. If potential flooding will damage nearby dwellings or cause significant erosion and sedimentation, the City will partner with the landowner to correct drainage as feasible. Applications for localized drainage improvements will be submitted for review by City Staff and approved by the City Council. The City's participation may include engineering costs as well as public construction costs. Private property owners shall be responsible for all private construction costs necessary to remedy the issue.

5.1.5S Stream restoration sites will be identified and prioritized. Sites will be coordinated with the CWRMP and consider available funds, feasibility, possible project partners, benefits provided, bioengineered solutions, and TMDL Implementation Plans. Once sites are identified, this plan will be updated to list the restoration sites in **Section 6.0**.

5.1.6S The City will provide assistance to landowners and support the County in evaluating channel obstructions per guidelines set forth by the CWRMP. If the obstruction's effect on flow and potential flooding of nearby dwellings results in a determination for removal, the City will partner with the County to provide assistance where feasible.

5.1.7S In order to provide water quality improvement, runoff volume reduction, and additional storage, wetland restoration, regional ponding, infiltration, filtration, bioretention, and stream or ditch diversion sites will be identified and prioritized. Sites will be coordinated with the CWRMP and consider available funds, feasibility, possible project partners, benefits provided, bioengineered solutions, and TMDL Implementation Plans. Once sites are identified, this plan will be updated to list the sites in **Section 6.0**.

5.1.8S Outlet control structures will be evaluated for responsible authority, condition, and performance and prioritized for repair or replacement. Evaluations will consider

design outflows and design outlet elevations as well as available funds, feasibility, possible project partners, benefits provided, bioengineered solutions, and TMDL Implementation Plans. Once sites are identified, this plan will be updated to list the structures in **Section 6.0**. Structures under the authority of the City will be maintained regularly by City staff and repaired or replaced when performance is evaluated as unacceptable. For structures not under the authority of the City, the City will work with the CCWMO and MnDNR with the following activities: resolve conflicts between riparian landowners and/or the public, assist with modeling to determine appropriate outflow rate and outlet elevations, assist with structure design and construction, and provide support with maintenance.

5.1.9S Goals, policies and implementation strategies for Surface Water Management will be incorporated into the City's public education programs. Also, the City will provide support and assistance to the CCWMO with the County's education programs.

5.2 Impaired Waters

Issues

5.2I In and around Mayer, the South Fork of the Crow River is impaired for aquatic macroinvertebrate bioassessments, fish bioassessment, nutrient/ eutrophication, turbidity, fecal coliform, and mercury in fish tissue, which inhibit aquatic life, recreation, and consumption.

Goal

5.2G Develop and implement plans as necessary to reduce pollutant loads for waters that do not meet Total Maximum Daily Loads (TMDLs) approved by the EPA. Coordinate City efforts with applicable Implementation Plans as approved by the Minnesota Pollution Control Agency. See Section 5.2.1S for a list of approved TMDLs and Implementation Plans.

Policies

5.2.1P Reduce pollutant loading to Impaired Waters in order to restore water quality to State standards.

The Federal Clean Water Act (CWA) requires States to set water quality standards for surface waters. The standards assign uses for each waterbody and establish criteria to maintain water quality necessary for the designated use. Waters that do not meet State water quality standards are designated as "Impaired". For Impaired Waters, the CWA requires the development and implementation of a TMDL. A TMDL establishes the pollutant loading to an Impaired Water that still meets water quality standards and develops an allocation for the identified contributors. The TMDL includes point sources, non-point sources, natural background, reserve capacity, and a margin of safety. A TMDL must be approved by the EPA, and an Implementation Plan must be developed and approved by the MPCA within one year of TMDL approval. The City does not plan to lead any TMDLs.

5.2.2P Promote education regarding the benefits of pollutant load reduction.

Public understanding and involvement is essential in maintaining and improving the quality of surface water resources.

Implementation Strategies

5.2.1S Adopt TMDLs and Implementation Plans into this plan by reference as they are approved and list below. Update this plan regularly to incorporate TMDLs approved in the future. The City should be directly involved with the portions of the studies and implementation plans that it is required to be responsible for. The City should provide support as necessary to the County for the remaining portions.

- List Approved TMDLs and Implementation Plans here

Refer to individual TMDLs for more detailed information regarding allocations and required reductions.

5.2.2S Goals, policies and implementation strategies for Impaired Waters will be incorporated into the City's public education programs. Also, the City will provide support and assistance to the CCWMO with the County's education programs.

5.3 Urban Stormwater Management

Issues

5.3I Land development substantially increases the rate and volume of surface water runoff due to the increase in impervious surfaces. Unmanaged runoff increases sedimentation, pollution, erosion, and flooding downstream and decreases groundwater recharge.

Goal

5.3G Minimize and mitigate the impacts of urban stormwater runoff on water resources.

Policies

5.3.1P Continue to meet or exceed the National Pollutant Discharge Elimination System (NPDES) requirements as they apply to the City of Mayer.

As authorized by the Clean Water Act and EPA, the State administers the NPDES program through the Minnesota Pollution Control Agency (MPCA). As it pertains to stormwater runoff, the NPDES program is designed to reduce pollution entering surface and ground waters through regulation of construction sites, Municipal Separate Storm Sewer Systems (MS4s), and industrial sites.

Construction: The most active portion of the NPDES program in the City is Construction Stormwater (CSW) permitting. Controlling erosion during land development/redevelopment is paramount to significantly reducing transport of sediment and pollutants. A NPDES CSW Permit is required for any construction

activity that disturbs 1 or more acres, is part of a development greater than 1 acre, or is determined by the MPCA to pose a risk to water resources. The CSW also lists additional requirements for discharges to impaired or special waters that must be incorporated. The CSW must be signed by both the Owner and Contractor. Prior to obtaining the permit, a Stormwater Pollution Prevention Plan (SWPPP) must be developed that shows the BMPs to control runoff during and after construction. City, County, and MPCA inspectors are responsible for field inspections and enforcement of permit requirements.

MS4s: MS4s are systems of conveyances (curb and gutter, sewer, and ditches) owned and operated by a state, city, county, township, association or other public body having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes that discharges to waters of the United States. There are currently three categories of MS4s regulated by the NPDES program; Mandatory – urban areas with a population of at least 50,000, Designated – urban areas with a population of at least 10,000 and cities and townships with a population of at least 5,000 that discharge to valuable or impaired waters, and Petition – MS4s petitioned by the public to the Commissioner of the MPCA for regulation. Regulated MS4s must obtain a NPDES MS4 Permit and implement a SWPPP that addresses six minimum control measures as follows: 1) Public Education and Outreach, 2) Public Participation, 3) Illicit Discharge Detection and Elimination, 4) Construction Site Stormwater Runoff Control, 5) Post-construction Stormwater Management, and 6) Pollution Prevention and Good Housekeeping for Municipal Operations. Also, MS4s will be required to comply with and report on TMDLs as part of the future permitting. ***Carver County and the Minnesota Department of Transportation (MnDOT) are regulated MS4s with jurisdiction in Mayer, but the City itself is not currently required to obtain a NPDES MS4 permit.***

Industrial: Industrial Stormwater (ISW) permits are required for any facility engaged in a Narrative Activity or a Primary Standard Industrial Classification (SIC) code, as listed in the MPCA's Multi-Sector General Permit in order to discharge stormwater runoff. Each facility must develop and implement a SWPPP to describe and control potential significant pollutants generated or be certified for a condition of "No Exposure".

5.3.2P Apply regulatory standards that help the City meet its goal for Urban Stormwater Management.

As the City grows, land is converted from natural/rural landscapes to urbanized areas, increasing areas of compacted soils and impervious surfaces. This will lead to increased runoff rates and volumes. Surface water degradation occurs at relatively low levels of imperviousness (10-20%) due to increases in runoff volume and velocity, which results in flooding, sedimentation, and transportation of pollutants. Therefore, Urban Stormwater Management is essential in decreasing flooding and protecting water quality.

5.3.3P Prioritize potential stormwater management projects that will decrease local runoff rates and volumes and improve water quality.

Stormwater management BMP projects will help improve water quality and achieve TMDL goals by decreasing runoff rates and volumes and removing pollutants. In order to maximize benefits, projects should be prioritized by considering available funding, feasibility, project partners, number of benefits provided, bioengineered solutions, and TMDL plans.

5.3.4P Administer the stormwater drainage system maintenance plan using the practices described in this plan.

As the City's drainage system (storm sewer, catchbasins, ponds, infiltration basins, etc) is a conduit for stormwater, it is also a conduit for pollutants and sediment. Therefore, regular maintenance of the system is required to maintain pollutant removal efficiencies as well as hydraulic capacity

5.3.5P Administer the road operation and maintenance (O&M) Plan using the practices described in this plan.

The City's roads can be a conduit for significant pollution. Pollution is created when chemicals, debris, fertilizers, automotive oils, salt, and litter are washed off roadways during rainstorms or snowmelt. With proper planning, maintenance BMPs will help reduce pollutant loads.

5.3.6P Maintain City's database for stormwater related data.

A database of the City's stormwater infrastructure will aid in tracking maintenance, evaluating progress toward goals, and prioritizing future projects.

5.3.7P Promote education regarding the benefits of proper urban stormwater management.

Public understanding and involvement is essential in maintaining and improving the quality of urban stormwater runoff.

<u>Implementation Strategies</u>

5.3.1S Any project within the City boundary that requires a NPDES CSW permit must provide a copy of the permit to the City prior to any work. Any facility required to obtain an ISW permit will be required by the City to do so in accordance with MPCA requirements.

5.3.2S Rely on the Water Resource Management Standards set forth in the Carver County Ordinances and provide the necessary resources for the implementation of those standards and this Surface Water Management Plan. Employ staff or a consultant to perform the following tasks:

A. Review Planning and Zoning Applications with regards to Water Resource Management Standards.
B. Inspect BMP installations.
C. Enforce BMP maintenance.

The City will continue to rely on CCWMO to maintain authority for reviewing and approving applications for compliance with CCWMO's rules and enforcing those

rules as necessary. The City will also review all applications to ensure it is not adversely impacted by proposed improvements (i.e. infiltration over sanitary sewer, potential conflicts with future projects).

5.3.3S Potential stormwater projects that decrease local runoff rates and volumes and increase water quality will be identified and prioritized. Sites will be coordinated with the CWRMP and consider available funds, feasibility, possible project partners, benefits provided, bioengineered solutions, and TMDL Implementation Plans. Once projects are identified, this plan will be updated to list the improvement sites in **Section 6.0**.

5.3.4S Administer the stormwater drainage system maintenance plan. This plan includes the following:

A. An inspection program and schedule to ensure general maintenance is performed. Erosion control and stormwater treatment devices are inspected regularly.
B. Energy dissipaters and volume controls are maintained to prevent erosion.
C. An inspection program and schedule for pond cleaning. Ponds will be cleaned when sediment has reduced the volume below the outlet to half of the design volume.
D. Accumulated sediment collected from BMPs and any waste generated during maintenance is properly disposed of in accordance with state and federal regulations.

5.3.5S Administer the road maintenance plan. This plan includes the following:

A. An inspection program and schedule to ensure general maintenance is performed.
B. Retaining walls and pavements are maintained to minimize cracks and leakage and prevent failure.
C. Accumulated sediment collected from BMPs and any waste generated during maintenance is properly disposed of in accordance with state and federal regulations.
D. Techniques to prevent paint, solvents, and scrapings from becoming pollutants during bridge maintenance are used, such as suspended tarps, vacuums, or booms.
E. An infrastructure safety inspection program.
F. Drainage ditches are maintained to keep them free of debris.
G. Salt storage piles are covered and located outside the 100 year floodplain.
H. The application of deicing salts is regulated to prevent over-salting of pavements.
I. Alternative deicing materials, such as sand or salt substitutes, are used if possible.
J. Dumping of accumulated snow onto frozen surface waters is not allowed.
K. Vegetation on eroded or damaged areas are established in a timely manner.
L. Restrict pesticide and fertilizer use as much as possible.
M. Pesticide and fertilizer use are restricted as much as possible.
N. Native plantings are promoted within buffer strips and ditches.
O. Residential streets and parking lots are swept at least two times per year (in the spring after snowmelt and in the fall after leaves have dropped).
P. Road debris is collected and removed in a timely manner.

5.3.6S Employ staff or a consultant to maintain the City's database of the entire storm drainage system. The database includes all facilities associated with stormwater runoff drainage, including catchbasins, storm sewer, wet stormwater ponds,

bioretention basins, infiltration/filtration basins, hydrodynamic separators, sump manholes, outlet structures, and any other device used to convey runoff. The database also includes the specific characteristics for all the facilities, including locations, sizes, materials, elevations, areas, volumes, condition, and any other information deemed necessary. This database can then be used for Implementation Strategy 5.3.3 to identify and prioritize stormwater projects.

5.3.7S Goals, policies and implementation strategies for Urban Stormwater Management should be incorporated into the City's public education programs. Also, the City should provide support and assistance to the CCWMO with the County's education programs. The City's education program should promote the following practices to the public to help reduce impacts to water resources:

A. Maintain a healthy lawn.
B. Plant native plants or plants with deep roots to capture more runoff.
C. Preserve and maintain native vegetation areas, especially adjacent to the Crow River and wetlands.
D. Redirect downspouts to drain on pervious surfaces (grass) instead of impervious surfaces (driveways).
E. Install rain gardens to capture localized runoff.
F. Restore and/or stabilize shorelines.
G. Capture rainwater from rooftops with a rain barrel or cistern and use for irrigation.
H. Use a compost bin for leaves, lawn clippings, and other organic waste.
I. Test soils for nutrients in order to apply the correct amount of fertilizer.
J. Use zero phosphorus fertilizers.
K. Keep leaves and lawn clippings out of streets and gutters.
L. Pick up pet wastes.
M. Limit the use of herbicides and pesticides.
N. Wash cars on pervious surfaces to prevent soaps from running off-site.
O. Do not dispose any household product into the storm sewer.
P. Keep neighborhoods free from litter and debris.

5.4 Wetland Management

Issues

5.4I Draining, filling, or excavating wetlands significantly impacts the water quality of downstream surface waters. The loss of existing wetlands leads to increases in sedimentation, pollution, erosion, and flooding downstream and decreases the diversity and integrity of vegetation and wildlife.

Goal

5.4G Manage and protect wetlands to maximize wetland functions and improve surface water resources.

Policies

5.4.1P Achieve no net loss in the quantity, quality, and diversity of existing wetlands through enforcement of Wetland Management regulations.

Wetlands moderate nutrient and sediment flow, provide runoff storage, filter pollutants, buffer riverbanks and lake shores from erosion, and produce abundant and diverse plant and animal life. Therefore, the protection and restoration of wetlands is critical for maintaining and improving the water quality of local water resources.

5.4.2P Promote wetland restoration, as a way to mitigate historical impacts to wetlands and increase the quantity and quality of wetlands locally.

Today, less than 50 percent of pre-settlement wetlands remain in Carver County. Wetland restoration projects will help improve water quality and achieve TMDL goals by filtering sediment and pollutants, attenuating stormwater runoff, and preventing erosion. In order to maximize benefits, wetland restoration projects should be prioritized by considering available funding, feasibility, project partners, number of benefits provided, bioengineered solutions, and TMDL plans.

5.4.3P Promote education regarding the benefits of proper wetland management.

Public understanding and involvement is essential in maintaining and improving the quality of local wetlands.

Implementation Strategies

5.4.1S Rely on the Water Resource Management Standards set forth in Carver County Ordinances and the Wetland Conservation Act and provide the necessary resources for the implementation of those standards and this Surface Water Management Plan. Employ staff or a consultant to perform the following tasks:

A. Review and approve wetland delineations and determinations.
B. Review and approve wetland exemptions/no-loss applications.
C. Review and approve wetland replacement plan applications.
D. Coordinate and arrange TEP meetings for pre-application reviews and other WCA related items.
E. Send application notices to TEP members.
F. Send decision notices to TEP members.
G. Enforce replacement wetland monitoring requirements, review monitoring reports, and certify replacement wetlands.
H. Work with DNR and SWCD to identify and enforce WCA violations.

5.4.2S Potential wetland restoration projects that mitigate historical impacts and increase the quantity and quality of local wetlands will be identified and prioritized. Sites will be coordinated with the CWRMP and consider available funds, feasibility, possible project partners, benefits provided, bioengineered solutions, and TMDL Implementation Plans. For planning purposes, the County's functional value rankings and wetland restoration potential delineations have been included as **Figure 7**. Once projects are identified, this plan should be updated annually to list the restoration sites in **Section 6.0**.

5.4.3S Goals, policies and implementation strategies for Wetland Management should be incorporated into the City's public education programs. Also, the City should

provide support and assistance to the CCWMO with the County's education programs.

5.5 Upland Natural Resources

Issues

5.5I Loss of natural upland areas can lead to a decrease in the function and quality of surface water resources.

Goal

5.5G Manage and protect natural upland areas adjacent to surface water resources to mitigate degradation of surface waters and increase the quantity, quality and biological diversity of natural areas.

Policies

5.5.1P Increase the quantity and quality of existing natural areas through enforcement of existing regulations and the participation of willing landowners in existing preservation and restoration programs.

Natural upland areas moderate nutrient and sediment flow, filter pollutants, buffer surface waters, and provide habitat for diverse species of plants and wildlife. Therefore, preserving natural upland areas is critical for maintaining and improving the water quality of local water resources.

5.5.2P Promote the restoration of natural upland areas, as a way to mitigate the degradation and fragmentation of natural resources and improve water quality of surface water resources.

Today, only about 3 percent of pre-settlement natural areas remain in Carver County. Natural upland restoration projects will help improve water quality and achieve TMDL goals by filtering sediment and pollutants. In order to maximize benefits, natural upland restoration projects should be prioritized by considering available funding, feasibility, project partners, number of benefits provided, bioengineered solutions, and TMDL plans.

5.5.3P Promote education regarding the benefits of proper natural upland management.

Public understanding and involvement is essential in maintaining and restoring natural upland areas.

Implementation Strategies

5.5.1S Employ staff or a consultant to implement this Surface Water Management Plan and enforce the regulations set forth in the Wetland Conservation Act, Shoreland Management Act, TMDLs, and other relevant laws and regulations.

5.5.2S Potential natural upland restoration projects that mitigate the degradation and fragmentation of natural resources and improve water quality of surface water resources will be identified and prioritized. Sites will be coordinated with the CWRMP and consider available funds, feasibility, possible project partners, benefits provided, bioengineered solutions, and TMDL Implementation Plans. Once projects are identified, this plan will be updated to list the restoration sites in **Section 6.0**.

5.5.3S Goals, policies and implementation strategies for managing natural uplands will be incorporated into the City's public education programs. Also, the City will provide support and assistance to the CCWMO with the County's education programs.

5.6 Groundwater Management

Issues

5.6I Groundwater quality and availability can be significantly impacted by many different land use activities.

Goal

5.6G Protect the quality and quantity of groundwater resources.

Policies

5.6.1P Protect groundwater quality and groundwater supplies.

Pollutants from land use activities within well recharge areas, areas with unused, unsealed wells, and failing storage tanks as well as unplanned or overuse of groundwater supplies due to development can impact the quality and availability of groundwater. Protection from contamination and overuse is critical in maintaining and improving the quantity and quality of groundwater resources.

5.6.2P Promote groundwater recharge, if soil conditions allow.

Construction of impervious surfaces due to development increases runoff and reduces groundwater recharge. By promoting Low Impact Development (LID) techniques and BMPs, groundwater recharge is increased and the quality of local water resources is improved.

5.6.3P Promote education regarding the benefits of proper groundwater management.

Public understanding and involvement is essential in managing groundwater resources.

Implementation Strategies

5.6.1S The City will provide support or assistance to the following activities:

A. Work with the CCWMO to identify and seal potential contaminate sources, such as unused, unsealed wells and failing storage tanks.

B. Support the Metropolitan Council, MNDNR, and MDH in their efforts to monitor and protect regional groundwater supplies.
C. Support the MPCA in regulating storage tanks.
D. Implement water conservation efforts, as necessary.

5.6.2S The City will distribute LID materials to developers during the planning phase via comment and review letters and promote incorporation of LID techniques and BMPs into site designs.

5.6.3S Goals, policies and implementation strategies for managing groundwater resources will be incorporated into the City's public education programs. Also, the City will provide support and assistance to the CCWMO with the County's education programs.

5.7 Education

Issues

5.7I Most potential contamination threats, sources of pollution, and increases in stormwater runoff to water resources are related to human activities.

Goal

5.7G Provide the public with the knowledge, skills, and motivation to protect and improve surface water and groundwater resources.

Policies

5.7P Increase public awareness, understanding, and involvement in water and natural resource issues and management.

Because most degradation of water resources is due to human activities, education of the public is critical in implementing good water quality and conservation practices.

Implementation Strategies

5.7.1S The City will provide support and assistance to CCWMO with the County's educational programs in the form of financial support, information sharing, and help with promotional materials. The City will identify target audiences and educational needs and collaborate with CCWMO to create educational opportunities to meet these needs (workshops, seminars, K-12 programs, etc.), create education tools (website, newsletter, pamphlets, fairs, etc.), and create volunteer programs. The City will meet annually with CCWMO's Education Coordinator to discuss goals and strategies each year and create short, specific annual education plans.

5.7.2S The City will provide CCWMO with the following information and update CCWMO as changes occur;
- Provide city staff contact information and information on media/methods of communicating with the public to Carver County WMO's Education

Coordinator. This includes city newsletter times and distribution numbers, city fairs and epos, and any other outreach methods to the public.

- Provide information on major issues of concern (e.g. picking up pet waste, natural shorelines, etc.).
- Provide information on topic areas where the city would like to increase citizen awareness (e.g. stormwater ponds, wetlands, water conservation).

6.0 WATER RESOURCES ASSESSMENT AND IMPLEMENTATION PLAN

6.1 General Assessment Procedures

The general procedure and scope of this SWMP includes the development of a planning document to identify 1) stream restoration sites, 2) regional storage, volume reduction, and water quality improvement sites, 3) outlet control structure repair or replacement sites, 4) localized storage, volume reduction, and water quality improvement sites, 5) wetland restoration sites, and 6) natural upland restoration sites. The sites listed here should be used for planning purposes and are intended to highlight any potential large-scale issues.

The following summarizes the major activities associated with plan development:

1. The existing City utility and storm sewer mapping was researched to determine existing drainage patterns and locations of catch basins, culverts, storm sewer, outlet structures, treatment basins, and other pertinent drainage features. Additionally, existing storm water models from recent developments were analyzed. This work was completed for the development of the plan approved September 12, 2006 and updated September 14, 2007.

2. USGS topographic mapping was correlated with the existing storm drainage data to determine and model existing drainage patterns. However, due to the level of accuracy of USGS topographic mapping, more detailed survey information would be necessary for specific improvements. This work was completed for the development of the plan approved September 12, 2006 and updated September 14, 2007.

3. Key areas of concern were identified for field inspection using topographic mapping and storm sewer data. Field inspections and surveys were then performed to identify culvert sizes and invert elevations of critical culverts in the drainage system, as well as road top elevations. This work was completed for the development of the plan approved September 12, 2006 and updated September 14, 2007.

4. Each minor drainage area flowing to a collection point, such as a low area, was identified and mapped on a master drainage area drawing. Six subwatershed collection areas were identified as part of this project. This work was completed for the development of the plan approved September 12, 2006 and updated September 14, 2007.

5. Drainage area maps were plotted for the City. This work was completed for the development of the plan approved September 12, 2006 and updated September 14, 2007. These maps were used to review existing drainage patterns and determine reasonable alternatives for future storm drainage improvements. Many factors were considered in this planning/design process including, but not limited to the following:

    A. Incorporation of recent storm drainage improvements into the future plan to assure maximum usage and benefit was achieved from prior City investments.
    B. Incorporation of regional basins into the storm water quality aspects of the plan for future ease of maintenance.

C. Combination or rerouting of parts of subwatersheds to assure cost effective future storm drainage improvements.
D. Diversion of subwatershed areas into regional basins to assist in water quality management.

Surface runoff and storm drainage design is primarily dependent upon the permeability of existing surfaces, travel time and rainfall intensity. Curve Numbers for the SCS method were computed for each subwatershed to reasonably reflect the degree of existing industrial, commercial and residential development. The subwatershed delineations and node identifications are shown in **Figure 10.** Undeveloped areas were modeled using runoff coefficients and curve numbers representative of the expected future land use. Based on the subwatershed and routing analysis, a potential future stormwater management system was developed. This work was completed for the development of the plan approved September 12, 2006 and updated September 14, 2007.

For each prospective retention basin site, the SCS TR-20 method was used to size basins for flood mitigation potential. HydroCad, a computer program developed by HydroCad Solutions LLC, was used as a watershed-modeling tool to assist in locating and sizing potential retention basins (additional information on modeling methodology is provided in **Appendix B**). Preliminary basin sizing was based on the guidelines recommended by:

1. Walker's PondNet model.
2. The Minnesota Stormwater Manual.

Storm sewer sizing immediately upstream of retention basins has not been integrated at this time, as it will depend on more detailed localized development plans. The pond outlet structures and pipes have been included in the design, but may need adjustment when specific development plans become available. This work was completed for the development of the plan approved September 12, 2006 and updated September 14, 2007.

6.2 Streams, Creeks, and Rivers

6.2.1 Existing Streams, Creeks, and Rivers

One river is located within Mayer city limits, the South Fork of the Crow River. The South Fork of the Crow River is located on the northwest side of the city, flowing from the southwest to northeast, and is the receiving water for runoff from the majority of the study area. The Crow River ultimately drains to the Mississippi River.

6.2.2 Proposed Stream Restoration Sites

Through the administration of a storm water utility fee the City will continue to maintain the existing storm drainage system. Additionally, the City will be available to work with the County to investigate potential stream restoration sites.

Currently, no stream restoration sites have been identified. Should any restorations sites be identified in the future, this plan should be updated to include proposed sites.

6.3 Regional Stormwater Treatment System

6.3.1 Existing Stormwater Treatment System:

The areas of Mayer consisting of newer developments typically contain storm sewer in good condition, stormwater treatment ponds, and infiltration basins. The older areas of town contain few management or treatment measures. However, the storm sewer in the areas without treatment measures does effectively convey runoff. Because of this, these areas are not a priority for the City to reconstruct, but if funding becomes available, the City would be willing to consider installing retrofit stormwater treatment measures.

6.3.2 Proposed Regional Treatment System Analysis Criteria

Regional basins were used to analyze the proposed stormwater treatment system in lieu of smaller localized treatment ponds. Siting was done from the 10' contour topography data provided by the U.S.G.S. quadrangle maps, with only cursory consideration given to land availability. Due to existing soils, infiltration and filtration practices will need to be carefully considered as an option for supplemental storm water treatment during the planning and design phases of individual developments. Care must be taken to ensure the presence of appropriate soils for such practices on a case-by-case basis. The County will review the design and location of any infiltration/filtration basins.

Another option for the City is to consider regional dry/filtration basins in certain locations. An advantage of incorporating large, dry/filtration basins is the multi-functional use potential for these areas. Although buildings would be prohibited in the direct retention area, the open spaces may be used for greenway walking trails, parks, soccer fields and much more. For a large majority of the time, the basins will be relatively dry and the park type use is similar to the way many river cities have parks in river flood plains.

Regional basins may be designed to reduce the length of trunk storm sewer pipe that would be required for storm water transport between basins. When considering the proposed basins, the actual design of the regional basin need not be a symmetrical depression designed only to hold water, but could easily be designed as a non-uniform meandering waterway creating a more natural appearance while maintaining the design intent and saving the length of interconnecting pipe. Further consideration should be given to future development in order to maintain viable and safe flood routing. Thus, the proposed ultimate network makes every attempt to utilize the natural drainage routes.

Regardless of the form or layout of the treatment basins, all regional treatment can be expected to provide the following benefits to the downstream system:

1. Restrict runoff rates and volumes to match pre-developed conditions.
2. Treat runoff from previously untreated areas.
3. Reduce maintenance required compared to many smaller, localized basins.
4. Provide ecological benefits from placing a large basin adjacent to a wetland/natural area. The basin would become part of a larger ecological corridor.

6.3.3 Proposed Regional Stormwater Treatment Analysis

The proposed future regional system improvements indicated in the plan are solely based on the analysis of the drainage situation for the potential future developments within the 2040 City limits. In certain instances the potential may exist for regional basins outside of these boundaries, which have not been analyzed at this time. Following are a few key design features and recommendations.

1. The proposed retention basins are highlighted on the proposed watershed maps **(Figure 10)**. Basins have been generally located in strategic low areas around the community to allow for future development. They are intended to minimize peak runoff flows and provide water quality enhancement. Only cursory consideration has been given to land use, development potential, and boundary lines.

2. If ultimate development characteristics of the watershed change significantly, retention basin design and outlet structures will need to be modified accordingly.

The following are brief descriptions of the various major subwatershed areas where regional ponding could be considered. At present, the descriptions are limited to the potential growth areas around the City of Mayer, and the areas and pond names described correspond to the labels shown in **Figure 10**. Since it has been assumed that some of the existing drainage areas will change/combine during development, some of the nodes differ between the existing and proposed models.

Basin modeling/sizing and cost estimates have been completed for only part of the potential future basins. Those areas not included were deemed to be planned too far in the future for detailed analysis at this time; however, rough estimates were made of basin size and location for planning purposes. It should also be noted that the potential regional pond locations are not the only option; these layouts could be adjusted to better fit proposed developments in the area.

1. North Subwatershed

The North subwatershed consists of approximately 510 acres north and east of the older portion of the City, and it drains northwest to the Crow River. Although there are several NWI wetlands in this region, they are mostly small, isolated areas that will only affect pockets of future development. Land uses include Mayer Lutheran High School, mixed residential and commercial development, and agriculture. Soil characteristics of this area are best described as clay loams. The primary outlet for the developed areas is through the existing detention pond (Pond N100) that was constructed in 2004 north of 7th Street. In addition to providing treatment for the North subwatershed, flows from the Central subwatershed are also currently being routed through this pond. Due to this additional flow, Pond N100 does not contain enough storage volume and should be expanded to provide appropriate treatment and attenuation of runoff and limit peak flow rates.

Prioritization: **Low**
Estimated Cost: $46,280
Project Partner(s): CCWMO
Funding Source(s): Stormwater Utility Fee, CCWMO
Timeframe: Unknown

2. Central Subwatershed

The Central Watershed is approximately 751 acres south and east of the City. It drains north to Pond N100 through a 30" RC pipe installed with recent improvements on 7th Street, Ash Avenue, TH 25, 4th Street, and West Ridge Park. Large existing depressions have historically provided storage for this region. These areas include the City Park (Pond C50), the wetland restoration area area south of the Dakota Rail Trail (Pond C40) and an existing wetland on the southeast side of the Hidden Creek subdivision (Pond C8P). When residential development occurs in the area southwest of the TH 25 and 70th Street intersection, a regional treatment pond sized to treat and control the discharge from this area could be constructed in the low area adjacent to 70th Street. Pond C31P would provide 14.4 acre-feet permanent pool treatment volume and serve approximately 54.9 acres of future residential development.
Prioritization: **Low**
Estimated Cost: $471,835
Project Partner(s): CCWMO, Developer
Funding Source(s): Stormwater Utility Fee, CCWMO, Developer
Timeframe: unknown

6.4 Outlet Control Structures Improvements

6.4.1 Proposed Outlet Control Structure Improvement Projects

Through the administration of a storm water utility fee the City will continue to maintain the existing storm drainage system. Additionally, the City will be available to work with the County to investigate outlet control structures for condition and improvement needs.

Currently, no outlet control structure improvement projects have been identified. Should any outlet control structure improvement sites be identified in the future, this plan should be updated to include proposed sites.

6.5 Localized Stormwater Treatment Improvements

6.5.1 Proposed Localized Stormwater Treatment Improvement Projects

Through the administration of a storm water utility fee the City will continue to maintain the existing storm drainage system. Additionally, the City will be available to work with the County to investigate the use of treatment alternatives to be retrofit to the existing conveyance system.

The following are localized stormwater treatment improvement projects identified to help manage stormwater runoff and improve water quality.

1. General Storm System Maintenance

Storm water management facilities in the newer areas of town have been constructed to meet the standards set forth in the County Ordinances current at the time of construction, and as such these areas contain wet retention ponds, rain gardens, and various other treatment facilities to provide water quality improvement. As street and utilities are reconstructed in the older areas, stormwater management facilities are being added with each project. The older portions of the drainage system will likely

require more annual maintenance, but the systems in the newer portions will also require periodic attention. Storm drainage system maintenance required includes pond assessment and cleaning, street sweeping, sewer televising, irrigation system operation, and GIS/mapping, as well as inlet and pipe repair.
Prioritization: **High**
Estimated Cost: $2,000/yr
Project Partner(s): None
Funding Source(s): City
Timeframe: Ongoing

2. Street and Utility Improvement Projects
As street, sanitary sewer, and water main improvement projects are scheduled, project areas will also be reviewed for potential stormwater management and treatment improvements that were not previously identified. Potential improvements include, but are not limited to, conveyance improvements, stormwater treatment devices, bioretention basins, wet retention ponds, slope stabilizations, and native vegetation restoration.
Prioritization: **High**
Estimated Cost: $2,000/yr
Project Partner(s): CCWMO, Private Landowners
Funding Source(s): City, CCWMO, Grant Funding
Timeframe: Unknown

3. Stormwater Runoff Management and Treatment Measures
Correct flooding issues on City property as necessary to protect public safety and minimize potential for property damage. Also, install stormwater treatment measures (i.e. rain gardens, stormwater treatment devices, etc.) throughout the City to provide additional runoff storage capacity, reduce runoff rates and volumes, and/or reduce pollutant loads. The City will evaluate public properties and collaborate as necessary with CCWMO and willing private landowners for viable locations not on City land to install measures. Measures will be coordinated to treat stormwater discharge from areas with inadequate or no treatment (**Figure 9**) and improve the quality of runoff reaching area surface waters.
Prioritization: **High**
Estimated Cost: $2,000/yr
Project Partner(s): CCWMO, Private Landowners
Funding Source(s): City, CCWMO, Grant Funding
Timeframe: Unknown

Should any additional localized stormwater treatment improvement projects be identified in the future, this plan should be updated to include proposed projects.

6.6 Wetland Restorations

6.6.1 Proposed Wetland Restoration Sites

Through the administration of a storm water utility fee the City will continue to maintain the existing storm drainage system. Additionally, the City will be available to work with the County to investigate potential wetland restoration sites.

The wetland locations, descriptions, and references were taken from the National Wetlands Inventory Map (**Figure 6)**, as well as the County "Functional Value" and "Restoration Potential" map (**Figure 7**). The following are potential wetland restoration sites identified to help manage stormwater runoff and improve water quality. Refer to **Figure 10** for locations.

1. West Subwatershed

Collaborate with the County and Developer to restore the wetlands in the northwest corner of the subwatershed adjacent to the Crow River and in the southwest corner along 70th Street. These wetland areas have been identified by the county to have "high" restoration potential, and the projects would help meet the goal of improving the quality and quantity of wetlands in Mayer and increase flood storage, as well as improve the quality of runoff to the Crow River.
Prioritization: **Low**
Estimated Cost: Unknown
Project Partner(s): CCWMO, Developer
Funding Source(s): Stormwater Utility Fee, CCWMO, Developer
Timeframe: Unknown

2. North Subwatershed

Collaborate with the County and Developer to restore the wetlands in the north side of the subwatershed adjacent to the Crow River and along TH 7. These wetland areas have been identified by the county to have "medium" restoration potential, and the projects would help meet the goal of improving the quality and quantity of wetlands in Mayer and increase flood storage, as well as improve the quality of runoff to the Crow River.
Prioritization: **Low**
Estimated Cost: Unknown
Project Partner(s): CCWMO, Developer
Funding Source(s): Stormwater Utility Fee, CCWMO, Developer
Timeframe: Unknown

3. Fieldstone Subwatershed

Collaborate with the County and Developer to restore the wetlands along the lowland through the center of this subwatershed, connecting the Crow River and Goose Lake. These wetland areas have been identified by the county to have "medium" restoration potential, and the projects would help meet the goal of improving the quality and quantity of wetlands in Mayer and increase flood storage, as well as improve the quality of runoff to the Crow River.
Prioritization: **Low**
Estimated Cost: Unknown
Project Partner(s): CCWMO, Developer
Funding Source(s): Stormwater Utility Fee, CCWMO, Developer
Timeframe: Unknown

Should any additional wetland restoration sites be identified in the future, this plan should be updated to include proposed sites.

6.7 Natural Area Preservation and Restoration

6.7.1 Proposed Natural Area Preservation and Restoration Sites

Through the administration of a storm water utility fee the City will continue to maintain the existing storm drainage system. The City will also consider preserving natural upland areas and creating natural upland corridors during development planning. Additionally, the City will be available to work with the County to investigate potential natural upland restoration sites adjacent to surface waters.

1. West Subwatershed

When development occurs west of the Hidden Creek Addition, preservation of the forested/natural upland area along the south side of CSAH 30 could provide valuable natural habitat and an ecological corridor to the Crow River, and should be considered for preservation as feasible during development planning. The preservation of this natural area would help meet the goal of mitigating degradation of surface waters, provide ecological connectivity, and maintain quality of runoff to the Crow River.
Prioritization: **Low**
Estimated Cost: Unknown
Project Partner(s): CCWMO, Developer
Funding Source(s): Stormwater Utility Fee, CCWMO, Developer
Timeframe: Unknown

2. North Subwatershed

When development occurs north of town and east of TH 25, preservation of the forested/natural upland area along the Crow River could provide valuable natural habitat and ecological corridors to the Crow River, and should be considered for preservation as feasible during development planning. The preservation of these natural areas would help meet the goal of mitigating degradation of surface waters, provide ecological connectivity, and maintain quality of runoff to the Crow River.
Prioritization: **Low**
Estimated Cost: Unknown
Project Partner(s): CCWMO, Developer
Funding Source(s): Stormwater Utility Fee, CCWMO, Developer
Timeframe: Unknown

3. Fieldstone Subwatershed

When development occurs northeast of town in the proposed Fieldstone Addition, preservation of the forested/natural upland area along the lowland connecting the Crow River and Goose Lake could provide valuable natural habitat and an ecological corridor to the Crow River, and should be considered for preservation as feasible during development planning. The preservation of these natural areas would help meet the goal of mitigating degradation of surface waters, provide ecological connectivity, and maintain quality of runoff to the Crow River.
Prioritization: **Low**
Estimated Cost: Unknown
Project Partner(s): CCWMO, Developer
Funding Source(s): Stormwater Utility Fee, CCWMO, Developer
Timeframe: Unknown

Should any preservation or restorations sites be identified in the future, this plan should be updated to include proposed sites.

6.8 Education

6.8.1 Proposed Education Programs and Tools

Through the administration of a storm water utility fee the City will continue to maintain the existing storm drainage system. Additionally, the City will be available to work with the County to investigate the implementation of education programs and tools to inform the public about water quality issues and solutions.

The following are education programs and tools identified to help inform the public regarding stormwater runoff management and methods to improve water quality. The following are only listed here as possible education strategies. The City will meet annually with CCWMO's Education Coordinator to discuss goals and strategies each year and create short, specific annual education plans. As annual plans are assembled, this SWMP should be updated to list the specific education strategies developed.

1. Education Programs and Tools for Home/Landowners

- Provide sticker "Keep Grass Clippings on the Lawn!" with brochure explaining the detrimental effect of grass clippings on water quality when transported to water bodies. The sticker could be placed on lawnmowers as a reminder. Stickers may possibly be obtained from the County for distribution by the City. Method of distribution would have to be determined by the City.
- Provide bookmarkers/brochures regarding a variety of water quality topics, including 1) common household pollutants, contaminants, and waste and proper disposal methods, 2) raingardens, 3) Total Maximum Daily Loads, 4) reducing water footprint, 5) stormwater ponds, and 6) phosphorus-free fertilizer. The City could collaborate with the County for development of bookmarkers/brochures for distribution by the City. Method of distribution would have to be determined by the City.
- Implement Volunteer programs. The City could coordinate community cleanups, shoreline stabilization projects, or wetland buffer restorations.
- Hold workshops/seminars on a variety of water quality topics, including 1) common household pollutants, contaminants, and waste and proper disposal methods, 2) raingardens, 3) Total Maximum Daily Loads, 4) reducing water footprint, 5) stormwater ponds, and 6) phosphorus-free fertilizer. The City could also assist with the County's workshops/seminars.
- Promote reduction of water footprint. The City could collaborate with the County to promote and provide rainbarrels at a reduced cost, a mulch/compost dump site at no cost during certain times of year, and tree whips at a reduced cost in the spring.

2. Education Programs and Tools for Decision Makers

- Collaborate with the County to hold Carver County Stormwater Workshops. This workshop is intended to educate developers, city staff, and elected officials regarding stormwater Best Management Practices and new

developments in stormwater research.

- Collaborate with the County to provide Non-point Source Education for Municipal Officials (NEMO) opportunities. NEMO is detailed in the CWRMP on page 3J.5 and is intended to educate decision makers about the relationship between land use and water quality.

3. Education Programs and Tools for K-12 Students

- Collaborate with the County to participate in a variety of student education programs.

Refer to the CWRMP for additional information regarding education programs and tools provided by the County. When any additional education programs and tools are identified in the future, this plan will be updated to include them accordingly.

6.9 Surface Water Management Costs and Funding Considerations

The cost and funding considerations contained in this plan are included for scoping purposes only. Prior to including projects into the City's Capital Improvement Plan (CIP), further investigation is required into conditions meriting improvement and correction/mitigation strategies to be implemented. This plan recognizes the changing regulatory environment and evolving technologies necessary to understand prior to further developing a CIP or construction schedule.

6.9.1 Regional Stormwater Treatment System Costs

Proposed regional stormwater treatment basins are described in **Section 6.3**, and cost estimates were prepared for basins identified. The cost estimates include 1) basin and outlet construction, 2) land costs estimated at $25,000 per acre, and 3) soft costs. **Table 6.1** summarizes the costs associated with the proposed regional basins. For a detailed breakdown of costs, refer to **Appendix D**.

Table 6.1: Regional Treatment Pond Cost Estimates

Basin I.D.	Total Cost	Area Served (acres)	Cost/Acre
C31P	$471,835	54.9	$8,594
N100	$46,280	785	$59

6.9.2 Capital Improvement Plan

As part of this assessment of water resources in Mayer, a Capital Improvement Plan (CIP) has been developed to aid with implementation of surface water management improvements and maintenance. The CIP includes budgeting for stream restoration, regional stormwater treatment, outlet control structure improvements, localized stormwater treatment, wetland restoration, natural area preservation and restoration, education, stormwater treatment system mapping, and maintenance. Since improvement projects are completed on an annual basis, City priorities can change, and new surface water management issues can arise, the CIP should be reviewed yearly and updated as necessary. Refer to **Appendix E** for Mayer's 5-Year Surface Water

Management Plan CIP.

6.9.3 Proposed Surface Water Management Funding

The City uses a Stormwater Utility Fee to fund stream restoration, regional stormwater treatment, outlet control structure improvements, localized stormwater treatment, wetland restoration, natural area preservation and restoration, education, stormwater treatment system mapping, and maintenance. However, this fee will likely be insufficient to cover all costs associated with surface water management. Since surface water management treatment improvement and restoration projects will improve the quality of downstream waters, Mayer will rely on the addition of County, State, and Federal funding as available to complete such projects. Potential projects should be coordinated with CCWMO for inclusion in the County's annual 5-year CIP process.

<u>Regional Stormwater Treatment System</u>
The largest prohibitive factor foreseen in the development of the regional pond system (aside from potential land-acquisition issues) is acquiring the initial money necessary for the land purchase and pond construction. The funding for such a large-scale system for new development cannot be expected to come solely from the City's Stormwater Utility Fee, but must be aided by the new development and potentially the County. With large regional basins likely to treat runoff from multiple developments, coordination between the City, Developer, and County will be necessary to cover costs associated with the land purchase and basin construction. Once the regional basins are put into service, costs will be recouped through fees from additional developments tying into the system.

Since regional basins would provide treatment for the new developments, it is the developers that will be required to ultimately provide the funding. One option is to have developments contribute a dollar amount equal to the percentage of the regional basin's watershed area times the costs associated with constructing the regional basin and associated piping and ditching. For example, a regional basin with a total watershed of 100 acres would require a development of 40 acres to cover 40% of the costs of the regional basin. Another option is to stage the construction of the pond to meet requirements of actual development constructed and expand the pond as needed to meet requirements for future development as they are completed. In the event the regional pond cannot be completed at the time of development, localized treatment ponds may be the only feasible and practical alternative.

Also, the regional basins proposed to treat runoff from existing developed areas may require funds above and beyond those provided by the Stormwater Utility Fee since costs will not be recouped from new developments. Funding could be sought from County, State, or Federal sources.

6.9.4 Stormwater Utility Fee

The existing storm drainage system in Mayer is adequate for stormwater conveyance. However, the City is continuing to grow, and the maintenance of the storm drainage system and the quality of water resources are becoming more of a priority. Therefore, the City will need a funding mechanism in place to help pay for stormwater management.

The Stormwater Utility Fee should be used to partially or completely fund stormwater drainage and treatment system improvements and maintenance of system elements. These improvement and maintenance projects should include stream restoration, regional stormwater system improvements, outlet control structure improvements, localized stormwater treatment improvements, wetland restoration, natural area restoration and preservation, education regarding stormwater issues, pond cleaning, pond delineation, storm sewer maintenance, street sweeping, sewer camera, flood control, grant programs for drainage improvements, ponds and outlets inspection, stream bank inspection, land acquisition for drainage improvements, and volunteer programs for stormwater improvements.

The Stormwater Utility Fee currently has different rates for various connections. The 2018 rates are $2.00/month for single family residential units, $7.20/month for commercial units, $3.60/month for schools and churches, $7.20 for industrial units, and $4.00/month for multi-family residential units. With approximately 611 residential units, 44 commercial units, 3 schools/churches, 0 industrial units, and 0 multi-family units, the projected monthly Stormwater Utility Revenue is $1,549.60. However, the 5 Year CIP for Stormwater Utility Improvements and Maintenance requires an estimated fee of $5,742/month. Therefore, in order to complete necessary improvements and maintenance without impacting the City's general fund, the City should consider increasing the Stormwater Utility Fee monthly rates for the next five years. The recommended rates to accomplish the objectives listed in this plan are $7.41 for residential units, $26.68 for commercial units, $13.34 for schools and churches, $7.20 for industrial units, and $4.00 for multi-family units. See **Appendix E** for the Stormwater Utility Fee Analysis. As priorities are established by the City, the Stormwater Utility Fee should be reviewed annually and adjusted accordingly.

7.0 ADMINISTRATION

7.1 Amendment Procedures

The potential future regional pond network described in previous sections presents one method of accommodating the future growth of the City of New Germany. However, the City will continue to meet or exceed the County watershed standards set forth in the future regardless of the plan chosen to manage runoff. In the event that a discrepancy exists between this plan and regulations set forth by a County, State or Federal agency, the more restrictive regulation shall govern.

Any major amendments to the adopted plan shall be submitted to the County, Metropolitan Council, and the Board of Water and Soil Resources for review in accordance with the provisions of Minnesota Statute 103B.231, subdivisions 7, 8, and 9.

As stated earlier, the hydrologic modeling in this report is largely based on the USGS topographic quadrangle maps with a 10-foot contour interval. The quality and accuracy of this report should be further validated with more detailed survey data in the growth areas as they develop. Also, as new developments are reviewed and accepted by the City, the new areas will be added to the overall stormwater model.

7.2 Plan Coordination

The City will meet with CCWMO annually to coordinate plan elements (i.e. improvement projects, education opportunities, potential partnerships, etc.). Annual meetings will be coordinated to account for the City and CCWMO budgeting schedules.

7.2 Plan Evaluation

Table 7.1 provides for evaluation of the current Surface Water Management Plan by listing the implementation strategies identified and accomplishments achieved. This Table should be reviewed and updated regularly.

Table 7.1: Current Plan Evaluation

SURFACE WATER MANAGEMENT			
POLICY	TIME FRAME	STATUS	IMPLEMENTATION STRATEGY
1. Continue to administer and maintain the Shoreland Overlay District ordinance to be in accordance with state regulations and the County's CWRMP.	2018 -	Ongoing	City will continue to administer and maintain the Shoreland Overlay District ordinance as required.
2. Continue to administer and maintain the Floodplain Management ordinance in accordance with state regulations and the County's CWRMP.	2018 -	Ongoing	City will continue to administer and maintain the Floodplain Management ordinance as required.
3. Evaluate and correct flooding issues on City property as necessary to protect public safety and minimize potential for property damage.	2018 -	Ongoing	The City will continue to monitor and evaluate flooding issues on City property as necessary to protect public safety and minimize potential for property damage. List completed projects here.
4. Provide support to landowners in evaluating and correcting localized flooding issues.	2018 -	Ongoing	City will provide support to landowners as necessary in the form

			of engineering recommendations and construction oversight.
5. Prioritize restoration of eroded areas on natural streams and/or creeks.	2018 -	Ongoing	City will inspect streams for erosion annually, prioritize improvement projects as needed, and coordinate with CCWMO for inspection and work required. **List completed projects here.**
6. Provide support to landowners in evaluating and removing channel obstructions on natural streams and/or creeks.	2018 -	Ongoing	City will inspect streams for obstructions annually, prioritize improvement projects as needed, and coordinate with CCWMO for inspection and work required. **List completed projects here.**
7. Promote additional storage and runoff reduction through wetland restoration, regional ponding, and stream or ditch diversions.	2018 -	Ongoing	During development/redevelopment, the City will encourage the use of runoff reduction stormwater treatment features.
8. Evaluate outlet control structures for performance and work with landowners, CCWMO, and/or the Minnesota Department of Natural Resources (MnDNR) to replace or repair the structures if needed.	2018 -	Ongoing	City will inspect outlet structures every five years, prioritize improvement projects as needed, and coordinate with CCWMO, Landowners, and MnDNR for inspection and work required. **List completed projects here.**
9. Promote education regarding the benefits of proper surface water resources management.	2018 -	Ongoing	City will coordinate with CCWMO to provide educational opportunities for the public and City staff.
IMPAIRED WATERS			
POLICY	TIME FRAME	STATUS	IMPLEMENTATION STRATEGY
1. Reduce pollutant loading to Impaired Waters in order to restore water quality to State standards.	2018 -	Ongoing	City will adopt all TMDLs and Implementation Plans for local impaired waters. The City will also provide improvements as necessary to reduce pollutants to required levels. **List TMDL Implementation Plans here.**
2. Promote education regarding the benefits of pollutant load reduction.	2018 -	Ongoing	City will coordinate with CCWMO to provide educational opportunities for the public and City staff.
URBAN STORMWATER MANAGEMENT			
POLICY	TIME FRAME	STATUS	IMPLEMENTATION STRATEGY
1. Continue to meet or exceed the National Pollutant Discharge Elimination System (NPDES) requirements as they apply to the City of Waconia.	2018 -	Ongoing	City will continue to apply the requirements of the Construction Stormwater Permit as necessary, require facilities to obtain an Industrial Stormwater Permit if applicable, and maintain its MS4 Permit as required.
2. Apply regulatory standards that help the City meet its goal for Urban Stormwater Management.	2018 -	Ongoing	City will rely on CCWMO for reviewing applications and enforcing standards with regards to stormwater management, and will also review all applications to ensure City is not adversely affected.

3. Prioritize potential stormwater projects that will decrease local runoff rates and volumes and increase water quality.	2018 -	Ongoing	City will continually review, evaluate, and prioritize potential stormwater treatment improvements to reduce runoff rates and volumes. SWMP will be updated annually. **List completed projects here.**
4. Administer the stormwater drainage system maintenance plan using the practices described in this plan.	2018 -	Ongoing	City will administer and maintain the stormwater drainage system operation and maintenance plan.
5. Administer the road operation and maintenance (O&M) plan using the practices described in this plan.	2018 -	Ongoing	City will administer and maintain the road operation and maintenance plan.
6. Maintain City's database for stormwater related data, such as location and type.	2018 -	Ongoing	City will employ staff and consultant as necessary to maintain a database of the stormwater system.
7. Promote education regarding the benefits of proper urban stormwater management.	2018 -	Ongoing	City will coordinate with CCWMO to provide educational opportunities for the public and City staff.
WETLANDS MANAGEMENT			
POLICY	TIME FRAME	STATUS	IMPLEMENTATION STRATEGY
1. Achieve no net loss in the quantity, quality, and diversity of existing wetlands through enforcement of Wetland Management regulations.	2018 -	Ongoing	City will adopt CCWMO standards, but also maintain right to review all applications to ensure City is not adversely affected.
2. Promote wetland restoration, as a way to mitigate historical impacts to wetlands and increase the quantity and quality of wetlands locally.	2018 -	Ongoing	City will continually review, evaluate, and prioritize potential wetland restoration projects. SWMP will be updated annually. **List completed projects here.**
3. Promote education regarding the benefits of proper wetland management.	2018 -	Ongoing	City will coordinate with CCWMO to provide educational opportunities for the public and City staff.
UPLAND NATURAL RESOURCES			
POLICY	TIME FRAME	STATUS	IMPLEMENTATION STRATEGY
1. Increase the quantity and quality of existing natural areas through enforcement of existing regulations and the participation of willing landowners in existing preservation and restoration programs.	2018 -	Ongoing	As development/redevelopment occurs, City will work with landowners to preserve and restore natural areas as possible.
2. Promote the restoration of natural upland areas, as a way to mitigate the degradation and fragmentation of natural resources and improve water quality of surface water resources.	2018 -	Ongoing	City will continually review, evaluate, and prioritize potential natural area restoration projects. SWMP will be updated annually. **List completed projects here.**
3. Promote education regarding the benefits of proper natural upland management.	2018 -	Ongoing	City will coordinate with CCWMO to provide educational opportunities for the public and City staff.
GROUNDWATER MANAGEMENT			
POLICY	TIME FRAME	STATUS	IMPLEMENTATION STRATEGY
1. Protect groundwater quality and groundwater supplies.	2018 -	Ongoing	City will work with CCWMO to seal potential contaminate source, support Met Council in effort to monitor and protect regional supplies, and implement conservation efforts as necessary.
2. Promote groundwater recharge, if soil conditions allow.	2018 -	Ongoing	City will promote LID techniques for development/redevelopment projects via comment and review

			letters and develop a LID policy over the next two years.
3. Promote education regarding the benefits of proper groundwater management.	2018 -	Ongoing	City will coordinate with CCWMO to provide educational opportunities for the public and City staff.
EDUCATION			
POLICY	TIME FRAME	STATUS	IMPLEMENTATION STRATEGY
1. Increase public awareness, understanding, and involvement in water and natural resource issues and management.	2018 -	Ongoing	City will coordinate with CCWMO to provide educational opportunities for the public and City staff. The City will meet annually with CCWMO's Education Coordinator to discuss goals and strategies each year and create short, specific annual education plans.

