# **CITY OF WOODLAND**

# **2040 COMPREHENSIVE PLAN**



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# **CITY OF WOODLAND Comprehensive Plan 2040**

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### **REFERENCE DOCUMENTS:**

Stormwater Management Plan
 Woodland Zoning Ordinance

# Chapter 1 INTRODUCTION

In 1995, the Minnesota State Legislature amended the Metropolitan Land Planning Act (MLPA) to require review of local comprehensive plans every ten years. The purpose of this plan is to serve as a general guide for physical planning of the City of Woodland, which is a product of past policies and current trends or conditions. The plan provides policy guidance in the areas of land use, transportation, parks, housing, utilities and economic development. The amendment ensures that local controls are consistent with and to respond to changes in the regional system plans assembled by the Metropolitan Council.

In conformance with the Metropolitan Land Planning Act, the City of Woodland first adopted a Comprehensive Plan in 1980. The Plan serves as a guide for local zoning controls. The City has experienced few changes over the last two decades, with the exception of installing municipal sanitary sewer and water services to a portion of the City in 1996. Woodland continues to work with surrounding communities to share services in order to minimize the cost of these services. Collaborative services include City Clerk, Building Inspection Services, Police Protection, and some Public Works functions provided through the City of Deephaven. Fire Protection is provided through the City of Wayzata. Municipal sewer and water service to 50 households in Woodland is provided through connections to the City of Minnetonka sewer and water systems. A contractor, Metro West Inspections, provides inspection services for all new septic systems and repairs to existing systems. Bi-annual septic maintenance reviews are performed by a private contractor who is a certified septic inspector.

The following pages summarize four major elements of the Comprehensive Plan update:

#### Planning Framework

Community History and Background Goals and Policies

Land Use

Land Use Element Housing Element Population and Economic Activity

#### **Public Facilities**

Transportation Aviation Parks and Open Space Sanitary Sewer, Water and Surface Water Management Plan

#### Implementation

Controls Environmental Protection Housing Program

### COMMUNITY BACKGROUND AND HISTORICAL DEVELOPMENT

#### HISTORY

Woodland is a small residential community on the southeastern shore of Lake Minnetonka, lying between Wayzata and Minnetonka on the north and east and Deephaven on the south and west. Attached is **Figure 1** depicting Woodland's location in relation to Lake Minnetonka.

The History of Woodland is largely the history of two old and important segments of the City: the area known as Maplewoods and the Groveland Homeowners Association.

Former long time resident Nicholas E. Duff published a history of "Maplewoods", from which the following information has been taken.

"Maplewoods is a piece of land, a small portion of the metropolitan area occupied by comfortable homes. But it is far more to those who live there. Maplewoods is an island of wooded hills and marsh, nearly surrounded by water." Maplewoods is also a rich package of memories to those who have lived there, and even more to those who grew up amidst its trees and lawns. A few have been here most of a century, and some of them followed the footsteps of their grandparents along the trails and roads. In a little more than a century five generations have enjoyed our neighborhoods."

In the latter part of the Nineteenth Century, Maplewoods came to be used as a summer residence for a number of Minneapolis families, several figuring prominently in the cultural and economic development of the metropolitan area. It was first platted in 1882. By 1889, nearly all the shoreline was developed by summer residences of various sizes. The interior was slower to develop. Starting about 1935, the character of the Maplewoods area gradually changed from one of summer residents to one in which the residents lived year-round.

The second old area of Woodland is the Methodist Lakeside Assembly, known today as the "Groveland Homeowners Association". In 1902 a small group of dedicated Methodist people formed the Methodist Lakeside Assembly. Geographically the 14 acre site was just two blocks from the Groveland station on the Chicago, Milwaukee, and St. Paul Railway, just 13 miles from the Minneapolis City Hall. The Milwaukee road map designation of "Groveland" plus the "Assembly" of Sunday school, Epworth League, and Christian Endeavor plus the "Grounds" on

the beautiful lakeside of Minnetonka all added up to the area being popularly known and called to this day the "Groveland Assembly Grounds." The founders' general purpose and plan of operation for the Groveland Homeowners Association was the mutual improvement in religion, moral, literary and social culture.

Through annual contributions from its residents, the Groveland Homeowners Association seeks constantly to improve the grounds and the residents' quality of life. The roads within its borders are private and are maintained by the Association.

In 1948, residents of Maplewoods, the Groveland Homeowners Association and certain adjoining lands incorporated what is now the City of Woodland. Their primary purpose was to preserve the unique, attractive and quiet residential character of their respective areas.

The initial name was the Village of Maplewoods. In 1949 the name was changed to the Village of Woodland and later changed to the City of Woodland. The compound word was composed of the "wood" from Maplewoods plus the "land" from Groveland. The union of the two old established areas and of the people nearby has been most harmonious and beneficial for all.

# Chapter 2 PLANNING FRAMEWORK

#### **Goals and Policies**

#### Goal

To continue to build a community that provides a high quality of residential life, by maintaining the natural beauty of the topography, securing orderly residential development with sensitivity to the forested areas, wetlands and Lake Minnetonka and providing comprehensive safety and security for its residents.

#### Policies

**Land Use** To preserve and maintain open space, natural features such as lakes, ponds, wetlands, slopes, woodlands, natural drainage courses, and other environmental features which serve vital functions in the City.

To maintain natural light, sounds, and smells consistent with the natural setting of the City, while minimizing unnatural or manmade lights, sounds or smells.

To maintain the current 2-acre zoning and minimum structure setbacks which will continue to enhance the natural beauty of the City and its quiet residential character.

**Lakes** To protect the natural shoreland from inordinate development and hardcover. Specifically, to protect the shore impact zone from structures and other adverse effects of development.

To support the maintenance of natural vegetation along the shorelines of the lakes and encourage the use of native plants.

**Slopes** A significant feature of the City's landscape is its steep slopes. The City recognizes that development on these areas can cause environmental damage and the loss of habitat, valued topographic features and scenic views. Therefore, the City will continue to regulate development on steep slopes through its present ordinances. In conjunction with shoreland preservation, the City will maintain bluff setbacks and the protection of slopes from unnecessary erosion from development or the loss of vegetation. Slopes shall be maintained in a natural state with vegetative cover to minimize erosion. During construction, soil shall be left bare for the shortest time possible and techniques shall be exercised to prevent erosion and trap sediments.

<u>Wetlands</u> The City will continue to protect the quality of its wetlands and lakeshore by administration of the environmental ordinances already in effect. Preservation and protection of

wetlands, identified on the City's official wetland map dated March, 1988, from development or alteration that will adversely affect or inhibit their ecological role. Additionally, the City will continue its close relationship with the Minnehaha Watershed District and Lake Minnetonka Conservation District to manage its wetlands and protect the quality of Lake Minnetonka.

<u>Woodlands</u> To encourage the maintenance of natural vegetation through the prohibition of clear cutting and limiting the allowable impervious cover for each property.

The City recognizes that its woods are a major element of the community's beauty and quality of life. The City will continue to administer its present ordinances for protection of trees during the development process. The City will continue to work to safeguard the integrity of its forest, limit the loss of mature trees during land development and promote the replacement or addition of trees. During private construction, the removal of trees should be minimized, and replanting shall be required, if the Zoning Coordinator determines that such replacement is necessary when removal is unavoidable. Trees to be saved should be protected by fencing.

**Housing** The City of Woodland recognizes the benefits of having a housing stock that provides choices for persons in all stages of their life cycles and careers. The City will retain the basic single family character of the community while encouraging a diversity in size and value of the housing stock, so that Woodland will be an attractive community for as many income groups as possible. The City recognizes that existing older and smaller homes play and important role by providing housing diversity and encourages the rehabilitation of existing housing units on their present location.

# Chapter 3 LAND USE

This section examines the City's current pattern of land use, and projects future land use while highlighting the natural features that both facilitate and constrain land development.

#### Land Use Inventory

The entire City of Woodland is located in the Metropolitan Council's urban service area. Woodland contains approximately 428 acres (.67 square miles), inclusive of 68 acres of water (Shavers Lake 5 acres; Lake Marion 40 acres; Lake Minnetonka 23 acres). The remaining 360 acres include extensive marsh and wetland areas. The wetlands are protected by the City's wetland ordinance in conjunction with the Minnehaha Creek Watershed District's rules and regulations and the U.S. Army Corps of Engineers.

#### Land Use Inventory Definitions

<u>Low Density Single Family Residential</u> – A low density development represents single family detached homes. Lot sizes are generally 2 acres or larger although some neighborhoods have lots that are smaller than this. Some lots have additional living quarters that were originally built for property caretakers. Housing density is defined as 1 home per two-acre lot.

<u>Medium Density Residential</u> – A medium density development represents single family detached homes with densities of 4 to 7 units per acre. These housing units are diverse in style and age.

<u>Commercial</u> – Commercial is a broad category that includes retail and service commercial space and office space. There is no commercial district in Woodland.

<u>Institutional/Public</u> – Publicly owned land for schools, churches and government buildings make up this category. There is no public institutional land in Woodland.

<u>Park and Recreational</u> – Recreational facilities and lands owned by the City or other governmental body, such as County or State park districts which are intended for general public use and enjoyment. There are no park and recreational lands in Woodland.

Sewered Area	Allo Density Hou Units	wed / Range sing s/Acre	Existing (2010)	2020	2025	2030	2035	2040	Change 2010- 2040
	Minimum	Maximum							
Residential									
Low Density Residential 1-8 acres	1	1	13	15	15	15	15	15	2
Medium Density Residential 4,760 sq feet lot area to 1 acre (GHA)	1	9	14	14	14	14	14	14	0
C/I Land Uses	E Employ	st. ees/Acre							
Commercial			0	0	0	0	0	0	0
Industrial			0	0	0	0	0	0	0
Public/Semi Public Land									
Institutional			0	0	0	0	0	0	0
Parks and Recreation / Open Space			0	0	0	0	0	0	0
Roadway Rights of Way			0	0	0	0	0	0	0
Railroad			0	0	0	0	0	0	0
Airport			0	0	0	0	0	0	0
Subtotal Sewered			27	29	29	29	29	29	2
Unsewered Area	Minimum lot size	Maximum lot size	Existing (2010)	2020	2025	2030	2035	2040	Change 2010- 2040
Low Density Residential	1	1	300	298	298	298	298	298	-2
Medium Density Residential (GHA)	1	1	0	0	0	0	0	0	0
Subtotal Unsewered			300	298	298	298	298	298	-2
Undeveloped									
Wetlands			60	60	60	60	60	60	0
Open Water, (Mtka, Marion & Shavers Lake) Rivers & Streams			41	41	41	41	41	41	0
Total			428	428	428	428	428	428	

 Table : Land Use Table in 5-Year Stages. Existing and Planned Land Use Table (in Acres)

The flood plains are limited to land lying below an elevation of 931. These flood plains defined as Zone A and identified in the flood zone map 27053C0309F (panel number) are 1.6 feet above Lake Minnetonka's OHWL of 929.4 ASL.

The topography of Woodland is composed of knolls or highlands surrounded and divided by marsh and lowland areas. The entire use of land in the City of Woodland is zoned single family residential. There are 194 residential parcels. The parcels range in size from less than 1 acre to over 8 acres. 43 of the 194 parcels are located in the area referred to as Groveland Homeowners Association, with an average parcel size of 4,200 square feet. The Groveland Homeowners Association area occupies approximately 14 acres, inclusive of the common grounds.

