

CITY OF WOODLAND

2040 COMPREHENSIVE PLAN



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CITY OF WOODLAND Comprehensive Plan 2040

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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
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- Parks and Open Space
- Sanitary Sewer, Water and Surface Water Management Plan

Implementation

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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 the Community Designation map 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

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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.

Wetlands 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

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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.

Woodlands 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 an 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. The Current Land Use map illustrates the existing land use in the City.

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.

The City acknowledges the Met Council's community designation as Suburban and the Met Council's request to guide land for development and redevelopment at a minimum density of 5 units per acre. The Assembly Grounds zoning district of Woodland contains 21% of the housing units in the City (41 units) which are developed at a net residential density of 7.1 dwelling units per acre. The City is fully built out and the vast majority of the City (144 of 196 housing units) are served by septic systems which remain at densities appropriate for that type of sewage treatment system. The City does not have plans to expand the sewer system that would warrant greater housing densities in other areas of the City.

Land Use Inventory Definitions

Low Density Residential – 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 guesthouses. Housing density is defined as 1 ~~home~~ principal structure per two-acre lot.

Medium Density Residential – 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.

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

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

Park and Recreational – 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.

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

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Sewered Area	Allowed Density Range Housing Units/Acre		Existing (2010)	2020	2025	2030	2035	2040	Change 2010-2040
	Minimum	Maximum							
Residential									
Low Density Residential	.5	1	13	15	15	15	15	15	2
Medium Density Residential (Groveland Assembly Grounds)	4	7	14	14	14	14	14	14	0
C/I Land Uses	Est. Employees/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 & 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	.5	1	300	298	298	298	298	298	-2
Medium Density Residential (Groveland Assembly Grounds)	4	7	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, (Mtk, Marion & Shavers Lake) Rivers & Streams	--	--	41	41	41	41	41	41	0
Total			428	428	428	428	428	428	

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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). The Zoning map illustrates the existing zoning 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 sub-dividable 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. See attached Proposed Land Use map.

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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.

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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. **Seasonally Flooded Basin or Forest:** 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. **Inland Fresh Meadow:** The soil is usually waterlogged within a few inches of the surface throughout the growing season.
- Type 3. **Inland Shallow Fresh Marshes:** These principal production areas for waterfowl are often found bordering deep water marshes, or as seep area on irrigated lands.
- Type 4. **Inland Deep Fresh Marshes:** Six inches of 3 feet of water, water lilies, duck and pond weeds and coontail.
- Type 5. **Inland Fresh Open water:** Less than 10 feet of water may sustain permanent populations of fish and migratory waterfowl.
- Type 6. **Shrub Swamps:** 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

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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

Woodland's 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

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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

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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 is not subjected to shading from nearby trees, buildings or other structures.

The table below shows the gross solar potential and gross solar rooftop potential for the City of Woodland. The gross solar potential and gross solar rooftop potential are expressed in megawatt

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hours per year (Mwh/yr), and these estimates are based on the solar map for the community. These values represent gross totals; in other words, they are not intended to demonstrate the amount of solar likely to develop within Woodland. Instead, the calculations estimate the total potential resource before removing areas unsuitable for solar development or factors related to solar energy efficiency.

Community	Gross Potential (Mwh/yr)	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr)²	Rooftop Generation Potential (Mwh/yr)²
Woodland	274,797	19,294	27,479	1,929

Source: Metropolitan Council

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. The attached Zoning map 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

Existing Housing Assessment

Affordability

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Total No. of Housing Units	196
Units affordable to 30% AMI	1
Units affordable to 50% AMI	0
Units affordable to 80% AMI	7

Source: Metropolitan Council

Unit Type

Ownership Units	186	95%
Rental Units	10	5%
Single Family Units	196	100%
Multifamily Units	0	0%
Other Units	0	0%

Source: Metropolitan Council

Cost Burdened Households in 2016

Income at or below 30% AMI	5
Income 31% to 50% AMI	9
Income 51% to 80% AMI	10

Source: Metropolitan Council

Publicly Subsidized Units

All Publicly Subsidized Units	0
Publicly Subsidized Senior Units	0
Publicly Subsidized Units for People with Disabilities	0
Publicly Subsidized Units: All others	0

Source: Metropolitan Council

The Existing Housing Assessment notes that the City of Woodland is 95% owner occupied, has limited affordable housing opportunities, and no publicly subsidized housing units. The City's affordable housing is naturally occurring affordable housing (i.e. unsubsidized housing) which is made up of aging, smaller, single-family housing. Due to market conditions, that housing is in jeopardy for redevelopment which may further limit available affordable housing.

These realities lead Woodland to identify the following housing needs:

- Maintenance of existing housing to the extent possible
- Preservation of naturally occurring affordable housing
- Creating opportunities for residents at all life stages

Population and Household Developments

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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.

To the extent that affordable housing development opportunities present themselves, the City will proactively consider proposals to create affordable housing units. Depending on the specifics of the project, the City will consider using any of the available tools at its disposal to help create a viable project including:

Identified Need	Available Tools	Circumstances for Consideration
Maintenance of existing housing	Local Funding Sources	The City will consider partnering with programs offered through Minnesota Housing Finance Agency, Twin Cities Habitat for Humanity, and other similar

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		programs for residential rehabilitation and down payment assistance.
	Small Cities Development Program	On a case-by-case basis, the City will consider this program for residential rehabilitation of existing owner-occupied housing stock.
Preservation of naturally occurring affordable housing	Local Funding Sources	On a case-by-case basis, the City will consider partnering with relevant agencies such as a community land trust or bank, <u>such as the Greater Minnesota Housing Fund's NOAH Impact Fund</u> , to preserve or help create affordable housing options for households at or below 80% AMI and Affordable Mortgage Products. The City will provide information on this potential resource to the best of its ability.
	Hennepin County AHIF and HOME funds	On a case-by-case basis, the City will consider use of these funds for home ownership programs available for new construction, rehabilitation, and preservation.
Creating opportunities for residents at all life stages	City Ordinance	Review and continue to support the City's existing ordinance permitting the construction of accessory dwelling units (aka guest homes) in R-1 zoning district.
	City Ordinance	Make appropriate accommodations (via the variance process, if necessary) to allow age-in-place and ADA accessible features for housing.
All Identified Needs	Referrals	The City will review and update its procedures to ensure

		that staff has the ability to refer residents to applicable housing programs and services.
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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.

The existing City code is supportive of multi-generational housing, and there are no City code prohibitions on in-home suites for family members. Also, current City code permits accessory dwelling units of up to 700 square feet on conforming low-density residential properties.

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

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

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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%.

Table: Population by Age

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%

Source: U.S. Census Bureau

Household Composition

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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:

Table : Year Structure Built

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%

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Built 1940 to 1949	15	8.3%
Built 1939 or earlier	62	34.3%
Total housing units	181	100%

Source: U.S. Census Bureau

Housing Values

The median value of a single-family home in Woodland has fluctuated from year to year since 2010, but the City maintains the second highest estimated market value median within Hennepin County (behind Minnetonka Beach). In 2019, the median home value in Woodland is estimated to be \$968,000. For comparison, the 2019 median home value in Hennepin County is estimated to be 298,400. An important factor in the City's valuation status is both the larger lot sizes and riparian access for many of the residential properties.

Table : Single Family Market Value Medians

YEAR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Hennepin County	\$221,500	\$215,000	\$203,100	\$202,500	\$219,600	\$230,500	\$241,000	\$259,000	\$294,000	\$312,000
Woodland	\$893,000	\$854,000	\$812,500	\$792,000	\$719,000	\$848,000	\$817,000	\$850,000	\$952,000	\$968,000

Source: Hennepin County Assessor's Office

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.

Table : Comparative Per Capita Incomes (household)

	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%

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.

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Woodland remains a very affluent community, with 45.3% of its households having incomes of \$200,000 or more.

Table : Household Income 2010

	2010 Woodland	2010 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 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%

Table : Educational Attainment

	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%

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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%

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 pedestrian pathways, bike paths, bike lanes or bridges located within Woodland.

Transit

Woodland is located within the Transit Capital Levy District Metropolitan Transit Taxing District and within Transit Market Area IV. There are no public transportation facilities within the City. Access to public transportation is provided at via Route 671 at the intersection of Minnetonka Boulevard and Maplewood Road in Deephaven located 0.25 miles south of the southerly City boundary. The City is also served by Metro Mobility and Transit Link (formerly Dial-A-Ride.)

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. The attached Street map illustrates the existing main corridor (collector street) in Woodland.

Regarding non-motorized transportation including pedestrian and bicycle transportation, the small size of the City, the physical limitations of its roadways and the absence of publically owned property render a municipal network of pedestrian and bicycle trails impractical. The proximity of the City to train networks in the neighboring cities provide residents with adequate access to non-motorized trails and the regional trail network.

Pedestrian safety on the City's streets continues to be a major policy goal for the City as reflected in roadside warning signage, motor vehicle speed limitation, and periodic initiatives via the City newsletter.

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, trails, or recreational facilities 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.

Parks Plan

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-conforming 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 which is designed to comply with MPCA 7080 regulations. A copy of that ordinance has been attached to this plan. The ordinance requires a biennial maintenance check for all ISTS's. The City maintenance inspector is thoroughly versed in the MPCA 7080 regulations, holding MPCA Certification Number C3721 (Service Provider, Intermediate Designer, and Intermediate Inspector). If the maintenance inspector determines,

City of Woodland 2040 Comprehensive Plan

based on the maintenance inspection, that the system is non-compliant, the City may issue a certificate of non-compliance. 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 41 of 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 well in the Groveland Homeowners Association has been decommissioned and capped.

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. The communities reimburse each other for the municipal wastewater charges that each incurs from receiving flow from the adjacent community.

Municipal waste water is made up of a mixture of sewage, groundwater infiltration and surface water inflows. The sanitary sewer and water systems were 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's sewer system was constructed in 1997 and has minimal inflow/infiltration (I/I). The City is not aware of any illegal connections to the system. The City televises the sewer system every 3 years and 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:

Table : Sanitary Sewer Growth Forecasts 2010-2040

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

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.

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The City of Woodland does not have a water source, supply or tower facility within its municipal boundaries and is 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. Whenever possible issues arise, the City will work with the Minnesota Department of Health and Hennepin County to identify and seal abandoned wells in order to prevent contamination of groundwater resources. The City will be a willing participant in state and local efforts to protect private water supplies. The City will provide occasional newsletter articles on water conservation and additional information on private wellhead protection for all residents, including relevant material from the Metropolitan Council's online Conservation Toolbox.

The City will continue to provide the opportunity for voluntary water quality tests on the private wells within the City. The City will also continue to provide information, resources, and recommendations for well maintenance and wellhead protection.

The attached maps 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. The attached zoning map 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 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,

City of Woodland 2040 Comprehensive Plan

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.

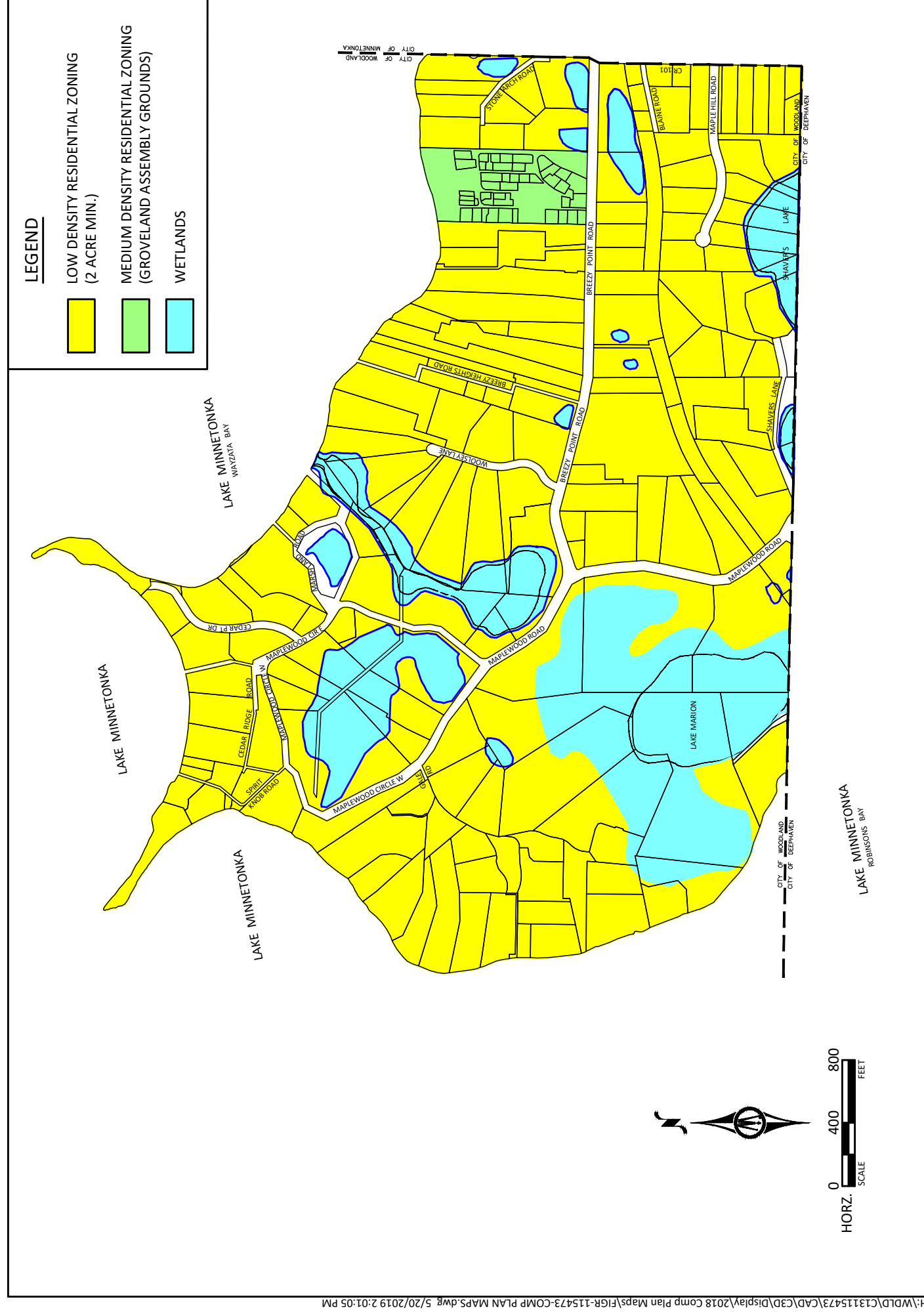
Woodland contracts services for fire protection with the City of Wayzata. Police, clerical, treasurer, zoning enforcement and public works maintenance services are contracted with the City of Deephaven. The municipal office building, office equipment and council meeting chambers are shared between Deephaven,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

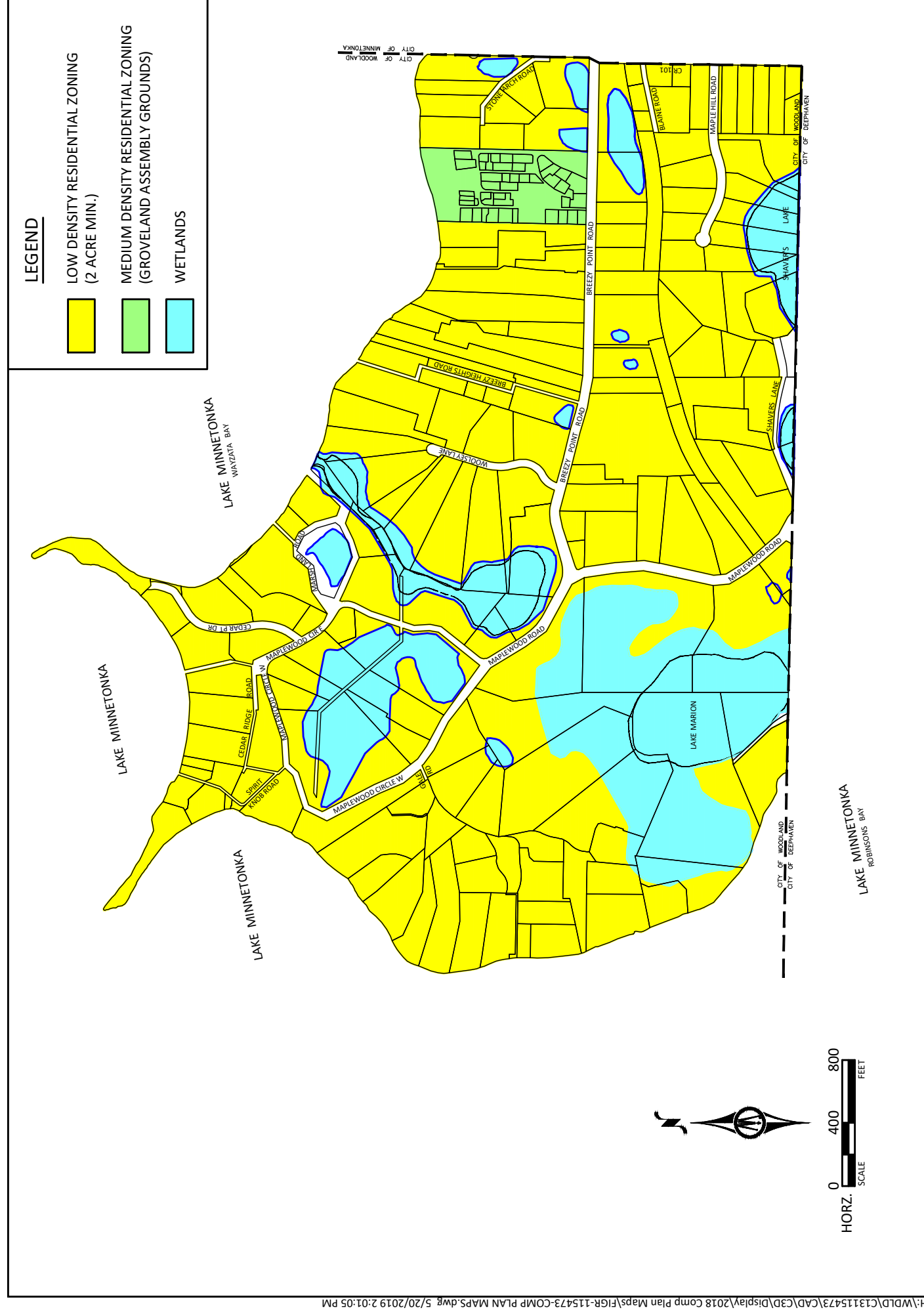
The municipal engineering firm, legal counsel and on-site sewage treatment inspectors are appointed annually. The municipal water supply is provided by the City of Minnetonka to a portion of Woodland. No municipal sanitary sewer lift stations or water towers are located in Woodland. These facilities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

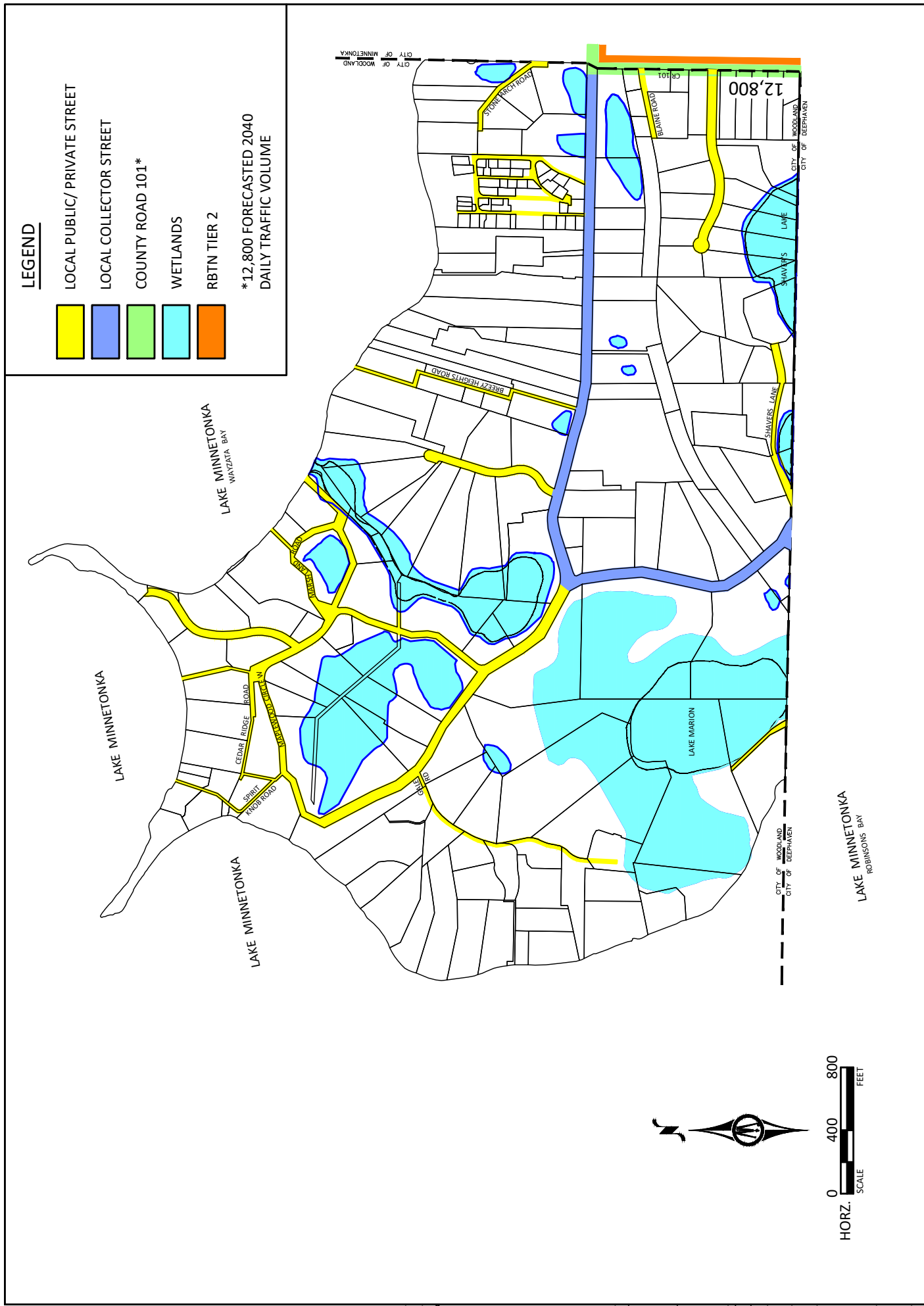
Woodland is one of several hundred cities that are members of this self-insurance pool formed through the League of Minnesota Cities Insurance Trust to address the unique insurance needs of municipalities.

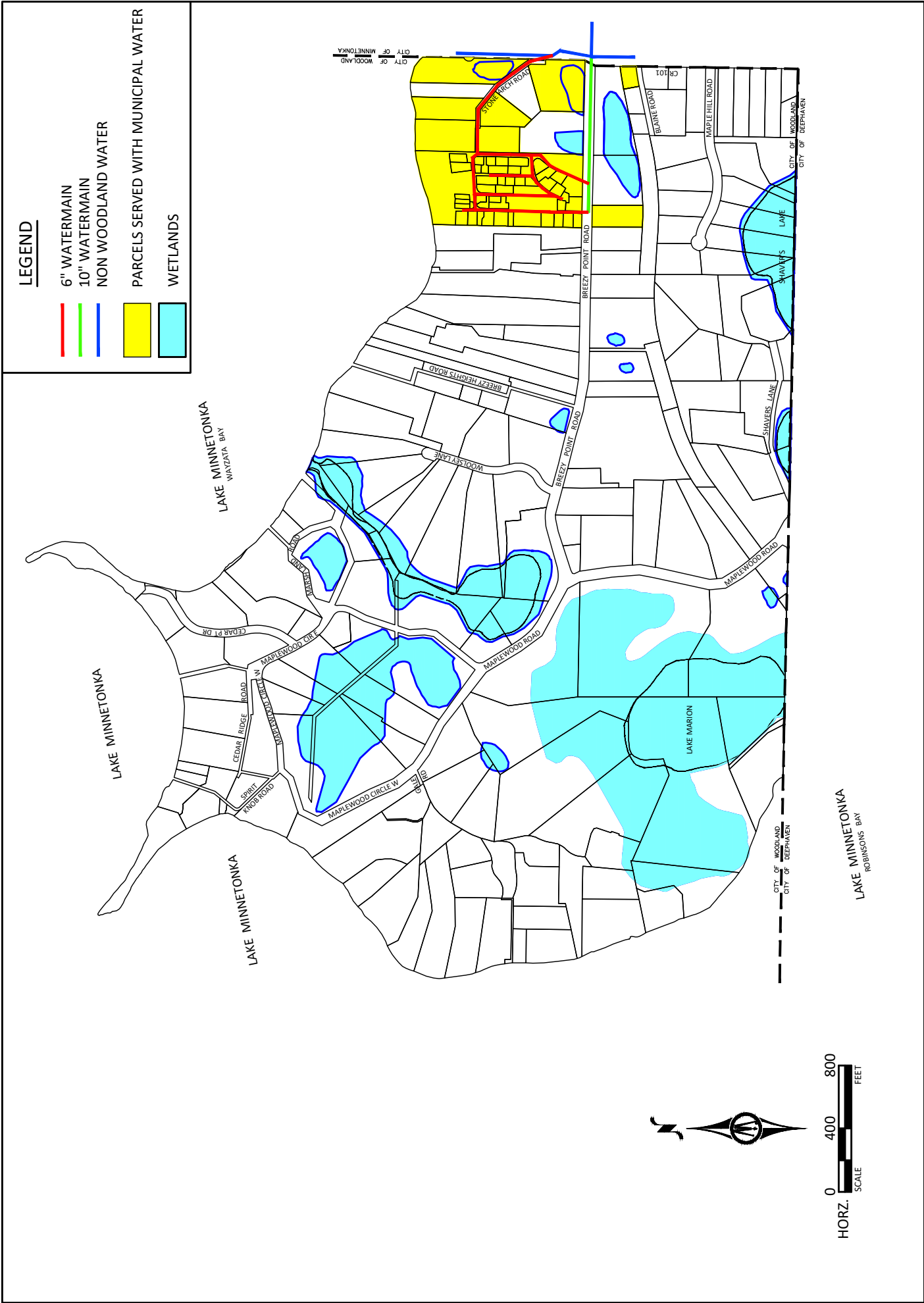
Woodland joins with 14 other communities to support the Lake Minnetonka Conservation District, an organization created by state law, to manage the surface of Lake Minnetonka.