8.0 APPENDICES

Appendix A

Maps:

Study Area ..... Figure No. 1
Existing Land Use…… ..... Figure No. 2
Proposed Land Use..... Figure No. 3
Soils……..... Figure No. 4
Minnesota Land Cover Classification System (MLCCS)..... Figure No. 5
NWI Wetlands and DNR Public Waters..... Figure No. 6
Wetland Ranking & Restoration Potential..... Figure No. 7
Impaired Waters ..... Figure No. 8
Stormwater Runoff Treatment Areas ..... Figure No. 9
Subwatershed Map ..... Figure No. 10
Storm Sewer Map..... Figure No. 11

MAYER

2040 Comprehensive Plan

Mayer, MN

Study Area

July 2018

BOLTON & MENK

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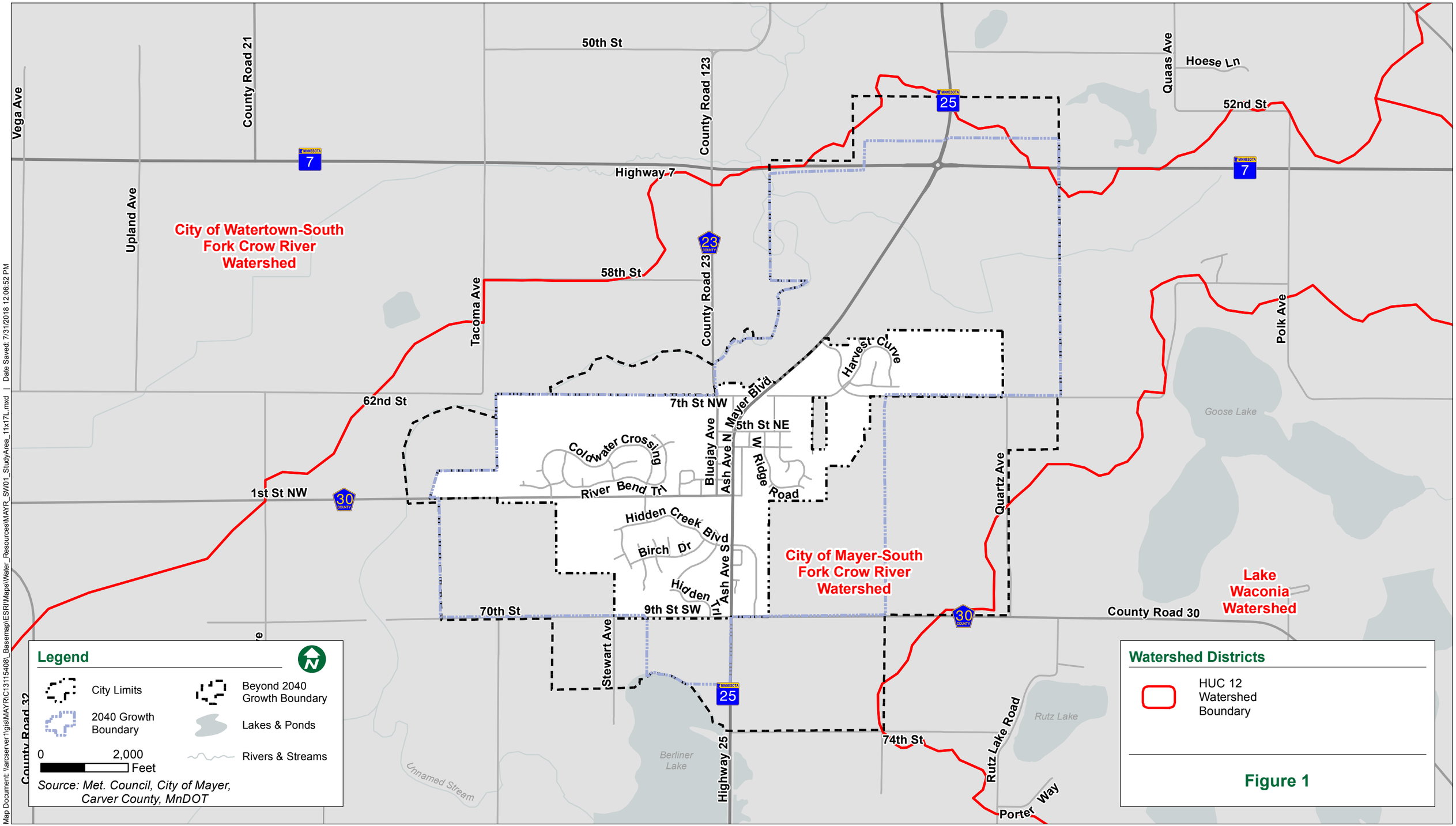

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MAYER

2040 Comprehensive Plan

Mayer, MN

Existing Land Use

July 2018

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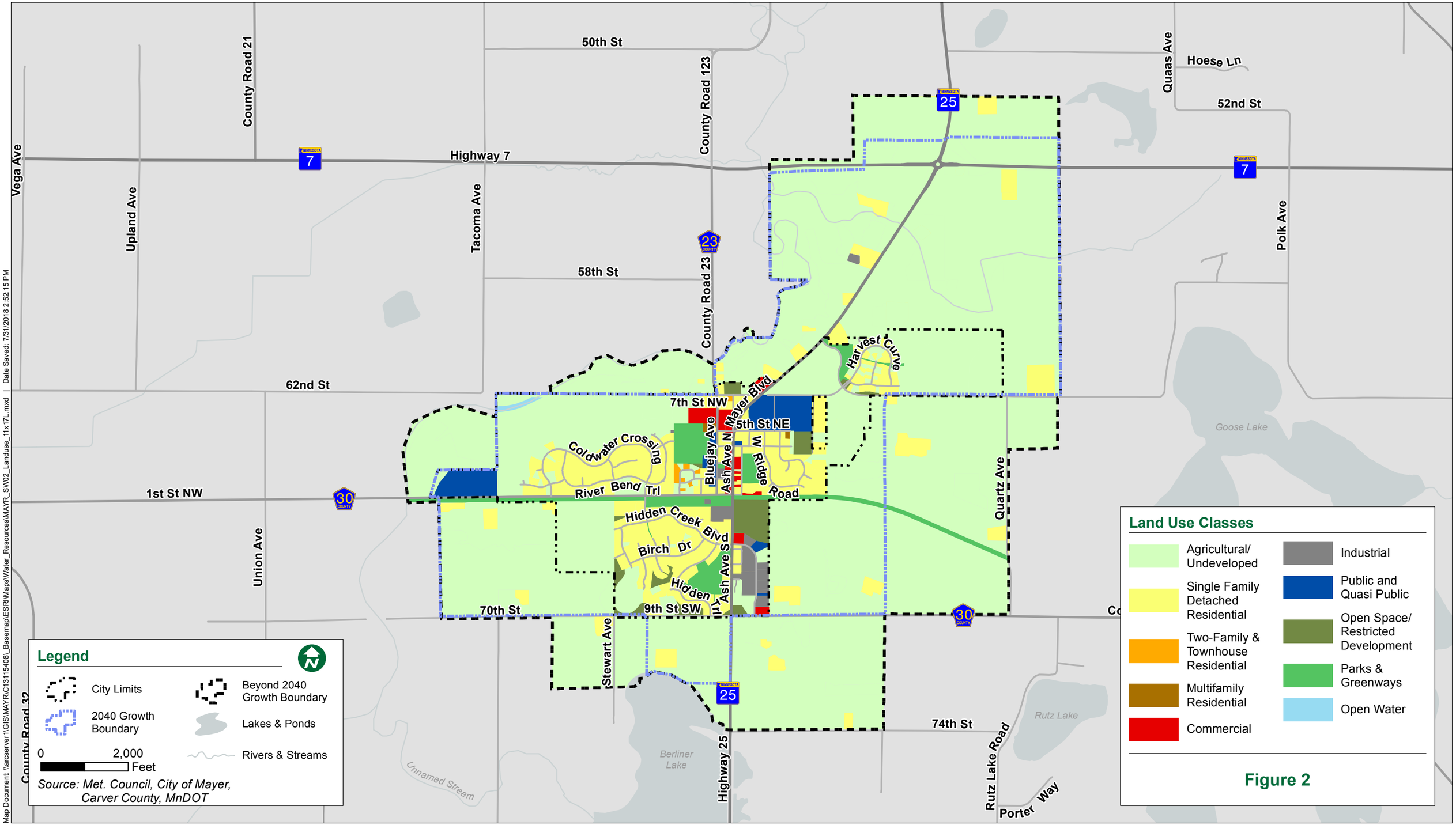

Figure 2

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MAYER

2040 Comprehensive Plan

Mayer, MN

Future Land Use

July 2018

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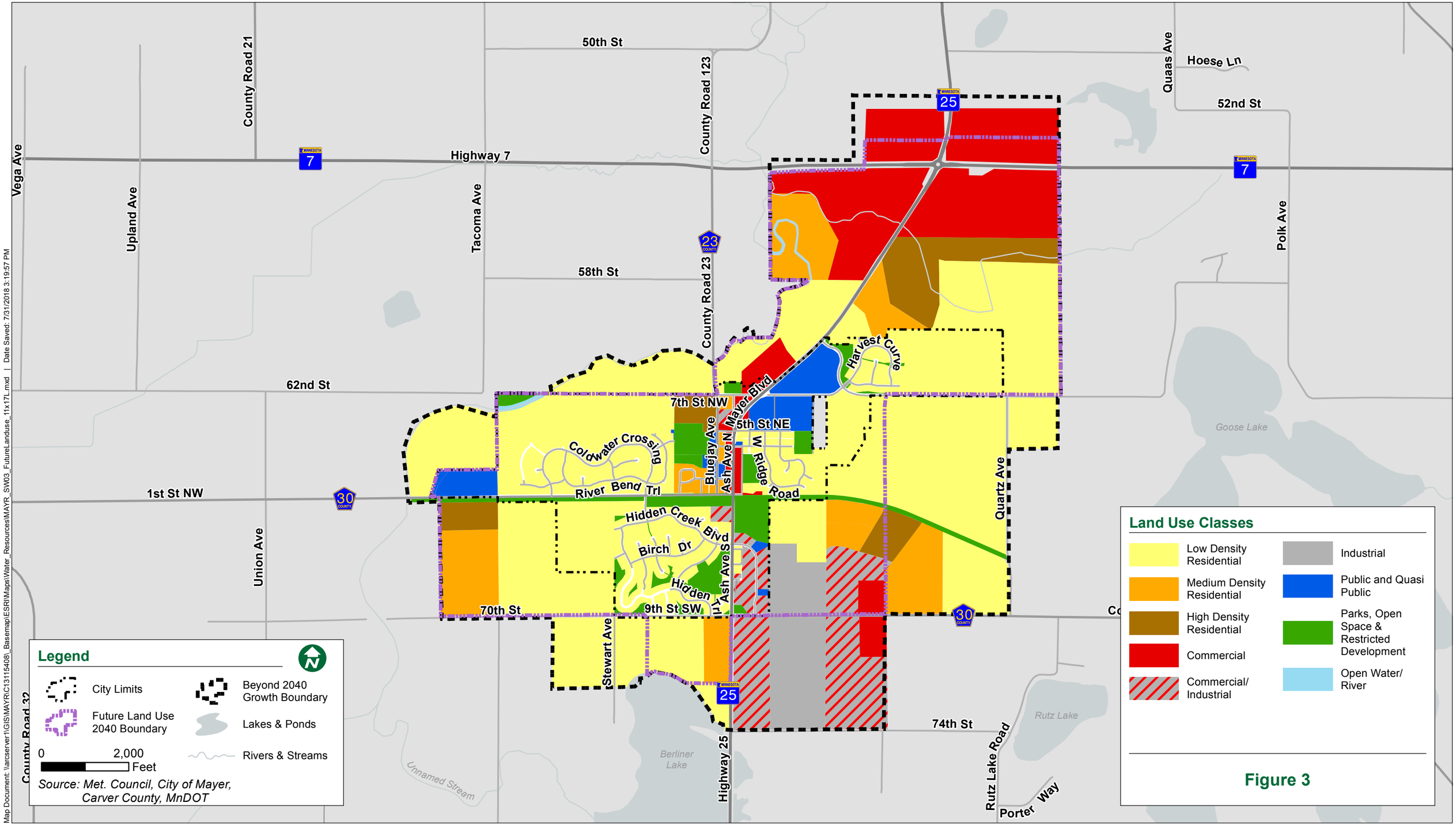

Figure 3

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MAYER

2040 Comprehensive Plan

Mayer, MN

Soils

July 2018

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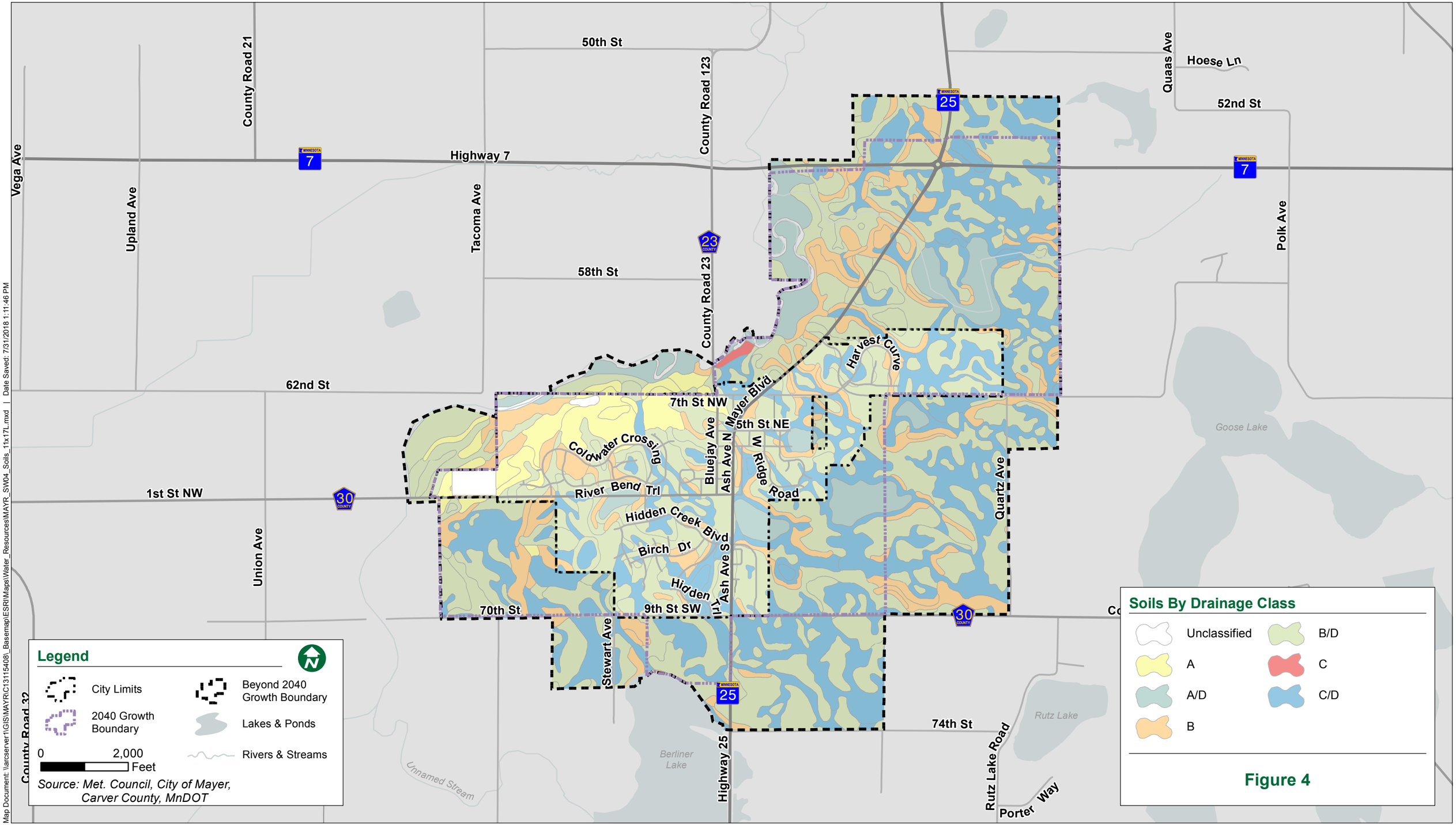

Figure 4

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MAYER

2040 Comprehensive Plan

Mayer, MN

Minnesota Land Cover Classification

July 2018

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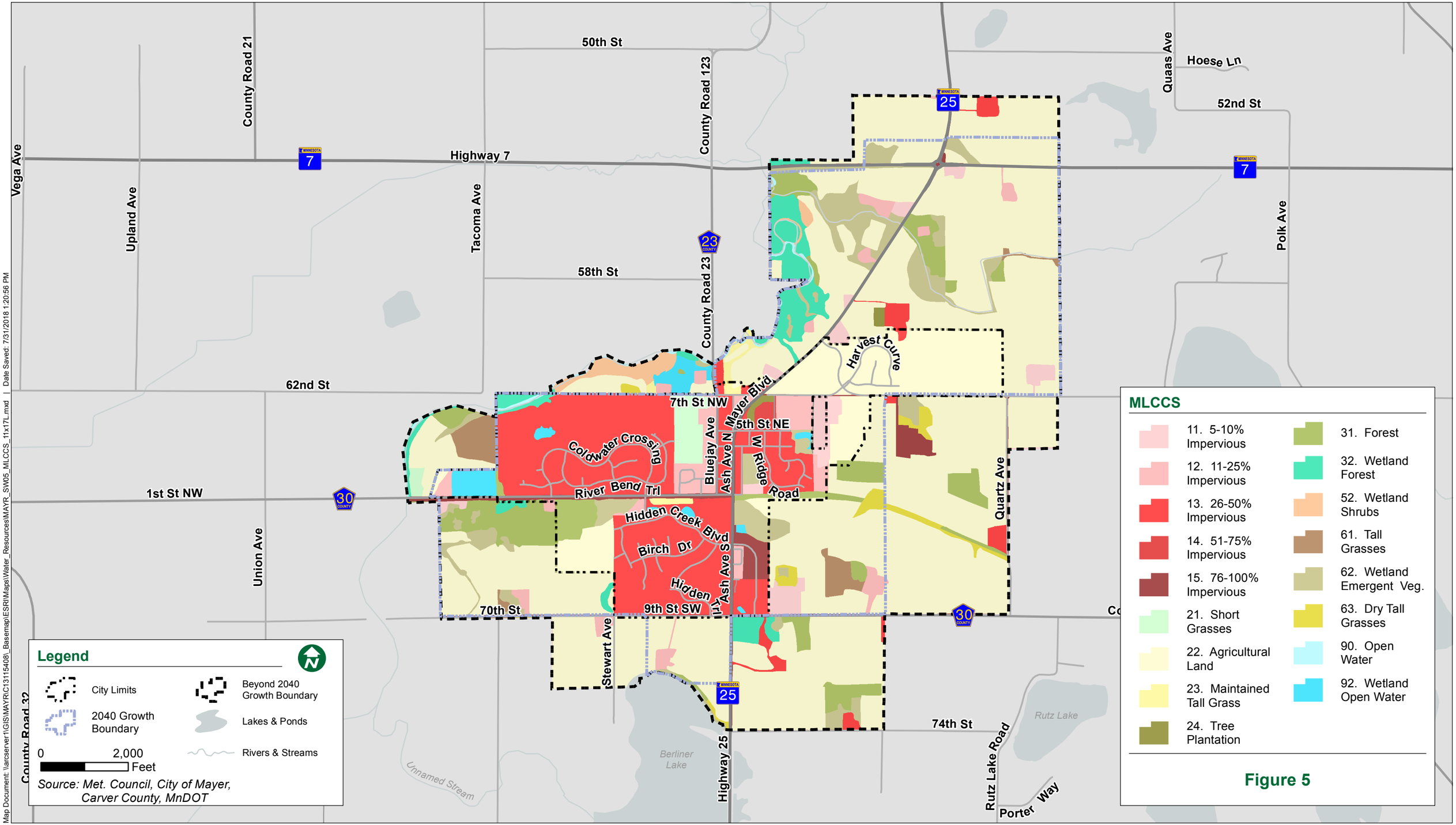

Figure 5

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MAYER

2040 Comprehensive Plan

Mayer, MN

National Wetlands Inventory & DNR Public Waters

July 2018

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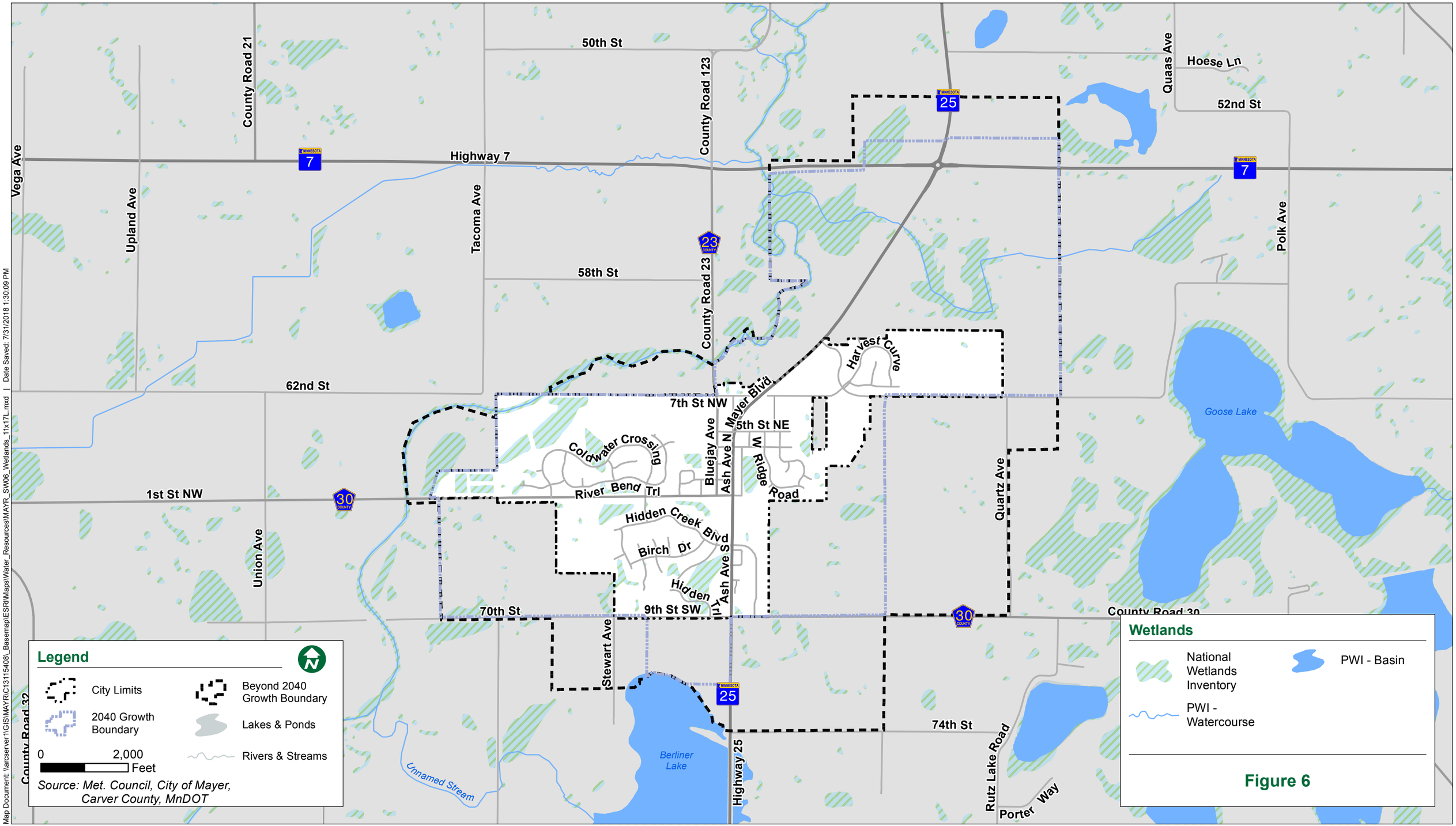

Figure 6

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MAYER

2040 Comprehensive Plan

Mayer, MN

Wetland Ranking & Restoration Potential

July 2018

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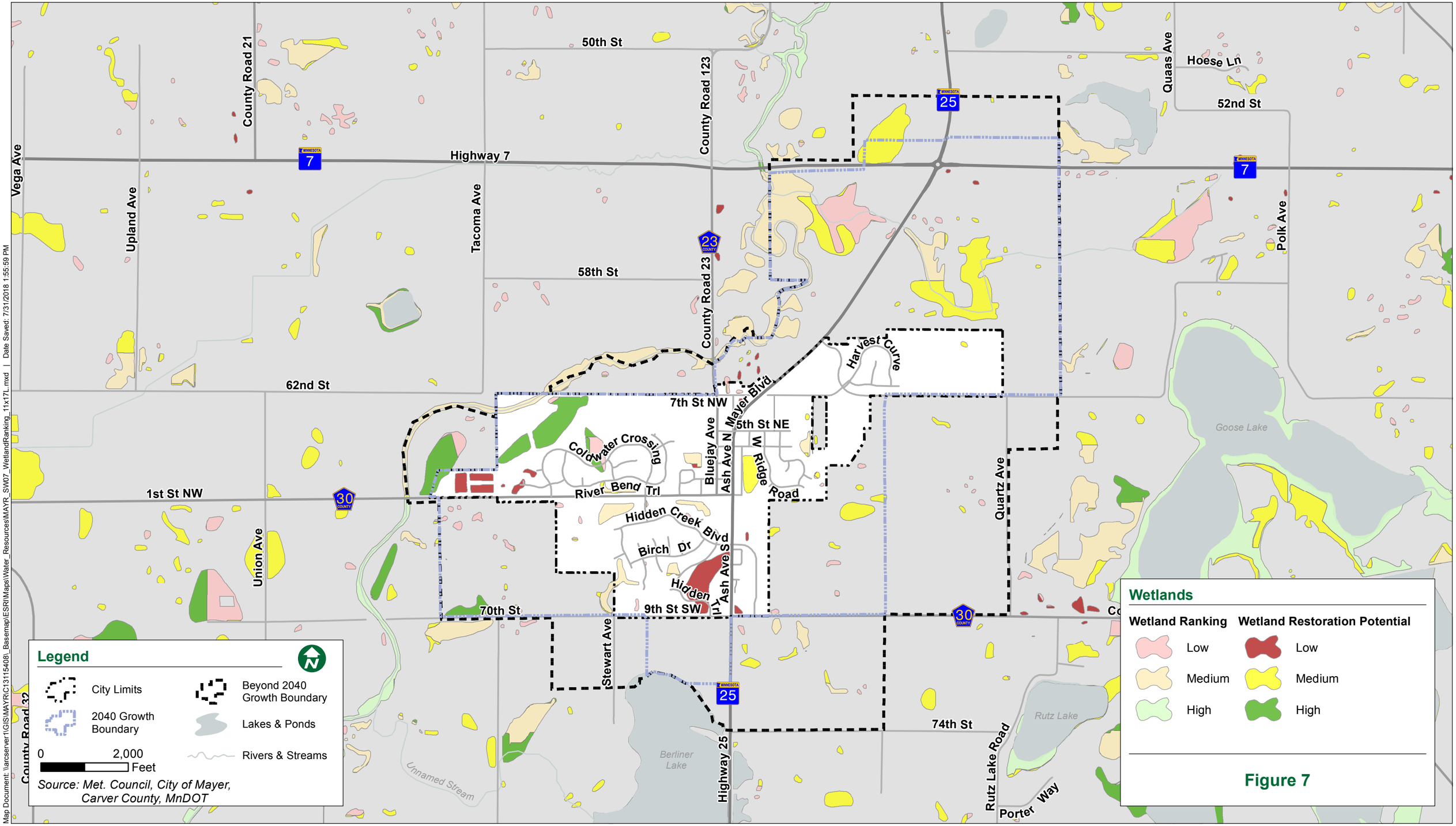

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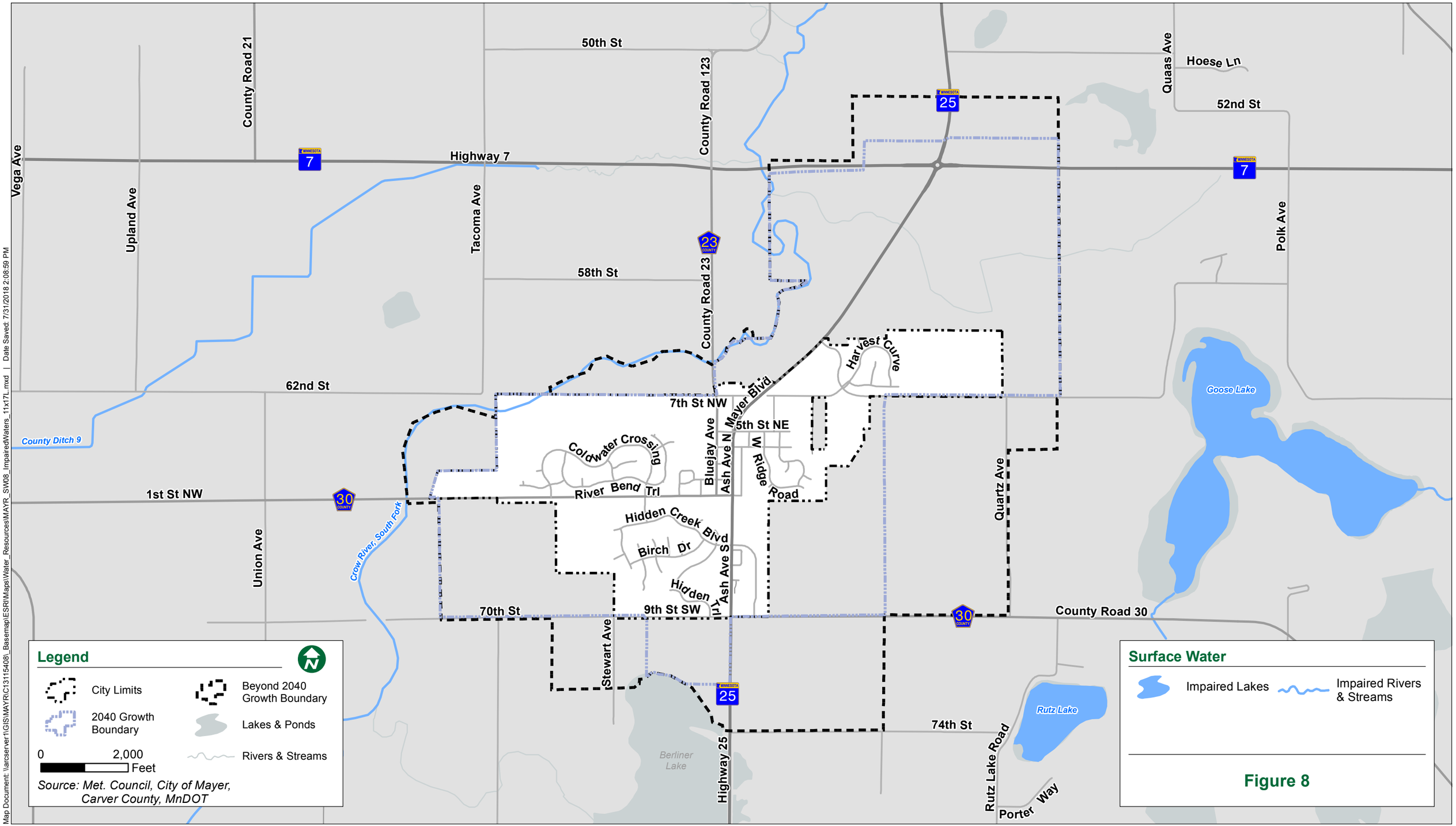
Vega Ave
Upland Ave
County Road 21
Tacoma Ave
50th St
County Road 123
Highway 7
58th St
County Road 23
62nd St
County Ditch 9
1st St NW
Union Ave
Crow River, South Fork
70th St
Stewart Ave
9th St SW
Hidden Trl
Ash Ave S
Hidden Creek Blvd
Birch Dr
River Bend Trl
Coldwater Crossing
Bluejay Ave
Ash Ave N
7th St NW
Mayer Blvd
5th St NE
W Ridge Road
Harvest Curve
Quaas Ave
Hoese Ln
52nd St
Polk Ave
Quartz Ave
Goose Lake
County Road 30
74th St
Rutz Lake Road
Rutz Lake
Porter Way
Berliner Lake
Highway 25
Legend
City Limits
2040 Growth Boundary
Beyond 2040 Growth Boundary
Lakes & Ponds
Rivers & Streams
0
2,000
Feet
Source: Met. Council, City of Mayer, Carver County, MnDOT
Surface Water
Impaired Lakes
Impaired Rivers & Streams
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Figure 8

MAYER

2040 Comprehensive Plan

Mayer, MN

Stormwater Runoff Treatment Areas

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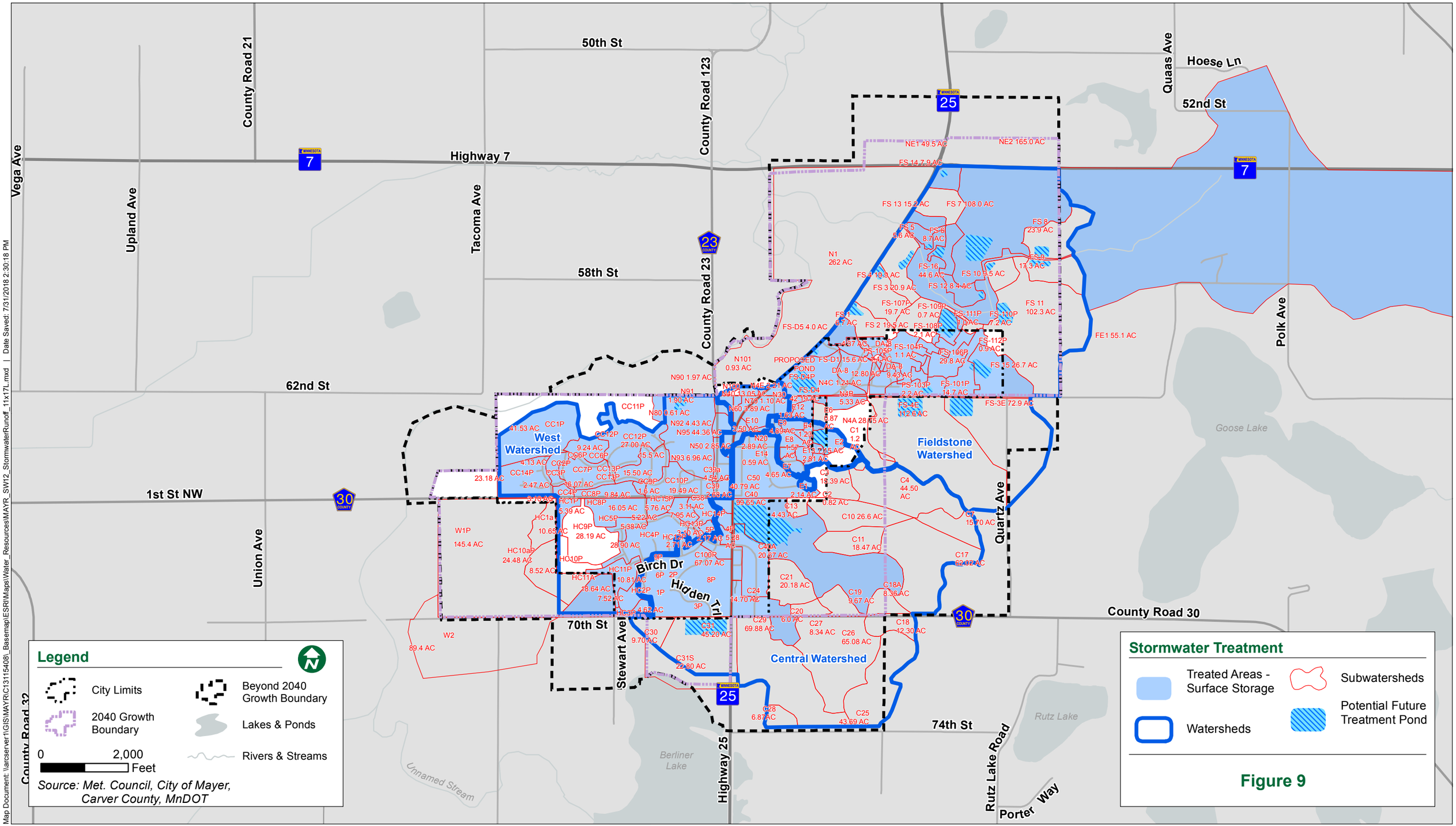

Figure 9

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2040 Comprehensive Plan

Mayer, MN

Proposed Watersheds

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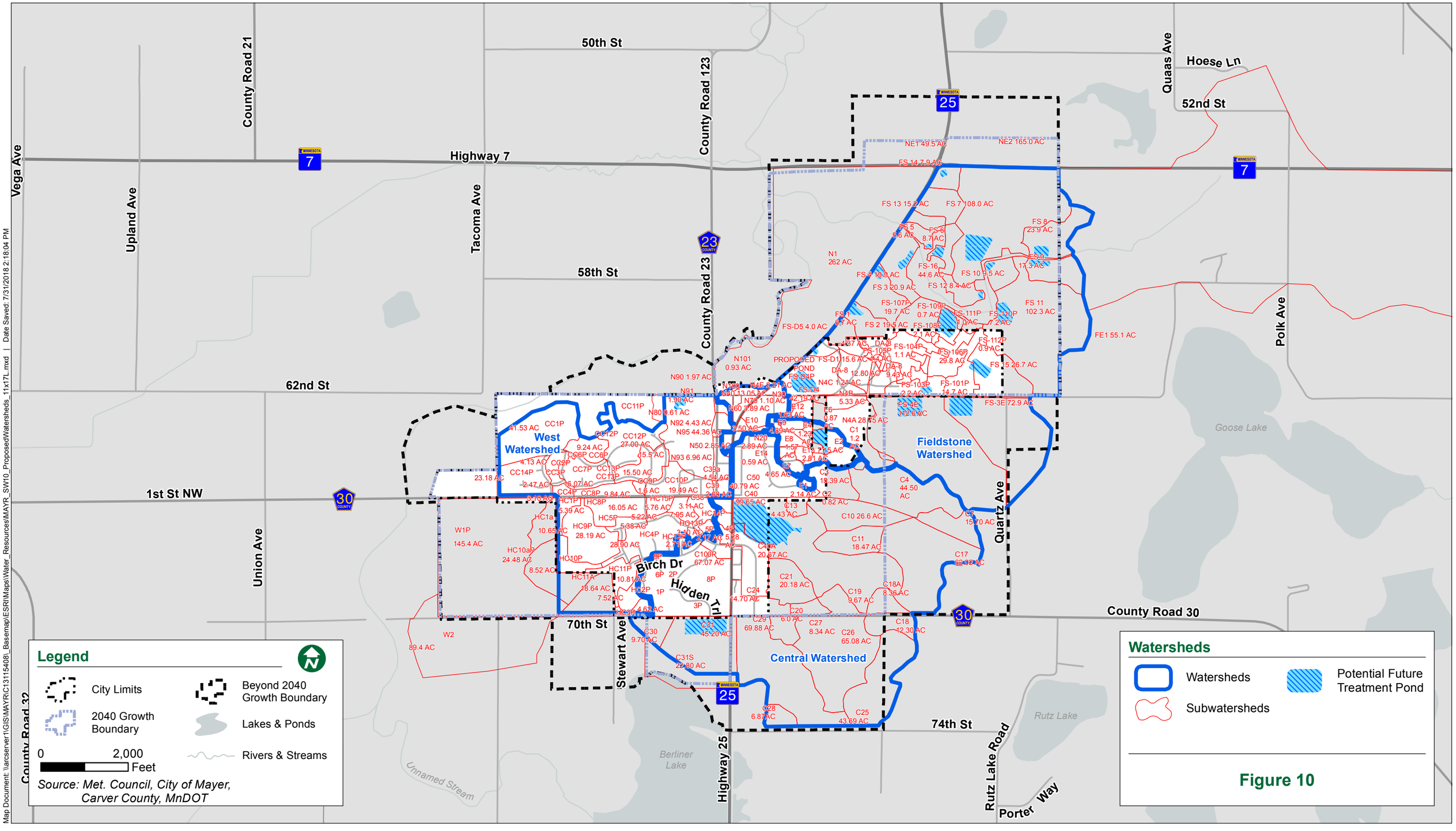

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2040 Comprehensive Plan

Mayer, MN

Existing Storm Sewer System

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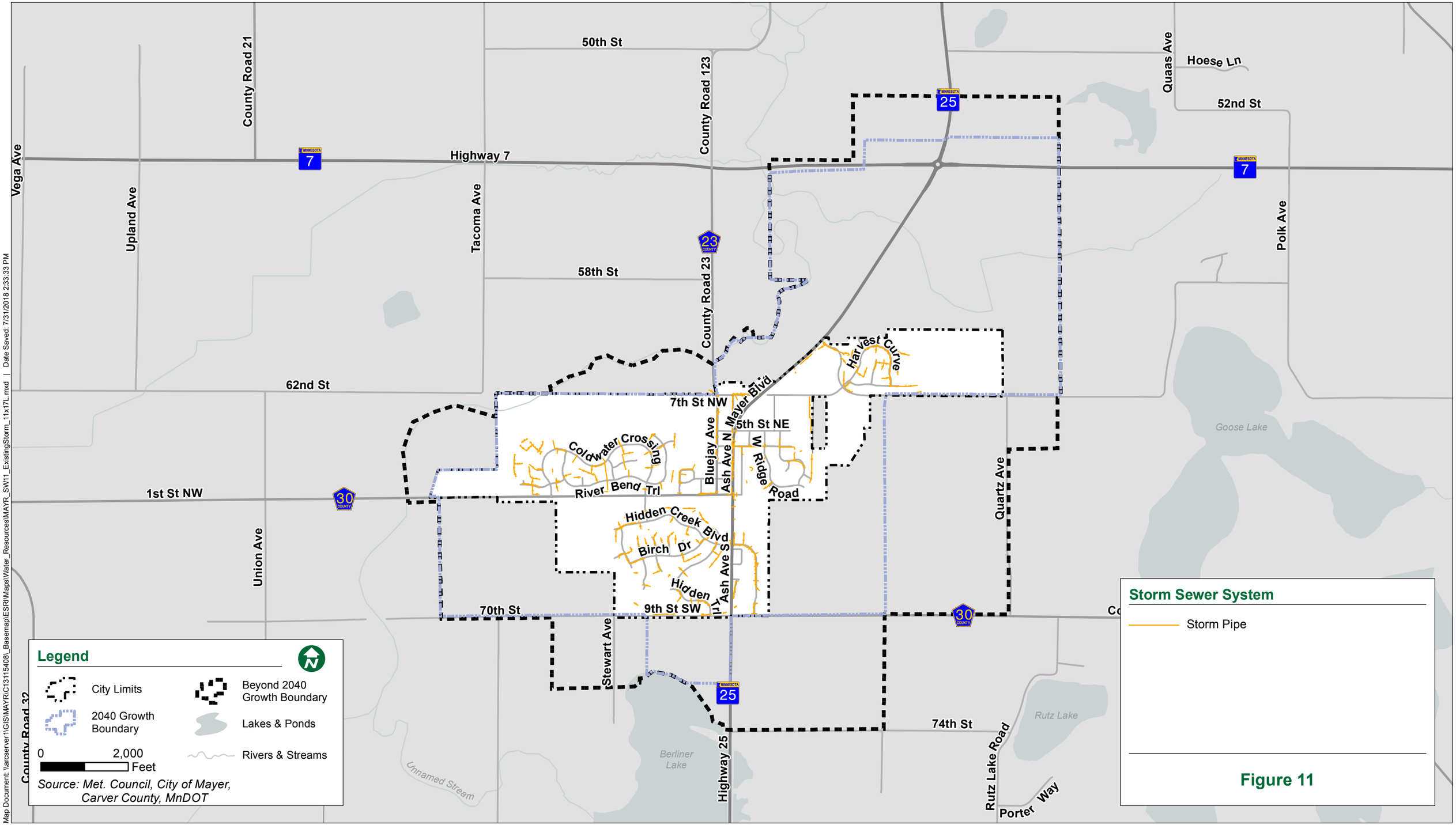

Figure 11

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Appendix B

Modeling Methodology

MODELING METHODOLOGY AND MAPPING

1. The general procedure used in the runoff modeling aspects of this analysis has been performed using the XP-SWMM (Version 10.6) modeling software. The typical analysis is based on Soil Conservation Service, Technical Release No. 20 (SCS TR-20). The SCS procedure is based on a standard synthetic rainfall hydrograph, which is modified by local parameters (i.e., rainfall, soil type, time to peak flow, etc.) and is widely accepted among drainage engineers across the United States.

2. Once the existing system was modeled, the watershed areas were modeled again under fully developed conditions (within the study boundaries) and superimposed onto the existing network so that the effects of continued growth could be studied. Retention basins were then designed and modeled to mitigate the effects of the continued development. Those areas deemed to be too far into the future were not analyzed at this time; instead, approximate locations/sizes were given based on potential drainage area and patterns.

3. For purposes of this report, typical 24-hour rainfall events of 2.8", 4.2” and 6.0” have been chosen to analyze runoff/development interaction. These events are best described as those having probabilities of occurring once every 2, 10 and 100 years, respectively. In addition, the 10-day, 100-year snowmelt was analyzed, which can be approximated by the 10-day, 7.2” rainfall event.

4. The probabilities of occurrence do not imply that a 2.8", 4.2” or a 6.0" rainfall cannot occur multiple times within the same year; they simply say that a 2.8" rainfall will occur *on the average* once every 2 years, a 4.2" rainfall will occur *on the average* once every 10 years and a 6.0” rainfall will occur *on the average* once every 100 years. It is often better to think of the 2-year rainfall as having a 50 percent chance of occurring in any given year. Similarly, the 10-year rainfall has a 10 percent chance of occurring in any given year and the 100-year rainfall has a 1 percent chance of occurring in any given year.

Appendix C

HydroCad Model Results – Available Upon Request

Appendix D

Regional Stormwater Treatment System Cost Analysis

Regional Stormwater Treatment System Cost Analysis

Surface Water Management Plan
Mayer, MN

POND C31P

ITEM NO.		ITEM	ESTIMATED QUANT.	UNIT	ESTIMATED UNIT PRICE		TOTAL ESTIMATED COST
STREET RESTORATION							
1		MOBILIZATION & TRAFFIC CONTROL	1	LS	$ 10,000.00		$ 10,000.00
2		BITUMINOUS REMOVAL & RECONSTRUCT	70	SY	$ 50.00		$ 3,500.00
		SUBTOTALS					**$ 13,500.00**
STORM SEWER CONSTRUCTION							
3		COMMON EXCAVATION - POND (E.V.)	67,300	CY	$ 4.00		$ 269,200.00
4		24" RC PIPE SEWER, CLASS III	100	LF	$ 60.00		$ 6,000.00
5		36" RC PIPE SEWER, CLASS III (1)	30	LF	$ 100.00		$ 3,000.00
6		CONST. DRAINAGE STRUCTURE, 60" CONTROL STRUCTURE	5.0	LF	$ 1,000.00		$ 5,000.00
7		24" CONCRETE APRON	1	EA	$ 2,000.00		$ 2,000.00
8		36" CONCRETE APRON	1	EA	$ 2,500.00		$ 2,500.00
9		CASTING ASSEMBLY - STORM	1	EA	$ 750.00		$ 750.00
10		RIP RAP CLASS III	15	CY	$ 100.00		$ 1,500.00
11		SILT FENCE, HEAVY DUTY	3,500	LF	$ 3.00		$ 10,500.00
12		TEMPORARY INLET PROTECTION	2	EA	$ 500.00		$ 1,000.00
13		TEMPORARY SEEDING	16.0	AC	$ 500.00		$ 8,000.00
14		SEEDING	16.0	AC	$ 2,500.00		$ 40,000.00
		SUBTOTALS					**$ 349,450.00**
		TOTAL ESTIMATED CONSTRUCTION COST					$ 362,950.00
		SOFT COSTS (30%)					$ 108,885.00
		TOTAL ESTIMATED PROJECT COST					**$ 471,835.00**

QUANTITY NOTES:

(1) ASSUMES PIPE IS INSTALLED USING OPEN TRENCH METHODS.

Regional Stormwater Treatment System Cost Analysis

Surface Water Management Plan
Mayer, MN

POND N100

ITEM NO.		ITEM	ESTIMATED QUANT.	UNIT	ESTIMATED UNIT PRICE		TOTAL ESTIMATED COST
STORM SEWER CONSTRUCTION							
1		MOBILIZATION & TRAFFIC CONTROL	1	LS	$ 10,000.00		$ 10,000.00
2		COMMON EXCAVATION - POND (E.V.)	2,130	CY	$ 10.00		$ 21,300.00
3		SILT FENCE	100	LF	$ 3.00		$ 300.00
4		TEMPORARY INLET PROTECTION	1	EA	$ 500.00		$ 500.00
5		TEMPORARY SEEDING	1.0	AC	$ 1,000.00		$ 1,000.00
6		SEEDING	1.0	AC	$ 2,500.00		$ 2,500.00
		SUBTOTAL					**$ 35,600.00**
		TOTAL ESTIMATED CONSTRUCTION COST					$ 35,600.00
		SOFT COSTS (30%)					$ 10,680.00
		TOTAL ESTIMATED PROJECT COST					**$ 46,280.00**

Appendix E

Stormwater Utility Fee Analysis and Capital Improvement Plan

Storm Sewer Utility Fee

Surface Water Management Plan
Mayer, MN

Current Revenue	# of Units	Monthly Fee	Monthly Revenue	Percent
2013 Residential	611	$ 2.00	$ 1,222.00	78.86%
2013 Commercial	44	$ 7.20	$ 316.80	20.44%
2013 Schools & Churches	3	$ 3.60	$ 10.80	0.70%
2013 Industrial	0	$ 7.20	$ -	0.00%
2013 Multi Family	0	$ 4.00	$ -	0.00%
Total			$ 1,549.60	

Capital Improvement Plan

5-year CIP Budgeted Costs	$ 344,500.00
Average monthly CIP Budgeted Costs	$ 5,741.67

Proposed Revenue	Percent	Monthly Revenue	Monthly Fee
2013 Residential	78.86%	$ 4,527.82	$ 7.41
2013 Commercial	20.44%	$ 1,173.83	$ 26.68
2013 Schools & Churches	0.70%	$ 40.02	$ 13.34
2013 Industrial	0.00%	$ -	$ -
2013 Multi Family	0.00%	$ -	$ -

Surface Water Management Capital Improvement Plan

Surface Water Management Plan
Mayer, MN

	Timeframe	Estimated Project Cost	Funding Source	Additional Funding Req'd	Funding Req'd From CCWMO	Funding From Other Sources	City's 5-year Budgeted Cost	2018	2019	2020	2021	2022	Long Range Annual Cost (2)	Long Range Periodic Cost (3)	Long Range One-Time Cost (4)
Regional Stormwater Treatment System	Ongoing	$ -	SUF/CCWMO	Yes	$ -	$ -	$ -							$ 518,115.00	
Street and Utility Improvement Opportunities	2018-2022	$ 10,000.00	SUF/CCWMO	Yes	$ -		$ 10,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00		
Stormwater Runoff Management and Treatment Measures	2018-2022	$ 10,000.00	SUF/CCWMO	Yes	$ -		$ 10,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00		
Wetland Restoration (West Subwatershed)	Long Term	$ -	SUF/CCWMO	Yes	$ -	$ -	$ -								$ 20,000.00
Wetland Restoration (North Subwatershed)	Long Term	$ -	SUF/CCWMO	Yes	$ -	$ -	$ -								$ 20,000.00
Wetland Restoration (Fieldstone)	Long Term	$ -	SUF/CCWMO	Yes	$ -	$ -	$ -								$ 20,000.00
Education	Ongoing	$ 2,500.00	SUF/CCWMO	Yes	$ -	$ -	$ 2,500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00		
Grant Program for Homeowner Drainage Improvements	Ongoing	$ 10,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 10,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00		
Sealing of Abandoned Wells	Ongoing	$ -	Stormwater Utility Fee	No	$ -	$ -	$ -								
Extension of Sanitary Sewer to eliminate existing SSTSs	Ongoing	$ -	Stormwater Utility Fee	No	$ -	$ -	$ -								$ 100,000.00
Maintenance:															
Neighborhood Pond Delineation	Ongoing	$ 15,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 15,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00		
Neighborhood Pond Cleaning	Ongoing	$ 80,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 80,000.00		$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00		
Street Sweeper	Ongoing	$ 125,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 125,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00		
Sewer Camera	Ongoing	$ 50,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 50,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00		
Street Sweeping Labor (3 times/year on xxx miles of streets)	Ongoing	$ 25,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 25,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00		
Neighborhood Pond/Outlet Control Inspection	Ongoing	$ 2,500.00	Stormwater Utility Fee	No	$ -	$ -	$ 2,500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00		
General Storm Sewer Maintenance	Ongoing	$ 10,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 10,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00		
System Mapping/GIS Update and Maintenance	Ongoing	$ 2,500.00	Stormwater Utility Fee	No	$ -	$ -	$ 2,500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00		
Surface Water Management Plan Updates	Ongoing	$ 2,000.00	Stormwater Utility Fee	No	$ -	$ -	$ 2,000.00		$ 500.00	$ 500.00	$ 500.00	$ 500.00	$ 500.00		
Total			Storm Fund		$ -		$ 344,500.00	$ 52,500.00	$ 73,000.00	$ 73,000.00	$ 73,000.00	$ 73,000.00	$ 73,000.00	$ 518,115.00	$ 160,000.00

Notes:
(1) CCWMO to provide assistance with inspecting and evaluating streams banks and channels.
(2) Cost liklely incurred every year
(3) Costs incured in coordination with development for multiple project areas or as projects become priority.
(4) Costs incured one time for a specific project when it becomes a priority.

Appendix F

Storm Treatment System Inventory and Maintenance Plan

Storm Treatment System
Inventory and Maintenance Plan

Surface Water Management Plan
Mayer, MN

Inventory															Maintenance											
Location					Design (1)										Current Condition (2)						Visual Inspection					
ID NO	Feature Type	Plat/Address	X Coord (UTM)	Y Coord (UTM)	Year Const.	Drainage Area	# of Inlets	# of Outlets	NWL Elev (FT)	Area at NWL (SF)	Bottom Elev (FT)	Area at Bottom (SF)	HWL Elev (FT)	Storage Volume Below Outlet (AF)	Date Inspected	NWL Elev (FT)	Area at NWL (SF)	Bottom Elev (FT)	Area at Bottom (AF)	Storage Volume Below Outlet (CF)	Trash and Debris (3)	Erosion (4)	Condition of Vegetation (5)	Condition of Outlet (6)	Condition of Infiltration Features (7)	Comments

Notes:
1. HWL, NWL, and Bottom elevations determined from record drawing information.
2. Measure volume of sediment in ponds once 15 years after construction and every two years after. Measure volume of sediment in treatment devices once per year. Sediment should be removed if less than 50% of design volume remains.
3. Perform visual inspection once per year following large storm event. Pass equals no trash or debris present.
4. Perform visual inspection once per year following large storm event. Pass equals slopes around basin, inlet, and outlet are stable.
5. Perform visual inspection once per year following large storm event. Pass equals vegetation well established and dominated by non-invasive species.
6. Perform visual inspection once per year following large storm event. Pass equals structural components in good working order.
7. Perform visual inspection twice per year during first growing season and once per year after. Pass equals feature draws down within 48 hours following storm event.

Sanitary Sewer

Introduction

Overview

This plan has been prepared to illustrate specific areas to be served by municipal sanitary sewer in response to the 2040 Land Use Plan. In addition, the sewer plan identifies standards for operation of private systems and illustrates areas suitable for public and private systems.

Municipal Wastewater System Plan

TCMC Classification

Mayer has sought/obtained TCMC classification as a rural growth center. The City currently owns and operates its own wastewater treatment plant. Under the TCMC *Water Resources Management Policy Plan,* if the City meets established criteria the City can request that the Council consider the acquisition of its wastewater treatment plant. At this time, the City of Mayer is NOT requesting TCMC acquire its wastewater treatment plant.

Comprehensive Sewer Plan

This plan has been updated to reflect land use projections/estimates as represented in the City of Mayer Urban Growth Boundary (undesignated MUSA reserve). The purpose for this plan is to update the City's comprehensive sewer plans taking into account current population and land use projections. This plan incorporates the key components of past studies for future sewer planning.

As with past comprehensive sewer plans, this plan does not propose the expansion of sanitary sewers. The purpose of this information is to identify ultimate sewer flows based on current land use planning and identify the approximate location, sizing, and capacity of the trunk facilities needed to serve the potential growth. All assumptions for projected growth are based upon land use projections as identified in the Comprehensive Plan.

Table 1 shows the design criteria used for the preparation of this report. Factors utilized for this report are based upon standard industry criteria for sanitary flow estimation. Commercial and industrial use estimates are derived from the 2006 Comprehensive Plan Criteria.

Table 1, Design Criteria

Description	Factor
Gallon per Person per Day	**75**
Flow Variation Factor	**2.57 to 4.12**
People per Unit	**2.74**
Flow per Unit	**206**
Commercial / Industrial Flow per Acre	**824**

Summary of Existing Facilities

1. General

   Public sanitary sewer service is provided to all residents and businesses in the City of Mayer. Approximately 20 ISTS's are located external to the existing corporate limits but within the Urban Growth Boundary (undesignated MUSA reserve). This Comprehensive Sewer Plan illustrates the existing municipal service area, the proposed trunk sewer system through 2040 and the undesignated MUSA reserve. Section 59.03(B) of the City Code requires connection to the public sanitary sewer if it is 'available'. Although 'available' is not specifically defined supporting language allows for private septic systems due to the "unavailability of a public sanitary sewer or the impracticability of making a connection". The City Cod requires private sewage disposal facilities to maintain compliance with all federal, state, and local requirements.

   Although the extension of lateral sewer may be precipitated by proposed urban development, planning for lateral sewer (i.e. collection system) is ultimately the responsibility of the City. The City has created an itemize inventory of the value of each individual collection main and when each main was placed into service for the purposes of itemizing asset depreciation in conjunction with Government Accounting Standards Board (GASB) 34 directive.

   The sanitary sewer collection system includes a network of collection pipes of various sizes. A complete description of the lateral network is described below and shown in Figure 1. Design standards for new collection system components (i.e. minimum size of mains required) are not included in the City's Subdivision Ordinance. Design standards for new collection system lines as reviewed by the City Engineer to adhere to the "Ten State Standards" published by the Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers recommends subject to special conditions and local requirements approved by the City.

   According to the City, a formal maintenance program/policy has been instituted at the department level with policy review by the City Council. At this time, lift stations are inspected weekly and a jetting program is in effect. Mains are jetted system-wide every three to four years with problem areas jetted annually. Routine repairs and maintenance are funded through the sewer fund.

   Base sewer utility rates effective in 2018 are $19.46/month for wastewater service. The sewer access charge (SAC) effective in 2018 is $4,500 per unit. The sewer area charge for 2018 is $2,350 per acre. The City uses a model similar to that implemented by the Twin Cities Metropolitan Council to calculate dwelling unit equivalents for commercial/industrial facilities.

2. Wastewater Treatment Plant

   The existing wastewater treatment plan is located in the western portion of the City adjacent to the westernmost portion of the Cold Water Crossing Subdivision and abutting CSAH 30. Outflow is discharged to the South Fork Crow River under a permit issued by the Minnesota Pollution Control Agency.

   In 2000, a mechanical wastewater treatment facility was constructed with a design capacity of 135,000 gpd. The facility included flow equalization, a comminutor, aeration basins, one final clarifier, sand filtration and UV disinfection. This facility replaced a three cell stabilization pond system. The primary cell continues to be used for flow equalization and the secondary cells have been decommissioned.

   Due to increasing population and operational problems with the filters and the UV disinfection

system, the facility was expanded in 2004. The expansion was designed in two phases such that the 2004 project and an identified biosolids project will serve a population of 4,300. The expansion included preliminary treatment, two new additional aeration basins, biological and chemical phosphorus removal facilities, one new final clarifier, traveling bridge media filtration and UV disinfection. The facility continues to use influent flow equalization to limit flow to the mechanical treatment facility to 435,000 gpd.

In the interim prior to the biosolids improvement project, one of the three aeration basins is used for biosolids storage. With the third aeration basin out of service for biosolids storage, the facility capacity is reduced to a population equivalent of 3,530 or approximately 600 lb/day. As this limit approaches, a biosolids improvement project including one additional blower, aeration equipment, and a new biosolids storage facility is planned.

At a population equivalent of 4,300, additional wastewater treatment improvements will be required.

3. Sanitary Sewer System

As noted above, the existing sanitary sewer system serves the residents of the city. All wastewater is processed within Mayer at the City's wastewater treatment facility. Current system flows are approximately 150,000 gallons per day. The existing sewer system consists of two lift stations (LS 1 and LS 2) and two primary trunk sewer mains. LS 2 is located at the wastewater treatment facility and accepts flows from LS 1. The second existing lift station, LS 1, is located at Old School House Park is the primary lift station for the City and accepts flows from all the existing gravity sewer systems in the area. LS 1 pumps into a 10" forcemain up to CSAH 30 where it connects to the existing 6" forcemain with runs parallel to CSAH 30 into LS 2 outside the wastewater treatment facility. LS 1 and LS 2 will require upgrades to pumps and equipment as growth increases flows into the system. The existing 6" forcemain currently will allow for flows of up to approximately 600 gpm before upsizing will be required. Evaluation of the need for forcemain upsizing will be completed in conjunction with evaluation of necessary upgrades to the pumps in LS2 when the existing station reaches capacity.

The sanitary gravity system consists of a 10" trunk main currently serving the southern and western portion of the city and an 18" trunk main serving the northern and eastern portion of the city. Both of these gravity lines flow into LS 1 as noted above. Based on location of projected growth as outlined in this comprehensive plan, the 18" trunk sewer will be carrying over 80% of projected flows and will be the primary trunk line required for growth to the north and east. The 18" sanitary sewer will serve the city under capacity for the duration of the anticipated growth to the north and east, with the line nearing capacity at full development of the 2040 study area. This study evaluated future flows based on full development at maximum developable densities and is a conservative estimation of the maximum flows to the system. It is anticipated that long-term growth outside the limits of this comprehensive plan may require portions of the existing 18" trunk main to be upsized or alternate routes evaluated to carry the additional flows above its capacity. Extension of the 18" trunk main should be completed using the larger pipe sizes as recommended in this study to accommodate potential flows beyond the limits of this comprehensive plan duration.

The 10" trunk main will exceed its capacity when peak flows are over 1.8 cubic feet per second. If the entire service area develops at peak densities this main is projected to be over capacity sometime between 2030 and 2040. Upsizing or other alternatives for this line will be evaluated as development trends and growth expectations display the need for increased flow capacity

through this system.

Future Facilities/Plans

1. Future System

   Future wastewater treatment demands from new development will be accommodated through phased improvement of the wastewater treatment system. Future wastewater treatment system expansion will occur in advance of or in conjunction with the pace of future development.

   In order to serve the unsewered portions of the City of Mayer, it will be necessary to extend the City's sanitary sewer trunk sewer system to serve the areas zoned for development as shown on Figure 1.

   By utilizing aerial topography, the existing unsewered subdivisions and undeveloped properties were evaluated to determine drainage areas. Based on this evaluation, proposed sewer services area boundaries were established so that each drainage area will have a point to collect sanitary sewer flows into the trunk sewer system. It is proposed that a local sewer system be developed to ultimately convey sanitary sewer flows to the trunk sewer system.

   The basis of the proposed trunk sewer system includes the extension of the 18" line to serve the north and east approaching TH 7, utilizing the existing capacity of the 10" line to serve growth to the south and west, and provide a new service line directly into LS 2 to serve the growth to the southwest. The proposed system includes construction of LS 3 and LS 4 in the Fieldstone Development. LS 4 will be required to serve any development along the TH 7 corridor and must be planned in association with any development proposals along TH 7. LS 4 will be the primary lift station serving the commercial district zoned along TH 7. LS 4 will pump into the existing gravity system that flows to LS 1.

   Anticipated pipe sizing was completed based on the comprehensive plan area for 2040. Additional consideration was given to sizing trunk sewer to accommodate growth outside the comprehensive plan area given the difficulty and expense of upsizing trunk lines if growth exceeds expectations and given the service life of sanitary sewer typically exceeds the extent of comprehensive planning. Table 3 shows pipe sizing anticipated and capacity calculations based upon growth projected in this comprehensive plan. The analysis shows the capacity of the existing 18" trunk sewer will be near capacity in 2040 so future planning should size the extension of the 18" trunk sewer with 21" or 24" depending on long-term infrastructure considerations. In addition, the capacity of the 10" trunk sewer to the south is at capacity in 2040 and must be evaluated as growth occurs.

Table 3 - TRUNK SEWER SIZING

LOCATION	UNITS	DAILY FLOW	PEAK FACTOR	GAL/DAY	CFS	SIZE	CAPACITY (CFS)	% FULL
MH-6 to MH-7	93	19,177	4.11	78,765	0.12	8	0.99	12.3%
MH-7 to MH-8	159	32,740	4.00	131,087	0.20	8	0.99	20.5%
MH-8 to MH-9	159	32,740	4.00	131,087	0.20	15	3.25	6.2%
MH-9 to MH-11	1,367	280,984	3.36	943,730	1.46	18	4.73	30.9%
MH-11 to MH-12	1,367	280,984	3.36	943,730	1.46	18	4.73	30.9%
MH-13 to MH-14	87	17,920	4.12	73,809	0.11	8	0.99	11.5%
MH-14 to MH-16	87	17,920	4.12	73,809	0.11	8	0.99	11.5%
MH-15 to MH-16	740	152,070	3.58	544,586	0.84	15	3.25	25.9%
MH-16 to MH-12	827	169,990	3.54	602,258	0.93	15	3.25	28.7%
MH-12 to LS-4	2,195	450,974	3.17	1,429,507	2.21	21	6.51	34.0%
LS-4 to MH-17	2,195	450,974	3.17	1,429,507	2.21	21	6.51	34.0%
MH-17 to EX. MH-18	2,747	564,410	3.08	1,736,208	2.69	18	6.55	41.0%
MH-20 to MH-21	327	67,199	3.83	257,387	0.40	10	1.51	26.4%
MH-21 to LS-3	598	122,949	3.65	448,927	0.69	15	3.25	21.4%
LS-3 to EX. MH-18	598	122,949	3.65	448,927	0.69	18	6.41	10.8%
EX. MH-18 to EX. MH-28	3,440	706,902	2.98	2,106,692	3.26	18	5.29	61.6%
MH-22 to MH-23	568	116,783	3.67	428,333	0.66	8	0.99	66.9%
MH-23A to MH-23	439	90,298	3.75	338,309	0.52	10	1.51	34.7%
MH-23 to MH-25	1,008	207,081	3.47	719,147	1.11	12	2.17	51.3%
MH-24 to MH-25	178	36,648	3.98	145,834	0.23	8	0.99	22.8%
MH-25 to MH-26	1,186	243,729	3.41	831,767	1.29	12	2.17	59.3%
MH-26A to MH-26	768	157,824	3.57	563,197	0.87	10	1.51	57.7%
MH-26 to MH-27	1,954	401,553	3.22	1,291,932	2.00	15	3.25	61.5%
MH-27 to EX. MH-28	2,101	431,762	3.19	1,376,338	2.13	15	3.25	65.5%
EX. MH-28 to EX. MH-31	5,541	1,138,663	2.77	3,157,459	4.89	18	6.41	76.2%
MH-29 to EX. MH-31	194	39,896	3.96	157,998	0.24	10	1.51	16.2%
MH-30 to EX. MH-31	93	19,112	4.11	78,506	0.12	8	0.99	12.3%
EX. MH-31 to EX. MH-33	5,828	1,197,671	2.75	3,294,612	5.10	18	6.41	79.5%
EX. MH-32 to EX. MH-33	712	146,258	3.59	525,694	0.81	8	0.99	82.2%
EX. MH-33 to EX. MH-34	6,540	1,343,929	2.70	3,629,219	5.62	18	6.41	87.6%
EX. MH-34 to EX. LS-2	6,632	1,362,886	2.69	3,672,068	5.68	18	6.41	88.6%
MH-35 to MH-36	273	56,102	3.88	217,549	0.34	8	0.99	34.0%
MH-37 to MH-38	429	88,160	3.75	330,919	0.51	8	0.99	51.7%
MH-39 to MH-40	119	24,469	4.06	99,409	0.15	8	0.99	15.5%
MH-36 to EX. MH-41	508	104,447	3.70	386,732	0.60	15	3.25	18.4%
EX. MH-41 to EX. LS-2	2,113	434,170	3.19	1,383,025	2.14	10	1.80	118.9%
MH-42 to EX. LS-2	418	85,823	3.76	322,822	0.50	12	2.17	23.0%
EX. LS-2 to EX. LS-1	8,745	1,797,056	2.57	4,625,484	7.16	FM		

Existing Sanitary Sewer Pipe

2. Future Wastewater Treatment System Expansions: Timing and Cost Estimates.

   The Wastewater treatment facility in Mayer must be designed to accommodate future growth within the Mayer area. To those ends, the City has actively planned for future expansion.

   Sewer unit allocation is allotted at the time of preliminary plat approval. Preliminary plats must be finalized within one year of approval or they are considered void. Phasing plans and construction timelines are required as part of the preliminary plat process.

   Capital expenses related to wastewater treatment facility expansion are paid for through an enterprise operating fund or bonding. Such needs are addressed in a capital improvement program included in the implementation Chapter of this Plan.

3. Reconstruction of Existing System and Oversizing

   Capital expenses related to reconstruction of the existing wastewater collection system and oversizing of sewer mains are paid for through an enterprise operating fund or bonding. Such needs are addressed in a capital improvement program included in the implementation Chapter of this Plan.