The current zoning ordinance requires a minimum lot size of 2 acres (R-1) throughout the City with the exception of property in the Groveland Homeowners Association (R-G). **Figure 2** illustrates the existing land use in the City.

#### **Protection Element - Inventory & Plan**

#### Development Plan

The size and style of housing have changed significantly during the past 20 years as many modest single-family homes and cottages have been expanded and redeveloped into a variety of upscale single-family homes. The proximity of Lake Minnetonka and the natural, open character of Woodland has driven the demand for larger and more valuable homes. Both riparian and non-riparian lots continue to have high values, due to the availability of recreational opportunities, quality of the community and proximity to other surrounding metropolitan amenities.

Woodland is now nearly fully developed. Any new development and additional housing stock will only be possible through very limited subdivision of existing residential lots. It is, therefore, improbable that there will be any significant increase in the number of single family residential home sites within the City given the 2-acre minimum lot restriction and the limited number of lots that could be subdivided.

#### Future Land Use Plan

Due to Woodland's size, and limited vacant land area, it will continue to observe the current development pattern of single-family detached development. No undeveloped land exists within the City and short of a very limited supply of subdividable land, no land is available that could be divided into multiple parcels. Therefore, it is not possible for Woodland to provide a diversity of housing types, such as planned unit developments and multiple housing units.

No significant changes are forecast in the current land use of the City and the City does not anticipate material growth in residential housing units between now and 2040. **Figure 3** illustrates proposed land use to 2040 in Woodland.

#### Commercial and Industrial Development

The entire community of Woodland is zoned as single-family residential. Woodland has no plans to permit or encourage commercial or industrial development within the City. There is no land available, or zoned for commercial and industrial development.

#### Non-Highway Linkage (Park Recreational Trails)

There are no walking or biking trails located within Woodland. The existing topography (wetlands, mature trees, and steep slopes) bordering the existing roadways make the construction of trails in the City difficult and potentially detrimental to the wetlands and trees adjacent to the roadways. Considering the aforementioned conditions, no trails are planned at this time.

#### Lakes, Wetlands and Natural Watercourse Inventory

Lake Minnetonka borders the northern and western boundaries of Woodland. The waters of Lake Minnetonka are managed by the Lake Minnetonka Conservation District, of which Woodland is a Member City. Shavers Lake and Lake Marion also lie within the municipal boundaries of Woodland and are regulated by DNR restrictions as well as City ordinances. The numerous wetlands and ponds in the City drain into Lake Minnetonka which, in turn, drains into the Mississippi River by way of Minnehaha Creek.

#### Lakes, Wetlands and Natural Watercourse Plan

The City supports the natural and unobstructed drainage of the ponds, marshes and wetlands. Current zoning restrictions limiting impervious cover and minimum structure setbacks from designated wetlands and water bodies further protect natural resources and drainage. Zoning ordinances also prohibit development or disturbance of wetlands. Shoreland District restrictions are strictly enforced.

#### Wetlands Inventory

Wetlands are abundant throughout Woodland. Wetlands are defined as low lying areas generally covered by shallow or intermittent waters. Wetlands provide open space, wildlife habitat and a natural filtering system and storage basin for storm water runoff. They also reduce soil erosion and flood potential. Attached is a designated wetlands map.

#### WETLAND CLASSIFICATION

#### Wetland Categories

Type 1.	<b>Seasonally Flooded Basin or Forest:</b> The soil is covered with water or is waterlogged during variable periods but usually is well drained during much of the growing season.
Type 2.	<b>Inland Fresh Meadow:</b> The soil is usually waterlogged within a few inches of the surface throughout the growing season.
Type 3.	<b>Inland Shallow Fresh Marshes:</b> These principal production areas for waterfowl are often found bordering deep water marshes, or as seep area on irrigated lands.
Type 4.	<b>Inland Deep Fresh Marshes:</b> Six inches of 3 feet of water, water lilies, duck and pond weeds and coontail.
Type 5.	<b>Inland Fresh Open water:</b> Less than 10 feet of water may sustain permanent populations of fish and migratory waterfowl.
Туре б.	<b>Shrub Swamps:</b> Waterlogged areas along sluggish streams and flood plains, supporting dogwood, willow, alders and many forms of wildlife.

#### Wetlands Plan

The City's ordinances include a wetland ordinance which prohibits unnecessary disturbance of designated wetlands. The wetland ordinance allows limited dredging, filling and alteration, provided the necessary permits are obtained and provisions are made for protection. Because of fluctuating water levels, buildings should be a minimum of three feet above the known or projected high water mark of wetland areas.

Both the State and Federal governments regulate wetlands. In Minnesota, agencies regulating wetlands include the Army Corps of Engineers, the Board of Soil and Water Resources

(BOWSR), the Department of Natural Resources (DNR), the watershed districts and municipalities. In general, wetlands or wetland alterations exceeding a total area of 400 square feet are subject to a variety of regulations. In most urban areas, any alteration of wetlands must be replaced at an acre ratio of 2 to 1. As a matter of practice, the City of Woodland rarely permits the alteration of wetland areas and reserves the right to permit such alterations on a case by case basis.

Alteration of any wetland identified on the City's official wetland map which will inhibit its role in the hydrologic or ecological role in the hydrologic or ecological systems is prohibited. Subdivision regulation requires the protection of wetlands as part of public or private development.

#### Lakes Inventory

Woodlands unique character accounts for its setting along the shores of Lake Minnetonka (14,000 acres). Lake Minnetonka is surrounded by 14 municipalities. These municipalities, together with the Lake Minnetonka Conservation District, work cooperatively to manage the needs of the lake's resources. Woodland also has two additional lakes within its municipal boundaries, Lake Marion (40 acres) and a portion of Shavers Lake (5 acres). The water quality of these three lakes is regulated by the Department of Natural Resources (DNR), the Minnehaha Creek Watershed District (MCWD), the Lake Minnetonka Conservation District (LMCD), the City of Woodland, the City of Deephaven, and the City of Minnetonka.

Lakes Classification

Lake Minnetonka is classified as General Development Lake Marion and Shavers Lake are classified as Recreational Development

#### Lakes Plan

The three agencies concerned with water quality in the Woodland area are the Lake Minnetonka Conservation District (LMCD), the Department of Natural Resources (DNR) and the Minnehaha Creek Watershed District (MCWD).

The City will continue to maintain or exceed Department of Natural Resources shoreline standards through locally adopted shoreland ordinance requirements.

The Lake Minnetonka Conservation District has regulations regarding docks and policy statements regarding stormwater runoff and quality.

The Department of Natural Resources (DNR) regulates shoreland throughout the State. Its lake protection classifications apply to the three lakes in Woodland. Lake Minnetonka is classified as densely developed and a multiple use category of lake (General Development), while Shavers Lake and Marion Lake are classified in the more moderately developed category of Recreational Development.

In 1993, the City of Woodland adopted provision in the zoning code incorporating shoreland management requirements, which regulates development within 1000 feet of any of the classified lakes. These provisions contain lot size restrictions, setback provisions and limits amounts of impervious cover. Woodland's ordinance, which was approved by the DNR, is more restrictive than the statewide standards.

The Minnehaha Creek Watershed District (MCWD) has review powers over many aspects of lake protection. Their jurisdiction in Woodland includes attention to policy statements and regulations concerning the following:

- floodplains
- stream and lake crossing
- dredging in or dredging related to water areas
- other work in beds and levels of water areas
- municipal drainage plans
- land use and soil characteristics
- withdrawal of waters
- placement of structures on lots riparian to public waters
- erosion and sediment control

#### Woodland's Inventory

A variety of indigenous trees and shrubs cover the majority of the total land area in the community and create the natural and beautiful character of the City. In 2006, Boonestroo Natural Resources on behalf of the Hennepin County Department of Environmental Services conducted a Natural Resource Inventory (NRI) of Woodland to delineate land cover classification mapping and a natural areas assessment. This assessment indicated that the City of Woodland was dominated mostly by Upland Deciduous Forest (Big Woods) along with Oak Openings and Barrens around the time of European American Settlement. Forest cover represents an important part of Woodland's natural areas, comprising 76 acres (10%) of the City's land cover.

#### Woodland's Plan

The City will continue to administer its present ordinance for protection of trees during the development process. The City will continue to work to safeguard the integrity of its forest, limit the loss of mature trees during land development and promote the replacement or addition of trees. Minimal tree removal is encouraged and current ordinances prohibit clear cutting of trees.

#### **Slopes Inventory**

Woodland has a varied topography including sloping lands toward the shoreline. Under the Shoreline Management Ordinances some land can be defined as bluffs.

### Slopes Plan

The City has ordinances in place regarding bluff setbacks. These ordinances combined with the Shoreland Management Ordinances allow for the control of adverse impact on existing slopes. Slopes shall be protected by vegetative covering and erosion mitigation measures during construction or alteration of the soils to protect natural slopes and minimize erosion. Slopes which are susceptible to severe erosion (>30%), shall be maintained in a natural state and regulations shall require preservation of vegetative cover to minimize erosion problems. Controls will require replacement of all vegetative cover on these slopes to minimize erosion problems.

During construction, the soil shall be left bare for the shortest time possible and techniques shall be employed to trap sediment.

Shoreline protection and stabilization will be the individual property owner's responsibility.

#### Staged Development Plan

The City of Woodland has no land available for staged development. Future home construction can only occur on existing parcels large enough to be subdivided while maintaining the 2 acres minimum lot size. Considering this, a staged development plan is not applicable in Woodland.

#### Surface Water Management Plan

Surface water drainage in Woodland is primarily overland flow into wetland basins. The City's wetlands generally drain to Lake Minnetonka by way of a series of ditches and swales. No storm sewer system (conduit) exists. Currently, no comprehensive storm sewer system exists within the City. However, problem areas (such as Maplewood Circle East) are served by culverts and drainageways where necessary. The City of Woodland follows the Minnehaha Creek Watershed District Surface Water Management Plan. In addition, the City has adopted the Metropolitan Council's Interim Strategies for Non-point Source Pollution.

# HISTORIC PRESERVATION

Minnesota Statute 473.859, Subd. 2(b) requires a historic preservation element in each Comprehensive Plan. The City of Woodland has a unique history which it will seek to document and preserve for future generations. Woodland's rich cultural history is documented from the early 19th century to the community's growth and development into the middle of the 20th century. The history of Woodland is recorded in a book written by Nicholas E. Duff, entitled *Maplewoods: Glimpses of our Neighborhood's History*, and is a helpful record of the historically and archaeologically important sites within the community.

#### SOLAR ACCESS

Metropolitan cities are required to include an element for protection and development of access to direct sunlight for solar energy systems in the updated comprehensive plan. A solar access protection element is included in the update to assure the availability of direct sunlight to solar energy systems. Solar energy is an alternative means to energy. It has less impact on natural resources. Increasing the use of solar energy would decrease the reliance on fossil fuels and

nuclear power. The purpose for including this section is to ensure that direct sunlight access to solar panels in not subjected to shading from nearby trees, buildings or other structures.