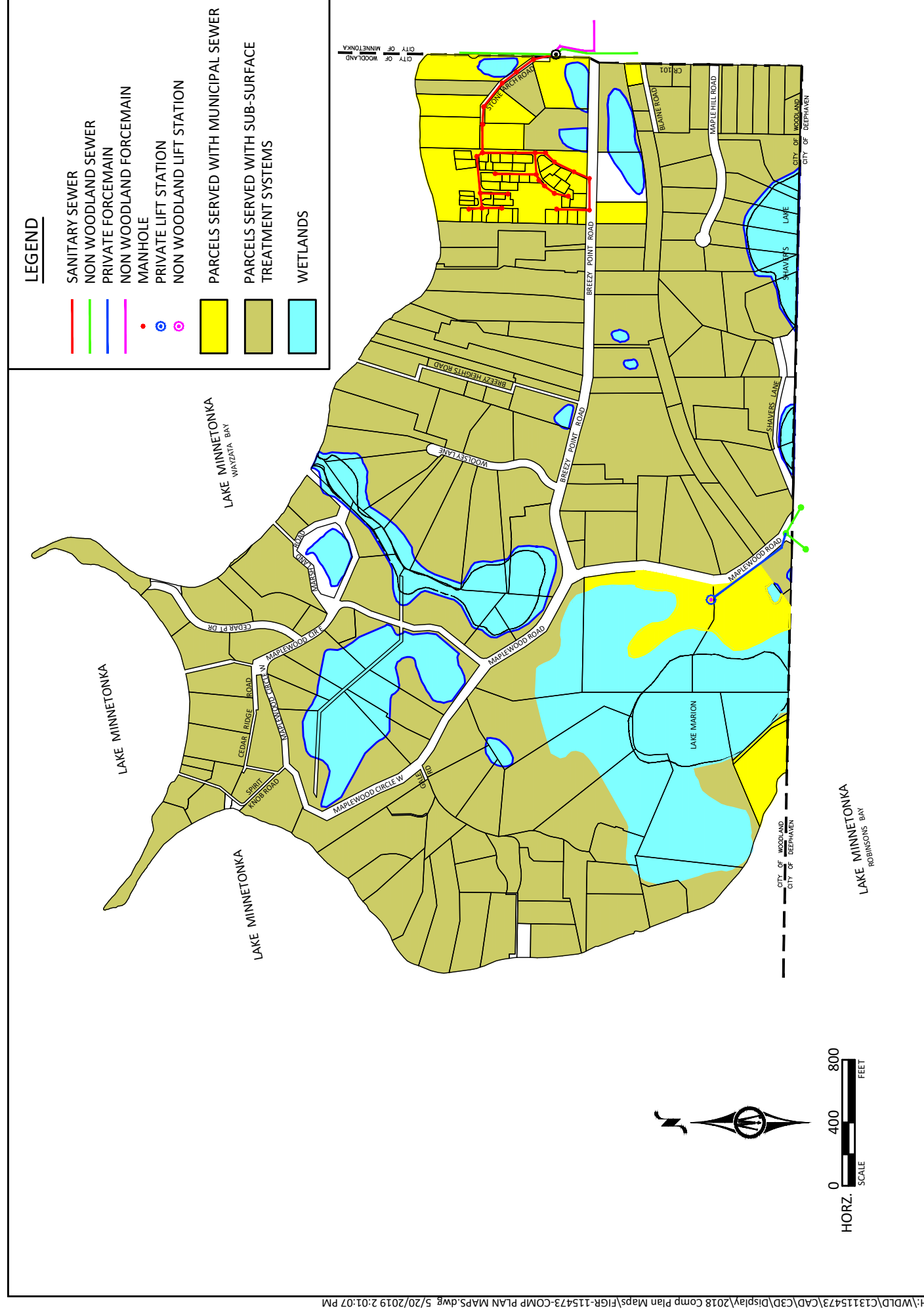


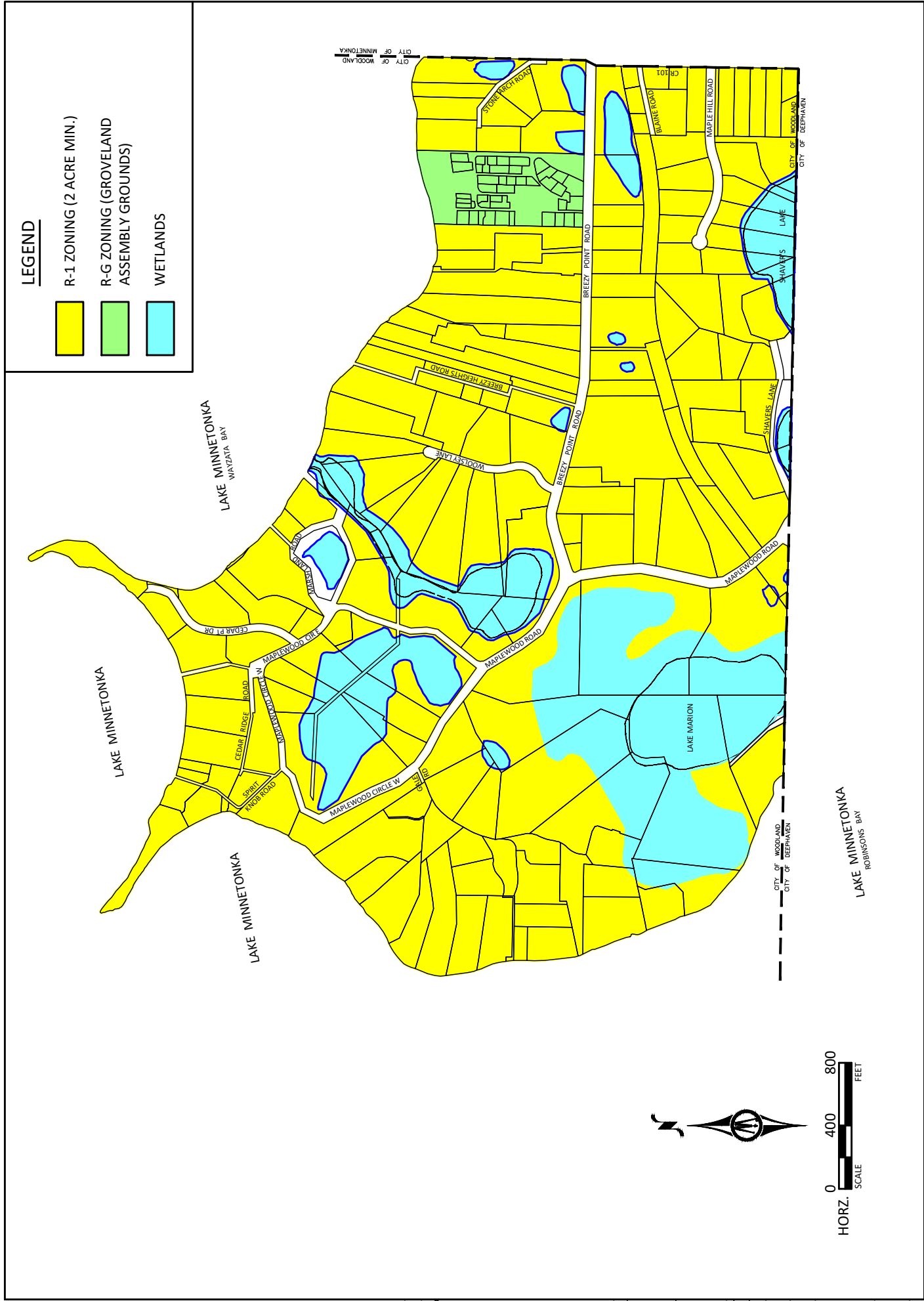






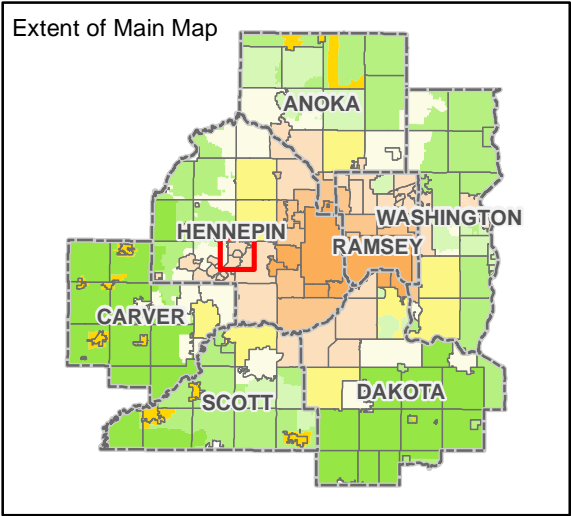
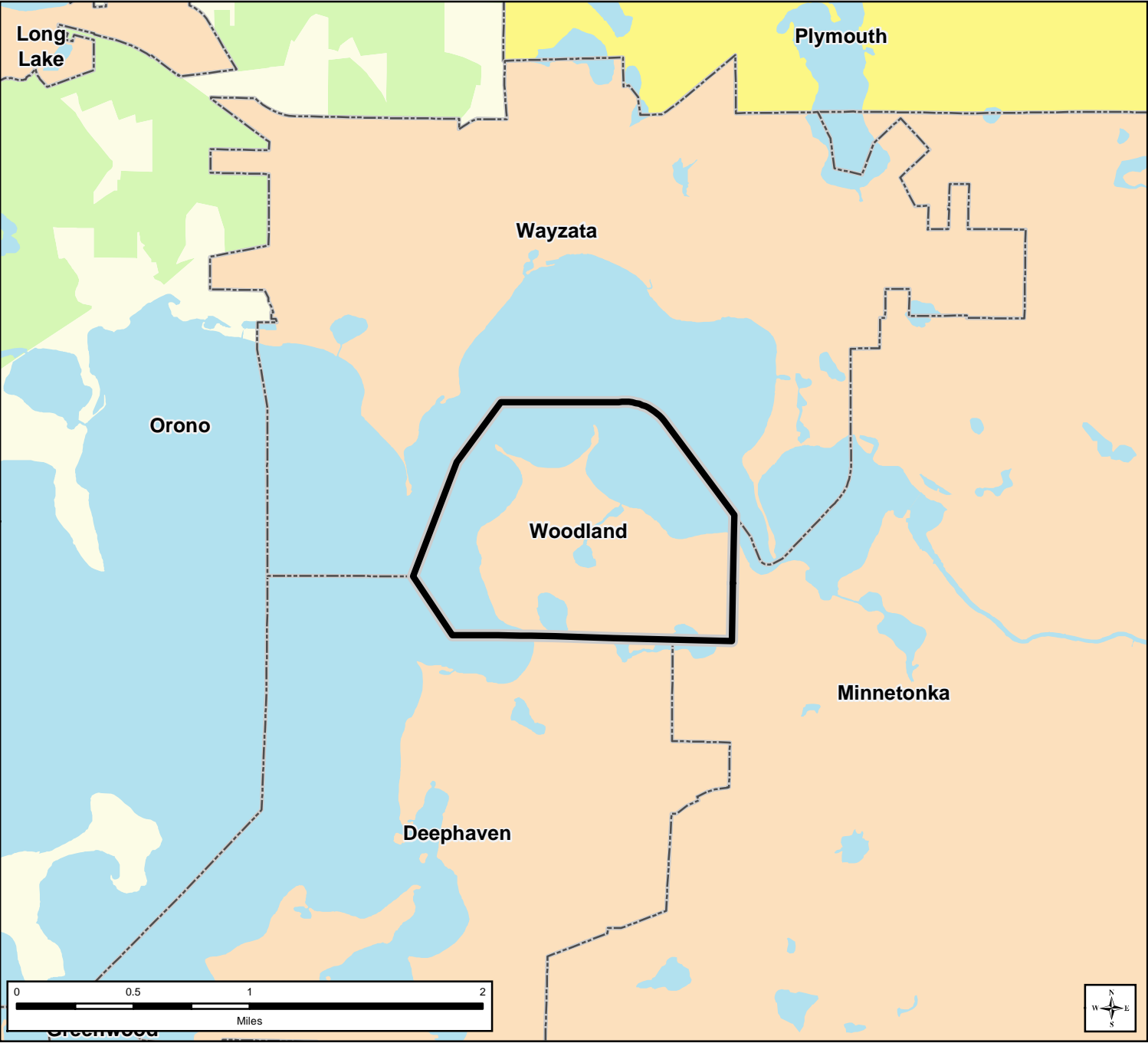






Community Designations

City of Woodland, Hennepin County



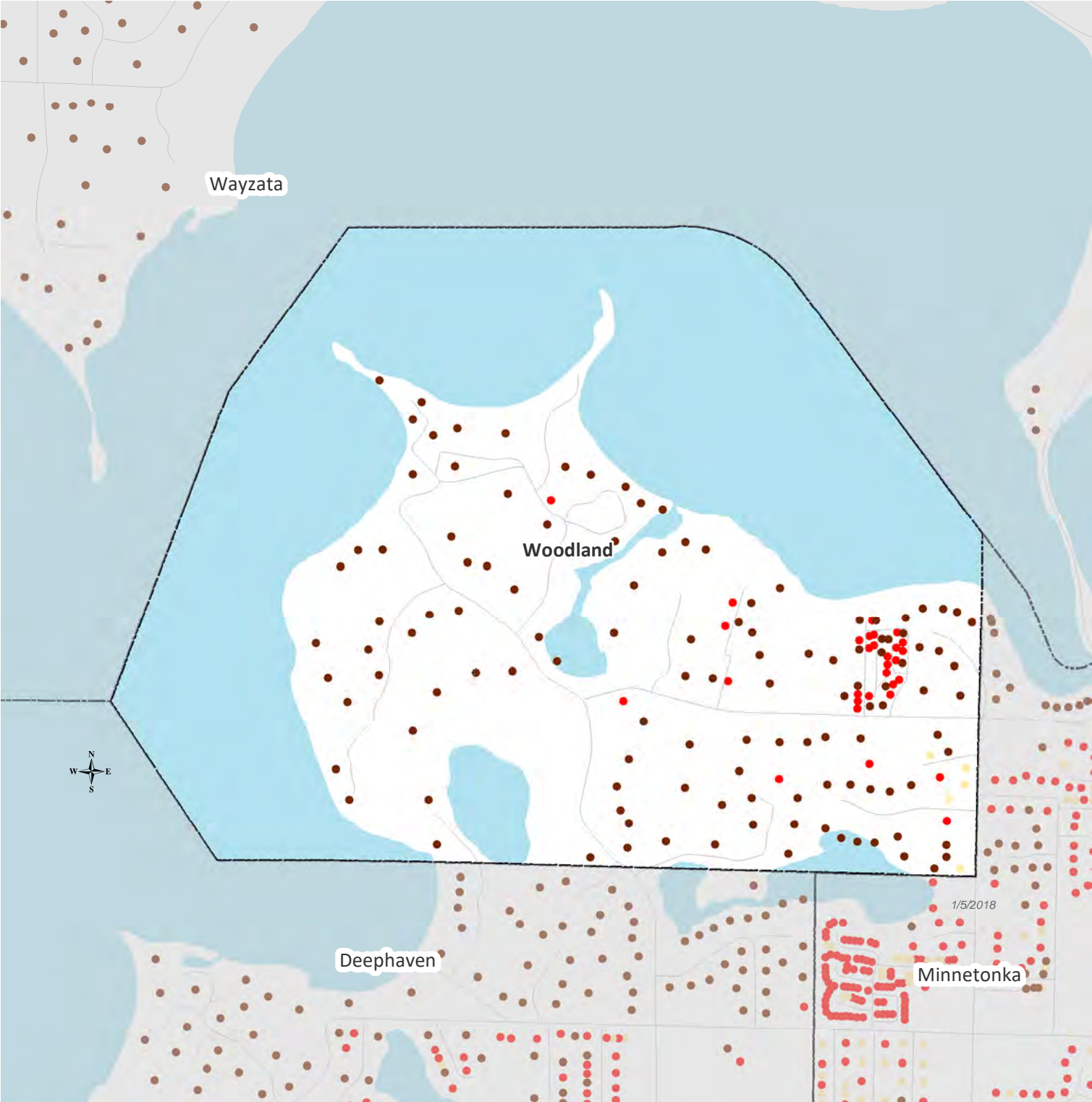
Community Designations

- | | |
|------------------------------------|------------------------|
| Outside Council planning authority | Emerging Suburban Edge |
| Agricultural | Suburban Edge |
| Rural Residential | Suburban |
| Diversified Rural | Urban |
| Rural Center | Urban Center |

- County Boundaries
- City and Township Boundaries
- Lakes and Major Rivers

Owner-Occupied Housing by Estimated Market Value

Woodland



- County Boundaries
- City and Township Boundaries
- Streets
- Lakes and Rivers

Owner-Occupied Housing Estimated Market Value, 2016

- \$243,500 or Less
- \$243,501 to \$350,000
- \$350,001 to \$450,000
- Over \$450,000

1 in = 0.22 miles

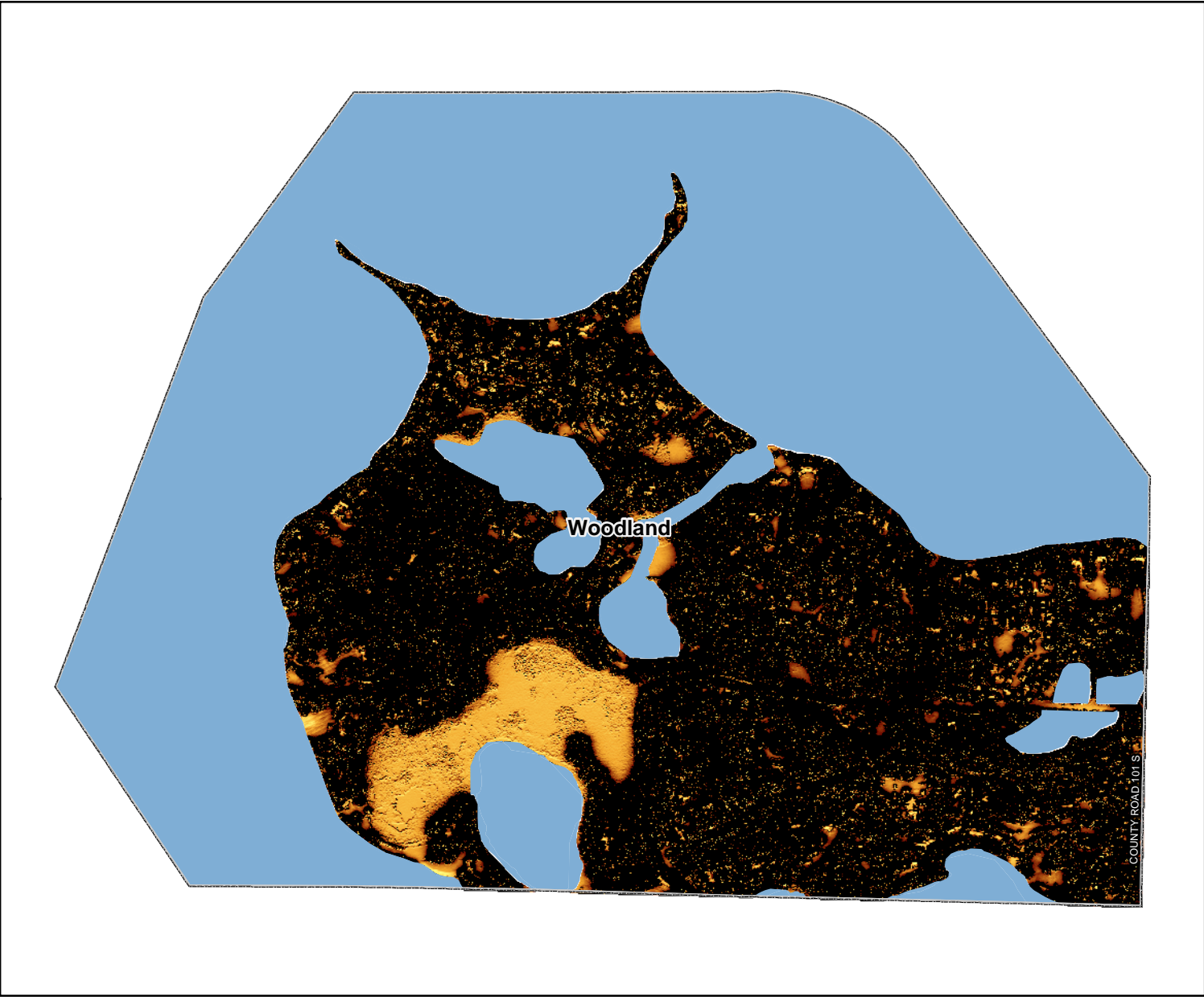


Source: MetroGIS Regional Parcel Dataset, 2016 estimated market values for taxes payable in 2017.

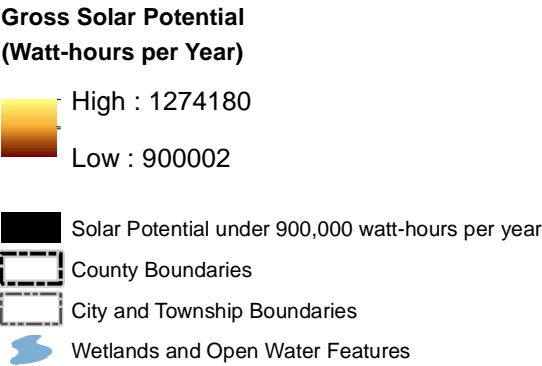
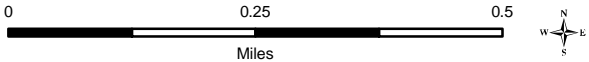
Note: Estimated Market Value includes only homesteaded units with a building on the parcel.

Gross Solar Potential

City of Woodland, Hennepin County



1/13/2017



Source: University of Minnesota U-Spatial Statewide Solar Raster.



**BOLTON
& MENK**

Real People. Real Solutions.

SURFACE WATER MANAGEMENT PLAN

CITY OF WOODLAND, MN

January 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.

January 2019

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.



1-07-2019

Date

Robert Bean, Jr

Minnesota Registration No. 40410

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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, antidegradation policy, 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/climate-normals/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. Lawrence 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 Halsted's Bay, Priests Bay, Cooks Bay, Phelps Bay, Spring Park Bay, Harrison's 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 MDNR 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/Semi-natural areas consist of forests, grasslands, wetlands, etc., and Cultural areas consist of urban and agricultural areas. The two categories are further subdivided on the basis of plant types, soil hydrology, plant species, and amount of impervious surface. At this point the city has no goals or policies relating to these classifications. 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/>

Table 4.4.1: DNR Protected Waters and Wetlands Inventory

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

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 ¼ 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-functional-assessment-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 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).

Table 4.4.3.1 – Subwatershed Hydrologic Runoff Characteristics

I.D.	Area (acres)	CN	Tc (min)	1-Year (2.35") (cfs)	10-Year (4.2") (cfs)	100-Year (6.0") (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

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).

Table 4.4.3.2 – Pond/Lake/Wetland Discharge

I.D.	Drainage Area (acres)	1-Year (2.35") (cfs)	10-Year (4.2") (cfs)	100-Year (6.0") (cfs)	1-Year Discharge Volume (ac-ft)	10-Year Discharge Volume (ac-ft)	100-Year Discharge Volume (ac-ft)	100-Year HWL (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.

Table 4.4.6: MDNR Waterbody/Shoreland Classification

<p><u>RECREATIONAL DEVELOPMENT LAKES</u></p> <ul style="list-style-type: none">• Shavers Lake• Lake Marion <p><u>GENERAL DEVELOPMENT LAKES</u></p> <ul style="list-style-type: none">• Lake Minnetonka <p><u>NATURAL ENVIRONMENT LAKES</u></p> <ul style="list-style-type: none">• N/A

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 Flood 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 does not currently own or operate any stormwater management facilities (as of November 2018). However, if any facilities are constructed on public property in the future, the City will inspect and maintain them annually per MS4 requirements to ensure their continued effectiveness. The City will require the owner of private stormwater facilities intended to meet governmental runoff requirements to execute a maintenance agreement with the City to ensure regular inspection and maintenance occurs.

Private facilities can often be inadequately operated and maintained due to expensive remediation costs, under staffing, or lack of knowledge. Since inadequate operation and maintenance can result in these facilities becoming pollutant sources, monitoring of their condition and maintenance are important to keep them operating effectively. Currently, the City does not possess a comprehensive inventory of all private facilities within City boundaries used to meet governmental requirements for stormwater management. In order to adequately monitor and maintain private facilities, the City will coordinate with MCWD to develop a complete inventory of these BMPs, including responsible authority. Once an inventory of facilities is completed, a process for inspection and maintenance can be developed. In addition, the City will develop a process for adding new private facilities to the existing inventory.

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

Goal:

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. Any potential changes to existing drainage patterns will be reviewed with MCWD prior to implementing improvements.
5. The design of new stormwater storage facilities and trunk lines will accommodate the 100-year storm event without causing flooding to building structures and maintaining required freeboard. Storm sewers will generally be designed to pass the 10-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

Goal:

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.

Timeframe

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.

Timeframe:

Ongoing: Plan review and construction site inspection.

6.3. Runoff discharge rates from new and redevelopment:

Issue:

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.

Timeframe:

Ongoing: storm system maintenance.

6.5. Street and Utility Improvement Projects

Issue:

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.

Timeframe:

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.

Timeframe:

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.

Table 7.1: Policy Prioritization

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

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:

Minor Changes 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.

Major Changes 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

Through its Water Management Plan (WMP/Plan) the Minnehaha Creek Watershed District (MCWD/District) has defined its role as a regional water planning agency and incorporates a subwatershed focus to address areas of significant resources needs with a level of complexity that requires sustained effort and coordination across multiple partners. Through sustained focus, the District is able to develop a thorough understanding of issues and drivers, build relationships, identify opportunities and coordinate plans and investments with its partners for maximum natural resource and community benefit. While operating on a subwatershed scale, focused within priority areas indicated in its WMP, the MCWD is remaining responsive to its communities District-wide by providing technical resources, regulatory coordination, and in some cases funding.

As the District implements its Watershed Management Plan it will be engaged in a continuing process of reviewing priorities and programing the commitment of technical resources and funds. The coordination plan is an opportunity for the City to develop a collaborative relationship that promotes opportunities to integrate land use and water planning to maximize goals and outcomes. Through the implementation of this coordination plan the District encourages the City to identify

any known initiatives of collaboration and potential future priorities which would benefit from early coordination. Commitment of MCWD resources relies on the level of LGU coordination at the early stages project planning as outlined in this plan.

Coordination Plan

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.