4. Inflow and Infiltration

   The City's sewer ordinance prohibits the connection of sump pumps, rain leaders and passive drain tile from draining into the sanitary sewer system. The City currently addresses infiltration concerns through a sanitary sewer slip-lining program planned for in the City's Capital Improvement Program. Additional evaluation of the scope of the current inflow and infiltration issues will occur to isolate primary problem areas from repair. Infiltration will be addressed as problem areas are discovered.

5. Financial Impact

   The estimated cost associated with the construction of the ultimate trunk sewer system shown on Figure 1 is approximately $5,500,000. The City of Mayer will pay trunk oversizing costs, with the remaining cost being paid directly by the development requiring an extension to the system. Funding for the city's portion of the trunk system and upgrades to the infrastructure will be paid by a combination of trunk sewer charges and sewer access charges. Trunk charges and sewer access charges will be evaluated annually to assure adequate fees are obtained to fund the city's portion of the proposed sanitary sewer system expansion required for future development. Estimated oversizing costs are approximately $1,500,000 and are itemized in Table 4.

Table 4 - ESTIMATED OVERSIZING COSTS

Item No.	Item Description	Quantity	Unit	Unit Cost	Amount
1	10" PVC	7,540	LF	$10	$75,400
2	12" PVC	5,750	LF	$20	$115,000
3	15" PVC	3,800	LF	$30	$114,000
4	18" PVC	4,560	LF	$40	$182,400
5	21" PVC	3,070	LF	$50	$153,500
6	Replace 10" Trunk Main	1,700	LF	$100	$170,000
7	10" Sanitary Forcemain	4,000	LF	$95	$380,000
8	Jack & Auger w/ Steel Casing	400	LF	$100	$40,000
9	Lift Station Upgrades	1	LS	$200,000	$200,000
				Subtotal	**$1,430,300.00**
				Contingency	**$69,700.00**
				Construction Cost	**$1,500,000.00**

Municipal Wastewater System Policies/Implementation Strategies

Are included in Chapter Seven of the City of Mayer Comprehensive Plan.

PROPOSED SERVICE AREAS COMPREHENSIVE SANITARY SEWER PLAN

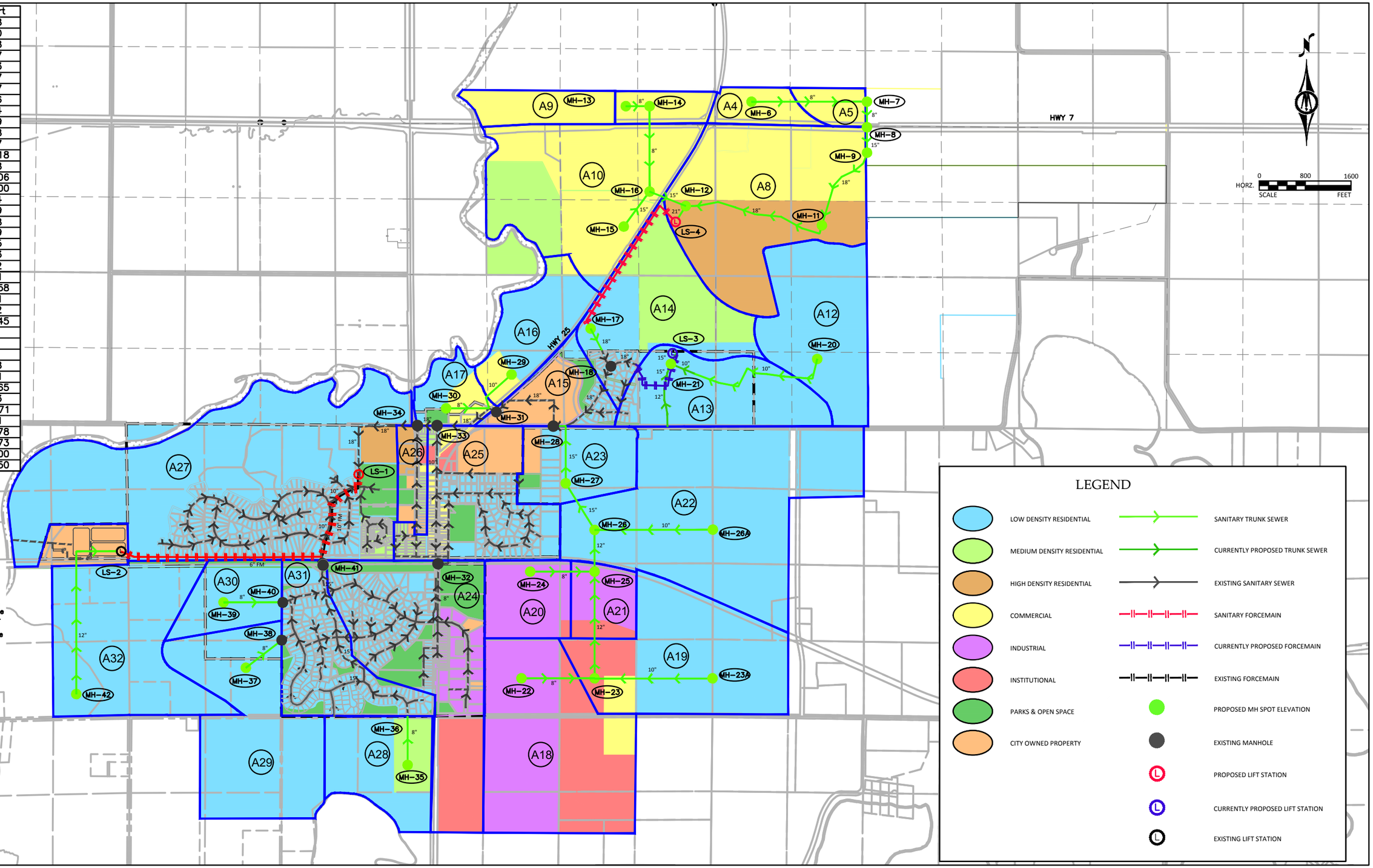
CITY OF MAYER, MINNESOTA

Figure 1

APRIL 2018

BOLTON & MENK

MH	Rim	Invert
MH-6	965	948
MH-7	970	940
MH-8	975	938
MH-9	980	937
MH-11	950	933
MH-12	950	927
LS-4	940	927
MH-13	950	936
MH-14	950	934
MH-15	950	929
MH-16	955	928
MH-17	975	967
EX. MH-18	980	966.18
MH-20	960	948
MH-21	970	940.06
LS-3	975	940.00
MH-22	980	964
MH-23	990	959
MH-23A	980	968
MH-24	970	959
MH-25	970	955
MH-26	970	953
MH-26A	990	962
MH-27	965	951
EX. MH-28	960	948.58
MH-29	950	941
MH-30	950	942
EX. MH-31	960	938.45
EX. MH-32	965	
EX. MH-33	950	
EX. MH-34	950	
EX. LS-1	960	918
MH-35	980	961
EX. MH-36	970	957.65
MH-37	985	963
EX. MH-38	970	959.71
MH-39	980	961
EX. MH-40	970	956.78
EX. MH-41	965	952.73
MH-42	975	954.00
EX. LS-2	961.50	946.50



NOTE:
The information for this map was obtained from various sources of existing maps, construction plans, and City records, some of which were prepared by others. While this information is believed to be reliable Bolton & Menk, Inc. is not responsible for its accuracy nor for errors or omissions which may have been incorporated into this document as a result.

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Final 12/22/16
Resubmitted 1/23/17

Complete Table 1 with information about the public water supply system covered by this WSP.

Table 1. General information regarding this WSP

Requested Information	Description
DNR Water Appropriation Permit Number(s)	**620705**
Ownership	X Public or ☐ Private
Metropolitan Council Area	X Yes or ☐ No Carver
Street Address	**413 Bluejay Avenue**
City, State, Zip	**Mayer, MN 55360**
Contact Person Name	Luayn Ruch-Hammond
Title	City Administrator
Phone Number	952-657-1502
MDH Supplier Classification	Municipal

PART 1. WATER SUPPLY SYSTEM DESCRIPTION AND EVALUATION

The first step in any water supply analysis is to assess the current status of demand and availability. Information summarized in Part 1 can be used to develop Emergency Preparedness Procedures (Part 2) and the Water Conservation Plan (Part 3). This data is also needed to track progress for water efficiency measures.

A. Analysis of Water Demand

Complete Table 2 showing the past 10 years of water demand data.

- Some of this information may be in your Wellhead Protection Plan.
- If you do not have this information, do your best, call your engineer for assistance or if necessary leave blank.

If your customer categories are different than the ones listed in Table 2, please describe the differences below:

Column F changed to account for unsold water. This is for backwashing at the water plant, hydrant flushing, construction and fire suppression. The City water tower was out of service for 2 months (Sept-Oct 2015) The interior was being repaired and repainted. A hydrant was used as a pressure relief to keep the integrity of the water system intact the city didn't meter the water. The City also completed an audit of the 2013, 2014 and 2015 water usage. Table 2 more accurately reflects the City's water usage. The numbers are different than what was reported on the Annual Report of Water Usage to the DNR.

Table 2. Historic water demand (see definitions in the glossary after Part 4 of this template)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2005	1000	514	32.61	1.98			35.25	41		13.47%	0.112	0.299		89.34	82.11
2006	1290	590	37.83	2.91			40.85	51.5		20.68%	0.111	0.447	12-Jul	88.78	86.76
2007	1615	623	43.82	2.987			46.8	51.54		9.18%	0.128	0.582	11-Mar	74.34	79.41
2008	1842	648	44.59	2.497			47.09	48.45		2.80%	0.129	0.403	6-Jul	68.33	70.04
2009	1479	797	49.78	1.946			51.73	52.34		1.17%	0.141	0.35	31-May	92.23	95.83
2010	1749	797	41.69	2.031			43.72	47.11		7.19%	0.119	0.32	31-May	65.31	68.49
2011	1749	647	37.68	2.759			40.42	46.45		16.57%	0.11	0.273	6-Jul	59	63.32
2012	1787	844	46.2	1.986			48.54	50.7		4.27%	0.132	0.356	15-Jul	71.64	75.26
2013	1817	892	47.03	2.121			50.3	52.15		3.55%	0.11	0.387	20-Jul	70.91	75.85
2014	1817	894	43.01	2.214			45.37	50.79		9.59%	0.105	0.295	7-Aug	64.86	69.93
2015	1817	711	41.09	2.11			44.2	53.56		20.46%	0.114	0.312	20-Jul	61.96	63.15
Avg. 2010-2015	1786	695	42.78	2.203			45.59	50.79			0.11	0.323		65.61	69.33

MG – Million Gallons **MGD** – Million Gallons per Day **GPCD** – Gallons per Capita per Day

See Glossary for definitions

Complete Table 3 by listing the top 10 water users by volume, from largest to smallest. For each user, include information about the category of use (residential, commercial, industrial, institutional, or wholesale), the amount of water used in gallons per year, the percent of total water delivered, and the status of water conservation measures.

Table 3. Large volume users

Customer	Use Category (Residential, Industrial, Commercial, Institutional, Wholesale)	Amount Used (Gallons per Year)	Percent of Total Annual Water Delivered	Implementing Water Conservation Measures? (Yes/No/Unknown)
1	RESIDENTIAL	744,000	1.34%	YES
2	COMMERCIAL	532,000	.96%	NO (CAR WASH)
3	RESIDENTIAL	469,000	.85%	YES
4	INSTITUTIONAL	403,000	.73%	YES
5	INSTITUTIONAL	310,000	.56%	YES
6	RESIDENTIAL	225,000	.41%	YES
7	COMMERCIAL	225,000	.41%	NO (LAUNDROMAT)
8	RESIDENTIAL	221,000	.40%	YES (APARTMENTS)
9	COMMERCIAL	188,000	.34%	YES
10	INSTITUTIONAL	154,000	.28%	YES

B. Treatment and Storage Capacity

Complete Table 4 with a description of where water is treated, the year treatment facilities were constructed, water treatment capacity, the treatment methods (i.e. chemical addition, reverse osmosis, coagulation, sedimentation, etc.) and treatment types used (i.e. fluoridation, softening, chlorination, Fe/MN removal, coagulation, etc.). Also describe the annual amount and method of disposal of treatment residuals. Add rows to the table as needed.

Table 4. Water treatment capacity and treatment processes

Treatment Site ID (Plant Name or Well ID)	Year Constructed	Treatment Capacity (GPD)	Treatment Method	Treatment Type	Annual Amount of Residuals	Disposal Process for Residuals	Do You Recycle Filter Backwash Water?
220954	2007	86,000	Gravity Sand Filter	Fluoridation Chlorination FE/MN removal coagulation		Sanitary Sewer	Yes
Total	NA		NA	NA	NA		

Complete Table 5 with information about storage structures. Describe the type (i.e. elevated, ground, etc.), the storage capacity of each type of structure, the year each structure was constructed, and the primary material for each structure. Add rows to the table as needed.

Table 5. Storage capacity, as of the end of the last calendar year

Structure Name	Type of Storage Structure	Year Constructed	Primary Material	Storage Capacity (Gallons)
1 Shimmcor	Elevated storage	2004	Metal	400,000
Total	NA	NA	NA	400,000

Treatment and storage capacity versus demand

It is recommended that total storage equal or exceed the average daily demand.

Discuss the difference between current storage and treatment capacity versus the water supplier's projected average water demand over the next 10 years (see Table 7 for projected water demand):

Based on historic numbers the City will have enough storage to meet the demands of the population through 2040. The calculation for the average daily demand was the past 5 year's average. (115,000 gallons) The storage amount of 400,000 exceeds the average daily demand.

C. Water Sources

Complete Table 6 by listing all types of water sources that supply water to the system, including groundwater, surface water, interconnections with other water suppliers, or others. Provide the name of each source (aquifer name, river or lake name, name of interconnecting water supplier) and the Minnesota unique well number or intake ID, as appropriate. Report the year the source was installed or established and the current capacity. Provide information about the depth of all wells. Describe the status of the source (active, inactive, emergency only, retail/wholesale interconnection) and if the source facilities have a dedicated emergency power source. Add rows to the table as needed for each installation.

Include copies of well records and maintenance summary for each well that has occurred since your last approved plan in **Appendix 1.**

Table 6. Water sources and status

Resource Type (Groundwater, Surface water, Interconnection)	Resource Name	MN Unique Well # or Intake ID	Year Installed	Capacity (Gallons per Minute)	Well Depth (Feet)	Status of Normal and Emergency Operations (active, inactive, emergency only, retail/wholesale interconnection))	Does this Source have a Dedicated Emergency Power Source? (Yes or No)
Groundwater	Well 1	220954	1962	125	280	Active	No
Groundwater	Well 2	655479	2001	500	260	Active	Yes

Limits on Emergency Interconnections

Discuss any limitations on the use of the water sources (e.g. not to be operated simultaneously, limitations due to blending, aquifer recovery issues etc.) and the use of interconnections, including capacity limits or timing constraints (i.e. only 200 gallons per minute are available from the City of Prior Lake, and it is estimated to take 6 hours to establish the emergency connection). If there are no limitations, list none.

None

D. Future Demand Projections – *Key Metropolitan Council Benchmark*

Water Use Trends

Use the data in Table 2 to describe trends in 1) population served; 2) total per capita water demand; 3) average daily demand; 4) maximum daily demand. Then explain the causes for upward or downward trends. For example, over the ten years has the average daily demand trended up or down? Why is this occurring?

The City's population has increased over the past 10 years. However, with the increase in population there has been a decrease in the per capita and average daily demand. The water demand trend appears to be decreasing. The reasoning behind for the decrease is that the City has implemented step rate increases for increased water usage, ***implemented water sensors on irrigation systems*** and additional soil requirements for new construction.

Use the water use trend information discussed above to complete Table 7 with projected annual demand for the next ten years. Communities in the seven-county Twin Cities metropolitan area must also include projections for 2030 and 2040 as part of their local comprehensive planning.

Projected demand should be consistent with trends evident in the historical data in Table 2, as discussed above. Projected demand should also reflect state demographer population projections and/or other planning projections.

Table 7. Projected annual water demand

Year	Projected Total Population	Projected Population Served	Projected Total Per Capita Water Demand (GPCD)	Projected Average Daily Demand (MGD)	Projected Maximum Daily Demand (MGD)
2016	1749	1749	45,963,720	125,928	372,537
2017	1829	1829	48,066,120	131,688	389,577
2018	1909	1909	50,168,520	137,448	406,617
2019	1989	1989	52,270,920	143,208	423,657
2020	2070	2070	54,399,600	149,040	440,910
2021	2115	2115	55,582,200	152,280	450,495
2022	2160	2160	56,764,800	155,520	460,080
2023	2205	2205	57,947,400	158,760	469,665
2024	2250	2250	59,130,000	162,000	479,250
2025	2295	2295	60,312,600	165,240	488,835
2030	2520	2520	66,225,600	181,440	536,760
2040	2950	2950	77,526,000	212,400	628,350

GPCD – Gallons per Capita per Day **MGD** – Million Gallons per Day

Projection Method

Describe the method used to project water demand, including assumptions for population and business growth and how water conservation and efficiency programs affect projected water demand:

Met Council population projections were used for the population projections. The average of the total per capita demand was used to calculate the total water demand. The projected average daily demand was the projected demand divided by 365. The projected maximum daily demand was the average of the maximum daily demand (Table 1) divided by the projected population served.
The average daily demand for 2010-2015 was 115,000 and the per capita demand is 61. The City has implemented a tiered water rate structure. The City has completed a rate study with MN Rural Water and is in the process of implementing the rate study. Currently, the City uses odd/even policy, restricted hours and implemented minimum soil standards for new construction.

E. Resource Sustainability

Monitoring – *Key DNR Benchmark*

Complete Table 8 by inserting information about source water quality and quantity monitoring efforts. List should include all production wells, observation wells, and source water intakes or reservoirs. Add rows to the table as needed. Find information on groundwater level monitoring program at: http://www.dnr.state.mn.us/waters/groundwater_section/obwell/index.html

Table 8. Information about source water quality and quantity monitoring

MN Unique Well # or Surface Water ID	Type of monitoring point	Monitoring program	Frequency of monitoring	Monitoring Method
220954	X production well ☐ observation well ☐ source water intake ☐ source water reservoir	X routine MDH sampling X routine water utility sampling ☐ other	☐ continuous ☐ hourly X daily ☐ monthly ☐ quarterly ☐ annually	X SCADA X grab sampling ☐ steel tape ☐ stream gauge
655479	X production well ☐ observation well ☐ source water intake ☐ source water reservoir	X routine MDH sampling X routine water utility sampling ☐ other	☐ continuous ☐ hourly X daily monthly ☐ quarterly ☐ annually	X SCADA X grab sampling ☐ steel tape ☐ stream gauge

Water Level Data

A water level monitoring plan that includes monitoring locations and a schedule for water level readings must be submitted as **Appendix 2**. If one does not already exist, it needs to be prepared and submitted with the WSP. Ideally, all production and observation wells are monitored at least monthly.

Complete Table 9 to summarize water level data for each well being monitored. Provide the name of the aquifer and a brief description of how much water levels vary over the season (the difference between the highest and lowest water levels measured during the year) and the long-term trends for each well. If water levels are not measured and recorded on a routine basis, then provide the static water level when

each well was constructed and the most recent water level measured during the same season the well was constructed. Also include all water level data taken during any well and pump maintenance. Add rows to the table as needed.

Provide water level data graphs for each well in **Appendix 3** for the life of the well, or for as many years as water levels have been measured. See DNR website for Date Time Water Level http://www.dnr.state.mn.us/groundwater/hydrographs.html

Table 9. Water level data

Unique Well Number or Well ID	Aquifer Name	Seasonal Variation (Feet)	Long-term trend in water level data	Water level measured during well/pumping maintenance
220954	Jordan Sandstone		Falling X Stable ☐ Rising	MM/DD/YY:____ MM/DD/YY:____ MM/DD/YY:____
655479	Jordan Sandstone		☐ Falling X Stable ☐ Rising	MM/DD/YY:____ MM/DD/YY:____ MM/DD/YY:____

Potential Water Supply Issues & Natural Resource Impacts – *Key DNR & Metropolitan Council Benchmark*

Complete Table 10 by listing the types of natural resources that are or could be impacted by permitted water withdrawals. If known, provide the name of specific resources that may be impacted. Identify what the greatest risks to the resource are and how the risks are being assessed. Identify any resource protection thresholds – formal or informal – that have been established to identify when actions should be taken to mitigate impacts. Provide information about the potential mitigation actions that may be taken, if a resource protection threshold is crossed. Add additional rows to the table as needed. See glossary at the end of the template for definitions.

Some of this baseline data should have been in your earlier water supply plans or county comprehensive water plans. When filling out this table, think of what are the water supply risks, identify the resources, determine the threshold and then determine what your community will do to mitigate the impacts.

Your DNR area hydrologist is available to assist with this table.

For communities in the seven-county Twin Cities metropolitan area, the *Master Water Supply Plan Appendix 1 (Water Supply Profiles*, provides information about potential water supply issues and natural resource impacts for your community.

Table 10. Natural resource impacts

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
☐ River or stream NA		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐ Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☐ Calcareous fen NA		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐ Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☐ Lake NA		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐ Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☐ Wetland		☐ Flow/water	☐ GIS analysis		☐ Revise	

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold[3]	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
NA		level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐ Other: _____	☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☐ Trout stream NA		☐ Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐ Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☒ Aquifer Jordan Sandstone		X Flow/water level decline ☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐ Other: _____	☐ GIS analysis ☐ Modeling ☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Revise permit ☐ Change groundwater pumping ☐ Increase conservation ☐ Other	
☐ Endangered,		☐ Flow/water level decline	☐ GIS analysis ☐ Modeling		☐ Revise permit	

Resource Type	Resource Name	Risk	Risk Assessed Through	Describe Resource Protection Threshold*	Mitigation Measure or Management Plan	Describe How Changes to Thresholds are Monitored
threatened, or special concern species habitat, other natural resource impacts NA		☐ Degrading water quality trends and/or MCLs exceeded ☐ Impacts on endangered, threatened, or special concern species habitat or other natural resource impacts ☐ Other: _____	☐ Mapping ☐ Monitoring ☐ Aquifer testing ☐ Other: ___		☐ Change groundwater pumping ☐ Increase conservation ☐ Other	

* Examples of thresholds: a lower limit on acceptable flow in a river or stream; water quality outside of an accepted range; a lower limit on acceptable aquifer level decline at one or more monitoring wells; withdrawals that exceed some percent of the total amount available from a source; or a lower limit on acceptable changes to a protected habitat.

Wellhead Protection (WHP) and Surface Water Protection (SWP) Plans

Complete Table 11 to provide status information about WHP and SWP plans.

The emergency procedures in this plan are intended to comply with the contingency plan provisions required in the Minnesota Department of Health's (MDH) Wellhead Protection (WHP) Plan and Surface Water Protection (SWP) Plan.

Table 11. Status of Wellhead Protection and Surface Water Protection Plans

Plan Type	Status	Date Adopted	Date for Update
WHP	☐ In Process X Completed ☐ Not Applicable	6/26/06	NA
SWP	☐ In Process ☐ Completed X Not Applicable		

F. Capital Improvement Plan (CIP)

Please note that any wells that received approval under a ten-year permit, but that were not built, are now expired and must submit a water appropriations permit.

Adequacy of Water Supply System

Complete Table 12 with information about the adequacy of wells and/or intakes, storage facilities, treatment facilities, and distribution systems to sustain current and projected demands. List planned capital improvements for any system components, in chronological order. Communities in the seven-county Twin Cities metropolitan area should also include information about plans through 2040.

The assessment can be the general status by category; it is not necessary to identify every single well, storage facility, treatment facility, lift station, and mile of pipe.

Please attach your latest Capital Improvement Plan as **Appendix 4**.

Table 12. Adequacy of Water Supply System

System Component	Planned action	Anticipated Construction Year	Notes
Wells/Intakes	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Water Storage Facilities	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Water Treatment Facilities	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Distribution Systems (pipes, valves, etc.)	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Pressure Zones	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		
Other:	X No action planned - adequate ☐ Repair/replacement ☐ Expansion/addition		

Proposed Future Water Sources

Complete Table 13 to identify new water source installation planned over the next ten years. Add rows to the table as needed.

Table 13. Proposed future installations/sources

Source	Installation Location (approximate)	Resource Name	Proposed Pumping Capacity (gpm)	Planned Installation Year	Planned Partnerships
Groundwater	None				
Surface Water	None				
Interconnection to another supplier	None				

Water Source Alternatives - *Key Metropolitan Council Benchmark*

Do you anticipate the need for alternative water sources in the next 10 years? Yes ☐ No X

For metro communities, will you need alternative water sources by the year 2040? Yes ☐ No X

If you answered yes for either question, then complete table 14. If no, insert NA.

Complete Table 14 by checking the box next to alternative approaches that your community is considering, including approximate locations (if known), the estimated amount of future demand that could be met through the approach, the estimated timeframe to implement the approach, potential partnerships, and the major benefits and challenges of the approach. Add rows to the table as needed.

For communities in the seven-county Twin Cities metropolitan area, these alternatives should include approaches the community is considering to meet projected 2040 water demand.

Table 14. Alternative water sources

Alternative Source Considered	Source and/or Installation Location (approximate)	Estimated Amount of Future Demand (%)	Timeframe to Implement (YYYY)	Potential Partners	Benefits	Challenges
Groundwater	NA					
☐ Surface Water	NA					
☐ Reclaimed stormwater	NA					
☐ Reclaimed wastewater	NA					
☐ Interconnection to another supplier	NA					

Part 2. Emergency Preparedness Procedures

The emergency preparedness procedures outlined in this plan are intended to comply with the contingency plan provisions required by MDH in the WHP and SWP. Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failings, drought, flooding, and other natural disasters. The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness. In the case of a municipality, these procedures should be in support of, and part of, an all-hazard emergency operations plan. Municipalities that already have written procedures dealing with water emergencies should review the following information and update existing procedures to address these water supply protection measures.

A. Federal Emergency Response Plan

Section 1433(b) of the Safe Drinking Water Act, (Public Law 107-188, Title IV- Drinking Water Security and Safety) requires community water suppliers serving over 3,300 people to prepare an Emergency Response Plan.

Do you have a federal emergency response plan? Yes ☐ No X

If yes, what was the date it was certified? _____

Complete Table 15 by inserting the noted information regarding your completed Federal Emergency Response Plan.

Table 15. Emergency Preparedness Plan contact information

Emergency Response Plan Role	Contact Person	Contact Phone Number	Contact Email
Emergency Response Lead	KYLE KUNTZ	952-465-9805	KKUNTZCITYOFMAYER@FRONTIER.COM
Alternate Emergency Response Lead	LUAYN RUCH-HAMMOND	763-258-7435	CITYADMIN@FRONTIERNET.NET

B. Operational Contingency Plan

All utilities should have a written operational contingency plan that describes measures to be taken for water supply mainline breaks and other common system failures as well as routine maintenance.

Do you have a written operational contingency plan? Yes ☐ No X

At a minimum, a water supplier should prepare and maintain an emergency contact list of contractors and suppliers.

C. Emergency Response Procedures

Water suppliers must meet the requirements of MN Rules 4720.5280 . Accordingly, the Minnesota Department of Natural Resources (DNR) requires public water suppliers serving more than 1,000 people to submit Emergency and Conservation Plans. Water emergency and conservation plans that have been approved by the DNR, under provisions of Minnesota Statute 186 and Minnesota Rules, part 6115.0770, will be considered equivalent to an approved WHP contingency plan.

Emergency Telephone List

Prepare and attach a list of emergency contacts, including the MN Duty Officer (1-800-422-0798), as **Appendix 5**. A template is available at www.mndnr.gov/watersupplyplans

The list should include key utility and community personnel, contacts in adjacent water suppliers, and appropriate local, state and federal emergency contacts. Please be sure to verify and update the contacts on the emergency telephone list and date it. Thereafter, update on a regular basis (once a year is recommended). In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the Emergency Manager for that community. Responsibilities and services for each contact should be defined.

Current Water Sources and Service Area

Quick access to concise and detailed information on water sources, water treatment, and the distribution system may be needed in an emergency. System operation and maintenance records should be maintained in secured central and back-up locations so that the records are accessible for emergency purposes. A detailed map of the system showing the treatment plants, water sources, storage facilities, supply lines, interconnections, and other information that would be useful in an emergency should also be readily available. It is critical that public water supplier representatives and emergency response personnel communicate about the response procedures and be able to easily obtain this kind of information both in electronic and hard copy formats (in case of a power outage).

Do records and maps exist? Yes X No ☐

Can staff access records and maps from a central secured location in the event of an emergency?

Yes X No ☐

Does the appropriate staff know where the materials are located?

Yes X No ☐

Procedure for Augmenting Water Supplies

Complete Tables 16 – 17 by listing all available sources of water that can be used to augment or replace existing sources in an emergency. Add rows to the tables as needed.

In the case of a municipality, this information should be contained in a notification and warning standard operating procedure maintained by the warning point for that community. Municipalities are encouraged to execute cooperative agreements for potential emergency water services and copies should be included in **Appendix 6**. Outstate Communities may consider using nearby high capacity wells (industry, golf course) as emergency water sources.

WSP should include information on any physical or chemical problems that may limit interconnections to other sources of water. Approvals from the MDH are required for interconnections or the reuse of water.

Table 16. Interconnections with other water supply systems to supply water in an emergency

Other Water Supply System Owner	Capacity (GPM & MGD)	Note Any Limitations On Use	List of services, equipment, supplies available to respond
NA			

GPM – Gallons per minute MGD – million gallons per day

Table 17. Utilizing surface water as an alternative source

Surface Water Source Name	Capacity (GPM)	Capacity (MGD)	Treatment Needs	Note Any Limitations On Use
NA				

If not covered above, describe additional emergency measures for providing water (obtaining bottled water, or steps to obtain National Guard services, etc.)

Notification will be provided via social media, Radio stations, and television. The City will provide bottled water for residents and request assistance from the State.

Allocation and Demand Reduction Procedures

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary.

Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

1. Water use for human needs such as cooking, cleaning, drinking, washing and waste disposal; use for on-farm livestock watering; and use for power production that meets contingency requirements.
2. Water use involving consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes)
3. Water use for agricultural irrigation and processing of agricultural products involving consumption of more than 10,000 gallons per day (usually from private high-capacity wells or surface water intakes)
4. Water use for power production above the use provided for in the contingency plan.
5. All other water use involving consumption of more than 10,000 gallons per day.
6. Nonessential uses – car washes, golf courses, etc.

Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Lower priority uses will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. Water use for lawn sprinkling, vehicle washing, golf courses, and recreation are legislatively considered non-essential.

Table 18. Water use priorities

Customer Category	Allocation Priority	Average Daily Demand (GDP)	Short Term Emergency Demand Reduction Potential (GPD)
Residential	1	61	WATERING RESTRICTIONS
Institutional	2	61	WATERING RESTRICTIONS
Commercial	3		WATERING RESTRICTIONS
Industrial			
Irrigation			
Wholesale			
Non-Essential	6		
TOTAL	NA	NA	

GPD – Gallons per Day

Tip: Calculating Emergency Demand Reduction Potential

The emergency demand reduction potential for all uses will typically equal the difference between maximum use (summer demand) and base use (winter demand). In extreme emergency situations, lower priority water uses must be restricted or eliminated to protect priority domestic water requirements. Emergency demand reduction potential should be based on average day demands for customer categories within each priority class. Use the tables in Part 3 on water conservation to help you determine strategies.

Complete Table 19 by selecting the triggers and actions during water supply disruption conditions.

Table 19. Emergency demand reduction conditions, triggers and actions (Select all that may apply and describe)

Emergency Triggers	Short-term Actions	Long-term Actions
X Contamination X Loss of production X Infrastructure failure X Executive order by Governor ☐ Other: _____	☐ Supply augmentation through ____ X Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Water allocation through____ X Meet with large water users to discuss their contingency plan.	☐ Supply augmentation through ____ X Adopt (if not already) and enforce a critical water deficiency ordinance to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Water allocation through____ X Meet with large water users to discuss their contingency plan.

Notification Procedures

Complete Table 20 by selecting trigger for informing customers regarding conservation requests, water use restrictions, and suspensions; notification frequencies; and partners that may assist in the notification process. Add rows to the table as needed.

Table 20. Plan to inform customers regarding conservation requests, water use restrictions, and suspensions

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
X Short-term demand reduction declared (< 1 year)	X Website X Email list serve X Social media (e.g. Twitter, Facebook) X Direct customer mailing, X Press release (TV, radio, newspaper), X Meeting with large water users (> 10% of total city use) X Other: Electronic Sign	X Daily ☐ Weekly ☐ Monthly ☐ Annually	
X Long-term Ongoing demand reduction declared	X Website Email list serve X Social media (e.g. Twitter, Facebook) X Direct customer mailing, X Press release (TV, radio, newspaper), X Meeting with large water users (> 10% of total city use) X Other: Electronic Sign	☐ Daily X Weekly ☐ Monthly ☐ Annually	
X Governor's critical water deficiency	X Website X Email list serve	X Daily ☐ Weekly	

Notification Trigger(s)	Methods (select all that apply)	Update Frequency	Partners
declared	X Social media (e.g. Twitter, Facebook) X Direct customer mailing, X Press release (TV, radio, newspaper), X Meeting with large water users (> 10% of total city use) X Other: Electronic Signs	☐ Monthly ☐ Annually	

Enforcement

Prior to a water emergency, municipal water suppliers must adopt regulations that restrict water use and outline the enforcement response plan. The enforcement response plan must outline how conditions will be monitored to know when enforcement actions are triggered, what enforcement tools will be used, who will be responsible for enforcement, and what timelines for corrective actions will be expected.

Affected operations, communications, and enforcement staff must then be trained to rapidly implement those provisions during emergency conditions.

Important Note:

Disregard of critical water deficiency orders, even though total appropriation remains less than permitted, is adequate grounds for immediate modification of a public water supply authority's water use permit (2013 MN Statutes 103G.291)

Does the city have a critical water deficiency restriction/official control in place that includes provisions to restrict water use and enforce the restrictions? (This restriction may be an ordinance, rule, regulation, policy under a council directive, or other official control) Yes X No ☐

If yes, attach the official control document to this WSP as **Appendix 7**.

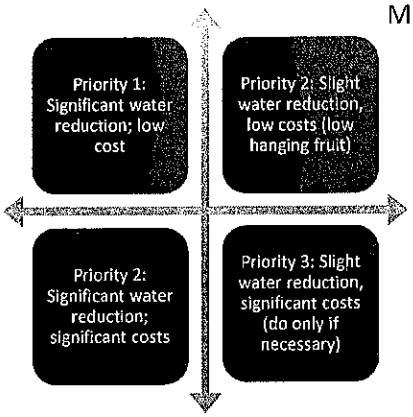
If no, the municipality must adopt such an official control within 6 months of submitting this WSP and submit it to the DNR as an amendment to this WSP.

Irrespective of whether a critical water deficiency control is in place, does the public water supply utility, city manager, mayor, or emergency manager have standing authority to implement water restrictions? Yes X No ☐

If yes, cite the regulatory authority reference: Mayor and or Public works.

If no, who has authority to implement water use restrictions in an emergency?

PART 3. WATER CONSERVATION PLAN



Minnesotans have historically benefited from the state's abundant water supplies, reducing the need for conservation. There are however, limits to the available supplies of water and increasing threats to the quality of our drinking water. Causes of water supply limitation may include: population increases, economic trends, uneven statewide availability of groundwater, climatic changes, and degraded water quality. Examples of threats to drinking water quality include: the presence of contaminant plumes from past land use activities, exceedances of water quality standards from natural and human sources, contaminants of emerging concern, and increasing pollutant trends from nonpoint sources.

There are many incentives for conserving water; conservation:

- reduces the potential for pumping-induced transfer of contaminants into the deeper aquifers, which can add treatment costs
- reduces the need for capital projects to expand system capacity
- reduces the likelihood of water use conflicts, like well interference, aquatic habitat loss, and declining lake levels
- conserves energy, because less energy is needed to extract, treat and distribute water (and less energy production also conserves water since water is use to produce energy)
- maintains water supplies that can then be available during times of drought

It is therefore imperative that water suppliers implement water conservation plans. The first step in water conservation is identifying opportunities for behavioral or engineering changes that could be made to reduce water use by conducting a thorough analysis of:

- Water use by customer
- Extraction, treatment, distribution and irrigation system efficiencies
- Industrial processing system efficiencies
- Regulatory and barriers to conservation
- Cultural barriers to conservation
- Water reuse opportunities

Once accurate data is compiled, water suppliers can set achievable goals for reducing water use. A successful water conservation plan follows a logical sequence of events. The plan should address both conservation on the supply side (leak detection and repairs, metering), as well as on the demand side (reductions in usage). Implementation should be conducted in phases, starting with the most obvious and lowest-cost options. In some cases one of the early steps will be reviewing regulatory constraints to water conservation, such as lawn irrigation requirements. Outside funding and grants may be available for implementation of projects. Engage water system operators and maintenance staff and customers in brainstorming opportunities to reduce water use. Ask the question: "How can I help save water?"

Progress since 2006

Is this your community's first Water Supply Plan? Yes ☐ No X

If yes, describe conservation practices that you are already implementing, such as: pricing, system improvements, education, regulation, appliance retrofitting, enforcement, etc.

If no, complete Table 21 to summarize conservation actions taken since the adoption of the 2006 water supply plan.

Table 21. Implementation of previous ten-year Conservation Plan

2006 Plan Commitments	Action Taken?
Change water rates structure to provide conservation pricing	X Yes ☐ No
Water supply system improvements (e.g. leak repairs, valve replacements, etc.)	X Yes ☐ No
Educational efforts	X Yes ☐ No
New water conservation ordinances	☐ Yes ☐ No
Rebate or retrofitting Program (e.g. for toilet, faucets, appliances, showerheads, dish washers, washing machines, irrigation systems, rain barrels, water softeners, etc.	☐ Yes ☐ No
Enforcement	X Yes ☐ No
Describe other	☐ Yes ☐ No

What are the results you have seen from the actions in Table 21 and how were results measured?

The City's actual total gallons per day have been reduced. Upon examination of the historical water usage the percentage of per capita use has also decreased. Water structure increasing rates and education on water use seems to be impacting resident's water consumption behavior.

A. Triggers for Allocation and Demand Reduction Actions

Complete table 22 by checking each trigger below, as appropriate, and the actions to be taken at various levels or stages of severity. Add in additional rows to the table as needed.

Table 22. Short and long-term demand reduction conditions, triggers and actions

Objective	Triggers	Actions
Protect surface water flows	X Low stream flow conditions X Reports of declining wetland and lake levels ☐ Other: _____	X Increase promotion of conservation measures ☐ Other: _____
Short-term demand reduction (less than 1 year	X Extremely high seasonal water demand (more than double winter demand) ☐ Loss of treatment capacity ☐ Lack of water in storage ☐ State drought plan ☐ Well interference ☐ Other: _____	X Adopt (if not already) and enforce the critical water deficiency ordinance to restrict or prohibit lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. ☐ Supply augmentation through ____ ☐ Water allocation through____ X Meet with large water users to discuss user's contingency plan.
Long-term demand reduction (>1 year)	X Per capita demand increasing ☐ Total demand increase (higher population or more industry)Water level in well(s) below elevation of _____ ☐ Other: _____	☐ Develop a critical water deficiency ordinance that is or can be quickly adopted to penalize lawn watering, vehicle washing, golf course and park irrigation & other nonessential uses. X Enact a water waste ordinance that targets overwatering (causing water to flow off the landscape into streets, parking lots, or similar), watering impervious surfaces (streets, driveways or other hardscape areas), and negligence of known leaks, breaks, or malfunctions. X Meet with large water users to discuss user's contingency plan. ☐ Enhanced monitoring and reporting: audits, meters, billing, etc.
Governor's "Critical Water Deficiency Order" declared	X Describe Declaration by the Governor	X Describe According to Resolution 4-14-2008-6 a total watering ban will be issued.

B. Conservation Objectives and Strategies – *Key benchmark for DNR*

This section establishes water conservation objectives and strategies for eight major areas of water use.

Objective 1: Reduce Unaccounted (Non-Revenue) Water loss to Less than 10%

The Minnesota Rural Waters Association, the Metropolitan Council and the Department of Natural Resources recommend that all water uses be metered. Metering can help identify high use locations and times, along with leaks within buildings that have multiple meters.

It is difficult to quantify specific unmetered water use such as that associated with firefighting and system flushing or system leaks. Typically, water suppliers subtract metered water use from total water pumped to calculate unaccounted or non-revenue water loss.

Is your five-year average (2005-2014) unaccounted Water Use in Table 2 higher than 10%?

Yes X No ☐

What is your leak detection monitoring schedule? (e.g. monitor 1/3rd of the city lines per year)

No known sections prone to failure. Majority of City's infrastructure is less than 10 years old.

Water Audits - are intended to identify, quantify and verify water and revenue losses. The volume of unaccounted-for water should be evaluated each billing cycle. The American Water Works Association (AWWA) recommends that ten percent or less of pumped water is unaccounted-for water. Water audit procedures are available from the AWWA and MN Rural Water Association www.mrwa.com . Drinking Water Revolving Loan Funds are available for purchase of new meters when new plants are built.

What is the date of your most recent water audit? _Dec 2015_____

Frequency of water audits: X **yearly** ☐ **other (specify frequency) _____**
Leak detection and survey: ☐ **every year** ☐ **every other year** X **periodic as needed**
Year last leak detection survey completed: _____

If Table 2 shows annual water losses over 10% or an increasing trend over time, describe what actions will be taken to reach the <10% loss objective and within what timeframe

The City suspects unauthorized use of water from fire hydrants by contractors. City will investigate locks for fire hydrants. City has not installed a water meter in the fire station. City Staff have requested fire department to provide more accurate documentation on their water usage. City staff will document more accurate records when flushing hydrants and backwashing at the water plant.

Metering -AWWA recommends that every water supplier install meters to account for all water taken into its system, along with all water distributed from its system at each customer's point of service. An effective metering program relies upon periodic performance testing, repair, maintenance or replacement of all meters. AWWA also recommends that water suppliers conduct regular water audits to ensure accountability. Some cities install separate meters for interior and exterior water use, but some research suggests that this may not result in water conservation.

Complete Table 23 by adding the requested information regarding the number, types, testing and maintenance of customer meters.

Table 23. Information about customer meters

Customer Category	Number of Customers	Number of Metered Connections	Number of Automated Meter Readers	Meter testing intervals (years)	Average age/meter replacement schedule (years)
Residential	701	701	701	10	__10_/ ___
Irrigation meters	312	312	312	10	_10__/ ___
Institutional	4	4	4	10	10___/ ___
Commercial	60	60	60	10	__10_/ ___
Industrial					___/ ___
Public facilities					___/ ___
Other					___/ ___
TOTALS	1,077	1,077	1,077	NA	NA

For unmetered systems, describe any plans to install meters or replace current meters with advanced technology meters. Provide an estimate of the cost to implement the plan and the projected water savings from implementing the plan.

NA

Table 24. Water source meters

	Number of Meters	Meter testing schedule (years)	Number of Automated Meter Readers	Average age/meter replacement schedule (years)
Water source (wells/intakes)	2	2013	1	_10__/ ___
Treatment plant	1	2013	1	_10__/ ___

Objective 2: Achieve Less than 75 Residential Gallons per Capita Demand (GPCD)

The 2002 average residential per capita demand in the Twin Cities Metropolitan area was 75 gallons per capita per day.

Is your average 2010-2015 residential per capita water demand in Table 2 more than 75? Yes ☐ No X

What was your 2010 – 2015 five-year average residential per capita water demand? 61 g/person/day

Describe the water use trend over that timeframe:

Per capita water use has decreased.

Complete Table 25 by checking which strategies you will use to continue reducing residential per capita demand and project a likely timeframe for completing each checked strategy (Select all that apply and add rows for additional strategies):

Table 25. Strategies and timeframe to reduce residential per capita demand

Strategy to reduce residential per capita demand	Timeframe for completing work
X Revise city ordinances/codes to encourage or require water efficient landscaping.	
☐ Revise city ordinance/codes to permit water reuse options, especially for non-potable purposes like irrigation, groundwater recharge, and industrial use. Check with plumbing authority to see if internal buildings reuse is permitted	
☐ Revise ordinances to limit irrigation. Describe the restricted irrigation plan:	
☐ Revise outdoor irrigation installations codes to require high efficiency systems (e.g. those with soil moisture sensors or programmable watering areas) in new installations or system replacements.	
☐ Make water system infrastructure improvements	
☐ Offer free or reduced cost water use audits) for residential customers.	
☐ Implement a notification system to inform customers when water availability conditions change.	
☐ Provide rebates or incentives for installing water efficient appliances and/or fixtures indoors (e.g., low flow toilets, high efficiency dish washers and washing machines, showerhead and faucet aerators, water softeners, etc.)	
☐ Provide rebates or incentives to reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	
☐ Identify supplemental Water Resources	
☐ Conduct audience-appropriate water conservation education and outreach.	
X Describe other plans	Researching options for Hydro seeding instead of sod to save water consumption on new lawn irrigation.

Objective 3: Achieve at least a 1.5% per year water reduction for Institutional, Industrial, Commercial, and Agricultural GPCD over the next 10 years or a 15% reduction in ten years. Complete Table 26 by checking which strategies you will used to continue reducing non-residential customer use demand and project a likely timeframe for completing each checked strategy (add rows for additional strategies).

Where possible, substitute recycled water used in one process for reuse in another. (For example, spent rinse water can often be reused in a cooling tower.) Keep in mind the true cost of water is the amount on the water bill PLUS the expenses to heat, cool, treat, pump, and dispose of/discharge the water. Don't just calculate the initial investment. Many conservation retrofits that appear to be prohibitively expensive are actually very cost-effective when amortized over the life of the equipment. Often reducing water use also saves electrical and other utility costs. Note: as of 2015, water reuse, and is not allowed by the state plumbing code, M.R. 4715 (a variance is needed). However several state agencies are addressing this issue.

Table 26. Strategies and timeframe to reduce institutional, commercial industrial, and agricultural and non-revenue use demand

Strategy to reduce total business, industry, agricultural demand	Timeframe for completing work
☐ Conduct a facility water use audit for both indoor and outdoor use, including system components	
☐ Install enhanced meters capable of automated readings to detect spikes in consumption	
☐ Compare facility water use to related industry benchmarks, if available (e.g., meat processing, dairy, fruit and vegetable, beverage, textiles, paper/pulp, metals, technology, petroleum refining etc.)	
X Install water conservation fixtures and appliances or change processes to conserve water	
X Repair leaking system components (e.g., pipes, valves)	
☐ Investigate the reuse of reclaimed water (e.g., stormwater, wastewater effluent, process wastewater, etc.)	
X Reduce outdoor water use (e.g., turf replacement/reduction, rain gardens, rain barrels, smart irrigation, outdoor water use meters, etc.)	
X Train employees how to conserve water	
☐ Implement a notification system to inform non-residential customers when water availability conditions change.	
☐ Rainwater catchment systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, industrial processes, water features, vehicle washing facilities, cooling tower makeup, and similar uses shall be approved by the commissioner. Proposed plumbing code 4714.1702.1 http://www.dli.mn.gov/PDF/docket/4714rule.pdf	
☐ Describe other plans:	

Objective 4: Achieve a Decreasing Trend in Total Per Capita Demand

Include as **Appendix 8** one graph showing total per capita water demand for each customer category (i.e., residential, institutional, commercial, industrial) from 2005-2014 and add the calculated/estimated linear trend for the next 10 years.

Describe the trend for each customer category; explain the reason(s) for the trends, and where trends are increasing.

Water consumption trends are decreasing.

Objective 5: Reduce Peak Day Demand so that the Ratio of Average Maximum day to the Average Day is less than 2.6

Is the ratio of average 2005-2014 maximum day demand to average 2005-2014 average day demand reported in Table 2 more than 2.6? Yes X No ☐

Calculate a ten year average (2005 – 2014) of the ratio of maximum day demand to average day demand: _.323__

The position of the DNR has been that a peak day/average day ratio that is above 2.6 for in summer indicates that the water being used for irrigation by the residents in a community is too large and that efforts should be made to reduce the peak day use by the community.

It should be noted that by reducing the peak day use, communities can also reduce the amount of infrastructure that is required to meet the peak day use. This infrastructure includes new wells, new water towers which can be costly items.

Objective 6: Implement a Conservation Water Rate Structure and/or a Uniform Rate Structure with a Water Conservation Program

Water Conservation Program

Municipal water suppliers serving over 1,000 people are required to adopt demand reduction measures that include a conservation rate structure, or a uniform rate structure with a conservation program that achieves demand reduction. These measures must achieve demand reduction in ways that reduce water demand, water losses, peak water demands, and nonessential water uses. These measures must be approved before a community may request well construction approval from the Department of Health or before requesting an increase in water appropriations permit volume (*Minnesota Statutes*, section 103G.291, subd. 3 and 4). Rates should be adjusted on a regular basis to ensure that revenue of the system is adequate under reduced demand scenarios. If a municipal water supplier intends to use a Uniform Rate Structure, a community-wide Water Conservation Program that will achieve demand reduction must be provided.

Current Water Rates

Include a copy of the actual rate structure in **Appendix 9** or list current water rates including base/service fees and volume charges below.

Volume included in base rate or service charge: _0____ gallons or ____ cubic feet ___ other

Frequency of billing: X Monthly ☐ Bimonthly ☐ Quarterly ☐ Other: _____

Water Rate Evaluation Frequency: X every year ☐ every ___ years ☐ no schedule

Date of last rate change: 1/1/2016

Table 27. Rate structures for each customer category (Select all that apply and add additional rows as needed)

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
Residential	X Monthly billing X Increasing block rates (volume tiered rates) ☐ Seasonal rates ☐ Time of use rates ☐ Water bills reported in	☐ Uniform X Odd/even day watering	☐ Service charge based on water volume ☐ Declining block ☐ Flat ☐ Other (describe)

Customer Category	Conservation Billing Strategies in Use *	Conservation Neutral Billing Strategies in Use **	Non-Conserving Billing Strategies in Use ***
	gallons ☐ Individualized goal rates ☐ Excess use rates ☐ Drought surcharge ☐ Use water bill to provide comparisons ☐ Service charge not based on water volume ☐ Other (describe)		
Commercial/ Industrial/ Institutional	X Monthly billing X Increasing block rates (volume tiered rates) ☐ Seasonal rates ☐ Time of use rates ☐ Water bills reported in gallons ☐ Individualized goal rates ☐ Excess use rates ☐ Drought surcharge ☐ Use water bill to provide comparisons Service charge not based on water volume ☐ Other (describe)	☐ Uniform	☐ Service charge based on water volume ☐ Declining block ☐ Flat ☐ Other (describe)
☐ Other			

*** Rate Structures components that may promote water conservation:**

- **Monthly billing:** is encouraged to help people see their water usage so they can consider changing behavior.
- **Increasing block rates (also known as a tiered residential rate structure):** Typically, these have at least three tiers: should have at least three tiers.
  - The first tier is for the winter average water use.
  - The second tier is the year-round average use, which is lower than typical summer use. This rate should be set to cover the full cost of service.
  - The third tier should be above the average annual use and should be priced high enough to encourage conservation, as should any higher tiers. For this to be effective, the difference in block rates should be significant.
- **Seasonal rate:** higher rates in summer to reduce peak demands
- **Time of Use rates:** lower rates for off peak water use
- **Bill water use in gallons:** this allows customers to compare their use to average rates
- **Individualized goal rates:** typically used for industry, business or other large water users to promote water conservation if they keep within agreed upon goals. **Excess Use rates:** if water use goes above an agreed upon amount this higher rate is charged
- **Drought surcharge:** an extra fee is charged for guaranteed water use during drought
- **Use water bill to provide comparisons**: simple graphics comparing individual use over time or compare individual use to others.
- **Service charge or base fee that does not include a water volume** – a base charge or fee to cover universal city expenses that are not customer dependent and/or to provide minimal water at a lower rate (e.g., an amount less than the average residential per capita demand for the water supplier for the last 5 years)

- **Emergency rates** -A community may have a separate conservation rate that only goes into effect when the community or governor declares a drought emergency. These higher rates can help to protect the city budgets during times of significantly less water usage.

****Conservation Neutral****

- **Uniform rate:** rate per unit used is the same regardless of the volume used
- **Odd/even day watering** –This approach reduces peak demand on a daily basis for system operation, but it does not reduce overall water use.

***** Non-Conserving *****

- **Service charge or base fee with water volume:** an amount of water larger than the average residential per capita demand for the water supplier for the last 5 years
- **Declining block rate:** the rate per unit used decreases as water use increases.
- **Flat rate:** one fee regardless of how much water is used (usually unmetered).

Provide justification for any conservation neutral or non-conserving rate structures. If intending to adopt a conservation rate structure, include the timeframe to do so:

Objective 7: Additional strategies to Reduce Water Use and Support Wellhead Protection Planning

Development and redevelopment projects can provide additional water conservation opportunities, such as the actions listed below. If a Uniform Rate Structure is in place, the water supplier must provide a Water Conservation Program that includes at least two of the actions listed below. Check those actions that you intent to implement within the next 10 years.

Table 28. Additional strategies to Reduce Water Use & Support Wellhead Protection

X	Participate in the GreenStep Cities Program, including implementation of at least one of the 20 "Best Practices" for water
☐	Prepare a master plan for smart growth (compact urban growth that avoids sprawl)
X	Prepare a comprehensive open space plan (areas for parks, green spaces, natural areas)
X	Adopt a water use restriction ordinance (lawn irrigation, car washing, pools, etc.)
X	Adopt an outdoor lawn irrigation ordinance
X	Adopt a private well ordinance (private wells in a city must comply with water restrictions)
☐	Implement a stormwater management program
☐	Adopt non-zoning wetlands ordinance (can further protect wetlands beyond state/federal laws- for vernal pools, buffer areas, restrictions on filling or alterations)
☐	Adopt a water offset program (primarily for new development or expansion)
☐	Implement a water conservation outreach program
☐	Hire a water conservation coordinator (part-time)
☐	Implement a rebate program for water efficient appliances, fixtures, or outdoor water management
☐	Other

Objective 8: Tracking Success: How will you track or measure success through the next ten years?

Continue to monitor water consumption and address additional consumption.

Tip: The process to monitor demand reduction and/or a rate structure includes:

a) The DNR Hydrologist will call or visit the community the first 1-3 years after the water supply plan is completed.
b) They will discuss what activities the community is doing to conserve water and if they feel their actions are successful. The Water Supply Plan, Part 3 tables and responses will guide the discussion. For example, they will discuss efforts to reduce unaccounted for water loss if that is a problem, or go through Tables 33, 34 and 35 to discuss new initiatives.
c) The city representative and the hydrologist will discuss total per capita water use, residential per capita water use, and business/industry use. They will note trends.
d) They will also discuss options for improvement and/or collect case studies of success stories to share with other communities. One option may be to change the rate structure, but there are many other paths to successful water conservation.
e) If appropriate, they will cooperatively develop a simple work plan for the next few years, targeting a couple areas where the city might focus efforts.

A. Regulation

Complete Table 29 by selecting which regulations are used to reduce demand and improve water efficiencies. Add additional rows as needed.

Copies of adopted regulations or proposed restrictions or should be included in **Appendix 10** (a list with hyperlinks is acceptable).

Table 29. Regulations for short-term reductions in demand and long-term improvements in water efficiencies

Regulations Utilized	When is it applied (in effect)?
X Rainfall sensors required on landscape irrigation systems	X Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Water efficient plumbing fixtures required	☐ New development ☐ Replacement ☐ Rebate Programs
X Critical/Emergency Water Deficiency ordinance	X Only during declared Emergencies
X Watering restriction requirements (time of day, allowable days, etc.)	X Odd/even ☐ 2 days/week ☐ Only during declared Emergencies
☐ Water waste prohibited (for example, having a fine for irrigators spraying on the street)	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Limitations on turf areas (requiring lots to have 10% - 25% of the space in natural areas)	x New development X Shoreland/zoning ☐ Other
X Soil preparation requirement s (after construction, requiring topsoil to be applied to promote good root growth)	☐ New Development ☐ Construction Projects ☐ Other

Regulations Utilized	When is it applied (In effect)?
☐ Tree ratios (requiring a certain number of trees per square foot of lawn)	☐ New development ☐ Shoreland/zoning ☐ Other
☐ Permit to fill swimming pool and/or requiring pools to be covered (to prevent evaporation)	☐ Ongoing ☐ Seasonal ☐ Only during declared Emergencies
☐ Ordinances that permit stormwater irrigation, reuse of water, or other alternative water use (Note: be sure to check current plumbing codes for updates)	☐ Describe

B. Retrofitting Programs

Education and incentive programs aimed at replacing inefficient plumbing fixtures and appliances can help reduce per capita water use, as well as energy costs. It is recommended that municipal water suppliers develop a long-term plan to retrofit public buildings with water efficient plumbing fixtures and appliances. Some water suppliers have developed partnerships with organizations having similar conservation goals, such as electric or gas suppliers, to develop cooperative rebate and retrofit programs.

A study by the AWWA Research Foundation (Residential End Uses of Water, 1999) found that the average indoor water use for a non-conserving home is 69.3 gallons per capita per day (gpcd). The average indoor water use in a conserving home is 45.2 gpcd and most of the decrease in water use is related to water efficient plumbing fixtures and appliances that can reduce water, sewer and energy costs. In Minnesota, certain electric and gas providers are required (Minnesota Statute 216B.241) to fund programs that will conserve energy resources and some utilities have distributed water efficient showerheads to customers to help reduce energy demands required to supply hot water.

Retrofitting Programs

Complete Table 30 by checking which water uses are targeted, the outreach methods used, the measures used to identify success, and any participating partners.

Table 30. Retrofitting programs (Select all that apply)

Water Use Targets	Outreach Methods	Partners
X Low flush toilets, X Toilet leak tablets, X Low flow showerheads, ☐ Faucet aerators;	X Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company X Watershed organization
X Water conserving washing machines, X Dish washers, X Water softeners;	X Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company X Watershed organization
X Rain gardens, X Rain barrels, ☐ Native/drought tolerant landscaping, etc.	X Education about ☐ Free distribution of ☐ Rebate for ☐ Other	☐ Gas company ☐ Electric company X Watershed organization

Briefly discuss measures of success from the above table (e.g. number of items distributed, dollar value of rebates, gallons of water conserved, etc.):

City will install low flush toilets in any new City facilities or as a replacement. Continue to work with the water shed organization on education of water conservation by promoting rain gardens and rain barrels.

C. Education and Information Programs

Customer education should take place in three different circumstances. First, customers should be provided information on how to conserve water and improve water use efficiencies. Second, information should be provided at appropriate times to address peak demands. Third, emergency notices and educational materials about how to reduce water use should be available for quick distribution during an emergency.

Proposed Education Programs

Complete Table 31 by selecting which methods are used to provide water conservation and information, including the frequency of program components. Select all that apply and add additional lines as needed.

Table 31. Current and Proposed Education Programs

Education Methods	General summary of topics	#/Year	Frequency
Billing inserts or tips printed on the actual bill			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Consumer Confidence Reports		1	X Ongoing ☐ Seasonal ☐ Only during declared emergencies
Press releases to traditional local news outlets (e.g., newspapers, radio and TV)	Vary	6	X Ongoing ☐ Seasonal ☐ Only during declared emergencies
Social media distribution (e.g., emails, Facebook, Twitter)	Vary	^	X Ongoing ☐ Seasonal ☐ Only during declared emergencies
Paid advertisements (e.g., billboards, print media, TV, radio, web sites, etc.)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Presentations to community groups			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Staff training			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Facility tours			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Displays and exhibits			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Marketing rebate programs (e.g., indoor fixtures & appliances and outdoor practices)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community news letters		1	X Ongoing ☐ Seasonal ☐ Only during declared emergencies
Direct mailings (water audit/retrofit kits, showerheads, brochures)			☐ Ongoing ☐ Seasonal

Education Methods	General summary of topics	#/Year	Frequency
			☐ Only during declared emergencies
Information kiosk at utility and public buildings			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Public service announcements			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Cable TV Programs			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Demonstration projects (landscaping or plumbing)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
K-12 education programs (Project Wet, Drinking Water Institute, presentations)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community events (children's water festivals, environmental fairs)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Community education classes			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Water week promotions			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Website (include address:)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Targeted efforts (large volume users, users with large increases)			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Notices of ordinances			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies
Emergency conservation notices	As needed		X Ongoing ☐ Seasonal

Education Methods	General summary of topics	#/Year	Frequency
			☐ Only during declared emergencies
Other:			☐ Ongoing ☐ Seasonal ☐ Only during declared emergencies

Briefly discuss what future education and information activities your community is considering in the future:

The City will continue to cooperate with Carver County Soil and Water in providing water conservation and water educational opportunities to the residents.

Part 4. ITEMS FOR METROPOLITAN AREA COMMUNITIES

Minnesota Statute 473.859 requires WSPs to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process.

Much of the information in Parts 1-3 addresses water demand for the next 10 years. However, additional information is needed to address water demand through 2040, which will make the WSP consistent with the Metropolitan Land Use Planning Act, upon which the local comprehensive plans are based.

This Part 4 provides guidance to complete the WSP in a way that addresses plans for water supply through 2040.

A. Water Demand Projections through 2040

Complete Table 7 in Part 1D by filling in information about long-term water demand projections through 2040. Total Community Population projections should be consistent with the community's system statement, which can be found on the Metropolitan Council's website and which was sent to the community in September 2015.

Projected Average Day, Maximum Day, and Annual Water Demands may either be calculated using the method outlined in *Appendix 2* of the *2015 Master Water Supply Plan* or by a method developed by the individual water supplier.

B. Potential Water Supply Issues

Complete Table 10 in Part 1E by providing information about the potential water supply issues in your community, including those that might occur due to 2040 projected water use.

The *Master Water Supply Plan* provides information about potential issues for your community in *Appendix 1 (Water Supply Profiles).* This resource may be useful in completing Table 10.

You may document results of local work done to evaluate impact of planned uses by attaching a feasibility assessment or providing a citation and link to where the plan is available electronically.

C. Proposed Alternative Approaches to Meet Extended Water Demand Projections

Complete Table 12 in Part 1F with information about potential water supply infrastructure impacts (such as replacements, expansions or additions to wells/intakes, water storage and treatment capacity, distribution systems, and emergency interconnections) of extended plans for development and redevelopment, in 10-year increments through 2040. It may be useful to refer to information in the community's local Land Use Plan, if available.

Complete Table 14 in Part 1F by checking each approach your community is considering to meet future demand. For each approach your community is considering, provide information about the amount of

future water demand to be met using that approach, the timeframe to implement the approach, potential partners, and current understanding of the key benefits and challenges of the approach.