#### Goal:

Protection of important natural resources and solar access through regulations such as minimum building separation, tree preservation, and grading and land disruption. The City will encourage the use of solar energy systems for purposes of space heating and cooling and hot water heating where appropriate and in conformance with official controls of the City Code of Ordinances.

#### Policies:

The City will continue to evaluate its official controls and policies relating to natural resources to ensure that that proper consideration is given to these issues in the development review process. The City will consider appropriate amendments to exempt active solar energy systems from lot coverage and will consider varying setback provisions as a means of protecting solar access.

# ZONING AND SUBDIVISION ORDINANCES AND DESIGN STANDARDS

The City has adopted Zoning Ordinance outlined in Section 900 of the Woodland City Code, which provide the primary means of implementing the policies of the 2030 Comprehensive Plan. **Figure 2** delineates the two zoning districts in the City, their use descriptions and minimum lot size requirements. The Subdivision Ordinance, Section 800 of the Woodland City Code, provides the foundation for the division, combination, and design of parcels within the City. The City adopted a Construction Management Ordinance outlined in Section 900.24 of the Zoning Ordinance to further regulate and manage new development to ensure consistency regarding building codes, zoning ordinances and land use.

# Chapter 4 HOUSING

#### Population and Household Developments

The housing stock in Woodland is dominated by lakeshore or lake access properties which are often subject to renewal, redevelopment, remodeling and rehabilitation. Because only a few parcels could become available for construction through subdivision and given the minimum lot area is 2 acres, it is not probable that Woodland will see an increase in the number of affordable housing units. Woodland is not alone in this trend, as the majority of the changes in the housing market throughout Lake Minnetonka communities will be focused on rehabilitation and the redevelopment of scattered sites. Increased land values within the City are indicative of rehabilitation and redevelopment pressures.

The development of housing in Woodland also reflects the current and projected population growth pattern. According to projections by the Metropolitan Council, the population of Woodland is expected to remain fairly steady between now and 2040.

#### Affordable Housing

Because the vast majority of Woodland is unsewered, the City's zoning is restricted to a minimum of 2-acre lots to accommodate private sewage treatment systems and wells. The minimum lot size, coupled with the proximity to Lake Minnetonka, continue to make affordable housing opportunities very limited within the City of Woodland. Older and more affordable single family housing is often renovated or demolished to accommodate larger and more modern residences.

The Metropolitan Council has estimated future affordable housing needs for all cities and townships within the Twin Cities Metropolitan Area. The household growth forecast predicted by the City of Woodland, is based on an inventory of buildable land—either currently vacant or possible sub dividable parcels. Such development only occurs when existing property owners desire to divide and sell portions of their property, provided that the desired land division is consistent with zoning requirements. The City has no land available for development of sewered households within the planning period. According to the Metropolitan Council, based the household growth forecasts to 2040, the regional allocation for affordable housing units in Woodland would be zero (0) units.

#### Population Trends

According to the Census Data, from 2000 to 2010, the population and number of households both declined in Woodland. The city's population declined from 480 to 437, while the number of households declined slightly from 173 to 169. Household size saw a corresponding decrease from 2.77 in 2000 to 2.6 in 2010.

The decline in population is consistent with the following factors:

- The aging of the baby boom generation is resulting in more empty-nester households, where children have grown and left parents alone.
- Young adults and married couples are waiting longer to have children than previous generations
- Families are having fewer children.
- The cost of available housing may exceed what families with children are typically able to afford.
- A number of households have established residency elsewhere and thus do not show up in Census counts.

### Metropolitan Council's System Statement for Woodland

As part of the 2040 Comprehensive Plan update process, the Metropolitan Council issued system statements to each community to assist them in updating their comprehensive plans, as required by the Metropolitan Land Planning Act. The system statement includes forecasts that Metropolitan Council uses to anticipate growth at appropriate densities for communities in order to protect the effectiveness of wastewater, transportation and to help ensure regional services can be provided as efficiently as possible. The City of Woodland's system statement includes the following population, households, and employment forecasts:

Table . Metropolitan Council Growth Forecasts, 2010-2040					
	2010	2020	2030	2040	
Population	437	450	440	440	
Households	169	180	180	180	
Employment	8	0	0	0	

#### Table : Metropolitan Council Growth Forecasts, 2010-2040

Source: Metropolitan Council

The Metropolitan Council recognizes that these long-range forecasts may change depending on growth trends and community expectations. The Metropolitan Council requires each community to include these forecasts into their comprehensive plan update and to consider local impacts on regional systems. The forecasts represent an estimate growth pattern based on historic trends, 2010 Census data, and current demographic data.

#### Table : Population Trends 2000-2010

Category	2000	2010	00-10 Change
Minnesota	4,934,000	5,303,925	7.5%
Metropolitan Area	2,968,806	3,229,878	8.8%
Hennepin County	1,116,200	1,152,425	3.2%
Woodland	480	437	-9.0%

Source: U.S. Census Bureau

The Metropolitan Council forecasts a stable population between now and 2040. Due to the fully developed nature of Woodland, it is unlikely that more than a few new parcels will be created for development during this period. New home sites would only likely be created through subdivision of existing lots. Therefore, it is assumed that any increase in Woodland's population will be attributed to an increase in household size, not the number of overall households.

### Population by Age in 2010

The following table illustrates Woodland's population by age group. According to Census figures, the median age of Woodland residents, from 2000 to 2010, has increased from 44.4 years, to 51.8 years. In the year 2000, 22% of Woodlands population was 55 years of age or older. By 2010, that percentage had risen to 41%.

Age	2000 Number	% of total	2010 Number	% of total	Percent
Under 5 years	25	5.20%	12	2.75%	-52.00%
5 to 9 years	36	7.50%	24	5.49%	-33.33%
10 to 14 years	49	10.20%	35	8.01%	-28.57%
15 to 24 years	39	8.10%	51	11.67%	30.77%
25 to 34 years	75	15.60%	16	3.66%	-78.67%
35 to 44 years	19	4.00%	34	7.78%	78.95%
45 to 54 years	109	22.70%	84	19.22%	-22.94%
55 to 64 years	47	9.80%	99	22.65%	110.64%
65 and 74 years	26	5.40%	43	9.84%	65.38%
75 to 84 years	27	5.60%	25	5.72%	-7.41%
85 years and over	4	0.80%	14	3.20%	250.00%
Total Population	480	100.00%	437	100.00%	-8.96%

#### **Table: Population by Age**

Source: U.S. Census Bureau

#### Household Composition

Household composition has had little change over the past decade. Married couples continued to occupy the largest percentage of households in Woodland in 2010 as they did in 2000.

Household Type	2000	% of Total Households	2010	% of Total Households	% Change from 2000
Married Couples	132	76.3%	126	74.6%	-4.5%
Other Families	13	7.5%	12	7.1%	-7.7%
Non-Family	28	16.2%	31	18.3%	10.7%
TOTAL	173	100.0%	169	100.0%	-2.3%

#### Housing Characteristics

The City of Woodland is zoned entirely for single family home sites and virtually fully developed. According to its land use inventory, only a handful of parcels of vacant land remain in the community.

Because Woodland is fully developed, the mix of housing will not change significantly over the next two decades. The development pattern of the community and the characteristics of the existing housing stock make it practically impossible to significantly change the current composition of housing stock within the boundaries of the City. A few new single-family building sites may become available due to limited subdivisions of existing larger lots. As a result, the focus of the community's future housing efforts will be on maintenance and rehabilitation of the existing housing stock, on allowing development where it complies with zoning regulations and supporting the development of additional housing choices in the greater Lake Minnetonka area.

The predominance of building permits issued in Woodland are for maintenance and renovation of existing homes. On average, the City receives one building permit application annually for new single family home construction. This almost always takes the place of an older and smaller single family home that previously occupied the lot.

The table below illustrates the age of the housing stock within the City of Woodland:

Year Structure Built	Number of Units	Percent of Units
Built 2000 or later	19	10.5%
Built 1990 to 1999	17	9.4%
Built 1980 to 1989	18	9.9%
Built 1970 to 1979	22	12.2%
Built 1960 to 1969	19	10.5%
Built 1950 to 1959	9	5.0%
Built 1940 to 1949	15	8.3%
Built 1939 or earlier	62	34.3%
Total housing units	181	100%

#### Table : Year Structure Built

Source: U.S. Census Bureau

#### Housing Values

The median value of a single family home in Woodland has continued to increase at a greater rate than the homes of other Hennepin County communities. In 2000, the median home value in Woodland was \$500,000, which increased to \$817,000 in 2016. As the table below shows, the City's market value medians increase substantially more than that of those of the County. An

important factor in the City's rapid valuation increase is that many residential properties have riparian access.

)16
1,000
7,000

#### Table : Single Family Market Value Medians

Source: Hennepin County

#### Economic Activity

The City of Woodland has a significantly higher per capita income than the Nation, State, Metropolitan Area and County. In 2010, 45.3% of the households earned more than \$200,000.

	2000	2010	Percent Change
United States	\$21,587	\$27,334	21.03%
State of Minnesota	\$23,198	\$29,582	21.58%
Metropolitan Area	\$26,347	\$32,852	19.80%
Hennepin County	\$28,789	\$35,902	19.81%
City of Woodland	\$95,495	\$107,875	12.96%

 Table : Comparative Per Capita Incomes (household)

Source: U.S. Census Bureau

The median household income in 2010 for Woodland was \$178,000 compared with the median household income for Hennepin County which was \$61,328. The table below shows the percent of households at each income level for both the City of Woodland and Hennepin County. Woodland remains a very affluent community, with 45.3% of its households having incomes of \$200,000 or more.

#### Table : Household Income 2010

Tuble : Household medile 2010					
	2010	2010			
	Woodland	Hennepin County			
Total Households	161	473,856			
Less than \$10,000	4.3%	6.4%			
\$10,000 to \$14,999	2.5%	4.3%			
\$15,000 to \$24,999	3.1%	8.6%			
\$25,000 to \$34,999	3.7%	8.8%			

\$35,000 to \$49,999	6.2%	12.9%
\$50,000 to \$74,999	7.5%	18.1%
\$75,000 to \$99,999	11.8%	13.3%
\$100,000 to \$149,999	10.6%	14.9%
\$150,000 to \$199,999	5.0%	6.0%
\$200,000 or more	45.3%	6.6%

Source: U.S. Census Bureau

#### Table : City of Woodland Income Profile - 2010

	Number of Households by Income Source	Mean Income From Source	
Earnings	141	\$282,292	
Social Security	40	\$24,328	
Retirement income	15	\$46,820	
Supplemental Security Income	4	-	
Cash public assistance income	3	-	
Food Stamp/SNAP benefits	0		
in the past 12 months	0	-	

Source: U.S. Census Bureau

#### Education

The following table illustrates education levels for residents of Woodland for ages 25 and over in 2010. According to the Census Bureau's data on educational attainment, over 77.2% of the population of Woodland has attained bachelor's degrees, graduate or professional degrees. For the sake of comparison, the percent of bachelor's degrees, graduate or professional degrees within Hennepin County was 44.1%

	Total	Male	Female
Population 25 years and over	285	136	149
Less than 9th grade	0.0%	0.0%	0.0%
9th to 12th grade, no diploma	0.7%	1.5%	0.0%
High school graduate (includes equivalency)	5.6%	2.9%	8.1%
Some college, no degree	13.0%	9.6%	16.1%
Associate's degree	3.5%	1.5%	5.4%
Bachelor's degree	48.8%	51.5%	46.3%
Graduate or professional degree	28.4%	33.1%	24.2%

#### **Table : Educational Attainment**

Source: U.S. Census Bureau

# Chapter 5 PUBLIC FACILITIES

The public facilities section considers the community's needs as they relate to transportation, aviation, sanitary sewer, water supply, parks and open space. The plan will examine the character, location, timing, sequence, function, use and capacity of existing and future public facilities.