In addition to the annual meeting, the City will:

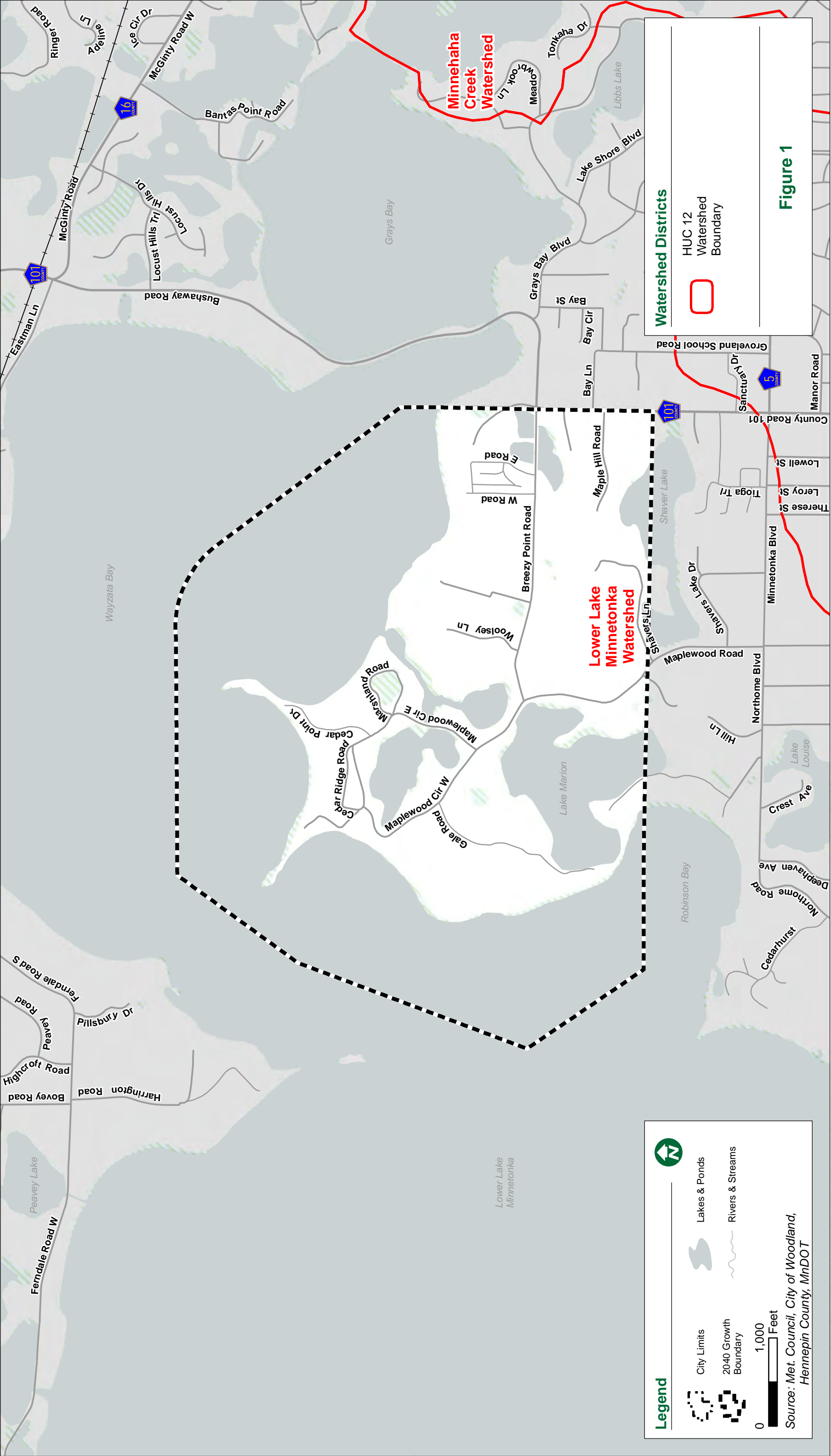
- Transmit the MS4 report to the MCWD annually.
- Notify the MCWD whenever the City proposes revisions to land use planning, infrastructure, park and recreation, and CIPs related to surface water management.
- Notify the MCWD regarding small area plans and other focused development or redevelopment actions.
- Coordinate with the MCWD regarding District permit applications, reviews, construction site inspections, and compliance with their rules for public projects.
- Require property owners to coordinate directly with the MCWD regarding District permit applications, reviews, construction site inspections, and compliance with their rules for projects on private property.
- Defer Wetland Conservation Act reviews and permitting to the MCWD according to law.
- Support the MCWD in the implementation of their rules.
- Coordinate with the MCWD to develop an inventory of private stormwater management facilities used to meet governmental requirements and a process for inspections, annual reporting, and maintenance.

The City has no projects or requests on the horizon that would trigger any of these activities. The City will coordinate with the MCWD should any project be identified in the future.

The City Zoning Coordinator is responsible for communication and implementation of this coordination.

APPENDIX A

Figures



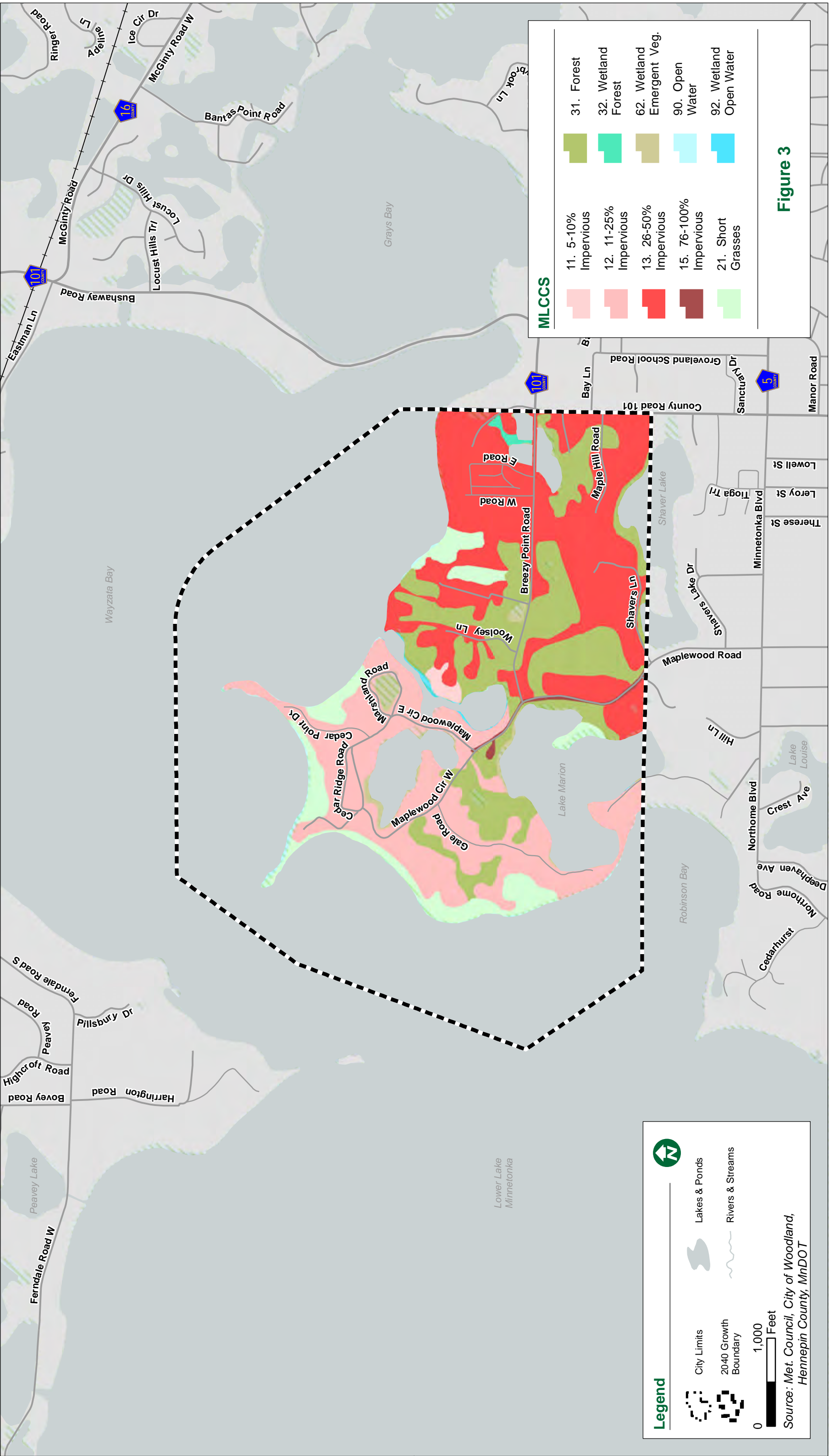
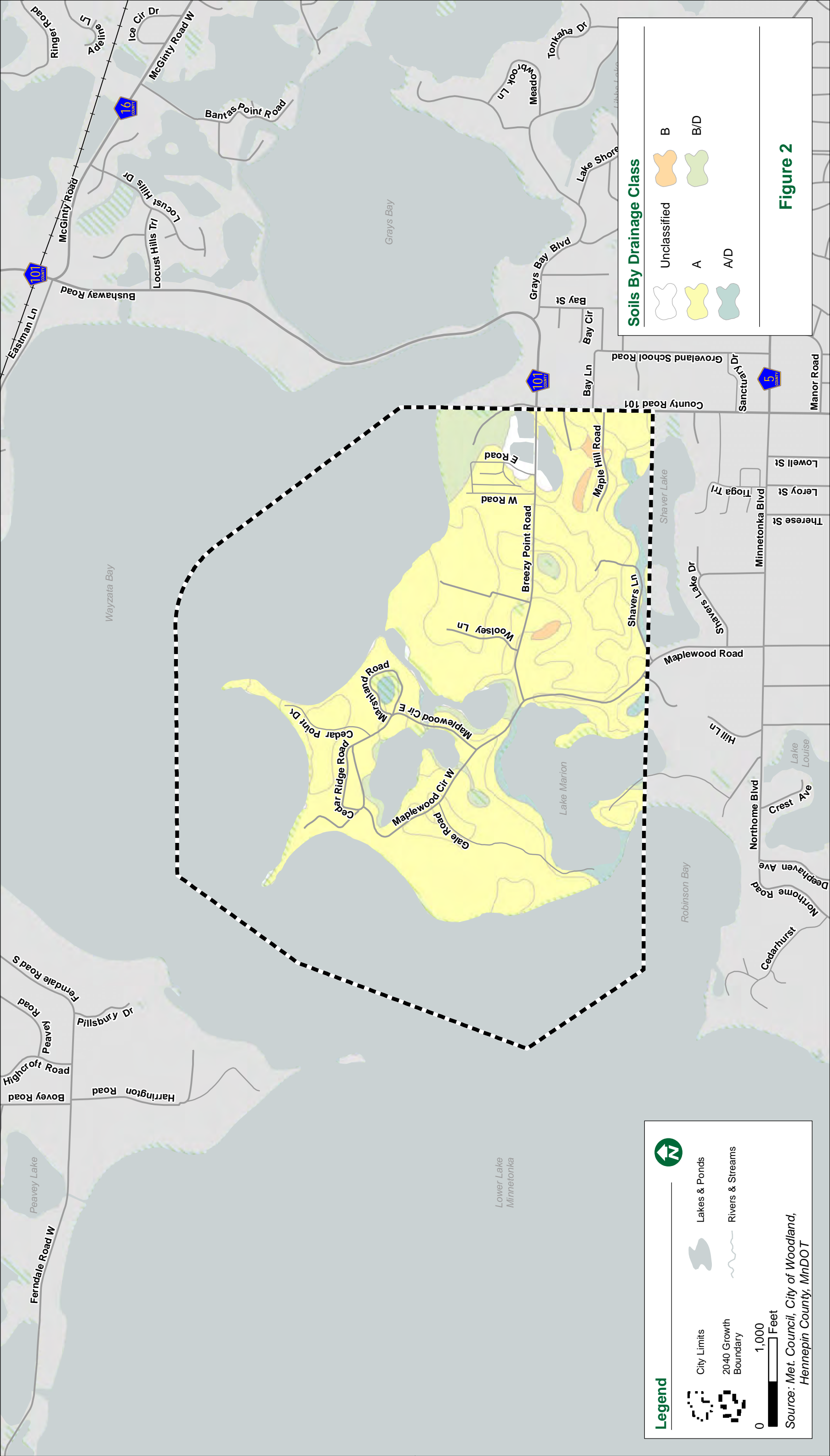
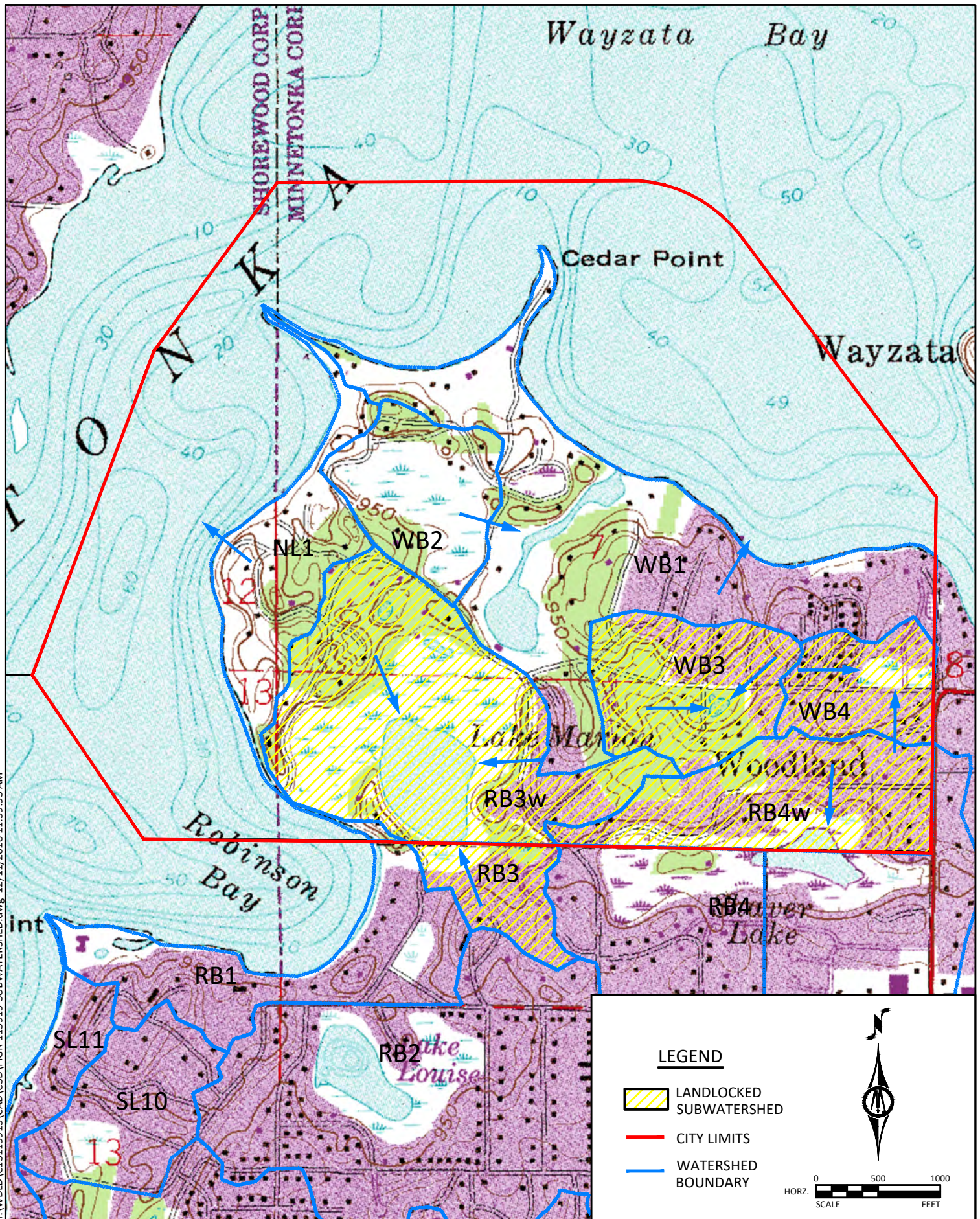


Figure 3





APPENDIX B

Modeling Methodology

MODELING METHODOLOGY AND MAPPING

1. The general procedure used in the runoff modeling aspects of this analysis has been performed using the 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 100 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.
4. The City's stormwater model is intended to provide only a general overview of the system to identify potential stormwater issues. Since the City has a policy of requiring developers/private owners to design and maintain on their own any stormwater management facilities necessary for their proposed improvements, the future improvements to stormwater management in the City will largely be driven by private development or re-development. With this approach, a majority of changes due to future stormwater improvement designs will be at the discretion of the private property owner, with only input from the City regarding desired outcomes. As private developments and public street and utility improvements are planned, the City will require review of stormwater runoff modeling for potential stormwater issues in the proposed project area, potential TMDL reduction opportunities, and volume reduction opportunities. Future review for both private and public improvements will require using the most current precipitation depth data available (Atlas 14), using survey quality information to adequately evaluate existing conditions, creating site specific models for proposed conditions to evaluate potential solutions and constructability, and updating the SWMP as necessary if stormwater treatment improvements are warranted at that time.

APPENDIX C

Modeling Results – Available Upon Request

APPENDIX D

Storm Water Pollution Prevention Plan

CITY OF WOODLAND MS4 PROGRAM



STORMWATER POLLUTION PREVENTION PLAN

MS4 To-Do-List

City of Woodland

- **Quarterly**

- Inspect stockpiles and storage and material handling areas, as identified in facility inventory, to determine any maintenance needs and proper function of BMPs.
- Circulate stormwater education articles in the City newsletter.

- **Annually**

- Inspect structural stormwater BMPs to determine structural integrity, proper function, and maintenance needs. Maintain structural stormwater BMPs per inspection findings to ensure maximum treatment effectiveness.
- Conduct public meeting, prior to June 30th, to receive public opinion on adequacy and effectiveness of City's SWPPP. Meeting can be held concurrently with regular City Council meeting. Appropriate public notice requirements must be provided.
- Conduct presentation to City Council regarding previous year's progress towards implantation of SWPPP provisions.
- Provide training for employees commensurate with their job duties.
- Conduct assessment of SWPPP to determine program compliance, suitability of Best Management Practices (BMPs), and progress towards achieving measurable goals identified for the current permit.
- Submit Annual Report to MPCA by June 30th.

- **On-Going**

- Maintain City's Stormwater Management webpage.
- Accept correspondence from residents regarding illicit discharges, comments on SWPPP, or construction site erosion control violations. Route comments to responsible City staff.

- **Once During Permit**

- Inspect all outfalls in order to determine structural integrity, proper function, and maintenance needs.

MS4 PROGRAM INDEX

CITY OF WOODLAND

- 1. MS4 SWPPP (2013)**
- 2. MCM 1/MCM2 – Public Education & Public Participation Program**
 - a. Education Work Plan
- 3. MCM 3 - Illicit Discharge Detection and Elimination (IDDE)**
 - a. IDDE Program
- 4. MCM 6 – Pollution Prevention/Good Housekeeping for Municipal Operations**
 - a. Municipal Operations BMPs
 - b. Municipal Facility Inventory
 - c. Employee Training Plan
- 5. Enforcement Response Procedures (ERPs)**
- 6. Checklists/Forms:**
 - a. MS4 Annual Assessment
 - b. Stormwater Pollution Prevention Plan (SWPPP) Review Checklist
 - c. Subdivision/Non-residential Lot Grading Review Checklist
 - d. Construction Stormwater Inspection Checklist
 - e. Structural Pollution Control Device (SPCD) Inspection Checklist
 - f. Outfall Inspection Checklist
 - g. Stormwater IDDE Report & Response Form
- 7. Documentation**
 - a. Employee Training Documentation
 - b. SWPPP Comments
 - c. IDDE Reports
 - d. Inspections
 - e. Maintenance Activities
 - f. MS4 Annual Assessment

APPENDIX

- A. Annual MS4 Reports
- B. MS4 Pond, Wetland, and Lake Inventory

Pocket Folders

- Municipal Facility Inventory Map
- Storm Sewer Map

1. MS4 SWPPP Application for Reauthorization



**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

MS4 SWPPP Application for Reauthorization

**for the NPDES/SDS General Small Municipal Separate
Storm Sewer System (MS4) Permit MNR040000
reissued with an effective date of August 1, 2013**
Stormwater Pollution Prevention Program (SWPPP) Document

Doc Type: Permit Application

Instructions: This application is for authorization to discharge stormwater associated with Municipal Separate Storm Sewer Systems (MS4s) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit Program. **No fee** is required with the submittal of this application. Please refer to "Example" for detailed instructions found on the Minnesota Pollution Control Agency (MPCA) MS4 website at <http://www.pca.state.mn.us/ms4>.

Submittal: This MS4 SWPPP Application for Reauthorization form must be submitted electronically via e-mail to the MPCA at ms4permitprogram.pca@state.mn.us from the person that is duly authorized to certify this form. All questions with an asterisk (*) are required fields. All applications will be returned if required fields are not completed.

Questions: Contact Claudia Hochstein at 651-757-2881 or claudia.hochstein@state.mn.us, Dan Miller at 651-757-2246 or daniel.miller@state.mn.us, or call toll-free at 800-657-3864.

General Contact Information (*Required fields)

MS4 Owner (with ownership or operational responsibility, or control of the MS4)

*MS4 permittee name: City of Woodland *County: Hennepin
(city, county, municipality, government agency or other entity)
*Mailing address: 20225 Cottagewood Road
*City: Deephaven *State: MN *Zip code: 55331
*Phone (including area code): (952) 474-4755 *E-mail: guskarpas@mchsi.com

MS4 General contact (with Stormwater Pollution Prevention Program [SWPPP] implementation responsibility)

*Last name: Karpas *First name: Gus
(department head, MS4 coordinator, consultant, etc.)
*Title: City Planner
*Mailing address: 20225 Cottagewood Road
*City: Deephaven *State: MN *Zip code: 55331
*Phone (including area code): (952) 474-4755 *E-mail: guskarpas@mchsi.com

Preparer information (complete if SWPPP application is prepared by a party other than MS4 General contact)

Last name: Bean First name: Robert
(department head, MS4 coordinator, consultant, etc.)
Title: Water Resources Engineer
Mailing address: 2638 Shadow Lane, Suite 200
City: Chaska State: MN Zip code: 55318
Phone (including area code): (612) 756-3184 E-mail: bobbe@bolton-menk.com

Verification

1. I seek to continue discharging stormwater associated with a small MS4 after the effective date of this Permit, and shall submit this MS4 SWPPP Application for Reauthorization form, in accordance with the schedule in Appendix A, Table 1, with the SWPPP document completed in accordance with the Permit (Part II.D.). ☒ Yes
2. I have read and understand the NPDES/SDS MS4 General Permit and certify that we intend to comply with all requirements of the Permit. ☒ Yes

Certification (All fields are required)

- ☒ Yes - I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted.

I certify that based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of civil and criminal penalties.

This certification is required by Minn. Stat. §§ 7001.0070 and 7001.0540. The authorized person with overall, MS4 legal responsibility must certify the application (principal executive officer or a ranking elected official).

By typing my name in the following box, I certify the above statements to be true and correct, to the best of my knowledge, and that this information can be used for the purpose of processing my application.

Name: Gus Karpas
(This document has been electronically signed)

Title: City Planner Date (mm/dd/yyyy): 12/3/2013

Mailing address: 20225 Cottagewood Road

City: Deephaven State: MN Zip code: 55331

Phone (including area code): (952) 474-4755 E-mail: guskarpas@mchsi.com

Note: The application will not be
processed without certification.

Stormwater Pollution Prevention Program Document

I. Partnerships: (Part II.D.1)

- A. List the **regulated small MS4(s)** with which you have established a partnership in order to satisfy one or more requirements of this Permit. Indicate which Minimum Control Measure (MCM) requirements or other program components that each partnership helps to accomplish (List all that apply). Check the box below if you currently have no established partnerships with other regulated MS4s. If you have more than five partnerships, hit the tab key after the last line to generate a new row.

☐ No partnerships with regulated small MS4s

Name and description of partnership	MCM/Other permit requirements involved
Minnehaha Creek Watershed District Provides review, regulation, and inspection for Construction Site Stormwater Runoff Control and Post-construction Stormwater Management. Partner to provide educational materials and engage public with various programs. Partner to inspect for illicit discharges.	MCM 1-5

- B. If you have additional information that you would like to communicate about your partnerships with other regulated small MS4(s), provide it in the space below, or include an attachment to the SWPPP Document, with the following file naming convention: *MS4NameHere_Partnerships*.

II. Description of Regulatory Mechanisms: (Part II.D.2)

Illicit discharges

- A. Do you have a regulatory mechanism(s) that effectively prohibits non-stormwater discharges into your small MS4, except those non-stormwater discharges authorized under the Permit (Part III.D.3.b.)? ☐ Yes ☒ No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☐ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☐ Other, explain: _____

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

Direct link:

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_IDDEreg*.

2. If **no**:

Describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

The City of Woodland will update its ordinances to meet permit requirements regarding Illicit Discharge Detection and Elimination within 12 months of permit coverage being extended. Also, MCWD is currently working on a draft rule for IDDE and will adopt a final version within the next 12 months. The City will then partner with MCWD to inspect for illicit discharges.

Construction site stormwater runoff control

- A. Do you have a regulatory mechanism(s) that establishes requirements for erosion and sediment controls and waste controls? ☒ Yes ☐ No

1. If **yes**:

- a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

- ☒ Ordinance ☐ Contract language
☐ Policy/Standards ☐ Permits
☐ Rules
☒ Other, explain: Minnehaha Creek Watershed District - Erosion Control Rule

- b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

City: Chapter 9: Zoning>>Section 900.25 Construction Site Runoff Control

MCWD: Erosion Control Rule

Direct link:

City: http://www.woodlandmn.org/vertical/sites/%7BD90115D7-7698-4368-B94B-A41AFAFC7BF4%7D/uploads/Ordinance_-_Chapter_9.pdf

MCWD:

<http://www.minnehahacreek.org/sites/minnehahacreek.org/files/pdfs/regulatory/Erosion%20Control%20Rule.pdf>

- ☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention: *MS4NameHere_CSWreg.*

- B. Is your regulatory mechanism at least as stringent as the MPCA general permit to Discharge Stormwater Associated with Construction Activity (as of the effective date of the MS4 Permit)? ☐ Yes ☒ No

If you answered **yes** to the above question, proceed to C.

If you answered **no** to either of the above permit requirements listed in A. or B., describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

Within 12 months from the date permit coverage is extended, the City will revise its ordinances to state that applicants will have to meet the requirements of MCWD's Erosion Control Rule.

- C. Answer **yes** or **no** to indicate whether your regulatory mechanism(s) requires owners and operators of construction activity to develop site plans that incorporate the following erosion and sediment controls and waste controls as described in the Permit (Part III.D.4.a.(1)-(8)), and as listed below:

- | | |
|--|---|
| 1. Best Management Practices (BMPs) to minimize erosion. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2. BMPs to minimize the discharge of sediment and other pollutants. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 3. BMPs for dewatering activities. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 4. Site inspections and records of rainfall events | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 5. BMP maintenance | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 6. Management of solid and hazardous wastes on each project site. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 7. Final stabilization upon the completion of construction activity, including the use of perennial vegetative cover on all exposed soils or other equivalent means. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 8. Criteria for the use of temporary sediment basins. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

Post-construction stormwater management

A. Do you have a regulatory mechanism(s) to address post-construction stormwater management activities?

☐ Yes ☒ No

1. If **yes**:

a. Check which *type* of regulatory mechanism(s) your organization has (check all that apply):

☐ Ordinance ☐ Contract language

☐ Policy/Standards ☐ Permits

☐ Rules

☒ Other, explain: Minnehaha Creek Watershed District - Stormwater Management Rule

b. Provide either a direct link to the mechanism selected above or attach it as an electronic document to this form; or if your regulatory mechanism is either an Ordinance or a Rule, you may provide a citation:

Citation:

MCWD: Stormwater Management Rule

Direct link:

<http://www.minnehahacreek.org/sites/minnehahacreek.org/files/pdfs/regulatory/Stormwater%20Management%20Rule.pdf>

☐ Check here if attaching an electronic copy of your regulatory mechanism, with the following file naming convention:
MS4NameHere_PostCSWreg.

B. Answer **yes** or **no** below to indicate whether you have a regulatory mechanism(s) in place that meets the following requirements as described in the Permit (Part III.D.5.a.):

1. **Site plan review:** Requirements that owners and/or operators of construction activity submit site plans with post-construction stormwater management BMPs to the permittee for review and approval, prior to start of construction activity. ☐ Yes ☒ No

2. **Conditions for post construction stormwater management:** Requires the use of any combination of BMPs, with highest preference given to Green Infrastructure techniques and practices (e.g., infiltration, evapotranspiration, reuse/harvesting, conservation design, urban forestry, green roofs, etc.), necessary to meet the following conditions on the site of a construction activity to the Maximum Extent Practicable (MEP):

a. For new development projects – no net increase from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).

2) Stormwater discharges of Total Suspended Solids (TSS).