As challenges are being discussed, consider the need for: evaluation of geologic conditions (mapping, aquifer tests, modeling), identification of areas where domestic wells could be impacted, measurement and analysis of water levels & pumping rates, triggers & associated actions to protect water levels, etc.

D. Value-Added Water Supply Planning Efforts (Optional)

The following information is not required to be completed as part of the local water supply plan, but completing this can help strengthen source water protection throughout the region and help Metropolitan Council and partners in the region to better support local efforts.

Source Water Protection Strategies

Does a Drinking Water Supply Management Area for a neighboring public water supplier overlap your community? Yes ☐ No X

If you answered no, skip this section. If you answered yes, please complete Table 32 with information about new water demand or land use planning-related local controls that are being considered to provide additional protection in this area.

Table 32. Local controls and schedule to protect Drinking Water Supply Management Areas

Local Control	Schedule to Implement	Potential Partners
X None at this time		
☐ Comprehensive planning that guides development in vulnerable drinking water supply management areas		
☐ Zoning overlay		
☐ Other:		

Technical assistance

From your community's perspective, what are the most important topics for the Metropolitan Council to address, guided by the region's Metropolitan Area Water Supply Advisory Committee and Technical Advisory Committee, as part of its ongoing water supply planning role?

X Coordination of state, regional and local water supply planning roles
☐ Regional water use goals
☐ Water use reporting standards
☐ Regional and sub-regional partnership opportunities
☐ Identifying and prioritizing data gaps and input for regional and sub-regional analyses
☐ Others: _____

APPENDIX 1 Well Records and Maintenance Summary

TURBINE PUMP
(MOTOR, PUMP, PERFORMANCE RECORD)

(AS PULLED) (AS INSTALLED) (AS TESTED) **DATE:** November 30, 2007

GENERAL INFO: Customer/Owner: Mayer Well/Pump #: 2
Address/Location: _____
Persons on Job Site: Jeff Ross

MOTOR INFO: Horsepower 50 Stand Still Volts 481/ 479/478 Running Volts 480/477/477

Manufacturer Byron Jackson R.P.M. 1800 Full Load Amps 65 S.F.Amps/ _____

BOWL DESIGN: G.P.M. 500 T.D.H. 240' Megger Reading _____

PERFORMANCE TEST: Static Water Level 46' Well Diameter 16" Well Depth 260'
Screen: 10" Diameter From 173'-260"

Test #1 : HZ 40 AMPS 32 / 29 / 30 Gallons Per Minute 300 Water Level 55' P.S.I. 28 T.D.H. 119.6
Test #2: HZ 47 AMPS 37 / 36 / 36 Gallons Per Minute 400 Water Level 57' P.S.I. 35 T.D.H. 137.8
Test #3: HZ 60 AMPS 51 / 50 / 50 Gallons Per Minute 570 Water Level 65 P.S.I. 52 T.D.H. 185.1
Test #4: HZ 60 AMPS 51/ 50 / 50 Gallons Per Minute 500 Water Level 65 P.S.I. 70 T.D.H. 226.7

T.D.H. = Pumping Water Level in Feet + (P.S.I. reading x 2.31) + Friction Loss In Column + Fittings
Example: Information Given: 1000 G.P.M., 150' Water Level, 50 P.S.I.,3.5' roughness Loss
Therefore: 150' + (50# x 2.31 or 115.5') + 3.5' = 269' T.G.H.
OR
The pump is producing 1000 G.P.M. at 269' T.D.H.

Does Well Pump Sand? YES If So, How Much?

Test #1 Trace " in Gallon Jar
Test #2 1/16 " in Gallon Jar
Test #3 1/8 " in Gallon Jar

Closed Valve Test: P.S.I. Reading _____ Water Level _____

Vibration Record: Vibration in Mils:

A Not Applicable 90* from Discharge
B _____ In Line with Discharge
C _____ 90* from Discharge
D _____ In Line with Discharge

Tested By: Eugene Dvorak

Problems/Comments: This pump has drop in performance slightly from the original design (less than 4%), but appear to be within the cities requirements. Continue to monitor performance and possible prepare for inspection in 2011 (10 years in operation.)

Customer/Owner Comments: This pump was set 4-08-01 in 120' of 6" column. The pump/motor is Byron Jackson 1800 RPM oil filled with double mechanical seal coupled to a 10 MQC – 6 stage bowl.

TURBINE PUMP
(MOTOR, PUMP, PERFORMANCE RECORD)

(AS TESTED) **DATE:** November 30, 2007

GENERAL INFO: Customer/Owner: Mayer Well/Pump #: 1
Address/Location: _____
Persons on Job Site: Jeff Ross

MOTOR INFO: Horsepower 10 Stand Still Volts 245/244/245 Running Volts 239/240/239
Manufacturer _____ R.P.M. 3450 Full Load Amps 28.4 S.F.Amps/ 32.2

BOWL DESIGN: G.P.M. 175 T.D.H. (Est.) 160' Megger Reading _____

PERFORMANCE TEST: Static Water Level 60' Well Diameter 10" Well Depth 280' Open Hole 202' – 280'

Test #1: AMPS 28 / 27 / 27 Gallons Per Minute 195 Water Level 67' P.S.I. _____ T.D.H. _____
Test #2: AMPS ___/___/___ Gallons Per Minute _____ Water Level _____ P.S.I. _____ T.D.H. _____
Test #3: AMPS ___/___/___ Gallons Per Minute _____ Water Level _____ P.S.I. _____ T.D.H. _____

T.D.H. = Pumping Water Level in Feet + (P.S.I. reading x 2.31) + Friction Loss In Column + Fittings
Example: Information Given: 1000 G.P.M., 150' Water Level, 50 P.S.I.,3.5' Friction Loss
Therefore: 150' + (50# x 2.31 or 115.5') + 3.5' = 269' T.G.H.
OR
The pump is producing 1000 G.P.M. at 269' T.D.H.

Does Well Pump Sand? YES If So, How Much? Test #1 ¼ " in Gallon Jar
Test #2 _____ " in Gallon Jar
Test #3 _____ " in Gallon Jar

Closed Valve Test: P.S.I. Reading _____ Water Level _____

Vibration Record: Vibration in Mils:
A _____ 90* from Discharge
B _____ In Line with Discharge
C _____ 90* from Discharge
D _____ In Line with Discharge

Tested By: Eugene Dvorak

Problems/Comments: Jeff wants price to develop well group to 15 Hp motor and 300 gpm., with the information we have on Well No. 1, this well should be grouted from 280' -260'. Then possibly redeveloped or screened and gravel packed for increased production from this well. There are other variables that need to be considered such as available power (service), pipe sizing, changes in water chemistry, we need to set up a time to discuss your current pump house variables and what it would take to upgrade to a desired pumping rating.

Customer/Owner Comments: _____

McCarthy Well Company
SINCE 1860
MAIN OFFICE, SHOP & YARD • 590 CITATION DR. - SUITE I • SHAKOPEE, MN 55379-1862
"There is No Substitute for Experience"
Phone: (952) 854-5333 or (888) 854-5333 • Fax: (952) 445-1950

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Mayer, MN, City of — Date: 10/30/2008

Mayer MN — Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- **Good** ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- **Good** ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 **476** L 2-5 **475** L 3-6 **477** ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 **316** L 2-5 **316** L 3-6 **316** Hertz **41** ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 **30.0** L2 **29.0** L3 **30.0** Utilization **44%** ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 **Good** L2 **Good** L3 **Good** ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 **Good** L2-3 **Good** L1-3 **Good** ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- **Variable** ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor **Good** Well Room **Good** ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top **Good** Bottom **Good** Pump Prelube **NA** ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor **Good** Pump **Good** Right Angle Dr **NA** ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor **Good** Pump **Good** Right Angle Dr **NA** ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- **NA** ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- **Good** Pump Foot Valve **Good** ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- **Good** Air Relief/Vacuum Breaker **Good** ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- **Good** ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- **270** ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? **NO** ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static **41'** Pumping **55'** Yield **Good** GPM Per Foot of Draw Down ◉ Good ○ Fair ○ Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service at least 5 years since it was installed in the well.

Report By: **Tim McCarthy**

Your 24 Hour Full Service Well & Pump Company

Nation's Oldest • Northwest's Largest Water Producers

McCarthy Well Company

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Mayer, MN, City of — Date: 10/30/2008

Mayer MN — Well/Pump Name: 1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- **Good** — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- **Good** — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 **238** L 2-5 **238** L 3-6 **237** — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 **237** L 2-5 **237** L 3-6 **237** Hertz **60** — ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 **27.0** L2 **27.0** L3 **27.0** Utilization **95%** — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 **Good** L2 **Good** L3 **Good** — ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 **Good** L2-3 **Good** L1-3 **Good** — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- **3450** — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor **Good** Well Room **Good** — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top **Good** Bottom **Good** Pump Prelube **NA** — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor **Good** Pump **Good** Right Angle Dr **NA** — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor **Good** Pump **Good** Right Angle Dr **NA** — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- **NA** — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- **Good** Pump Foot Valve **Good** — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- **Good** Air Relief/Vacuum Breaker **Good** — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- **Good** — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- **195** ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? **NO** — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static **61'** Pumping **66'** Yield **Good** GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was last removed from the well for repair.

Report By: **Tim McCarthy**

Your 24 Hour Full Service Well & Pump Company

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Mayer, MN, City of — Date: 11/9/2009

Mayer MN — Well/Pump Name: 1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- **Good** ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- **Good** ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 **245** L 2-5 **244** L 3-6 **245** ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 **240** L 2-5 **238** L 3-6 **239** Hertz **60** ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 **27.0** L2 **28.0** L3 **28.0** Utilization **97%** ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 **Good** L2 **Good** L3 **Good** ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 **Good** L2-3 **Good** L1-3 **Good** ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- **3450** ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor **Good** Well Room **Good** ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top **Good** Bottom **Good** Pump Prelube **NA** ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor **Good** Pump **Good** Right Angle Dr **NA** ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor **Good** Pump **Good** Right Angle Dr **NA** ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- **NA** ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- **Good** Pump Foot Valve **Good** ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- **Good** Air Relief/Vacuum Breaker **Good** ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- **Good** ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- **195** ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? **NO** ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static **60'** Pumping **67'** Yield **Good** GPM Per Foot of Draw Down ◉ Good ○ Fair ○ Poor

Comments:

This unit appears to be operating properly at this time, however, it has been in service at least 5 years since it was last removed from the well for repair.

Report By: Tim McCarthy

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

Mayer, MN, City of — Date: 11/9/2009

Mayer MN — Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- **Good** — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- **Good** — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 **473** L 2-5 **473** L 3-6 **477** — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 **318** L 2-5 **319** L 3-6 **318** Hertz **40** — ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 **29.0** L2 **30.0** L3 **29.0** Utilization **43%** — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 **Fair** L2 **Fair** L3 **Fair** — ○ Good ◉ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 **Good** L2-3 **Good** L1-3 **Good** — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- **Variable** — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor **Good** Well Room **Good** — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top **Good** Bottom **Good** Pump Prelube **NA** — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor **Good** Pump **Good** Right Angle Dr **NA** — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor **Good** Pump **Good** Right Angle Dr **NA** — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- **NA** — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- **Good** Pump Foot Valve **Good** — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- **Good** Air Relief/Vacuum Breaker **Good** — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- **Good** — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- **310** ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? **Yes** — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static **49'** Pumping **60'** Yield **Good** GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was installed in the well.

Report By: Tim McCarthy

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer — Date: 2/3/2011

Mayer MN — Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the Inspection.

1. Check Wiring & Connections- **Good** — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- **Good** — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 **480** L 2-5 **475** L 3-6 **480** — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 **471** L 2-5 **473** L 3-6 **471** Hertz **41** — ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 **16.0** L2 **15.0** L3 **16.0** Utilization **23%** — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 **Fair** L2 **Fair** L3 **Fair** — ○ Good ◉ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 **Good** L2-3 **Good** L1-3 **Good** — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- **Variable** — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor **Good** Well Room **Good** — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top **Good** Bottom **Good** Pump Prelube **NA** — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor **Good** Pump **Good** Right Angle Dr **NA** — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor **Good** Pump **Good** Right Angle Dr **NA** — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- **NA** — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- **Good** Pump Foot Valve **Good** — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- **Good** Air Relief/Vacuum Breaker **Good** — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- **Good** — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- **320** ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? **Yes** — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static **44'** Pumping **52'** Yield **Good** GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was installed in the well.

Report By: **Tim McCarthy**

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer — Date: 2/3/2011

Mayer MN — Well/Pump Name: 1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 245 L 2-5 243 L 3-6 245 — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 238 L 2-5 239 L 3-6 239 — Hertz 60 — ◉ Good ○ Fair ○ Poor

5. Check Motor Amps- L1 27.0 L2 26.0 L3 27.0 Utilization 94% — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good — ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- 3450 — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube NA — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- NA — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve Good — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- Good — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- 195 ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? NO — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static 54' Pumping 61' Yield Good GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:

This unit appears to be operating properly at this time, however, the pump has been in service over 5 years since it was last removed from the well for repair.

Report By: **Tim McCarthy**

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer — Date: 2/1/2012

Mayer MN — Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 487 L 2-5 478 L 3-6 481 — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 316 L 2-5 315 L 3-6 316 — Hertz 41 — ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 30.0 L2 29.0 L3 30.0 Utilization 44% — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good — ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- Variable — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube NA — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- NA — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve Good — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- Good — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- 308 ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? Yes — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static 45' Pumping 53' Yield Good GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:

This unit is operating properly at this time, however, the pump has been in service for over 5 years since it was installed in the well.

Report By: Tim McCarthy

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer
Mayer MN

Date: 2/1/2012
Well/Pump Name: 1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 244 L 2-5 242 L 3-6 243 ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 238 L 2-5 239 L 3-6 238 Hertz 60 ◉ Good ○ Fair ○ Poor

5. Check Motor Amps- L1 28.0 L2 29.0 L3 28.0 Utilization 100% ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- 3450 ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube NA ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- NA ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve Good ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- Good ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- 195 ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? NO ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static 57' Pumping 62' Yield Good GPM Per Foot of Draw Down ◉ Good ○ Fair ○ Poor

Comments:
This unit is operating properly at this time, however, the pump has been in service for over 5 years.

Report By: Tim McCarthy

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer
Mayer MN

Date: 7/17/2013
Well/Pump Name: 1

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1. Check Wiring & Connections- Good — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 237 L 2-5 243 L 3-6 239 — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 229 L 2-5 230 L 3-6 229 — Hertz 60 — ◉ Good ○ Fair ○ Poor

5. Check Motor Amps- L1 27.0 L2 27.0 L3 26.0 Utilization 94% — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good — ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- 3450 — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube NA — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- NA — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve Good — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- Good — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- 159 ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? NO — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static 62' Pumping 88' Yield Good GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:
This unit is operating properly at this time however, the pump has been in service for over 5 years.

Report By: Tim McCarthy

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer
Mayer MN

Date: 7/17/2013
Well/Pump Name: PW-2 Hi Service

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- **Good** ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- **Good** ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 **467** L 2-5 **466** L 3-6 **468** ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 **413** L 2-5 **414** L 3-6 **413** Hertz **55** ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 **22.0** L2 **21.0** L3 **23.0** Utilization **70%** ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 **Good** L2 **Good** L3 **Good** ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 **Good** L2-3 **Good** L1-3 **Good** ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- **Variable** ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor **Good** Well Room **Good** ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top **Good** Bottom **Good** Pump Prelube **OK** ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor **Good** Pump **Good** Right Angle Dr **NA** ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor **Good** Pump **Good** Right Angle Dr **NA** ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- **Good** ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- **Good** Pump Foot Valve **NA** ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- **Good** Air Relief/Vacuum Breaker **Good** ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- **Good** ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- **316** ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? **Yes** ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static **Good** Pumping **Good** Yield **Good** GPM Per Foot of Draw Down ◉ Good ○ Fair ○ Poor

Comments:
This unit appears to be operating properly at this time.

Report By: **Tim McCarthy**

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer
Mayer MN

Date: 7/17/2013
Well/Pump Name: PW-1 Hi Service

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 470 L 2-5 467 L 3-6 470 — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 396 L 2-5 398 L 3-6 396 Hertz 53 — ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 21.0 L2 21.0 L3 21.0 Utilization 67% — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good — ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- Variable — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube OK — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- Good — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve NA — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- Good — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- 255 ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? Yes — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static Good Pumping Good Yield Good GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:
This pump appears to be operating satisfactorily at this time.

Report By: Tim McCarthy

McCARTHY WELL COMPANY

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"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer
Mayer MN

Date: 7/17/2013
Well/Pump Name: 1

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 237 L 2-5 243 L 3-6 239 — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 229 L 2-5 230 L 3-6 229 Hertz 60 — ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 27.0 L2 27.0 L3 26.0 Utilization 94% — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Good L2 Good L3 Good — ◉ Good ○ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- 3450 — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube NA — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- NA — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve Good — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- Good — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- 159 ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? NO — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static 62' Pumping 88' Yield Good GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:
This unit is operating properly at this time however, the pump has been in service for over 5 years.

Report By: Tim McCarthy

McCARTHY WELL COMPANY

590 Citation Drive - Suite I, Shakopee MN 55379-1862
Phone 952-854-5333 ~ Fax 952-445-1950

"SINCE 1860"

"THERE'S NO SUBSTITUTE FOR EXPERIENCE"

"18 POINT PUMP PERFORMANCE INSPECTION REPORT"

City of Mayer
Mayer MN

Date: 7/17/2013
Well/Pump Name: 2

This report is not to be used to determine compliance with any codes, regulations, laws, or rules. Its sole purpose is to attempt to evaluate the operating performance of the well and pump at the time of the inspection.

1. Check Wiring & Connections- Good — ◉ Good ○ Fair ○ Poor
2. Check Starter Overload Protection- Good — ◉ Good ○ Fair ○ Poor
3. Check Voltage Supply- L 1-4 463 L 2-5 460 L 3-6 463 — ◉ Good ○ Fair ○ Poor
4. Check Voltage Running- L 1-4 314 L 2-5 313 L 3-6 314 — Hertz 41 — ◉ Good ○ Fair ○ Poor
5. Check Motor Amps- L1 29.0 L2 29.0 L3 29.0 Utilization 43% — ◉ Good ○ Fair ○ Poor
6. Check Resistance Between Line & Ground- L1 Fair L2 Fair L3 Fair — ○ Good ◉ Fair ○ Poor
7. Check Resistance Between Motor Windings- L1-2 Good L2-3 Good L1-3 Good — ◉ Good ○ Fair ○ Poor
8. Check Pump & Motor Operating R.P.M.- Variable — ◉ Good ○ Fair ○ Poor
9. Check Temperature-Motor Good Well Room Good — ◉ Good ○ Fair ○ Poor
10. Check Bearing Lube-Motor Top Good Bottom Good Pump Prelube NA — ◉ Good ○ Fair ○ Poor
11. Check Bearing Noise-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
12. Check Vibration-Motor Good Pump Good Right Angle Dr NA — ◉ Good ○ Fair ○ Poor
13. Check Discharge Head Packing Box Bearing- NA — ◉ Good ○ Fair ○ Poor
14. Check Discharge Line Check Valve- Good Pump Foot Valve Good — ◉ Good ○ Fair ○ Poor
15. Check Start/Stop Cycle- Good Air Relief/Vacuum Breaker Good — ◉ Good ○ Fair ○ Poor
16. Check Condition Of Water- Good — ◉ Good ○ Fair ○ Poor
17. Check Pumping Rate- 300 ◉ G.P.M. ○ C.F.P.M. Is The Pump Throttled? Yes — ◉ Good ○ Fair ○ Poor
18. Check Water Levels-Static 50' Pumping 58' Yield Good GPM Per Foot of Draw Down — ◉ Good ○ Fair ○ Poor

Comments:
This unit is operating properly at this time however, the pump has been in service for over 5 years.

Report By: Tim McCarthy

Shipper

VESSCO, INC.
8217 Upland Circle
Chanhassen, MN 55317-9626
USA

Phone (952) 941-2678
Fax (952) 941-0796

PACKING LIST

Order #	37503	*Job*	0000000
Invoice #	57873	*Shipped*	07/30/13
Cust PO #	GREG		

Ship Via WILL CALL

Shipping Instructions
STOCK

Consignee: (952) 657-1502

GREG
MAYER, CITY OF
CITY HALL
413 BLUEJAY AVENUE
MAYER, MN 55360

TAG: GREG

Ordered	Shipped	Bk/Ord	Unit	Item Num	Description	Lot #
1	1	0	each	7ML12011EF00	Probe,Loop,Kyn,NPT,CE97, 4-20 ma, 2"	

Packed By _____ *Date* _____

Carrier _____

ORDER COMPLETE

907.00 + TAX

APPENDIX 2

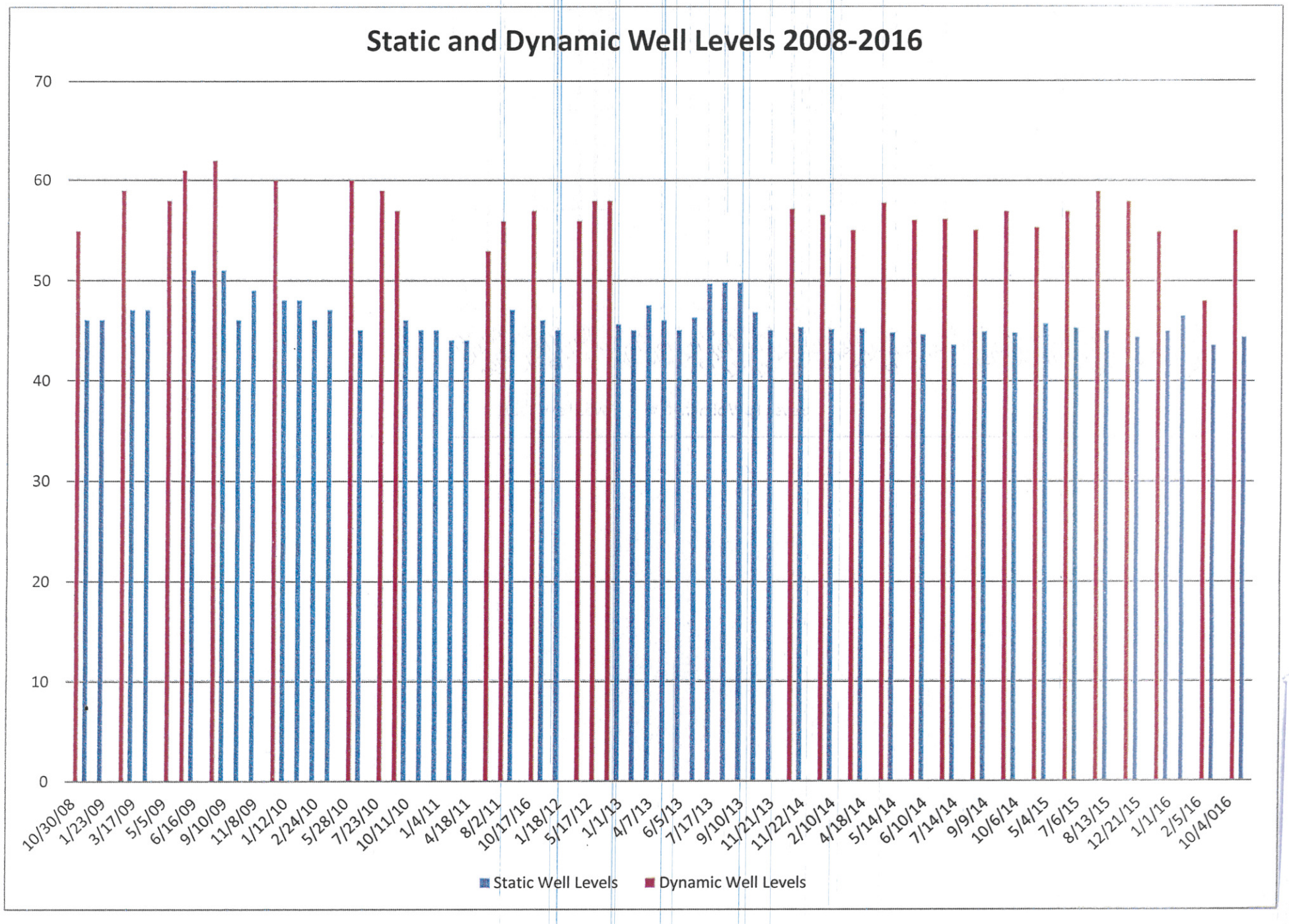
Observation Well Data Sheet

Site Name:	Unique Well Number:	Permit Number:
Well 2	665479	620705
Casing Diameter (inches):	Casing Above Ground (inches):	Well Depth (feet)
4	24.5	260
Operator:	Measuring Point (inches above ground):	
Kyle Kuntz	24.5 to top of plastic casing	

Measurement		Water Level		Water Level	Well Pump Running?	Pumping Rate	Msmt. Method
Date	Time	Feet	Inches	Decimal Feet			
6/28/15	7:00 PM	46	1	46.09	NO	NA	
11/8/07		46	0	46	NO	NA	
11/16/07		57	0	57	YES	300gpm	
2/6/08		45	0	45	NO	NA	
2/19/08		56	0	56	YES	300gpm	
4/4/08		56	0	56	YES	300gpm	
5/20/08		45	0	45	NO	NA	
6/24/08		47	0	47	NO	NA	
7/17/08		60	0	60	YES	300gpm	
8/19/08		49	0	49	NO	NA	
9/3/08		52	0	52	NO	NA	
9/11/08		46	0	46	NO	NA	
10/1/08		47	0	47	NO	NA	
10/24/08		46	0	46	NO	NA	
10/30/08		46	0	46	NO	NA	
10/30/08		55	0	55	YES	300gpm	
1/15/09		46	0	46	NO	NA	
1/23/09		46	0	46	NO	NA	
3/10/09		59	0	59	YES	300gpm	
3/17/09		47	0	47	NO	NA	
4/17/09		47	0	47	NO	NA	
5/5/09		58	0	58	YES	300gpm	
5/29/09		61	0	61	YES	300gpm	
6/16/09		51	0	51	NO	NA	
7/14/09		62	0	62	YES	300gpm	
9/10/09		51	0	51	NO	NA	
10/26/09		46	0	46	NO	NA	
11/8/09		49	0	49	NO	NA	
11/8/09		60	0	60	YES	300gpm	
1/12/10		48	0	48	NO	NA	
1/26/10		48	0	48	NO	NA	
2/24/10		46	0	46	NO	NA	

4/5/10		47	0	47	NO	NA	
5/28/10		60	0	60	YES	300gpm	
6/8/10		45	0	45	NO	NA	
7/23/10		59	0	59	YES	300gpm	
8/13/10		57	0	57	YES	300gpm	
10/11/10		46	0	46	NO	NA	
12/2/10		45	0	45	NO	NA	
1/4/11		45	0	45	NO	NA	
1/24/11		44	0	44	NO	NA	
4/18/11		44	0	44	NO	NA	
7/18/11		53	0	53	YES	300gpm	
8/2/11		56	0	56	YES	300gpm	
9/6/11		47	0	47	NO	NA	
10/17/16		57	0	57	YES	300gpm	
12/19/11		46	0	46	NO	NA	
1/18/12		45	0	45	NO	NA	
3/9/12		56	0	56	YES	300gpm	
5/17/12		58	0	58	YES	300gpm	
6/30/12		58	0	58	YES	300gpm	
1/1/13		45	6	45.6	NO	NA	
2/18/13		45	0	45	NO	NA	
4/7/13		47	5	47.5	NO	NA	
5/5/13		46	0	46	NO	NA	
6/5/13		45	0	45	NO	NA	
7/10/13		46	3	46.3	NO	NA	
7/17/13		49	7	49.7	NO	NA	
8/21/13		49	8	49.8	NO	NA	
9/10/13		49	8	49.8	NO	NA	
10/8/13		46	8	46.8	NO	NA	
11/21/13		45	0	45	NO	NA	
11/21/13		57	2	57.2	YES	300gpm	
11/22/14		45	3	45.3	NO	NA	
11/22/14		56	6	56.6	YES	300gpm	
2/10/14		45	10	45.1	NO	NA	
2/10/14		55	10	55.1	YES	300gpm	
4/18/14		45	2	45.2	NO	NA	
4/18/14		57	8	57.8	YES	NA	
5/14/14		44	8	44.8	NO	NA	
5/14/14		56	10	56.1	YES	300gpm	
6/10/14		44	6	44.6	NO	NA	
6/10/14		56	2	56.2	YES	300gpm	
7/14/14		43	6	43.6	NO	NA	
7/14/14		55	10	55.1	YES	300gpm	
9/9/14		44	9	44.9	NO	NA	
9/9/14		57	0	57	YES	300gpm	
10/6/14		44	8	44.8	NO	NA	
10/6/14		55	4	55.4	YES	300gpm	

5/4/15		45	7	45.7		NO	NA	
5/4/15		57	0	57		YES	300gpm	
7/6/15		45	3	45.3		NO	NA	
7/6/14		59	0	59		YES	300gpm	
8/13/15		45	0	45		NO	NA	
8/13/15		58	0	58		YES	300gpm	
12/21/15		44	4	44.4		NO	NA	
12/21/15		55	0	55		YES	300gpm	
1/1/16		45	0	45		NO	NA	
2/5/16		46	5	46.5		NO	NA	
2/5/16		48	0	48		YES	300gpm	
10/4/16		43	6	43.6		NO	NA	
10/4/016		55	10	55.1		YES	300gpm	
11/1/16		44	4	44.4		NO	NA	


Static and Dynamic Well Levels 2008-2016
70
60
50
40
30
20
10
0
10/30/08
1/23/09
3/17/09
5/5/09
6/16/09
9/10/09
11/8/09
1/12/10
2/24/10
5/28/10
7/23/10
10/11/10
1/4/11
4/18/11
8/2/11
10/17/16
1/18/12
5/17/12
1/1/13
4/7/13
6/5/13
7/17/13
9/10/13
11/21/13
11/22/14
2/10/14
4/18/14
5/14/14
6/10/14
7/14/14
9/9/14
10/6/14
5/4/15
7/6/15
8/13/15
12/21/15
1/1/16
2/5/16
10/4/016
Static Well Levels
Dynamic Well Levels

APPENDIX 3

2017 Capital Improvement Plan

Mayer Capital Improvement Plan-2017 (5 Year Plan)

Project	Year	Priority	Est. Cost	Cash Amount	Fund	Other $	Debt $	
Water Utility Projects								
								Population
Upgrade Well 1	2017	Medium	$ 30,000		Water		$ 30,000	
Well no. 3	2021	Medium	$ 400,000		Water	-	$ 400,000	2700-5000
Additional Water Treatment 500 gal	2022	Medium	$ 100,000				$ 100,000	2700-5000
Water Tower	2022	Medium	$ 1,200,000				$ 1,200,000	2700-5000
Subtotal Water Projects			*$ 1,730,000*	*$ -*	*$ -*	*$ -*	*$ 1,730,000*	
Sewer Utility Projects								
Slip Lining	2017	High	$ 60,000	$ 45,000	Sewer			
Slip Lining	2018	High	$ 60,000	$ 45,000	Sewer			
Slip Lining	2019	High	$ 60,000	$ 45,000	Sewer			
Enlargement of the Main	2021	High	$ 100,000		Developer	$ 100,000		2500
WWTF -Expansion	2021	Medium	$ 3,000,000		Sewer		$ 3,000,000	2500-.3800
Lift Station 4	2021	Low	$ 250,000	$ 50,000	Developer	$ 200,000		$ 2,500
Expansion of Lift Station 2	2022	Medium	$ 75,000		Developer	$ 75,000		2500-3800
Lift Station 3	2022	Medium	$ 250,000	$ 50,000	Developer	$ 200,000	$ -	$ 2,500
Subtotal Sewer Projects			*$ 3,855,000*	*$ 235,000*		*$ 575,000*		

APPENDIX 4

APPENDIX 5

City of Mayer Emergency Telephone List

Emergency Response Team	Name	Work Telephone	Alternate Telephone
Emergency Response Lead	Kyle Kuntz	952-657-1502	952-465-9805
Alternate Emergency Response Lead	Luayn Ruch-Hammond	952-657-1502	763-258-7435
Water Operator	Kyle Kuntz	952-657-1502	952-465-9805

State and Local Emergency Response Contacts	Name	Work Telephone	Alternate Telephone
State Incident Duty Officer	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
County Emergency Director	Deb Paige	952-361-1292	
National Guard	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
Mayor/Board Chair	Mike Dodge	952-215-2639	
Fire Chief	Rod Maetzold	952-657-2291	
Sheriff	Carver County	911	
Ambulance	Ridgeview	911	

State and Local Agencies	Name	Work Telephone	Alternate Telephone
MDH District Engineer	Amy Lynch	800-895-1999	
MDH	Drinking Water Protection	651-201-4700	
State Testing Laboratory	Minnesota Duty Officer	800/422-0798 Out State	651-649-5451 Metro
MPCA			
DNR Area Hydrologist	Jennie Skancke	651-259-5790	
County Water Planner			

Utilities	Name	Work Telephone	Alternate Telephone
Electric Company	Excel Energy	800-895-1999	
	Mc Cleod Coop Power	800-927-5685	
Gas Company	Center Point Energy	800-296-9815	
Telephone Company	Frontier Communications	800-921-8101	
Gopher State One Call	Utility Locations	800-252-1166	651-454-0002
Highway Department	Carver County Public Works	952-466-5277	

Mutual Aid Agreements	Name	Work Telephone	Alternate Telephone
Neighboring Water System	MN WARN	800-367-6792	
Emergency Water Connection	MN WARN	800-367-6792	
Materials	MN WARN	800-367-6792	

Technical/Contracted Services/Supplies	Name	Work Telephone	Alternate Telephone
MRWA Technical Services	MN Rural Water Association	800-367-6792	
Well Driller/Repair	Stodola	952-479-4377	
Pump Repair	Quality Flow	952-758-9445	651-434-5878
Electrician	A-1 Electric	952-442-5332	952-200-5641
Plumber	Overline & Sons	952-873-4330	612-554-5526
Backhoe	Widmer Construction	952-955-5062	
Chemical Feed	DPC	651-437-1333	
Meter Repair	HD Water Supply	952-937-9666	
Generator	Total Energy Systems	888-548-1400	612-503-6837
Valves			
Pipe & Fittings			
Water Storage	KLM Engineering	651-773-5111	
Laboratory	UC Labs		
Engineering firm	Bolton & Menk	952-448-8838	

APPENDIX 5

Communications	Name	Work Telephone	Alternate Telephone
News Paper	Herald Journal	320-485-2535	
Radio Station			
School Superintendent	Watertown/Mayer Schools	952-955-0480	
	Mayer Lutheran High	952-657-2251	
	Zion Lutheran School	952-657-2339	
Property & Casualty Insurance	League of MN Cities	651-281-1200	

Critical Water Users	Name	Work Telephone	Alternate Telephone
Public Shelter Critical Use	Mayer Elderly Apartments	952-955-1962	

APPENDIX 6

MINNESOTA WATER AGENCY RESPONSE NETWORK (MnWARN) MUTUAL AID AGREEMENT

This Minnesota Water Agency Response Network (MnWARN) Mutual Aid Agreement is made and entered into by the undersigned Parties.

WHEREAS, the Parties hereto are authorized by law or home rule charter to establish a water, wastewater or storm water utilitiy; and

WHEREAS, the Parties hereto have established a water, wastewater and/or storm water utility; and

WHEREAS, the Parties recognize that an Emergency may require Assistance in the form of personnel, equipment and supplies from a Utility outside the Governmental Unit; and

WHEREAS, the governing bodies of the Parties have investigated the facts and determined that it is in their best interests to authorize their Utilities to work cooperatively with another Party's Utilities when there is an Emergency; and

WHEREAS, Minnesota Statutes, Section 471.59 authorizes the Parties by agreement of their governing bodies to jointly or cooperatively exercise any power common to them.

NOW, THEREFORE, in consideration of the mutual covenants made herein, the Parties agree as follows:

ARTICLE I
PURPOSE

The Parties recognize that in an Emergency, their Utilities may require Assistance in the form of personnel, equipment and supplies from outside the area of impact. The purpose of this Agreement is to provide a framework, in the event of an Emergency, for the Parties to participate in an intrastate program for mutual aid assistance to provide water, wastewater and storm water utility services. The Parties authorize their Utilities to cooperatively assist other Party's Utilities when there is an Emergency, subject to the discretion of the Responding Party's Authorized Official as set forth in Article IV.

ARTICLE II
DEFINITIONS

A. Agreement — This Water Agency Response Network Mutual Aid Agreement.

B. Assistance — Resources, including but not limited to personnel, equipment, material and supplies that a Responding Party's Utility provides to a Receiving Party's Utility.

C. Authorized Official — An employee or official of a Party's Utility that is authorized by the Party's governing body to request Assistance or provide Assistance under this Agreement.

D. Emergency — Any occurrence that is, or is likely to be, beyond the control of the services, personnel, equipment or facilities of a Party's Utility.

E. Governmental Unit — A city, county or township in Minnesota or a city's public utilities commission.

F. MnWARN — The framework for public water, wastewater and storm water utilities in Minnesota to assist other public water, wastewater and storm water utilities when there is an Emergency that requires Assistance from another Utility. The framework includes this Agreement and other resources to be developed and coordinated by the Statewide Committee to implement the purpose of this Agreement.

G. National Incident Management System (NIMS) — A national, standardized approach to incident management and response that sets uniform processes and procedures for emergency response operations.

H. Party/Parties — One or more governmental units that has a water, wastewater or stormwater utility that executes this Agreement or adopts this Agreement by resolution pursuant to Article XIV.

I. Period of Assistance — The period of time when a Responding Party assists a Receiving Party. The period commences when personnel, equipment or supplies depart from a Responding Party's facility and ends when the resources return to their facility. All protections identified in the Agreement apply during this period. The Period of Assistance may occur during response to or recovery from an Emergency.

J. Receiving Party — A Party who requests and receives Assistance under this Agreement.

K. Responding Party — A Party that provides Assistance to another Party pursuant to this Agreement.

L. Statewide Committee — The committee responsible for overseeing MnWARN on a statewide level.

M. Steering Committee — The leadership group that established MnWARN and the development of this Agreement.

N. Utility/Utilities — A water, wastewater and/or storm water utility of a Party.

ARTICLE III
ADMINISTRATION

A. Statewide Committee.

1. Voting Members. MnWARN shall be administered through a Statewide Committee. The Statewide Committee shall be comprised of nine (9) voting members. The voting members of the Statewide Committee shall be comprised as follows: (i) an employee or official of a Utility located in Region 1 of the Minnesota Division of Homeland Security and Emergency Management Regions; (ii) an employee or official of a Utility located in Region 2 of the Minnesota Division of Homeland Security and Emergency Management Regions; (iii) an employee or official of a Utility located in Region 3 of the Minnesota Division of Homeland Security and Emergency Management Regions; (iv) an employee or official of a Utility located in Region 4 of the Minnesota Division of Homeland Security and Emergency Management Regions; (v) an employee or official of a Utility located in Region 5 of the Minnesota Division of Homeland Security and Emergency Management Regions; (vi) an employee or official of a Utility located in Region 6 of the Minnesota Division of Homeland Security and Emergency Management Regions; (vii) an employee or official of the Minnesota Rural Water Association; (viii) a representative from the Minnesota Section of the American Water Works Association; and (ix) a representative of the Minnesota Wastewater Operator's Association.

   a. Initial Voting Members. The initial voting members representing the six regions of the Minnesota Division of Homeland Security and Emergency Management Regions shall be selected by the Steering Committee. The other three voting members shall be selected by the organization they represent.

   b. Subsequent Voting Members. The appointment or election of subsequent voting members shall be done in accordance with bylaws to be adopted by the Statewide Committee.

   c. Terms. The terms of the voting members shall be established by the bylaws to be adopted by the Statewide Committee.

   d. Changes. The Statewide Committee may change the number or composition of the voting members in accordance with its bylaws.

2. Advisory Members. There shall be at least six (6) advisory members of the Statewide Committee who shall not be entitled to vote. The advisory member shall consist of a representative to be selected by each of the following organizations: (i) the Minnesota Pollution Control Agency; (ii) the Minnesota Department of Health; (iii) Minnesota Homeland Security and Emergency Management; (iv) the Association of Minnesota Emergency Managers; (v) the Minnesota Municipal Utilities Association; and (vi) the League of Minnesota Cities. The voting members of the Statewide Committee may change the number or composition of the advisory members in accordance with its bylaws. The terms of the advisory members shall be established by the bylaws of the Statewide Committee.

3. Officers. The Statewide Committee shall have the following officers: a Chair, a Vice-Chair and a Secretary. The initial officers shall be elected by the Statewide Committee at its first meeting. The terms of the initial officers and subsequently elected officers

shall be established by the bylaws of the Statewide Committee. The officers shall have the following powers:

a. Chair. The Chair shall have no more power than any other member of the Statewide Committee except that the Chair shall act as the presiding officer at all Statewide Committee meetings and may have other duties as assigned from time to time and prescribed by the Statewide Committee.

b. Vice-Chair. The Vice-Chair shall act as the presiding officer at any Statewide Committee meeting not attended by the Chair and shall perform the Chair's duties in the Chair's absence. The Vice-Chair may have other duties as assigned from time to time and prescribed by the Statewide Committee.

c. Secretary. The Secretary shall be responsible for ensuring that minutes are prepared for all Statewide Committee meetings. The Secretary shall also keep all books and records of the Statewide Committee and shall give all notices required by law, and may have other duties as assigned from time to time and prescribed by the Statewide Committee. The Statewide Committee may delegate all or part of the Secretary's duties required under this Section to another person; provided that such delegation shall not relieve the Secretary of ultimate responsibility for these duties

4. Powers. The Statewide Committee shall have the following powers:

a. To coordinate emergency planning and response activities of Utilities in coordination with the emergency management and public health system of the State;

b. To adopt policies and procedures to further the purpose of MnWARN;

c. To establish committees, including regional committees, to assist in implementing the purpose of MnWARN;

d. To develop a resource list of personnel, equipment, supplies and other resources that may be used to provide Assistance;

e. To establish a website to facilitate the Parties' use of MnWARN;

f. To develop protocols, forms or procedures for Parties to request assistance;

g. To develop educational materials; and

h. To develop training materials and conduct training for Parties.

5. Meetings. The Statewide Committee shall hold meetings as follows:

a. Organizational Meeting. An organizational meeting shall be held at a time and place to be determined by the Steering Committee.

b. Regular Meetings. Thereafter, the Statewide Committee shall meet at least annually. A schedule of regular meetings may be adopted by the Statewide

Committee at the organizational meeting. A schedule of regular meetings may be changed from time to time as deemed necessary by the Statewide Committee.

c. Special Meetings. Special meetings of the Statewide Committee may be called by the Chair and must be called by the Chair upon written request of two Statewide Committee members.

d. Quorum. The Statewide Committee shall not take official action unless a majority of the voting members are present in person or via electronic communication.

ARTICLE IV
REQUESTS FOR ASSISTANCE

A. Party Responsibility. The Parties shall identify an Authorized Official and one or more alternates; provide contact information including 24-hour access; and maintain the resource information required contained in the member information form to be developed by the Statewide Committee. The Parties shall update this information as required by the bylaws.

In the event of an Emergency, a Party's Authorized Official may request Assistance from a Party's Utility. The Authorized Official must specifically state that Assistance is being requested under MnWARN to activate the provisions of this Agreement. Requests for Assistance can be made orally or in writing. When made orally, the request for Assistance shall be prepared in writing as soon as practicable. Requests for Assistance shall be directed to the Authorized Official of a Party. Specific protocols for requesting Assistance shall be established by the Statewide Committee.

B. Response to a Request for Assistance. After a Party receives a request for Assistance, the Authorized Official should evaluate if resources are available to respond to the request for Assistance. Following the evaluation, the Responding Party's Authorized Official shall inform, as soon as possible, the Receiving Party's Authorized Official if it can provide Assistance. If Assistance is provided, the Responding Party shall inform the Receiving Party about the type of available resources and the approximate arrival time of such resources.

C. Discretion of Responding Party's Authorized Official. Adoption of this Agreement does not create any duty to provide Assistance. When a Party receives a request for Assistance, the Authorized Official shall have absolute discretion to provide Assistance or to not provide Assistance. A Party's decision to provide Assistance or not provide Assistance shall be final. No Party nor any employee or officer of any Party shall be liable to any other Party or to any person for failure of any Party to furnish Assistance or for recalling Assistance.

ARTICLE V
RESPONDING PARTY PERSONNEL

A. National Incident Management System (NIMS). When providing Assistance under this Agreement, the Requesting Party's Utility and the Responding Party's Utility shall be organized and function under NIMS.

B. Control. The personnel of a Responding Party providing Assistance shall be under the direction and control of the Receiving Party until the Responding Party's Authorized Official withdraws Assistance. The Receiving Party's Authorized Official shall coordinate response

activities with the Responding Party's Authorized Official. Whenever practical, Responding Party personnel should plan to be self sufficient for up to 72 hours.

C. Food and Shelter. The Receiving Party shall supply reasonable food and shelter for Responding Party personnel for Assistance that is provided for more than 72 hours. If the Receiving Party is unable to provide food and shelter for a Responding Party's personnel, the Responding Party's Authorized Official or designee is authorized to secure food and shelter for its personnel and shall be entitled to reimbursement for such expenses from the Receiving Party. Reimbursement for food and shelter shall reflect the actual costs incurred by the Responding Party. If receipts are not available, the Responding Party cannot request reimbursement in excess of the State per diem rates for that area.

D. Communication. The Receiving Party shall provide Responding Party personnel with radio equipment as available, or radio frequency information to program existing radios, in order to facilitate communication among personnel providing Assistance.

E. Status. Unless otherwise provided by law, the Responding Party's officers and employees retain the same privileges, immunities, rights, duties, and benefits as provided in their respective jurisdictions.

F. Licenses and Permits. To the extent permitted by law, Responding Party personnel who hold licenses, certificates, or permits evidencing professional, mechanical, or other skills shall be allowed to carry out activities and tasks relevant and related to their respective credentials during the Period of Assistance.

G. Right to Withdraw. The Responding Party's Authorized Official retains the right to withdraw some or all of its resources at any time. Notice of intention to withdraw must be communicated to the Receiving Party's Authorized Official as soon as possible.

ARTICLE VI
COST REIMBURSEMENT

Unless otherwise mutually agreed in whole or in part, the Receiving Party shall reimburse the Responding Party for each of the following categories of costs incurred while providing Assistance during the Period of Assistance.

A. Personnel. A Responding Party shall be reimbursed for its actual costs paid to personnel providing Assistance during the Period of Assistance. The Responding Party's designated supervisor(s) must keep accurate records of work performed by personnel during the Period of Assistance. Reimbursement to the Responding Party must consider all personnel costs, such as salaries or hourly wages, including overtime, and costs for fringe benefits and indirect costs.

B. Equipment. The Receiving Party shall reimburse the Responding Party for the use of equipment during a Period of Assistance pursuant to the Responding Party's rate schedule. If the Responding Party does not have a rate schedule, the rates for equipment use must be based on the Federal Emergency Management Agency's (FEMA) Schedule of Equipment Rates. If a Responding Party uses rates different from those in the FEMA Schedule of Equipment Rates, the Responding Party must provide such rates in writing to the Receiving Party prior to supplying Assistance. Reimbursement for equipment not referenced on a Party's rate schedule or the FEMA Schedule of Equipment Rates must be developed based on actual recovery of costs.

C. Materials and Supplies. The Receiving Party must reimburse the Responding Party in kind or at actual replacement cost, plus handling charges, for use of expendable or non-returnable supplies. The Responding Party must not charge direct fees or rental charges to the Receiving Party for other supplies and reusable items that are returned to the Responding Party in a clean, damage-free condition. Reusable supplies that are returned to the Responding Party with damage must be treated as expendable supplies for purposes of cost reimbursement.

D. Payment Period. The Responding Party must provide an itemized bill to the Receiving Party for all expenses it incurred as a result of providing Assistance under this Agreement. The Responding Party must send the itemized bill not later than ninety (90) days following the end of the Period of Assistance. The Receiving Party must pay the undisputed portion of the bill in full on or before the forty-fifth (45th) day following the billing date. Unpaid bills become delinquent upon the forty-sixth (46th) day following the billing date, and, once delinquent, the bill accrues interest at the standard rate of interest charged by the Responding Party for unpaid bills. If the Responding Party does not have a standard rate, the interest rate shall be the rate of prime, as reported by the *Wall Street Journal,* plus two percent (2%) per annum. Any undisputed amount must be resolved using the procedures set forth in Article VII.

ARTICLE VII
DISPUTES

The Parties agree to act in good faith to undertake resolution of disputes, in an equitable and timely manner and in accordance with the provisions of this Agreement. If disputes cannot be resolved informally by the Parties, the following procedures shall be used:

A. Mediation. If there is a failure between Parties to resolve a dispute on their own, the Parties shall first attempt to mediate the dispute. The Parties shall agree upon a mediator, or if they cannot agree, the Statewide Committee Chair shall select a mediator. If the Chair of the Statewide Committee, has a conflict of interest, the duty for selecting a mediator shall pass to the Vice-Chair.

B. Arbitration. If the dispute remains unresolved following mediation, the dispute shall be submitted to arbitration under the Uniform Arbitration Act, Minnesota Statutes, Sections 572.08-.30. If the Parties cannot agree on one or more arbitrators, the arbitrator(s) shall be selected using the same procedure set forth for selecting a mediator. The decision of the majority of the arbitrators shall not be binding upon the Parties. If the arbitration decision is not accepted, the Parties may pursue any other legal remedy to resolve the dispute.

ARTICLE VIII
RECEIVING PARTY'S DUTY TO INDEMNIFY

For the purposes Minnesota Municipal Tort Liability Act, Minnesota Statutes, Chapter 466, the employees and officers of the Responding Party are deemed to be employees (as defined in Minnesota Statutes, Section 466.01, subdivision 6) of the Receiving Party.

The Receiving Party shall defend, indemnify and hold harmless, the Responding Party, its officers, employees, volunteers and agents from all claims, loss, damage, injury, and liability of

C. Materials and Supplies. The Receiving Party must reimburse the Responding Party in kind or at actual replacement cost, plus handling charges, for use of expendable or non-returnable supplies. The Responding Party must not charge direct fees or rental charges to the Receiving Party for other supplies and reusable items that are returned to the Responding Party in a clean, damage-free condition. Reusable supplies that are returned to the Responding Party with damage must be treated as expendable supplies for purposes of cost reimbursement.

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The Receiving Party shall defend, indemnify and hold harmless, the Responding Party, its officers, employees, volunteers and agents from all claims, loss, damage, injury, and liability of

every kind, nature, and description, directly or indirectly arising from the Responding Party's Assistance during the Period of Assistance. The scope of the Receiving Party's duty to indemnify includes, but is not limited to, suits arising from, or related to, negligent or wrongful use of equipment or supplies on loan to the Receiving Party, or faulty workmanship or other negligent acts, errors, or omissions by the Responding Party personnel. The Receiving Party shall not be required to defend and indemnify the Responding Party for any willful or wanton misconduct of the Responding Party or its officer, employees, volunteers or agents. Under no circumstances, however, shall a party be required to pay on behalf of itself and other parties, any amounts in excess of the limits of liability established in Minnesota Statutes, Chapter 466 applicable to any one party. The intent of this article is to impose on each Receiving Party a limited duty to defend and indemnify a Responding Party for claims arising within the Receiving Party's jurisdiction subject to the limits of liability under Minnesota Statutes, Chapter 466. The purpose of creating this duty to defend and indemnify is to simplify the defense of claims by eliminating conflicts among defendants and to permit liability claims against multiple defendants from a single occurrence to be defended by a single attorney.

The Receiving Party's duty to indemnify is subject to, and shall be applied consistent with, the conditions set forth in Article X.

ARTICLE IX
DAMAGE TO EQUIPMENT

Each Party shall be responsible for damages to or loss of its own equipment. Each Party waives the right to sue any other Party for any damages to or loss of its equipment, even if the damages or losses were caused wholly or partially by the negligence of any other Party or its officers, employees, or volunteers.

ARTICLE X
WORKERS' COMPENSATION

Each Party shall be responsible for injuries or death of its own personnel. Each Party will maintain workers' compensation insurance or self-insurance coverage, covering its personnel while they are providing Assistance pursuant to this Agreement. Each Party waives the right to sue another Party for any workers' compensation benefits paid to its own personnel while they are providing Assistance pursuant to this Agreement. Each Party waives the right to sue another Party for any workers' compensation benefits paid to its own employee or volunteer or their dependents, even if the injuries were caused wholly or partially by the negligence of another Party or its officers, employees or volunteers.

ARTICLE XI
INSURANCE

Parties to this Agreement shall maintain the following liability coverages: (1) commercial general liability; and (2) automobile liability, including owned, hired, and non-owned automobiles. Each policy shall have a limit at least equal to the maximum municipal liability limit in Section 466.04, subd. 1. If the policy contains a general aggregate limit, the general aggregate limit shall not be less than double the maximum municipal liability limit in Section 466.04, subd. 1.

ARTICLE XII
WITHDRAWAL

A Party may withdraw from this Agreement by providing written notice of its intent to withdraw to the Statewide Committee Secretary. Withdrawal takes effect 60 days after notice is sent.

ARTICLE XIII
INTRASTATE AND INTERSTATE MUTUAL AID AND ASSISTANCE PROGRAMS

To the extent practicable, Parties to this Agreement are encouraged to participate in mutual aid and assistance activities conducted under the State of Minnesota Intrastate Mutual Aid and Assistance Program and the Interstate Emergency Management Assistance Compact (EMAC). Parties may voluntarily agree to participate in an interstate Mutual Aid and Assistance Program for Utilities through this Agreement if such a Program were established.

ARTICLE XIV
NEW MEMBERS

Other Governmental Units may be added to this Agreement upon approval of their governing body as evidenced by adoption of the resolution attached as Exhibit I to this Agreement and execution by the Governmental Unit's authorized representatives. A Governmental Unit shall not become a Party to this Agreement until a certified copy of the resolution is received by the Statewide Committee Secretary. The Statewide Committee Secretary shall maintain a master list of all Parties to this Agreement.

ARTICLE XV
GENERAL PROVISIONS
MODIFICATION

A. Modification. No provision of this Agreement may be modified, altered or rescinded by individual parties to the Agreement. Modifications to this Agreement may be due to programmatic operational changes to support the Agreement. Modifications require a simple majority vote of the Parties to this Agreement. The Statewide Committee Secretary shall provide written notice to all Parties of approved modifications to this Agreement. Approved modifications take effect 60 days after the date upon which notice is sent to the Parties.

B. Signatory Indemnification. In the event of a liability, claim, demand, action or proceeding of whatever kind or nature arising out of a Period of Assistance, the Parties who receive and provide Assistance shall indemnify and hold harmless those Parties whose involvement in the transaction or occurrence that is the subject of such claim, action, demand or other proceeding is limited to execution of this Agreement.

C. Prohibition on Third Parties and Assignment of Rights/Duties. This Agreement is for the sole benefit of the Parties and no person or entity shall have any rights under this Agreement as a third-party beneficiary. Assignments of benefits and delegations of duties created by this Agreement are prohibited and are without effect.

D. Notice. A Party who becomes aware of a claim or suit that in any way, directly or indirectly, contingently or otherwise, affects or might affect other Parties to this Agreement shall

provide prompt and timely notice to the Parties who may be affected by the suit or claim. Each Party reserves the right to participate in the defense of such claims or suits as necessary to protect its own interests.

E. Effective Date. This Agreement shall be effective after approval by the Parties' governing body and execution by the Parties' authorized representatives.

F. Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of Minnesota.

G. Captions. Article and section headings contained in this Agreement are included for convenience only and form no part of the Agreement among the Parties.

H. Waivers. The waiver by a Party of any breach or failure to comply with any provision of this Agreement by another Party shall not be construed as, or constitute a continuing waiver of such provision or a waiver of any other breach of or failure to comply with any other provision of this Agreement.

I. Counterparts. This Agreement may be executed in several counterparts, each of which shall be an original, all of which shall constitute but one and the same instrument.

J. Savings Clause. If any court finds any article, section or portion of this Agreement to be contrary to law or invalid, the remainder of the Agreement will remain in full force and effect.

IN WITNESS WHEREOF, the Parties, by action of their respective governing bodies, caused this Agreement to be approved on the dates below.

City of Mayer, **Minnesota**

The City Council of Mayer, Minnesota duly approved this Agreement on the 23rd day of November, 2009

By: Chris Capser
Its Mayor

And: Jodi A Meeker
Its Clerk

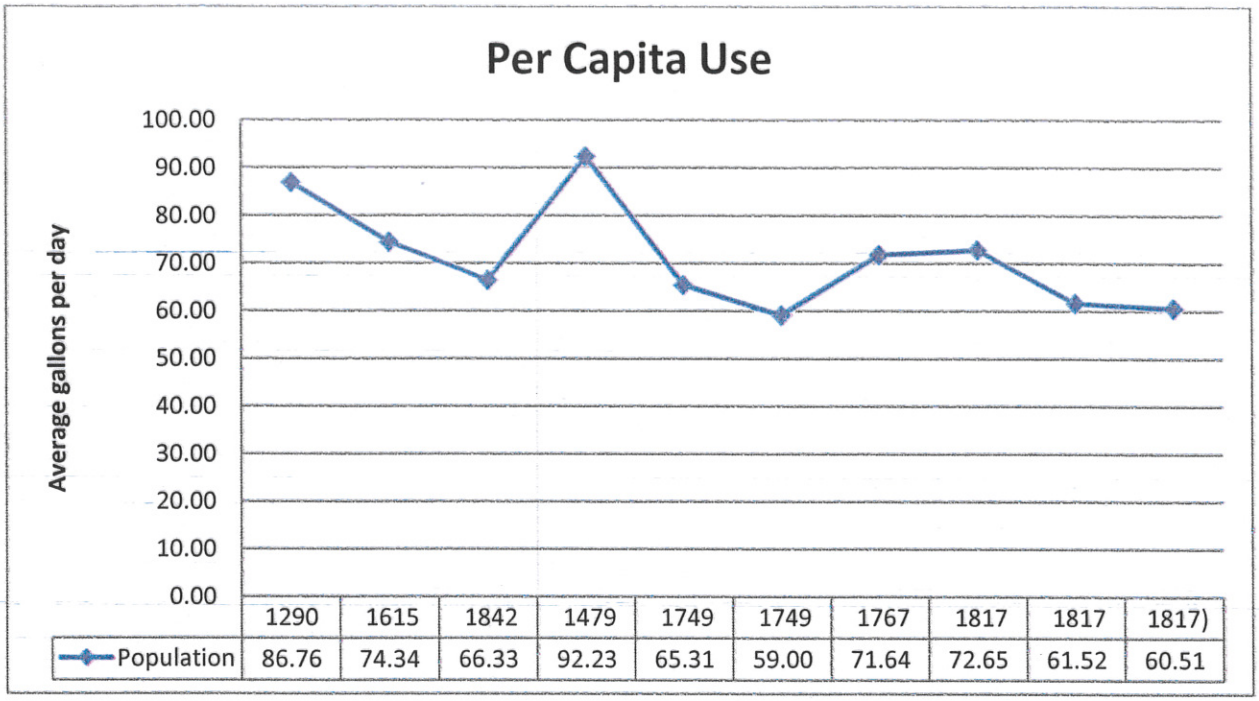
APPENDIX 7 Restricted Water Use

§ 52.06 RESTRICTED USE PERIODS.

Whenever the Council determines that a shortage of water threatens the city water supply, it may, by resolution, limit the times and hours during which city water may be used for sprinkling, air conditioning, irrigation, car washing and other specified uses. After publication of the resolution, or delivery to the affected premises, or three days after mailing the resolution to the affected customer, no person shall use or permit water to be used in violation of the restrictions imposed in the resolution. Any person who does so may be charged an excess use charge, as the Council may determine by resolution. Continued violation shall be cause for discontinuance of water service in accordance with the procedures specified for discontinuance of service for a leak found upon the customer's premises.

('82 Code, § 3.216)

APPENDIX 8 Total Per Capita Use



	1290	1615	1842	1479	1749	1749	1767	1817	1817	1817)
Population	86.76	74.34	66.33	92.23	65.31	59.00	71.64	72.65	61.52	60.51

APPENDIX 9 Rate Structure

Monthly Use Fees	Water = No Gallon Base	$10.90
	Water = 0 -6,000 gallons	$4.67
	6,001-15,000	$5.40
	15,001-20,000	$6.36
	20,001 and above	$8.61

APPENDIX 10 Adopted Regulations

RESOLUTION NO.4-14-2008-6

WATERING CONSERVATION

WHEREAS, the Mayer Public Utilities municipal water supply system may reach critical levels due to summer peak usage; and

WHEREAS, a possibility of water shortage is made more critical by hot and dry weather conditions; and

WHEREAS, it has been determined that a watering ban must be implemented in order to assure the safety and well being of the residents of the City of Mayer.

NOW THEREFORE, BE IT RESOLVED, that the City Council of the City of Mayer hereby establishes restrictions for all residential, commercial and industrial users of the Utilities water system;

1. Public Works Director is authorized to implement emergency reduction measures at such a time as water supply demands exceeds supply capabilities or reserve capacities are insufficient to protect the community. Emergency reduction measure may include, but not be limited to, reduction in the time of day conservation measures up to and including a compete ban of outdoor water use. Notice of such emergency reduction measures may be given by publication in the Carver County News, posting, mail, hand delivered pamphlet or city wide mailing.
2. Residents with an odd house number shall water lawns when necessary only on odd-numbered calendar days, and those with even-numbered addresses shall water lawns only on even-numbered days.
3. NO Watering using the public water supply or a private well water source between the hours of 9:00 AM to 5:00 PM.
4. Exceptions:
    a. May be granted for recently established lawns. Those lawns may be watered daily for up to one month after installation, but only during the hours listed above.
    b. Hoses that are hand held by a person are also exempt.
    c. Water toys or sprinklers that are used for children at play, provided children are present and actively playing.
    d. Upon written request and approval of the City Council a special permit maybe to any public, commercial or private enterprise to allow more frequent watering to assure the well being and safety of the participants wherein lawn, grass or turf is used for a play field.
5. In extreme emergency cases, the Public Works Director shall have the authority to issue a total watering ban until such time that the emergency situation ceases to exist.
6. The penalty for violating the Utilities watering ban shall be a warning for the first day of the violation, a $50.00 per day fine for the second violation, and a $50.00 per day fine for the third violation.
7. All violations on record at the same location will be forgiven after a period of three years, has passed since the most recent violation.