**Transportation:** Description, designation and scheduling of the location, function and capacity of existing and proposed local public and private transportation facilities.

**Aviation:** Description, designation, function and capacity of existing aircraft service facilities.

**Parks and Open Space:** Description, designation and scheduling improvements to existing recreational and park space.

**Public Utilities:** Description, designation and scheduling of areas served by public sewer and water supply systems; and conditions under which the installation of private individual sewage treatment systems (ISTS) will be permitted to continue.

**Surface Water Management Plan:** The City of Woodland is located fully within the Minnehaha Creek Watershed District.

# TRANSPORTATION

#### Transportation Inventory

The current roadway system has been established for many years. Woodland's roadway system consists of 2 collector streets, Breezy Point Road and Maplewood Road. These two streets provide the primary access to the City via connections to Minnetonka Boulevard in Deephaven to the south, and County Road 101 to the east. The remaining streets are public and private local streets, the majority of which terminate in dead ends or cul-de-sacs. The primary function of the collector streets is to convey local traffic in and out of the City. Non-local traffic is minimal due to the lack of destinations other than residences.

There are no public transportation facilities within the City. Access to public transportation is provided at Chowen's Corner (the intersection of Minnetonka Boulevard and Maplewood Road) in Deephaven located 0.25 miles south of the southerly City boundary. There are no pedestrian pathways, bike paths, bike lanes or bridges located within Woodland.

#### Transportation Plan

The City is essentially fully developed, as such, no expansion, realignment or widening of the current roadway system is planned. The existing roadway system has ample capacity to carry local traffic. The existing streets are generally narrow, reducing their ability to accommodate through traffic from neighboring communities. The minimal change in population, lack of businesses and future development projections, combined with the topography in roadway corridors make widening of collector streets to accommodate additional traffic both unwarranted and cost prohibitive.

The City maintains the public streets. Maintenance includes plowing, sweeping, patching and general repair. All services are contracted privately or through a shared service agreement with the City of Deephaven. Rehabilitation methods include seal coating and bituminous overlays. The public street rehabilitation plan is funded by the general levy and county aid funds. The private roads within the City will continue to be maintained by private entities. **Figure 5** illustrates the existing main corridor (collector street) in the Woodland.

# **AVIATION AND AIRPORTS**

#### Aviation Inventory

Woodland is approximately 20 miles from the Minneapolis St. Paul International Airport servicing the metropolitan area. It is approximately 14 miles from the nearest regional airport, Flying Cloud Airport in the community of Eden Prairie. There are no privately owned airports, airfields or heliports within the City. There are no radio beacons or navigational aids related to aircraft operation and no existing or proposed water towers, television or radio towers or structures which exceed 200 feet in height located in Woodland. The Minnesota Department of Transportation has identified Lake Minnetonka as an area of seaplane operation. The FAA controls the designation of sea plane base lakes and all associated regulations.

#### Aviation Plan

There is no land suitable within Woodland for use relating to aircraft operation. The City will notify the FAA and the Minnesota Department of Transportation of any structure 200 feet above the ground that could affect navigable airspace, however, the Zoning Codes do not permit such structures.

#### PARKS AND OPEN SPACE

#### Parks Inventory

The City of Woodland does not have any Federal, State, regional or municipal public parks within its boundaries. Over 60% of the residents have direct access to Lake Minnetonka which is the major recreational resource for the community. The City's many wetlands provide areas of open space and wildlife habitat. The City's two-acre minimum lot size and heavily wooded topography also provide privately owned areas of open space. There are several areas of shared common ground within the Groveland Homeowners Association which are designated as park areas for the Association members.

#### <u>Parks Plan</u>

The need for park space is motivated by current deficiencies or population growth. Woodland's population, as projected by the Metropolitan Council, is projected to be stable between now and the year 2040. As a result, park needs will not be created by population increases and the lack of publicly owned property suggest that no parks will be planned for the future.

#### **PUBLIC UTILITIES**

#### Waste Water Inventory

The entire City of Woodland is within the current metropolitan urban service area (MUSA). Wastewater management in Woodland has been provided by privately owned and maintained individual sewage treatment systems (ISTS) for many years. In 1997, municipal sanitary sewer was extended from the City of Minnetonka, to serve all properties located in the Groveland Homeowners Association (medium density neighborhood). The project resulted in the elimination of 45 individual sewage treatment systems. All property located in the Groveland Homeowners Association and two properties located along Stone Arch Road (low density neighborhood) elected to connect to the municipal sewer system. As part of the 1997 project, the City submitted the "Feasibility Study for Sanitary Sewer and Watermain Improvements" to the Metropolitan Council to be amended to the City's Comprehensive Plan. The report analyzed the installation of sanitary sewer throughout the entire city of Woodland. The sanitary sewer installed in 1997 was designed to provide service to other areas of the City in accordance with the submitted report. In addition the sewer system was designed to minimize inflow and infiltration through the use of PVC pipe with gasketed joints and manholes were constructed with rubber "boots" for pipe connections, gasketed joints, external joint wrap and chimney seals.

The remaining ISTS's in the City are of varying ages and designs. An evaluation of ISTS records, county soils information, and estimates of ground water elevations resulted in the conclusion that a number of the older systems are likely non-compliant with current design standards and regulations, as permitted by law. The City has an ordinance that provides for the management of ISTS's within the City. The ordinance requires a biennial maintenance check for all ISTS's. Also included within this ordinance are provisions for the repair or replacement of non-compliant ISTS's as required. The ordinance requires a compliance inspection with the application for a building permit for bedroom additions or a variance, and after the installation of a new system and upon repair of an existing system. During recent years several new ISTS have been constructed throughout the City as a result of these provisions and ordinances.

#### Water Supply Inventory

The water supply in Woodland has been provided by privately owned and maintained wells for many years. The Groveland Homeowners Association area was supplied with potable water with a private community well, until 1997. In 1997, municipal water was extended from the City of Minnetonka to serve all 41of the properties within the Groveland Homeowners Association area and Stone Arch Road. The project has resulted in the connection of 50 residents to municipal water service. All 43 properties in the Groveland Homeowners Association, 6 properties in the

vicinity of Stone Arch Road, and one property along Highway 101 elected to connect to the water system. The private well water systems were separated from the municipal system within each residence connected.

As part of the 1997 project, the City submitted the "Feasibility Study for Sanitary and Watermain Improvements" to the Metropolitan Council to be amended to the City's Comprehensive Plan. The report analyzed the installation of a municipal water system throughout the entire City. The water system installed in 1997 was designed to provide service to other areas of the City in accordance with the submitted report.

The City intends to abandon the community well in the Groveland Homeowners Association.

The City provides the opportunity for voluntary water quality tests on the private wells within the City. The City also provides information, resources, and recommendations for well maintenance.

The City of Minnetonka is the provider of municipal water to Woodland, and as such, Woodland is not required to prepare a water supply plan in accordance with the Metropolitan Land Planning Act.

### Waste Water Plan

There are no plans for extending sanitary sewer service to other areas of the City at this time. The City intends to continue overseeing the existing individual sewage treatment systems (ISTS) within the City through the enforcement of the provisions of the ISTS ordinance. The ISTS's within the City will continue to be privately owned and maintained. The City requires biennial maintenance inspections to advise systems owners of the need for system maintenance, and ensure functional status of the system. The City intends to continue requiring the repair or replacement of non-compliant and failing systems as they are encountered.

Woodland has 52 households connected to a municipal sanitary sewer system. 50 households are connected to the City of Woodland's municipal sewer system which is routed directly to the City of Minnetonka's sewer system. Two additional houses—one household along Maplewood Road and one along Robinsons Bay Road —have made a private connection to the City of Deephaven's sewer system. Per an agreement with the City of Minnetonka there are two additional residential connections available to Woodland's municipal sewer system in the vicinity of Stone Arch Road.

Municipal waste water is made up of a mixture of sewage, groundwater infiltration and surface water inflows. The sanitary sewer and water system was designed to minimize inflow and infiltration. Repairs, additions or extensions to the system would be constructed so that groundwater infiltration would be minimized.

The City remains vigilant for indications of inflow/infiltration (I/I), however none have been detected to this point. Should this become an issue in the future, the City will take the appropriate actions to address the issue.

The City will continue routine maintenance and sewer cleaning activities of the sanitary sewer system.

**Sanitary Sewer Growth Forecast** The Metropolitan Council has provided growth forecasts for population, households, employment, sewer flows and peak hour flows for 2020, 2030 and 2040 as follows:

Year	2010	2020	2030	2040	
Sewered Population	131	140	130	130	
Unsewered Population	306	310	310	310	
Sewered Households	51	54	54	54	
Unsewered Households	118	126	126	126	
Sewered Employment	8	0	0	0	

 Table
 : Sanitary Sewer Growth Forecasts 2010-2040

Source: Metropolitan Council

The table does not reflect the overall growth within the City, but rather accounts for the potential for additional homes to connect to the Metropolitan Disposal System.

**Water Supply Plan** State law requires every municipality with a public water supply to complete a water supply plan. The City of Woodland's municipal water service receives its water supply via the City of Minnetonka and supplies 50 residential households with municipal water service. Per an agreement with the City of Minnetonka there are two additional residential connections available to Woodland's municipal water system in the vicinity of Stone Arch Road. The City of Woodland does not have a water source, supply or tower facility within its municipal boundaries and not required to prepare a water supply plan in accordance with the Metropolitan Land Planning Act. There are no plans to extend municipal water to other areas of the City at this time. The majority of the households within the City have private well water.

Figures 7 and 8 illustrate the existing water distribution mains and sanitary sewer mains in Woodland.

# Chapter 6 IMPLEMENTATION

### INTRODUCTION

The Comprehensive Plan is a compilation of goals, policies, standards and maps designed to be a policy document that provides direction for solving problems and dealing with change. The plan addresses the physical, social and economic development aspects of the community. Plan implementation involves the conversion of these plan elements into measures of action. Implementation also means using the plan as a guide for future decisions and updating the plan as it becomes necessary. The City Council and staff should conduct periodic review of the Comprehensive Plan to determine necessary amendments and to incorporate changes in goals and trends within the City.

#### OFFICIAL CONTROLS

Official controls are required to guide zoning, subdivision, water supply and private sewer systems. The City plays a major role in land development and its impact on the identity of the community. Woodland's policies, plans and ordinances must reflect the collective vision of the community. Current procedures should be reviewed on an ongoing basis and revised where appropriate.

#### ORDINANCES

In order to implement the goals, the City will rely, in part, on official controls, such as the Zoning Ordinance, Subdivision Ordinance, local watershed district rules and the surface water management plan. These official controls provide a means of managing development within the City in a manner that is consistent with the goals of the Plan.