3) Stormwater discharges of Total Phosphorus (TP).

b. For redevelopment projects – a net reduction from pre-project conditions (on an annual average basis) of: ☐ Yes ☒ No

1) Stormwater discharge volume, unless precluded by the stormwater management limitations in the Permit (Part III.D.5.a(3)(a)).

2) Stormwater discharges of TSS.

3) Stormwater discharges of TP.

3. **Stormwater management limitations and exceptions:**

a. Limitations

1) Prohibit the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) when the infiltration structural stormwater BMP will receive discharges from, or be constructed in areas: ☐ Yes ☒ No

a) Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES/SDS Industrial Stormwater Permit issued by the MPCA.

b) Where vehicle fueling and maintenance occur.

c) With less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.

d) Where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.

- 2) Restrict the use of infiltration techniques to achieve the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), without higher engineering review, sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater, when the infiltration device will be constructed in areas:
- a) With predominately Hydrologic Soil Group D (clay) soils.
 - b) Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features.
 - c) Within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13.
 - d) Where soil infiltration rates are more than 8.3 inches per hour.
- ☐ Yes ☒ No
- 3) For linear projects where the lack of right-of-way precludes the installation of volume control practices that meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)), the permittee's regulatory mechanism(s) may allow exceptions as described in the Permit (Part III.D.5.a(3)(b)). The permittee's regulatory mechanism(s) shall ensure that a reasonable attempt be made to obtain right-of-way during the project planning process.
- ☐ Yes ☒ No
4. **Mitigation provisions:** The permittee's regulatory mechanism(s) shall ensure that any stormwater discharges of TSS and/or TP not addressed on the site of the original construction activity are addressed through mitigation and, at a minimum, shall ensure the following requirements are met:
- a. Mitigation project areas are selected in the following order of preference:
 - 1) Locations that yield benefits to the same receiving water that receives runoff from the original construction activity.
 - 2) Locations within the same Minnesota Department of Natural Resource (DNR) catchment area as the original construction activity.
 - 3) Locations in the next adjacent DNR catchment area up-stream
 - 4) Locations anywhere within the permittee's jurisdiction.
 - b. Mitigation projects must involve the creation of new structural stormwater BMPs or the retrofit of existing structural stormwater BMPs, or the use of a properly designed regional structural stormwater BMP.
 - c. Routine maintenance of structural stormwater BMPs already required by this permit cannot be used to meet mitigation requirements of this part.
 - d. Mitigation projects shall be completed within 24 months after the start of the original construction activity.
 - e. The permittee shall determine, and document, who will be responsible for long-term maintenance on all mitigation projects of this part.
 - f. If the permittee receives payment from the owner and/or operator of a construction activity for mitigation purposes in lieu of the owner or operator of that construction activity meeting the conditions for post-construction stormwater management in Part III.D.5.a(2), the permittee shall apply any such payment received to a public stormwater project, and all projects must be in compliance with Part III.D.5.a(4)(a)-(e).
- ☐ Yes ☒ No
5. **Long-term maintenance of structural stormwater BMPs:** The permittee's regulatory mechanism(s) shall provide for the establishment of legal mechanisms between the permittee and owners or operators responsible for the long-term maintenance of structural stormwater BMPs not owned or operated by the permittee, that have been implemented to meet the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)). This only includes structural stormwater BMPs constructed after the effective date of this permit and that are directly connected to the permittee's MS4, and that are in the permittee's jurisdiction. The legal mechanism shall include provisions that, at a minimum:
- a. Allow the permittee to conduct inspections of structural stormwater BMPs not owned or operated by the permittee, perform necessary maintenance, and assess costs for those structural stormwater BMPs when the permittee determines that the owner and/or operator of that structural stormwater BMP has not conducted maintenance.
 - b. Include conditions that are designed to preserve the permittee's right to ensure maintenance responsibility, for structural stormwater BMPs not owned or operated by the permittee, when those responsibilities are legally transferred to another party.
 - c. Include conditions that are designed to protect/preserve structural stormwater BMPs and site features that are implemented to comply with the Permit (Part III.D.5.a(2)). If site configurations or structural stormwater BMPs change, causing decreased structural stormwater BMP effectiveness, new or improved structural stormwater BMPs must be implemented to ensure the conditions for post-construction stormwater management in the Permit (Part III.D.5.a(2)) continue to be met.
- ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within twelve (12) months of the date permit coverage is extended, these permit requirements are met:

Within 12 months from the date permit coverage is extended, the City will revise its ordinances to state that applicants will have to meet the requirements of MCWD's Stormwater Management Rule.

III. Enforcement Response Procedures (ERPs): (Part II.D.3)

A. Do you have existing ERPs that satisfy the requirements of the Permit (Part III.B.)? ☐ Yes ☒ No

1. If **yes**, attach them to this form as an electronic document, with the following file naming convention: *MS4NameHere_ERPs*.
2. If **no**, describe the tasks and corresponding schedules that will be taken to assure that, with twelve (12) months of the date permit coverage is extended, these permit requirements are met:

Within 12 months from the date permit coverage is extended, Woodland will develop written procedures that will satisfy these requirements.

B. Describe your ERPs:

IV. Storm Sewer System Map and Inventory: (Part II.D.4.)

A. Describe how you manage your storm sewer system map and inventory:

The storm sewer map was initially completed in 2008 and is updated annually as development occurs. The map was updated with the pond inventory, including structural BMPs and outfalls, in 2011, and the Pond Inventory Form was submitted to the MPCA on November 16, 2011.

B. Answer **yes** or **no** to indicate whether your storm sewer system map addresses the following requirements from the Permit (Part III.C.1.a-d), as listed below:

1. The permittee's entire small MS4 as a goal, but at a minimum, all pipes 12 inches or greater in diameter, including stormwater flow direction in those pipes. ☒ Yes ☐ No
2. Outfalls, including a unique identification (ID) number assigned by the permittee, and an associated geographic coordinate. ☒ Yes ☐ No
3. Structural stormwater BMPs that are part of the permittee's small MS4. ☒ Yes ☐ No
4. All receiving waters. ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

C. Answer **yes** or **no** to indicate whether you have completed the requirements of 2009 Minnesota Session Law, Ch. 172. Sec. 28: with the following inventories, according to the specifications of the Permit (Part III.C.2.a.-b.), including:

1. All ponds within the permittee's jurisdiction that are constructed and operated for purposes of water quality treatment, stormwater detention, and flood control, and that are used for the collection of stormwater via constructed conveyances. ☒ Yes ☐ No
2. All wetlands and lakes, within the permittee's jurisdiction, that collect stormwater via constructed conveyances. ☒ Yes ☐ No

D. Answer **yes** or **no** to indicate whether you have completed the following information for each feature inventoried.

1. A unique identification (ID) number assigned by the permittee. ☒ Yes ☐ No
2. A geographic coordinate. ☒ Yes ☐ No
3. Type of feature (e.g., pond, wetland, or lake). This may be determined by using best professional judgment. ☒ Yes ☐ No

If you have answered **yes** to all above requirements, and you have already submitted the Pond Inventory Form to the MPCA, then you do not need to resubmit the inventory form below.

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

- E. Answer **yes** or **no** to indicate if you are attaching your pond, wetland and lake inventory to the MPCA ☐ Yes ☒ No on the form provided on the MPCA website at: <http://www.pca.state.mn.us/ms4>, according to the specifications of Permit (Part III.C.2.b.(1)-(3)). Attach with the following file naming convention: *MS4NameHere_inventory*.

If you answered **no**, the inventory form must be submitted to the MPCA MS4 Permit Program within 12 months of the date permit coverage is extended.

V. Minimum Control Measures (MCMs) (Part II.D.5)

A. MCM1: Public education and outreach

1. The Permit requires that, within 12 months of the date permit coverage is extended, existing permittees revise their education and outreach program that focuses on illicit discharge recognition and reporting, as well as other specifically selected stormwater-related issue(s) of high priority to the permittee during this permit term. Describe your **current** educational program, including **any high-priority topics included**:

Woodland is primarily residential, and therefore, the focus for education is mostly on residential issues. However, no specific high-priority topics have been identified. Stormwater articles are included in the City newsletter, which is distributed quarterly. A presentation is given to the City Council annually explaining the specific components of the SWPPP. The City also relies on the Minnehaha Creek Watershed District (MCWD) for education, including the posting of stormwater management and pollution prevention information on their website and the sponsoring of water resources related events.

2. List the categories of BMPs that address your public education and outreach program, including the distribution of educational materials and a program implementation plan. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the U.S. Environmental Protection Agency's (EPA) *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Distribute Educational Materials	Circulate a newsletter that includes stormwater articles to approximately 300 households and businesses. Display various stormwater brochures at City Hall for public use. – newsletter quarterly
Community Events	Sponsor community events to help manage and increase awareness of stormwater runoff and associated pollutants (e.g. cleanup days). – annually
Presentation to City Council	Present to City Council on components of SWPPP to increase Council awareness of stormwater runoff issues. – annually
Partner with MCWD for Public Education and Outreach	Provide assistance with water resources related events. – as requested by MCWD
Training	Train all City staff on erosion and sediment control, illicit discharge detection, and stormwater runoff management. - annually
BMP categories to be implemented	Measurable goals and timeframes
Partner with MCWD for Public Education and Outreach	Post links to events and activities sponsored by MCWD on the City's website. – within 12 months of permit coverage being extended
Social Media	Post messages or provide links regarding stormwater management and pollution prevention on Facebook and Twitter. – within 12 months of permit coverage being extended
Stormwater Education on City Website	Develop a Stormwater Information page with information regarding stormwater management, pollution prevention, and additional resources to be included on the City's website. Provide a link to MCWD's website. Also provide links to current SWPPP, MS4 permit, and application for public viewing. – within 12 months of permit coverage being extended
Program Evaluation	Review Education Program for effectiveness and future needs. -

	annually
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3. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Gus Karpas - City Planner

B. MCM2: Public participation and involvement

1. The Permit (Part III.D.2.a.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement a public participation/involvement program to solicit public input on the SWPPP. Describe your current program:

Every year, the City presents and hears comments on the SWPPP at a regular City Council meeting. This is typically done at a meeting in the Spring, and a notice is provided to the public on the City's website and at City Hall.

2. List the categories of BMPs that address your public participation/involvement program, including solicitation and documentation of public input on the SWPPP. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). **If you have more than five categories**, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Appropriate Public Notice	Provide a notice of 30 days for the annual public meeting to present accomplishments and discuss the SWPPP. The meeting will run concurrently with a City Council meeting. Notice will be posted in local newspapers, the City website, and at City Hall. - annually
Solicit Public Input	Accept correspondence to report illicit discharges, provide comments regarding the SWPPP, and report construction site runoff violations. All comments received are documented and then routed to appropriate staff. – continuously
Annual Meeting	Host annual meeting to run concurrently with City Council meeting to present accomplishments and discuss the SWPPP. - annually
BMP categories to be implemented	Measurable goals and timeframes
Online Availability of SWPPP Document	Provide a PDF of the current SWPPP on the City's Stormwater Information page. - update annually.

3. Do you have a process for receiving and documenting citizen input? ☒ Yes ☐ No

If you answered **no** to the above permit requirement, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Gus Karpas - City Planner

C. MCM 3: Illicit discharge detection and elimination

1. The Permit (Part III.D.3.) requires that, within 12 months of the date permit coverage is extended, existing permittees revise their current program as necessary, and continue to implement and enforce a program to detect and eliminate illicit discharges into the small MS4. Describe your current program:

The City of Woodland will update its ordinances to meet permit requirements regarding Illicit Discharge Detection and Elimination within 12 months of permit coverage being extended. Also, MCWD is currently working on a draft rule for IDDE and will adopt a final version within the next 12 months. The City will then partner with MCWD to inspect for illicit discharges. A Storm Sewer Map has been created that shows the locations of all storm catchbasins, manholes, pipes over 12", and outfalls within the City.

2. Does your Illicit Discharge Detection and Elimination Program meet the following requirements, as found in the Permit (Part III.D.3.c.-g.)?
 - a. Incorporation of illicit discharge detection into all inspection and maintenance activities conducted under the Permit (Part III.D.6.e.-f.) Where feasible, illicit discharge inspections shall be conducted during dry-weather conditions (e.g., periods of 72 or more hours of no precipitation). ☒ Yes ☐ No
 - b. Detecting and tracking the source of illicit discharges using visual inspections. The permittee may also include use of mobile cameras, collecting and analyzing water samples, and/or other detailed procedures that may be effective investigative tools. ☒ Yes ☐ No
 - c. Training of all field staff, in accordance with the requirements of the Permit (Part III.D.6.g.(2)), in illicit discharge recognition (including conditions which could cause illicit discharges), and reporting illicit discharges for further investigation. ☐ Yes ☒ No
 - d. Identification of priority areas likely to have illicit discharges, including at a minimum, evaluating land use associated with business/industrial activities, areas where illicit discharges have been identified in the past, and areas with storage of large quantities of significant materials that could result in an illicit discharge. ☐ Yes ☒ No
 - e. Procedures for the timely response to known, suspected, and reported illicit discharges. ☐ Yes ☒ No
 - f. Procedures for investigating, locating, and eliminating the source of illicit discharges. ☐ Yes ☒ No
 - g. Procedures for responding to spills, including emergency response procedures to prevent spills from entering the small MS4. The procedures shall also include the immediate notification of the Minnesota Department of Public Safety Duty Officer, if the source of the illicit discharge is a spill or leak as defined in Minn. Stat. § 115.061. ☐ Yes ☒ No
 - h. When the source of the illicit discharge is found, the permittee shall use the ERPs required by the Permit (Part III.B.) to eliminate the illicit discharge and require any needed corrective action(s). ☐ Yes ☒ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

The City of Woodland will update its ordinances to meet permit requirements regarding Illicit Discharge Detection and Elimination within 12 months of permit coverage being extended. Also, MCWD is currently working on a draft rule for IDDE and will adopt a final version within the next 12 months. The City will then partner with MCWD to inspect for illicit discharges. The training program for all City staff will be updated, if necessary, regarding IDDE, and staff is currently directed to inspect for illicit discharges during all normal work activities. High potential areas for IDDE will be identified and added to the City's Storm Sewer Map. Procedures for response, investigating, locating, and eliminating illicit discharges will be developed. All required tasks will be completed within 12 months of permit coverage being extended.

3. List the categories of BMPs that address your illicit discharge, detection and elimination program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Storm System Map	Maintain map and update with changes to City's storm sewer, structural BMPs, ponds, and outfalls. – annually
Inspection	City staff is directed to inspect for illicit discharges during all normal work activities. Site specific inspections are also performed when reports are received from the general public. – continuously
Training	Provide training for City staff. – annually
Public and Employee IDDE Information Program	Provide education to City staff, businesses, and the public regarding IDDE through stormwater articles in the newsletter, the MCWD website, and a presentation to City Council.

BMP categories to be implemented	Measurable goals and timeframes
Regulatory Control Program	Update ordinances to meet permit requirements for IDDE. – within 12 months of permit coverage being extended
Training	Update training program for all City staff regarding IDDE, if necessary, due to new permit requirements and MCWD rules. – within 12 months of permit coverage being extended
Storm System Map	Add high-priority outfalls and high potential land uses for illicit discharge inspection to the City's storm system map. – within 12 months of permit coverage being extended
Inspection	Designated City staff will perform inspections of high-priority outfalls, and around high potential land uses (fast food restaurants, dumpsters, car washes, mechanics, and oil changers). Information from previous inspections will be used to determine further high potential outfalls. Inspections will be performed in dry-weather as much as possible. – monthly

4. Do you have procedures for record-keeping within your Illicit Discharge Detection and Elimination (IDDE) program as specified within the Permit (Part III.D.3.h.)? ☐ Yes ☒ No

If you answered **no**, indicate how you will develop procedures for record-keeping of your Illicit Discharge, Detection and Elimination Program, within 12 months of the date permit coverage is extended:

Procedures for record-keeping of the Illicit Discharge, Detection and Elimination Program will be developed in accordance with the permit requirements and the new MCWD rule within 12 months of permit coverage being extended.

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Gus Karpas - City Planner

D. MCM 4: Construction site stormwater runoff control

1. The Permit (Part III.D.4) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a construction site stormwater runoff control program. Describe your current program:

The City's ordinances requires any application for a building permit, subdivision, land disturbing activity greater than or equal to one acre, or area where City determines activity poses risk to water resources to include a stormwater pollution prevention plan for review. Review of construction site stormwater pollution prevention plans are performed prior to any land disturbance and appropriate selection and use of BMPs are coordinated with Owners and Contractors. The City also relies on the Minnehaha Creek Watershed District (MCWD) for review and directs all applicants to work with MCWD for district approvals. A copy of MCWD approval for any required permitting must be submitted to the City prior to any land disturbance. In addition to review, the City relies on MCWD for inspections of construction sites and enforcement of erosion and sediment control violations.

2. Does your program address the following BMPs for construction stormwater erosion and sediment control as required in the Permit (Part III.D.4.b.):

- Have you established written procedures for site plan reviews that you conduct prior to the start of construction activity? ☒ Yes ☐ No
- Does the site plan review procedure include notification to owners and operators proposing construction activity that they need to apply for and obtain coverage under the MPCA's general permit to *Discharge Stormwater Associated with Construction Activity No. MN R100001*? ☒ Yes ☐ No
- Does your program include written procedures for receipt and consideration of reports of noncompliance or other stormwater related information on construction activity submitted by the public to the permittee? ☒ Yes ☐ No
- Have you included written procedures for the following aspects of site inspections to determine compliance with your regulatory mechanism(s):
 - Does your program include procedures for identifying priority sites for inspection? ☒ Yes ☐ No
 - Does your program identify a frequency at which you will conduct construction site inspections? ☒ Yes ☐ No
 - Does your program identify the names of individual(s) or position titles of those responsible for conducting construction site inspections? ☒ Yes ☐ No
 - Does your program include a checklist or other written means to document construction site inspections when determining compliance? ☒ Yes ☐ No

- e. Does your program document and retain construction project name, location, total acreage to be disturbed, and owner/operator information? ☒ Yes ☐ No
- f. Does your program document stormwater-related comments and/or supporting information used to determine project approval or denial? ☒ Yes ☐ No
- g. Does your program retain construction site inspection checklists or other written materials used to document site inspections? ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

3. List the categories of BMPs that address your construction site stormwater runoff control program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Ordinance and other Regulatory Program	Rely on City code and MCWD regulatory requirements for plan review and approvals. Rely on MCWD for inspection of construction sites and enforcement of erosion and sediment control violations. – continuously
BMP categories to be implemented	Measurable goals and timeframes

4. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Gus Karpas - City Planner

E. MCM 5: Post-construction stormwater management

1. The Permit (Part III.D.5.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement and enforce a post-construction stormwater management program. Describe your current program:

Woodland relies on Minnehaha Creek Watershed District (MCWD) for regulatory requirements regarding post-construction stormwater management. Applicants to the City for building, subdivision, and/or land disturbance permits are directed to work with MCWD for district approvals. A copy of MCWD approvals and maintenance agreements for any required stormwater management facilities must be submitted to the City prior to any land disturbance. The City also reviews stormwater management plans to ensure any structural facilities fit City needs and vision.

2. Have you established written procedures for site plan reviews that you will conduct prior to the start of construction activity? ☒ Yes ☐ No
3. Answer **yes** or **no** to indicate whether you have the following listed procedures for documentation of post-construction stormwater management according to the specifications of Permit (Part III.D.5.c.):
- a. Any supporting documentation that you use to determine compliance with the Permit (Part III.D.5.a), including the project name, location, owner and operator of the construction activity, any checklists used for conducting site plan reviews, and any calculations used to determine compliance? ☒ Yes ☐ No
- b. All supporting documentation associated with mitigation projects that you authorize? ☒ Yes ☐ No

- c. Payments received and used in accordance with Permit (Part III.D.5.a.(4)(f))? ☒ Yes ☐ No
- d. All legal mechanisms drafted in accordance with the Permit (Part III.D.5.a.(5)), including date(s) of the agreement(s) and names of all responsible parties involved? ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements, describe the steps that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met.

4. List the categories of BMPs that address your post-construction stormwater management program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. Refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>). If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Regulatory Program	Rely on MCWD to review and approve post-construction stormwater management plans for required projects. Review stormwater management plans regarding City needs and vision. – continuously
Long Term Operation and Maintenance	Operate and maintain publicly owned stormwater management facilities in accordance with permit requirements. Rely on MCWD for Maintenance Agreements requiring property owners/Homeowners Associations to maintain structural facilities. Inspect all facilities in the next five years. – continuously

BMP categories to be implemented	Measurable goals and timeframes

5. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Gus Karpas - City Planner

F. MCM 6: Pollution prevention/good housekeeping for municipal operations

1. The Permit (Part III.D.6.) requires that, within 12 months of the date permit coverage is extended, existing permittees shall revise their current program, as necessary, and continue to implement an operations and maintenance program that prevents or reduces the discharge of pollutants from the permittee owned/operated facilities and operations to the small MS4. Describe your current program:

The City does not own or operate any structural pollution control devices. Also, no stormwater ponds are located within City limits. Outfalls are inspected at least once every five years. City staff inspects publically owned areas for potential discharges. City streets are swept annually in the spring to remove leaf litter and residuals from salting streets during winter.

2. Do you have a facilities inventory as outlined in the Permit (Part III.D.6.a.)? ☐ Yes ☒ No
3. If you answered **no** to the above permit requirement in question 2, describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, this permit requirement is met:

A Faciltiy Inventory will be developed in accordance with pemit requirements within 12 months of permit coverage being extended.

4. List the categories of BMPs that address your pollution prevention/good housekeeping for municipal operations program. Use the first table for categories of BMPs that you have established and the second table for categories of BMPs that you plan to implement over the course of the permit term.

Include the measurable goals with appropriate timeframes that each BMP category will be implemented and completed. In addition, provide interim milestones and the frequency of action in which the permittee will implement and/or maintain the BMPs. For an explanation of measurable goals, refer to the EPA's *Measurable Goals Guidance for Phase II Small MS4s* (<http://www.epa.gov/npdes/pubs/measurablegoals.pdf>).

If you have more than five categories, hit the tab key after the last line to generate a new row.

Established BMP categories	Measurable goals and timeframes
Training	Provide training for City staff. – annually
Street Sweeping	Sweep streets to remove sediment and debris from paved surfaces and minimize amount of material received by storm drainage system. – annually
Inspection	Inspect all outfalls once every five years. Inspect all exposed stockpiles, storage, and material handling areas after all rain events of 1" or greater.
BMP categories to be implemented	Measurable goals and timeframes
Facility Inventory	Develop a Facility inventory of City-owned properties and buildings. – complete within 12 months of permit coverage extension and update annually
Inspection	Increase inspection frequency of public facilities to once a week and after any rain event. Utilize a checklist that documents findings and allows staff to compare to previous inspections. – continuously
SWPPP Update	Update SWPPP to include Enforcement Response Procedures (ERPs), IDDE High Potential Map, Facility Inventory, and any other revisions necessary to meet requirements of new permit. – complete within 12 months of permit coverage extension

5. Does discharge from your MS4 affect a Source Water Protection Area (Permit Part III.D.6.c.)? ☒ Yes ☐ No
- a. If **no**, continue to 6.
- b. If **yes**, the Minnesota Department of Health (MDH) is in the process of mapping the following items. Maps are available at <http://www.health.state.mn.us/divs/eh/water/swp/maps/index.htm>. Is a map including the following items available for your MS4:
- 1) Wells and source waters for drinking water supply management areas identified as vulnerable under Minn. R. 4720.5205, 4720.5210, and 4720.5330? ☒ Yes ☐ No
- 2) Source water protection areas for surface intakes identified in the source water assessments conducted by or for the Minnesota Department of Health under the federal Safe Drinking Water Act, U.S.C. §§ 300j – 13? ☒ Yes ☐ No
- c. Have you developed and implemented BMPs to protect any of the above drinking water sources? ☒ Yes ☐ No
6. Have you developed procedures and a schedule for the purpose of determining the TSS and TP treatment effectiveness of all permittee owned/operated ponds constructed and used for the collection and treatment of stormwater, according to the Permit (Part III.D.6.d.)? ☐ Yes ☒ No
7. Do you have inspection procedures that meet the requirements of the Permit (Part III.D.6.e.(1)-(3)) for structural stormwater BMPs, ponds and outfalls, and stockpile, storage and material handling areas? ☒ Yes ☐ No
8. Have you developed and implemented a stormwater management training program commensurate with each employee's job duties that:

- a. Addresses the importance of protecting water quality? ☒ Yes ☐ No
- b. Covers the requirements of the permit relevant to the duties of the employee? ☒ Yes ☐ No
- c. Includes a schedule that establishes initial training for new and/or seasonal employees and recurring training intervals for existing employees to address changes in procedures, practices, techniques, or requirements? ☒ Yes ☐ No

9. Do you keep documentation of inspections, maintenance, and training as required by the Permit (Part III.D.6.h.(1)-(5))? ☒ Yes ☐ No

If you answered **no** to any of the above permit requirements listed in **Questions 5 – 9**, then describe the tasks and corresponding schedules that will be taken to assure that, within 12 months of the date permit coverage is extended, these permit requirements are met:

The City does not contain any ponds constructed and used for the collection and treatment of stormwater. Since the construction of such facilities within the City is unlikely in the near future, no assessment procedures will be developed for TSS and TP treatment effectiveness.

10. Provide the name or the position title of the individual(s) who is responsible for implementing and/or coordinating this MCM:

Gus Karpas - City Planner

VI. Compliance Schedule for an Approved Total Maximum Daily Load (TMDL) with an Applicable Waste Load Allocation (WLA) (Part II.D.6.)

- A. Do you have an approved TMDL with a Waste Load Allocation (WLA) prior to the effective date of the Permit? ☐ Yes ☒ No

1. If **no**, continue to section VII.

2. If **yes**, fill out and attach the MS4 Permit TMDL Attachment Spreadsheet with the following naming convention: *MS4NameHere_TMDL*.

This form is found on the MPCA MS4 website: <http://www.pca.state.mn.us/ms4>.

VII. Alum or Ferric Chloride Phosphorus Treatment Systems (Part II.D.7.)

- A. Do you own and/or operate any Alum or Ferric Chloride Phosphorus Treatment Systems which are regulated by this Permit (Part III.F.)? ☐ Yes ☒ No

1. If **no**, this section requires no further information.

2. If **yes**, you own and/or operate an Alum or Ferric Chloride Phosphorus Treatment System within your small MS4, then you must submit the Alum or Ferric Chloride Phosphorus Treatment Systems Form supplement to this document, with the following naming convention: *MS4NameHere_TreatmentSystem*.

This form is found on the MPCA MS4 website: <http://www.pca.state.mn.us/ms4>.

VIII. Add any Additional Comments to Describe Your Program

2. MCM 1 / MCM 2 – Public Education & Public Participation Program

CITY OF WOODLAND

Education Work Plan



2015

**EDUCATION WORK PLAN
CITY OF WOODLAND**

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EDUCATION WORK PLAN

CITY OF WOODLAND

Introduction

Minimum Control Measure (MCM) 1 of the City's Stormwater Pollution Prevention Plan (SWPPP) addresses public education and outreach. The Education Work Plan outlines the focus of education and implementation tools for the City to use in increasing public knowledge on protection, preservation and management of the City's water resources.