Adopted by the City Council of the City of Mayer, this 14th of April, 2008.

Chris Capaul

Chris Capaul, Mayor

ATTEST:

Lois A Maetzold

Lois Maetzold , City Clerk

LANDSCAPING.

(A) *Intent*. It is the policy of the city to preserve its significant natural resources as a complement to existing and future development. In particular, wetlands and drainageways shall be preserved in their natural state for their functional and ecological value as well as for their positive impact upon proximate urban development.

(1) Development within woodland areas may be permitted but, as far as practical, retention of substantial tree stands shall be encouraged and incorporated into the required landscape plan.

(2) In addition to preservation of existing woodland areas, the city shall require significant landscaping/planting in open or disturbed areas as a normal part of land development. Specific requirements shall be set forth in this section.

(B) *Landscape plan required*. In every case where landscaping is required by provision of this chapter or by an approval granted by the city, for a building or structure to be constructed on any property, the applicant for the building permit shall submit a landscape plan prepared by a registered landscape architect, in accordance with the provisions of this section. The landscape plan shall include the following information:

(1) *General*. Name and address of developer/owner; name and address of landscape architect; date of plan preparation; date and description of all revisions; name of project or development.

(2) *Site plan*. A scale drawing of the site based upon a survey of property lines with indication of scale and north point; name and right-of-way of proposed and existing streets; location of all proposed utility easements and rights-of-way; location of existing and proposed buildings; parking areas; water bodies; proposed sidewalks; percent of site covered by impervious surface.

(3) *Landscape plan*. A scale drawing of proposed landscaping for the site based upon a survey of property lines with indication of scale and north point; existing and proposed topographic contours at two-foot contour intervals; details of proposed planting beds and foundation plantings; location and identification of all planting (trees, shrubs, flowers, ground cover, and the like); details of fences, tie walls planting boxes, retaining walls, tot lots, picnic areas, berms, and other landscape improvements, location of landscape islands and planter beds with identification of plant materials used; and location and details of irrigation systems.

(4) *Planting schedule*. A table containing the common names and botanical names, size of plant materials, root specifications, quantities, and special planting instructions.

(C) *General requirements*.

(1) *Landscape requirements applicable to all districts*.

(a) Unless otherwise directed by the Planning Commission, all plantings shall be placed on the private property on which the development is taking place.

(b) All areas not otherwise improved in accordance with approved site plans or subdivisions shall be sodded, seeded, or otherwise established with vegetation approved by the city, and maintained in accordance with this division (C), unless otherwise stated in this section. All front yards, rear yards, and side yards shall be sodded or seeded over a minimum of four inches of black dirt, such sodding or seeding to be completed no later than six months from the date of issuance of a certificate of occupancy. Developed properties for which a certificate of occupancy has been issued prior to the effective date of this chapter shall be sodded or seeded in conformance with the above requirements within six months of the date of issuance of the certificate or within 90 days of the effective date of this chapter, whichever is later. Grass, sod and seed shall be clean and free of noxious weeds and pests or diseases and shall be of a species normally grown as permanent lawns and suitable to this climate.

(c) Off-street parking and loading areas shall be screened from public streets which afford an unobstructed view of the parking or loading area, and from adjacent properties zoned or developed for

residential or public use with shrubbery. Height of screening shall be at least three and one-half feet but no more than five feet above the level of the parking lot. Spacing of shrubbery shall be no more than ten feet.

(d) One landscaped island shall be required for every 12 uninterrupted parking stalls.

(e) Plant materials shall be provided for in each landscaped island at the discretion of the Planning Commission.

(f) The owner shall provide the city with cash, corporate surety bond, approved letter of credit or other surety or security satisfactory to the city to guarantee the proper installation and growth of the approved landscape plan. The security shall be furnished by the owner of the property prior to obtaining a building permit that is equal to the amount of the required landscaping to be installed, unless specified otherwise in this section. The security shall be held by the city and must cover one full calendar year subsequent to the installation of the landscaping and must be conditioned upon complete and satisfactory implementation of the approved landscape plan.

(2) *R-1 (Low-Density Residential) and R-2 (Medium-Density Residential).*

(a) Each platted lot shall have two over-story trees per street frontage, located in the front yard, and when required, the side-street yard.

(b) For all R-1 and R-2 lots, the front and side yard shall be fully sodded. The back yard shall be sodded to a distance of 50 feet from the rear of the house. All remaining unsodded areas shall be seeded with grass seed appropriate to the climate area.

(c) A landscape escrow shall be secured on all residential lots at the time the building permit is issued to assure completion of landscaping requirements. The amount of the escrow shall be established from time to time by City Council resolution. The escrow shall be released when landscaping improvements have been completed as required in this section. If any portion of the landscaping is not completed within the timeframe required above, the city may cause such landscaping to be completed and draw upon the landscaping escrow deposit for the cost of completion. The owner of the property or lot shall be given notice by certified mail that the city plans to proceed with completion of the landscaping improvements at least ten days prior to the commencement of work. The city, its employees, agents or contractors shall have the right to go upon the property to complete the landscaping improvements without permission of the owner of the property or lot, and shall not be liable for trespass.

(3) *R-3 (Multiple-Family Residential).*

(a) One over-story tree for every 40 feet of street frontage.

(b) One landscape planting for every two dwelling units.

(c) One foundation planting for every ten feet of street-facing building frontage.

(4) *PRD (Planned Residential Development).* At a minimum, the landscaping for PRD Districts shall follow the respective land-use guidelines. In other words, if the PUD contains uses consistent with R-1, R-2 or R-3 uses, the landscaping requirements applicable to those districts shall apply to the PUD. However, additional landscape requirements may be requested at the discretion of the Planning Commission.

(5) *C-1 (General Commerce) and C/I (Commercial/Industrial District).*

(a) One over-story tree for every 40 feet of street frontage.

(b) One over-story tree for every 60 feet of non-street fronting lot perimeter.

(c) One foundation planting for every ten feet of street-facing building frontage.

(6) *C-2 (Central Business District).*

(a) One tree for every 1,000 square feet of total building area. If landscaping can not be accommodated on site the plantings shall be placed in a city park or city right-of-way. Placement of such landscaping shall be approved by the City Council.

(D) *Minimum standards.*

(1) *Over-story trees.*

(a) *Deciduous trees.* Two-and-one-half inch caliper planting size.

(b) *Coniferous trees.* Six feet in height planting size.

(2) *Foundation plantings.* Five-gallon minimum per planting.

(3) *Front yard trees.* All front yard trees shall be hardwood shade trees or flowering trees.

(4) *Over-story mix.* When multiple quantities of over-story trees are required, at least 75% of the trees required shall be deciduous trees.

(5) *Hardiness.* All landscape materials proposed shall be consistent with Minnesota hardiness zones, whether indigenous or foreign. Plant species must also be tolerant to snow storage, exposure to salt and sun scald in parking areas.

(6) *Diversification.* In any development in which at least eight over-story trees or foundation plantings are required, at least three varieties of plantings are required. In residential subdivisions, at least three varieties of boulevard trees are required on each side of a block.

(7) *Warranty.* All required landscape materials shall be warranted for growth for a minimum of two years after planting.

(Ord. 102, passed 7-9-01; Am. Ord. 102-E, passed 6-14-04; Am. Ord. 102-K, passed 2-14-05)

6 RESTRICTED USE PERIODS.

Whenever the Council determines that a shortage of water threatens the city water supply, it may, by resolution, limit the times and hours during which city water may be used for sprinkling, air conditioning, irrigation, car washing and other specified uses. After publication of the resolution, or delivery to the affected premises, or three days after mailing the resolution to the affected customer, no person shall use or permit water to be used in violation of the restrictions imposed in the resolution. Any person who does so may be charged an excess use charge, as the Council may determine by resolution. Continued violation shall be cause for discontinuance of water service in accordance with the procedures specified for discontinuance of service for a leak found upon the customer's premises.

('82 Code, § 3.216)

Appendix 11

Implemenation Checklist

Activity Implemented	Activty or Action	Timeframe
Actions to reduce residental per capita demand		
X	Make water system improvements	Ongoing
X	Continue to partner with Carver County Water Management Organization on water education and promotion of rain gardens and rain barrells.	Ongoing
Actions to reduce total water demand		
X	Prepare a Comprehensive Plant for smart growth	2018
	Part of the Comprehensive Plan to plan for green spaces and parks	Ongoing
X	Implement water conservation program	Ongoing

Year	Pop. Served	Total Connections	Residential Water Delivered (MG)	C/I/I Water Delivered (MG)	Water used for Non-essential	Wholesale Deliveries (MG)	Total Water Delivered (MG)	Total Water Pumped (MG)	Water Supplier Services	Percent Unmetered/ Unaccounted	Average Daily Demand (MGD)	Max. Daily Demand (MGD)	Date of Max. Demand	Residential Per Capita Demand (GPCD)	Total per capita Demand (GPCD)
2005	**1000**	**514**	**32.61**	**1.98**			**35.25**	**41**		**13.47%**	**0.112**	**0.299**		**89.34**	**82.11**
2006	1290	590	37.83	2.91			40.85	51.5		20.68%	0.111	0.447	12-Jul	86.76	86.76
2007	1615	623	43.82	2.987			46.8	51.54		9.18%	0.128	0.582	11-Mar	74.34	79.41
2008	1615	648	44.59	2.497			47.09	48.45		2.80%	0.129	0.403	6-Jul	66.33	70.04
2009	1615	797	49.78	1.946			51.73	52.34		1.17%	0.141	0.35	31-May	92.23	95.83
2010	1749	797	41.69	2.031			43.72	47.11		7.19%	0.119	0.32	31-May	65.31	68.49
2011	1749	647	37.66	2.759			40.42	48.45		16.57%	0.11	0.273	6-Jul	59	63.32
2012	1767	644	46.2	1.986			48.54	50.7		4.27%	0.132	0.356	15-Jul	71.64	75.26
2013	1767	692	47.03	2.121			50.3	52.15		3.55%	0.11	0.387	20-Jul	70.91	75.85
2014	1817	694	43.01	2.214			46.37	50.79		8.69%	0.105	0.295	7-Aug	64.86	69.93
2015	1817	711	41.09	2.11			44.2	55.56		20.46%	0.114	0.312	20-Jul	61.96	63.15
Avg. 2010-2015	**1786**	**698**	**42.78**	**2.203**			**45.59**	**50.79**		**10.24%**	**0.11**	**0.323**		**65.61**	**69.33**

Table 10. Natural resource impacts (*List specific resources in Appendix 12)

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
✕ **River or stream**	**Crow River**	× **None anticipated** ✕ **Flow/water level decline** ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ✕ **Monitoring** ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☐ Other: _____	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ✕ **No data available** ☐ Other: _____	☐Not applicable ✕ **Change groundwater pumping** ✕ **Increase conservation** ☐ Other: _____	✕ **Not applicable** ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ – ☐ Other: _____

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
☐ Calcareous fen **N/A**		☐ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed Report ☐Proximity (<5 miles) ☐ Other: _____ ☐ Other: ___	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☐Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
✕ **Lake**	**Berliner Lake**	× **None anticipated** ✕ **Flow/water level decline** ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ✕ **Monitoring** ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☐ Other: _____ ☐ Other: ___	✕ **Not applicable** ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ✕ **Change groundwater pumping** ✕ **Increase conservation** ☐ Other: _____	✕**Not applicable** ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
☐ Wetland **N/A**		☐ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (<1.5 miles) ☐ Other: _____	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☐Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
☐ Trout stream **N/A**		☐ None anticipated ☐ Flow/water level decline ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ☐ Monitoring ☐ Aquifer testing ☐WRAPS or other watershed report ☐Proximity (< 5 miles) ☐ Other: _____	☐ Not applicable ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ☐ Change groundwater pumping ☐ Increase conservation ☐ Other: _____	☐Not applicable ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

Resource Type	Resource Name	Risk	Risk Assessed Through *	Describe Resource Protection Threshold or Goal *	Mitigation Measures or Management Plan	Describe How Thresholds or Goals are Monitored
✕ **Aquifer**	**Jordan Sandstone**	✕ **None anticipated** ✕ **Flow/water level decline** ☐ Degrading water quality trends ☐ Impacts on endangered, threatened, or special concern species habitat ☐ Other: _____	☐ Geologic atlas or other mapping ☐ Modeling ✕ **Monitoring** ☐ Aquifer testing ☐Proximity (obwell < 5 miles) ☐ Other: _____	✕ **Not applicable** ☐ Additional data is needed to establish ☐ See report: _____ ☐ Other: _____	☐Not applicable ✕ **Change groundwater pumping** ✕**Increase conservation** ☐ Other: _____	✕**Not applicable** ☐ Newly collected data will be analyzed ☐ Regular check-in with these partners: _____ ☐ Other: _____

Table 18 Corrections-Mayer Water Supply Plan

Allocation and Demand Reduction Procedures

Complete Table 18 by adding information about how decisions will be made to allocate water and reduce demand during an emergency. Provide information for each customer category, including its priority ranking, average day demand, and demand reduction potential for each customer category. Modify the customer categories as needed, and add additional lines if necessary.

Water use categories should be prioritized in a way that is consistent with Minnesota Statutes 103G.261 (#1 is highest priority) as follows:

1. Water use for human needs such as cooking, cleaning, drinking, washing and waste disposal; use for on-farm livestock watering; and use for power production that meets contingency requirements.
2. Water use involving consumption of less than 10,000 gallons per day (usually from private wells or surface water intakes)
3. Water use for agricultural irrigation and processing of agricultural products involving consumption of more than 10,000 gallons per day (usually from private high-capacity wells or surface water intakes)
4. Water use for power production above the use provided for in the contingency plan.
5. All other water use involving consumption of more than 10,000 gallons per day.
6. Nonessential uses – car washes, golf courses, etc.

Water used for human needs at hospitals, nursing homes and similar types of facilities should be designated as a high priority to be maintained in an emergency. Lower priority uses will need to address water used for human needs at other types of facilities such as hotels, office buildings, and manufacturing plants. The volume of water and other types of water uses at these facilities must be carefully considered. After reviewing the data, common sense should dictate local allocation priorities to protect domestic requirements over certain types of economic needs. Water use for lawn sprinkling, vehicle washing, golf courses, and recreation are legislatively considered non-essential.

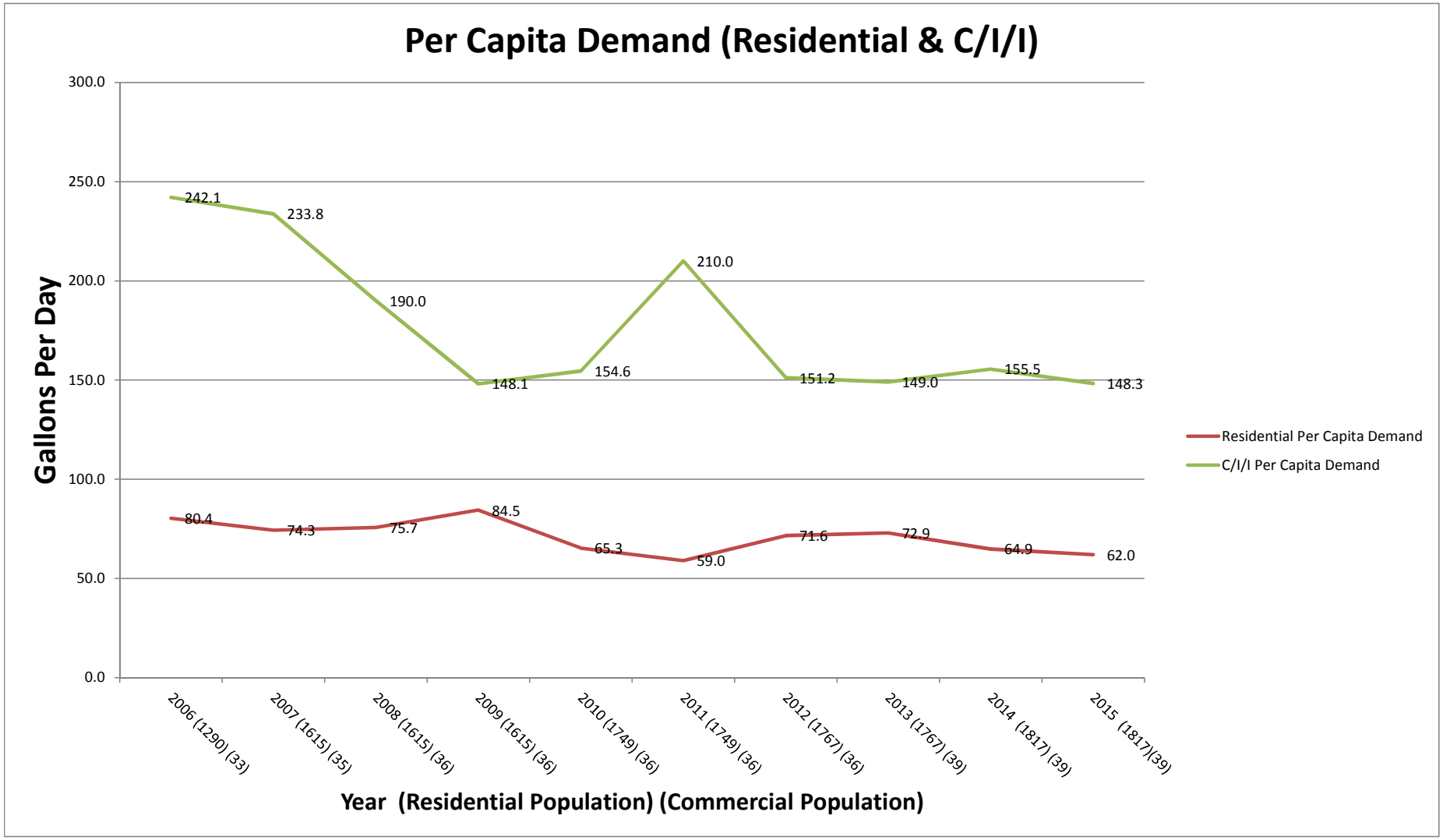
Table 18. Water use priorities

Customer Category	Allocation Priority	Average Daily Demand (GDP)	Short-Term Emergency Demand Reduction Potential (GPD)
Residential	1	110,000	30,000
Institutional	1	10,000	2,000
Commercial	1	10,000	2,000
Residential Irrigation	6	20,000	20,000
Carwash	6	2,000	2,000
TOTAL	15	152,000	56,000

GPD – Gallons per Day

Tip: Calculating Emergency Demand Reduction Potential

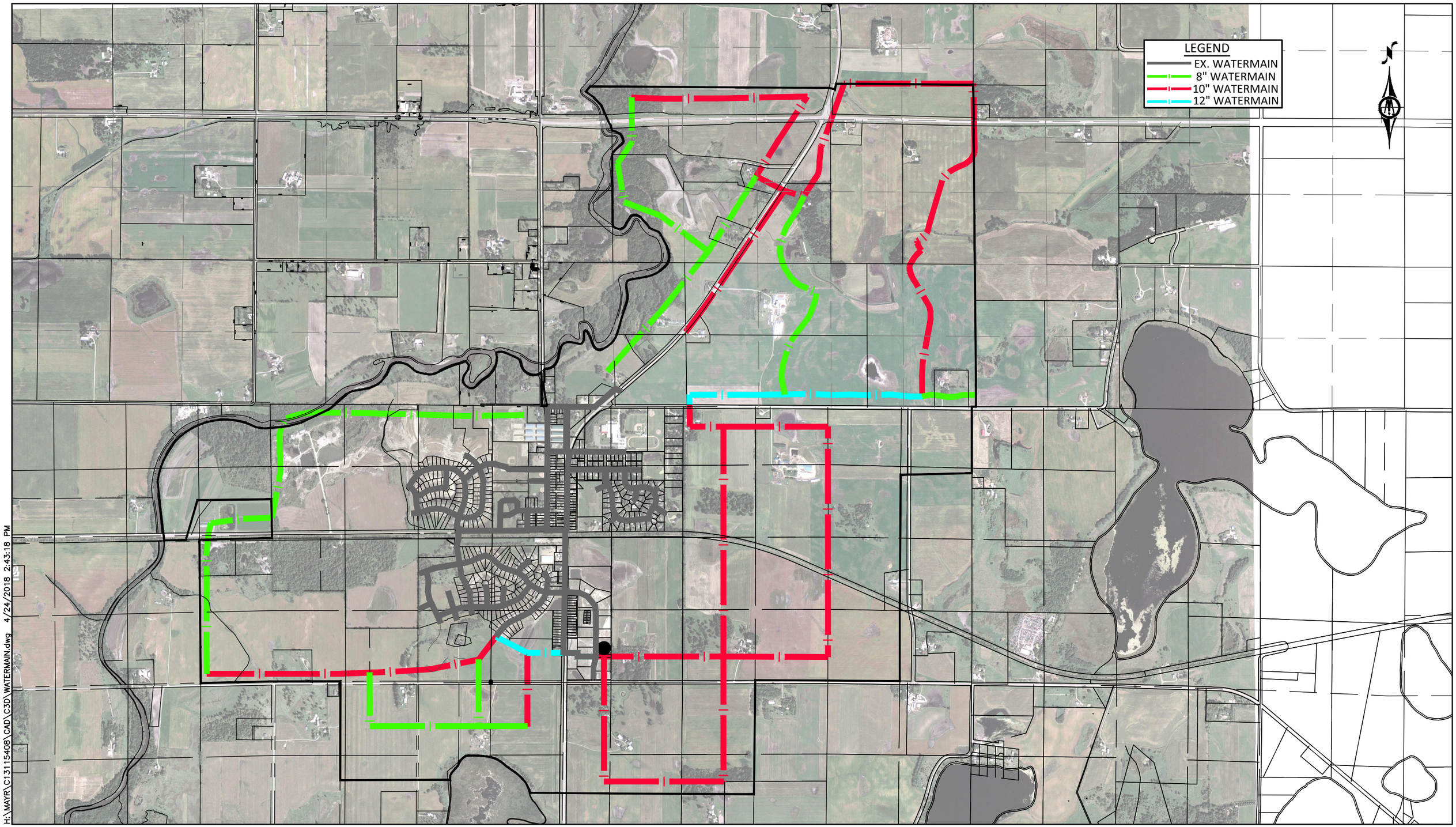
The emergency demand reduction potential for all uses will typically equal the difference between maximum use (summer demand) and base use (winter demand). In extreme emergency situations, lower priority water uses must be restricted or eliminated to protect priority domestic water requirements. Emergency demand reduction potential should be based on average day demands for customer categories within each priority class. Use the tables in Part 3 on water conservation to help you determine strategies.


Per Capita Demand (Residential & C/I/I)
Gallons Per Day
300.0
250.0
200.0
150.0
100.0
50.0
0.0
242.1
233.8
190.0
148.1
154.6
210.0
151.2
149.0
155.5
148.3
80.4
74.3
75.7
84.5
65.3
59.0
71.6
72.9
64.9
62.0
2006 (1290) (33)
2007 (1615) (35)
2008 (1615) (36)
2009 (1615) (36)
2010 (1749) (36)
2011 (1749) (36)
2012 (1767) (36)
2013 (1767) (39)
2014 (1817) (39)
2015 (1817)(39)
Year (Residential Population) (Commercial Population)
Residential Per Capita Demand
C/I/I Per Capita Demand

PROPOSED WATER SERVICE WATER AREAS

Figure 1

BOLTON & MENK



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CHAPTER 5 - PARKS, TRAILS & RECREATION

I. INTRODUCTION AND PURPOSE

Located in the north central part of Carver County, Mayer has amenities such as the Dakota Rail Regional trail, and numerous city parks that provide the residents with opportunities for park and trail uses. Natural features such as the South Fork of the Crow River and protected waters within the growth area will also provide additional park opportunities in the future. This Chapter is intended to provide information for additional development of the existing parks and trails as well as plan for the future parks and trails system by designating future parks areas as well as trail connections. The unofficial standard is

The City of Mayer, at the time of this Comprehensive Plan update, has five (5) City owned parks that total approximately 44.8 acres, a regional trail that runs through the City consisting of 22.5 acres, as well as numerous properties that are utilized for open space or are restricted for development such as wetlands and stormwater ponds. The open space and restricted for development parcels accounted for approximately 35.9 acres. Between the parks, regional trail and open space/restricted development properties, a total of approximately 103.2 acres of the City's 799.8 acres or 12.9% of the City's total acreage consist of parks, trails and open space. In addition, there are other school owned facilities which add to the quality of life in the area.

The Nationals Recreation and Park Association (NRPA) has used a national standard of ten acres of parkland for every 1,000 residents since 1981, but has acknowledged that in today's recreation and open space environment that more parkland is typically needed. Using the most recent population estimate for Mayer in 2014, which was 1,829 residents, only 18.29 acres of park land would be required using the NRPA standard. As you can see, Mayer has significantly more parkland than the NRPA standard.

The City's residents and businesses identify parks, trails and recreational facilities as an important part of the quality of life in Mayer. Recreation is viewed as an integral part of life, providing a necessary and satisfying change from the things we usually do and the places where we spend most of our time.

A community survey, comments from City staff, and the Park and Recreation underscore the importance of creating and sustaining parks, trails and recreational facilities.

The purpose of this Chapter is to provide a proactive means to plan for parks, trails and preservation of natural resources. It is intended to:

- Serve as a guide for the development of new parks as annexation occurs as well as redevelopment of existing park;
- Assist staff, the Planning Commission and City Council in budgeting capital expenditures;
- Establish policies and recommendations for parks, trail and natural resource stewardship;
- Assist staff and developers when platting property to be developed;
- Provide a plan to connect residents and employees to natural resources, places of employment, schools, parks, natural resources and regional trail system; and
- Establish policies to preserve, protect, maintain and enhance natural resources that lend to creating a more desireable atmosphere.

This Chapter includes the following:

1. Park Classifications;

2. Existing Park and Recreation Inventory;
3. Examination of Existing and Future Park Land and Facilities Needs;
4. Recreational Facility Standards;
5. Trails and Pedestrian Ways;
6. Community Input in Parks and Recreation;
7. Administration, Maintenance and Operations;
8. Financial Resources; and
9. Goals and Policies for Parks, Trails and Recreation.

II. PARK CLASSIFICATIONS

The City of Mayer features a number of existing park and recreational facilities. Recreational facilities within the City can typically be described according to their type, population served and location. Planners use to and occasionally still do evaluate adequacy of parks on an acreage-to-population ratio or scale (e.g. 10 acres of parkland for each 1,000 residents). Since parkland needs can vary greatly and change over time, every city needs to choose what system best works for them when it comes to comparing the supply of park and recreation facilities with the demand for these facilities on the part of residents and other users.

Park classifications provide a systematic way of categorizing park land so decisions regarding design, capital improvements, and maintenance/operation are based on the types and functions of parks. This classification system allows the level of service for each park type to be determined by analyzing the service area and identifying any gaps or duplications throughout the City. The following terms and descriptions shall be used to classify existing and future park and recreational facilities within the City of Mayer.

A. Mini Park (a.k.a. urban/pocket)

Examples of this type of park include town squares, urban plazas, landscaped courtyards, promenades, and village greens. Mini parks address limited, isolated, or unique needs within a limited and concentrated service area. Mini parks may be used for active, passive, or a combination of active and passive proposes. These types of parks sometimes meet the neighborhood park needs of surrounding residents. They can also provide opportunities for community events and enhance the identity of city core and mixed-use districts.

Mini parks may be located in a variety of areas depending on the specific recreational need or the type of opportunity present. These parks are very small in geographic size typically ranging from 2,500 square feet to one acre. Site selection criteria should include access from the surrounding area and linkage to community pathways. There are no specific criteria for the development of mini-park facilities. Parking is typically not required, however, site lighting for safety/security should be investigated.

B. Neighborhood Park

Neighborhood parks are the basic unit of the park system providing informal activity or passive recreation for an adjacent neighborhood. This type of park serves as the focal point for recreational and social needs of a neighborhood. Neighborhood parks should be developed to service the active and passive recreational activities of the area it serves, including all age and income levels.

Neighborhood parks are usually designed primarily for spontaneous, non-organized recreation

activities and/or to enhance neighborhood identity or preserve open space. Generally speaking, programmed activities usually do not take place in neighborhood parks and site development typically includes sidewalk, benches, landscaping, and play features for preschoolers. Neighborhood parks should connect with trails, which connect to other parks and neighborhoods.

The service area for neighborhood parks is generally one quarter to one half (¼ to ½) mile with the park located in the center of the area intended to be served. Since the primary means of getting to a neighborhood park is walking or biking, ease of access (interconnected trail, sidewalk, low volume local streets) and walking distance are priority factors in determining location. Neighborhood parks generally range from one to ten acres in size with the population density and demographic characteristics of the neighborhood it serves being important considerations. A balance of passive recreational opportunities (ornamentation, conservation, passive activities) and active recreational facilities (fields, courts, skating, splash pool, etc. primarily used informally in an unstructured manner) is needed. In addition, a pleasant outdoor environment will enhance use and draw residents to the park and, therefore, is an important design element.

Limited off-street parking (e.g. seven to ten spaces) is needed for those who must drive to the site. Park lighting should be used for security and safety with limited lighting on recreational facilities.

An important component when locating neighborhood parks are the location of private parks, sometimes known as neighborhood playgrounds. These parks can act as a neighborhood park and are discussed later in this section.

C. Community Park

Community parks are larger in size and serve more wide-ranging purposes than neighborhood parks and focus on group activities. Community Parks may serve some or all types of a community's recreation needs and could be considered a city park depending on the park and community. However, in many small communities, a community park is sometimes designated as such not because of its size and/or variety of recreational facilities, but because it is the only park available to the community. Community Parks can retain open space, preserve unique landscapes and typically serve multiple neighborhoods or entire communities.

Like neighborhood parks, community parks should strive to balance active and passive recreational opportunities. Community parks should serve more than one neighborhood with a service area of generally a third of a mile to three miles. Since most people arrive at community parks by automobile or bicycle, the site should be serviced by arterial and collector streets and be easily accessible from throughout the service area by trail or sidewalk.

The size of a community park is usually ten to fifty acres, but can vary if open space or landscape preservation is the purpose of the park. Actual size of community parks should be based on neighborhood demographics, population density, resource availability, and recreation demand.

The National Recreation and Park Association (NRPA) suggests site selection guidelines include the site's natural area, preserving unique landscapes within the community, and/or providing recreational opportunities not otherwise available. When possible, community parks should be adjacent to natural resource areas and greenways.

Potential active recreational opportunities include more elaborate play fields, restroom facilities, large play structures, game courts, ballfields, tennis courts, volleyball courts, horseshoe areas, skating areas, swimming pools, archery ranges, disc golf areas and restroom facilities. Active recreational facilities may be used for programmed activities on an occasional basis with most facilities used in an informal, unstructured manner. Potential passive recreational opportunities include internal trails, individual/group picnic and sitting areas, nature study areas, bandshells, and ornamental gardens.

Off-street parking is essential; lighting for security, safety and facilities should be as appropriate.

D. Greenway

Greenways are lineal park system components that serve several functions under NRPA guidelines: tie park components together to form a continuous park environment; emphasize harmony with the natural environment; allow for safe and uninterrupted pedestrian movement between parks and throughout the community; provide people with a resource-based outdoor recreation opportunity and experience; and, they can increase property value. Greenways emphasize park use/trails more than natural resource areas.

Criteria for locating greenways are primarily land availability and opportunity to secure right-of-way. Greenways may follow suitable natural resource areas (preferred) or, if designed properly, revitalized riverfronts, abandoned railroad beds, boulevards, etc. In addition, proximity to parks and connector trails are important considerations.

Potential recreation activities within greenways include hiking, walking, jogging, bicycling, in-line skating, cross-country skiing, horseback riding, etc. Greenway width is highly variable and per NRPA standards can be as little as 25 to 50 feet with widths greater than 200 feet being considered best.

E. Natural Resource Areas

Natural areas have a great deal in common with natural greenways in that they are land set aside for preservation of significant natural resources, remnant landscapes, open space, and visual aesthetics/buffering. As defined within the National Recreation and Park Association (NRPA) system, natural areas usually consist of individual sites exhibiting natural resources, protected lands (wetlands, public waters, floodplain, shoreland), or lands unsuitable for development (steep slopes, ravines, ponding areas, utility easements, etc). Specific size and spacing standards do not apply to natural resource areas.

The planning of this type of park facility is based on availability of areas and need for preservation, so size is highly variable. Location considerations are primarily limited to sites that exhibit unique natural resources or remnant landscapes of the region. Undevelopable and protected lands are usually selected on the basis of enhancing the character of the community, buffering, and providing linkages with other park components. Natural resource areas are resource based as opposed to user based but can provide some passive recreational opportunities providing such use does not negatively impact the resource to be preserved.

F. Special Use Park

Special use parks cover a broad range of park and recreation facilities oriented toward a single purpose. NRPA classifies special use parks as one of three types: historic/cultural/social sites, recreation facilities, and outdoor recreation facilities. Historic/cultural/social sites showcase

unique resources and may include historic downtown areas, performing arts parks, arboretums, ornamental gardens, performing arts facilities, indoor theaters, churches, public buildings, and amphitheaters. Recreation facilities may include community centers, senior centers, hockey arenas, marinas, boat landings, golf courses, and aquatic parks. Outdoor recreation facilities include tennis centers, softball complexes, golf courses and sports stadiums.

NRPA suggests special use parks be strategically located in a community-wide context and conveniently accessible from arterial and collector streets along with pathways. Other primary location considerations are: recreation need, community interests, the type of facility, and land availability. Special use park acreage needs vary widely with facility space being the primary determinant. Since there are a variety of potential special use parks, specific standards for site selection and development parameters are not defined. Most specialized recreation areas have limited active recreation value, are not developed as multi-purpose recreation areas, or are not always available for use by the public. Specialized areas are an important adjunct to a community and its park and open space program.

G. Regional Park

Regional parks may include but are not limited to conservancy areas, trails, floodplains, hiking and riding trails, camping, boating, picnicking, swimming, and fishing. Regional parks serve people of all ages and serve a regional population and are typically maintained by Counties or States. Typically regional parks are natural resource based that include features such as bodies of water, fauna, woodlands, rivers/streams and topography. Regional parks are large parks and draw people from farther distances outside of the community.

H. Private Park

These are park and recreation facilities that are privately owned, yet they contribute to the pubic park, trail and recreation system. These parks are sometimes called neighborhood playgrounds and the location, size and type of park can vary depending upon the specific type of use. The service area is highly variable, but it usually has a radius of one-quarter mile. A lot of times these parks are provided in conjunction with education and institutional facilities and primarily serve the recreation needs of children ages 5 to 12. These types of parks can consist of a neighborhood swimming pool maintained by a homeowners association, facilities owned by a church, playground equipment and fields located on school property or private facilities at a housing complex.

III. EXISTING PARK AND RECREATION INVENTORY

The Mayer parks system has been inventoried and there are five (5) municipal parks along with additional school recreation areas located in the city. Following is a listing of the park and recreational facilities existing in the City of Mayer. A description of each park is included as well as Map 5-1 which illustrates the location of these parks. Table 5-1 includes the Mayer park assessment, while the rankings for the park assessment follows as Table 5-2. Map 5-2 shows the park service areas based on the park classification for the City parks.

A. OLD SCHOOLHOUSE PARK - 17.6 acres

Location: Adjacent to City Hall west of Bluejay Avenue North and east of Old Schoolhouse Road.

Existing Facilities: This community park is the largest existing park in Mayer consisting of approximately 17.6 acres. The park provides for a variety of active recreational amenities. The park complex currently includes four ballfields and a community gymnasium. The main baseball field includes fences, a scoreboard, dugouts and a concession stand. The park is also the site of a municipal well, a small public works facility and off-street parking. City Hall is located within the same building as the community gymnasium.

The park was established in 2002 and was formerly the site of Watertown-Mayer Elementary School. The old school facility was demolished in 1990. The City purchased the park in 1984 for $260,000. Other facilities at the park include a playground with slides and paved trails connecting Morning Drive and Old Schoolhouse Road with the park and off-street parking area.

Potential Future Upgrades: There has been a discussion about a park shelter, which may include bathrooms. Until permanent bathrooms are installed temporary bathrooms will be utilized. Curbing is also proposed along with additional picnic tables.

B. BLUEJAY PARK - 1.0 ACRE

Location: East of Bluejay Avenue North and in between 2nd Street Northwest and 3rd Street Northwest.

Existing Facilities: This neighborhood park is the smallest of the park and is located in the original platted area of the City. Access to the park comes from Bluejay Avenue and 3rd Street NW. The only facility in the park is a basketball court with two baskets. No trails or sidewalks exist and the only parking available is on-street parking. This park is also the site of the City water treatment facility and a municipal well. Park signage is not displayed. The park is not handicap accessible.

Potential Future Upgrades: The basketball hoops could possible be replaced.

C. WEST RIDGE PARK - 7.5 ACRES

Location: South of 4th Street NE and west of West Ridge Road

Existing Facilities: The neighborhood park is primarily comprised of open space and playground equipment which is in good condition and consists of a playground with slides and four swings. This playgorund equipment is also handicapped accessible equipment. There is also a sand vollevball court picnic tables located at the park. Accessory facilities include a paved trail that connects the alley on the west side of the park to West Ridge Road on the east side of the park and 4th Street NE on the north side of the park, a park sign, two picnic tables and a portable restroom facility. The park is difficult to access due to a lack of off-street parking and the fact the park is mostly surrounded by private property, except for one access via the terminus of Birch Avenue North and the alley to the west. The park is handicap accessible via the trails.

Potential Future Upgrades: Future upgrades are proposed to be installed in this park in 2017 that include a picnic shelter and handicapped accessible restrooms. Plans for a parking lot have been discussed for this park along with possibly some new playground equipment.

D. MEADOW PARK - 13.3 acres

Location: West of Ash Avenue and southeast of Meadow Parkway in the Hidden Creek Subdivision.

Potential Future Facilities: This park was platted in conjunction with the approval of the Hidden Creek Subdivision and includes a stormwater pond and large wetland area. The park is considered a neighborhood park and facilities in the park include a playground with slides, a skate park and a soccer field with permanent nets and a fence backstop to prevent balls from being kicked into the adjacent residential properties. A park sign along with a paved trail connecting Meadow Parkway and Sunrise Circle to the park exist. Access to the park comes from Meadow Parkway, however no off-street parking exists.

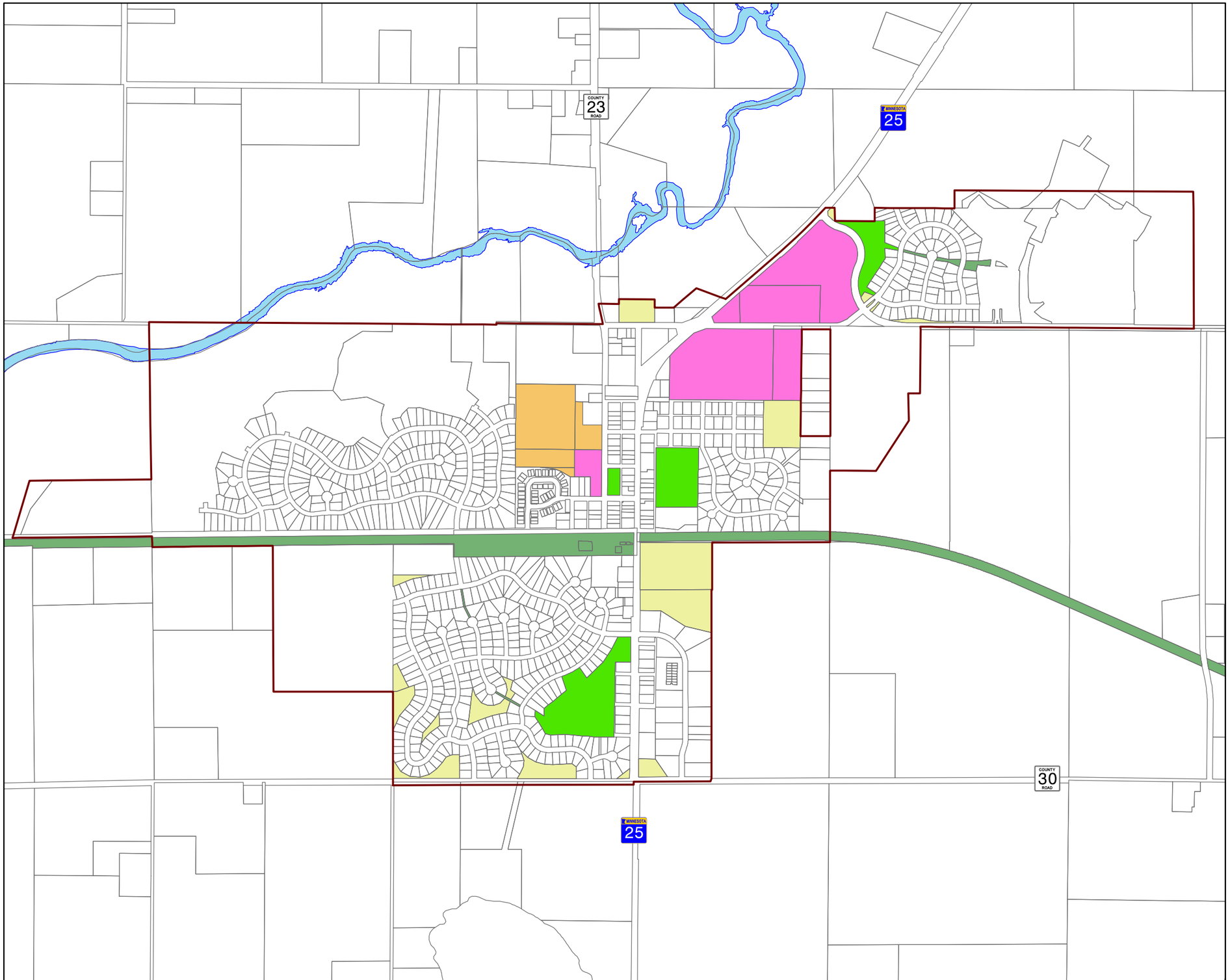
Potential Future Upgrades: Curbing is proposed for this park along with possibly more picnic tables and additional skate park equipment. A parking area could also be added along with a road/access to Trunk Highway 25

E. DISCOVERY PARK & GREENWAY - 5.5 acres

Location: East of Fieldstone Parkway in the Fieldstone development.

Existing Facilities: This is a park platted within the Fieldstone subdivision in the north end of Mayer. The park was developed to include a playground with slides and four swings. A trail runs through the park and then through the Fieldstone development, giving access to the park for the neighborhood. This greenway is owned and maintained by the City as part of Discovery Park. A small wetland and stormwater pond also exist on the site and no off-street parking is provided. Access is provided from Fieldstone Parkway and the park is handicapped accessible via the trail.

Potential Future Upgrades: A basketball court is proposed along with updated and/or replacing the playground equipment at the park.



Mayer

Map 5-1

Existing Parks & Open Space

- Community Park
- Neighborhood Park
- Greenway
- Natural Resource Area
- School Playground/Athletic Fields
- City Limits
- Parcels
- River

Map/Data Disclaimer:
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0 500 1,000 2,000 3,000 Feet

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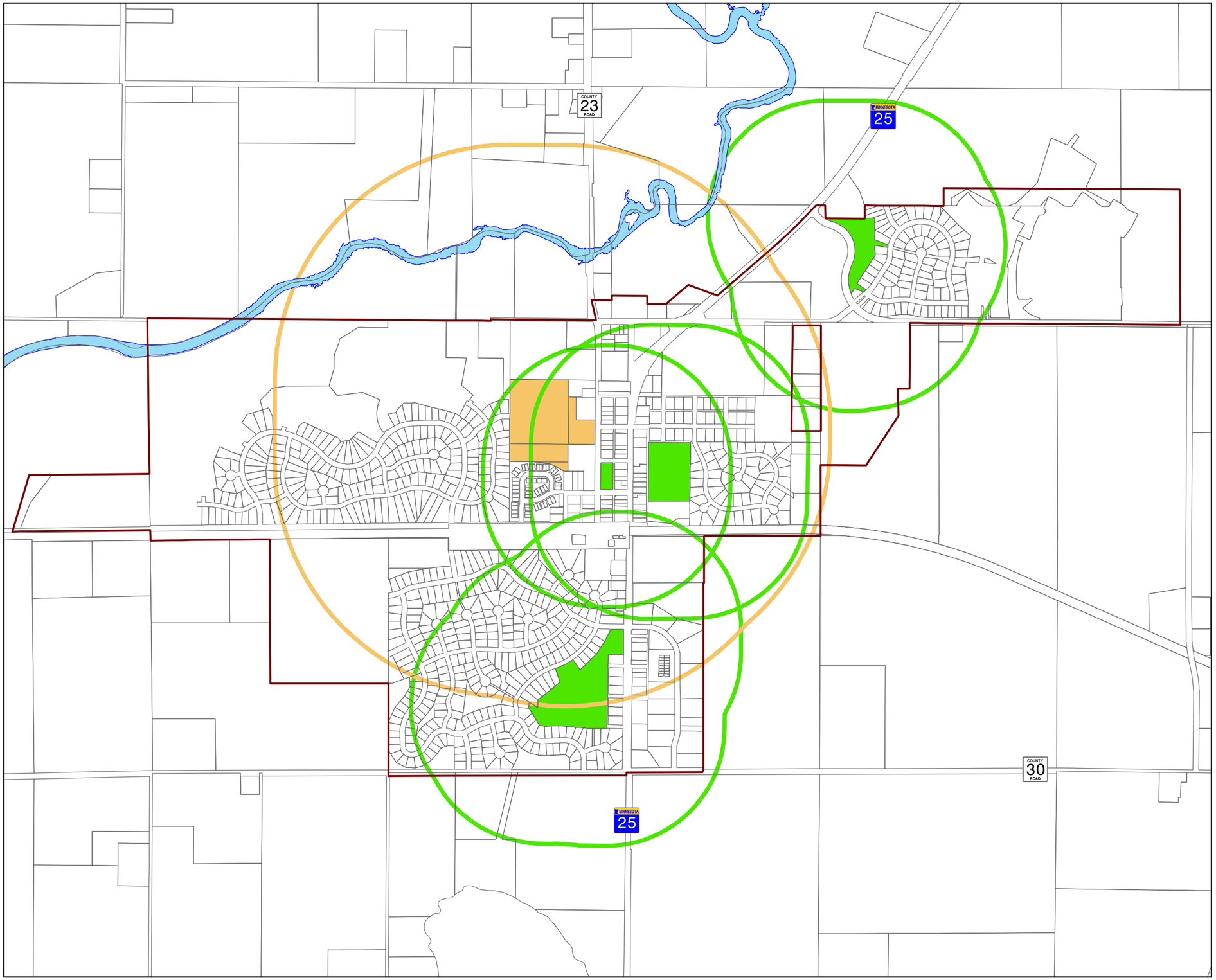
Map Date: December 7, 2017

MUNICIPAL DEVELOPMENT GROUP, LLC



Mayer

Map 5-2

Park Service Areas

- Neighborhood Park 1/4 Mile Service Area
- Community Park 1/2 mile Service Area
- Community Park
- Neighborhood Park
- City Limits
- Parcels
- River

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0 500 1,000 2,000 3,000 Feet

N

Map Date: December 7, 2017

MUNICIPAL
DEVELOPMENT GROUP, LLC

TABLE 5-1 MAYER PARK INVENTORY

Mayer Park Inventory	Park Classification	Sidewalk/Trail Areas	Baseball/Ball Fields	Nature Areas	Soccer Fields	Basketball Courts	Volleyball Courts	Playground	Picnic Tables	Swings	Slides	Skate Park	Restroom Facilities	Handicap Access	Parking (off-Street)
Old Schoolhouse	CP	TR	X					X			X		PR	X	BL
Bluejay	NP					X									
West Ridge	NP	TR		X			X	X	X	X	x		PR	X	
Meadow	NP	TR		X	X			X			X	X	PR	X	
Discovery	NP	TR, SW						X		X	X		PR	X	

NP = Neighborhood Park CP = Community Park SW = Sidewalk
BL = Blacktop PR = Portable Restroom TR = Trail

Source: MDG, LLC Inventory of Parks January 30, 2017

TABLE 5-2 MAYER PARK ASSESSMENT

Park Name	Turf	Irrigation	Plantings/ Trees	Drainage System	Handicapped Accessible	Parking Availability	Parking	Sidewalks/ Trails	Playground Equipment
Old Schoolhouse	0	0	0	0	1	Off-street	1	0	0
Bluejay	0	NA	1	0	1	On-street	NA	NA	NA
West Ridge	0	NA	0	0	1	None	NA	0	0
Meadow	0	NA	0	0	1	On-street	NA	0	0
Discovery	0	NA	0	0	1	On-street	NA	0	0

Source: MDG, LLC Inventory of Parks January 30, 2017

Ranking Key

1. Turf Condition

NA Not Applicable
0 No Problems.
1 Turf is in good conditions with some bare areas.
2 Turf has a few problems that need some work (aeration and over-seeding.
3 Turf is in poor condition and needs renovation.
4 Turf is in very poor condition and should be completely redone.

2. Irrigation System

NA Not Applicable
0 No Problems.
1 System is in good condition with minor adjustment problems.
2 System is in fair condition, needs frequent work.
3 System doesn't do the job and needs to be expanded (poor coverage).
4 System is in very poor condition or no system at all.

3. Plantings/Trees

0 No Problems
1 Plantings/trees are in good condition with few minor problems.
2 Some bare areas that need additional plant materials.
3 Several areas have problems that need work.
4 Plantings/trees in very poor condition & should be completely removed.
5 Condition of trees present dangerous safety situation.

4. Drainage System

0 No Problems
1 Some saturation/standing water-minor improvements needed.
2 Very poor drainage-system needs renovation.
3 Dangerous system/conditions exist.

5. Handicapped Accessible

0 Entire park is accessible to handicapped
1 Portions of the park are accessible to handicapped individuals.
2 None of the park is accessible to handicapped individuals.

6. Parking Availability

NA Not Applicable.
0 No Problems.
1 Not enough parking mainly during peak-use periods or only occasionally.
2 Not enough parking most of the time.

7. Parking

NA Not Applicable
0 No problems.
1 Good condition – needs regular routine maintenance.
2 Surface in fair condition- spot repairs are necessary.
3 Surface in poor condition, several areas need major repairs.
4 Very poor condition, parking area needs complete renovation.
5 Dangerous conditions exist.

8. Sidewalks/Trails

NA Not Applicable.
0 No Problems.
1 Sidewalks/trails are in fair condition and require minor repairs.
2 Sidewalks/trails are in poor condition and require extensive repair or renovation.
3 Dangerous conditions exist.

9. Playground Equipment

NA Not Applicable.
0 No Problems.
1 Equipment is old but can still be used.
2 Equipment requires regular routine maintenance.
3 Equipment is in poor condition and requires major repair or renovation.
4 Equipment is in very poor condition and should be replaced.
5 Dangerous conditions exist.

F. SCHOOL FACILITIES

In addition to the City owned parks Mayer Lutheran High School and Zion Lutheran School has a number of facilities, fields and play areas that are utilized for recreational activities. Although these are not "municipal parks", the amenities can be available to serve the public at times in which school or extra curricular activities are not underway. Following is a brief description of other school recreational facilities.

Zion Lutheran School. Located west of Bluejay Avenue and just south of the Old Schoolhouse Park, this area consists of mostly open play space and a small playground area.

Mayer Lutheran High School. Located east of Trunk Highway 25 and south of 62nd Street, this site consists of larger scale athletic facilities such as baseball and softball fields, a football field, track and open space.

G. REGIONAL TRAIL

The Dakota Rail Regional Trail is partially located in the City of Mayer. The section of trail that is located within Mayer consists of 22.5 acres and it runs east to west through the City. The trail parallel's County Road 30 on the south side of the road just north of the Coldwater Crossing development and from there it crosses Trunk Highway 25 and runs east out of town. A trailhead is located at the southwest corner of the intersection of County Road 30 and Trunk Highway 25. This trailhead includes signage and a off-street parking area consisting of twenty-two off-street parking spaces. The parking lot is paved and stripped with one access to County Road 30. A small concrete area on the east side of the parking lot serves as the trailhead.

Recently a Carver County Veterans Memorial has been approved by the City to be installed just south of the trailhead, which is proposed to include additional off-street parking and have access on Trunk Highway 25. Construction has not yet begun on the memorial.

H. OTHER REGIONAL PARKS

Carver County Parks is one of ten implementing regional park agency of the Metropolitan Regional Parks System. In cooperation with Metropolitan Parks and Open Space Commission and Metropolitan Council, Carver County plans, acquires land and develops regional parks and trails. Funding for land acquisition park and trail development, a portion of operations and maintenance is financed by the Metropolitan Council and State Legislature. Carver County operates and maintains the three regional parks of Baylor Regional Park, Lake Minnewashta Regional Park and Lake Waconia Regional Park. These regional parks are summarized below.

Baylor Regional Park. Baylor Regional Park is a 201 acre park situated in western Carver County on Eagle Lake about eight miles southwest of Mayer. The park offers 50 camping sites, thirty-five of which have water and electrical hookups and fifteen of the sites are primitive. Other facilities include: group camping area, picnic areas, showers, swimming beach, beach house, reservable picnic shelters, ball field, tennis courts, sand volleyball court, horseshoe pits, and an 18 hole disc golf course. Park hours are from 6:00 am - 10:00 pm.

Lake Minnewashta Regional Park. Lake Minnewashta Regional Park is a 340 acre park situated on the shores of Lake Minnewashta in the City of Chanhassen. Facilities include

a swimming beach, bathhouse, off-leash dog area, reservable picnic shelters, sand volleyball courts, creative playground, paved boat access, paved bike trails, turf trails for walking and skiing, ski/snowshoe rental, and vending machines. Park hours are from 6:00 am - 10:00 pm, however during the fishing season, the park opens at 5:00 am.

Lake Waconia Regional Park. Lake Waconia Regional Park is a 100 acre park situated on the southeastern shore of Lake Waconia just east of the City of Waconia. This shoreline park offers views to the lake and Coney Island. The park is in its early development for the future 164-acre park including Coney Island to the West. Existing facilities include a reservable group picnic shelter, play equipment, restrooms, small swimming beach, picnic tables, volleyball court and grills. Boat access is provided outside the park at the Minnesota DNR boat access located on the northeast side of the lake and at private marinas located in the city of Waconia. Park Hours are 6:00 am - 10:00 pm daily.

Carver Park Reserve. Carver Park Reserve, which is west of Victoria, is 3,700 acres of rolling, wooded terrain and interconnected lakes and marshes that support a large wildlife population – including trumpeter swans and barred owls. The reserve is also home to Lowry Nature Center, which was the first public environmental education center of its kind in the state. The park also features miles of trails, the historic Grimm Farm, the King Waterbird Sanctuary, four lakes, an off-leash dog area, Lake Auburn Campground, and groomed cross-country ski trails in the winter. Carver Park Reserve is the only large park reserve unit within Carver County. Visitors are attracted to the reserve for the expansive open space and the Nature Center. The reserve is popular for lake access and water-based recreational opportunities, picnicking, hiking and bicycling trails set in a natural setting, and children's play area. Group camping is also a popular activity, as is the off-leash dog park that opened in 2007. Effectively connecting the park reserve to Carver County's proposed destination trail system is a primary plan objective, consistent with site master plans prepared by Three Rivers Park District.

The following Table 5-3 lists the facilities and rentals of the regional parks within Carver County.

TABLE 5-3 CARVER COUNTY REGIONAL PARK FACILITIES AND RENTALS BY LOCATION

Facilities and Rentals	Baylor Regional Park	Lake Minnewashta Regional Park	Lake Waconia Regional Park
Multi-use Fields	X	X	
Beach	X	X	X
Biking Trails	X	X	
Boat Launch	X	X	
Watercraft Rentals	X		
Campground	X		
Canoe Storage		X	
Cross Country Ski Rentals	X	X	
Cross Country Ski Trails	X	X	
Disc Golf	X		
Fishing Pier	X	X	
Geocaches Hidden	X	X	X
GPS Unit Rental	X		
Hiking/Walking	X	X	X
Indoor Space Available	X		X
Little Free Library	X	X	
Maple Syrup Shack	X		
Nordic Walking Poles	X	X	X
Off-leash Dog Area		X	
Observatory	X		
General Picnic Areas	X	X	X
Playgrounds	X	X	X
Sand Volleyball	X	X	X
Shelter Rentals (reservable)	X	X	X
Snowshoe Rentals	X		

Source: Carver County

IV. RECREATIONAL FACILITY STANDARDS

As parkland is acquired either through dedications or purchase, it is important to plan space according to the desired recreational contents. In existing parks, it is important for the Park and Recreation Commission, Planning Commission and City Council to be aware of space requirements and orientation recommendations to determine if it is feasible to include the item(s) within the park.

The National Recreation and Park Association (NRPA) recognizes the importance of establishing and using park and recreation standards as:

- A national expression of minimum acceptable facilities for the citizens of urban and rural communities.
- A guideline to determine land requirements for various kinds of park and recreation areas and facilities.
- A basis for relating recreational needs to spatial analysis within a community wide system of parks and open space areas.
- One of the major structuring elements that can be used to guide and assist regional development.
- A means to justify the need for parks and open space within the overall land use pattern of a region or community.

The purpose of these guidelines is to present park and recreation space standards that are applicable nationwide for planning, acquisition, and development of park, recreation, and open space lands, primarily at the community level. These standards should be viewed as a guide. They address minimum, not maximum, goals to be achieved. The standards are interpreted according to the particular situation to which they are applied and specific local needs. A variety of standards have been developed by professional and trade associations which are used throughout the country. The standard derived from early studies of park acreages located within metropolitan areas was the expression of acres of park land per unit of population. Over time, the figure of 10 acres per 1,000 population came to be the commonly accepted standard used by a majority of communities. Other standards adopted include the "percent of area" approach, needs determined by user characteristics and participation projections, and area use based on the carrying capacity of the land. The fact that some of the standards have changed substantially is not an indication of their obsolescence. Changes are a measure of the growing awareness and understanding of both participant and resource (land, water, etc.) limitations. Parks are for people. Park, recreation, and planning professionals must integrate the art and science of park management in order to balance such park and open space resource values as water supply, air quality. The following Table 5-4 shows the facility standards for a number of recreational activities:

TABLE 5-4 RECREATION FACILITY STANDARDS

Activity-Facility	Recommended Space Requirements	Recommended Size and Dimensions	Recommended Orientation	Number of Units Per Population	Service Radius	Location Notes
Badminton	1,620 sq ft	Singles – 17'x44' Doubles – 20'x44'	Long axis north-south	1 per 5,000	¼ -1/2 mile	Usually in school, recreation center or church facility. Safe walking or bike access.
Basketball **1. Youth** **2. High School**	 2,400 - 3,036 sq ft 5,040 - 7,280 sq ft	 46-50'x84' 50'x84' 5' unobstructed	Long axis north-south	1 per 5,000	¼ - ½ mile	Same as badminton. Outdoor courts in neighborhood and community parks, plus active recreation areas in

		space on all sides				other park settings.
Handball (3-4 wall)	800 sq ft for 4-wall 1,000 sq ft for 3-wall	20'x40' – Minimum of 10' to rear of 3-wall court. Minimum 20' overhead clearance	Long axis north-south. Front wall at north end.	1 per 20,000	15-30 minute travel time	4-wall usually indoor as part of multi-purpose facility. 3-wall usually outdoor in park or school setting
Ice Hockey	22,000 sq ft including support area	Rink 85'x200' (minimum 85'x185') Additional 5,000 sq ft support area	Long axis north-south if outdoor	Indoor – 1 per 100,000 Outdoor – depends on climate	½ - 1 hour travel time	Climate important consideration affecting number of units. Best as part of multi-purpose facility.
Tennis	Minimum of 7,200 sq ft single court (2 acres for complex)	36'x78' 12' clearance on both sides; 21' clearance on both ends.	Long axis north –south	1 court per 2,000	¼-1/2 mile	Best in batteries of 2-4. Located in neighborhood or community park or adjacent to school
Volleyball	Minimum of 4,000 sq ft	30'X60'. Minimum 6' clearance on all sides	Long axis north-south	1 per 5,000	¼ - ½ mile	Same as other court activities (e.g. badminton)
Baseball **1. Official** **2. Little League**	 3.0-3.85 acre minimum 1.2 acre minimum	 Baselines – 90' Pitching distance 60 ½' foul lines – minimum 320' Center field – 400'+ Baselines – 60' Pitching distance – 46' Foul lines – 200' Center field – 200' – 250'	Locate home plate to pitcher throwing across sun and batter not facing it. Line from home plate through pitchers mound run east-north-east.	1 per 5,000 Lighted 1 per 30,000	¼ - ½ mile	Part of neighborhood complex. Lighted fields part of community complex.
Field Hockey	Minimum 1.5 acres	180' x 300' with a minimum of 6' clearance on all sides.	Fall season – long axis northwest to southwest. For longer periods north-south	1 per 20,000	15-30 minutes travel time	Usually part of baseball, football, soccer complex in community park or adjacent to high school.
Football	Minimum 1.5 acres	160' x 360' with a minimum of 6' clearance on all sides.	Same as field hockey.	1 per 20,000	15-30 minutes travel time	Same as field hockey.
Soccer	1.7 – 2.1 acres	195' to 225'x330' to 360' with a minimum 10' clearance all sides.	Same as field hockey.	1 per 10,000	1-2 miles	Number of units depends on popularity. Youth soccer on smaller fields adjacent to schools or neighborhood parks.