Woodland's zoning, subdivision and wetland ordinances are the major tools to implementing the goals and policies summarized in the Comprehensive Plan. The aforementioned ordinances establish minimum standards for the utilization of land and structures in Woodland. The City ordinances, along with the rules and regulations of other governing bodies like the Minnehaha Watershed District, Lake Minnetonka Conservation District and Department of Natural Resources, will all serve to continue to regulate the development in the City of Woodland.

The City has an adopted a Zoning Map and Zoning Ordinances, included in the City Code, which provide the primary means of implementing the policies of the 2030 Comprehensive Plan. **Figure 2** depicts the existing zoning districts in the City, with a use description and minimum lot sizes. The Subdivision Ordinance included in the City Code as Chapter 8, provides the foundation for any division, combination, and design of land parcels. These official controls will allow the City to implement the following objectives of the Metropolitan Council and the Plan:

• Compliance of new lot development and redevelopment with stormwater management and erosion control requirements, including wetland and shoreland buffer areas of the Minnehaha Creek Watershed.

• Protection of natural resources and solar access through regulations such as, impervious cover limitations, building height restrictions on principal and accessory structures, minimum lot area, tree preservation, grading and filing limitations, along with greater review of natural resources to ensure that that proper consideration is given to these issues in the lot development process and new construction or rehabilitation of existing structures.

The City will continue to evaluate its land use controls, and consider amendments to the existing Zoning and Subdivision Ordinances to ensure compatibility between the controls and the Comprehensive Plan. The City will work with local County, State and Federal entities to enhance the existing standards, and conform to new mandates and regulations.

#### ENVIRONMENTAL PROTECTION

Woodland is shaped by the lakes, wetlands, marshes and a wide variety of mature trees. Due to the importance of Woodland's natural environment, the City must continually review environmental protection ordinances. The City Ordinances include sections relating to wetland, shoreland, and flood plain regulations, which govern the development throughout the City. In addition to the City's regulations, the rules and regulations of agencies such as the Minnehaha Creek Watershed District, the Lake Minnetonka Conservation District, and the Department of Natural Resources add additional protection of natural resources within Woodland.

#### HOUSING

Woodland is fully developed and has limited opportunity to accommodate new housing development. The very limited amount of available vacant land or land created through subdivision for development of new housing stock makes broad based housing strategies difficult to implement, along with the economic factor of rapidly increasing home and land values. Woodland will continue to support revitalization of the current housing stock and provide for continuing review, updating and enforcement of zoning, subdivision, and design standards to ensure high standards of planning and design.

#### CAPITAL IMPROVEMENTS PLAN

The City of Woodland annually evaluates and adopts an operating budget to address expected revenues and expenditures and planned improvements for the upcoming year. As part of the annual budget process, the City Council evaluates short-term and long-term capital improvement needs including infrastructure repairs, maintenance needs, including sealcoating and road replacement, stormwater management improvements, or similar activities. There are no capital improvements planned for transportation, sewer and water supply needs, parks or open space facilities. The City has no anticipated capital improvements planned in the next five-years that require separate line-item budget allocations for capital improvements funding.

#### PLAN AMENDMENTS

In pursuing changes to the Comprehensive Plan, the City will utilize the processes established by state law, including the Metropolitan Land Planning Act (MLPA). All amendments to the Comprehensive Plan require a public hearing and must be submitted to the Metropolitan Council, Hennepin County, and surrounding municipalities for review prior to implementation.

# Chapter 7 INTERGOVERNMENTAL COORDINATION

The following are joint or cooperative efforts between the City of Woodland and other surrounding units of government for the purpose of providing services to Woodland or supplementing the City's work. The City will continue to seek ways to reduce costs and improve service through these and similar arrangements that may arise in the future.

Due to the size of Woodland, services have been shared in joint cooperation with adjacent communities for many years. Services are generally contracted on an annual basis through shared services agreements.

Woodland contracts services for fire protection with the City of Wayzata. Police, clerical, treasurer, zoning enforcement and public works maintenance services are contracted with the City of Deephaven. The municipal office building, office equipment and council meeting chambers are shared between Deephaven, Greenwood and Woodland. Building permits and inspection services are handled jointly between the Cities of Deephaven and Minnetonka.

The municipal engineering firm, legal counsel and on-site sewage treatment inspectors are appointed annually. The municipal water supply is provided by the City of Minnetonka to a portion of Woodland. No municipal sanitary sewer lift stations or water towers are located in Woodland. These facilities are owned and operated by the City of Minnetonka.

Maintenance of the sanitary sewer and water main systems within City boundaries is arranged by private contract. Snow plowing street maintenance and improvements are arranged through private contracts awarded annually. All services outside the routine operations of the City are engaged on an as-need basis.

Woodland is one of several hundred cities that are members of this self-insurance pool formed through the League of Minnesota Cities Insurance Trust to address the unique insurance needs of municipalities.

Woodland joins with 14 other communities to support the Lake Minnetonka Conservation District, an organization created by state law, to manage the surface of Lake Minnetonka.

# Community Designations City of Woodland, Hennepin County









City of Woodland, Minnesota





April 2018 BOLTON & MENK

City of Woodland, Minnesota


City of Woodland, Minnesota

Figure 4: Wetland Map



City of Woodland, Minnesota





City of Woodland, Minnesota

Figure 7: Watermain Map



City of Woodland, Minnesota

Figure 8: Sanitary Sewer Map





Real People. Real Solutions.

# SURFACE WATER MANAGEMENT PLAN CITY OF WOODLAND, MN

June 2018

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

## SURFACE WATER MANAGEMENT PLAN

For the

## **CITY OF WOODLAND**

Bolton & Menk, Inc.

June 2018

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.

Robert & Beanfa

6-25-2018

Date

Robert Bean, Jr Minnesota Registration <u>No. 40410</u>

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## 1. EXECUTIVE SUMMARY

## 1.1. Introduction

The City of Woodland has prepared this Surface Water Management Plan (SWMP) to provide the City and its residents with direction concerning the administration and implementation of surface water management activities within the community. The SWMP inventories city land and water resources and presents water management policies and goals that address known surface water-related problems and concerns about future development activities. The SWMP also addresses the requirements of the various regulatory agencies involved in surface water management.

## 1.2. Surface Water Management Plan Content

The City of Woodland's SWMP has been developed to meet the needs of the community and address the management planning requirements of the Metropolitan Surface Water Management Act. The SWMP has been prepared in general accordance with Minnesota Rules Chapter 8410 and follows the plan outline identified in the rules. The following paragraphs identify the major sections of the SWMP and where information can be located in the plan document.

## **SECTION 1 – EXECUTIVE SUMMARY**

This section presents an introduction for the local water management plan, a summary of City objectives, regulatory requirements included in the plans preparation, and a general overview of the plan contents. This section also summarizes strategic recommendations for consideration by the City in implementing the SWMP.

## SECTION 2 – SURFACE WATER MANAGEMENT PLAN PURPOSE

This section outlines the purpose of this plan.

## SECTION 3 – WATER RESOURCE MANAGEMENT RESPONSIBILITIES AND RELATED AGREEMENTS

This section identifies any surface water-related agreements between the city and adjacent communities, organizations or government agencies.

## SECTION 4 - LAND AND WATER RESOURCE INVENTORY

This section categorizes a wide range of information under the subsections entitled Physical Environment, Human Environment, Surface Water System and Groundwater Resource Data. The subsections provide information and references regarding water resource and physical factors within the City of Woodland including the following:

- Precipitation data for hydrologic/hydraulic review and design.
- Topographic, geologic and groundwater information.
- Surface soils information
- Unique features and scenic areas.
- Land use and public utility services.
- Water-based recreational areas and land ownership.
- Surface water, wetlands, flood studies and water quality data.
- Groundwater resource data

## SECTION 5 - ESTABLISHMENT OF GOALS AND POLICIES

This section outlines goals and policies addressing water resource management needs of the City and their relationship with Regional, State, and Federal goals and programs. Goals and policies relating to the following issues are presented:

- Water quality
- Water quantity
- Erosion and sedimentation
- Wetlands
- Public ditch systems
- Groundwater
- Recreation and ecological integrity
- Education and Public Involvement
- Monitoring, enforcement and expertise
- Low impact development, natural area preservation and water resource protection
- Municipal Housekeeping

## SECTION 6 – ASSESSMENT OF ISSUES AND CORRECTIVE ACTIONS

This section provides an assessment of existing or potential water resource related issues within the City. This section also describes potential structural, nonstructural and programmatic solutions to the identified problems. Assessments of the following issues are included:

- Excessive nutrient levels and phosphorus reduction
- Construction site erosion and sediment control
- Increase in runoff discharge rates from new and redevelopment
- General Storm System Maintenance
- Street and Utility Improvement Project Coordination
- Stormwater Runoff Management and Treatment Project Opportunities

# SECTION 7 – IMPLEMENTATION PRIORITIZATION & FINANCIAL CONSIDERATIONS

This section ranks the policy and corrective actions from Section 6 in an effort to associate a prioritization schedule with the items identified. The list is somewhat subjective and intended to be flexible with changing conditions and information.

## **SECTION 8 – AMENDMENT PROCEDURES**

This section presents the expected longevity of the SWMP and the process for making amendments consistent with the MCWD Plan.

# 2. 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 uniform local policies and official controls for surface and groundwater management;
- 5. Prevent erosion of soil into surface water systems;
- 6. Promote runoff abstraction and 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.

The City of Woodland is situated on Lake Minnetonka and is located within the Minnehaha Creek watershed. **Figure 1** shows the City, adjacent communities and Lake Minnetonka.

# 3. WATER RESOURCES MANAGEMENT RESPONSIBILITIES AND RELATED AGREEMENTS

The City of Woodland is responsible for construction, maintenance, and other projects in or along the City's storm water management systems (i.e., ponds, pipes, channels, etc.). With regards to land disturbance and stormwater management, the City of Woodland must comply with the Minnehaha Creek Watershed District (MCWD) Rules, NPDES General Stormwater Permit for Construction Activity, NPDES Permit for Municipal Separate Storm Sewer Systems (MS4), and the NPDES Multi-Sector General Permit for Industrial Activity.

Water Resource Agreements

- With MCWD regarding Wetland Conservation Act (WCA) Representative.
- With MCWD regarding land use or related project improvements permitting to meet District rules within City boundaries shall be performed by the District.

The regulations outlined in this plan do not supersede those put forth by MCWD 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. LAND AND WATER RESOURCE INVENTORY

## 4.1. Introduction

This section provides a generalized description and summary of factors affecting the water resources within the City of Woodland. The subsections include Physical Environment, Human Environment, Surface Waters, and Groundwater. The Physical Environment subsection presents local information on precipitation, geology, topography, soils and unique features and the Human Environment subsection identifies local land use, public utility services and water based recreational areas. The Surface Waters subsection presents information on the City's drainage patterns, hydrologic systems, public waters and wetlands, floodplain areas and flood studies, shoreland management and water quality information, while the Groundwater subsection presents information pertaining to just that.

Much of the information contained within this section was compiled from available governmental sources. Whenever possible, the location of the information or additional resources have been identified or referenced.

## 4.2. Physical Environment

## 4.2.1. Location

The City of Woodland occupies approximately 0.62 square miles in western Hennepin County, as shown in **Figure 1**. The communities adjacent to Woodland are the Cities of Deephaven and Minnetonka. This city is entirely contained within the Watershed jurisdiction of the Minnehaha Creek Watershed District.