Section 1: Target Audience

Educational needs are dependent on the target audience. Each target audience plays a different role in the protection, preservation and management of water resources. Thus, programs and tools are tailored to different target audiences. This plan lays out the priority area education programs and tools according to the target audiences listed below.

- Local Officials & Decision makers: appointed/elected officials such as city councils and planning commissions.
- Staff: planners, engineers and public works staff.
- Homeowners/Landowners: citizens.

Section 2: Topic Areas/Issues of Concern

- Increase public knowledge on protecting and improving the water quality of City lakes, streams, and wetlands.
- Increase City staff and local officials' knowledge on illicit discharges, illicit discharge detection, and municipal operations best management practices (BMPs).

Section 3: Responding to Public Comments

- Appropriate City staff shall provide a response to any comments received regarding the SWPPP within three business days.
- The public comment and City response shall be documented per MS4 requirements and maintained by the City for at least three years beyond the term of the current permit.

Section 4: Timeline, Methods, and Responsibilities

- Quarterly
The City of Woodland will develop, or solicit from outside entities, stormwater articles for the City newsletter to inform residents and businesses about stormwater issues. The newsletter shall be published quarterly. The City shall attempt to publish an article in each of the newsletters that discusses Stormwater Pollution Prevention and generally cover such issues as yard waste disposal, soil erosion control and impaired water bodies; however, other topics will be covered as necessary.
- Annually
City staff shall prepare a presentation to the City Council on an annual basis to explain the past year's progress towards implementing SWPPP provisions and what is planned for the upcoming year. This presentation shall be used as an opportunity to increase Council awareness of storm water runoff issues and the importance of implementing

EDUCATION WORK PLAN

CITY OF WOODLAND

SWPPP provisions. Staff shall cover issues relating to each of the six minimum control measures in the presentation.

- Annually
The City shall conduct an annual public meeting to receive public opinion on the adequacy and effectiveness of the SWPPP program, and serve as an opportunity to provide public awareness of stormwater runoff issues.
- Annually
The City shall conduct annual employee training for all staff commensurate with their job duties. At a minimum, all staff shall be trained in illicit discharge detection. Public works staff shall also be trained on inspections, maintenance activities, illicit discharge elimination, and municipal operations. Refer to the City's Employee Training Program for specific education topics defined for staff.
- Ongoing
City Website – Stormwater Management page: The City shall maintain the Stormwater Management web page, which provides the audience with general information regarding the effects of polluted stormwater, prevention techniques, and resources for additional information. As a goal, the City shall provide information on the website to address each of the six minimum control measures. Also, the City shall post the approved SWPPP on the website for public viewing.
- Ongoing
The City shall accept any correspondence regarding illicit discharges, construction site sedimentation and erosion violations, or the general adequacy and effectiveness of the SWPPP. All comments received will be routed to appropriate staff, and responses shall be documented in the Annual Report and Documentation section of the SWPPP.

3. MCM 3 – Illicit Discharge Detection and Elimination (IDDE)

CITY OF WOODLAND

Illicit Discharge Detection and Elimination Program



2015

**ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM
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ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

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Introduction

The purpose of the Illicit Discharge Detection and Elimination (IDDE) Program is to detect and eliminate sources of pollution to the municipal separate storm sewer system (MS4) as required by the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit program, permit number: MNR040000.

The primary goal of the IDDE program is to identify and then eliminate illicit discharges. Examples of illicit discharges include:

- Direct or indirect sanitary wastewater discharges that connect to the storm drainage system, such as a shop floor drain connected to a storm drain, a cross-connection between the municipal sewer and storm sewer systems, a damaged sanitary sewer line that is leaking sewage into a cracked storm sewer line, or a failing septic system that is leaking into a water course.
- Materials (e.g., used motor oil) that have been dumped illegally into a storm drain catch basin or other stormwater facility.
- Improper home or business owner activities such as washing paint brushes into a catch basin, washing new textured concrete driveways into a storm drain, draining swimming pools to the storm system (swimming pools have high pH and chlorine), excess use of fertilizers, or washing cars with chemicals that enter the storm drainage system.
- Sediment and sediment-laden runoff from construction sites entering the storm drainage system.

Additional goals of the IDDE program include:

- Improve water-quality in local water bodies by reducing incidences of pollution.
- Increase awareness among municipal employees, businesses, and the general public of the direct connection between the storm drainage system and local water bodies.
- Educate municipal employees, businesses, and the general public of the hazards associated with illicit discharges and best management practices (BMPs) available.
- Facilitate consistency in response to incidences of illicit discharges to the storm drainage system through a coordinated system of procedures and education.

The NPDES Permit sets forth the minimum elements of the plan which are listed below. These minimum elements are described throughout the remainder of this document.

Section 1: Municipal Storm System Mapping (Part III.D.3.a)

Section 2: Regulatory Mechanism (Part III. D.3.b)

Section 3: Incorporating Illicit Discharge Detection into Maintenance and Inspection Activities (Part III.D.3.c)

Section 4: Visual Inspection Procedures to Detect and Track Illicit Discharges (Part III.D.3d)

Section 5: Illicit Discharge Recognition Training for Field Staff (Part III.D.3e)

Section 6: Identification of Priority Areas (Part III.D.3.f)

Section 7: Response Procedures (Part III.D.3.g)

Section 8: Documentation (Part III.D.3.h).

Section 1: Municipal Storm System Mapping

The NPDES Phase II Permit outlines minimum information that shall be included in the City's Municipal Storm System map:

ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM CITY OF WOODLAND

- Location of all known municipal storm sewer conveyances 12" or greater in diameter, including the stormwater flow direction in the pipes,
- Outfalls, including a unique identification (ID) number assigned by the City, and associated geographic coordinate,
- Structural stormwater BMPs that are part of the City's small MS4,
- All receiving waters.

The City has completed GIS mapping of the city's stormwater system, including all basins, pipes, ditches and stormwater facilities, and all outfalls, structural BMPs, ponds, and wetlands have been assigned unique ID numbers. The City shall update the Storm System Map annually, and the map shall be used to schedule and track maintenance activities, as well as plan for capital improvement projects.

Section 2: Regulatory Mechanism

Section 470 of the City's current municipal code prohibits illicit discharges. Connections to the storm drainage system must contain only stormwater and groundwater; otherwise they are to be eliminated. The IDDE ordinance is included in the appendix for reference.

Section 3: Incorporating Illicit Discharge Detection into Maintenance and Inspection Activities

All Public Works staff shall be trained in detection of illicit discharges and shall conduct inspections for illicit discharges while performing regular job duties, including maintenance and inspection activities. When a discharge is discovered by staff, response procedures shall be initiated according to **Section 7** of this program. When feasible, illicit discharge inspections shall be conducted during dry weather conditions (72 hours or more of no precipitation).

Section 4: Visual Inspection Procedures to Detect and Track Illicit Discharges

4.1. Tracking the Source

Source tracking begins when an illicit discharge is identified through outfall inspections, field assessment/testing, or a report from City staff or residents. When an illegal dumping or the source of an illicit discharge is directly observed by City staff, no investigation is necessary and corrective actions outlined in **Section 7** shall be implemented. When the source of the non-stormwater discharge is unknown, one of two primary visual inspection methods shall be used to locate the source of the illicit discharge:

- Method A – Storm Drain Network Investigations
- Method B – Drainage Area Investigations

The method used depends on the type of information collected or reported, level of understanding of the drainage network, and existing knowledge of operations and activities on the surrounding properties. All source tracking investigations shall be documented and recorded.

ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

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4.1.1. Method A – Storm Drain Network Investigation

This method involves progressive investigation at manholes in the storm drain network to narrow down the location where the illicit discharge is entering the drainage system. This method is best used to identify constant or frequent discharge sources, such as failing septic systems or restaurant sink drain connections to the storm system. Infrequent discharges, such as a surface spills or intentional dumping, shall be investigated using Method B described later in this section.

Investigations using this method shall include the following steps:

- 4.1.1.1. Consult Outfall Inspection records and previous IDDE Reports for any background information that may be relevant to the current investigation.
- 4.1.1.2. Consult the Storm System Map and identify manholes at downstream end of major branches upstream of illicit discharge.
- 4.1.1.3. Investigate manholes identified from Storm System Map for evidence of illicit discharge and determine branch containing source. For larger networks, the first two steps shall be repeated as necessary to narrow search and limit number of manholes potentially investigated.
- 4.1.1.4. Once branch of network is identified, progressively investigate upstream manholes until evidence of discharge is no longer present.
- 4.1.1.5. Once manhole is found with no discharge present, investigate potential sources between last manhole with discharge and clean manhole for evidence of illicit discharge.
- 4.1.1.6. If source cannot be determined by surface investigation, additional field tests shall be performed as necessary. The type of field test used shall be at the discretion of field staff and shall best suit the conditions of the investigation. Additional field test types shall include Dye Testing, Smoke Testing, and Televising. The Center for Watershed Protection's Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (Pitt *et al.*, 2004) provides instructions for employing these testing techniques. The relevant pages from that manual are included in **Appendix C**.
- 4.1.1.7. If the potential source appears to be located on private property, field staff shall coordinate with the City Administrator to initiate proper site entry procedures in order to identify exact source.
- 4.1.1.8. Once source of illicit discharge is identified, field staff shall provide inspection report and investigation notes to the City Administrator to coordinate response procedures outlined in **Section 7** of this program. All investigation procedures and findings shall be documented using the IDDE Report and Response Form located in **Appendix A**. Additional documentation may be provided with form as necessary.

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4.1.2. Method B – Drainage Area Investigation

The Drainage Area Investigation method shall be used if the illicit discharge is infrequent or when the discharge has a distinct or unique characteristic that allows for quick determination of source.

Investigations using this method shall include the following steps:

- 4.1.2.1. Consult Outfall Inspection records and previous IDDE Reports for any background information that may be relevant to the current investigation.
- 4.1.2.2. Discuss potential source with field staff, consultant Inspectors, consultant Engineers, and other knowledgeable City staff to identify the most likely source. **Table 4.1** lists common activities or land uses most likely associated with specific illicit discharges.
- 4.1.2.3. Consult City Land Use and Storm System Map to identify probable locations of the potential source discussed in Step 1.
- 4.1.2.4. Conduct a visual inspection of the probable locations to determine the source of the illicit discharge.
- 4.1.2.5. If the potential source appears to be located on private property, field staff shall coordinate with the City Administrator to initiate proper site entry procedures in order to identify exact source.
- 4.1.2.6. Once source of illicit discharge is identified, field staff shall provide inspection report and investigation notes to the City Administrator to coordinate response procedures outlined in **Section 7** of this program. All investigation procedures and findings shall be documented using the IDDE Report and Response Form located in **Appendix A**. Additional documentation may be provided with form as necessary.

Table 4.1: Common Illicit Discharges and Potential Sources	
Illicit Discharge	Potential Causes
Clogging Sediment	<ul style="list-style-type: none"> • Construction activity without proper erosion and sediment controls • Roadway sanding operations • Outdoor work areas or material storage areas
Thick Algae Growth	<ul style="list-style-type: none"> • Fertilizer leak or spill • Landscaping operations • Hydroseeding following construction • Failing or leaking septic system
Oil	<ul style="list-style-type: none"> • Refueling operations • Vehicle or machinery maintenance activities
Sudsy Discharge	<ul style="list-style-type: none"> • Power washing of buildings • Vehicle or equipment washing operations • Mobile cleaning crew dumping • Laundry or Cleaner • Household greywater discharge
Clogged Grease	<ul style="list-style-type: none"> • Restaurant sink drain connection to stormwater system
Sewage	<ul style="list-style-type: none"> • Failing or leaking septic systems

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4.1.3. Equipment

Prior to conducting investigations, field staff shall assemble the equipment necessary. Table 4.2 lists common equipment needed for illicit discharge investigations.

Table 4.2: Field Equipment for Illicit Discharge Investigations	
Field Notebook/Pencils	Watch with second hand
Safety Gear – vest, work boots, cones	Flash light or head lamp
Map or Aerial Photo of Inspection Area	Tool Box – hammer, tape measure, duct tape, zip ties
Cell phone w/ charged battery	First Aid Kit
Digital camera w/ charged battery	Clear sample bottles

Section 5: Illicit Discharge Recognition Training for Field Staff

The City has developed a training schedule to meet the requirements of the NPDES Phase II Permit. Two primary training topics have been identified related to IDDE:

- Illicit discharge recognition and reporting procedures
- Illicit discharge investigation and response procedures

These trainings shall be generally conducted using materials developed for the IDDE program. Training shall include Power Point presentations, webcast material, and printed material distributed at staff meetings. The Education Work Plan and Employee Training Program outline training to be implemented by City.

Section 6: Identification of Priority Areas

Priority areas more likely to have illicit discharges have been identified by the City. Priority areas were identified through evaluation of land uses associated with certain business / industrial activities, storage areas of large quantities of significant materials, and prior illicit discharge reports.

6.1. Developing Areas to Review for Illicit Discharge Potential

Developing areas to review for illicit discharge potential is the first step in identifying priority areas for inspection. This process can be achieved through three fundamental steps:

- 6.1.1. Collection and study of all available information regarding land uses, material storage areas, and prior illicit discharges.
- 6.1.2. Performance of dry weather field screenings for non-stormwater discharges.
- 6.1.3. Review of water quality sampling and analysis for non-stormwater discharges.

6.2. Identifying Priority Areas

To identify areas with high potential for illicit discharges, the information developed in Section 6.1 shall be used to create a list of higher probability locations for illicit discharges.

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Following are potential locations that shall be reviewed in conjunction with information collected:

- 6.2.1. Locations where there have been repeated problems in the past. This includes locations with known water quality data, as well as locations where numerous complaints have been received.
- 6.2.2. Systems connected to sensitive waterbodies (e.g. drinking water sources, areas containing unique biodiversity, swimming areas, etc.)
- 6.2.3. Older neighborhoods that may contain a higher percentage of illegal connections and/or have deteriorating sewer lines.
- 6.2.4. Commercial and/or industrial neighborhoods. These areas may contain a higher percentage of illegal connections and have discharges with higher potential to affect water quality.
- 6.2.5. Areas where large quantities of materials are stored (e.g. stockpiles, vessels containing hazardous solids or liquids, etc.).
- 6.2.6. High potential land uses (e.g. restaurants, dumpsters, car washes, mechanics, and oil changers).

Priority Areas Identified by the City of Woodland:

Using the guidelines provided above, the City has identified the following priority areas within the city limits:

- Industrial and Commercial properties. Staff is encouraged to use the Minnesota Pollution Control Agency's online search tool "What's in My Neighborhood" - <http://pca-gis02.pca.state.mn.us/wimn2/index.html> to locate businesses that have the potential to discharge contaminated pollutants to the environment within the City limits.

Section 7: Response Procedures

Illicit discharges can be revealed through routine inspections, maintenance, or reports from City staff and residents. If the discharge requires immediate action, the Immediate Response Procedures in this section shall be implemented. If the discharge does not require immediate action, an investigation shall be initiated within three (3) days. Refer to **Section 4** for Visual Inspection procedures.

7.1. Immediate Response Procedures

- 7.1.1. Field personnel shall be prepared to take immediate action in the event of encountering one of the following situations:
 - 7.1.1.1. Individuals actively in the process of introducing illegal substances or materials to the storm drain system.
 - 7.1.1.2. Very strong chemical odor emanating from storm drain system.
 - 7.1.1.3. Presence of fumes or smoke emanating from storm drain system.
 - 7.1.1.4. Visible significant stream of a controlled chemical or petroleum product flowing in storm system or downstream waters.
 - 7.1.1.5. Large chemical plume in stream or river downstream of a City outfall.

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- 7.1.1.6. Any condition that poses or could pose an immediate threat to property, human health or safety, or aquatic life.
- 7.1.2. Personnel shall take the following steps if one of the above situations is encountered:
 - 7.1.2.1. Ensure public safety by instructing people to stay clear of the area.
 - 7.1.2.2. Call **911** to report a major spill, active illegal dumping or a potential fire incident.
 - 7.1.2.3. Initiate Emergency Spill Response Procedures outlined in this section.
 - 7.1.2.4. The following offices shall be called if an unauthorized discharge of oil or hazardous material has occurred:
 - Non-Emergency Police Dispatch at 952-525-6216
 - Excelsior Fire Department at 952-401-8801
 - Minnesota Duty Officer at 651-649-5451
 - Minnehaha Creek Watershed District at 952-471-0590
 - 7.1.2.5. If a spill is encountered the following information shall be recorded if possible:
 - Where.
 - What.
 - How much.
 - How concentrated is the material.
 - Who.
 - Status of cleanup.
 - Damages to resources.
 - Contact information for person reporting discharge.
 - Any notes, photos, and video that can be used for subsequent investigation.
 - 7.1.2.6. After discharge is contained, contact Minnesota Pollution Control Agency at (651) 296-6300 to determine if any additional reporting is necessary.
- 7.2. Emergency Spill Response Procedures
 - 7.2.1. Stop the spill. The leak or spill shall be stopped if this can be done safely. Hit the **Emergency Stop** button (if available), or turn off nozzles or valves from the leaking container.
 - 7.2.2. **Contain the spill.** Contain the spill if it can be done safely. Soil, sand, or granular absorbents (floor-dry/kitty litter, etc) can be used to build a berm around the flowing liquid on the ground. **Build the berm to keep the liquid from entering the storm drainage system!** Buckets, pails or other containers can be used under leaking valves or punctured tanks.
 - 7.2.3. **Recover the spill.** Once contained, the liquid must be recovered. If City personnel are trained and can perform these tasks safely, recovery shall begin immediately. Otherwise, staff shall cordon off area and maintain safe distance until personnel qualified in hazardous material recovery arrive.

If the spill has already reached water in a ditch, pond or wetland, petroleum recovery should be started using oil-only absorbent pads.

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Collect contaminated absorbents. Brooms can be used to sweep up granular absorbent material. Place into buckets, garbage cans, drums or into heavy-duty plastic bags. Remember to control ignition sources. On slippery roadways, fresh granular material such as sand or absorbents can then be re-spread on the roadway for traction. With the exception of used oil, waste generated from petroleum spills that have been reported and cleaned up immediately are exempt from Minnesota's Hazardous Waste rules.

7.2.4. **Arrange for disposal of the wastes.** Contact appropriate level of waste management facility for wastes created and coordinate proper disposal.

7.2.4.1. Responsibility under State law (condensed, see rule citation for complete requirements).

- *MN Stat 115.061. Duty to Notify and Avoid Water Pollution:* Report petroleum spills over 5 gallons immediately and begin cleanup immediately. Report and recover any other materials which could cause pollution to waters of the state.

For more information on spill prevention, cleanup and disposal, City personnel can contact the MPCA at (651) 296-6300 or 1-800-657-3864 and ask for a member of the Emergency Response Team or go to www.pca.state.mn.us/cleanup/pubs/ertpubs.html on the internet.

7.3. Corrective Actions

- 7.3.1. Once the source of illicit discharge has been identified, the City shall notify the property owner or operator of the problem and coordinate stopping the discharge.
- 7.3.2. Enforcement actions shall be implemented as outlined in the Enforcement Response Procedures chapter of the SWPPP.
- 7.3.3. Response Plans shall be supervised by field staff to ensure discharge is properly contained and waste properly disposed.
- 7.3.4. Voluntary compliance to address illicit discharges shall be pursued by the City for initial violations. The City shall attempt to correct violation through discussion with and education of the party responsible for the discharge prior to any other measures. Investigation report, education materials regarding illicit discharges, and recommendations for correcting illicit discharge shall be provided.
- 7.3.5. Property owners shall be held responsible for correcting operational problems that are leading to illegal discharges to the storm drainage system. This could include moving washing activities indoor or undercover, covering material storage areas, locating an appropriate discharge location for liquid wastes, or other operational modifications. The City may provide technical assistance through site visits and education to assist owners in identifying necessary modifications.
- 7.3.6. Illicit connections discovered in public right-of-way shall be re-routed to the sanitary sewer system. For illicit connections discovered on private property, the City shall hold the owner responsible for re-routing of discharge to an approved sanitary sewer system. The City may provide technical assistance through site visits and education to assist owners in identifying necessary modifications.

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Section 8: Documentation

- 8.1. Upon discovery of illicit discharge, a report shall be initiated using the IDDE Report & Response Form in **Appendix A**.
- 8.2. An incident number will be assigned using the current year and number of illicit discharge discovered within the year.
- 8.3. Additional materials (maps, photos, sketches, videos, notes, laboratory tests, correspondence, proof of corrective work completion, etc.) shall be included with report form provided.
- 8.4. An accurate log of labor, materials, and costs associated with the investigation shall be kept for potential invoicing of the responsible party
- 8.5. All documents shall be kept by the City for at least three years after the current MS4 permit expires.

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APPENDIX A

IDDE Report & Response Form

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IDDE Report & Response Form

I. Incident Report

Incident Number: _____

Date/Time: _____ AM / PM Received By: _____

Location: _____

Initial Report of Conditions: _____

Reported By: _____ Phone: _____

II. Investigation

Date: _____ By: _____

Location Description/Storm Drain ID/Outfall: _____

Discharge Entered Storm Drain System/Receiving Waters? ____ Yes ____ No

Material Type

Hazardous

Sediment

Wastewater

Oil/Grease

Other _____

Unknown

Est. Quantity: _____

Additional Information: _____

Sample(s) Collected: ____ Yes ____ No

Photo(s) Taken: ____ Yes ____ No

Observed Land Use

Residential

Commercial/Industrial Stormwater Permit ____ Yes ____ No ____ Unknown

Public

Direct/Constructed Connections Found? ____ Yes ____ No

Source Description: _____

Source/Responsible Party: _____

III. Action and Closure

Referred To: _____ Date: _____

Action Taken: _____

Date Closed: _____

APPENDIX B

Enforcement Response Procedures (ERPs)

(See this chapter in the SWPPP)

APPENDIX C

Dye Testing, Video Testing/Televising & Smoke Testing

Excerpts from The Center for Watershed Protection's:

Illicit Discharge Detection and Elimination: A Guidance Manual for Program
Development and Technical Assessments

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Table 56: Techniques to Locate the Discharge		
Technique	Best Applications	Limitations
Dye Testing	<ul style="list-style-type: none"> Discharge limited to a very small drainage area (<10 properties is ideal) Discharge probably caused by a connection from an individual property Commercial or industrial land use 	<ul style="list-style-type: none"> May be difficult to gain access to some properties
Video Testing	<ul style="list-style-type: none"> Continuous discharges Discharge limited to a single pipe segment Communities who own equipment for other investigations 	<ul style="list-style-type: none"> Relatively expensive equipment Cannot capture non-flowing discharges Often cannot capture discharges from pipes submerged in the storm drain
Smoke Testing	<ul style="list-style-type: none"> Cross-connection with the sanitary sewer Identifying other underground sources (e.g., leaking storage techniques) caused by damage to the storm drain 	<ul style="list-style-type: none"> Poor notification to public can cause alarm Cannot detect all illicit discharges

TIP

The Wayne County Department of the Environment provides excellent training materials on on-site investigations, as well as other illicit discharge techniques. More information about this training can be accessed from their website: http://www.wcdae.org/Watershed/Programs___Srvcs_/IDEP/idep.htm.



Figure 63: Dye Testing Plumbing (NEIWPCC, 2003)

Dye Testing

Dye testing is an excellent indicator of illicit connections and is conducted by introducing non-toxic dye into toilets, sinks, shop drains and other plumbing fixtures (see Figure 63). The discovery of dye in the storm drain, rather than the sanitary sewer, conclusively determines that the illicit connection exists.

Before commencing dye tests, crews should review storm drain and sewer maps to identify lateral sewer connections and how they can be accessed. In addition, property owners must be notified to obtain entry permission. For industrial or commercial properties, crews should carry a letter to document their legal authority to gain

access to the property. If time permits, the letter can be sent in advance of the dye testing. For residential properties, communication can be more challenging. Unlike commercial properties, crews are not guaranteed access to homes, and should call ahead to ensure that the owner will be home on the day of testing.

Communication with other local agencies is also important since any dye released to the storm drain could be mistaken for a spill or pollution episode. To avoid a costly and embarrassing response to a false alarm,

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crews should contact key spill response agencies using a “quick fax” that describes when and where dye testing is occurring (Tuomari and Thomson, 2002). In addition, crews should carry a list of phone numbers to call spill response agencies in the event dye is released to a stream.

At least two staff are needed to conduct dye tests – one to flush dye down the plumbing fixtures and one to look for dye in the downstream manhole(s). In some cases,

three staff may be preferred, with two staff entering the private residence or building for both safety and liability purposes.

The basic equipment to conduct dye tests is listed in Table 57 and is not highly specialized. Often, the key choice is the type of dye to use for testing. Several options are profiled in Table 58. In most cases, liquid dye is used, although solid dye tablets can also be placed in a mesh bag and lowered into the manhole on a rope (Figure 64). If a

Table 57: Key Field Equipment for Dye Testing
(Source: Wayne County, MI, 2000)

Maps, Documents

- Sewer and storm drain maps (sufficient detail to locate manholes)
- Site plan and building diagram
- Letter describing the investigation
- Identification (e.g., badge or ID card)
- Educational materials (to supplement pollution prevention efforts)
- List of agencies to contact if the dye discharges to a stream.
- Name of contact at the facility

Equipment to Find and Lift the Manhole Safely (small manhole often in a lawn)

- Probe
- Metal detector
- Crow bar
- Safety equipment (hard hats, eye protection, gloves, safety vests, steel-toed boots, traffic control equipment, protective clothing, gas monitor)

Equipment for Actual Dye Testing and Communications

- 2-way radio
- Dye (liquid or “test strips”)
- High powered lamps or flashlights
- Water hoses
- Camera



Figure 64: Dye in a mesh bag is placed into an upstream manhole (left); Dye observed at a downstream manhole traces the path of the storm drain (right)

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longer pipe network is being tested, and dye is not expected to appear for several hours, charcoal packets can be used to detect the dye (GCHD, 2002). Charcoal packets can be secured and left in place for a week or two, and then analyzed for the presence of dye. Instructions for using charcoal packets in dye testing can be accessed at the following website: <http://bayinfo.tamug.tamu.edu/gbeppubs/ms4.pdf>.

The basic drill for dye tests consists of three simple steps. First, flush or wash dye down the drain, fixture or manhole. Second, pop open downgradient sanitary sewer manholes and check to see if any dye appears. If none is detected in the sewer manhole after an hour or so, check downgradient storm drain manholes or outfalls for the presence of dye. Although dye testing is fairly straightforward, some tips to make testing go more smoothly are offered in Table 59.

Table 58: Dye Testing Options	
Product	Applications
Dye Tablets	<ul style="list-style-type: none"> • Compressed powder, useful for releasing dye over time • Less messy than powder form • Easy to handle, no mess, quick dissolve • Flow mapping and tracing in storm and sewer drains • Plumbing system tracing • Septic system analysis • Leak detection
Liquid Concentrate	<ul style="list-style-type: none"> • Very concentrated, disperses quickly • Works well in all volumes of flow • Recommended when metering of input is required • Flow mapping and tracing in storm and sewer drains • Plumbing system tracing • Septic system analysis • Leak detection
Dye Strips	<ul style="list-style-type: none"> • Similar to liquid but less messy
Powder	<ul style="list-style-type: none"> • Can be very messy and must dissolve in liquid to reach full potential • Recommended for very small applications or for very large applications where liquid is undesirable • Leak detection
Dye Wax Cakes	<ul style="list-style-type: none"> • Recommended for moderate-sized bodies of water • Flow mapping and tracing in storm and sewer drains
Dye Wax Donuts	<ul style="list-style-type: none"> • Recommended for large sized bodies of water (lakes, rivers, ponds) • Flow mapping and tracing in storm and sewer drains • Leak detection

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Table 59: Tips for Successful Dye Testing
(Adapted from Tuomari and Thompson, 2002)

Dye Selection

- Green and liquid dyes are the easiest to see.
- Dye test strips can be a good alternative for residential or some commercial applications. (Liquid can leave a permanent stain).
- Check the sanitary sewer before using dyes to get a "base color." In some cases, (e.g., a print shop with a permitted discharge to the sanitary sewer), the sewage may have an existing color that would mask a dye.
- Choose two dye colors, and alternate between them when testing multiple fixtures.