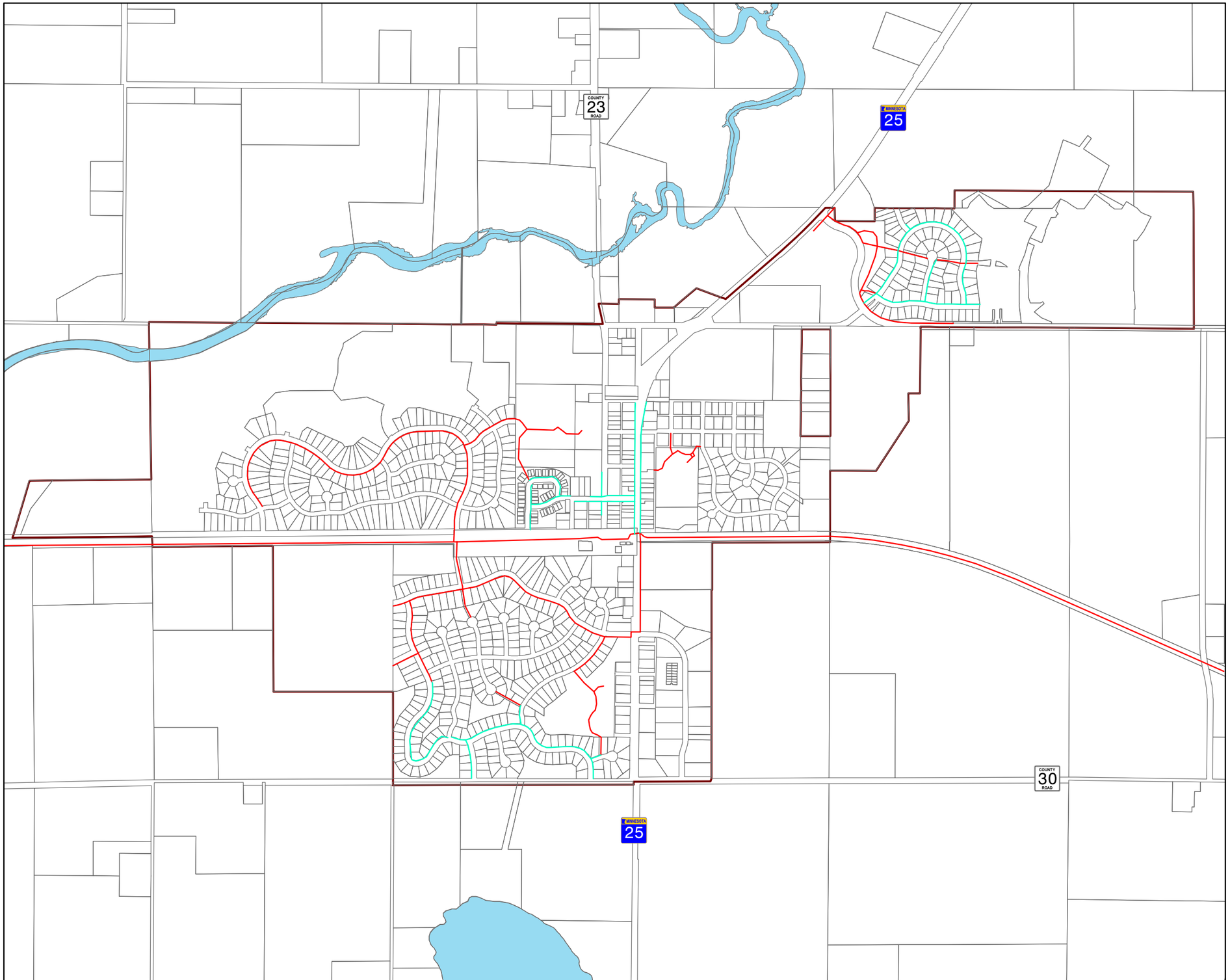
Golf-driving Range	13.5 acres for minimum of 25 tees	900'x690' wide. Add 12' width for each additional tee.	Long axis south-west-northeast with golfer driving toward northeast.	1 per 50,000	30 minutes travel time.	Part of a golf course complex. As separate unit may be privately owned.
Quarter Mile Running Track	4.3 acres	Overall width – 276' Length – 600.02' Track width for 8 to 4 lanes is 32'.	Long axis in sector from north to south to north-west-south-east with finish line at northerly end.	1 per 20,000	15-30 minutes travel time	Usually part of high school, or in community park complex in combination with football, soccer, etc.
Softball	1.5 to 2.0 acres	Baselines – 60 ' Pitching distance- 46' min. 40' women. Fast pitch field Radius from Plate – 225' Between foul Lines. Slow Pitch – 275' (men) 250' (women)	Same as baseball	1 per 5,000 (if also used for youth baseball)	¼ - ½ mile	Slight differences in dimensions for 16" slow pitch. May also be used for youth baseball.
Multiple Recreation Court (basketball, volleyball, tennis)	9, 840 sq ft	120' x 80'	Long axis of courts with primary use is north-south	1 per 10,000	1-2 miles	
Trails	N/A	Well defined head maximum 10' width, maximum average grade is 5% not to exceed 15%. Capacity rural trails – 40 hikers/day/mile. Urban trails – 90 hikers/day/mile.	N/A	1 system per region	N/A	
Archery Range	Minimum 0.65 acres	300' Length x Minimum 10' wide between targets. Roped clear space on sides of range minimum 30', clear space behind targets minimum of 90'x45' with bunker.	Archer facing north = or – 45 degrees.	1 per 50,000	30 minutes travel time	Part of regional or metro park complex.

Combo Skeet and Trap Field (8 Stations)	Minimum 30 acres	All walks and structures occur within an area approximately 130' wide by 115' deep. Minimum cleared area is contained within 2 superimposed segments with 100-yard radii (4 acres). Shot-fall danger zone is contained within 2 superimposed segments with 300-yard radii (36 acres).	Center line of length runs northeast-southwest with shooter facing northeast.	1 per 50,000	30 minutes travel time	Part of regional/metro park complex
Golf **1. Par 3 (18 hole)** **2. 9-hole standard** **3. 18-hole standard**	50-60 acres Minimum 50 acres Minimum 110 acres	Average length vary 600-2,700 yards Average length –2,250 yards Average length 6,500 yards	Majority of holes on north-south axis	-- 1/25,000 1/50,000	½ to 1 hour travel time	9 hole course can accommodate 350 people/day. 18 hole course can accommodate 500-550 people/day. Course may be located in community or district park, but should not be over 20 miles from population center.
Swimming Pools	Varies on size of pool and amenities. Usually ½ to 2 acre site.	*Teaching*- minimum of 25 yards x 45' even depth of 3 to 4 feet. *Competitive* – minimum of 25 meters x 16 meters. Minimum of 27 sq ft of water surface per swimmer. Ratios of 2:1 deck vs. water.	None- although care must be taken in siting of lifeguard stations in relation to afternoon sun.	1 per 20,000 (Pools should accommodate 3 to 5% of total population at a time.)	15 to 30 minutes travel time	Pools for general community use should be planned for teaching, competitive and recreational purposes with enough depth (3.4 meters) to accommodate 1m and 3m diving boards. Located in community park or school site.
Beach Areas	N/A	Beach area should have 50 sq ft of land and 50 sq ft of water per user. Turnover rate is 3. There should be 3-4 acres supporting land per A of beach.	N/A	N/A	N/A	Should have sand bottom with slope maximum of 5 % (flat preferable). Boating areas completely segregated from swimming areas.
Source: Lancaster, R.A. (Ed.). (1990). Recreation, Park, and Open Space Standards and Guidelines. Ashburn, VA: National Recreation and Park Association.						

V. TRAILS AND SIDEWALKS

The City of Mayer currently includes 2.71 miles of concrete sidewalks and 8.27 miles of existing bituminous trails within the City of Mayer.

The main trail feature within the City is the Dakota Rail Regional Trail that runs east west through the center of Mayer. Existing trails and sidewalks are illustrated on Map 5-3.



Mayer

Map 5-3

Existing Trails & Sidewalks

- Existing Sidewalk
- Existing Trail
- City Limits
- Parcels
- Open Water / River

Map/Data Disclaimer:
These map products and all underlying data were developed for use by the city of Mayer for its internal purposes only, and were not designed or intended for general use by members of the public. This map is neither a legally recorded map nor a survey and is not intended to be used as one. This map is a compilation of records, information and data located in various city, county, state and federal offices and other sources regarding the area shown, and is to be used for reference purposes only. The City does not warrant that the Geographic Information System (GIS) Data used to prepare this map are error free, and the City does not represent that the GIS Data can be used for navigational, tracking or any other purpose requiring exacting measurement of distance or direction or precision in the depiction of geographic features. The preceding disclaimer is provided pursuant to Minnesota Statutes §466.03, Subd. 21(2000), and the user of this map acknowledges that the City shall not be liable for any damages, and expressly waives all claims, and agrees to defend, indemnify, and hold harmless the City from any and all claims brought by User, its employees or agents, or third parties which arise out of the user's access or use of data provided.

0 500 1,000 2,000 3,000 Feet

N

Map Date: January 8, 2018

MUNICIPAL DEVELOPMENT GROUP, LLC

Trails within communities and connecting to larger regional trails are often classified by their purpose, type of improvement, and location. The following table 5-5 includes a description of six types of trails and identification of the trails within Mayer which are included in each category.

TABLE 5-5 TRAIL CLASSIFICATIONS

Classification	General Description	Description of Each Type of Trail
Park Trail	Multi-purpose trails located within greenways, parks and natural resource areas. Focus in on recreational value and harmony with the natural environment.	Type I: Separate/single purpose hard surfaced trails for pedestrians or bicyclists/in-line skaters. Type II: Multi-purpose hard-surfaced trails for pedestrians and bicyclists/in-line skaters. Type III: Nature trails for pedestrians. Maybe hard or soft surfaced.
Connector Trails	Multi-purpose trails that emphasize safe travel for pedestrians to and from parks and around the community. Focus is as much on transportation as it is on recreation.	Type I: Separate/single-purpose hard-surfaced trails for pedestrians or bicyclists/in-line skaters located in independent right of way (e.g. old railroad right of way). Type II: Separate/single-purpose hard-surfaced trails for pedestrian or bicyclists/in-line skaters. Typically located within road right of way.
On-Street Bikeways	Paved segments of roadways that serve as a means to safely separate bicyclists from vehicular traffic.	Bike Route: Designated portions of the roadway for the preferential or exclusive use of bicyclists. Bike Lane: Shared portions of the roadway that provide separation between motor vehicles and bicyclists, such as paved shoulders.
All-Terrain Bike Trail	Off-road trail for all-terrain (mountain) bikes	Single-purpose loop trails usually located in larger parks and natural resource areas.
Cross Country Ski Trail	Trails developed for traditional and skate-style cross-country skiing.	Loop trails usually located in larger parks and natural resource areas.
Equestrian Trail	Trails developed for horseback riding.	Loop trails usually located in larger parks and natural resource areas. Sometimes developed as multi-purpose with hiking and all-terrain biking. These trails are developed so conflict can be controlled.

TABLE 5-6 EXISTING TRAIL FACILITIES IN MAYER

Classification	Existing Trails
Park Trail	Type I: Old Schoolhouse Park Meadow Park Discovery Park West Ridge Park Type II: None Type III: None
Connector Trails	Type I: Dakota Rail Regional Trail Connector between Hidden Creek Blvd & Foxtail Glen in Hidden Creek 3rd & 4th Additions Connector between Walnut Court & Meadow Parkway in HiddenCreek 5th Add East/west through Fieldstone & Fieldstone 2nd Add connecting to Discovery Park Type II: Along the east side of Ash Ave S (TH HWY 25) from Shimmcor St north to Dakota Rail Regional Trail Connecting Meadow Park along the east side of Meadow Pkwy to Hidden Creek Blvd east to Ash Ave S (TH HWY 25) at Shimmcor St intersection From Meadow Pkwy & Hidden Creek Blvd intersection west along the south side of Hidden Creek Blvd to Hidden Creek Trail south to end of Hidden Creek 4th Add From Hidden Creek Blvd & Hidden Crossing intersection north to CR 30 intersection From CR 30 & Coldwater Crossing intersection along Colwater Crossing to the intersection of Rocky Meadow Ln From Coldwater Crossing & Old Schoolhouse Rd intersection east connecting with Old Schoolhouse Park
On-Street Bikeways	Bike Route: None Bike Lane: None
All-Terrain Bike Trail	None
Cross Country Ski Trail	None
Equestrian Trail	None

Source: City of Mayer Inventory February, 2017

A. Trail Design

Trails or pathways should be designed with the following goals in mind; (1) Safety – protect non-motorized and motorized users (depending on the type of trail) from adjacent or crossing vehicular traffic; (2) Linkages – provide links between local parks and recreational areas and regional trail systems; (3) Natural Environment – when designing the trail system protect the natural environment and natural features; and (4) Continuity – provide continuous trail systems with as few interruptions in user movement as possible.

Following are design guidelines suggested by the National Recreation and Park Association for the various types of trails:

1. Park Trails

Type I: These separate or single purpose trails are typically ten feet wide and paved for

pedestrians, bicyclists and/or in-line skaters.

Type II: These multi-purpose trails may include a natural buffer; such as shrubs, trees or changes in topography, from adjacent uses on either side of the trail. Additional right-of-way to accommodate the buffers should be strived for, but not required and a ten foot wide paved surface.

Paved Bike Trail

Type III: Nature trails are generally six to eight feet wide and are soft surfaced. Trail grades vary depending on the topography of the area in which they are located. Interpretive signage is common along nature trails.

2. **Connector Trails**
   Type I and II: These separate or single/purpose hard surfaced trails are designed for pedestrians or bicyclists/in line skaters. If designed for pedestrians only, a six to eight foot width is common. If designed for bicyclists/in-line skaters, a ten foot paved surface is recommended. The trails may be developed on one or both sides of the roadway and may include one or two-way traffic. The trail is typically separated from the roadway with a boulevard, grass and/or plantings.

3. **On-Street Bikeways**
   On-Street Bike Route: This bicycle route is typically designated so with signage. On-Street Bike Routes are typically paved shoulders along roadways.

   On-Street Bike Lane: Bike Lanes are typically designed as a five foot lane adjacent to the driving lane. On-street parking may occur between the on-street bike lane and the curb or edge of the road. In essence each side of the roadway is divided into three sections (1) driving lane; (2) on-street bikeway; and (3) on-street parking.

4. **All Terrain Bike Trails:** Design and length vary depending on the topography in the area. These trails are generally a part of a larger regional park or natural resource area.

5. **Cross Country Ski Trails:** The design of the cross-country ski trail is dependent upon its intended use. The traditional diagonal skiing typically includes a packed groomed trail with set tracks. Skate skiing designs include a wider packed and groomed surface. The length of the trails may vary. Cross-country ski trails may be designed to be used as equestrian trails during summer months.

6. **Equestrian Trails:** These trails, designed for horseback riding, typically are designed with woodchips or grass as a surface. They are located in larger parks and natural resource areas where conflict with other trail users may be avoided. The length of an equestrian trail varies but is generally looped.

B. Regional Trails

Regional Trails are also a big part of the trail network within local communities. The Dakota Rail Regional Trail is located within Mayer while the Southwest Regional Trail, and Minnesota River

Bluffs Regional Trail are other regional trails located within Carver County. These trails are described below.

Dakota Rail Regional Trail. This trail is located from the western County line, roughly 2 miles west of New Germany and spanning 13.5 miles across the County to St. Bonifacius. In Hennepin County the trail continues another 13 miles, through St. Bonifacius, along Lake Minnetonka and ends in Wayzata, this portion of trail is operated by Three Rivers Park District.

Southwest Regional Trail. The Southwest Regional Trail Connection is a developing 13 mile trail corridor between the cities of Chaska and Victoria. The trail, when completed, will connect the Minnesota River Bluffs Regional Trail (Southwest Light Rail Transit Corridor) to the Lake Minnetonka Regional Trail (Northwest Light Rail Transit Corridor) creating a looping trail network between the three trails. Implementation of this regional trail will occur over time as new development occurs, and with the construction of new roads or as reconstruction of roadways takes place. Currently there are approximately 7 miles of trail that wind through developed portions of the City of Chaska and Victoria.

Minnesota River Bluffs Regional Trail. The Minnesota River Bluffs Regional Trail includes two segments in Carver County. The primary segment is currently developed from County Road 40 in the City of Carver to Athletic Park Ball Field in Chaska, approximately two miles in length. The other segment maintained by the Carver County Parks Department is planned to be under construction in the spring and summer of 2017. This soon-to-be constructed segment will connect users on the Southwest Regional Trail (that currently terminates as a paved surface near Flying Cloud Drive/County Road 61 and the most eastern end of the trail) and the existing paved surface of the Minnesota River Bluffs Regional Trail which starts at Bluff Creek Drive. This trail is designated as a multi-use corridor. Approved uses for the trail include walking/hiking, biking, running, dog walking (on six foot leash) inline skating, and roller skiing.

C. Sidewalks. The City's Subdivision Ordinance contains a definition of sidewalk as follows:

"A paved pedestrian pathway separated from the roadway by distance or grade."

The current definition is very subjective and needs to be specified as to whether paving means pouring concrete sidewalks or paving a bituminous trail. Sidewalks are typically concrete and five feet wide where a trail is typically bituminous and eight to ten feet wide. Concrete sidewalks are typically located in the front yards of residential or commercial lots within the platted or dedicated right-of-way, while bituminous trails can be located just about in any corridor. A definition that better describes both of these facilities is pedestrian way. A pedestrian way can be described as "A public right of way or public or private easement across a block or within a block to provide access for pedestrians and which may be used for the installation of utility lines."

Specific criteria as to exactly where the sidewalks and trails should be located, the design of the sidewalks and trails, whether the sidewalk or trail is to be dedicated to the public in an easement or if it is going to be located in right-of-way and who is responsible for maintenance of the sidewalk and trail system should be developed. It is recommended the following items should be reviewed and adopted by the City to be added to the subdivision ordinance regarding the installation of sidewalks and trails.

- Local Streets: Five foot wide concrete sidewalks shall be located on at least one side of all local streets, except cul-de-sacs. Specific circumstances where a cul-de-sac is

connected to a trail system my require a sidewalk or trail to be installed on the cul-de-sac.

- Collector Streets: Five foot wide concrete sidewalks shall be located on one side of all collector streets and a ten foot wide bituminous trails shall be located on the side opposite of the concrete sidewalk on all collector streets.

- Arterial Streets: Ten foot wide bituminous trails shall be located on both sides of all arterial streets.

- Concrete sidewalks and multipurpose bituminous trails shall be accessible by handicapped persons in accordance with Minnesota statutes section 471.464. It shall be at the City of Mayer's discretion to substitute concrete sidewalk for bituminous trails or bituminous trails for concrete sidewalks and to only require a bituminous trail or concrete sidewalk on one side of a collector street.

- The developer shall be responsible for the payment of the cost of sidewalks and multipurpose trailways.

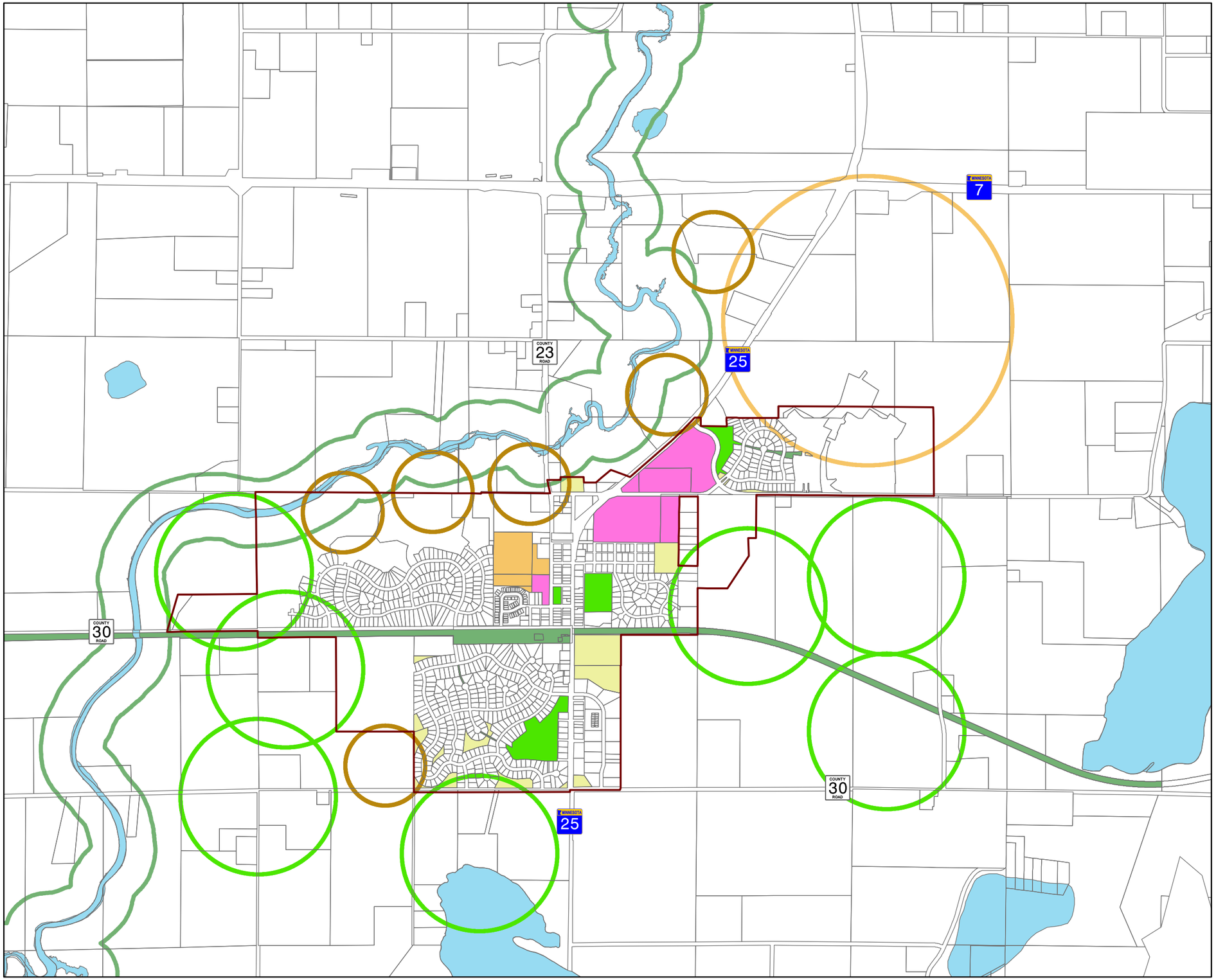
VI. EXAMINATION OF FUTURE PARK LAND, FACILITIES & TRAILS

The City's combination of recreational activities, nearby regional parks and existing parkland and open space provide residents and visitors with a variety of recreational opportunities. As mentioned earlier in this chapter, Map 5-2 indicates areas served by existing park facilities. As indicated, the existing parks are located throughout the community and for the most part serve the needs of most residential areas of the City, however additional facilities would benefit residents in the western portion of the Coldwater Crossing neighborhood. At this time a trail does run through the neighborhood that connects the neighborhood with Old Schoolhouse park, but the western edge of the development is close to three quarters of a mile away.

A. Park Search Areas.

As noted in the park classifications, depending on the type of park the service area will vary. The attached park search area map, Map 5-4, illustrates a need for parks in the future growth areas while the existing residential neighborhoods are for the most part adequately served. Seven neighborhood park search areas are shown along with one community park search area located northeast of the Fieldstone development. Numerous natural resource search areas are located in the future growth area that mainly correspond to the floodplain areas along the South Fork of the Crow River and wetland/wooded areas. The majority of these search areas are located outside the current City boundaries so the development of these parks will be mainly development driven and annexation would need to occur.

Carver County has approved plans which include a future regional park somewhere in the vicinity of Trunk Highway 25 between the cities of Mayer and Watertown. The City of Mayer is also impacted by the search for the Crow River Regional Trail Search Area. The Crow River area has been proposed for a regional trail in the *2030 Regional Parks Policy Plan.* The trail is proposed to start in Norwood Young America and continue north to the Wright County Line. Three Rivers Park District is exploring the extension of the Crow River Regional Trail in Hennepin County. The Crow River Regional Trail is not master planned at this time.



Mayer

Map 5-4
Park & Open Space Search Areas

- Community Park Search Area
- Neighborhood Park Search Area
- Natural Resource Park Search Area
- Greenway Search Area
- Community Park
- Neighborhood Park
- Greenway
- Natural Resource Area
- School Playground/Athletic Fields
- City Limits
- Parcels
- Open Water / River

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Map Date: January 7, 2018

MUNICIPAL DEVELOPMENT GROUP, LLC

B. Accessibility.

[1]The Americans with Disability Act (ADA) was signed into law on July 26, 1990. The law requires local and state governments, places of public accommodation and commercial facilities to be readily accessible to persons with disabilities. ADA statutes affect the City of Mayer and other local and state park and recreation facilities in the following ways:

- Newly constructed buildings (after January 26, 1993) must be constructed to be readily accessible.
- Renovations or alterations occurring after January 26, 1992 to existing facilities must be readily accessible.
- Barriers to accessibility in existing buildings and facilities must be removed when it is "readily accessible". This includes the location and accessibility to restrooms, drinking fountains and telephones.

Other requirements include but are not limited to:

- One accessible route from site access point, such as a parking lot, to the primary accessible entrance must be provided. A ramp with a slope of no greater than 1:6 for a length of no greater than two feet may be used as a part of the route. Otherwise a slope of maximum 1:12 is allowed.
- One accessible public entrance must be provided.
- If restrooms are provided, then one accessible unisex toilet facility must be provided along an accessible route.
- Only the publicly used spaces on the level of the accessible entrance must be made accessible.
- Any display and written information should be located where it can be seen by a seated individual and should provide information accessible to the blind.

Parks which are developed with items such as parking lots, swimming pools, tennis courts and basketball courts should have routes which are accessible. Nature parks or areas with limited development should have the minimum of accessible routes to the site. The National Park Service provides design guidelines for accessible outdoor recreation.

HANDICAPPED ACCESSIBLE OBSERVATION DECK

As the City develops and redevelops City parks it will be important to include ADA standards in the design. Installation of curb cuts and

[1] Source: Park, Recreation, Open Space and Greenway Guidelines, James D. Meres, Ph.D., CLP and James R. Hall, CLP. © 1996, National Recreation and Park Association

pathways within the park, designation of handicap parking in the parking lots, remodeling of restroom facilities to provide a handicap accessible stall in each of the men's and women's facilities and pathways to shelters and recreational amenities has been recommended as a method to achieve accessibility goals.

C. Future Trails and Sidewalks.

The existing and proposed trails and sidewalks are shown on Map 5-4, which was included earlier, and should be used as a guide to the future locations of trails and sidewalks within the City and future growth areas. Trails and sidewalks provide many benefits to a community including:

- Increased safety for non-motorized traffic
- Health and wellness
- Access to natural resources
- Economic development with links to parks and the downtown area
- Non-motorized commuting options

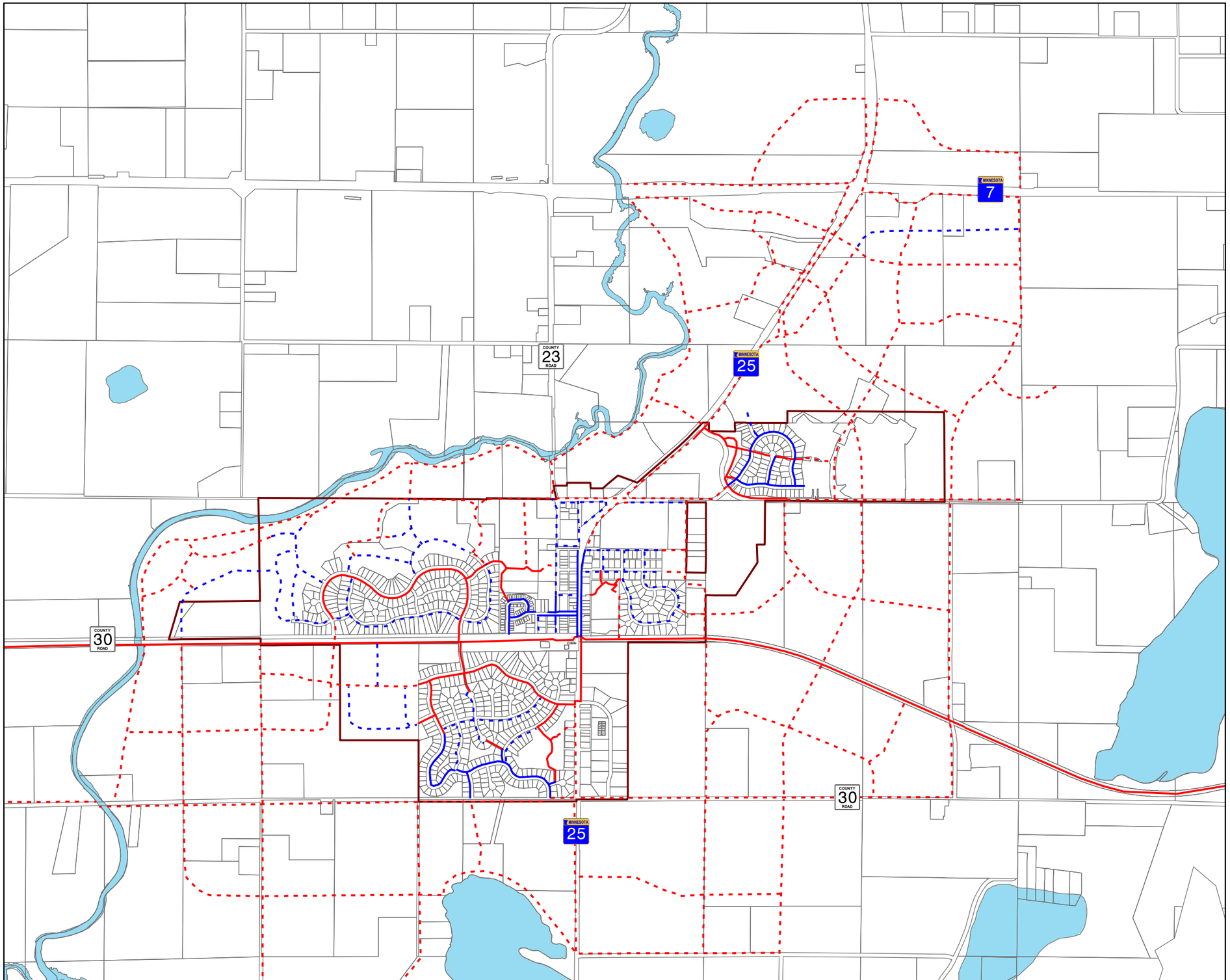
Existing sidewalks and trails should be incorporated into future trail and sidewalk planning activities. Proposed trails will add approximately 35.5 miles to the trail way system once the system is fully developed. This includes regional trail segments that are located in the future growth area, such as in the trail search corridor between Mayer and Watertown. These trails may not be developed for twenty plus years, and trails may be developed as a part of a regional system versus as a city project. The amount of trail can also vary depending on how property is developed.

Future connections of municipal parks and trails along arterial and collector streets are also recommended. The Trail and Sidewalk Plan attached as Map 5-5. The City should consider trails that create a circle or loop around the outer growth area of the City, link city parks and take advantage of scenic areas such as the South Fork of the Crow River and wooded areas. This plan allows for the future connection to regional trails and the City should coordinate future trails to connect with Carver County trails and greenways.

The City may wish to investigate the feasibility and desirability of a "Complete Streets Policy" which addresses a system that is designed and operated to be safe and accessible for pedestrians, transit, vehicles, etc. A local Complete Street Policy would declare political support for a balanced approach to road construction.

Some of the concepts of "Complete Streets" include but are not limited to:

- Constructing narrower automobile lanes to help calm traffic and reduce construction and maintenance expense;
- Requiring the connectivity of sidewalks and trails as a part of the Subdivision Ordinance;
- Addressing pedestrian crossings and solutions such as bump-outs and medians;
- Expanding support for bicycling including bike racks in the downtown; and
- Improving access for people with disabilities.



Mayer

Map 5-5

Proposed Trail & Sidewalk Plan

- Proposed Sidewalk
- Proposed Trail
- Existing Sidewalk
- Existing Trail
- City Limits
- Parcels
- Open Water / River

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Map Date: January 7, 2018

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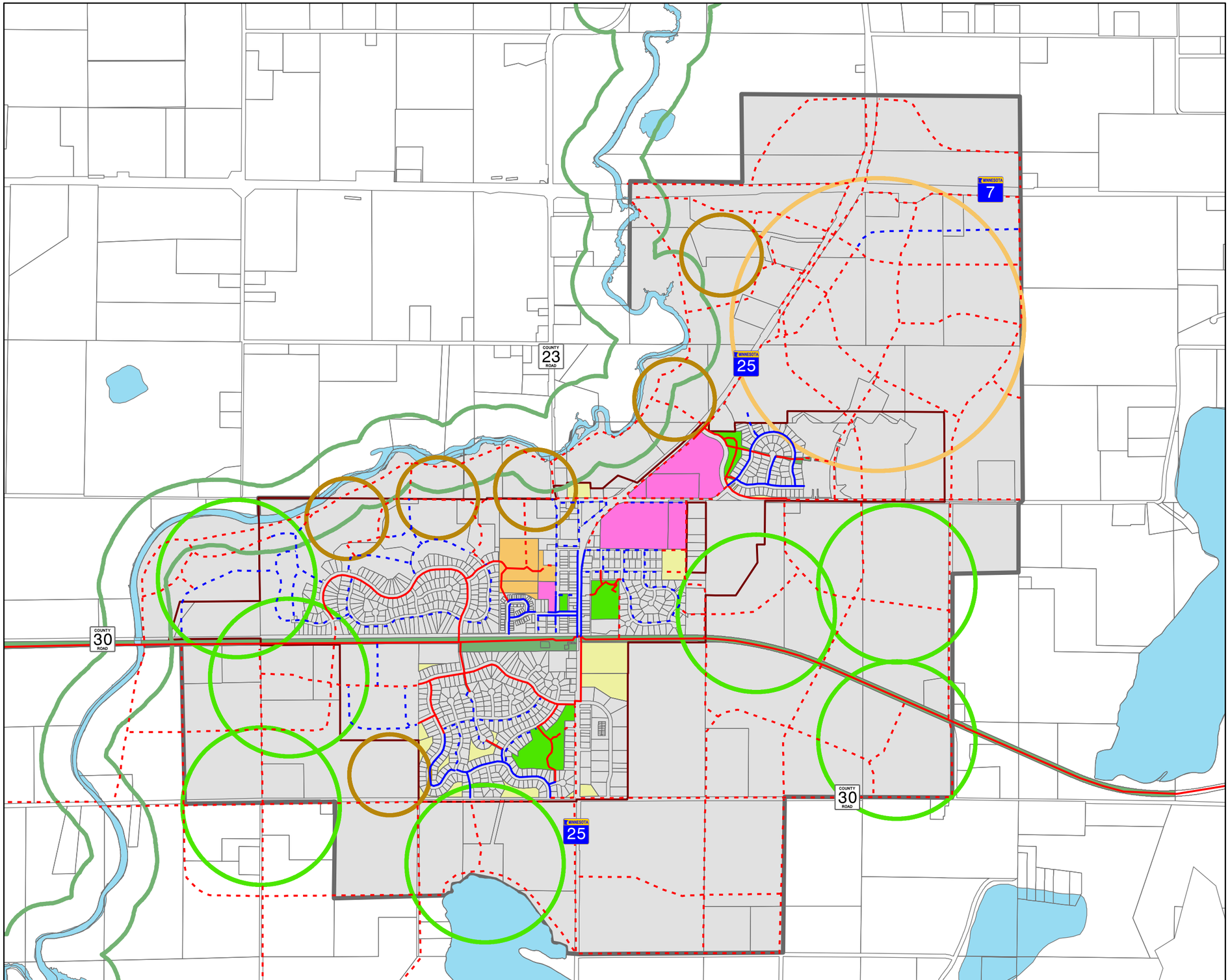
D. Parks & Trails Plan.

After inventorying the existing parks and trails within Mayer, an Existing and Proposed Parks, Open Space and Trails Plan Map that identifies the location of future parks, open space and trails has been created and attached as Map 5-6. The map has identified locations for future neighborhood and community parks as well as open space that can enhance the park system. While the total acreage of each future park has not been established, it is anticipated that when the land where the future park is located is going through the platting process, the park acreage will be determined at that time. The future trails are proposed to link the existing and proposed parks together as well as link to the regional trail. The future parks are spaced so that the majority of the current and future residents of the City are within approximately one half mile from a neighborhood or community park.



Mayer

Map 5-6

Park, Trail & Open Space Plan

- Community Park Search Area
- Neighborhood Park Search Area
- Natural Resource Park Search Area
- Greenway Search Area
- Proposed Sidewalk
- Proposed Trail
- Existing Sidewalk
- Existing Trail
- Community Park
- Neighborhood Park
- Greenway
- Natural Resource Area
- School Playground/Athletic Fields
- Proposed Mayer Growth Area
- City Limits
- Parcels
- Open Water / River

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Map Date: April 1, 2018

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VII. ADMINISTRATION, MAINTENANCE AND OPERATIONS

The proper care and management of park and trail facilities will encourage park and pathway use, improve the quality of life in Mayer and enhance the visual quality of neighborhoods and the City as a whole. The City's Public Works Department coordinates the maintenance and operations of parks and trails, while the Park and Recreation Commission, prepares recommendations on future plans for existing and future parks and trails.

A. Public Works.

Maintenance of the park system is currently coordinated through the City's Public Works Department. The department also assists with park duties and street functions. Park maintenance tasks may occur on a daily, weekly, monthly, seasonal and/or weather related basis. These jobs include but are not limited to litter and garbage clean-up, mowing and trimming, preventive equipment maintenance and repair, facility repair and maintenance, painting, snow removal, trail maintenance, special event preparation among other items.

B. Park and Recreation Commission.

The City has appointed a five member Park and Recreation Commission, with staggered two-year terms. The Park and Recreation Commission meets every monthly to plan for the development and redevelopment of Mayer's park and trail system. The Park and Recreation Commission is a recommending body to the City Council that provides on-going public input on the system. Specific duties are outlined in the City Code.

VIII. FINANCIAL RESOURCES

Several resources are available to assist the City of Mayer in providing adequate parks, trails and facilities for residents. Following is a list of typical sources.

1. Park Dedication Fee In-lieu of Parkland Dedication Requirements for land acquisition), as identified in the City's Subdivision Ordinance and fee schedule.
2. User Fees (rental of shelters, etc.)
3. Volunteer hours/labor.
4. Donations by private individuals, civic organizations, organized groups, etc.
5. Grants available through the Minnesota Department of Natural Resources and other sources.
6. Property taxes.

The City budgets for operational expenses through its annual budget process. The City currently utilizes user fees, donations from organizations and individuals, grant programs, park dedication land and fees and the general tax levy to cover expenses relating to parks. The City should consider the establishment of a capital improvement plan for long-range capital improvements to the park system. Examples of expenditures within the capital improvement plan include purchase of playground equipment, installation of ball fields, purchase/planting of trees, paving of trails and parking lots, etc.

IX. GOALS AND POLICIES FOR PARKS, TRAILS AND RECREATION

A. Parks, Open Space and Trail Policies

1. Provide for a variety of activities within the park system, including various cultural and social activities, and active and passive recreation.

2. Establish and promote high quality design standards in the development of the park system.

3. Encourage cooperative planning, development and use of park and recreational facilities by the school district, private educational facilities and the City.

4. To insure that all areas of the City have equal access to parks and open space areas by providing for equal distribution of parks and open spaces throughout all sections of the City relative to user population densities.

5. Encourage cooperative planning and development of park and trail facilities between the City and adjacent units of government and Carver County.

B. Parks, Open Space and Trail Objectives

1. Maintain zoning and subdivision regulations allowing for parks and open space, and providing for the dedication of parkland.

2. Link all of the park systems via a trail system or secondary sidewalk system.

3. Consider opportunities to share facilities with the Mayer Lutheran School, the Watertown-Mayer Public School District, perhaps through a joint powers agreement.

4. As the City limits expand, provide for a community park in the northeast portion of the City. Such parks would be multi-purpose facilities that would offer multiple passive and recreational activities. A community park would be a park that is a minimum 7-10 acres in size.

5. Provide pedestrian access to parks in those areas where new housing construction is steadily increasing.

6. Maintain open space in environmentally sensitive areas.

7. Provide for recreational equipment and other amenities throughout the park system.

8. Locate parks in areas that are convenient to the populations being served.

9. Plan for parks that take maximum advantage of natural features, notable waterways, and other natural amenities.

10. Provide for outdoor basketball, tennis and volleyball facilities.

11. Connect areas of interest such as commercial areas, parks and residential neighborhoods with an interconnected path/trail system.

12. Review future trail and park plans as they relate to plans from adjacent units of government and Carver County trail plans to coordinate connectivity between local and regional trails. Cooperate on joint grant applications where feasible.

13. Parks which are developed with items such as parking lots, swimming pools, tennis courts and basketball courts should have routes which are accessible. Nature parks or areas with limited development should have the minimum of accessible routes to the site.

14. As the City redevelops Old Schoolhouse Park ADA standards shall be incorporated in the design. Installation of curb cuts and pathways within the park, designation of handicap parking in the parking lots, and pathways to recreational amenities are recommended as a method to achieve accessibility goals.

15. The City should implement the Master Plan for Old Schoolhouse Park and other parks and consider updating and/or adding additional facilities to existing parks.

16. The Park and Recreation Commission and the City should work to maximize recreational opportunities presented by the presence of the Crow River. For example, the City should work with the county to create a continuous, low-impact, scenic nature/recreational trail system adjacent to the Crow River. The City should review requests for subdivision and development plans proposed for property abutting the Crow River as it relates to this objective.

17. The City should develop strategies to achieve goals identified in the park open space and trail plan, including project prioritization and identification of sources and uses of funds relative to future trail/pathway construction and reconstruction. The Park and Recreation Commission, Planning Commission and City Council should require developers to install identified portions of trails with subdivision construction, even if the trail is a temporary dead-end.

18. As street and utility reconstruction occurs within the developed part of the City in areas designated for future trail and/or sidewalk development, steps should be taken to implement the City's trail and sidewalk plan.

19. The City should emphasize proper management of open space areas in order to preserve trees, wildlife, pre-settlement (native) landscape communities, floodplain, water quality and similar environmentally sensitive features at the time of platting.

20. At the time of subdivision, the City should require the identification of sensitive natural resources (e.g. habitats, unique natural features, etc.) using existing ecological information including MN DNR County Biological Survey, Regionally Significant Ecological Area Map, Metro Wildlife Corridor Map, aerial photography, etc. and work with the Developer to integrate locations of identified sensitive natural resource information into land use, park and/or open space plans.

21. It is likely the majority of future local pathways will be provided as part of the subdivision process, therefore, whenever possible future trails and/or right-of-way for such facilities should be allotted for within the subdivision process. Regional trail right-of-way acquisition and construction will be coordinated by Carver County Parks, however, the City should coordinate future right-of-way dedication with the County when parcels contained in search areas are platted. In addition, the City may wish to approve a

sidewalk policy which, among other items, dictates where when sidewalks are required as part of the planning process (e.g. adjacent to collector and arterial roadways).

22. The City of Mayer should frequently review the adequacy park dedication standards to ensure said standards meet the demands of the community and the area to which they are applicable. As the subdivision process is employed for individual developments, the City should request a recommendation from the Park Board as to the appropriateness of proposed parkland dedication and/or fee-in-lieu of parkland dedication. The City shall carefully review proposals from developers relative to parkland dedication requirements. The City shall, when feasible, ensure adequate parkland is available prior to considering a fee-in-lieu of parkland dedication.

23. In order to further educate the public and promote the use of the parks it is recommended the Park and Recreation Commission work with other local and regional governmental units, civic groups and schools to create information to be distributed to new residents and available to the public regarding City parks and activities at the parks.

24. The City, EDA and business community should consider promoting citywide parks (Old Schoolhouse or West Ridge Park) as gathering places for a variety of community functions such as a Farmer's Market, winter fest (sleigh rides, holiday display lighting) and/or business showcases.

25. The City of Mayer through the Mayer Park and Recreation Commission should develop a five year Capital Improvement Program (CIP) for the existing and future park system. The Capital Improvement Program outlines the types of equipment and other amenities necessary to the Park System, the cost of such items, and the year in which the City is projecting to fund such improvements. This CIP should then be included in the overall Capital Improvement Program for the City.

CHAPTER 6 - HOUSING

I. INTRODUCTION

The purpose of this Chapter is to summarize housing conditions within the City of Mayer and establish goals and work items promoting a healthy residential infrastructure and furthering a variety of life-cycle housing options. This chapter includes:

- An analysis of existing housing conditions including life-cycle housing, Mayer's population characteristics, the existing housing stock, and vacancies;
- Housing affordability;
- A summary of historical building activity,
- A summary of future housing needs; and
- Housing Objectives, Policies and Housing Plan.

The issues have been identified through:

- An analysis of City demographics;
- An evaluation of historical building trends gathered from building permit information on file at the City offices;
- A Housing Study, completed in June, 2014 by Carver County;
- Input from a Community Survey; and
- Statistics from the National Association of Realtors and Economic Indicators.

II. HOUSING ISSUES AND CURRENT CONDITIONS

The housing stock within a community must be responsive to the needs of its residents. Housing needs are not static but change over time as people move through different stages of their lives. Housing needs tend to evolve from: (1) affordable basic units for young people just beginning to enter the workforce to; (2) affordable single family units for first time home buyers and young families to; (3) move-up housing for people with growing families and/or incomes to; (4) empty-nester dwellings for persons whose children have grown and left home to; (5) low maintenance housing options for aging persons as their ability to maintain their property decreases; and finally to; (6) assisted living environments to provide health and medical care to the elderly.

To address the life-cycle needs of residents, it is critical that a community provides a wide range of housing:

- **Types** (i.e. apartment/townhome/condominium rental, townhome/condo/single-family owner occupied, assisted living);
- **Sizes** (i.e. one, two, three bedroom rentals; starter homes; move-up homes); and
- **Values**: (i.e. efficiency – luxury rental units; starter homes – executive homes).

The development of life-cycle housing works to sustain the community by preventing a polarization of residents in one age or income group. As one generation of residents moves through its life cycle it can move into the housing provided by the previous generation, just as the next generation will move into the housing being vacated.

A. EXISTING HOUSING CONDITIONS. As of 2016, Mayer contained approximately 691 housing units, of which 97% were single family and 3% were multi-family. Most housing

units in Mayer are owner occupied (90%). Nearly 80% of homes in Mayer are affordable to incomes below 80% of the Area Median Income (AMI). Roughly 13% of households with incomes below 80% AMI in Mayer experience cost-burden. These and other housing conditions are outlined in Tables 6-1 and 6-2.

Table 6-1 – Housing Conditions

Housing Units	Number of Units	Percent of Total
Total Housing Units	691	100%
– Ownership	621	90%
– Rental	70	10%
Single Family Homes	671	97%
Multi-family Homes	20	3%
Manufactured Homes	0	0%
Publicly Subsidized		
Total	9	100%
– Senior Housing	9	100%
– Housing for People with Disabilities	0	0%
– All Other Publicly Subsidized Units	0	0%
Affordable Housing		
Units affordable to households with incomes at or below 30% Area Median Income (AMI)	21	3%
Units affordable to households with incomes between 31 and 50% Area Median Income (AMI)	97	14%
Units affordable to households with incomes between 51 and 80% Area Median Income (AMI)	420	61%

Source: Metropolitan Council

Table 6-2 - Households Experiencing Cost Burden

	Number of Households	Percent of Total
Existing households experiencing housing cost burden with incomes below 30% AMI	23	3%
Existing households experiencing housing cost burden with incomes between 31 and 50% AMI	19	3%
Existing households experiencing housing cost burden with incomes between 51 and 80% AMI	50	7%

Source: Metropolitan Council

B. COMPARISON OF SELECTED HOUSING CHARACTERISTICS. Comparative analysis of selected housing characteristics in nearby communities can assist in the evaluation of the local housing stock. The following table compares certain housing characteristics in Mayer with those in the Cities of Cologne, Hamburg, New Germany, Norwood Young America, Waconia, and Watertown and the Townships of Camden, Hollywood, Waconia, and Watertown. As depicted in Table 6-3:

- Since the 2010 census, 73 housing units were added, a 11.8% increase. This is slower than the growth that happened prior to the downturn in the market in the late 2000's.

- No new multi-family rental units have been added in Mayer since the 2000 Census. As previously noted, this lack of rental units may cause issues with attracting younger people to the community and providing opportunities for seniors to stay within the community.

- There were 30 vacant housing units within the City upon Census 2010 enumeration or 4.8% of all units. A vacancy rate of five percent is considered normal for a healthy market indicating greater demand than supply. Vacancy rates in sampled communities vary from 3.8% in Waconia Township to 13.1% in New Germany.

- In 2014, the median gross rent in the City of Mayer ($788) was higher than all but two of the comparable cities and lower than the four neighboring townships. New Germany had the highest median gross rent for a city at $910 while the highest overall gross rent was Camden Township at $990.

- Mayer has the third highest average mortgage payment ($1,671) of all the cities behind New Germany ($1,695) and Waconia ($1,840). All four townships were also higher than the City of Mayer.

- The City of Mayer has the lowest percent of households spending 30% or more of their household income on housing expenses, meaning either that housing is more affordable in Mayer or the average household income is higher. New Germany had the highest cost burden rate for a city at 33.0% while the four neighboring townships ranged from 38.0% (Camden Township) to 50.9% (Watertown Township). Since the early 1980's, federal policy has set 30 percent of income as the maximum a family should devote to housing given other demands on family budgets.

- Mayer was in the middle of the pack for median housing value ($190,300) while Waconia ($233,700) was the highest city and New Germany ($138,800) was the lowest city. All four neighboring townships were higher than Mayer with Waconia Township ($333,500) being the highest.

- Mayer has an extremely high percentage of owner occupied units (89.3%), which is the highest of all the cities and comparable to the four townships. Camden Township had the highest percentage at 93.6%, and Norwood Young America was the lowest at 72.1%.

TABLE 6-3 COMPARISON OF SELECTED HOUSING CHARACTERISTICS

Characteristic/City	Mayer	Cologne	Hamburg	New Germany	Norwood Young America	Waconia	Watertown	Camden Township	Hollywood Township	Waconia Township	Watertown Township
Census Housing Units 2010	619	562	222	168	1,472	4,112	1,697	343	406	451	495
Number Units Added thru 2015	73	54	0	6	81	548	48	11	6	17	12
Total Housing Units 2015	691	616	222	174	1,553	4,660	1,745	354	412	468	507
Census Occupied Housing Units 2010	589	539	201	146	1,389	3,909	1,564	329	387	434	468
% of Housing Units Occupied 2010	95.2%	95.9%	90.5%	86.9%	94.4%	95.1%	92.2%	95.9%	96.0%	96.2%	94.5%
Census Vacant Housing Units 2010	30	23	21	22	83	203	133	14	16	17	27
% of Housing Units Vacant 2010	4.8%	4.1%	9.5%	13.1%	5.6%	4.9%	7.8%	4.1%	4.0%	3.8%	5.5%
Census Owner Occupied Housing Units 2010	526	465	168	115	1,001	3,002	1,234	308	342	401	429
% Total Owner Occupied Housing Units 2010	89.3%	86.3%	83.6%	78.8%	72.1%	76.8%	78.9%	93.6%	88.4%	92.4%	91.7%
Census Renter Housing Units 2010	63	74	33	31	388	907	330	21	45	33	39
% Total Renter Occupied Housing Units 2010	10.7%	13.7%	16.4%	21.2%	27.9%	23.2%	21.1%	6.4%	11.6%	7.6%	8.3%
Median Monthly Gross Rent 2014	$788	$644	$910	$711	$704	$825	$685	$990	$983	$981	$836
Owner Occupied Housing Units with Mortgage 2014	478	384	121	97	611	2,761	981	200	184	264	318
% Owner Occupied Housing Units with Mortgage 2014	89.3%	84.6%	69.9%	72.9%	70.5%	83.1%	72.9%	65.6%	52.6%	59.9%	63.6%
Median Monthly Housing Cost with Mortgage 2014	$1,671	$1,695	$1,418	$1,234	$1,477	$1,840	$1,621	$1,786	$1,716	$2,167	$2,355
Owner Occupied Housing Units without Mortgage 2014	57	70	52	36	256	561	365	105	166	177	182
% Owner Occupied Housing Units without Mortgage 2014	10.7%	15.4%	30.1%	27.1%	29.5%	16.9%	27.1%	34.4%	47.4%	40.1%	36.4%
Median Monthly Housing Cost without Mortgage 2014	$528	$465	$518	$422	$519	$477	$452	$627	$542	$630	$565
% of Owner Occupied Housing Units with Mortgage Spending 30% or More of Income on Mortgage 2014	20.1%	24.2%	23.1%	33.0%	22.1%	28.9%	28.7%	40.5%	38.0%	41.3%	50.9%
Owner Occupied Median Housing Value 2014	$190,300	$198,300	$140,100	$138,800	$164,700	$233,700	$166,400	$264,900	$243,300	$333,500	$295,100

Source: U.S. Census Bureau - Decennial Census 2010 & American Community Survey 2014; Metropolitan Council Community Profiles

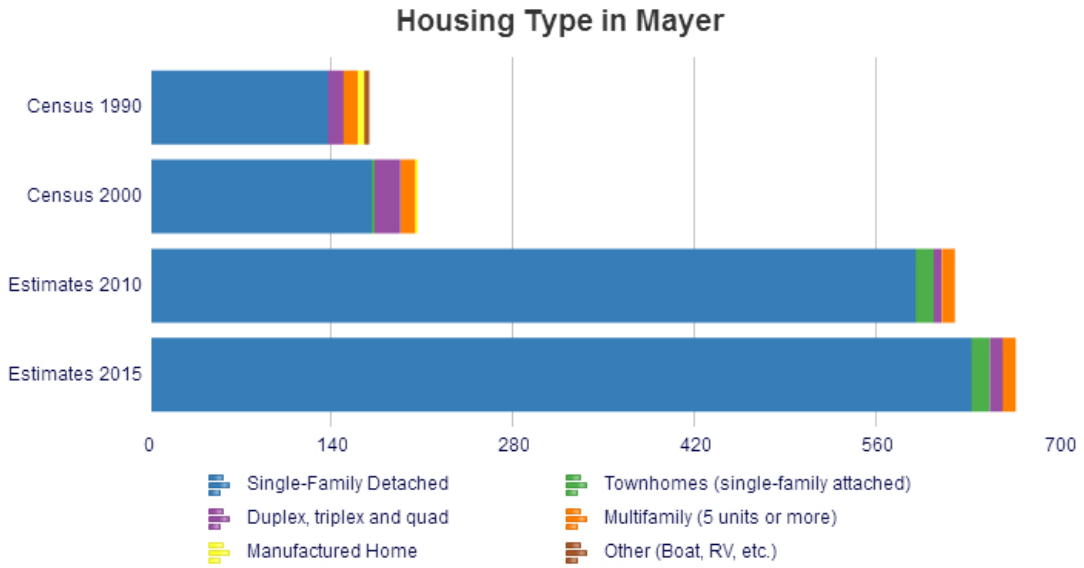
C. POPULATION AGE CHARACTERISTICS AND AVAILABLE HOUSING CHOICES. Population age characteristics and available housing options are essentially interrelated and can be analyzed in terms of correlative trends over time.

National demographic trends affecting the current housing market are the general aging of the population (increased need for retirement housing/assisted living facilities) and the presence of grandparents in caregiver roles for grandchildren (an increasingly popular alternative to day care) leading to a delay in the movement from larger move-up homes to empty-nester type housing options.

In sum, Mayer's existing population, as described in the Demographic Profile (Chapter 3), reveals the City of Mayer has a comparatively young populace primarily composed of persons between the ages of 25 and 49. The median age in the Census 2010 was 30.4 years compared to 35.4 years in the 2000 Census. These ages are significantly lower than the Carver County median age of 36.3 years or the state median of 37.4 years.

Between 2000 and 2010, there was an increase in the percentage of persons 14 years and younger, which indicates that younger couples have moved to Mayer to start families.

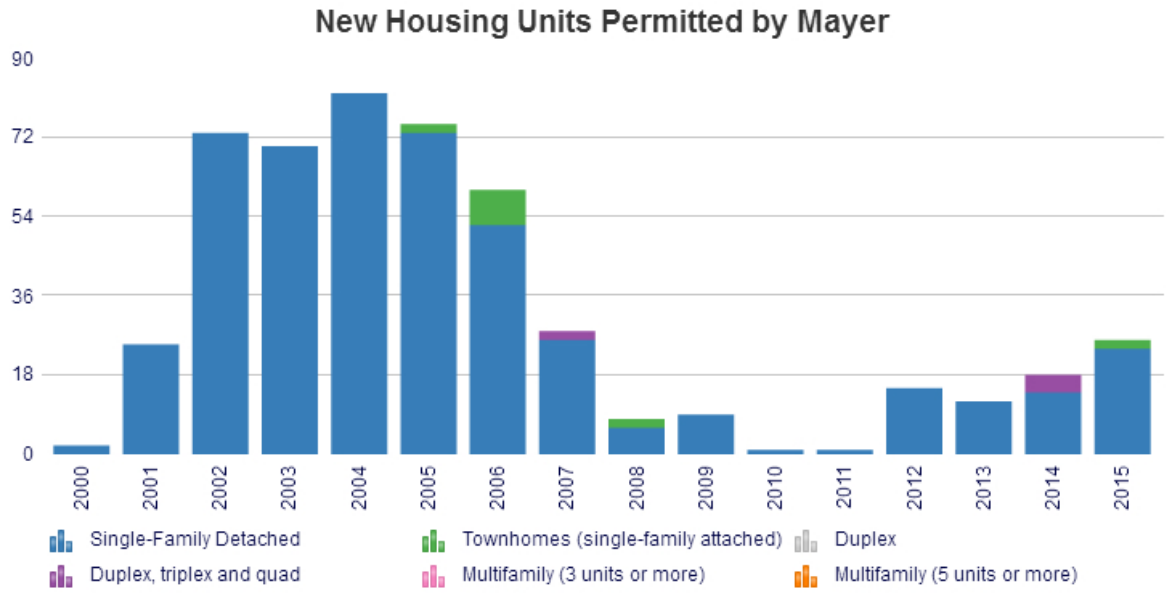
The percent of residents over 65 years of age decreased significantly between 2000 and 2010, which may be a reflection of the lack of housing options available currently for seniors in Mayer. The graph below supports this thought, showing the housing types in Mayer. Single family, detached houses dominate the housing types in Mayer. Very few multi-family or townhomes exist, although there has been a small increase in townhomes since the 2000 census.



Source: U.S. Census Bureau Decennial Census and Metropolitan Council Housing Stock Estimates

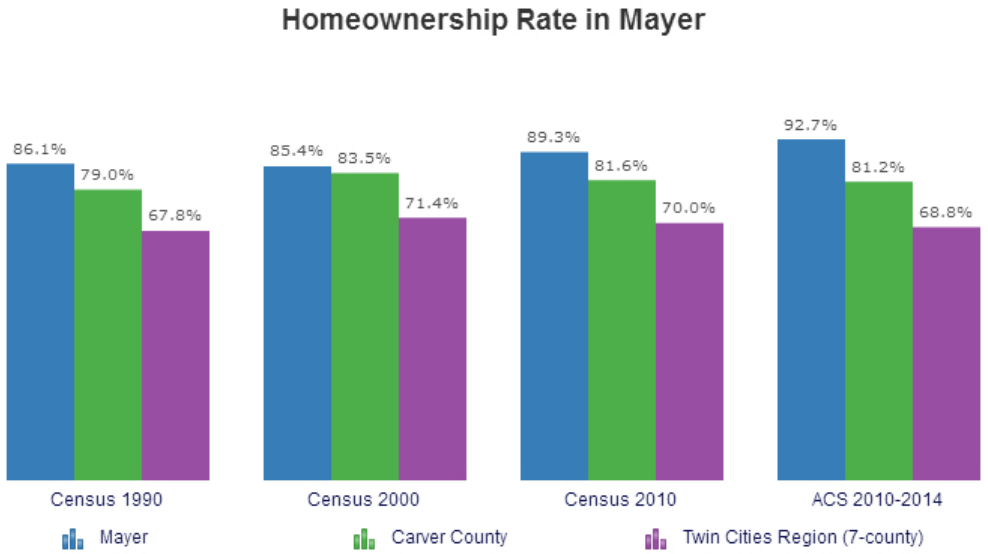
D. TYPE OF HOUSING. The existing housing supply in Mayer is dominated by the presence of detached single-family units. As mentioned in this Chapter, there is a potential shortage in the type of housing units, specifically single family attached (townhome, condominium), twin home (duplex, double bungalow), tri/quadruplexes, and

patio/cottage homes. Of the 173 dwelling units added in the City of Mayer since 2007, only 12 have not been single family detached units.



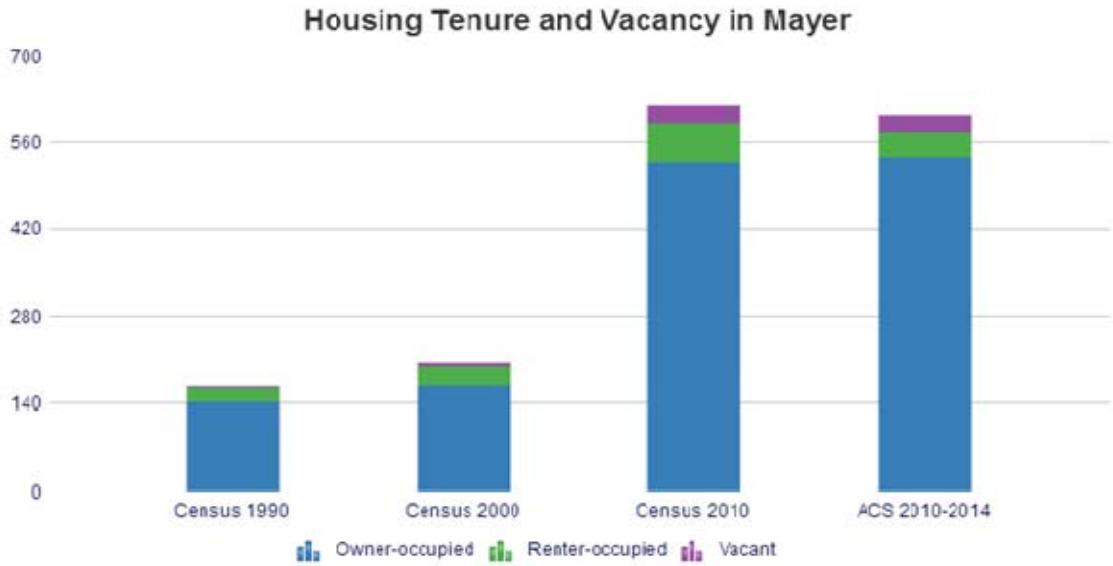
Source: Metropolitan Council Residential Building Permit Survey

According to the 2010 Census, the ratio of owner occupied housing to renter occupied housing is 89% owner occupied to 10.7% renter occupied. This can also be attributed to the large amount of single family detached dwellings in the City. Home ownership rates have steadily increased from 86.1% in 1990 to 92.7% in 2014. Mayer continues to have higher homeownership rates than the Carver County average (82.1%) and Twins Cities seven county metropolitan area average (68.8%). The graph below shows the historic home ownership rates for these three areas.