## 4.2.2. Climate and Precipitation

Woodland 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 31 inches annually. Refer to the links provided below for the 30-year average of temperature and precipitation data and the 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.

https://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/climatenormals/1981-2010-normals-data

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds\_map\_cont.html?bkmrk=mn

## 4.2.3. Geology

The general geology of Hennepin County and the City of Woodland has been compiled by the Minnesota Geological Survey in a document titled Geologic Atlas of Hennepin County Minnesota (N.H. Balaban, Editor, 1989). This document and its figures are readily available on the Hennepin County website.

The general surficial geology in the City consists primarily of Des Moines Lobe Deposits with some Post Glacial Deposits. The city is dominated by sand, loam and gravel deposits, with some peat and organic-rich post-glacial outwash deposits in the western portion.

Bedrock is generally at a depth of 100 to 200 feet throughout the City, consisting almost entirely of a thin layer of St. Peter Sandstone, with some Plattville and Glenwood fine-grained limestone. The upper half to two-thirds of the sandstone is fine- to medium-grained, friable quartz sandstone. The lower part of the St. Peter Sandstone contains multicolored beds of mudstone, siltstone, and shale with very coarse sandstone interlaced. Below the Sandstone lies the Prairie Du Chien Group, a Dolostone of varying thickness, on top of the subsequent Jordan Sandstone and St. Lawerence and Franconian Formation layers.

## 4.2.4. Topography

The City of Woodland consists of gently to steeply rolling hills with wetlands prevalent in the low areas, many of which are landlocked basins. The city is contained within the Minnehaha Creek Watershed, with the entire city overflowing to Lake Minnetonka during an extreme event. Surface elevations range from 980 feet near the center of the city to 930 feet at Lake Minnetonka.

## 4.2.5. Soils

The Natural Resource Conservation Service (formerly the Soil Conservation Service) prepared the Soil Survey for Hennepin County in 1974. This reference shows the location of specific soil types throughout the City of Woodland and provides detailed data on the typical characteristics of each soil type (this information is readily viewable on the Hennepin County website).

The Tomall loam and Malardi-Hawick Associations occupy the majority of the City. These soils are loams and sandy loams with a Type B moderate infiltration capacity. Low/wetland areas consist largely of Klossner-Houghton-Muskego mucks consisting of Type D soils with poor infiltration capacity, also known as hydric soils. These soils, as well as the locations of soils of varying infiltration potential (known as hydraulic characteristic *Type*), are important for stormwater-related planning purposes (**Figure 2**).

## 4.2.6. Fish and Wildlife Habitat

The existence and health of habitat generally determines the abundance and diversity of fish and wildlife within the City. Three distinct habitats affecting wildlife are prairie, forest and water area. The MCWD Plan contains an overview of the various ground covers, forests, plant species, and water bodies within the watershed and city that provide habitat to the numerous types of terrestrial and aquatic animal species.

Due to the rolling terrain, woodlands, wetlands, and lakes within the City of Woodland there are conditions well suited for diverse types of natural habitat and wildlife. Most of the City's wetlands, lakes and streams provide wildlife habitat to varying degrees; however, the urbanized character of the city has reduced the quantity and variety of natural wildlife.

The MDNR has prepared a Fish Population Assessment and fisheries lake survey for Lake Minnetonka (including Halsteds Bay, Priests Bay, Cooks Bay, Phelps Bay, Spring Park Bay, Harrisons Bay, West Arm, Black Lake, Seton Lake and Emerald Lake). The reports, management plans, and lake depth maps are available from the MDNR Fisheries Division. The MNDR has not prepared any fish or wildlife management plans nor have they designated any waterfowl lakes within the City.

#### 4.2.7. Unique Features and Scenic Areas

There are no locations within the City of Woodland that have been identified by the MDNR Natural Heritage and Non-Game Research Program as having rare plant or animal species or other significant natural features relating to water resources (such as Outstanding Resource Value Waters).

#### 4.2.8. Key Conservation Areas

The MCWD Lake Minnetonka Subwatershed Plan identifies no areas of high or exceptional wildlife or vegetative diversity denoted as "Key Conservation Areas". No Key Conservation Areas have been identified within the City of Woodland.

## 4.3. Human Environment

#### 4.3.1. Land Use

The Existing Land Use and Future Land Use Maps are provided in Woodland's Comprehensive Plan. Land cover consists of mostly urban development, with a few pockets of wetlands and forest. All land within Hennepin County was mapped using the Minnesota Land Cover Classification System (MLCCS). Refer to **Figure 3** for the portion of area in and around Woodland. 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/Seminatural 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. Additional information regarding land cover can be found in MCWD's Watershed Management Plan.

#### 4.3.2. Public Utilities Services

The City of Woodland has municipal sanitary sewer available to the properties on the eastern side and is within the Metropolitan Urban Service Area (MUSA). Through agreement, small areas of the city are served by municipal watermain from the City of Minnetonka but private wells are the primary source of drinking water throughout Woodland. The storm drainage system within the city uses naturally existing topography to manage the majority of runoff, with the exception of one culvert under a roadway.

#### 4.3.3. Public Areas for Water Based Recreation

Lake Minnetonka is a regional water resource and has many recreational uses including fishing, swimming, water skiing, and boating. In the winter the lake is used for cross-country skiing, snowmobiling, and ice fishing. Lake Minnetonka has public access from a boat launch in Deephaven at Carson's Bay. In addition, there are many public beaches on the lake in adjacent communities, as well as public locations for snowmobile access to Lake Minnetonka.

## 4.3.4. Potential Pollutant Sources

Potential environmental hazards within the City include known and potential sources of soil and groundwater contamination listed by the Minnesota Pollution Control Agency (MPCA) 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. A complete listing of sources and interactive map is provided at the following link:

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

**Wells:** When properly installed, wells 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.

## 4.4. Surface Waters

The following section provides a detailed description of the surface waters within Woodland. No surface waters have been appropriated for City needs.

## 4.4.1. Public Waters and Wetlands

The MDNR currently lists 2 protected waters, wetlands and water courses within the City of Woodland of 2.5 acres or larger. Minnesota Chapter 103G provides specific criteria for protected status and the MDNR Protected Waters and Wetlands (PWI) map identifies the protected waters. In addition to the MDNR PWI Maps, National Wetlands Inventory (NWI) Maps have been prepared by the U.S. Fish and Wildlife Service, and Mosquito Wetland Inventory Maps have been prepared by The Metropolitan Mosquito Control District. These maps are available at the following links. Table 4.4.1 indicates the protected waters.

https://www.dnr.state.mn.us/waters/watermgmt\_section/pwi/maps.html

https://www.fws.gov/wetlands/data/Mapper.html

https://www.mmcd.org/

Waterbody Name	MDNR I.D.	Surface Area (acres)	Maximum Depth (ft)	DNR Management Classification
Shavers Lake	27-0086-00	13	N/A	Recreational
				Development
Lake Marion	27-0087-00	12	N/A	Recreational
				Development

Table 4.4.1: DNR Protected Waters and Wetlands Inventory

The Minnehaha Creek Watershed District has completed a Functional Assessment of Wetlands (FAW), which includes those within the District in the City of Woodland. The assessment identifies the locations of wetlands and provides a functional classification to all wetlands greater than <sup>1</sup>/<sub>4</sub> acre in size. The categories are based on the function and value as determined in the field and include Preserve, Manage 1, Manage 2 and Manage 3. The City will utilize the wetlands assessment as part of the site plan review process for individual projects, as well as for "global" planning activities. The City relies on the District for administration of its wetland protection rule, as well as the WCA requirements. Refer to the following link for more information on MCWD's FAW.

http://www.minnehahacreek.org/41-integration-past-planning-efforts/412-functionalassessment-wetlands

## 4.4.2. Flood Insurance Studies

The current Flood Insurance Study (FIS) applicable for the City is dated November 4, 2016. The FEMA Community Number for Woodland is 270189 and the panel is viewable on FEMA's Map Service Center website. The FIRM identifies areas of the City as being within Zone AE, areas inundated during the 100-year flood event (1.0% chance of occurring any given year). The FIRM generally identifies flood levels but only the approximate extent of flooding since it is not based on accurate topography. The City currently uses the floodplain information to review development proposals based upon the extent of flood plains identified in the FIRM. For determination of specific flow rates and floodplain elevations, a detailed hydrologic/hydraulic analysis may be required utilizing survey-accurate topographic data. Refer to the following link for more information regarding the FEMA 100-year floodplain areas around the City.

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

## 4.4.3. Hydrologic/Hydraulic Analyses

The storm drainage system within the city uses naturally existing topography to manage the majority of runoff, with the exception of one culvert under a roadway. The existing system generally operates adequately removing stormwater from City property and roadways; should any future issues arise, the City will revise the CIP portion of this document to incorporate corrective actions, as appropriate. The subwatershed areas within the City are shown on **Figure 4**, with the identification numbers shown corresponding to the modeling performed, as described below.

As part of the original SWMP preparation, a limited hydrologic and hydraulic analysis was conducted for the subwatersheds of the city. This modeling utilized the HydroCAD modeling software to determine runoff from design events using the Soil Conservation Service (SCS) TR-

20 methodology. It provides a technical planning tool to address risk, along with a mechanism to consider various stormwater-related alternatives. However, the results should not to be used for design-level detail. The analysis included subwatershed delineation from USGS topography, available 2' aerial contours, and field reconnaissance. The analysis determined subwatershed areas, hydrologic conditions, and peak discharge rates for the 1-year, 10-year and 100-year, 24-hour storm events (Table 4.4.3.1).

						100-
				1-Year	10-Year	Year
	Area		Tc	(2.35")	(4.2")	(6.0")
I.D.	(acres)	CN	(min)	(cfs)	(cfs)	(cfs)
NL1	39.4	66	30	5.1	37.2	80.9
RB3	16.9	69	25	4.0	21.7	44.0
RB3w	96.7	72	40	23.7	105.7	204.7
RB4w	47.8	69	45	7.4	40.7	83.5
WB1	115.6	68	35	18.5	110.9	231.8
WB2	33.2	76	18	21.3	73.3	131.7
WB3	38.4	67	38	5.0	32.7	69.9
WB4	22.7	73	20	10.2	41.1	77.4

 Table 4.4.3.1 – Subwatershed Hydrologic Runoff Characteristics

Note: Precipitation depths based on Technical Paper 40 data.

The modeling done as part of this project primarily focused on runoff quantities based on land use and travel times. Many of the ponding areas (lakes, wetlands, etc.) have been modeled here and the results of the discharge from these ponding areas are indicated in the following table (landlocked ponds/wetlands result in no discharge).

				100-	1-Year	10-Year	100-Year	100-
	Drainage	1-Year	10-Year	Year	Discharge	Discharge	Discharge	Year
	Area	(2.35")	(4.2")	(6.0")	Volume	Volume	Volume	HWL
I.D.	(acres)	(cfs)	(cfs)	(cfs)	(ac-ft)	(ac-ft)	(ac-ft)	(feet)
RB3P	113.6	0.0	0.0	0.0	0.0	0.0	0.0	930.4
WB2P	33.2	1.6	4.6	5.4	1.7	5.2	9.4	931.6
WB3P	38.4	0.0	0.0	0.0	0.0	0.0	0.0	934.3
WB4P	22.7	0.0	0.0	0.0	0.0	0.0	0.0	932.2

Note: Precipitation depths based on Technical Paper 40 data.