Selecting Fixtures to Test

- Check the plumbing plan for the site to isolate fixtures that are separately connected.
- For industrial facilities, check most floor drains (these are often misdirected).
- For plumbing fixtures, test a representative fixture (e.g., a bathroom sink).
- Test some locations separately (e.g., washing machines and floor drains), which may be misdirected.
- If conducting dye investigations on multiple floors, start from the basement and work your way up.
- At all fixtures, make sure to flush with plenty of water to ensure that the dye moves through the system.

Selecting a Sewer Manhole for Observations

- Pick the closest manhole possible to make observations (typically a sewer lateral).
- If this is not possible, choose the nearest downstream manhole.

Communications Between Crew Members

- The individual conducting the dye testing calls in to the field person to report the color dye used, and when it is dropped into the system.
- The field person then calls back when dye is observed in the manhole.
- If dye is not observed (e.g., after two separate flushes have occurred), dye testing is halted until the dye appears.

Locating Missing Dye

- The investigation is not complete until the dye is found. Some reasons for dye not appearing include:
- The building is actually hooked up to a septic system.
- The sewer line is clogged.
- There is a leak in the sewer line or lateral pipe.

Video Testing

Video testing works by guiding a mobile video camera through the storm drain pipe to locate the actual connection producing an illicit discharge. Video testing shows flows and leaks within the pipe that may indicate an illicit discharge, and can show cracks and other pipe damage that enable sewage or contaminated water to flow into the storm drain pipe.

Video testing is useful when access to properties is constrained, such as residential neighborhoods. Video testing can also be expensive, unless the community already owns and uses the equipment for sewer inspections. This technique will not detect all types of discharges, particularly when the illicit connection is not flowing at the time of the video survey.

Different types of video camera equipment are used, depending on the diameter and condition of the storm sewer being tested.

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Field crews should review storm drain maps, and preferably visit the site before selecting the video equipment for the test. A field visit helps determine the camera size needed to fit into the pipe, and if the storm drain has standing water.

In addition to standard safety equipment required for all manhole inspections, video testing requires a Closed-Circuit Television (CCTV) and supporting items. Many commercially available camera systems are specifically adapted to televise storm sewers, ranging from large truck or van-mounted systems to much smaller portable cameras. Cameras can be self-propelled or towed. Some specifications to look for include:

- The camera should be capable of radial view for inspection of the top, bottom, and sides of the pipe and for looking up lateral connections.
- The camera should be color.
- Lighting should be supplied by a lamp on the camera that can light the entire periphery of the pipe.

When inspecting the storm sewer, the CCTV is oriented to keep the lens as close as possible to the center of the pipe. The camera can be self-propelled through the pipe using a tractor or crawler unit or it may be towed through on a skid unit (see Figures 65 and 66). If the storm drain



Figure 65: Camera being towed

has ponded water, the camera should be attached to a raft, which floats through the storm sewer from one manhole to the next. To see details of the sewer, the camera and lights should be able to swivel both horizontally and vertically. A video record of the inspection should be made for future reference and repairs (see Figure 67).

Smoke Testing

Smoke testing is another "bottom up" approach to isolate illicit discharges. It works by introducing smoke into the storm drain system and observing where the smoke surfaces. The use of smoke testing to detect illicit discharges is a relatively new application, although many communities have used it to check for infiltration and inflow into their sanitary sewer network. Smoke testing can find improper



Figure 66: Tractor-mounted camera



Figure 67: Review of an inspection video

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connections, or damage to the storm drain system (Figure 68). This technique works best when the discharge is confined to the upper reaches of the storm drain network, where pipe diameters are too small for video testing and gaining access to multiple properties renders dye testing infeasible.

Notifying the public about the date and purpose of smoke testing before starting is critical. The smoke used is non-toxic, but can cause respiratory irritation, which can be a problem for some residents. Residents should be notified at least two weeks prior to testing, and should be provided the following information (Hurco Technologies, Inc., 2003):

- Date testing will occur
- Reason for smoke testing
- Precautions they can take to prevent smoke from entering their homes or businesses
- What they need to do if smoke enters their home or business, and any health concerns associated with the smoke
- A number residents can call to relay any particular health concerns (e.g., chronic respiratory problems)

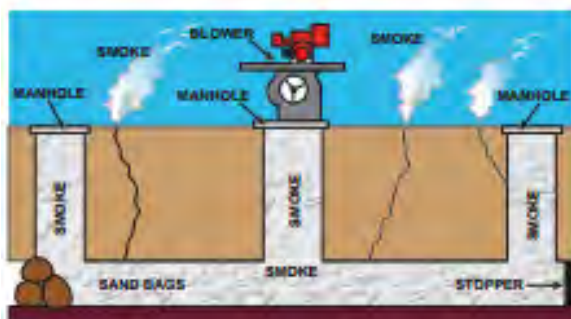


Figure 68: Smoke Testing System Schematic

Program managers should also notify local media to get the word out if extensive smoke testing is planned (e.g., television, newspaper, and radio). On the actual day of testing, local fire, police departments and 911 call centers should be notified to handle any calls from the public (Hurco Technologies, Inc., 2003).

The basic equipment needed for smoke testing includes manhole safety equipment, a smoke source, smoke blower, and sewer plugs. Two smoke sources can be used for smoke testing. The first is a smoke “bomb,” or “candle” that burns at a controlled rate and releases very white smoke visible at relatively low concentrations (Figure 69). Smoke bombs are suspended beneath a blower in a manhole. Candles are available in 30 second to three minute sizes. Once opened, smoke bombs should be kept in a dry location and should be used within one year.

The second smoke source is liquid smoke, which is a petroleum-based product that is injected into the hot exhaust of a blower where it is heated and vaporized (Figure 70). The length of smoke production can vary depending on the length of the pipe being



Figure 69: Smoke Candles

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Figure 70: Smoke blower

tested. In general, liquid smoke is not as consistently visible and does not travel as far as smoke from bombs (USA Blue Book).

Smoke blowers provide a high volume of air that forces smoke through the storm drain pipe. Two types of blowers are commonly used: “squirrel cage” blowers and direct-drive propeller blowers. Squirrel cage blowers are large and may weigh more than 100 pounds, but allow the operator to generate more controlled smoke output. Direct-drive propeller blowers are considerably lighter and more compact, which allows for easier transport and positioning.

Three basic steps are involved in smoke testing. First, the storm drain is sealed off by plugging storm drain inlets. Next, the smoke is released and forced by the blower through the storm drain system. Lastly, the crew looks for any escape of smoke above-ground to find potential leaks.

One of three methods can be used to seal off the storm drain. Sandbags can be lowered into place with a rope from the street surface. Alternatively, beach balls that have a diameter slightly larger than the drain can be inserted into the pipe. The beach ball is then placed in a mesh bag with a

rope attached to it so it can be secured and retrieved. If the beach ball gets stuck in the pipe, it can simply be punctured, deflated and removed. Finally, expandable plugs are available, and may be inserted from the ground surface.

Blowers should be set up next to the open manhole after the smoke is started. Only one manhole is tested at a time. If smoke candles are used, crews simply light the candle, place it in a bucket, and lower it in the manhole. The crew then watches to see where smoke escapes from the pipe. The two most common situations that indicate an illicit discharge are when smoke is seen rising from internal plumbing fixtures (typically reported by residents) or from sewer vents. Sewer vents extend upward from the sewer lateral to release gas buildup, and are not supposed to be connected to the storm drain system.

13.4 Septic System Investigations

The techniques for tracing illicit discharges are different in rural or low-density residential watersheds. Often, these watersheds lack sanitary sewer service and storm water is conveyed through ditches or swales, rather than enclosed pipes. Consequently, many illicit discharges enter the stream as indirect discharges, through surface breakouts of septic fields or through straight pipe discharges from bypassed septic systems.

The two broad techniques used to find individual septic systems—on-site investigations and infrared imagery—are described in this section.

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APPENDIX D

Illicit Discharge Detection and Elimination Ordinance

CHAPTER 4. PUBLIC HEALTH AND SAFETY

SECTION 470: ILLICIT DISCHARGE DETECTION AND ELIMINATION

470.01 PURPOSE AND OBJECTIVES

The purpose of this ordinance is to provide for the health, safety, and general welfare of the citizens of the City of Greenwood through the regulation of non-stormwater discharges to the storm drainage system to the maximum extent practicable as required by state and federal law. This ordinance establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) MS4 permit process. The objectives of this ordinance are:

- A. To regulate the contribution of pollutants to the municipal separate storm sewer system by stormwater discharges by any user
- B. To prohibit Illicit Connections and Discharges to the municipal separate storm sewer system
- C. To establish legal authority to carry out all inspection, surveillance, and monitoring procedures necessary to ensure compliance with this ordinance

470.02 DEFINITIONS

For the purposes of this ordinance, the following terms shall have the following meanings:

Authorized Enforcement Agency: employees or designees of the City of Greenwood or the Minnesota Pollution Control Agency as designated to enforce this ordinance.

Best Management Practices (BMPs): Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly into stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

City: The City of Greenwood

Clean Water Act: The federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

Construction Activity: Activities subject to NPDES Construction Permits. These include construction projects resulting in land disturbance of 1 acre or more and projects that

disturb less than 1 acre if they are part of a larger common plan of development. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

Hazardous Materials: Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment, when improperly treated, stored, transported, disposed of, or otherwise managed.

Illegal Discharge: Any direct or indirect non-stormwater discharge to the storm drain system, except as exempted in Section 470.07 of this ordinance.

Illicit Connections: An illicit connection is defined as either of the following:

Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including, but not limited to, any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by the City or, any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by the City.

Industrial Activity: Activities subject to NPDES Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

MPCA: Minnesota Pollution Control Agency.

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit: A permit issued by EPA (or by the State of Minnesota under authority delegated pursuant to 33 USC § 1342(b)) that authorizes the discharge of pollutants to Waters of the State, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-Stormwater Discharge: Any discharge to the storm drain system that is not composed entirely of storm water.

Person: Any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

Pollutant: Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquids, solid wastes, and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or

structure; and noxious or offensive matter of any kind.

Premises: Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and boulevards.

Storm Drainage System: Publicly-owned facilities by which stormwater is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, infiltration, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Stormwater: Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Stormwater Pollution Prevention Plan(SWPPP): A document which describes the Best Management Practices and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to Stormwater, Stormwater Conveyance Systems, and/or Receiving Waters to the maximum extent practicable.

Wastewater: Any water or other liquid, other than uncontaminated stormwater, discharged from a facility or property.

Waters of the State: All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state of Minnesota or any portion thereof.

470.03 APPLICABILITY

This ordinance shall apply to all water entering the storm drain system generated on any developed or undeveloped lands unless explicitly exempted by an authorized enforcement agency.

470.04 RESPONSIBILITY FOR ADMINISTRATION

The City of Greenwood shall administer, implement, and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the MPCA may be delegated in writing by the City Engineer of Greenwood to persons or entities acting in the beneficial interest of or in the employ of the City.

470.05 SEVERABILITY

The provisions of this ordinance are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Ordinance or the application thereof to any person,

establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Ordinance.

470.06 ULTIMATE RESPONSIBILITY

The standards set forth herein and promulgated pursuant to this Ordinance are minimum standards; therefore this Ordinance does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

470.07 DISCHARGE PROHIBITIONS

Subd. 1 Prohibition of Illegal Discharges. No person shall discharge or cause to be discharged into the municipal storm drain system or Waters of the State any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

- (a) The following discharges are exempt from discharge prohibitions established by this ordinance: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising groundwater, groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if de-chlorinated - typically less than one PPM chlorine), fire fighting activities, and any other water source not containing Pollutants.
- (b) Discharges specified in writing by the MPCA as being necessary to protect public health and safety.
- (c) Dye testing is an allowable discharge, but requires a verbal notification to the City Engineer 48-hours prior to the start of the test.
- (d) The prohibition shall not apply to any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the MPCA or Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

Subd. 2 Prohibition of Illicit Connections

- (a) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.
- (b) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
- (c) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

Subd. 3 Sump Pump and Drain Tile Discharges

- (a) The construction, use, maintenance or continued existence of piping of private sump pump and/or drain tile discharges to a surface outlet located within 20 feet of public streets or sidewalks is prohibited.
- (b) Connection of private sump pump and/or drain tile lines to public storm sewers is prohibited unless a Right of Way permit is obtained from the City Engineer.

470.08 SUSPENSION OF MS4 ACCESS

Subd. 1 Suspension due to Illicit Discharges in Emergency Situations. The City of Greenwood may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or Waters of the State. If the violator fails to comply with a suspension order issued in an emergency, the City may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the State, or to minimize danger to persons.

Subd. 2 Suspension due to the Detection of Illicit Discharge. Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The City will notify a violator of the proposed termination of its MS4 access.

Subd.3 A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the City.

470.09 INDUSTRIAL OR CONSTRUCTION ACTIVITY DISCHARGES

Any person subject to an Industrial or Construction Activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to City prior to the allowing of discharges to the MS4.

1500.10 MONITORING OF DISCHARGES

Subd. 1 Applicability. This section applies to all facilities that have stormwater discharges associated with industrial activity, including construction activity.

Subd. 2 Access to Facilities.

- (a) The City shall be permitted to enter and inspect facilities subject to regulation under this Ordinance as often as may be necessary to determine compliance with this Ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the authorized enforcement agency.
- (b) Facility operators shall allow the City ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of the NPDES permit to discharge stormwater, and the performance of any additional duties as defined by state and federal law.
- (c) The City shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the City to conduct monitoring and/or sampling of the facility's stormwater discharge.
- (d) The City has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy per manufacturer's recommendations.
- (e) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the City and shall not be replaced. The costs of clearing such access shall be borne by the operator.
- (f) Unreasonable delays in allowing the City access to a permitted facility is a violation of the stormwater discharge permit and of this Ordinance. A person who is the operator of a facility with a NPDES permit to discharge stormwater associated with industrial activity commits an offense if the person denies the City reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this Ordinance.
- (g) If the City has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this Ordinance, or that there is a need to

inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this Ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the City may seek issuance of a search warrant from any court of competent jurisdiction.

470.11 REQUIREMENT TO PREVENT, CONTROL, AND REDUCE STORMWATER POLLUTANTS BY THE USE OF BEST MANAGEMENT PRACTICES

The City of Greenwood has adopted requirements identifying Best Management Practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of stormwater, the storm drain system, or Waters of the State. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or Waters of the State through the use of these structural and non-structural BMPs. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and non-structural BMPs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliant with the provisions of this section. These BMPs shall be part of a stormwater pollution prevention plan (SWPPP) as necessary for compliance with requirements of the NPDES permit.

470.12 WATERCOURSE PROTECTION

Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

470.13 NOTIFICATION OF SPILLS

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into stormwater, the storm drain system, or Waters of the State, said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such a release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the City in person or by phone or facsimile no

later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the City of Greenwood within three business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

470.14 ENFORCEMENT

Whenever the City of Greenwood finds that a person has violated a prohibition or failed to meet a requirement of this Ordinance, the City may order compliance by written Notice Of Violation to the responsible person. Such notice may require without limitation:

- (a) The performance of monitoring, analyses, and reporting;
- (b) The elimination of illicit connections or discharges;
- (c) The violating discharges, practices, or operations shall cease and desist;
- (d) The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property; and
- (e) Payment of a fine to cover administrative and remediation costs; and
- (f) The implementation of source control or treatment BMPs; and
- (g) The deadline within which to remedy the violation.

If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

470.15 APPEAL OF NOTICE OF VIOLATION

Any person receiving a Notice of Violation may appeal the determination of the City. The notice of appeal must be received by the City within 15 days from the date of the Notice of Violation. The appeal shall be heard by the City Council within 30 days from the date of receipt of the notice of appeal. The decision of the City Council shall be final.

470.16 ENFORCEMENT MEASURES AFTER APPEAL

If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, or, in the event of an appeal, within the deadline extended by the decision of the City Council, then representatives of the City shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent, or person in possession of any premises to refuse to allow the City or designated contractor to enter upon the premises for the purposes set forth above.

470.17 COST OF ABATEMENT OF THE VIOLATION

Within 30 days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs and the deadline to pay the abatement costs. The property owner may file a written protest objecting to the costs and payment terms of the abatement within 15 days. The appeal shall be heard by the City Council within 30 days from the date of receipt of the notice of appeal. If the amount due is not paid within a timely manner as determined by the decision of the City Council after hearing the appeal, the charges be filed with Hennepin County and shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment.

470.18 INJUNCTIVE RELIEF

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Ordinance. If a person has violated or continues to violate the provisions of this ordinance, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

470.19 COMPENSATORY ACTION

In lieu of enforcement proceedings, penalties, and remedies authorized by this Ordinance, the authorized enforcement agency may impose upon a violator alternative compensatory actions, such as storm drain stenciling, attendance at compliance workshops, creek cleanup, etc.

470.20 VIOLATIONS DEEMED A PUBLIC NUISANCE

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Ordinance is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

470.21 CRIMINAL PROSECUTION

Any person that violates this ordinance shall be deemed guilty of a misdemeanor and upon conviction thereof, may be subject to the maximum fine and imprisonment allowed by State law. Each such violation shall constitute a separate offense punishable to the maximum extent of the law. The authorized enforcement agency may recover all attorney's fees court costs and other expenses associated with enforcement of this ordinance, including sampling and monitoring expenses.

470.22 REMEDIES NOT EXCLUSIVE

The remedies listed in this ordinance are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the authorized enforcement agency to seek cumulative remedies.

4. MCM 6 – Pollution Prevention / Good Housekeeping for Municipal Operations

CITY OF WOODLAND

Municipal Operations Best Management Practices



2015

**MUNICIPAL OPERATIONS BEST MANAGEMENT PRACTICES
CITY OF WOODLAND**

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Section 1: Waste Disposal and Storage

Improper storage and handling of waste materials can allow a number of pollutants including oils and greases, toxic and chemical compounds (including nutrients), bacteria, metals, and other wastes to enter waterways through stormwater runoff and non-stormwater discharges. Proper handling, along with recycling and waste reduction will reduce the potential for polluting waterways, groundwater, and recharge points.

- 1.1. Ensure that all waste areas and dumpsters are covered and not leaking.
- 1.2. Place waste receptacles indoors or under a roof overhang whenever possible.
- 1.3. Keep all container lids closed at all times unless adding or removing material.
- 1.4. Liquid wastes should be kept out of the dumpster and the lid kept closed to keep storm water out.
- 1.5. Waste oil, antifreeze, spent solvents, and other liquids from vehicle maintenance activities should be recycled.
- 1.6. Spent batteries should be disposed of as hazardous waste or returned for reclamation and reuse.
- 1.7. Arrange for waste to be picked up regularly and disposed of at approved disposal facilities. If the amount of generated waste exceeds the capacity of waste containers, obtain more containers or increase frequency of pickups.
- 1.8. Protect or block storm drain inlets, open manholes, and roadside ditches during utility activities with rock socks, wattles or covers. Always check that these BMP's are in place before starting work on a construction site.
- 1.9. Arrange for waste to be picked up regularly and disposed of at approved disposal facilities. If the amount of generated waste exceeds the capacity of waste containers, obtain more containers or increase frequency of pickups.
- 1.10. Do not wash out waste containers or dumpsters outdoors. Return dumpsters to the owners for cleaning at the owner's facility. If municipally owned containers must be washed, do so at a sink or floor drain so that wastewater goes to the sanitary sewer.
- 1.11. Only wash concrete mixing and pouring equipment in designated concrete washout areas at each job site. Never wash into a storm drain inlet.

Section 2: Management of Stockpiles

Stockpile Management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, paving materials such as portland cement concrete rubble, reclaimed asphalt pavement (RAP), hot mixed-cold laid bituminous mixes, limestone rock asphalt, pre-coated aggregates, and various patching mixes.

- 2.1. Locates stockpiles away from concentrated flows of stormwater, drainage courses, and inlets.
- 2.2. Protects all stockpiles from stormwater run-on using temporary perimeter sediment barriers such as berms, dikes, fiber rolls, silt fences, sandbag, gravel bags, or straw bale barriers.
- 2.3. Manages stockpiles of contaminated soil as follows:
 - 2.3.1. Cover stockpiles with plastic sheeting or tarps.
 - 2.3.2. Install berms around stockpiles to prevent runoff from leaving the area.

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- 2.3.3. Locate as far from storm drains or watercourses as possible.
- 2.4. Place bagged materials on pallets and under cover.
- 2.5. While activities associated with the BMP are under way, inspect weekly during the rainy season and at two-week intervals in the non-rainy season to verify continued BMP implementation.
- 2.6. Repair and/or replace perimeter controls and covers as needed to keep them functioning properly.

Section 3: Vehicle Fueling, Washing and Maintenance

Activities associated with fueling and cleaning of municipal vehicles and equipment can easily contribute pollutants to stormwater discharges or directly discharge to the municipal separate storm sewer (MS4). Spills and leaks that occur during vehicle and equipment fueling can contribute hydrocarbons, oils, grease, metals, and other toxic chemicals to stormwater run-off or discharge directly into storm sewers or receiving waters. Pollutants from washing and maintaining vehicles can vary from engine oil to chemicals within detergents such as phosphates. Properly designed and constructed fueling and wash areas will reduce the potential for contaminated discharges.

- 3.1. General Washing Practices
 - 3.1.1. Keep equipment clean; do not allow a buildup of oil/grease.
 - 3.1.2. A commercial vehicle wash is the ideal location for washing vehicles. Commercial vehicle washes have the ability to recycle their water on-site as well as to contain wash water so it will not enter the storm drain.
 - 3.1.3. If no commercial vehicle washes are available, then vehicles should be washed indoors (that will drain to sanitary sewers) or on grass/pervious surfaces.
 - 3.1.4. Place spill clean-up materials in readily available locations by the wash area (clearly mark location of spill clean-up materials).
 - 3.1.5. Clean up spills or any wash water that may improperly discharge.
 - 3.1.6. Use phosphate-free detergents.
 - 3.1.7. Do not store solvents or degreasers in the wash area.
- 3.2. General Fueling Practices
 - 3.2.1. Place drip pans or absorbent pads under direct fueling location if fueling will occur over a permeable surface.
 - 3.2.2. Do not "top off" fuel tanks.
 - 3.2.3. Do not place used spill response materials in adjacent trash receptacles. Dispose in a proper manner.
 - 3.2.4. Do not leave active fueling operations unattended.
- 3.3. General Maintenance Practices
 - 3.3.1. Keep all wash areas neat and orderly.
 - 3.3.2. Perform monthly inspections and clean and maintain any sumps or oil/water separators installed at the wash area.
 - 3.3.3. Inspect and maintain washing equipment, especially the hoses, wands and nozzles. Make sure they deliver the proper rate of water and shut-off automatically when not in use.

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- 3.3.4. For wash areas that are plumbed to a sanitary sewer, clean the sewer inlet at least weekly.
- 3.3.5. Inspect all fueling equipment and fuel islands at least daily for leaks, drips, corrosion, wear or damage. Repair or replace all faulty equipment promptly.

Section 4: Routine Street and Parking Lot Sweeping

Regular street and parking lot sweeping removes sediment and organic material that would otherwise be washed into stormwater ponds or surface waters. Sweeping should be performed at least twice a year on all roads and preferably more in high priority areas (adjacent to high value surface waters, high percentage of tree canopy, and areas with minimal structural stormwater BMPs).

- 4.1. Operate all sweepers according to the manufacturer's recommended procedures.
- 4.2. Develop a street sweeping schedule including prioritized roads, secondary roads and frequency of sweeping.
- 4.3. Make sure brushes and water spray hoses are functional before starting sweeping operations.
- 4.4. Clean out solid debris and store in an impervious area or in a temporary disposal area such as a truck or dumpster.
- 4.5. Scrape out left over debris from the hopper after the last dump of the day. Dispose of waste in trash or dumpster temporary storage area.
- 4.6. Always wash sweepers in a wash area or wash bay that drains to a sanitary sewer.
- 4.7. Avoid conducting sweeping operations during rain events.
- 4.8. High priority areas shall be swept more often and shall include the following:
 - 4.8.1. Areas where storm inlets frequently clog due to organic material (leaves, grass clippings, etc.). Sweep as needed to keep inlets free draining.
 - 4.8.2. Neighborhoods with a high percentage of tree canopy. Sweep in spring, in summer after bloom, and autumn after leaves fall.
 - 4.8.3. Drainage areas with minimal structural stormwater management measures. Sweep in spring, in summer after bloom, and autumn after leaves fall.
 - 4.8.4. Areas used for special events (street fairs, art shows, parades, etc.). Sweep immediately after event.
 - 4.8.5. Street construction projects. Sweep at the end of every day.
 - 4.8.6. Right-of-way areas. Sweep immediately after grass cutting operations.

Section 5: Emergency Response

In the event of a spill or leak that threatens property or life, call **911** and contact the Minnesota Department of Public Safety Duty Officer at 1-800-422-0798 (toll free) or 651-649-5451 (Metro area), if the source is a spill or leak as defined in Minnesota Statute § 115.061.

Spilled chemicals shall be effectively and quickly contained and cleaned up. City personnel shall clean up spills themselves **only if properly trained and protected**. Employees who are not trained in spill cleanup procedures shall report the spill, warn other employees, and

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maintain a safe distance. The **Response Procedures** outlined in the **Illicit Discharge Detection and Elimination Program** shall be followed.

Section 6: Cleaning of Maintenance Equipment, Building Exteriors and Dumpsters

Municipal vehicle washing can generate dry weather runoff contaminated with detergents, oils, grease, and heavy metals. Equipment and building washing BMPs can eliminate contaminated wash water discharges to the storm sewer system.

- 6.1. Proper equipment maintenance includes:
 - 6.1.1. Maintain equipment regularly. Check for leaks and fix immediately.
 - 6.1.2. Capture leaks during maintenance activities with a container.
 - 6.1.3. Cover equipment stored outside with tarps.
- 6.2. Proper infrastructure cleaning includes:
 - 6.2.1. Perform cleaning activities during dry weather periods.
 - 6.2.2. Use non-toxic chemicals and/or non-phosphate detergents.
 - 6.2.3. Minimize use of solvents.
- 6.3. Building Repair, Remodeling, and Construction:
 - 6.3.1. Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.
 - 6.3.2. Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work and properly dispose of collected material daily.
- 6.4. Proper dumpster cleaning includes:
 - 6.4.1. Do not drain wash water into storm drainage system.
 - 6.4.2. Wash dumpsters in area that drains to sanitary system or contact waste management company that owns dumpster for cleaning at the company's facility.
 - 6.4.3. Properly dispose of all materials used to clean dumpsters.

Section 7: Use, Storage and Disposal of Significant Materials

The storage, use and disposal of hazardous materials and chemicals require consideration of a number of environmental health and safety factors. These include inventory control, as well as the proper use and disposal of containers and equipment.