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

Of the 619 housing units in Mayer in 2010, 526 were owner occupied, 63 were renter occupied, and 30 were vacant. This is a large increase from the 205 housing units in 2000 (202.0% increase). The Housing Tenure and Vacancy in Mayer graph shows the housing number in Mayer for owner occupied, renter occupied and vacant housing units.



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

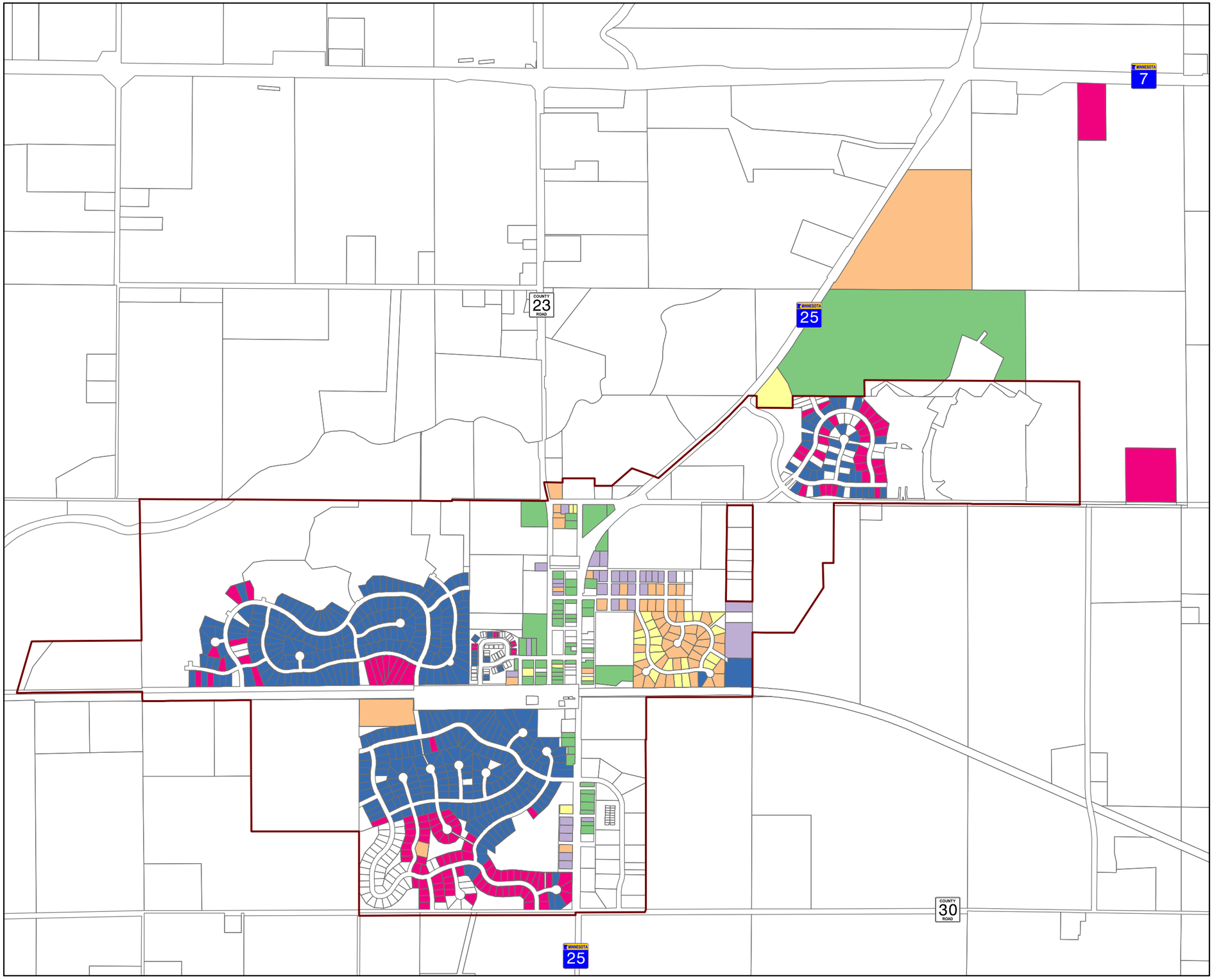
E. **CONDITION OF EXISTING HOUSING STOCK**. The condition of the existing housing stock in Mayer has been documented to be in generally good condition. The housing stock is more aged (constructed prior to 1940) in the original townsite adjacent to TH 25. Single story ranch/rambler styles are most predominant to the east of the original townsite south of the high school (constructed in 1970's and 1980's). Conventional housing styles (post 1990) are mainly adjacent to Ridge Road and within the Coldwater Crossing, Fieldstone, and Hidden Creek subdivisions.

While not necessarily a determining factor of condition, structure age is a good indicator as to the need to aggressively promote maintenance, rehabilitation, and even redevelopment; as structures age, maintenance needs increase. Neglected maintenance, especially for older structures, can lead to deterioration that will have a blighting influence to adjacent properties and the entire neighborhood. Table 6-4 provides the age of housing stock in Mayer comparing owner occupied to renter occupied.

Table 6-4 Age of Housing Stock

Owner Occupied					
Before 1950	1950 to 1969	1970 to 1989	1990 to 1999	2000 to 2009	2010 to 2014
42	50	47	31	312	29
Renter Occupied					
Before 1950	1950 to 1969	1970 to 1989	1990 to 1999	2000 to 2009	2010 to 2014
5	2	32	0	13	0

Source: U.S. Census Bureau and Maxfield Research, Inc.



Mayer
Year Built Map

- Pre 1950
- 1950 - 1969
- 1970 - 1989
- 1990 - 1999
- 2000 - 2009
- 2010 and newer
- City Limits
- Parcels

Map/Data Disclaimer:
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0 550 1,100 2,200 3,300 Feet

N

Map Date: January 7, 2018

MUNICIPAL
DEVELOPMENT GROUP, LLC

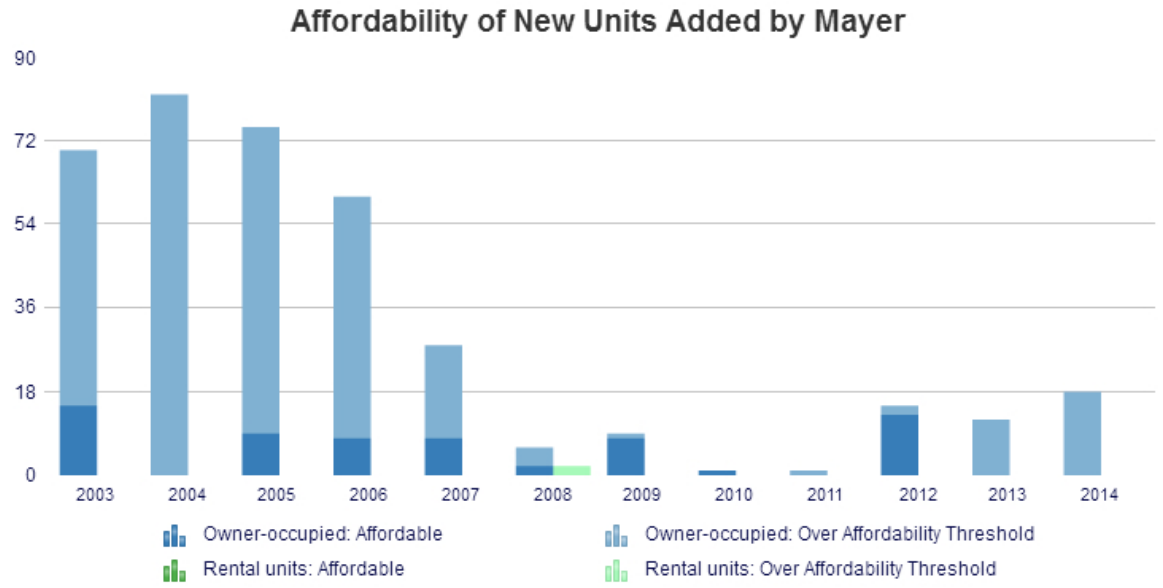
The 2010 Census gathered data regarding the structural and facility characteristics of housing units. According to the Census, all owner-occupied and rental dwelling units within the City have complete plumbing facilities. Complete plumbing facilities include: hot and cold piped water; a flush toilet; and a bathtub or shower. All three elements must be located in the housing unit for plumbing facilities to be considered complete. In addition, all owner-occupied and rental dwelling units have complete kitchen facilities. Complete kitchen facilities include: a sink with piped water; a stove or range; and a refrigerator. All three elements must be located in the housing unit for kitchen facilities to be considered complete.

III. HOUSING AFFORDABILITY

"Affordable Housing" is defined differently by various organizations. The United States Department of Housing and Urban Development (HUD) generally defines housing as affordable if it costs less than thirty (30) percent of a household's income. HUD's Section 8 Income Guidelines are the basis for most affordable housing programs. Section 8 guidelines define low and moderate incomes on a sliding scale, depending on the number of persons in the family.

Some of the most affordable housing units within communities are often times existing homes in previously developed areas. Such homes, however, often require major maintenance (re-roofing, new windows, new siding, etc.), and such maintenance coupled with mortgage costs can reduce the 'affordability' of existing homes.

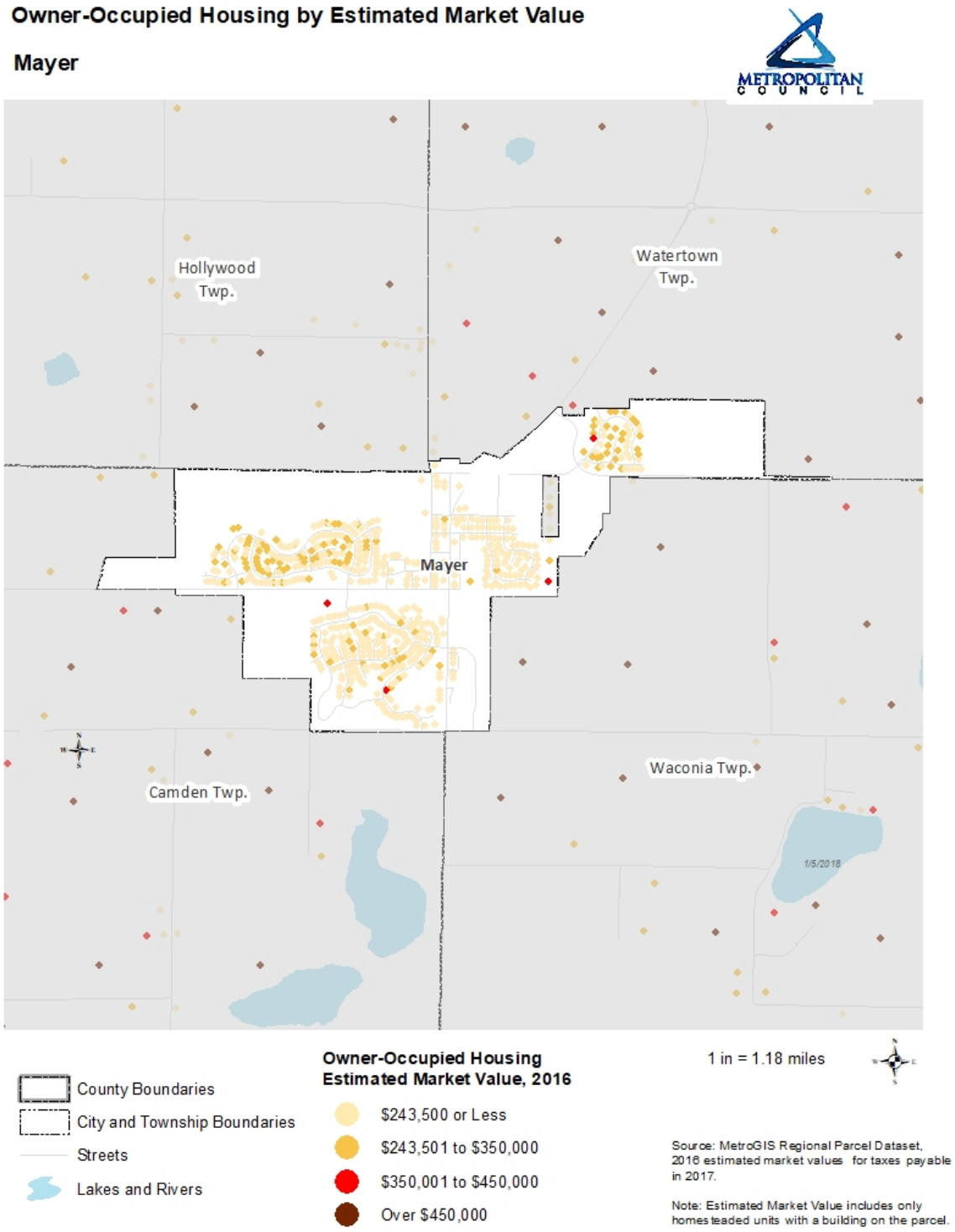
The graph below illustrates the affordability of the new units added to Mayer since 2003. The majority of the units are owner occupied and over the affordability threshold. These owner occupied units are mostly single family homes.

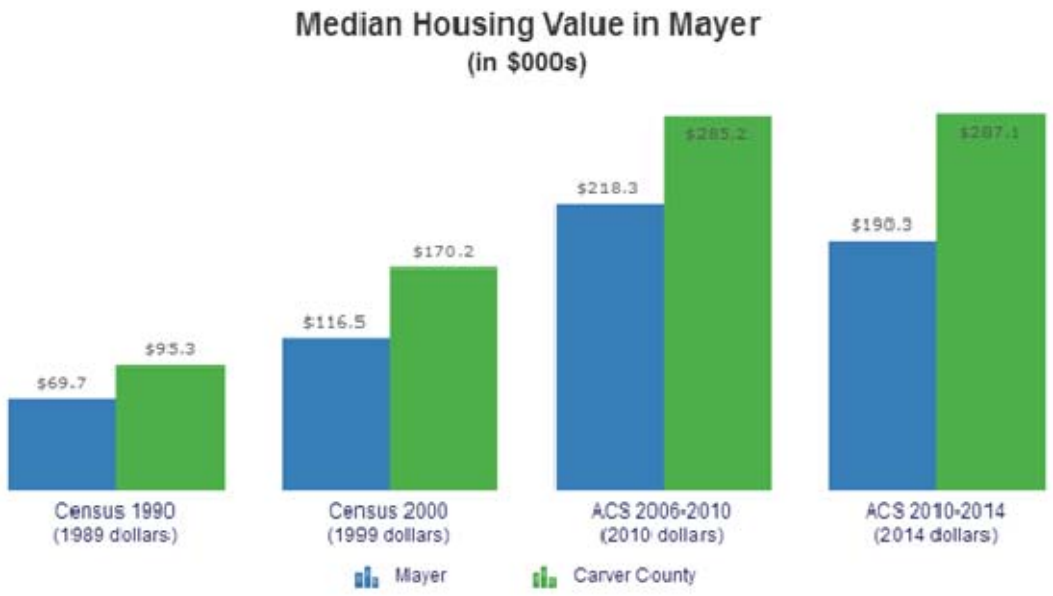


Source: Metropolitan Council Affordable Housing Production Survey

As homeownership rates increase, discussed later in this chapter, so has median housing values. Even though the median housing value has increased in Mayer from $69,700 in 1990 to $190,300

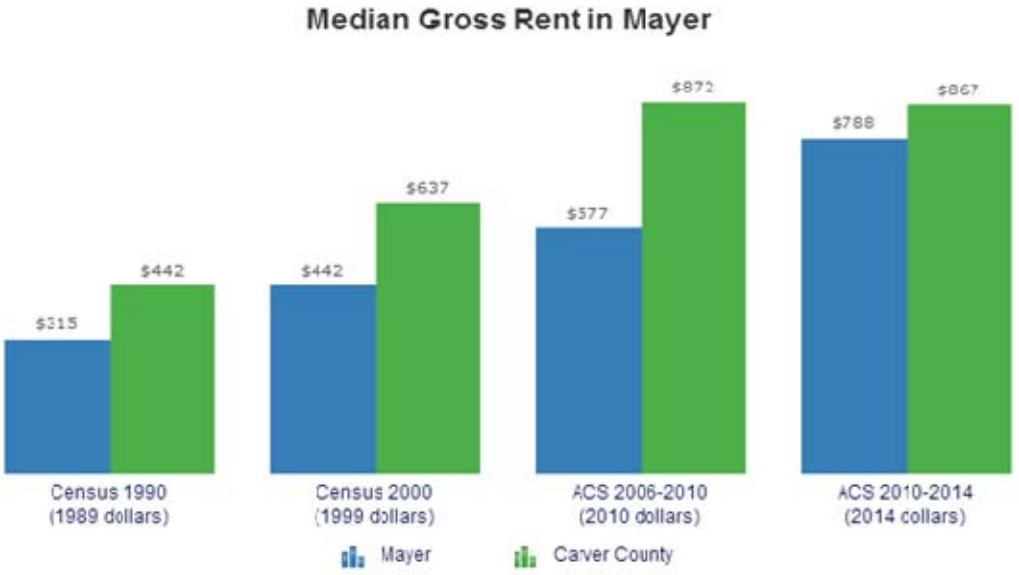
in 2014, the gap with Carver County's median housing value has also increased. Carver County's median housing value was $287,100 in 2014, which is an increase from $95,300 in 1990. The following map shows the value of owner-occupied housing units in the City of Mayer. The following graph highlights the median housing values for Mayer and Carver County from 1990 to 2014.





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

As the median housing value has increased in Mayer, so has the monthly median gross rent. While median rent has increased in Mayer, it has slightly decreased in Carver County as a whole. In 2014, median rent in Mayer was $788, which was near the Carver County average of $867. Mayer's average is an increase from $577 in 2010 (36.6% increase) while Carver County decreased from $872 in 2010 (0.6% decrease). The Median Gross Rent in Mayer graph outlines these changes since 1990.



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

As housing costs have increased in Mayer and new housing units are above the affordability threshold, it is important to consider affordable housing needs to current and future Mayer residents. The Metropolitan Council prioritized housing affordability in the Thrive MSP 2040 Regional Policy and determined the allocation of affordable housing needed to meet the rising

need of affordable housing across the region. Housing is considered "affordable" when no more than 30% of household income goes to housing, so households with different income levels have different thresholds of "affordable," as outlined in Table 6-5. The Metropolitan Council selected the 4-person household thresholds as the general measurement for affordable housing needs at each income level.

Table 6-5– Regional Household Income Levels

Household Size	30% AMI	50% AMI	80% AMI
1-Person	$18,050	$30,050	$46,000
2-Person	$20,600	$34,350	$52,600
3-Person	$23,200	$38,650	$59,150
4-Person	$25,750	$42,900	$65,700
5-Person	$28,440	$46,350	$71,000
6-Person	$32,580	$49,800	$76,250
7-Person	$36,730	$53,200	$81,500
8-Person	$40,890	$56,650	$86,750

Source: Metropolitan Council

The allocation of affordable housing need is calculated based on a variety of factors:

- Projected growth of households experiencing housing cost burden
- Current supply of existing affordable housing, whether subsidized or naturally occurring
- Disparity of low-wage jobs and housing for low-wage households within a community

The Metropolitan Council determined Mayer's share of affordable housing need is 48 units, noted in Table 6-6.

Table 6-6– Affordable Housing Allocation

At or below 30 AMI	27
From 31 to 50 AMI	14
From 51 to 80 AMI	6
Total Number	48

Communities accomplish this affordable housing allocation by designating adequate vacant land or redevelopable land at minimum densities (units/acre) high enough to make affordable housing a viable option. The cost to build per unit decreases as the number of units per acre increases. Lower per unit costs make development an option for affordable housing developers as well as market-rate developers. The affordable housing allocation does not mean the city is forced to build this number of affordable units. However, the city must ensure the opportunity for affordable housing exists by guiding adequate vacant or redevelopable land for higher densities to meet the stated share.

To determine if the city can achieve the identified number of units, it is necessary to identify which future land use designations count towards the Affordable Housing Allocation need. According to the Metropolitan Council, any residential future land use designation that has a minimum density of eight units per acre or more will count towards affordable housing allocation calculations. Table 6-7 features the future land use designations for Forest Lake and the minimum units per acre.

Table 6-7 – Future Residential Land Use Designations

Land Use	Minimum Density (units/acre)	Qualify for Affordable Housing
Low Density	1.0	No
Medium Density	4.0	No
High Density	10.0	Yes

Any vacant or redevelopable land designated as High Density is counted in the affordable housing allocation calculations. In Table 6-8 below, the net developable or redevelopable acres of each applicable land use have been multiplied by the minimum units per acre to determine the minimum number of units that could be developed. The Mixed Use and Town Center only require a proportion of their developable or redevelopable land to be residential, so those percentages apply to the unit count for this calculation. Developable acreage does not include unbuildable areas, such as right-of-way, open water, and wetlands.

Table 6-8 – Development Potential for Affordable Housing Allocation

Land Use	Net Acres (Developable)	Min Units/Acre	Site Coverage Max	Units
High Density	128.82	10.0	75%	**966**

With the available vacant land in the High Density designation, the City of Mayer has enough land to meet its allocation for affordable housing.

IV. OTHER HOUSING STUDIES

The Carver County Community Development Agency (CDA) hired Maxfield Research, Inc. to complete a Comprehensive Housing Needs Assessment for the County with specific recommendations included for each community. Below is a summary of the recommendations for the City of Mayer:

> *Mayer is poised for strong growth as households are attracted to the community in search of better housing values. From 2014 to 2040, demand calculations project that approximately two-thirds of the housing demand will be from households wanting to purchase single-family homes.*
>
> *Mayer still has some lots available in existing single-family developments to meet sort-term demand for new single-family homes. As these lots are absorbed, then additional lots could be platted to meet the demand. We estimate that, at this time, Mayer has a sufficient number of platted lots to meet demand over the next six to eight years.*
>
> *In addition to adding new housing, there is potential for housing rehab programs to enable low- and moderate-income households to maintain or improve the quality of their existing homes.*
>
> *The current senior population is small in Mayer, but over time, this cohort is expected to increase with the overall aging of the population. Independent senior housing demand could be accommodated through several options including for-sale owned units (generally single-level townhomes), general occupancy apartments, or service-enriched housing with some support services for those who require them. Demand for these*

products is not expected to occur until after 2020, and demand for service-enriched housing is not expected until the latter half of the 2020 to 2030 decade.

Demand was calculated for 53 affordable/subsidized general-occupancy rental units in Mayer from now until 2040. We recommend that this product not be developed until after 2020 and then the development should be split 50/50 from 2020 to 2030 and from 2030 to 2040. Rents would need to be modest.

V. REGIONAL HOUSING CONSIDERATIONS

A. PROJECTED HOUSING GROWTH. The City of Mayer is projected to grow by roughly 955 people and 538 households by 2040. To accommodate this growth and maintain a modest vacancy rate, it is anticipated that the City will need about 545 new housing units. As the CDA Study noted above, the City has several available lots to accommodate development in the near term. The actual number of housing units needed to accommodate growth will depend on average household size, which has slightly increased in Mayer since 2000 (detailed more in Chapter 2: Land Use).

B. LIVABLE COMMUNITIES ACT PARTICIPATION. The City of Mayer participates in the Livable Communities Act (LCA). The LCA supports regional policy that calls for the expansion of opportunities for affordable and life-cycle housing throughout the region; creative planning that links jobs, transportation and housing; and revitalization of the region's older cities. Communities with the seven county metropolitan area that participate in the program may receive grants or loans from three funding accounts of the LCA: the tax base revitalization account, livable communities demonstration account, and the local housing incentives account.

Further, only LCA-participating communities may apply for and receive grants from the polluted sites cleanup program administered by the Minnesota Department of Employment and Economic Development. Finally, the law says the Metropolitan Council "shall give consideration to a municipality's participation" in the program when making discretionary funding decisions. As of January 15, 2015, the LCA has adopted affordable and lifecycle unit housing goal for 2011-2020. For Mayer, the affordable range is 113 to 174 units, while the lifecycle range is 170 to 925 units.

C. DENSITY. The current density of housing units per acre in the City is about 2.5 dwelling units per acre. The City's current zoning ordinance allows a maximum of three dwelling units per net acre for the R-1 Low Density Residential district, a maximum of six dwelling units per net acre for the R-2 Medium Density Residential district, and 22 dwelling units per net acre in the R-3 Multiple Family Residential district. Net acres consist of gross acreage subtracting wetlands, surface water, floodplain, and existing road easements or rights-of-way. As part of this comprehensive plan update, it is proposed that the maximum density of the R-1 district be raised to four units/acre and the R-2 district have a range of 4 to 9.9 units/acre, and the R-3 district have a range of 10 to 22 units/acre.

The Metropolitan Council strongly encourages the overall density of new development and redevelopment in Rural Center communities to be three to five units/acre.

VI. REGIONAL INPUT

The Carver County Community Development Agency (CDA) has established office space in the City of Chaska. The CDA is involved in various housing endeavors within the county. It's mission is to identify and promote housing and development needs, implement programs to assist residents, facilitate solutions, and further housing and development opportunities throughout the county.

Carver County CDA administers federal rental-subsidy programs that ensure affordable housing for eligible low/very low income residents through the Public Housing and Section 8 Housing Choice Voucher Programs. The Carver County CDA administers the First Time Homebuyer Program and is active in developing affordable and senior rental units throughout the county.

VII. HOUSING PLAN

A. POLICIES.

1. Maintain a balanced housing supply with housing available for people at all income levels and unit types which meet the varying life-cycle needs of Mayer residents.

2. Promote on-going maintenance of owner-occupied and rental housing units.

3. Establish a housing pattern that respects the natural environment while striving to meet local housing needs and the community's share of the metropolitan area's housing growth.

4. Establish a community of well-maintained housing and neighborhoods including ownership and rental housing.

5. Improve access and linkages between housing, employment, and existing and potential future retail centers in Mayer.

6. Protect the integrity of residential neighborhoods by requiring buffers between neighborhoods and high traffic roads or non-compatible land uses.

B. OBJECTIVES.

1. Maintain zoning and subdivision regulations allowing for the construction of a variety of housing types and price ranges.

2. Continue to utilize City ordinances that allow planned unit developments that provide a mixture of housing types.

3. Promote the development of multi-family housing units in areas that are physically suited to serve higher densities.

4. Require the integration of open spaces within residential developments in order to maintain a living environment that is consistent with the City's vision and guiding principals.

C. WORK PLAN.

Balanced Supply of Housing – Variety of Housing Types

The City of Mayer strives to provide lifecycle housing for all market needs, including

- Affordable basic units for young people just beginning to enter the workforce
- Affordable single family units for first time home buyers and young families
- Move up housing for people with growing families and/or incomes
- Empty-nester dwellings for persons whose children have grown and left home
- Low maintenance housing options for aging persons as their ability to maintain their property decreases
- Assisted living environments to provide health and medical care to the elderly.

Since 2010, the City of Mayer has added 73 new housing units, a 11.7% growth rate. While this growth has slowed from the previous decade, it is still more than the other western Carver County cities, except Waconia (548 units or 13.3%) and Norwood Young America (81 units or 5.5%). Over the last couple of years, the number of new homes has increased, and developer interest in new developments has also picked up. Owner occupied housing is the primary unit type being built; no additional rental units were added in the community. The amount of rental units as a percentage of total housing units fell from 15% in 2000 to six percent in 2004 but is back up to 10.7% in 2010. The demand for additional rental units may need to be investigated.

Future housing development is expected to occur primarily in newly platted areas with some housing occurring in infill areas. To maintain a balance of housing options available in the City, the future land use plan will include designations for low, medium, and high-density residential developments. The densities allowed in each district should be reviewed to ensure the City's objectives are met.

Well-Maintained Housing

At the time of the 2010 Census, approximately 8.1% of the occupied housing units were constructed in 1939 or earlier. As noted previously, the vast majority (70.0%) of single family detached units have been constructed since 2000. Although the relatively new housing stock may not present maintenance concerns, it is noted that the City should continue to monitor structural maintenance as the dwellings age. Since the development of dwellings has increased rapidly within a narrow timeframe, the cumulative impact of eventual structural maintenance (re-roofing, new siding/windows) needs could be significant.

Most of the existing housing stock has been well maintained. However, evidence of delayed maintenance is apparent in a few dwellings interspersed throughout the original town site. In addition, the City may wish to monitor the condition of rental units, particularly those in structures constructed prior to 1939.

To address future maintenance of both owner-occupied and rental housing the City should continue to address areas such as outdoor storage, landscaping requirements, parking requirements, etc. in its Zoning Ordinance. As the City grows and number of rental units increase, the Planning Commission and City Council may wish to revisit the need and desire for a rental ordinance.

Linkages between Housing, Recreation, and Employment

One of the goals of the Comprehensive Plan is to improve linkages between housing, recreation, and employment. This may be accomplished through subdivision design with collector streets, trail, and sidewalk connections.

Employment statistics from the 2014 American Community Survey indicate 1,240 people in the City (69.2% of the population) are aged 16 and over and only 116 people (6.5% of the population) are 65 or older, indicating a young population. Of all persons over sixteen years of age, 1,072 persons or 86.5% are in the labor force. Of those, 95.1% report commuting to work. The largest percent of these commuters (87.9%) drive to work alone, 6.9% reported they carpool in a car, van, or truck, 1.3% reported they walk to work, and 3.0% work from home. The mean travel time to work reported in the 2010 Census was 32.8 minutes, which is up from 28 minutes ten years ago.

As the City grows, additional industrial and commercial employment opportunities may be available for residents. Providing pedestrian routes for walking or bicycling, especially along collector streets and arterials, will assist in providing important links between residential neighborhoods and places of employment and retail/service. As the population continues to grow, providing, maintaining, and encouraging carpooling may become increasingly important.

Recommendations

1. The City should support the development of a variety of life-cycle housing types, sizes, and values to sustain the community by preventing a polarization of residents in one age or income group and to help to ensure that as one generation of residents moves through its lifecycle it can move into the housing provided by the previous generation, just as the next generation will move into the housing being vacated.

    - Implementation: City Administrator, Planning Commission, and City Council.

2. Since the last comprehensive plan update, the percentage of mortgage holders within the City spending more than 30% of their income on mortgage payments has dropped. The City should work to keep the trend going in the right direction. In addition, the City has a lower than average presence of cottage/patio homes, single family attached, twin homes and tri/quadruplexes. Therefore, the City should encourage the development of affordable owner occupied units such as townhomes, cottages, twin homes and patio homes.

    - Implementation: City Administrator, Carver County CDA, Planning Commission, and City Council.

3. The City should work with developers, Carver County CDA and/or the local EDA to assist in the development of senior dwelling options as recommended by the 2016 County CDA Housing Study update.

    - Implementation: City Administrator, Carver County CDA, EDA, and City Council.

4. The City should encourage the development of additional market rate and affordable general occupancy and senior occupancy apartments, attached dwellings, and/or patio/cottage homes.

- Implementation: City Administrator, Carver County CDA, Planning Commission, and City Council.

5. The City should frequently review local/regional housing information and participate in local/regional housing studies, specifically as it pertains to the following:

   a. Researching the feasibility of a lease-to-purchase program. Older, existing housing stock may provide an affordable ownership opportunity when compared with the costs of new construction. To make such a program function, a public or non-profit agency needs to implement the program and funding sources must be identified.

      - Implementation: City Administrator, Carver County CDA, and City Council.

   b. Actively reviewing and promoting potential areas of residential redevelopment and infill as a means of promoting energized, sustainable neighborhoods.

      - Implementation: City Administrator and City Council.

   c. Raising awareness of diversity issues. The City should recognize, embrace, and prepare for increased diversity in its population.

      - Implementation: City Administrator, City staff, elected and appointed officials, and government representatives with assistance from: local faith communities, community organizations, and members of Mayer community

   d. Addressing local and regional housing issues through cooperative efforts with neighboring communities.

      - Implementation: City Administrator, Carver County CDA, and City Council.

   e. Addressing the aging of the population. The City should be prepared for the possibility of more senior housing options, and these options should be placed in areas with connectivity with the commercial and service areas within the City.

      - Implementation: City Administrator, Carver County CDA, and City Council.

6. The City shall encourage the development of housing that respects the natural environment of the community as an amenity to be maintained. Land use and subdivision controls should be routinely reviewed to ensure said controls respect the natural environment.

   - Implementation: City Administrator, Planning Commission and City Council.

7. The City, through its Subdivision Ordinance and/or Shoreland Ordinance, should restrict or prohibit residential development affecting public waters/watercourses, wetlands, and other natural features as they perform important protection functions in their natural state.

   - Implementation: City Administrator, City Engineer, Planning Commission, and City Council.

8. The City may wish to address maintenance problems and code violations as a means of improving and strengthening the character of individual neighborhoods and avoiding blighting conditions. Violations of property maintenance that infringe upon residential neighborhood quality, pose public health and safety problems, and threaten neighboring property values should be aggressively eliminated.

    - Implementation: City Administrator, Building Official, Planning Commission, and City Council.

9. The City should protect low-density residential neighborhoods from encroachment or intrusion of incompatible higher intensity uses through adequate buffering and separation. Residential developments should be protected from and located away from sources of adverse environmental impacts including noise, air, and visual pollution.

    - Implementation: City Administrator, Planning Commission, and City Council.

10. The City should strive to help ensure planned unit development standards, when utilized, meet City goals (i.e. diversity of land use types), preserve existing physical/natural amenities, protect the natural environment, and/or promote an organized pattern of development that will easily be serviced by municipal utilities, facilities, and infrastructure when/if extended.

    - Implementation: City Administrator, Planning Commission, and City Council.

<u>Resources</u>
The programs listed below are currently in use or are available and may be used in the City as market factors allow, assisting the City in implementing the aforementioned recommendations.

Federal Resources:

1. Section 8 Certificates and Vouchers: Rent assistance that recipients can take with them when they move, rather than being tied to specific housing. Tenants pay about thirty (30) percent of their income on rent.

2. HOME (the Home Investment Partnership Program): Grant program for state and local governments to acquire, rehabilitate, or construct affordable housing for low-income renters or owners.

3. Community Development Block Grants (CDBG): Funds community development efforts, including housing. Local governments that receive funding have wide discretion in its use.

4. The Federal Housing Administration (FHA) and Department of Veterans Affairs (VA): Insures and guarantee loans, which increase housing market access for some families.

5. Rural Housing Service: The United States Department of Agriculture provides rent assistance, direct loans, and loan guarantees in rural areas.

6. Low-Income Housing Tax Credits: Federal income tax credits for people or companies that invest in the construction or substantial rehabilitation of rental housing.

Developers of rental housing sell the credits to investors. Proceeds from credit sales can cover some of a project's development and construction.

7. Tax Exempt Bonds: Sold by state and local governments. Buyers accept a lower interest payment because it is not taxable income. State and local housing agencies use the bond proceeds to finance mortgages with below market interest rates.

State Resources (Home Mortgages):

1. Minnesota Mortgage Program: Provides mortgages with below-market interest rates to first-time homebuyers through the sale of mortgage revenue bonds.

2. Minnesota City Participation Program: MCPP is part of the Minnesota Mortgage Program, in which MHFA sets aside funds from the sale of mortgage revenue bonds for cities to meet locally identified housing needs.

3. Community Activity Set-Aside: Part of the Minnesota Mortgage Program, in which MHFA sets aside funds from the sale of mortgage revenue bonds for lenders, local governments, or nonprofit housing providers to meet homeownership needs in their communities.

4. Minnesota Urban and Rural Homesteading: Awards grants to organizations and public agencies that acquire, rehabilitate, and sell single-family homes that are vacant, condemned, or blighted to at-risk first-time homebuyers.

State Resources (Home Improvement and Rehabilitation):

1. The Great Minnesota Fix-Up Fund: Provides home improvement loans with below-market interest rates for low and moderate-income homeowners.

2. Community Rehabilitation Fund: Provides grants to cities for acquisition, rehabilitation, demolition, and new construction of single-family homes.

State Resources (Rental Housing):

1. Low and Moderate Income Rental Program: Provides mortgages and rehabilitation funds for either acquisition and rehabilitation or new construction of rental housing for low and moderate-income families.

2. Affordable Rental Investment Fund (ARIF): Provides low-interest first mortgages or deferred loans to help cover the costs of acquisition and rehabilitation or new construction of low-income rental housing.

3. Low Income Housing Tax Credits (LIHTC): LIHTC are MHFA's share of the tax credits allocated to Minnesota.

4. HOME Rental Rehabilitation: Provides grants to rehabilitate privately-owned rental property in order to support affordable, decent, safe, and energy efficient housing for lower-income families.

5. Housing Trust Fund: Provides deferred loans without interest for the development, construction, acquisition, preservation, or rehabilitation of low-income rental housing.

6. Rental Rehabilitation Loans: Provides property improvement loans to rental property owners.

Other Resources (Local Government Sources):

1. Local Bonds: May be used to assist with financing affordable housing and are available in two types. First, revenue bonds typically finance mortgages and are paid off with mortgage repayments. Second, general obligation bonds are paid off with local tax collections.

2. Tax Increment Financing: Housing or redevelopment districts may be established by local governments to assist eligible housing projects. Local governments capture the property tax revenue generated by the new development and use the captured taxes to help finance the eligible project. Occupants must meet income restrictions for housing TIF districts.

3. Local tax levies: May be used to directly finance affordable housing.

4. Local housing trust funds: Local revenues dedicated exclusively to housing activities.

Other Resources (Non-Profit Sources):

1. Greater Minnesota Housing Fund: A nonprofit agency that provides capital funding grants and loans to affordable housing projects in greater Minnesota. Contributions from the McKnight and Blandin Foundations finance the fund.

CHAPTER 7 - RESILIENCE

I. INTRODUCTION

A variety of factors can test and define a City's resiliency. These factors can include man-made or natural disasters, environmental and economic instability and lack of community cohesion. Resilient communities seek solutions to today's problems and prepare for potential outcomes. This chapter outlines how Mayer approaches resiliency through proactive planning and preparedness for the following items.

- Disaster Preparedness
- Protecting Critical Infrastructure
- Diversifying the Energy Supply
- Cyber Security
- Proactive Planning
- Water Resources
- Community and Economic Cohesion

II. RESILIENCY ITEMS

A. Disaster Preparedness.

Natural Disasters are sudden and unpredictable. Extreme weather events such as ice storms, extreme heat, tornadoes and floods can have devastating effects on a community. To prepare, the City should evaluate probable outcomes of these events and continually update its emergency operations plan. The City should also ensure critical infrastructure is backed-up where possible and will continue to function in times of need. Guiding principles of the City's approach to disaster preparedness include:

- Ensuring swift, immediate response to disasters.
- Provide fast and effective recovery efforts.
- Promote measures to minimize or prevent effects of disasters.

B. Protecting Critical Infrastructure.

<u>Electricity</u>
In addition to the physical damage caused by natural disasters, energy supply is an important concern due to its critical role in urban infrastructures. In the event of a natural disaster or cyber-attack, lack of electricity could jeopardize systems that provide necessary services like water, sewer, food and potentially vital heating or cooling. In the event that standard systems are down, it is important the City is well-trained to respond and has back-up power sources in place. To accomplish this, the City should:

- Regularly train City staff, first responders and maintenance crews in disaster preparedness.
- Diversify energy supply and backup infrastructure with solar, natural gas and gasoline generators.
- Evaluate the feasibility of backing-up critical infrastructure such as wells, pumps and

sewer lift stations with alternate power sources.

- Designate safe areas where the City's portable generators and emergency supplies will be located to provide continued support to the public.

C. Diversifying the Energy Supply.

Solar

Solar energy is an independent form of energy that demands less of natural resources. This form of power can be stored and used in times of need by Mayer residents, businesses and institutions, making it a reliable alternate power source. Solar energy also adds to a community's resiliency by lessening its dependence on fossil fuels and other finite energy sources. The dual benefits of solar energy makes it an important resiliency element, thus the City should promote and reduce barriers to its development through goals and policies.

Solar Access Protection Goals

The following are the City's goals for solar access protection:

1. To ensure reasonable access to direct sunlight is available to all parcels so that alternative forms of energy can be used to supplement or replace conventional forms of energy.
2. To reduce maintenance and energy costs of public facilities and infrastructure.

Policies for Solar Access Protection

It is the City's policy to:

1. Ensure existing levels of solar access are maintained in developed neighborhoods.
2. Encourage future site and building plans to maximize efforts to design for efficient use of solar energy.
3. Evaluate and use where possible solar energy design elements for future public facilities and infrastructure development.

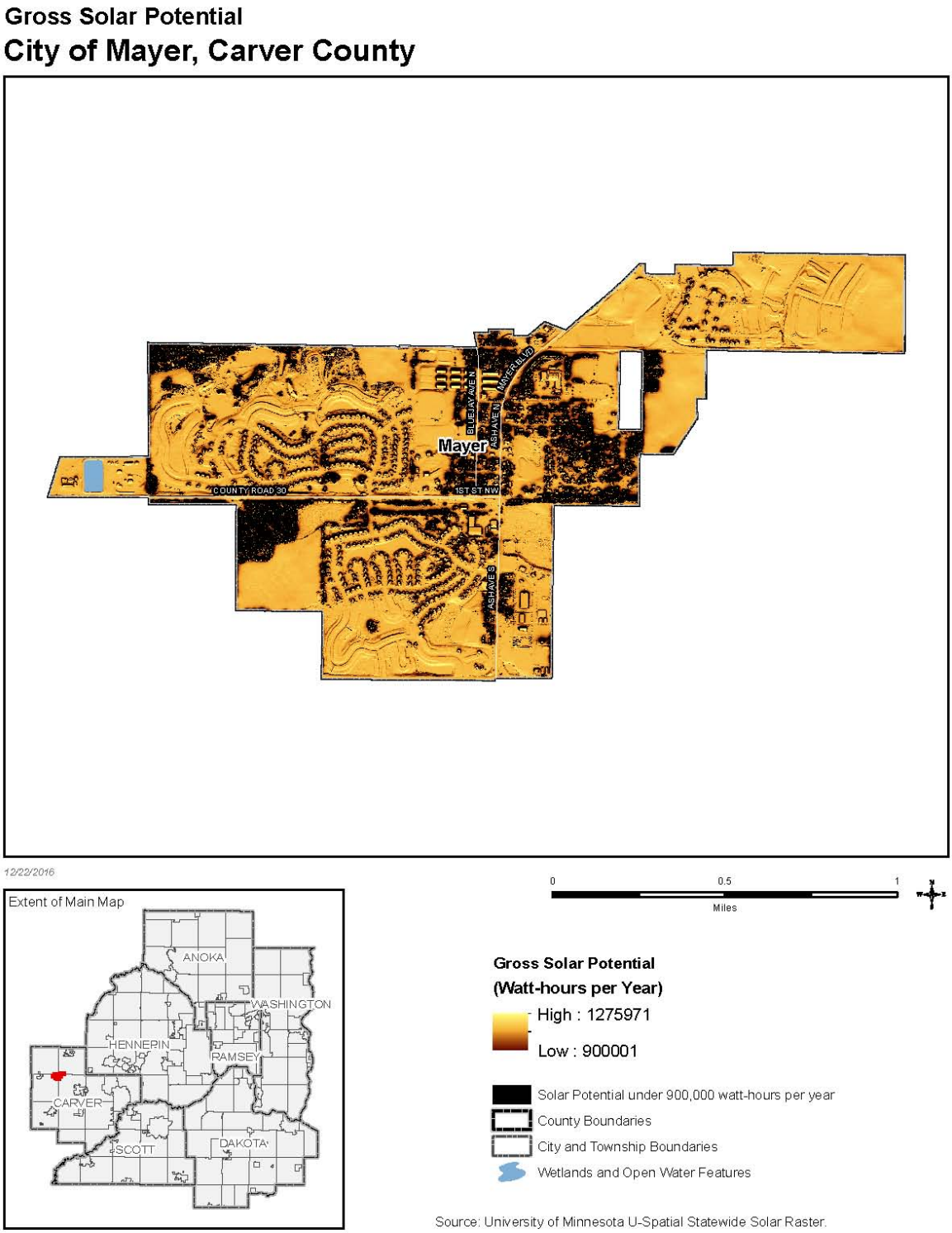
The City has adopted a solar ordinance to allow solar energy systems on certain parcels in certain districts within the City. The gross solar generation potential and the gross solar rooftop generation potential are estimates of how much electricity could be generated using existing technology and assumptions on the efficiency of conversion. 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 solar map for Mayer. The Metropolitan Council estimates that the potential for solar in the community is shown in Table 7-1 and the locations where there is the most potential for solar generation is shown in Figure 7-1.

Table 7-1 Solar Potential in Mayer

Gross Potential (Mwh/yr)	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr)[2]	Rooftop Generation Potential (Mwh/yr)[2]
3,111,143	112,694	311,114	11,269

Source: Metropolitan Council

FIGURE 7-1 GROSS SOLAR POTENTIAL, MAYER



D. Cyber Security.

With the increasing reliance on computers and wireless services for infrastructure and operational control, there is more risk of the City becoming susceptible to cyber security threats. Mayer will continually evaluate strategies to mitigate cyber security threats and prepare for disaster response.

E. Proactive Planning.

The City of Mayer should remain in-tune with their economic, environmental and regional context through proactive planning. A holistic and forward-thinking approach when managing development, resources, and community connections are important means of reinforcing resiliency. A guiding principal of the City as it implements proactive planning, should be the idea of being able to function independently and sustainably while maintaining strong regional connections.

F. Water Resources.

Stormwater Stewardship

When it rains, stormwater collects on the landscape and recycles back into the water supply. In urban environments this stormwater can have a damaging effect on buildings and roads if it stays on the ground for too long. As a result, storm sewers have played a vital role in the development of Mayer by directing storm water away from infrastructure and into surrounding waterbodies. This disruption to the hydrologic cycle creates a number of problems for our water supply and the health of the rivers, lakes and streams we rely on. As water issues become more pressing, urban environments have begun to recognize this untapped resource as a solution. One way is to require irrigation of the City with stormwater instead of valuable drinking water. This will enforce the City's resiliency in three ways:

1. **Diversifying the Water Supply.** By irrigating portions of the City with stormwater, Mayer can reduce its costs and demands on the drinking water supply. Stormwater reuse also allows more opportunity for stormwater to seep into the ground and replenish the aquifer. As water becomes an increasingly valuable and debated resource throughout the nation, the ability to use alternative water resources will play a crucial role in ensuring the City can supply enough safe drinkable water to the community.

2. **Flood Control.** As traditional urban environments develop, more roads, buildings and unpaved surfaces will route water into downstream water bodies. Rivers, lakes and streams have a finite capacity and will flood when overwhelmed. Water reuse efforts can capture and utilize stormwater each year before it reaches downstream water bodies. This frees up capacity in our rivers, lakes and streams and reduces the risk of flooding.

3. **Environmental Protection.** Infiltration of stormwater into the ground serves two important functions: replenishing groundwater supply and filtering out pollutants. When stormwater does not filter through the ground, it is full of contaminants when it reaches larger water systems. As a result increased levels of phosphates, chlorides and other pollutants are compromising water quality throughout the world. By reusing stormwater instead of discarding it, the contribution of pollutants entering downstream water bodies is less and it creates safer and more resilient water resources.

Stormwater reuse is one approach to finding innovative solutions to today's problems. As a resiliency tactic, stormwater reuse proves many benefits and Mayer could develop policies and incentives for stormwater reuse in new development projects.

G. Community and Economic Cohesion.

The physical structure of a city also influences resiliency. A holistic understanding of a community's character, goals, and regional context will guide strong planning and facilitate cohesion among community and economic realms. Community and economic cohesion occur when a City's residential and business communities have the resources necessary to support each other and succeed. This would not be possible without strong partnerships and thoughtful planning. To accomplish this, the City should incorporate the following into its planning of community and economic growth:

- Increase walkability and expand trail connections.
- Develop streets with multiple functions and experiential opportunities.
- Create desirable spaces through place-making efforts.
- Establish/encourage design standards that complement the community's character.
- Conserve natural resources.
- Implement green infrastructure and energy conservation.
- Think beyond community boundaries.
- Build partnerships.

III. GOALS, OBJECTIVES, POLICIES AND STRATEGIES

Creating a comprehensive plan in today's uncertain and rapidly evolving world requires preparing for a new climate and weather reality, advancing technologies, and shifting social structures. While elements of sustainability and resilience are incorporated into the City's existing Comprehensive Plan, they are not explicit. City practices have addressed resilience including stormwater management, encouraging active living, natural resource protections, and more.

Mayer has identified the importance of building on its previous efforts to become more resilient. This section is intended to provide guidance to the City as it considers which elements utilize to become more resilient.

GOAL 1: Promote and Develop Clean, Renewable Energy Remove barriers and increase renewable energy use to strengthen and diversify the energy grid and mitigate climate-related impacts.

OBJECTIVES

1. Increase City-wide renewable energy use, purchase, and generation.

    - Communicate opportunities and information about clean, renewable energy to the public.
    - Support programs that enable community members to participate in community renewable energy projects.

2. Encourage new development, redevelopment, and retrofit projects to add renewable energy capacity or infrastructure.

- Review and revise renewable energy standards or ordinances to remove barriers and encourage appropriate renewable energy installations.
- Create a transparent and consistent permit process for residents and businesses to install renewable energy systems.
- Partner with other public entities, utility companies, and private sector to provide clean energy infrastructure and accomplish energy goals.
- Consider renewable energy systems or its supporting infrastructure in projects that receive City financial support.

3. Incorporate renewable energy or its supporting infrastructure into City projects and operations.

    - Look for programs and opportunities to fund construction of renewable energy projects on City property.
    - Evaluate new energy technologies as they become available and incorporate into City projects and operations where feasible.

GOAL 2: Improve Energy Efficiency in Buildings, Lighting and Infrastructure. (Energy efficiency improvements will decrease costs and lower energy-related emissions over time.)

OBJECTIVES

1. Provide education and communication to residents and businesses about opportunities to decrease energy costs and lower energy related emissions.

    - Connect property owners with assistance providers who offer energy audits and assistance.
    - Partner with non-profit organizations, local utilities and/or the state energy office to facilitate energy savings opportunities for low income residents.
    - Create or participate in outreach programs to promote energy conservation

2. Integrate energy efficiency best practices information and assistance into building permit process.

    - Integrate energy efficiency standards and sustainable design features into project review and approval processes when possible.
    - Provide incentives to residential and commercial property owners who add energy efficiency improvements.
    - Consider higher efficiency standards and/or renewable energy generation or its infrastructure for projects that receive City financial support.

3. Increase the energy efficiency of all public buildings, infrastructure and operations.

    - Make no/low cost lighting and operational changes to reduce energy costs.
    - Use an integrated approach when designing new City buildings and infrastructure (heating, cooling, water, etc.).
    - Partner with other public entities, utility companies, and private sector to maximize energy efficiencies.

GOAL 3: Promote Waste Reduction, Recycling and Composting. (Comprehensive management of waste will lower energy costs and reduce energy-related emissions over time.)

OBJECTIVES

1. Improve efficiencies in solid waste removal.

    - Review the frequency of waste and recycling pickups.
    - Explore the potential of implementing organized collection systems, including residential and business/institutional source separated organics collection.
    - Research options for improving the management of yard waste, woody brush and soil.
    - Take advantage of opportunities to create a recycling program.

2. Motivate residents, businesses, and institutions to reduce, reuse and recycle waste.

    - Continue to partner with other public entities to reduce costs and provide improved services.
    - Create goals for solid waste reduction, recycling, and organics/composting for City operations as well as residential, commercial and industrial sectors.
    - Provide education and incentives to residents and businesses to reduce waste and recycle.

GOAL 4: Protect and Enhance the Natural Environment. (Protect the natural environment and enhance it to mitigate weather and climate-related impacts.)

OBJECTIVES

1. Preserve open spaces and natural areas and seek to expand these areas as opportunities arise.

    - Utilize an adaptive management approach to protection, preservation, and enhancement of natural areas.
    - Encourage, through education or incentives, development that saves or increases green spaces and protects areas with high ecological diversity.
    - Periodically survey conditions in natural areas and gather data on the effectiveness of management techniques.
    - Maintain and develop natural corridors to foster ecosystem continuity and provide connections to parks and open space.
    - Partner with public and private entities to enhance the natural environment and build resilience.

2. Increase the amount of native vegetation cover including pollinator habitat.

    - Reduce the use of chemicals, such as fertilizers, herbicides, and pesticides, that have potentially negative impacts on natural resources and human health.
    - Establish land management standards and practices that lower inputs and maximize resilience (i.e. utilize low maintenance turf, replace turf with native and resilient species wherever possible).
    - Provide information and assistance to residents on natural landscaping techniques, including rain garden installation and creation of pollinator habitats.

3. Preserve and enhance wetlands, streams, lakes and floodplain areas.

    - Update the City's shoreland management ordinance consistent with state requirements.

- Maintain and improve natural infrastructure assets such as streambanks, wetlands, ponds, and rain gardens.
- Encourage the preservation or establishment of native and natural vegetation near shorelands.
- Continue to review development proposals for conformance with standards regarding water quality, wetland protection and mitigation, and floodplain and shoreland protection.

4. Establish a diverse urban forest and adequate tree canopy coverage.

    - Begin efforts to identify and treat diseased and insect-infested trees in a timely manner.
    - Increase tree canopy in areas with low coverage.
    - Increase the ratio of tree planting to tree removal.
    - Work with private property owners and developers to encourage reforestation.

5. Control existing and emerging invasive plant species, pests and diseases.

    - Continue to monitor and prepare for invasive species and pathogens that could significantly damage the City's vegetation and water resources.
    - Plan for targeted invasive species removal and, where appropriate, native species replacement.
    - Provide education on invasive species removal and work with homeowners to limit the spread of invasive species from private properties.

6. Encourage the construction of green infrastructure to enhance water quality and reduce stormwater runoff rates, volumes, and nutrient loads.

    - Encourage businesses and residents to retain stormwater runoff onsite and to reuse it whenever feasible.
    - Conduct education and outreach on the effects of nutrient loads and contaminants in stormwater on local water quality.
    - Integrate multi-benefit green infrastructure into City capital improvement projects.
    - Encourage native, low wateruse plantings.

7. Provide education and outreach on maintaining and protecting natural resources.

    - Develop environmental education programs with schools and in the community.
    - Involve community members in hands-on land restoration and stewardship projects.
    - Provide information to community members about water use and conservation.
    - Support community efforts to improve the natural environment.

GOAL 5: Plan for Resilient and Sustainable Infrastructure. (Ensure the stability and reliability of constructed systems through long-term planning and consideration of weather and climate trends.)

OBJECTIVES

1. Protect and maintain constructed systems that provide critical services.

- Support the goals and policies in the Water Resources and Transportation Chapters of the Comprehensive Plan.
- Assess public buildings and sites for vulnerabilities to extreme weather, and make improvements to reduce or prevent damage and sustain function.
- Plan to reduce the inflow and infiltration of clear water into sanitary sewer system.
- 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.

2. Ensure new buildings and infrastructure are built to be resilient.

    - Integrate multi-benefit green infrastructure into public capital projects.
    - Design infrastructure to minimize environmental and public health impacts.
    - Develop strategies to fund infrastructure renewal.
    - Include life cycle costs (e.g. operations and maintenance, resource consumption, disposal) when planning projects and selecting construction materials.
    - Reduce impervious surface area where possible.

3. Minimize the excavation of public streets and disruption to public services.

    - Work with public and private partners to plan and schedule infrastructure projects to reduce disruptions and decrease costs.
    - Encourage efficient use of rights-of-way including joint trench construction and construction conduits for future expansion of facilities within public right-of-way, where feasible.
    - Plan to utilize trenchless technologies to rehabilitate underground infrastructure.

4. Support well-planned improvements to the private utility and communications networks that provide efficiency, security and needed redundancy.

    - Work with the electric utility to identify opportunities to enhance the electric grid to be more resilient to power outages.
    - Support improvements and the development of the natural gas network, electric grid, and smart grid technologies.
    - Engage natural gas and electric utility in discussions to include City's energy and resilience goals in franchise agreements.

GOAL 6: Increase Community Resilience and Preparedness. (Enable communities to withstand and adapt to weather and climate-related impacts.)

OBJECTIVES

1. Prepare to maintain public health and safety during extreme weather and climate related events.

    - Coordinate with regional partners to ensure basic needs of all residents are met during an emergency.
    - Identify staff responsible for City preparedness, emergency response, and recovery efforts for each type of event.
    - Designate appropriate facilities that will be made available to the public as community safe shelters and arrange for adequate provisions and backup power.

2. Ensure all residents are prepared to respond to emergency situations.

    - Participate in FEMA's National Flood Insurance Program Community Rating System to maintain a higher level of floodplain management in exchange for lower flood insurance premiums for eligible properties.
    - Provide education to residents on what actions they can take to reduce their risk to extreme weather and climate related events.
    - Coordinate with emergency dispatch and first responders to address the specific concerns of residents who may be more vulnerable in each type of event.
    - Prepare to communicate when power and communications networks are down.

3. Promote social connectedness.

    - Strengthen relationships with community organizations to support the most vulnerable residents.
    - Facilitate relationship building between members of the community across age, ethnicity, income, and/or other demographic differences.
    - Support and promote opportunities for public engagement in sustainability efforts.
    - Promote and report on the City's sustainability projects and initiatives.

CHAPTER 8 - ECONOMIC COMPETIVENESS

This chapter provides a comprehensive inventory of the City of Mayer's economic and employment base. It reveals trends in jobs and industries found in Mayer and projections for future employment. To ensure that Mayer continues to provide a variety of economic development opportunities over the next 20+ years, this chapter concludes with goals and policies for economic development in the City.

The principal components of this section include:

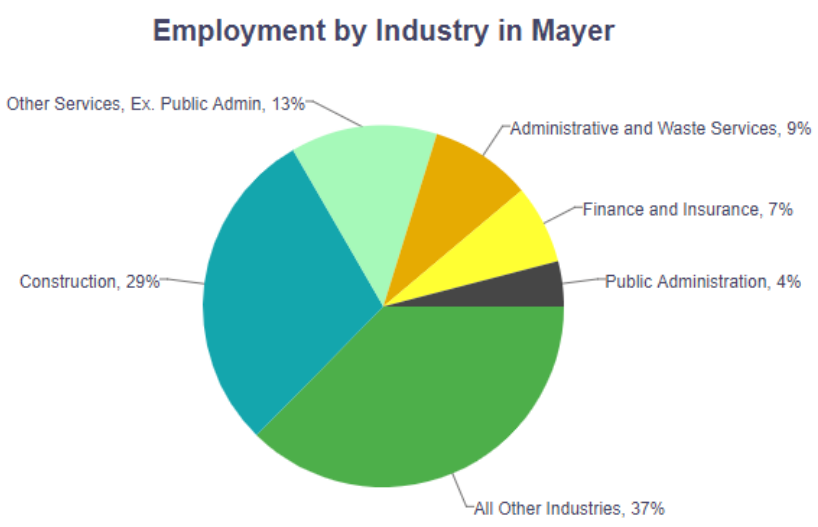
A. Key Industries/Centers of Employment
B. Development and Redevelopment Opportunities
C. Education and Employment Workforce
D. Economic Information, Monitoring and Strategic Initiatives
E. Business Development Goals and Policies

I. KEY INDUSTRIES/CENTERS OF EMPLOYMENT

Key Industries/Centers of Employment

The City of Mayer is situated along State Highway 25 and County Roads 30 and 23 in the northwestern quadrant of Carver County. The make-up of Mayer's business districts is comprised primarily of retail and service businesses including auto service and supply, banks/financial, lumber/building supplies/hardware, car wash, construction and contractors including plumbing and heating and electrical, a bakery and coffee shop, fitness, hair salon, landscape/nursery, laundromat, photography, video production, screen printing, post office and the like.

The chart below illustrates that 29% of employment in Mayer is in Construction, 13% is in the "Other Services, except Public Administration", with 9% of the jobs in "Administrative and Waste Services", 7% in "Finance and Insurance", 4% in "Public Administration" and 37% in "all other industries".



Source: Quarterly Census of Employment and Wages, Minnesota Department of Employment and Economic Development, 2nd quarter data; Metropolitan Council staff have estimated some data points.

Source: Metropolitan Council

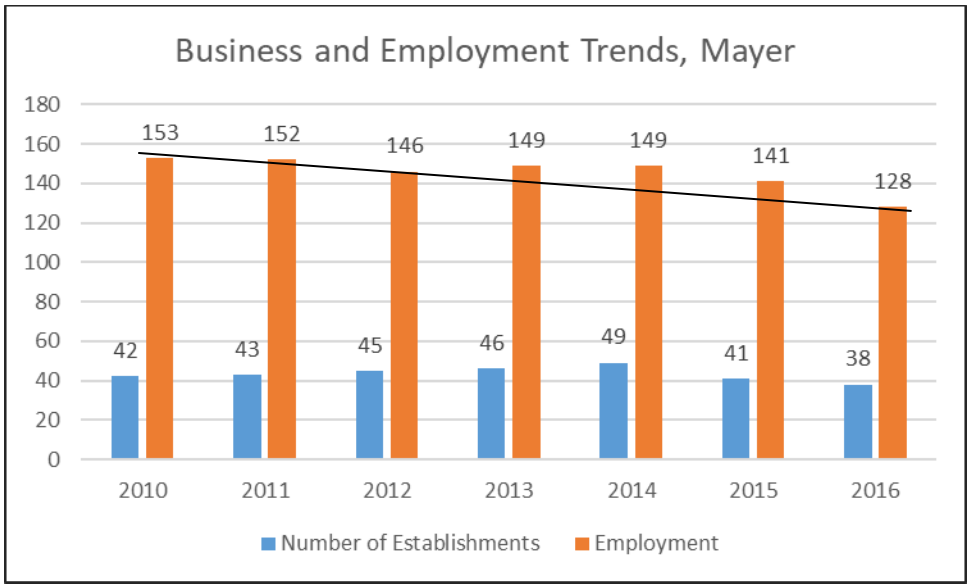
Business and Employment Trends

While larger cities within Carver County (Waconia, Chaska and Chanhassen) have experienced significant increases in retail and service businesses Mayer's business and employment trends have remained relatively stable, with some declines. The number of business establishments and employment have declined slightly over the past seven years within the City of Mayer, from 42 business establishments and 153 jobs in 2010 to 38 businesses and 128 jobs in 2016.