#### 4.4.4. Flood Problem Areas & Landlocked Basins

There are no known areas within the city that have historic flooding or surface water control problems. If problem areas are identified in the future, Section 6 of this plan will be revised to reflect such changes.

## 4.4.5. Surface Water Quality

## 4.4.5.1. Available Water Quality Data

MCWD monitors and collects water quality data in many of the lakes and streams in the District, and the data is publicly available through the Minnesota Pollution Control Agency's Lake and Stream Information Tool at the following link:

https://cf.pca.state.mn.us/water/watershedweb/wdip/index.cfm

## 4.4.5.2. Impaired Waters & TMDLs

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 present more detail on the impaired waters program and its relationship to Woodland'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, and MS4 Cities must develop an approach to meet the obligations identified in the TMDL Study. Currently no water bodies located partially or entirely with the City boundary are listed as impaired.

## 4.4.6. Shoreland and Flood Plain Ordinances

The City of Woodland does not have a separate shoreland ordinance, but has related requirements built into its zoning ordinance (Ordinance Chapter 9 – Zoning and Land Use). The water body/shoreland classifications determined by the MDNR are shown in Table 4.4.6.



To maintain Woodland's eligibility in the National Flood Insurance program and to minimize potential losses due to periodic flooding, the City has prepared and adopted a floodplain ordinance in accordance with MDNR requirements. The floodplain zoning district is an overlay zoning district to existing land use regulations of the city. The ordinance adopts by reference the Food Insurance Rate Map (FIRM) developed by the Federal Emergency Management Agency (FEMA) and identifies permitted uses, standards, and evaluation criteria for

improvements proposed in floodplains. Refer to the following link for more information regarding shoreland management and Floodplain ordinances.

https://www.woodlandmn.org/index.asp?SEC=015B76E1-B894-4CC9-9AC7-1D2417A175B7&Type=B\_BASIC

## 4.5. Groundwater

#### 4.5.1. Groundwater Appropriations

The City of Woodland does not have any groundwater appropriations. The majority of water is obtained from private wells, with a small portion of the city served by Minnetonka municipal watermain through agreement; therefore, the City does not have a Wellhead Protection Plan.

# 5. ESTABLISHMENT OF GOALS AND POLICIES

The City of Woodland has developed the goals and policies contained in this section to conform to the water resource purposes specified in Minnesota Statute Section 103B.201. They have been developed to avoid conflict with existing State, Regional, and County goals and policies, and to be generally consistent with the MCWD Plan. The City will regulate erosion control, floodplain alteration, and stormwater management for all land development within the City limits in accordance with City Ordinances and NPDES Permitting. The City relies on the Watershed to administer and enforce its Rules and the wetland requirements of the WCA.

Additionally, the City's MS4 Storm Water Pollution Prevention Plan contains information related to the required Best Management Practices (BMPs) and how the City intends to meet the overall goals of the SWPPP, which are directly related to the goals and policies listed here.

The goals and policies developed by the City address:

- Water quality,
- Water quantity,
- Erosion and sediment control,
- Wetlands,
- Public ditch systems,
- Groundwater,
- Recreation, fish and wildlife and
- Education and public participation.

Outlined below are the goals and policies developed for each of the above items. The annual costs associated with policy making and upkeep is included within the City's general budget.

## 5.1. Water Quality

## Goal:

To maintain or improve water quality of surface waters throughout the City by reducing sediment and nutrient loads from the city subwatersheds.

## Policies:

- 1. As an MS4 community the City has developed a Storm Water Pollution Prevention Plan (SWPPP) outlining many of the municipal BMPs and associated actions being taken by the City. The SWPPP is referenced here and contains additional information on many of the following topics.
- 2. In the design and construction of new and redevelopment, treatment of stormwater runoff is required prior to discharge to a surface water or wetland. The City will continue to review and approve construction plans for conformance with the requirements of NPDES permitting. Additionally, if warranted, projects within the City are required to obtain a MCWD permit and meet all requirements of the appropriate District rules.

- 3. The City will continually evaluate opportunities to reduce the phosphorus load to the area surface waters. Additionally, the City contributes runoff to multiple bays of Lake Minnetonka, none of these bays are currently on the State's 303(d) list of impaired waters; however, if any are added in the future the City will address any TMDL requirements at that time.
- 4. The City will make water resource protection a priority for city property, including: parks, open space, and other recreational areas. Areas will be swept as needed and buffer establishment or other retrofit treatment techniques will be incorporated into future projects within these areas, when feasible.
- 5. The City annually inspects and maintains its public stormwater management facilities to ensure their continued effectiveness. When feasible, the City will require stormwater management practices to be contained within outlots; however, many facilities will remain private. The City will require the owner of private stormwater facilities intended to meet runoff requirements to execute a maintenance agreement with the City to ensure regular inspection and maintenance occurs.
- 6. The City will continue to sweep paved public streets within the community as outlined in the City's SWPPP and the Housekeeping section, section 5.11 below.
- 7. The City will develop and implement Best Management Practices (BMPs) at City public works facilities and City owned lands to retain and prevent pollutants in stormwater runoff from leaving the site.
- 8. The City requires the preparation and implementation of erosion and sediment control plans and best management practices for construction and land development activities in accordance with MPCA NPDES requirements.
- 9. The City will disperse public education information to foster responsible water quality management practices by City residents and businesses. The public information will include proper lawn fertilizing and other lawn chemical use, disposal of lawn waste, and disposal of solid, liquid, and household hazardous waste products.

## 5.2. Water Quantity

## <u>Goal</u>:

To minimize downstream impacts by maintaining runoff discharge rates and promoting Low Impact Development (LID) techniques for runoff volume reduction/abstraction.

## Policies:

- 1. The city will require that proposed stormwater discharge rates as a result of development be consistent with the requirements of NPDES Permitting.
- 2. The City will rely on the MCWD to administer their Rules regarding water quality and will require verification that Watershed permit requirements are being met.

- 3. The City will review downstream stormwater-related impacts (within the community) of development proposals and proactively address water resource-related concerns.
- 4. The City recognizes the potential environmental impacts associated with constructing new outlets to existing landlocked areas; therefore, the outletting of landlocked areas shall be done only as a last resort. The city has multiple landlocked areas and will address each on a case-by-case basis.
- 5. The design of new stormwater storage facilities and trunk lines will accommodate the 100year storm event without causing flooding to building structures and maintaining required freeboard. Storm sewers will generally be designed to pass the10-year rainfall event under gravity flow conditions, but downstream restrictions may require a reduced-capacity design.
- 6. Stormwater facilities receiving discharges from adjacent communities will be designed to accommodate existing runoff rates and anticipated volumes.
- 7. Lowest floor elevations for new buildings shall be at or above the elevations as indicated in the City's floodplain and zoning ordinances, as well as meet the requirements of the MCWD Rules. Wetlands or water bodies without regulatory floodplain elevations or defined ordinary high water levels, but with outlets, shall have low floor elevations 2 feet above the 100-year high water level and the emergency overflow elevation. Structures around landlocked basins shall have low floor elevations 2 feet above the back-to-back 100-year events.
- 8. The City will encourage the use of natural drainage ways for conveying stormwater where the drainage way can accommodate or be improved to accommodate proposed flows and volumes.
- 9. Enhanced infiltration practices will be encouraged, where feasible, in areas where the present or future land use does not have a significant potential to contaminate groundwater.
- 10. Public stormwater facilities will be regularly inspected and maintained as necessary for adequate operations. For private stormwater facilities, the City will require a maintenance agreement with the development proposal identifying regular inspection and maintenance of stormwater facilities.

## 5.3. Erosion and Sedimentation

## Goal:

To prevent erosion and sedimentation to the maximum extent practical through construction site permitting and inspection and good municipal housekeeping.

Policies:

1. The City requires the preparation and implementation of erosion and sediment control plans and best management practices for construction and land development activities in accordance with NPDES permit requirements, with the ultimate goal of eliminating sediment discharge from the site.

- 2. The City will enforce the erosion and sediment control plan and best management practices on construction sites through the review and inspection process. Areas adjacent to water bodies and wetlands may require additional BMPs due to their environmental sensitivity.
- 3. The City may prohibit work in areas having steep slopes and/or high erosion potential where the impacts of significant erosion cannot be protected against or mitigated. In addition, as part of the development proposal, the City may require restrictive easements on areas having steep slopes or high erosion potential.
- 4. The City will continue to sweep paved public streets as identified in the SWPPP. Areas with direct discharge into lakes, wetlands, and streams will be given first priority and areas requiring additional attention will be swept more on an as-needed basis.

## 5.4. Wetlands

## <u>Goal</u>:

To protect wetland value and ensure conformance with the requirements of the Minnesota Wetlands Conservation Act (WCA), MCWD Rules, and other State and Federal regulations.

Policies:

- 1. The City defers the administrative responsibility to MCWD for wetland management and conformance with their rules and the Wetland Conservation Act (WCA).
- 2. The City will notify parties proposing land disturbing activities (i.e.: altering, dredging, filling, and draining) to verify with the MCWD for Rule requirements, as well as possible permit requirements from the MDNR and US Army Corps of Engineers (COE).
- 3. The City of Woodland is completely developed, making wetland covenant or easement dedication somewhat difficult for existing platted properties. The City does not require any additional dedication above and beyond the requirements of the WCA or the MCWD.
- 4. The City will cooperate with interested private or governmental parties on wetland restoration projects and may participate in the State's wetland banking program.

## 5.5. Public Ditch Systems

## Comment:

There are no known county or judicial public ditch systems within the City.

## 5.6. Groundwater

Goal:

To protect groundwater through prudent management of surface waters and areas of potential contamination.

## Policies:

- 1. The City will cooperate with County and State agencies to inventory and seal abandoned wells and notify its residents of State standards on well abandonment for wellhead protection zone).
- 2. The City will require individual sewage treatment systems to be in conformance with the State of Minnesota's on-site sewage treatment system requirements.
- 3. The City will consider the significance of sensitive geologic areas when making land use decisions, when reviewing development proposals, or when proposing construction of stormwater facilities. Activities that may have significant contamination potential will be required to include groundwater protection measures.
- 4. The City will encourage the use of infiltration methods to promote groundwater recharge where groundwater will not be significantly impacted by the land use or stormwater runoff.

## 5.7. Recreation and Ecological Integrity

## Goal:

To protect and enhance recreational facilities, fish and wildlife habitat, and overall ecological continuity.

## Policies:

- 1. The City will support the efforts of Local, State, and Federal agencies promoting public enjoyment, and the protection of fish, wildlife, and recreational resource values in the City.
- 2. The City will protect wetlands in accordance with the goals and policies of this plan.
- 3. The City will guide future land planning and community development into giving higher consideration towards existing wooded and natural areas. It is recommended that the City develop a credit system, such as that suggested in the Minnesota Stormwater Manual (2006), to allow stormwater credit for avoiding development of natural areas during development and redevelopment projects.
- 4. The City will encourage its residents to retain existing wetlands, vegetation buffers, and open spaces for the benefit of wildlife habitat.

## 5.8. Education and Public Involvement

## Goal:

To educate and inform the decision makers and general public on water resources management issues; and to increase public participation in water management activities.