- 7.1. BMPs for chemicals and hazardous materials:
 - 7.1.1. Keep lids on all containers and store under cover.
 - 7.1.2. Properly close all containers when not in use.
 - 7.1.3. Use secondary containment for hazardous materials and protect from rain. Store hazardous materials in an area where spills will not reach storm drains.
 - 7.1.4. Label all hazardous materials according to hazardous waste regulations.
 - 7.1.5. Label purchase date on container.
 - 7.1.6. Maintain storage area at proper temperature and humidity.
- 7.2. BMPs for flammable materials:
 - 7.2.1. Store flammable materials in ventilated storage cabinets or approved safety cans. Lids of safety containers shall be kept closed, as well as doors of storage cabinets.
 - 7.2.2. Maintain an adequate spill kit near all storage areas where spills are possible.
 - 7.2.3. Isolate flammable and combustible materials from ignition sources.

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- 7.2.4. Maintain proper fire suppression equipment in areas containing flammable materials...
- 7.3. BMPs for significant materials:
 - 7.3.1. Do not combine significant materials with other materials during storage. Combining materials can create a safety hazard and reduce options for disposal.
 - 7.3.2. Do not combine significant material waste with other materials (e.g. used oil with used fuel). Combining materials can create a safety hazard and reduce options for disposal.
 - 7.3.3. Use secondary containment measures for bulk fluids stored in amounts greater than 55 gallons.
 - 7.3.4. Keep storage areas clean and dry. Conduct regular inspections to detect leaks and spills.
 - 7.3.5. Store batteries indoors and secure to avoid breakage or acid spills. Recycle batteries when spent.
 - 7.3.6. Elevate treated wood products stored outdoors from ground with pallets and cover with tarps.

Section 8: Landscaping, Park and Lawn Maintenance

Conventional vegetation management practices significantly impact stormwater runoff. Frequent watering, over-fertilizing, improper disposal of vegetation clippings, and the use of pesticides/herbicides increase conveyance of nutrients and chemicals to surface waters. Incorporation of vegetation management BMPs can greatly reduce pollutant loads from City green spaces.

- 8.1. BMPs for vegetation management
 - 8.1.1. Perform mowing during optimal conditions (i.e. dry weather, minimal wind).
 - 8.1.2. Mulch grass during mowing when possible.
 - 8.1.3. Dispose organic material at compost facility when possible. If a compost facility is not available, dispose organic material at approved waste management facility. Do not dispose organic materials by washing into storm drainage system or dumping in ditches.
 - 8.1.4. Install perimeter erosion control measures when performing landscape maintenance or repairs adjacent to surface waters.
 - 8.1.5. Use mulch or erosion control blanket to cover exposed soils and flower beds.
 - 8.1.6. Do not direct grass clippings from mowing on to impervious surfaces. Remove organic material deposited on impervious surfaces immediately after mowing operations are completed.
 - 8.1.7. Irrigate areas at rate appropriate for vegetation and soils. Do not irrigate at rate that exceeds soil infiltration rate.

Section 9: Road Maintenance

Maintenance activities for roads and bridges generate stormwater pollutants, including sediment, heavy metals, solvents, oils, and fuel. The use of BMPs during these maintenance activities help reduce pollutant loads to surface waters.

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- 9.1. BMPs for road and bridge maintenance:
 - 9.1.1. Install perimeter erosion control measures in critical areas prior to start of maintenance activities. Install siltfence/silt curtain in areas adjacent to surface waters, inlet protection on storm drains immediately down gradient, and rock entrances for areas that can be isolated from traffic.
 - 9.1.2. Sweep or vacuum dry waste material immediately after maintenance activity is completed (e.g. saw-cutting pavement, removing pavement striping, etc.).
 - 9.1.3. Do not apply pavement striping during windy, wet, or rainy conditions.
 - 9.1.4. When not in use, turn wet saw equipment off and place drip pans under or watertight barriers around equipment to contain leaks.
 - 9.1.5. Wash out mixers, delivery vehicles, or other equipment in designated washout areas only.

Section 10: Right-of-Way Maintenance

Public right-of-way must be maintained to adequately convey traffic. Periodic maintenance of streets, utilities, and vegetation is required to provide acceptable driving surfaces, adequate storm drainage capacity, and appropriate sight lines.

- 10.1. BMPs for right-of-way maintenance:
 - 10.1.1. Install perimeter erosion control measures in critical areas prior to start of maintenance activities. Install siltfence/silt curtain in areas adjacent to surface waters, inlet protection on storm drains immediately down gradient, and rock entrances for areas that can be isolated from traffic.
 - 10.1.2. Perform mowing during optimal conditions (i.e. dry weather, minimal wind).
 - 10.1.3. Dispose organic material at compost facility when possible. If a compost facility is not available, dispose organic material at approved waste management facility. Do not dispose organic materials by washing into storm drainage system or dumping in ditches.
 - 10.1.4. Dispose non-organic debris at approved waste management facility.
 - 10.1.5. Remove any obstructions blocking runoff from entering the storm drainage system.
 - 10.1.6. Repair/stabilize any channel erosion immediately upon discovery.

Section 11: Application of Herbicides, Pesticides and Fertilizers

Fertilizers, herbicides, and pesticides possess a relatively high potential for contributing pollutants to surface waters, both while being stored and during application. Proper management of materials and effective training will reduce the pollutant load discharged.

- 11.1. BMPs for use of herbicides, Pesticides and fertilizers:
 - 11.1.1. City personnel responsible for storage and application of Restricted Use Pesticides shall obtain the Certified Applicator credential per the Federal Insecticide, Fungicide and Rodenticide Act.
 - 11.1.2. City personnel that come in contact with any herbicide, pesticide, or fertilizer shall review the material safety data sheets (MSDS) and follow the procedures for storage and use defined therein.
 - 11.1.3. Apply herbicides, pesticides, and fertilizers during dry weather conditions.

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- 11.1.4. Do not apply herbicides, pesticides, and fertilizers during windy conditions.
- 11.1.5. Employ application techniques that increase efficiency. Calibrate equipment, follow label instructions, and use the lowest effective application rates.
- 11.1.6. Apply fertilizers during growing season only. Minimize or eliminate the use of non-phosphate fertilizers.
- 11.1.7. Use only pesticides and herbicides that are quickly absorbed by soil and vegetation.
- 11.1.8. Mix and load materials in contained area in case of spill or leak.
- 11.1.9. Never submerge a water supply hose in a chemical container.

Section 12: Cold Weather Operations

Road salt and deicers are necessary for traffic and pedestrian safety. However, their application directly on impervious surface allows for chlorides and other toxic chemicals to dissolve in runoff and enter the storm drainage system. Since chlorides are extremely difficult to remove from water, they must be judiciously applied.

- 12.1. Use trucks equipped with salt spreading calibration devices.
- 12.2. Regulate the application of deicing salt at the lowest effective rate.
- 12.3. Use alternative deicing materials (sand or salt substitutes) or minimize amount of salt in sensitive areas (areas with no structural BMPs, adjacent to surface waters, etc.).
- 12.4. Consider temperature when determining application rate. If temperatures above freezing are expected, minimize use of salt.
- 12.5. Maintain and wash trucks used for deicing in contained area that drains to sanitary sewer system.
- 12.6. Do not dump or plow snow into drainage ditches or on to frozen water bodies.

References

California Stormwater Quality Association BMP Handbook @ <http://www.caasqa.org/bmp-handbooks/municipal-bmp-handbook>

EPA Pollution Prevention/Good Housekeeping for Municipal Operators @ <http://water.epa.gov/polwaste/npdes/swbmp/Pollution-Prevention-Good-Housekeeping-for-Municipal-Operators.cfm>

LIMC Good Housekeeping Guidance and BMP Manual @ http://www.lancasterintermunicipalcommittee.org/programs_stormwater.php

Partners For A Clean Environment @ <http://www.pacepartners.com/stormwater/municipal-operations/72-municipal-stormwater-program-tools#SOP>

City of Wodland, MN

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CITY OF WOODLAND

Employee Training Program



2015

**EMPLOYEE TRAINING PROGRAM
CITY OF WOODLAND**

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EMPLOYEE TRAINING PROGRAM

CITY OF WOODLAND

Introduction

As required by the General Permit to Discharge Stormwater associated with small Municipal Separate Storm Sewer Systems, the City's Storm Water Pollution Prevention Plan (SWPPP) must include an Employee Training Program commensurate with each employee's job duties as they relate to the SWPPP, including reporting and assessment activities. Training materials from various sources will be utilized, including from the United States Environmental Protection Agency (USEPA), State and Federal agencies, and other organizations as appropriate and will address the importance of protecting water quality.

Section 1: Initial Training

Initial training must be provided to all employees upon implementation of the new SWPPP and proposed Employee Training Program, new employees hired after implementation of the new SWPPP, and all employees if significant changes are made to the SWPPP in the future.

1.1. Public Works Staff

1.1.1. Illicit Discharge Detection and Elimination

- Review the IDDE Program
- Review inspection procedures and forms
- Hazardous Materials Training (optional)
- Additional training as directed by MS4 Manager

1.1.2. Best Management Practices

- Review the Municipal Operation BMPs section of the SWPPP
- Review the Municipal Facility Inventory
- Review the Pond, Wetland, and Lake Inventory
- Review the Storm Sewer Map
- Review Pond Assessment Procedures and Schedule
- Review all Operator Manuals for any equipment to be used
- Review all Material Safety Data Sheets for any significant materials to be used
- Additional training as directed by the MS4 Manager

1.1.3. Inspections and Enforcement

- Review inspection forms for Construction Stormwater, Stormwater Ponds, and Structural BMPs
- Review Enforcement Response Procedures

1.2. Non-Public Works Staff

1.2.1. Illicit Discharge Detection and Elimination

- Review the IDDE Program

1.2.2. Best Management Practices

- Review the Municipal Operation BMPs section of the SWPPP
- Review the Municipal Facility Inventory
- Review the Pond, Wetland, and Lake Inventory
- Review the Storm Sewer Map
- Additional training as directed by the MS4 Manager

1.2.3. Inspections and Enforcement

EMPLOYEE TRAINING PROGRAM

CITY OF WOODLAND

- Review inspection forms for Construction Stormwater, Stormwater Ponds, and Structural BMPs
- Review Enforcement Response Procedures

Section 2: Recurring Training

Annual training will be provided to all employees commensurate with their job duties as they relate to stormwater management.

2.1. Public Works Staff

2.1.1. Illicit Discharge Detection and Elimination

- Review the IDDE Program
- Review inspection procedures and forms
- Hazardous Materials Training (optional)
- Additional training as directed by MS4 Manager

2.1.2. Best Management Practices

- Review the Municipal Operation BMPs section of the SWPPP
- Review Municipal Facility Inventory updates
- Review Storm Sewer Map updates
- Review all Operator Manuals for any equipment to be used
- Review all Material Safety Data Sheets for any significant materials to be used
- Additional training as directed by the MS4 Manager

2.2. Non-Public Works Staff

2.2.1. Illicit Discharge Detection and Elimination

- Review the IDDE Program

2.2.2. Best Management Practices

- Additional training as directed by the MS4 Manager

Section 3: Seasonal Employees

Seasonal employees will be provided with stormwater management training tailored to their required job duties.

3.1. Seasonal Staff

3.1.1. Illicit Discharge Detection and Elimination

- Review the IDDE Program

3.1.2. Best Management Practices

- Review the Municipal Operation BMPs section of the SWPPP
- Review the Municipal Facility Inventory
- Review the Pond, Wetland, and Lake Inventory
- Review the Storm Sewer Map
- Review all Operator Manuals for any equipment to be used
- Review all Material Safety Data Sheets for any significant materials to be used
- Additional training as directed by the MS4 Manager

5. Enforcement Response Procedures (ERPs)

CITY OF WOODLAND

Enforcement Response Procedures (ERPs) for MS4 Permit Violations



2015

**ENFORCEMENT RESPONSE PROCEDURES (ERPs) FOR MS4 PERMIT VIOLATIONS
CITY OF WOODLAND**

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ENFORCEMENT RESPONSE PROCEDURES (ERPs) FOR MS4 PERMIT VIOLATIONS

CITY OF WOODLAND

Introduction

Under the terms of the General NPDES/SDS Permit MNR040000, the City of Woodland is required to develop and implement enforcement authority for construction activities that take place within the boundaries of the Municipal Separate Storm Sewer System (MS4). The purpose of this Enforcement Response Plan (ERP) is to communicate how enforcement tools can be used to achieve compliance. The Enforcement Response Plan also specifies criteria by which City personnel can determine the enforcement action most appropriate to instances of non-compliance. This plan outlines the City procedures that can be followed when construction stormwater, illicit discharge or post-construction violations are discovered. This plan is a guide; any of the enforcement responses may be used at the City's discretion. The City may also choose to pursue an enforcement case by skipping intermediate steps.

Section 1: Types of Enforcement Responses

- 1.1. Verbal Warning
 - 1.1.1. Verbal warnings shall specify the nature of the violation, required corrective actions, the time frame for correction, and a follow-up inspection date.
 - 1.1.2. Verbal warnings may be given at the discretion of the inspector when it appears the condition is not causing undue harm to public health or the environment and can be corrected by the violator within a reasonable time.
 - 1.1.3. Notification of verbal warnings shall be forwarded to Minnehaha Creek Watershed District (MCWD) for their records.
- 1.2. Notice of Violation (NOV)
 - 1.2.1. NOVs shall specify the nature of the violation, required corrective actions, the time frame for correction, and a follow-up inspection date.
 - 1.2.2. NOVs shall be given if the violator has not responded to verbal warnings within a reasonable time or, if in the opinion of the City, the extents of the violation warrant it.
 - 1.2.3. NOVs shall consist of written communication and can be delivered either by email or letter.
 - 1.2.4. NOVs shall require the violator to take immediate action to terminate unauthorized discharges.
 - 1.2.5. NOVs shall require the violator to submit a Response Plan for satisfactory correction of the violation and prevention of future violations, including a timeline for specific required actions that will be taken.
 - 1.2.6. Notification of NOVs shall be forwarded to Minnehaha Creek Watershed District (MCWD) for their records.
- 1.3. Stop Work Order
 - 1.3.1. The City may issue a stop work order for any project that has violated or continues to violate City ordinance or any permit or order issued there under.
 - 1.3.2. Stop Work Orders shall specify the nature of the violation, required corrective actions, the time frame for correction, and a follow-up inspection date.
 - 1.3.3. Stop Work Orders shall be given if the violator has not responded to NOVs within a reasonable time or, if in the opinion of the City, the extents of the violation warrant it.
 - 1.3.4. Stop Work Orders shall require the violator to take immediate action to terminate unauthorized discharges.

ENFORCEMENT RESPONSE PROCEDURES (ERPs) FOR MS4 PERMIT VIOLATIONS

CITY OF WOODLAND

- 1.3.5. If a Response Plan was not developed as part of the NOV process, Stop Work Orders shall require the violator to submit a Response Plan for satisfactory correction of the violation and prevention of future violations, including a timeline for specific required actions that will be taken.
- 1.3.6. The only operations that may proceed while work is stopped shall be to address the violation listed in the Stop Work Order. No other operations may proceed until the corrective measures have been approved by the City.
- 1.3.7. If the unauthorized discharge is not terminated and appropriate control measures installed within a reasonable time, the City may perform corrective actions as deemed necessary. The violator shall be responsible for any expenses incurred by the City to perform corrective actions, and the City must be reimbursed for such expenses prior to any other work proceeding.
- 1.3.8. Citations may also be pursued with the Stop Work Order, at the discretion of the City, and any fines must be paid in full prior to any other work proceeding.
- 1.3.9. Notification of Stop Work Orders shall be forwarded to Minnehaha Creek Watershed District (MCWD) for their records.
- 1.4. Citations
 - 1.4.1. The City may coordinate with local law enforcement to have citations issued for any project that has violated or continues to violate City ordinance or laws of the State (i.e. littering, illegal dumping, public nuisance, etc.).
 - 1.4.2. Citations shall only be pursued if the violator has not responded to a Stop Work Order and required corrective actions within a reasonable time or, if in the opinion of the City, the extents of the violation warrant it.
 - 1.4.3. If a Stop Work Order was not issued previously but the extents of the violation warrant a Citation, a Stop Work Order shall be issued in conjunction with pursuit of a Citation, and the process for the Stop Work Order shall be followed.
 - 1.4.4. Notification of Citations shall be forwarded to Minnehaha Creek Watershed District (MCWD) for their records.
- 1.5. Suspension, Revocation, or Modification of Permit
 - 1.5.1. The City may suspend, revoke, or modify a permit authorizing a land development or building project if the permit was issued on the basis of incorrect information or if the work is in violation of any provision of City ordinances or laws of the State.
 - 1.5.2. The City shall suspend or revoke a permit if the violator has not responded to a Stop Work Order within a reasonable time or, if in the opinion of the City, the extents of the violation warrant it.
 - 1.5.3. A suspended or revoked permit may be reinstated after the Applicant has taken the remedial measures set forth in the NOV or Stop Work Order, has reimbursed the City for any corrective actions performed at City expense, and/or paid any outstanding fines for citations issued.
 - 1.5.4. Notification of suspended or revoked permits shall be forwarded to Minnehaha Creek Watershed District (MCWD) for their records.
- 1.6. Additional Measures
 - 1.6.1. Financial Security
 - 1.6.1.1. The City should request financial security (i.e. check, escrow, etc) from the Permittee prior to the start of project work.

ENFORCEMENT RESPONSE PROCEDURES (ERPs) FOR MS4 PERMIT VIOLATIONS CITY OF WOODLAND

- 1.6.1.2. The financial security should be sufficient to allow the City to perform actions necessary to terminate any unauthorized discharges and permanently stabilize the site with adequate control measures.
- 1.6.1.3. The City may use financial security to recover any costs for corrective actions as required to abate violations.
- 1.6.1.4. If the financial security is used to perform necessary corrective actions, the security should be re-established prior to any additional work proceeding.
- 1.6.2. Illicit Discharge Assessment
 - 1.6.2.1. Assessments for Illicit Discharges should be levied if the violator has not responded to NOV's within a reasonable time or, if in the opinion of the City, the extents of the violation warrant it.
 - 1.6.2.2. Assessments may include reasonable expenses incurred in investigation of illicit discharge and enforcing corrective actions to eliminate discharge and repair harm.
 - 1.6.2.3. The City should consider the following when assessing damage due to illicit discharge:
 - 1.6.2.3.1 The harm done to the public health or the environment,
 - 1.6.2.3.2 The amount of effort put forth by the violator to remedy this violation,
 - 1.6.2.3.3 Any unusual or extraordinary investigation or enforcement costs incurred by the municipality.
 - 1.6.2.3.4 Any costs incurred by the City to perform corrective actions or repair damage due to inaction on the part of the violator.
- 1.6.3. Legal Action
 - 1.6.3.1. The City may, through the City Attorney, petition the appropriate court(s) for issuance of preliminary or permanent injunctions to restrain or compel activities of property owners within the City.
 - 1.6.3.2. Legal action should be pursued by the City if all other enforcement efforts have been exhausted and the violator has not responded within a reasonable time or, if in the opinion of the City, the extents of the violation warrant it.

Section 2: NPDES Permit Referrals

- 2.1. Construction Stormwater
 - 2.1.1. Construction activities disturbing 1 acre or more must obtain a General Permit to Discharge Stormwater Associated with Construction Activity under the National Pollutant Discharge Elimination System / State Disposal System Program.
 - 2.1.2. If the City has used progressive enforcement to achieve compliance with City ordinance, MS4 requirements, and laws of the State and the violator has not responded within a reasonable time or, in the opinion of the City, the extents of the violation warrant it, the City shall refer the violation to the MPCA.
 - 2.1.3. The following information shall be provided to the MPCA:
 - 2.1.3.1. Site Location
 - 2.1.3.2. Name of Owner
 - 2.1.3.3. Name of Contractor
 - 2.1.3.4. Project Size
 - 2.1.3.5. Description of Violation(s)
 - 2.1.3.6. Applicable Inspection Reports
 - 2.1.3.7. Any other applicable correspondence regarding violation

ENFORCEMENT RESPONSE PROCEDURES (ERPs) FOR MS4 PERMIT VIOLATIONS CITY OF WOODLAND

- 2.1.4. Notification of communication to MPCA shall be forwarded to Minnehaha Creek Watershed District (MCWD) for their records.
- 2.2. Industrial Stormwater
 - 2.2.1. Certain industrial activities, with a primary Standard Industrial Classification (SIC) code or narrative activity defined in the Code of Federal Regulations, must obtain a Permit to Discharge Stormwater Associated with Industrial Activity under the National Pollutant Discharge Elimination System / State Disposal System Program.
 - 2.2.2. If the City discovers that a Owner / Operator is performing an activity that requires an Industrial Stormwater Permit from the State but has not obtained it, the City shall notify the MPCA of the violation immediately.
 - 2.2.3. The following information shall be provided to the MPCA:
 - 2.2.3.1. Site Location
 - 2.2.3.2. Name of Owner / Operator
 - 2.2.3.3. Description of Industrial Activity
 - 2.2.3.4. SIC Code (if known)
 - 2.2.3.5. Any applicable correspondence
 - 2.2.4. Notification of communication to MPCA shall be forwarded to Minnehaha Creek Watershed District (MCWD) for their records.


Section 3: Recordkeeping

- 3.1. Construction Activity Violations
 - 3.1.1. Enforcement conducted pursuant to the ERPs shall include, at a minimum, the following documentation for construction activity violations:
 - 3.1.1.1. Site Plans
 - 3.1.1.2. Permits applicable
 - 3.1.1.3. Inspection Records
 - 3.1.1.4. Record of Enforcement Responses
 - 3.1.1.5. Violation Response Plans
 - 3.1.1.6. Any correspondence or documentation relevant to the violation
 - 3.1.1.7. Documentation showing resolution of violation
- 3.2. Illicit Discharge Violations
 - 3.2.1. Enforcement conducted pursuant to the ERPs shall include, at a minimum, the following documentation for illicit discharge violations:
 - 3.2.1.1. Report of alleged illicit discharge
 - 3.2.1.2. Diagram / Sketch of Violation Area
 - 3.2.1.3. Investigation / Inspection Records
 - 3.2.1.4. Record of Enforcement Responses
 - 3.2.1.5. Violation Response Plans
 - 3.2.1.6. Any correspondence or documentation relevant to the violation
 - 3.2.1.7. Documentation showing resolution of violation
- 3.3. The City shall keep any records required by the current MS4 General Permit for at least three years beyond the term of the permit.

ENFORCEMENT RESPONSE PROCEDURES (ERPs) FOR MS4 PERMIT VIOLATIONS CITY OF WOODLAND

Section 4: Enforcement Action Matrices (EAM)


Table 1 - EAM for Noncompliance with Construction and Post-Construction Requirements.

	TYPE OF VIOLATION				
Enforcement Measures For Use (Increasing in Severity Moving Down the Chart) 	Failure to Obtain Land Alteration Permit Prior to Starting Work	Minor Violations (Failure to Install, Maintain, or Upgrade Measures on Erosion and Sediment Control Plan)	Major Violation (Failure to Install, Maintain or Upgrade Measures on Erosion and Sediment Control Plan that Resulted in a Sediment Release from the Project Site)	Repeat Violation by a Party (Same Site)	Repeat Violation by a Party (Different Site than initial Noncompliance Site)
	Stop Work Order	Verbal Warning or Notice of Violation	Notice Of Violation	Notice Of Violation	Notice Of Violation
		Stop Work Order	Stop Work Order	Stop Work Order and Require Financial Security	Stop Work Order and Require Financial Security
	Legal Action	Suspension or Revocation of Permit	Suspension or Revocation of Permit and Citation	Suspension or Revocation of Permit and Citation	Suspension or Revocation of Permit and Citation
		Legal Action	Legal Action	Legal Action	Legal Action

This plan is a guide; any of the enforcement responses may be used at the City's discretion and the City may choose to escalate an enforcement case by skipping intermediate steps.

ENFORCEMENT RESPONSE PROCEDURES (ERPs) FOR MS4 PERMIT VIOLATIONS CITY OF WOODLAND

Table 2 - EAM for Illicit Discharges.

	TYPE OF VIOLATION		
Enforcement Measures For Use (Increasing Severity Moving Down the Chart) 	First Failure to Remove Illicit Discharge	Repeat Violation by a Party (Same Site)	Repeat Violation by a Party (Different Site than initial Noncompliance Site)
	Verbal Warning	Notice Of Violation	Notice Of Violation
		Illicit Discharge Assessment	Illicit Discharge Assessment
	Notice Of Violation	Citation	Citation
	Illicit Discharge Assessment	Legal Action	Legal Action
	Citation		
	Legal Action		

This plan is a guide; any of the enforcement responses may be used at the City's discretion and the City may choose to escalate an enforcement case by skipping intermediate steps.

6. Checklists / Forms

MS4 Annual Assessment

Municipal Stormwater Permit Program

City of Woodland

The Annual SWPPP Assessment shall be performed prior to completion of each Annual Report. Use this form to evaluate program compliance, appropriateness of BMP practices, and progress towards identified measurable goals. Note: This annual assessment shall be done to comply with the requirements of NPDES/SDS Permit MN R100001.