TABLE 8-1 BUSINESS AND EMPLOYMENT TRENDS
MAYER, MN 2010-2016

Year	Number of Establishments	Employment
2010	42	153
2011	43	152
2012	45	146
2013	46	149
2014	49	149
2015	41	141
2016	38	128

Source: MN Department of Employment & Economic Development QCEW



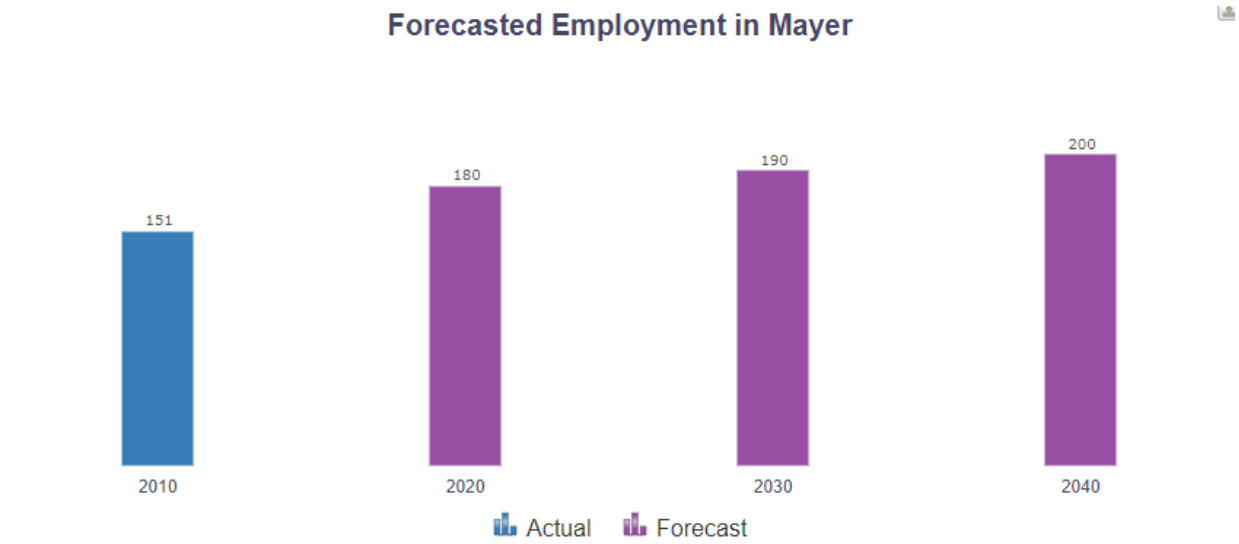
Source: MN Department of Employment & Economic Development QCEW

Employment Forecast

The Metropolitan Council has forecasted an increase of 47 jobs between 2010 and 2040, or a 30.7% increase. In 2010, Mayer provided approximately 0.48% of all of the jobs within Carver County. It is projected that while employment will increase in the City, the percent of jobs in Mayer as it relates to all jobs within Carver County will slowly decrease, resulting in 0.37% of the jobs in Carver County in 2040, as depicted in the following table.

TABLE 8-2 EMPLOYMENT PROJECTIONS CARVER COUNTY AND CITY OF MAYER

Forecast Year	Carver Co. Employment	Mayer Employment	Mayer % of Jobs in Carver County
2010	31,836	153	0.48%
2020	42,190	180	0.43%
2030	48,100	190	0.40%
2040	53,840	200	0.37%
Source: Metropolitan Council Forecasts			



Source: Quarterly Census of Employment and Wages, Minnesota Department of Employment and Economic Development, 2nd quarter data; Metropolitan Council staff have estimated some data points; and Metropolitan Council Forecasts.

II. DEVELOPMENT & REDEVELOPMENT

Commercial and Industrial Land

Within the City, 22 acres or 2% of the land in the City is commercial in use (2016), with 34 acres or 4% of the land industrial uses. The amount of commercial land increased by 4.76% from 2010, while industrial land increased by 13.33%.

The following chart and tables illustrate the "Generalized Land Use in Mayer in 2016". As illustrated nearly one-half of the land is agricultural or undeveloped, with an additional 11% as parks and recreational uses. The Metropolitan Council projects, in its regional plan, that by 2030, Mayer's commercial land will increase to 33.6 acres (an additional 11.6 acres) and industrial land will decrease to 32.6 acres.

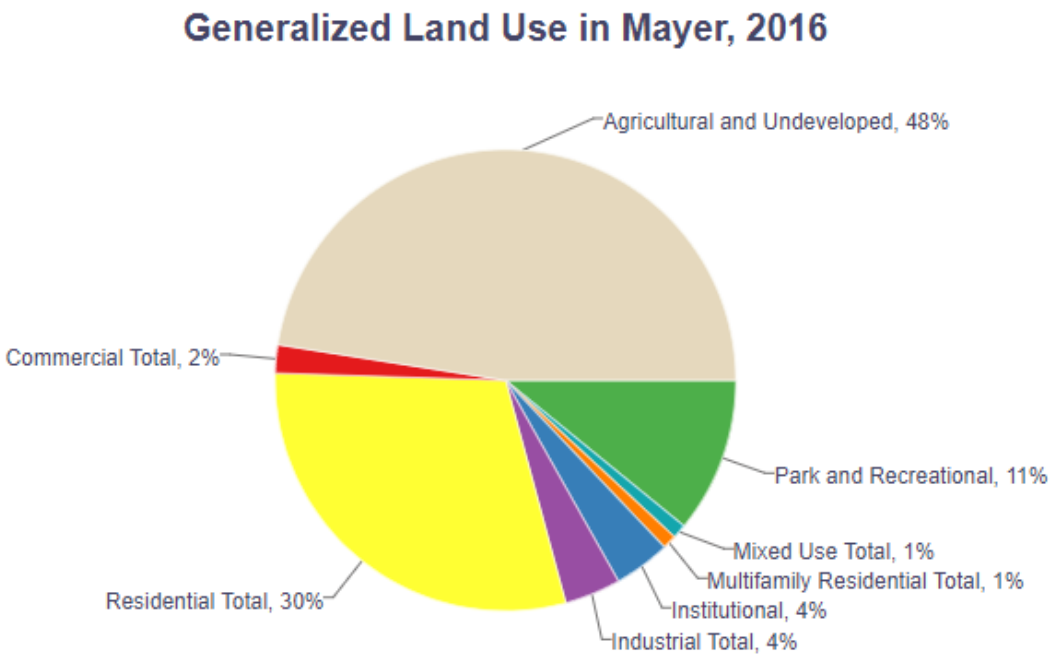
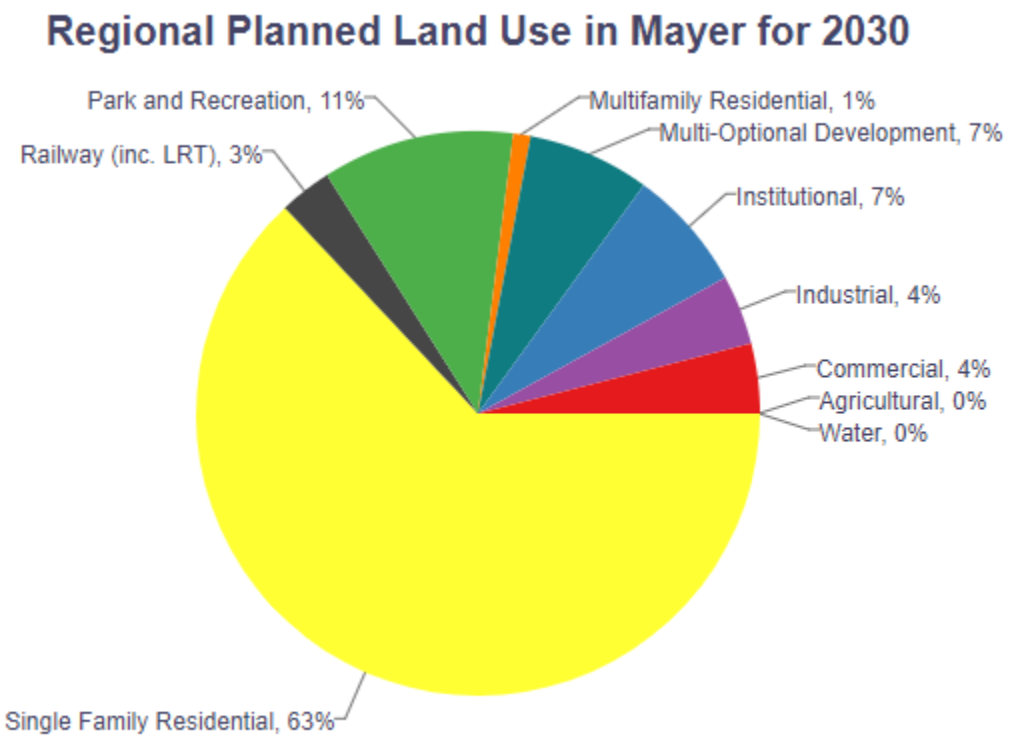


TABLE 8-3 EXISTING LAND USES, MAYER

Land Use	2010		2016	
	Acres	Change	Acres	Change
Residential Total	**257**	**N/A**	**277**	**7.78%**
Single family detached	253	N/A	272	7.44%
Multi-family	4	N/A	5	31.71%
Commercial Total	**21**	**N/A**	**22**	**4.76%**
Retail and Other Commercial	21	N/A	22	4.37%
Industrial Total	**30**	**N/A**	**34**	**13.33%**
Industrial and Utility	30	N/A	34	12.79%
Institutional Total	**32**	**N/A**	**32**	**0.00%**
Park and Recreational	44	N/A	101	129.55%
Park, Recreational or Preserve	45	N/A	101	126.74%
Mixed Use Total	**7**	**N/A**	**5**	**-28.57%**
Mixed Use Residential	4	N/A	2	-54.55%
Mixed Use Industrial	3	N/A	3	0.00%
Agricultural and Undeveloped Total	**506**	**N/A**	**427**	**-15.61%**
Agricultural	94	N/A	104	10.59%
Undeveloped	412	N/A	323	-21.57%
Total	**897**	**N/A**	**898**	**0.11%**
Source: Metropolitan Council Generalizes Land Use Historical Data Set				

TABLE 8-4 REGIONAL PLANNED LAND USE IN MAYER FOR 2030		
	2030	
Planned Land Use	**Acres**	**% of Total**
Agricultural	3.6	0.40%
Commercial	33.6	3.73%
Industrial	32.6	3.62%
Institutional	61.4	6.82%
Multifamily Residential	10.6	1.18%
Multi-Optional Development	62.5	6.94%
Park and Recreation	100.3	11.14%
Railway (inc. LRT)	27.0	3.00%
Single Family Residential	565.5	62.81%
Water	3.2	0.35%
Total	**900.2**	**100.00%**
Source: Metropolitan Council Regional Planning Land Use Data Set		



Source: Metropolitan Council Regional Planned Land Use Data Set

Redevelopment Opportunities.

Along with additional land for commercial and industrial development, as identified on the Future Land Use Map, the City and its Economic Development Authority (EDA) have identified the following potential redevelopment sites within the City:

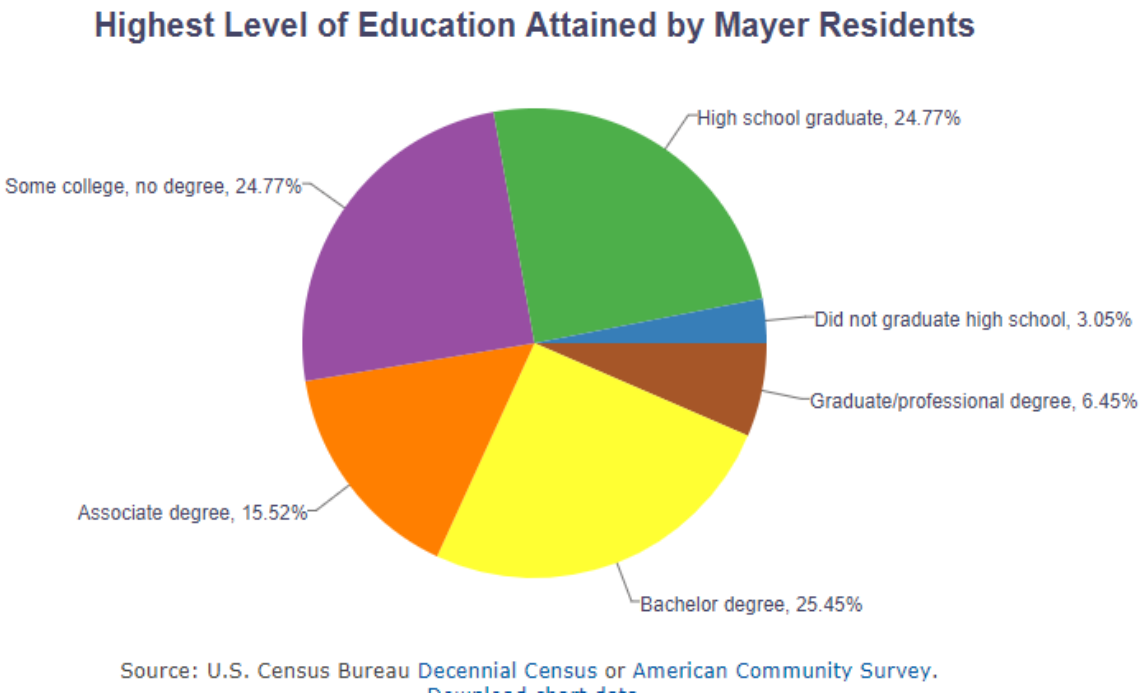
1. 513 5th Street NW. This is the old creamery site and the just under a acre property contains an existing building that is in need of repair. It is conceivable that the building could be removed and one or two vacant commercial lots could be located here. The property has frontage on Ash Avenue N to the east, 5th Street NW to the south and Bluejay Avenue to the west. The 2040 Future Land Use map guides the property for Commercial and is zoned C-2 Central Business District. It is conceivable that this property could be rezoned to C-1 General Commerce District since that is what the property to the north of this site is zoned.

2. 521 Bluejay Avenue. The twelve acre property contains nine storage buildings and some ponding areas. It is envisioned that someday this property could be redeveloped and the 2040 Future Land Use map guides the property for High Density Residential and is zoned C-1 General Commerce.

3. 615 Ash Avenue N. This property is over two acres and fronts both Ash Avenue N and Bluejay Avenue. Three storage building exist on the site and someday this site could be redeveloped for a more intense commercial use. The 2040 Future Land Use map guides the property for Commercial and is zoned C-1 General Commerce District.

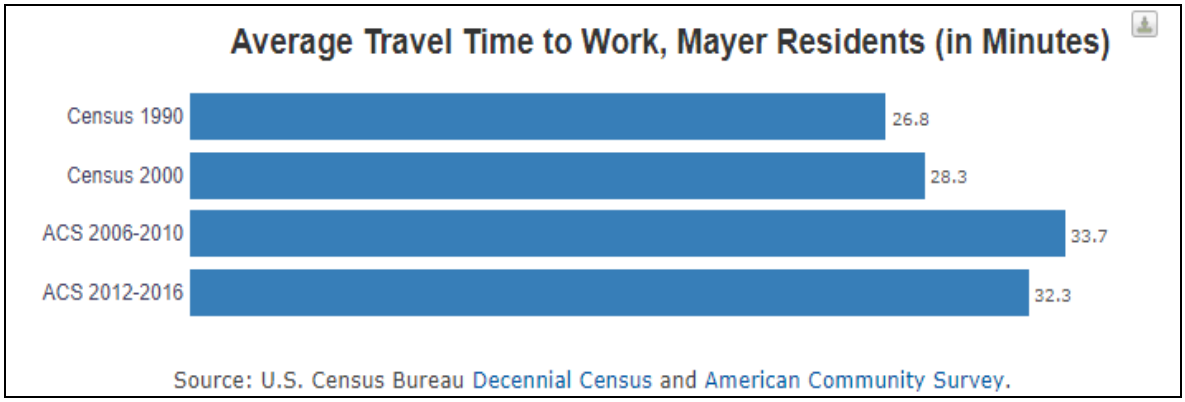
III. EDUCATION AND WORKFORCE

According to the 2016 American Community Survey (ASC), 96.9% graduated from high school including 25.45% with bachelor's degrees and 6.45% with graduate/professional degrees. Within Carver County, 95.7% have a high school graduate degree or higher and within Minnesota 92.3% have a high school degree or higher.



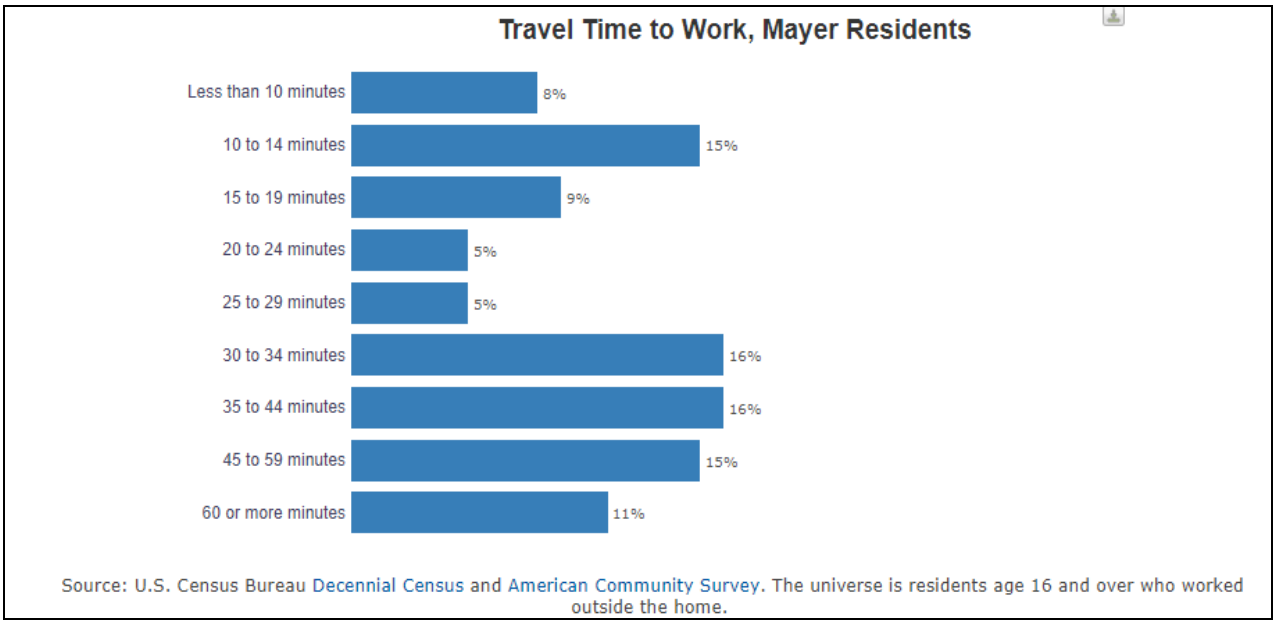
Employment/Workforce Characteristics

Employment statistics from the 2016 American Community Survey (ACS) indicate there were 1,097 residents in Mayer, age 16 and over employed in the workforce. The average time traveled to work by commuters was 32.3 minutes per the 2012-2016 American Community Survey (ACS), down from 33.7 minutes, in the 2006-2010 ACS.

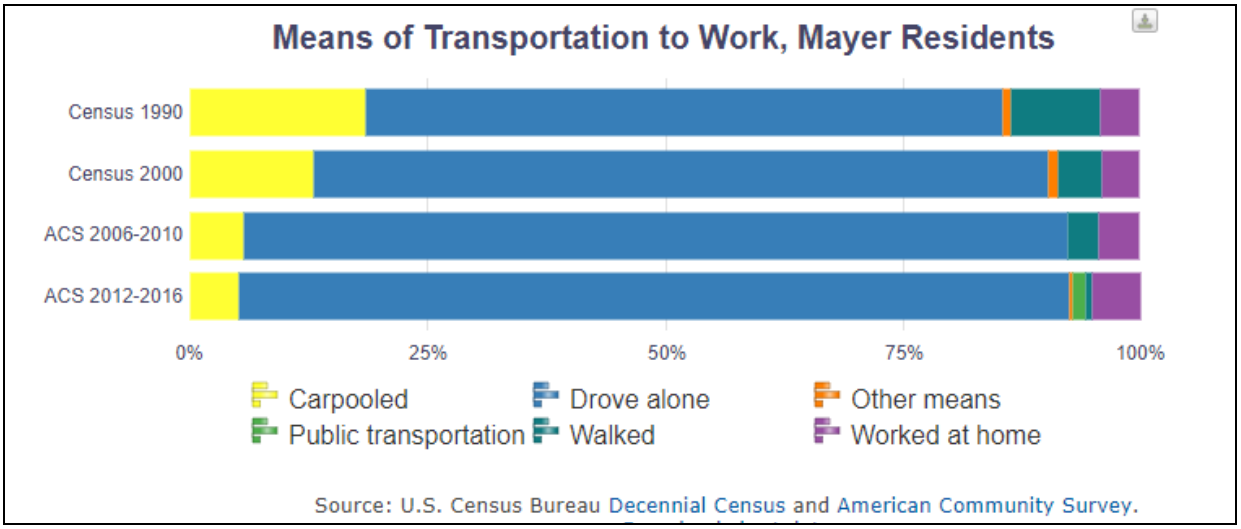


The following charts illustrates that while 23% of commuters spend less than 15 minutes commuting, 26% spend 45 minutes or more traveling to work.

2016



As illustrated in the following chart, the percent of employees working from home has increased; however, the percent of people carpooling has continued to decrease since 1990.



Of those commuting to work a majority (87.5%) drove along, while 5.2% carpooled and 5% worked from home. The means of transporting to work, in 2016, is illustrated in the following table.

Table 8-5 Means of Transportation to Work in Mayer, 2016

Car, truck, or van	92.6%
Drove alone	87.5%
Carpooled	5.2%
In 2-person carpool	4.2%
In 3-person carpool	0.9%
In 4-or-more person carpool	0.0%
Workers per car, truck, or van	1.03
Public transportation (excluding taxicab)	1.4%
Walked	0.7%
Bicycle	0.0%
Taxicab, motorcycle, or other means	0.3%
Worked at home	5.0%

According to the US. Census, 2015 data, the top ten places people travel to work include Waconia, Chanhassen, Chaska, Eden Prairie, Minneapolis, Minnetonka, Plymouth, Shakopee, Bloomington and Hollywood Township. The City of Mayer is not among the top 10 workplaces for Mayer residents. Employees working at businesses in Mayer are coming from the cities of Mayer, St. Paul, Waconia, Hollywood Township, Camden Township, Watertown, Watertown Township, Norwood Young America, New Germany, Victoria, Waconia Township, Lakeville and Bloomington, etc.

Commuting Patterns for Mayer

Select data to chart:

2015

Top ten workplaces of people who live in Mayer

Workplaces	Workers
Waconia	135
Chanhassen	78
Chaska	59
Eden Prairie	59
Minneapolis	39
Minnetonka	34
Plymouth	34
Shakopee	21
Bloomington	20
Hollywood Township	19
Other	348

Top ten residences of people who work in Mayer

Residences	Workers
Mayer	11
St. Paul	5
Waconia	5
Hollywood Township	4
Camden Township	4
Watertown	3
Watertown Township	3
Norwood Young America	2
New Germany	2
Victoria	2
Waconia Township	2
Lakeville	2
Bloomington	2
Other	14

Note: Workplaces and residences not in the top 10 are counted in "Other".
Source: U.S. Census Bureau Local Employment-Household Dynamics.

According to the American Community Survey (ASC) 2016, there were 1,097 people 16 years and older in Mayer that were employed. The top three occupations Mayer residents were employed in included management, business, science and arts occupations (39%), sales and

office occupations (22%), service occupations (19%). Occupations of residents are noted in Table 8-6. Many residents are commuting to jobs outside the city to match their education and skill sets. If jobs in these areas were available within the City of Mayer, commuting may be reduced.

TABLE 8-6 OCCUPATIONS OF MAYER RESIDENTS, 2016 ACS, US CENSUS

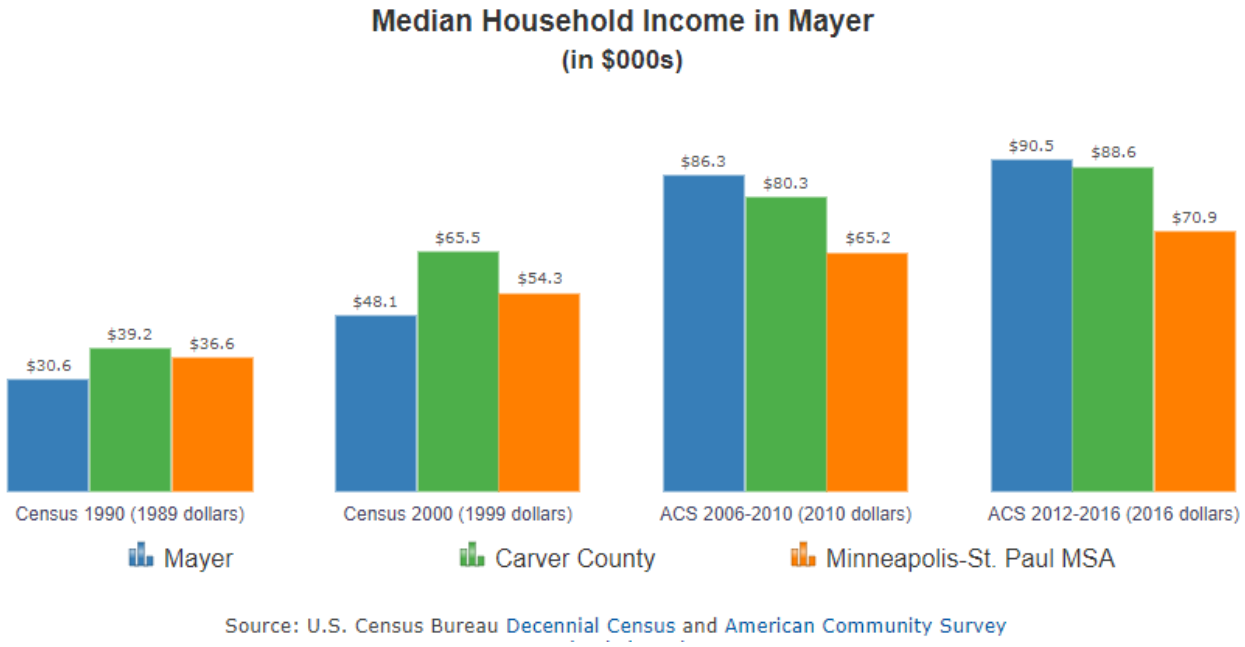
Subject	Total	
	Estimate	Margin of Error
Civilian employed population 16 years and over	1,097	+/-88
Management, business, science, and arts occupations:	424	+/-61
Management, business, and financial occupations:	176	+/-42
Management occupations	84	+/-26
Business and financial operations occupations	92	+/-37
Computer, engineering, and science occupations:	106	+/-32
Computer and mathematical occupations	46	+/-22
Architecture and engineering occupations	53	+/-23
Life, physical, and social science occupations	7	+/-8
Education, legal, community service, arts, and media occupations:	101	+/-21
Community and social services occupations	24	+/-13
Legal occupations	8	+/-8
Education, training, and library occupations	62	+/-18
Arts, design, entertainment, sports, and media occupations	7	+/-5
Healthcare practitioner and technical occupations:	41	+/-18
Health diagnosing and treating practitioners and other technical occupations	30	+/-13
Health technologists and technicians	11	+/-12
Service occupations:	206	+/-41
Healthcare support occupations	19	+/-11
Protective service occupations:	29	+/-17
Fire fighting and prevention, and other protective service workers including supervisors	16	+/-15
Law enforcement workers including supervisors	13	+/-9
Food preparation and serving related occupations	71	+/-28
Building and grounds cleaning and maintenance occupations	47	+/-26
Personal care and service occupations	40	+/-16
Sales and office occupations:	241	+/-42
Sales and related occupations	77	+/-19
Office and administrative support occupations	164	+/-35
Natural resources, construction, and maintenance occupations:	102	+/-32
Farming, fishing, and forestry occupations	0	+/-9
Construction and extraction occupations	54	+/-24
Installation, maintenance, and repair occupations	48	+/-19
Production, transportation, and material moving occupations:	124	+/-30
Production occupations	79	+/-28
Transportation occupations	35	+/-14
Material moving occupations	10	+/-7

IV. ECONOMIC INFORMATION, MONITORING AND STRATEGIC INITIATIVES

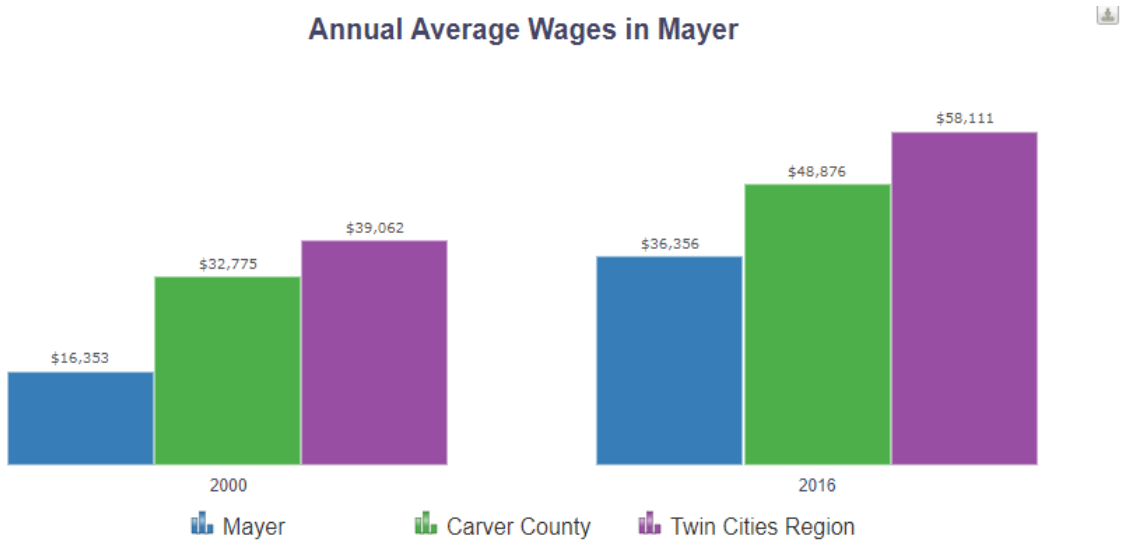
Economic trends can be important indicators as to the economic health of the community. Following is a summary of several economic indicators including income/wages, labor force and commercial and industrial construction.

Income

The median household income in Mayer has increased significantly over the past two decades. The 2012-2016 American Community Survey (ACS) reports a median household income of $90,500; higher than the Carver County median household income of $88,600 and Minneapolis-St. Paul MSA median household income of $70,900.



While the median household income in Mayer is above the county and Minneapolis-St. Paul MSA, the Annual Average Wages paid at businesses within Mayer are below the County and Twin Cities Region. In 2016, the Annual Average Wage in Mayer was $36,356 compared to $48,876 in Carver County and $58,111 in the Twin Cities Region.



Source: Quarterly Census of Employment and Wages, Minnesota Department of Employment and Economic Development, 2nd quarter data.

Employment Establishments, Employment and Wages

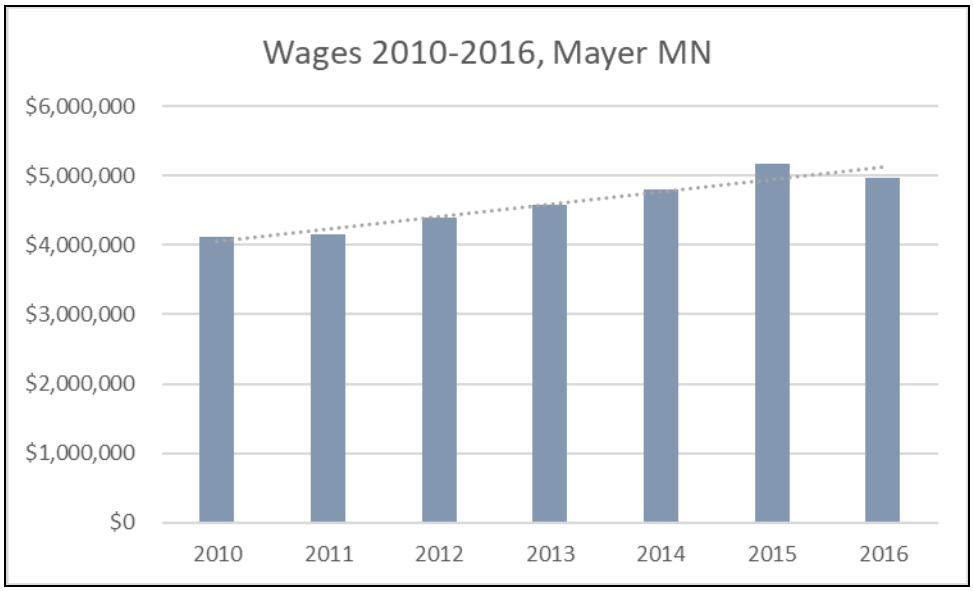
The Minnesota Department of Employment and Economic Development provides statistics on trends in the number of business establishments, number of jobs and wages paid by the establishments. Monitoring these trends may assist a city is establishing goals for economic development.

Table 8-4 summarizes data from the 2015 Economic Census, completed by the U.S. Census Bureau, for several employment sectors. It is noted 2015 Economic Census data is the latest full year of statistics available at this time. It should be noted that while the number of business establishments has declined, the number of employees and wages paid in the community have increased, with the exception of 2015 to 2016.

TABLE 8-4 MAYER COMPARATIVE ECONOMIC DATA – 2010 TO 2015

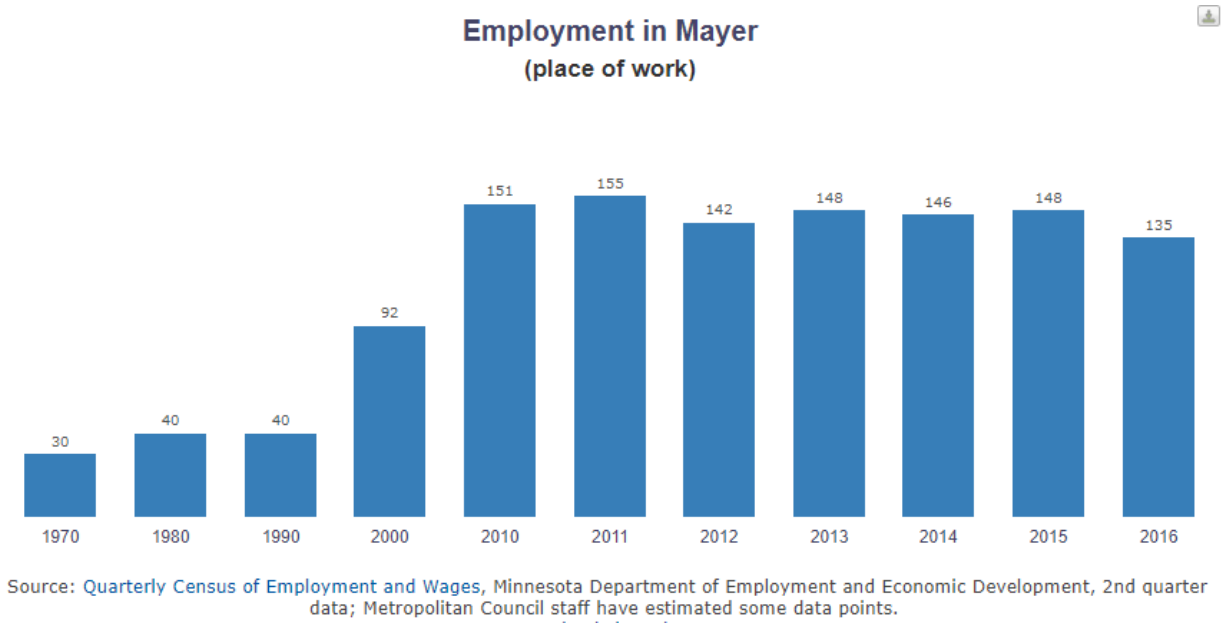
YEAR	NUMBER OF ESTABLISHMENTS	AVERAGE NUMBER OF EMPLOYEES	TOTAL WAGES
2010	42	153	$4,110,600
2011	43	152	$4,153,239
2012	45	146	$4,388,531
2013	46	149	$4,576,062
2014	49	149	$4,808,421
2015	41	141	$5,170,377
2016	38	128	$4,963,491

Source: MN Department of Employment and Economic Development, 2010-2016 Economic Census (U.S. Census Bureau)



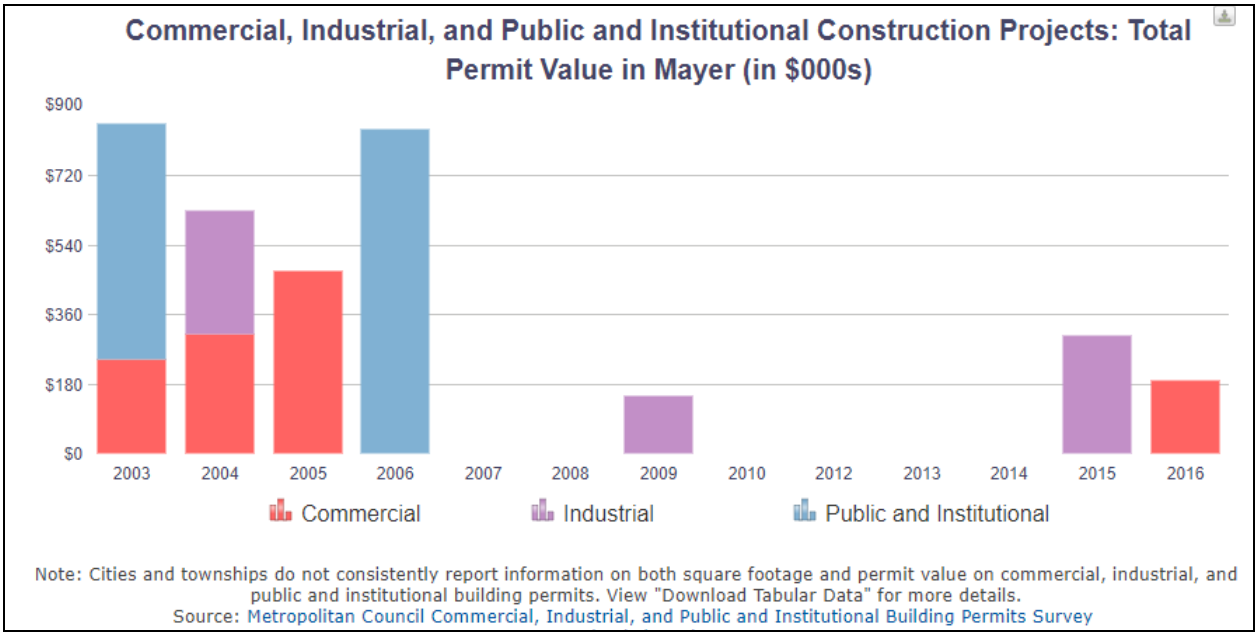
Source: MN Department of Employment and Economic Development, 2010-2015 Economic Census (U.S. Census Bureau)

A more historical review of job creation in the City illustrates a strong increase in employment 1970 to 2011.



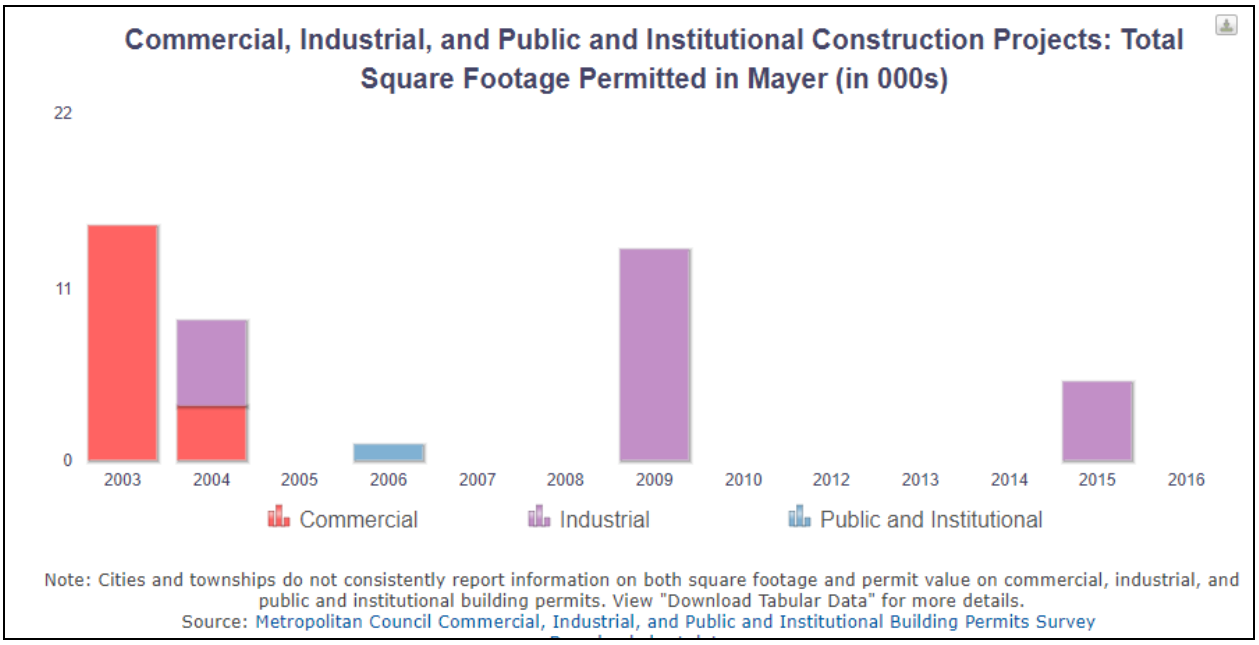
Source: Metropolitan Council.

New construction is another indicator of economic strength. The recession had a strong impact on new commercial and industrial construction in Mayer from 2006-2014. As illustrated in the following chart, new industrial construction occurred in 2009 and 2015 with an absence of commercial construction between 2006 and 2015.



Source: Metropolitan Council.

While there has been new industrial construction in the past seven years, there has not been new commercial construction in the past 11 years until 2017. The following chart illustrates the total square footage of new permitted commercial, industrial, public and institutional construction projects in Mayer from 2003 to 2016.



Source: Metropolitan Council.

V. BUSINESS DEVELOPMENT GOALS & STRATEGIC PLAN

The City of Mayer supports the fostering of economic development, with both business retention as well as the expansion of the commercial and industrial tax base. Retention and expansion of key businesses is an important strategy in promoting continued economic growth. It is an avenue by which communities promote reinvestment and facilitate employment growth. To these ends, the City has developed strategic alliances with economic development agencies to support economic competitiveness goals and policies. Following are the strategic partners, finance tools and short and long-term goals and policies.

I. STRATEGIC PARTNERS

The City of Mayer has a number of agencies to support economic development efforts. Below is a summary of these groups.

The City of Mayer Economic Development Authority was established on February 14, 2005. This is a five-member commission that was established, "to coordinate and administer economic development and redevelopment plans and programs of the City of Mayer."[1]

The Carver County Community Development Agency is based in Chaska, MN. "The Carver County Housing and Redevelopment Authority was formed in 1980 by Minnesota State Legislature. In 2002, the Carver County CDA was granted Economic Development Authority powers by the state legislature. Although the focus of the Carver County HRA hadn't changed, roles in Carver County communities began to expand, leading to a legislative name change in 2006 from the Carver County Housing and Redevelopment Authority (CCHRA) to the Carver County Community Development Agency (CDA). The CDA Board and Staff partner with Carver County cities, chambers of commerce, local businesses and residents to promote Carver County as an exceptional place to live, work and play in the Twin Cities metro area. To date, the Carver County CDA has pumped more than $140 million dollars into Carver County communities for downtown and neighborhood revitalization**."[2]**

Open to Business. The Carver County CDA offers a program– called "**Open to Business"–** which provides one on one business counseling to current and prospective entrepreneurs. Open to Business consultants work with entrepreneurs to develop a strong business plan, to identify challenges and opportunities, and to tailor solutions. The service is available free of charge to all County residents, and any business located in Carver County.

In addition to consulting, **Open to Business** program can link entrepreneurs to financing for a variety of business purposes, including equipment financing, inventory, cash flow/working capital needs and start-up costs. Open to Business has capital available to make loans directly to small businesses, and can assist entrepreneurs in creating an attractive loan package to apply to banks and other lending institutions.

The Carver County CDA has also partnered with the **Metropolitan Consortium of Community Developers (MCCD)** to bring the Open to Business program to Carver County. MCCD, a non-

[1] Mayer EDA Enabling Resolution, February 14, 2005

[2] www.Carvercda.org/about/

profit community development corporation, brings more than 20 years of experience providing technical assistance and small business loans to entrepreneurs.[3]

II. FINANCE TOOLS

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

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

Some of the tools available to the City are listed below. Each finance tool has unique requirements which are subject to constant state and federal law changes. Each one creates different obligations on the part of the City. Some of the available tools do not provide direct assistance or subsidies to businesses at all, but can still be used to encourage economic development.

- Tax Increment Financing
- Property Tax Abatement
- Special Assessments
- Special Service Districts
- Housing Improvement Areas
- Utility Revenues
- DEED Grant and Loan Programs
- Street State Aid
- Street Reconstruction
- Capital Improvement Bonds

III. ECONOMIC DEVELOPMENT STRATEGIC PLAN

In order to retain and expand its current business and employment base, the City of Mayer and its EDA have established the following goals and policies.

Goal 1: Expand and diversify the City's tax base by encouraging commercial, industrial and mixed-use development to lessen the tax burden on residential properties.

Policies:

- Support continued business development through a logical land use plan, which includes land guided for commercial and industrial development.
- Support existing businesses and their continued growth within the community with continued partnerships with the Carver County CDA and Open to Business Program.

[3] www.carvercda.org/economic-development/cda-open-to-business

- Encourage developer's to take advantage of development opportunities, especially within the designated redevelopment areas.
- Establish guidelines for the appropriate inclusion of green spaces, paths and sidewalks within commercial areas and throughout the City
- Ensure commercial development is dispersed appropriately throughout the community and in designated business development areas.
- Develop commercial areas with pedestrian oriented connections to adjacent neighborhoods.

Goal 2: Work with developers to identify innovative strategies for attracting entry level and smaller entrepreneurial business to Mayer.

Policies:

- Encourage new business owners and expanding entrepreneurial businesses to located here by offering available financial incentives when consistent with City policy.
- Work with the current business community to attract new businesses and expand the economic success of existing businesses.
- Promote Mayer as a business friendly city.

Goal 3: Promote efficient, planned commercial and industrial expansion within the City's growth areas, accessible to public infrastructure and transportation.

Policies:

- Support continued business development through a logical land use plan, which includes land guided for commercial and industrial development.
- Identify key commercial and industrial development opportunities within the City's planned growth areas in locations with access to major transportation systems.
- Encourage compact commercial development that will make efficient use of infrastructure and resources.
- Require that new commercial and industrial developments may only occur in sewered areas.
- Review and clearly define design standards to promote consistent application and timely approvals for commercial and industrial development.
- Ensure, as areas are developed, that a specific development project bears its proportionate share of infrastructure improvement costs to the fullest extent possible.

Goal 4: Attract and encourage new light industrial, business and professional services enterprises and maintain and expand existing businesses in Mayer.

Policies:

- Recruit businesses which provide employment opportunities consistent with the City of Mayer's residents' education and occupation experience, to reduce commute times and offer local employment options for employees currently commuting elsewhere to work.
- Protect designated commercial and industrial areas from residential encroachments and marginal land uses that will preclude the highest economic use of land available for commercial and light industrial development.
- Recognize the fundamental linkage between housing and economic development and work to match housing availability with community development.
- Continue to support local business retention and expansion initiatives.

- Encourage services such as wi-fi access, office space, copy services, postal and overnight delivery pick-up and telephone services to small and start-up entrepreneurial business owners and telecommuters who can share space and costs.
- Allow home occupations which are compatible with surrounding uses.

CHAPTER 9 - IMPLEMENTATION

I. INTRODUCTION

The Comprehensive Plan is the principal tool for guiding the development of the City. This section identifies methods the City of Mayer will employ to implement the Comprehensive Plan and associated goals and objectives as identified by the community. The community's vision will be realized only if the plan is implemented and the purpose of this section is to provide guidance on using the plan. Implementation of the Comprehensive Plan begins with its official approval. Following approval, the City will utilize many 'tools' to achieve policy plans and goals including:

- Zoning Ordinance
- Subdivision Ordinance
- Capital Improvement Plan
- Orderly Annexation Agreements
- Comprehensive Plan Review and Revision
- Implementation Strategies

A description, implementation information and recommendations for each of the City's local controls and implementation programs is included in this chapter.

II. IMPLEMENTATION TOOLS

A. Official Controls. Official controls, such as zoning regulations, subdivision regulations, and the official zoning map, must be consistent with the Comprehensive Plan. These controls represent the rules and regulations that govern City decisions regarding growth and development. The City will update its official controls after the plan adoption.

Current Zoning. The current City of Mayer Zoning Ordinance was originally adopted by the City Council in 2001 and many updates have been made to the ordinance since then. The Zoning Ordinance includes specific regulations governing land use and an official zoning map. With formal approval of the Mayer Comprehensive Plan the City Council recognizes the Comprehensive Plan as the 'umbrella' policy guiding the overall growth and redevelopment of the City of Mayer. The policies/goals identified within the Comprehensive Plan are in part carried out through standards regarding land use set forth within the Zoning Ordinance.

Comprehensive Plan Amendments and Updates. The Comprehensive Plan is intended to guide the growth of the community. The City will periodically review the Comprehensive Plan and amend it to reflect changing needs and conditions. Amendments to the Comprehensive Plan shall not occur without public notice, a public hearing conducted by the Planning Commission, City Council final review and approval by the Twin Cities Metropolitan Council. Amendments to the Comprehensive Plan should be considered if there have been changes within the community or issues which were not anticipated by the Plan.

B. Capital Improvement Plan. The Capital Improvement Plan (CIP) addresses future needs in

the areas of infrastructure extension and replacement, municipal buildings and facilities, park improvements, and equipment replacement. The CIP includes project descriptions, cost estimates, financial resources and cash flow analyses. The CIP, while adopted annually, is a work in progress and must be reviewed and revised to stay viable. The CIP will serve as the foundation upon which future CIP's may be developed and refined. As conditions change, the City must adjust to and accommodate such changes within the CIP. The City reviews its existing CIP to prepare for the future years. The capital improvement planning process that occurs each year will assess the plans and programs recommended in the Comprehensive Plan and incorporate the recommendations as appropriate.

C. Intergovernmental Coordination. Implementing the Comprehensive Plan will require continued coordination with many townships, counties, agencies and organizations. Mayer is:

- Adjacent to four townships (Camden, Hollywood, Waconia and Watertown),
- Located within Carver County,
- Located within Watertown-Mayer Independent School District No. 111,
- Located in the Carver County Water Management Organization (CCWMO).
- Continued coordination with these entities is integral to ensuring implementation of this plan.

D. Public Education and Outreach. The entire Mayer community will be affected by the Comprehensive Plan and the public's involvement in supporting and helping achieve the plan's vision and goals is critical to its successful implementation. The City has several public education and outreach tools available including the City website (www.cityofmayer.com), special mailings and publications, public hearings, community meetings, and advisory panels. These tools will be used to involve the public in implementing the plan.

E. Economic Development Tools. Chapter 8, Economic Competiveness, includes a list of the statutory powers and tools granted to the City to assist with economic development, and some of the considerations the City must take into account when deciding when, where and how to use these tools.

III. IMPLEMENTATION STRATEGIES BY CHAPTER

A. Land Use (Chapter 2). To implement the goals and policies of the Land Use Plan, the City will consider the following actions:

1. Review and update the zoning map as needed to eliminate any inconsistencies with the Comprehensive Plan.

2. Create or amend the zoning districts:

    - Create a new zoning district or review and amend, if needed, the A Agricultural District to provide a zoning classification appropriate to land planed for future urban development but where municipal services are not yet available. The district would apply until a landowner/ developer makes application for development, at which time the City may rezone the property consistent with its

designation on the future land use plan map, provided that the development does not result in the premature extension of public utilities, facilities or services.
- Amend the commercial districts to ensure the uses allowed are consistent with the district and surrounding areas.
- Create a new light industrial district for future industrial expansion. This district should consist of specifically industrial uses without a mixture of commercial uses.

3. Review and update the existing residential zoning district requirements and subdivision regulations to ensure that the densities allowed in the plan can be achieved.

4. Develop design standards to ensure high quality residential, commercial and industrial development in the community, including:

   - Standards for commercial developments so they are more attractive, user friendly, and integrated into the surrounding neighborhoods and adjacent areas.
   - Ways to strengthen and maintain the appearance of the City's gateways and key transportation corridors.
   - Guidelines for new development that are intended to sustain unique natural features.

5. Update natural resource protection standards in ordinances:

   - Review and modify the maximum allowable impervious surface coverage requirement for each zoning district.
   - Review and update site planning and stormwater management requirements to promote Low Impact Development (LID) techniques.

6. Ensure that the development review process integrates land use with all other aspects of the plan:

   - Ensure that the timing of development is consistent with the planned and programmed parks and open space, transportation, sewer and water systems.
   - Monitor the staging plan annually and review the supply of available land.
   - Coordinate with law enforcement and fire department as growth occurs in Mayer to ensure that resources are in place to adequately serve the community.

7. Promote community involvement in the development process and City affairs:

   - Provide ample opportunities for community involvement and input for planning projects within the City through citizen advisory groups, public open houses, other stakeholder meetings, and surveys.
   - Use the City's website to provide information and obtain input on planning and development projects in the City.

8. Promote a working relationship with the neighboring townships when it comes to future annexation and the urban growth area. The urban growth area is anticipated to meet the land needs of the City to the year 2040 and will coincide with municipal utility service areas and projected capital infrastructure. Parcels within the urban growth area are to be annexed into the City of Mayer prior to being developed with municipal infrastructure.

- As a part of the Comprehensive Plan implementation process, the City of Mayer and Camden, Hollywood, Waconia and Watertown Township will look to work together to develop and adopt Orderly Annexation Agreements.
- The City of Mayer desires to take an active role in the review of future development and redevelopment applications for approval within both the urban growth boundary as they relate to: transportation systems; land use; water supply, sanitary sewer and storm sewer system components; and, trail and park plans which may impact the City of Mayer.

B. Transportation (Chapter 3). To implement the goals and polices of the Transportation chapter, the City will consider the following actions:

1. The City should periodically review and update the Transportation Plan and its traffic forecasting model, based on estimates of future development, population trends, changing financial resources, and citizen and local government input. Depending on the speed and degree of change, it is recommended that the plan be reviewed at least every five to ten years.

2. The City of Mayer will continue to coordinate with adjacent townships, as well as Carver County and MnDOT when planning future improvements. Coordination among jurisdictions will provide opportunities for collaboration that could benefit all agencies and the public. This may result in financial and time savings through economies of scale, as well as potentially reducing construction impacts to residents through the coordination of projects.

3. Recommended changes to the functional classification system will be adopted by the City as part of the adoption of the overall Comprehensive Plan Update. Since these changes are likely to involve either state or county roadways, the City should work closely with these agencies to ensure that the process of approval is carried forward.

4. The Transportation Plan is designed to review transportation needs at a policy level and does not make recommendations for design. Each recommended improvement should be studied in more detail through an engineering study to verify the need and identify the exact nature of the improvement. Such studies will also serve to identify specific projects that will be designed to achieve the improvements recommended in the plan. The cost and schedule of individual projects should be addressed in preliminary and final design.

5. An overall strategy of improvement should be developed and adopted that considers the recommendations contained in the plan. To meet the objective of completing recommended improvements to the roadway system within the planning horizon of the plan, the City will continue to develop, in cooperation with the state and the county, a list of projects that will collectively result in the achievement of the desired system. These projects should be prioritized in such a way that overall system benefits are maximized.

6. The City's trail system should be developed and improved to encourage bicycling and walking as alternative transportation modes. Trails should link residential uses to schools, neighborhoods, athletic complexes, and local parks and regional trails as well as commercial nodes within the City. To the extent possible, trails should be developed concurrently with the infrastructure of the subdivision or new

development.

C. Water Resources (Chapter 4). To implement the goals and polices of the Water Resources chapter, including the stormwater management plan, the sanitary sewer plan, and the water plan, the City will consider the following actions:

Stormwater: To implement the goals and policies of the Stormwater Management Plan, the City will consider the following actions:

1. The City will review and revise maximum allowable impervious surface requirements for low and medium density residential districts.

2. The City will evaluate better site design standards into development standards to protect high priority wetlands, enhance groundwater protection and protect groundwater dependent nature resources.

3. The City will evaluate revisions to road design standards to minimize or reduce surface water runoff and improve water quality.

Sanitary Sewer: To implement the goals and polices of the Sanitary Sewer Plan, the City will consider the following actions:

1. The City will annually review and evaluate the sanitary sewer rate structure and connection charges, to assure adequate funding of the sanitary trunk system.

2. The City will review development proposals in light of the future sanitary sewer system layout presented in the 2040 Sanitary Sewer Plan, and incorporate needed trunk sewers into developers' plans where appropriate.

3. The City will investigate the costs and benefits of requiring "point of sale" inspections for Individual Sewage Treatment Systems ISTS.

4. The City will continue look to monitor and correct inflow and infiltration (I/I) throughout the sanitary sewer system.

5. The City will review the Capital Improvement Plan annually, with particular attention to projects upcoming during the next two year period.

Water Supply: To implement the goals and polices of the Water Plan, the City will consider the following actions:

1. The City will annually review and evaluate the water rate structure and connection charges, to assure adequate funding of the water supply system.

2. The City will review development proposals in light of the future water system layout presented in the 2040 Comprehensive Water Supply Plan, and incorporate needed new mains, water towers, wells and water treatment into developers' plans as appropriate.

3. The City will monitor the Wellhead Protection Plan to protect the groundwater source from contamination.

4. The City will protect its water supply through conservation efforts that reduce water demand, improve water use efficiency, and reduce loss and waste of water.

5. The City will review the Capital Improvement Plan annually, with particular attention to projects planned within the next two years.

D. Parks & Trails (Chapter 5). To implement the goals and polices of the Parks & Trails Chapter, the City will consider the following actions:

1. Prior to undertaking park development or redevelopment projects, the City should prepare a master plan to ensure the park will meet the needs of the community, and to avoid unnecessary duplication of amenities and infrastructure. If possible, the plan should be completed or updated no more than two years before undertaking a project.

2. The City will use its CIP to identify funding sources, prioritize and implement redevelopment and improvement projects for existing parks. This includes replacing or improving items such as playground equipment, shelters, picnic amenities, courts, sports fields, etc. as they become unsafe, are of poor quality, are at the end of their service live, and/or no longer meet recreational needs.

3. The City will develop new parks using park dedication funds as the primary funding source. If park dedication funds are not adequate to fully develop parks, supplementary funding will be needed from other City revenues and potentially from grants.

4. The City will work cooperatively with the community and willing partner to identify the needs and potential funding sources for recreation facilities and community parks. The City will complete a thorough assessment of athletic field supply and demand.

5. The City will look for additional land acquisition opportunities to ensure adequate space for future facilities.

6. The City will continue to work with developers and use strategies such as conservation development to complete the greenways and open space system.

7. The City will implement the trail system concurrent with new housing developments, road construction/reconstruction projects and as funding is available.

8. The City will consider using the following funding sources for park acquisitions and improvements, as appropriate:

   - General Levy: Yearly budget allocated to park, greenway and trail improvements, replacements, operation and maintenance, primarily derived from property taxes.
   - Park Dedication: Cash and/or land contributions from developers when land is subdivided for new development.
   - Grants: Many types are available, typically very competitive. Some are small amounts and most have a shared match policy.
   - Bond Referendum: Residents may vote to allow the City to issue bonds, to construct new facilities in the short term, to be paid back in the long term (such as 10 to 15 years or more.)

E. Housing (Chapter 6). To implement the goals and polices of the Housing Chapter, the City will consider the following actions:

1. Review and update the zoning and subdivision ordinances to identify and reduce impediments to affordable housing, including:

    - Periodically review land use regulations to determine their effectiveness in encouraging additional affordable units as well as allowing improvements to keep the existing housing stock desirable and livable.
    - Ensure that all new housing including high density adheres to the highest possible standards of planning, design and construction.
    - Promote development of neighborhoods that incorporate housing in a range of densities and affordability limits near shopping, services and daycare. Safe access to parks and schools, and the ability to walk or bike should be part of the design.
    - Use the Planned Unit Development process to provide flexibility for development containing affordable housing such as a reduction in lot size, setbacks, street width, floor area and parking requirements.

2. To promote maintenance of the existing housing stock, the City will:

    - Support and promote all county and state programs and non-profit programs providing housing rehabilitation funds for existing owner-occupied homes and rental buildings or units.
    - Promote programs that encourage maintenance of existing housing such as a housing remodeling fair, neighborhood watch programs, City beautification programs, City wide clean-up program.

3. Pursue funding opportunities to increase the affordability of new housing units, including:

    - Use the powers and tools of the Economic Development Authority to make funds available for the creation of new affordable housing.
    - Continue policies to use Tax Increment Financing to fund activities that increase new affordable housing.
    - Seek housing developers to work cooperatively with the City to construct affordable units.
    - Partner with, support and market programs offered by the County, State, Federal Government and non-profits to fund the development of affordable housing.
    - Utilize the City's website or newsletters and other sources for promotion and advertising of housing programs.

4. To improve opportunities for senior housing the City will:

    - Cooperate with developers or other agencies as appropriate to assess senior housing needs in the community.
    - Develop a list of available resources and providers of in-home services to older adults and those with special needs.

F. Resilience (Chapter 7). To implement the goals and polices of the Resilience chapter, the City will consider the following actions:

1. To ensure that the City provides swift response to disasters, the City will explore opportunities to provide training staff, first responders, and maintenance crews in relation to a range of disasters.

2. The City will look at using stormwater for irrigation and support stormwater reuse in development projects.

3. To ensure that consistency in energy supply is maintained, the City will evaluate the feasibility of diversifying energy sources and backing up critical infrastructure with alternate power sources.

G. Economic Competiveness (Chapter 8). To implement the goals and polices of the Economic Competiveness chapter, the City will consider the following actions:

1. Expand and diversify the City's tax base by encouraging commercial, industrial and mixed-use development to lessen the tax burden on residential properties.

2. Work with developers to identify innovative strategies for attracting entry level and smaller entrepreneurial business to Mayer.

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

4. Attract and encourage new light industrial, business and professional services enterprises and maintain and expand existing businesses in Mayer.