## Policies:

1. The City will continue to promote best management practices for its residents. The public education will include topics such as: fertilizer use and the limited need for phosphorus in

fertilizer; lawn care and lawn chemical use; solid, liquid and household hazardous waste disposal; and natural water resource systems and protection methods.

2. The City will have various types of water resource protection information available at City Hall for review by its residents, as well as links to information on its website.

## 5.9. Training, Inspection and Enforcement

Staff training, inspection of City facilities, illicit discharges, and construction sites, and enforcement responses are done in accordance with the City's MS4 Permit requirements. Further information regarding training, inspection and enforcement can be found in the City's SWPPP located at City Hall.

# 5.10. Low Impact Development, Natural Area Preservation & General Water Resource Protection

#### Goal:

To promote Low Impact Development (LID) techniques, preserve natural areas and protect surface water resources.

#### Policies:

- 1. The City is aware of the environmental benefits associated with LID and general natural area preservation and will work with development/redevelopment to implement these practices when feasible. These may include, but not be limited to:
  - Impervious area reduction
  - Impervious area disconnection
  - Decentralized stormwater management
  - Street width reduction
  - Rural street sections
  - Reduced setbacks
  - Ecological/pedestrian corridors
  - Natural space preservation and incorporation into site design
  - Site disturbance minimization
  - Pervious pavement
  - Green Roofs
  - Increased stormwater abstraction (infiltration, filtration, irrigation reuse, etc.)
- 2. The City currently does not plan to adjust its codes to address LID specifically; however, the codes will continue to be flexible and allow for variance to accommodate LID designs on a case-by-case basis.
- 3. The City is continually looking for ways to enhance protection of its surface water resources, including the integration of improvement techniques into parks, open space and other recreational areas.

## 5.11. Municipal Housekeeping

#### Goal:

To conduct activities and perform maintenance operations as necessary to maintain and improve the health of the surrounding surface waters through minimization of runoff pollutants. Additional information can be found in the City's MS4 Storm Water Pollution Prevention Plan (SWPPP).

#### Policies:

- 1. The City will continue to sweep all paved streets as outlined in the SWPPP.
- 2. The City requires Operation and Maintenance Plans for all stormwater management facilities used to meet governmental requirements. The plans are required to outline operation, maintenance, and inspection schedules and reporting requirements.
- 3. Stockpiles and materials handling areas are inspected per MS4 Permit requirements.
- 4. Inspection and maintenance records are kept and reported annually to the MPCA as part of the MS4 NPDES-required annual reporting process.

# 6. ASSESSMENT OF ISSUES AND CORRECTIVE ACTIONS

This section contains an assessment of existing and potential water resource related issues presently known within the City, as well as a description of structural, non-structural, or programmatic solutions that are proposed to address or correct the issues. These issues and concerns have been identified by City staff as part of the land and water resource data collected in the preparation of this SWMP. Many of the general issues addressed here are to meet policies set forth in Section 5 of this plan, while site-specific issues have specific proposed solutions. The timeframes shown are for planning purposes only and may change as needs and funding scenarios change in the future.

## 6.1. Excessive Nutrient Levels and Phosphorus Reduction

Issue:

The City of Woodland discharges stormwater runoff directly into the following bays of Lake Minnetonka: Wayzata and North Lower. Runoff carrying nutrients, primarily phosphorus, from developed/undeveloped land to these water bodies ultimately causes elevated nutrient concentration in the waters. High nutrient loads will lead to reduced clarity, excessive algal growth and overall decreased public value of the affected water bodies.

## Corrective Action:

The City requires new and redevelopment to apply permanent stormwater treatment measures meeting the requirements of Watershed District and NPDES permitting. Also, in order to achieve the allocated phosphorus reduction, the City will employ a variety of techniques. These techniques will include the following:

- Evaluate municipal projects for incorporation of volume abstraction above and beyond MCWD and NPDES requirements
- Increased street sweeping frequency
- Natural area preservation
- Partnering with the MCWD for capital projects

Refer to the City's SWPPP for more information regarding pollutant removal practices and management.

## <u>Timeframe</u>

Ongoing:	Site plan review for permit compliance.
Ongoing:	Evaluation of treatment opportunities to decrease pollutant loads

## 6.2. Construction Site Erosion and Sediment Control

#### Issue:

Sediment leaving construction sites pollutes, fills and degrades surface waters, wetlands and conveyance systems.

#### Corrective Action:

The City will continue to monitor appropriate use of sediment and erosion control practices, as required by NPDES permitting, through the review and inspection process currently in place.

<u>Timeframe:</u>Ongoing:Plan review and construction site inspection.

## 6.3. Runoff discharge rates from new and redevelopment:

#### <u>Issue:</u>

The increased percentage of impervious area typically seen with new and redevelopment will cause a corresponding increase in flowrate of the runoff leaving the area. These increased rates can be responsible for downstream erosion and flooding if not properly mitigated for.

#### Corrective Action:

The City requires new- and redevelopment to apply permanent stormwater rate attenuation measures meeting the requirements of MCWD and NPDES permitting.

#### Timeframe:

Ongoing: site plan review for permit compliance.

## 6.4. General Storm System Maintenance

#### Issue:

The existing storm drainage system is performing adequately to convey runoff, although, system maintenance will be required annually.

## Corrective Action:

Storm drainage system maintenance required includes pond assessment and cleaning, street sweeping, sewer televising, and GIS/mapping.

## <u>Timeframe:</u>

Ongoing: storm system maintenance.

## 6.5. Street and Utility Improvement Projects

#### <u>Issue:</u>

The existing storm drainage system is performing adequately to convey runoff, although, system maintenance will be required annually.

## Corrective Action:

As street 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.

## <u>Timeframe:</u>

Ongoing: storm system improvements.

## 6.6. Stormwater Runoff Management and Treatment Projects

Issue:

The existing storm drainage system is performing adequately to convey runoff, although, system maintenance will be required annually.

#### Corrective Action:

Correct flooding issues on City property as necessary to protect public safety and minimize potential for property damage. Also, collaborate as necessary with Watershed Districts and willing private landowners to 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. Coordinate stormwater treatment improvements to treat stormwater from areas with inadequate or no treatment and improve the quality of runoff reaching area surface waters.

#### <u>Timeframe:</u>

Ongoing: storm system improvements.

# 7. IMPLEMENTATION PRIORITIZATION & FINANCIAL CONSIDERATIONS

## 7.1. Implementation Prioritization

Provided below is a generalized ranking of the *policies* and *corrective actions* identified in sections 5 and 6. The High, Medium, Low format has been selected over a numerical format to emphasize the need for flexibility and the inherent inexactness of trying to quantify something that is fairly subjective. This prioritization is meant as a guide for future planning, as well as the corrective actions and associated CIP table in section 7.3. Funding appropriations and projects may switch levels at anytime given new information/circumstances.

All of the goals and associated policies identified in Section 5 are of high priority. Rather than restate each policy, the following policies are highlighted because they pertain to more recent developments.

Policy Description	Ranking
Administer and maintain the City MS4 Storm Water Pollution Prevention Plan (SWPPP)	HIGH
Continued promotion of LID techniques, infiltration and general runoff volume reduction	HIGH
Maintain existing storm drainage system to provide adequate treatment and conveyance of runoff	HIGH
Evaluate street and utility improvement projects for potential stormwater management and treatment improvements	HIGH
Correct flooding issues on City property as necessary and collaborate with MCWD and Private Landowners to install stormwater treatment measures	MED
Expand public education program to make wider use of City website	MED
Address Total Maximum Daily Load waste load allocations as they are developed	LOW

Table 7.1: Policy Prioritization

## 7.2. Funding Sources

Since stormwater runoff in Woodland is managed using natural existing topography and virtually no piping, the City does not currently use a specific stormwater utility fee to fund stormwater management and treatment improvements. Instead, these improvements are funded using general funds when deemed necessary as part of other street improvements. As projects are identified, the general funds may be supplemented with grant funding if the project provides treatment beyond what is required.

## 7.3. Capital Improvements Program

Capital improvements funded by the City will be at the direction of the City and based upon project feasibility, City priority, and availability of financial resources. The City does not currently have any potential projects appropriate for a stormwater-oriented CIP. Instead, potential Stormwater Management projects will be evaluated as part of the Street and Utilities CIP, with funding provided as necessary from general funds and potential grants.

# 8. AMENDMENT PROCEDURES

## 8.1. Review and Approval

It is the City's intention to have this SWMP reviewed and approved by the Minnehaha Creek Watershed District (MCWD) in accordance with Minnesota Statutes, Section 103B.235. The plan will be sent to Metropolitan Council for review and comment, with ultimate adoption as part of the Comprehensive Plan amendments.

## 8.2. City Amendments

If the City proposes changes to this SWMP, the changes and their impacts will be determined by the City as either a "minor" change or a "major" change. The general descriptions of minor or major changes and the associated review and approval requirements are presented as follows:

<u>Minor Changes</u> would include small adjustments to subwatershed or subdistrict boundaries or other minor changes that would not significantly affect the rate or quality of stormwater runoff discharged across the municipal boundary or significantly affect high water levels within the City. Minor changes also include revisions made to the stormwater related Capital Improvements Program to best meet the City's water resource needs and financial considerations. For proposed minor changes, the City will prepare a document which defines the change and includes information on the scope and impacts of the change. The document will be forwarded to the MCWD for their records. The minor change will be implemented after the document is adopted by the City Council.

<u>Major Changes</u> are those that could have significant impacts on the rates, volumes, water qualities and water levels of stormwater runoff within the City or across its municipal boundaries. For proposed major changes, the City will prepare a document that defines the change and includes information on the scope and impacts of the change. The document will be forwarded to the MCWD for their review and approval. The MCWD shall have 60 days to comment on the proposed revisions. Failure to respond within 60 days will constitute approval. After MCWD approval, the City will adopt the amendment as part of the SWMP.

## 8.3. Plan Coordination

The City will meet with MCWD 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 MCWD budgeting schedules.

# APPENDIX A

Figures

# 2040 Comprehensive Plan

## Woodland, MN







Real People. Real Solutions.

## 2040 Comprehensive Plan

## Woodland, MN







Real People. Real Solutions.

## Woodland, MN



Minnesota Land Cover Classification

June 2018



Real People. Real Solutions.
#### **2040** Comprehensive Plan Maps

City of Woodland, Minnesota

#### Subwatershed



FIGURE **4** 

FEET

SCALE

April 2018



## **APPENDIX B**

Modeling Methodology

### MODELING METHODOLOGY AND MAPPING

- The general procedure used in the runoff modeling aspects of this analysis has been performed using the HydroCad 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. For purposes of this report and using precipitation depths from Technical Paper 40, typical 24-hour rainfall events of 2.35", 4.20" and 6.00" have been chosen to analyze runoff/development interaction. These events are best described as those having probabilities of occurring once every 1, 10 and 100 years, respectively.
- 3. The probabilities of occurrence do not imply that a 2.35", 4.20" or 6.00" rainfall cannot occur multiple times within the same year; they simply say that a 2.35" rainfall will occur on the average once every year, a 4.20" rainfall will occur on the average once every 10 years and a 6.00" rainfall will occur on the average once every 10 years. In other words, the 1-year rainfall has a 100 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**

# Modeling Results – Available Upon Request