Reviewer(s): _____

Date: _____

1. Program Management (Part III and IV)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Stormwater program organizational structure to implement SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Internal communication and coordination to implement SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Effective use of outside groups and/or partnerships to implement SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Review and evaluation of measurable goals as defined in SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Process or procedures for establishing stormwater priorities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Program documentation and record retention.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Submittal of annual report by June 30 th .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Prepared for permit compliance evaluation, audit, and provided materials requested by MPCA staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

2. Impaired Waters/TMDLs (Part III.E)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Review of impaired waters and evaluation of SWPPP for appropriate reductions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Implementing BMPs and making progress toward meeting each applicable Waste Load Allocation (WLA).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Estimated cumulative reductions in loading and implementing adaptive management strategies for achieving each WLA.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

3. MCM 1 – Public Education and Outreach (Part III.D.1)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Distributed educational materials or conducted equivalent outreach activities on stormwater-related issue(s) of high priority.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Distributed materials or conducted equivalent outreach activities on illicit discharge recognition and reporting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Implementation plan with identified target audiences and activities to reach measurable goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4	Utilization of other entities and partnerships as appropriate to implement a stormwater educational program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Annual evaluation of education program measurable goals reviewed for adequacy and updated as necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

4. MCM 2 – Public Participation and Involvement (Part III.D.2)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Procedures to solicit public input and opinion annually on the adequacy of the SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Consider oral statements and written comments by the public regarding the SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Provide access to the SWPPP Document, Annual Reports and other documentation for public review upon request.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Process to consider input and make appropriate modifications to the SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Documentation of all relevant written input received regarding the SWPPP and all responses from the permittee regarding input received on the SWPPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Documentation of date(s) and location(s) of events to meet requirements of MCM 2 and documentation of notices provided to the public regarding events scheduled to meet these requirements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

5. MCM 3 – Illicit Discharge Detection and Elimination (Part III.D.3)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Completed storm sewer system map updates showing the location of items in Part III.C.1.a. – d.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Ordinance or other regulatory mechanism in place that prohibits illicit discharges into MS4 conveyances and establishes appropriate enforcement procedures and actions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Incorporation of illicit discharge detection into all maintenance and inspection activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Provides Illicit Discharge, Detection, and Elimination training for all field staff.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Identified priority areas likely to have illicit discharges and information used to guide subsequent inspections.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Developed and utilizes Enforcement Response Procedures (ERPs) for investigating, locating, and eliminating the source of illicit discharges and spills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Informs businesses and the general public about illicit discharges/illegal dumping.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Evaluated non-stormwater discharges as described in Part I.A.2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Maintains adequate documentation of illicit discharge reports, tracking, and elimination procedures as required in Part III.D.3.h.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

6. MCM 4 – Construction Site Stormwater Runoff Control (Part III.D.4)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Ordinance or other regulatory mechanism in place that establishes erosion and sediment controls as stringent as the MPCA National Pollutant Discharge Elimination System/State Disposal System, Construction Stormwater General Permit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Requirements for construction site operators to implement waste controls and erosion and sediment control BMPs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Requirements for construction site operators to develop site plans prior to the start of construction activity for review and approval.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Written procedures for site plan review to ensure compliance with the requirements of the regulatory mechanism or ordinance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Written procedures for site inspections to determine compliance with the requirements of the regulatory mechanism or ordinance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Utilization of ERPs to ensure compliance with the regulatory mechanism or ordinance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Written procedures for receipt and consideration of reports of noncompliance or other information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Documentation of site plan review information for the proposed construction activity and documentation of site inspections of the active construction site.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

7. MCM 5 – Post Construction Stormwater Management (Part III.D.5)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Ordinance or other regulatory mechanism to address post-construction stormwater runoff from new development and redevelopment meeting requirements for Part III.D.5.a.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Strategies for implementing structural stormwater BMPs for post-construction stormwater management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Written procedures for site plan reviews prior to the start of construction activity to ensure compliance with requirements of the regulatory mechanism or ordinance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Stormwater management limitations for infiltration techniques constructed in areas of contaminated soils, high groundwater, clayey soils, and soils with high infiltration rates.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Mitigation strategies when stormwater management for Total Suspended Solids (TSS) and/or Total Phosphorus (TP) cannot be achieved on the site of the original construction activity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Documentation of site plan reviews, mitigation projects, legal mechanisms for long term maintenance of structural stormwater BMPs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

8. MCM 5 – Pollution Prevention/Good Housekeeping for Municipal Operations (Part III.D.6)

	S = Satisfactory M = Marginal U = Unsatisfactory NA = Not Applicable	S	M	U	NA
1	Operation and Maintenance Program to prevent or reduce pollutant runoff from municipal operations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Facilities inventory of permittee owned/operated facilities that contribute pollutants to stormwater discharges.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Development and implementation of BMPs for inventoried facilities and municipal operations, such as those described in Part III.D.6.b.(2).(a). – (l).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Development and implementation of BMPs for stormwater discharges that may affect Source Water Protection Areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Procedures and a schedule for determining TSS and TP treatment effectiveness of all permittee owned/operated stormwater ponds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Annual inspections of all structural stormwater BMPs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	At least one inspection of all outfalls and ponds prior to the expiration of the Permit.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Quarterly inspections of all stockpiles, storage, and material handling areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Repairs, replacement, or maintenance activities for structural stormwater BMPs based on inspection findings.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Employee training program commensurate with employee's job duties and addresses the importance of protecting water quality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Documentation of maintenance activities, maintenance schedules, BMP inspections, and employee training.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Recommended Actions:

Stormwater Pollution Prevention Plan (SWPPP) Review Checklist

CITY OF WOODLAND

Review Information

Applicant: _____ Project name: _____
Application date: _____ Reviewer name: _____

SWPPP contains a combination of:

Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Narrative
<input type="checkbox"/>	<input type="checkbox"/>	Plan sheets
<input type="checkbox"/>	<input type="checkbox"/>	Standard detail sheets (where appropriate)

Notes

SWPPP Information (does the Narrative contain the following)

Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Describe the nature of the construction activity?
<input type="checkbox"/>	<input type="checkbox"/>	Address the potential for a discharge of sediment and/or other potential pollutants from the site?
<input type="checkbox"/>	<input type="checkbox"/>	Propose erosion prevention and sediment control Best Management Practices (BMPs) to control the discharge of sediment and/or other potential pollutants (IV.F) from the site.
<input type="checkbox"/>	<input type="checkbox"/>	Identify the person knowledgeable and experienced who will oversee the implementation of the SWPPP; the installation, inspection, and maintenance of the BMPs.
<input type="checkbox"/>	<input type="checkbox"/>	Identify the entity (name or title) responsible for performing future Operations and Maintenance (O&M) of the permanent stormwater management system?
<input type="checkbox"/>	<input type="checkbox"/>	List the chain of responsibility for SWPPP implementation for all operators on the site?
<input type="checkbox"/>	<input type="checkbox"/>	Identify the training requirements are satisfied.
<input type="checkbox"/>	<input type="checkbox"/>	Include the designs and calculations for BMPs.
<input type="checkbox"/>	<input type="checkbox"/>	Describe installation timing for all Erosion Sediment Control (ESC) Best Management Practices (BMPs)?
<input type="checkbox"/>	<input type="checkbox"/>	Describe procedures to amend the SWPPP and establish additional temporary ESC BMPs as necessary for site conditions?
<input type="checkbox"/>	<input type="checkbox"/>	Describe final stabilization methods for all exposed areas? (may be in narrative or on plan sheets)
<input type="checkbox"/>	<input type="checkbox"/>	Identify stormwater management measures needed to mitigate impacts identified as a result of environmental, historical, archaeological, or rare species reviews conducted for the project?
<input type="checkbox"/>	<input type="checkbox"/>	Identify additional measures being taken to protect Drinking Water Supply Management Areas?
<input type="checkbox"/>	<input type="checkbox"/>	If site discharges to special water or impaired reach, identify any site areas discharging to the special or impaired reach?
<input type="checkbox"/>	<input type="checkbox"/>	Methods used to minimize soil compaction and preserve topsoil must be described.
<input type="checkbox"/>	<input type="checkbox"/>	Identify construction areas that are adjacent to and drain to Public Waters for which the Minnesota Department of Natural Resources (DNR) has promulgated "work in waters restrictions" during specified fish spawning time frames.
<input type="checkbox"/>	<input type="checkbox"/>	In designing the stormwater controls, the SWPPP must account for expected amount, frequency, intensity, and duration of precipitation.
<input type="checkbox"/>	<input type="checkbox"/>	In designing the stormwater controls, the SWPPP must account for nature of stormwater runoff and run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features.
<input type="checkbox"/>	<input type="checkbox"/>	In designing the stormwater controls, the SWPPP must account for the range of soil particle sizes expected to be present on the site.
<input type="checkbox"/>	<input type="checkbox"/>	Identify any specific chemicals and the chemical treatment systems that may be used for enhancing the sedimentation process on the site, and how compliance will be achieved with the permit requirements.
<input type="checkbox"/>	<input type="checkbox"/>	For design requirements or SWPPP components where Permittee determines that compliance with the requirement is infeasible; the SWPPP must document that determination and the substitute BMPs.

Comments: _____

Do plan sheets identify the following:

Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Existing and proposed topography.
<input type="checkbox"/>	<input type="checkbox"/>	Locations and types of all temporary and permanent (including infiltration areas) ESC BMPs.
<input type="checkbox"/>	<input type="checkbox"/>	Stormwater flow directions and surface water divides for all pre- and post-construction drainage areas.
<input type="checkbox"/>	<input type="checkbox"/>	Impervious areas (Pre- and Post-Construction).
<input type="checkbox"/>	<input type="checkbox"/>	Soil types.

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Locations of potential pollutant-generating activities. |
| <input type="checkbox"/> | <input type="checkbox"/> | Locations of areas not to be disturbed (buffer zones). |
| <input type="checkbox"/> | <input type="checkbox"/> | Tabulated quantities of all erosion prevention and sediment control BMPs. |
| <input type="checkbox"/> | <input type="checkbox"/> | Location of areas where construction will be phased to minimize duration of exposed soil areas. |
| <input type="checkbox"/> | <input type="checkbox"/> | Areas of steep (3:1 or greater slope). |
| <input type="checkbox"/> | <input type="checkbox"/> | Locations of all wetlands, surface waters, and storm ponds that will receive pre- or post-construction site runoff. (If they do not fit on the plan sheets, use an arrow to note the direction and distance). |

Comments: _____

Standard plates or specifications:

- | | | |
|--------------------------|--------------------------|---|
| Yes | N/A | |
| <input type="checkbox"/> | <input type="checkbox"/> | Are standard plates or specifications included where appropriate? |

Part III - Stormwater Discharge Design Requirements

- | | | |
|--------------------------|--------------------------|---|
| Yes | N/A | |
| <input type="checkbox"/> | <input type="checkbox"/> | For any stormwater flow that will be channelized at the site, the stormwater controls must be designed to control both peak flowrates and total stormwater volume to minimize erosion at outlets and to minimize downstream channel and streambank erosion. |
| <input type="checkbox"/> | <input type="checkbox"/> | Are Temporary Sediment Basins required on site? (10 acres draining to common location or 5 acres App. A) |
| | | If Yes, are they: |
| Yes | N/A | |
| <input type="checkbox"/> | <input type="checkbox"/> | Adequately sized – 2-year, 24-hour storm, minimum 1,800 feet ³ /acre; or no calculative minimum 3,600ft ³ /acre? |
| <input type="checkbox"/> | <input type="checkbox"/> | Designed to prevent short circuiting? |
| <input type="checkbox"/> | <input type="checkbox"/> | Are outlets designed to remove floating debris? |
| <input type="checkbox"/> | <input type="checkbox"/> | Are outlets designed to allow complete drawdown? |
| <input type="checkbox"/> | <input type="checkbox"/> | Are outlets designed to withdraw water from the surface? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do outlets have energy dissipation? |
| <input type="checkbox"/> | <input type="checkbox"/> | Have a stabilized emergency spillway? |
| <input type="checkbox"/> | <input type="checkbox"/> | Sediment Basins must be situated outside of surface waters and any natural buffers. |
| <input type="checkbox"/> | <input type="checkbox"/> | If compliant temporary sediment basin is not feasible due to site limitations, equivalent sediment controls described. |

Comments: _____

- | | | |
|--------------------------|--------------------------|---|
| Yes | N/A | |
| <input type="checkbox"/> | <input type="checkbox"/> | Permanent Stormwater Management System |
| Yes | N/A | |
| <input type="checkbox"/> | <input type="checkbox"/> | Is calculation of new impervious surface included in SWPPP? |
| <input type="checkbox"/> | <input type="checkbox"/> | Is the project located in and complying with Municipal Separate Storm Sewer Systems (MS4) Permit permanent treatment in lieu of the permanent treatment requirements of this permit? |
| <input type="checkbox"/> | <input type="checkbox"/> | Are calculations for permanent stormwater management system included (water quality volume of one inch of runoff to be retained on site)? |
| <input type="checkbox"/> | <input type="checkbox"/> | If infiltration is prohibited, other methods of volume reduction are considered. |
| <input type="checkbox"/> | <input type="checkbox"/> | If infiltration is prohibited, the remainder of the water quality volume is treated by a wet sedimentation basin, filtration system, regional ponding or equivalent methods prior to the discharge of stormwater to surface waters. |
| <input type="checkbox"/> | <input type="checkbox"/> | Does the proximity to bedrock preclude the installation of any of the permanent stormwater management practices? |
| | | If yes, has effort been made to provide some treatment using alternatives? |
| Yes | N/A | |
| <input type="checkbox"/> | <input type="checkbox"/> | Grassed swales |
| <input type="checkbox"/> | <input type="checkbox"/> | Filtration systems |
| <input type="checkbox"/> | <input type="checkbox"/> | Smaller ponds |
| <input type="checkbox"/> | <input type="checkbox"/> | Grit chambers |

Which method of permanent stormwater treatment has been selected?

Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration or filtration (infiltration basins, infiltration trenches, rainwater gardens, sand filters, organic filters, bioretention areas, and enhanced swales, dry storage ponds with underdrain discharge, off-line retention areas, and natural depressions).
Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Is infiltration/filtration appropriate to the site and land uses?
<input type="checkbox"/>	<input type="checkbox"/>	Has the system been designed to maintain pre-existing conditions (e.g., do not breach a perched water table that is supporting a wetland)?
<input type="checkbox"/>	<input type="checkbox"/>	Requirements to avoid excavation of the infiltration system until drainage area constructed and stabilized?
<input type="checkbox"/>	<input type="checkbox"/>	Are rigorous sediment and erosion controls planned to keep sediment and runoff away from the system?
<input type="checkbox"/>	<input type="checkbox"/>	Is a pretreatment device planned?
<input type="checkbox"/>	<input type="checkbox"/>	Is the filtration system designed to remove at least 80% of total suspended solids?
<input type="checkbox"/>	<input type="checkbox"/>	Is the system sufficient to infiltrate or filter the appropriate water quality volume of one inch?
<input type="checkbox"/>	<input type="checkbox"/>	Can water quality volume be discharged through the infiltration/filtration system in 48 hours or less?
		<input type="checkbox"/> Additional flows must bypass and be routed through stabilized discharge point.
<input type="checkbox"/>	<input type="checkbox"/>	Is there a way to visually verify the system is operating as designed?
<input type="checkbox"/>	<input type="checkbox"/>	Has appropriate testing been conducted to ensure a minimum of three feet of separation to the seasonal water table and/or bedrock?
<input type="checkbox"/>	<input type="checkbox"/>	Are calculations/computer model results included to demonstrate the design and adequacy of the infiltration or filtration system?
<input type="checkbox"/>	<input type="checkbox"/>	Is adequate maintenance access provided?
<input type="checkbox"/>	<input type="checkbox"/>	Is there a maintenance plan that identifies who will perform future maintenance?
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration is prohibited when the infiltration system will receive discharges from or be constructed in:
		<input type="checkbox"/> Areas where vehicle fueling and maintenance occur.
		<input type="checkbox"/> Areas with less than three (3) feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or the top of bedrock.
		<input type="checkbox"/> Areas where industrial facilities are not authorized to infiltrate industrial stormwater under an National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Industrial Stormwater Permit issued by the MPCA.
		<input type="checkbox"/> Areas where high levels of contaminants in soil or groundwater will be mobilized by the infiltrating stormwater.
		<input type="checkbox"/> Areas of predominately Hydrological Soil Group D (clay) soils unless allowed by a local unit of government with a current MS4 Permit.
		<input type="checkbox"/> Areas within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features unless allowed by a local unit of government with a current MS4 permit.
		<input type="checkbox"/> Areas within a Drinking Water Supply Management Area (DWSMA) as defined in Minn. R. 4720.5100, subp. 13., unless allowed by a local unit of government with a current MS4 Permit.
		<input type="checkbox"/> Areas where soil infiltration rates are more than 8.3 inches per hour unless soils are amended to slow the infiltration rate below 8.3 inches per hour or as allowed by a local unit of government with a current MS4 Permit.

Comments: _____

Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Wet sedimentation basin:
Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Permanent volume of 1800 feet below outlet pipe for each acre draining.
<input type="checkbox"/>	<input type="checkbox"/>	Minimum depth of 3 feet; maximum depth of 10 feet.
<input type="checkbox"/>	<input type="checkbox"/>	Configured so scour or resuspension is minimized.
<input type="checkbox"/>	<input type="checkbox"/>	Water quality volume is one inch (or remainder of volume not reduced) of runoff from new impervious surfaces.
<input type="checkbox"/>	<input type="checkbox"/>	Basin outlets designed to discharge at less than 5.66 cubic feet per second (cfs) per acre of pond.
<input type="checkbox"/>	<input type="checkbox"/>	Basin outlets designed to prevent short circuiting.
<input type="checkbox"/>	<input type="checkbox"/>	Basin outlets designed to prevent discharge of floatables.
<input type="checkbox"/>	<input type="checkbox"/>	Stabilized emergency overflow.
<input type="checkbox"/>	<input type="checkbox"/>	Is adequate maintenance access provided?
<input type="checkbox"/>	<input type="checkbox"/>	Located outside of surface waters and any permanent natural buffers established under App. A.C.3.
<input type="checkbox"/>	<input type="checkbox"/>	Designed to avoid draining water from wetlands (unless the impact to the wetland is in compliance with the requirements of Appendix A.D).

Yes N/A
☐ ☐

Regional ponds:

Yes N/A
☐ ☐
☐ ☐
☐ ☐

- Is written authorization from owner of regional pond included in SWPPP?
- Is there no significant degradation of waterways between project and regional pond?
- Does regional pond design conform to the permit requirements for wet sedimentation basin?

Record Retention Requirements must be addresses in the SWPPP:

- ☐ ☐ The SWPPP including, all changes to it, and inspections and maintenance records must be kept at the site during construction by the Permittee(s) who has operational control of that portion of the site.

Comments: _____

Part IV – Construction Activity Requirements

Yes N/A
☐ ☐

Addresses erosion prevention measures:

Yes N/A
☐ ☐
☐ ☐
☐ ☐
☐ ☐

- Areas delineated on plans that are not to be disturbed or are areas where disturbance will be minimized.
- Areas of steep slopes will minimize disturbance or other techniques to minimize destabilization of steep slopes.
- Has appropriate construction phasing been implemented?
- Do exposed soils have erosion protection/cover initiated immediately and finished within 14 days (or 7 days Appendix A)?
- ☐ ☐ For DNR Public waters with “work in water restrictions” during specified fish spawning time frames, all exposed soil areas that are adjacent to and drain to these waters must complete the stabilization activities within 24 hours during the restriction period.
- ☐ ☐ Design includes stormwater conveyance channels to route water around unstabilized areas on the site and to reduce erosion, unless infeasible?
- ☐ ☐ Are wetted perimeters of ditches stabilized within 200 feet of surface water within 24 hours?
- ☐ ☐ Temporary or permanent ditches or swales that are being used as a sediment containment system during construction must be stabilized within 24 hours after no longer being used as a sediment containment system.
- ☐ ☐ Do pipe outlets have energy dissipation within 24 hours of connecting?
- ☐ ☐ Discharges from stormwater controls are directed to vegetated areas of the site (including any natural buffers) unless infeasible.

Comments: _____

Yes N/A
☐ ☐

Addresses sediment control measures:

Yes N/A
☐ ☐
☐ ☐
☐ ☐
☐ ☐
☐ ☐
☐ ☐

- Are sediment control practices established on down gradient perimeters and upgradient of any buffer zones?
- Are all inlets protected?
- Do stockpiles have sediment control and directed to be placed in areas away from surface waters or natural buffers?
- Do construction site entrances minimize street tracking?
- Plans to minimize soil compaction and, unless infeasible to preserve topsoil.
- 50 foot natural buffers preserved or (if not feasible) provide redundant sediment controls when a surface water is located within 50 feet of the project’s earth disturbances and drains to the surface water.

Comments: _____

Yes N/A
☐ ☐

Addresses dewatering and basin draining:

Yes N/A
☐ ☐
☐ ☐

- Is there a plan in place for dewatering to prevent nuisance conditions, erosion, or inundation of wetlands?
- If using filters with backwash water, either haul the backwash water away for disposal, return the backwash water to the beginning of the treatment process, or incorporate the backwash water into the site in a manner that does not erode into runoff.

Yes ☐ N/A ☐

Addresses inspections and maintenance:

Yes ☐ N/A ☐

- ☐ Identifies the person who will oversee the BMP inspection and maintenance?
- ☐ Inspections performed once every 7 days.
- ☐ Inspections performed within 24 hours of a rain event greater than 0.5 in/24 hours.
- ☐ Inspection and Maintenance records include:

Yes ☐ N/A ☐

- ☐ Date and time of inspection.
- ☐ Name of person(s) conducting inspections.
- ☐ Finding of inspections, including the specific location where corrective actions are needed.
- ☐ Corrective actions taken (including dates, times, and party completing maintenance activities).
- ☐ Date and amount of rainfall events greater than 0.5 in/24 hours.
- ☐ Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
- ☐ Requirements to observe, describe, and photograph any discharge that may be occurring during the inspection.

Yes ☐ N/A ☐

Maintenance performed

Yes ☐ N/A ☐

- ☐ All discovered nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs within 24 hours after discovery, or as soon as field conditions allow.
- ☐ Silt fence repaired/replaced/supplemented when nonfunctional, or one-half full; within 24 hours.
- ☐ Sediment basins drained and sediment removed when reaches one-half storage volume; within 72 hours.
- ☐ Sediment removed from surface waters within seven days.
- ☐ Construction site exits inspected, tracked sediment removed within 24 hours.
- ☐ All infiltration areas must be inspected for sediment from ongoing construction activity and that equipment is not being driven across the infiltration area.

Comments: _____

Yes ☐ N/A ☐

Addresses pollution prevention management measures:

Yes ☐ N/A ☐

- ☐ Storage, handling, and disposal of construction products, materials, and wastes.
- ☐ Fueling and maintenance of equipment or vehicles; spill prevention and response.
- ☐ Vehicle and equipment washing.
- ☐ No engine degreasing allowed on site.
- ☐ Containment of Concrete and other washout waste.
- ☐ Portable toilets are positioned so that they are secure.

Comments: _____

Yes ☐ N/A ☐

Addresses final stabilization:

Yes ☐ N/A ☐

- ☐ Stabilization by uniform perennial vegetative cover (70% density of its expected final growth).
- ☐ The permanent stormwater management system is constructed, meets all requirements, and is operating.
- ☐ Drainage ditches stabilized.
- ☐ All temporary synthetic and structural BMPs removed.
- ☐ Clean out sediment from conveyances and sedimentation basins (return to design capacity).
- ☐ If residential – temporary erosion protection and down gradient perimeter control has been completed and distribute homeowner factsheet.
- ☐ Submit Notice of Termination (NOT) to the MPCA.

Comments: _____

Requirements of Appendix A

Yes ☐ N/A ☐

Does this site drain to a discharge point on the project that is within one mile of a Special or Impaired Water?

Yes	N/A	Which type of special water?	BMP category
<input type="checkbox"/>	<input type="checkbox"/>	Wilderness Areas	C.1, C.2, C.3
<input type="checkbox"/>	<input type="checkbox"/>	Mississippi River	C.1, C.2, C.3
<input type="checkbox"/>	<input type="checkbox"/>	Scenic or Recreational river	C.1, C.2, C.3
<input type="checkbox"/>	<input type="checkbox"/>	Lake Superior	C.1, C.2, C.3
<input type="checkbox"/>	<input type="checkbox"/>	Lake Trout Lakes	C.1, C.2, C.3
<input type="checkbox"/>	<input type="checkbox"/>	Trout Lakes	C.1, C.2, C.3
<input type="checkbox"/>	<input type="checkbox"/>	Scientific and Natural areas	C.1, C.2, C.3
<input type="checkbox"/>	<input type="checkbox"/>	Trout Streams	C.1, C.2, C.3, C.4
<input type="checkbox"/>	<input type="checkbox"/>	Calcareous fens	C.1, C.2

Yes	N/A	Impaired water	BMP category
<input type="checkbox"/>	<input type="checkbox"/>	TMDL and/or WLA not yet approved	C.1, C.2
<input type="checkbox"/>	<input type="checkbox"/>	Approved TMDL and WLA	BMPs in TMDL

TMDL = Total Maximum Daily Loads

WLA = Waste Load Allocations

BMP category

Requirement

Yes ☐ N/A ☐

- ☐ ☐ C.1 Stabilization initiated immediately and all soils protected in seven days/provide temp basin for five acres draining to common location.
- ☐ ☐ C.2 Treat water quality volume of one inch of runoff by retaining on site unless not feasible due to site conditions (See Part III.D.1. design requirements).
- ☐ ☐ C.3 Maintain buffer zone of 100 linear feet from Special Water.
- ☐ ☐ C.4 Temperature controls.

Comments: _____

☐ ☐ Does this site have a discharge with the potential for adverse impact to wetlands:

Yes ☐ N/A ☐

- ☐ ☐ Has the wetland mitigation sequence (avoid, minimize, mitigate) been followed/satisfied by?
- ☐ Impact activity is permitted by either the Wetlands Conservation Act, DNR, or U.S. Army Corps of Engineers.
- ☐ Compliance with 7050.0186 is documented to the MPCA and approved.

Comments: _____

Subdivision / Non-Residential Lot Grading Review Checklist

CITY OF WOODLAND

Review Information

Applicant: _____ Project name: _____
Application date: _____ Reviewer name: _____

General

Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	NPDES permit including SWPPP is referred to on plan.
<input type="checkbox"/>	<input type="checkbox"/>	Completed grading permit application form.
<input type="checkbox"/>	<input type="checkbox"/>	Final grading plan is signed by a licensed professional.
<input type="checkbox"/>	<input type="checkbox"/>	Submitted and signed Drainage Report.
<input type="checkbox"/>	<input type="checkbox"/>	Owner name(s) and addresses listed on Grading Plan.
<input type="checkbox"/>	<input type="checkbox"/>	Plan is 1"=50' or larger scale. North arrow shown.
<input type="checkbox"/>	<input type="checkbox"/>	Plan is drawn in two-foot contours. All finished contours and adequate existing contours are labeled.
<input type="checkbox"/>	<input type="checkbox"/>	Existing contours are dashed and proposed are solid.
<input type="checkbox"/>	<input type="checkbox"/>	Directional arrows are shown for proposed drainage.
<input type="checkbox"/>	<input type="checkbox"/>	Details of terrain and drainage are provided for areas adjacent to the proposed grading.
<input type="checkbox"/>	<input type="checkbox"/>	Existing public and private utilities are shown.
<input type="checkbox"/>	<input type="checkbox"/>	Boundaries of drainage areas shown (in drainage report).
<input type="checkbox"/>	<input type="checkbox"/>	Soil types shown (in drainage report).
<input type="checkbox"/>	<input type="checkbox"/>	Areas not to be disturbed clearly defined.
<input type="checkbox"/>	<input type="checkbox"/>	All receiving waters, including wetlands, within 1 mile shown or identified, including impaired waters.
<input type="checkbox"/>	<input type="checkbox"/>	Property limits are shown. Streets are labeled. Lot & block information. Street address shown, if known.
<input type="checkbox"/>	<input type="checkbox"/>	Proposed sidewalk shown for commercial/industrial sites.
<input type="checkbox"/>	<input type="checkbox"/>	County/MNDOT permit obtained for work in their ROW.
<input type="checkbox"/>	<input type="checkbox"/>	Schedule of BMP installation shown.
<input type="checkbox"/>	<input type="checkbox"/>	BMP details included.
<input type="checkbox"/>	<input type="checkbox"/>	Concrete washout management BMP addressed on plan.
<input type="checkbox"/>	<input type="checkbox"/>	Dewatering activities discharge to treatment facility.

The following areas are tabulated for residential (acres):

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Total platted area (site area). |
| <input type="checkbox"/> | <input type="checkbox"/> | Total area disturbed. |
| <input type="checkbox"/> | <input type="checkbox"/> | Total developable area (excluding floodway, natural steep slopes, & wetlands). |

The following areas are tabulated for non-residential (acres):

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Total project area. |
| <input type="checkbox"/> | <input type="checkbox"/> | Total impervious areas of project, existing & proposed. |
| <input type="checkbox"/> | <input type="checkbox"/> | Tabulation of total and impervious area by tax parcel. |

Comments: _____

Site Grading, Sediment & Erosion Control

Yes	N/A	
<input type="checkbox"/>	<input type="checkbox"/>	Down-slope sediment control scheduled before grading.
<input type="checkbox"/>	<input type="checkbox"/>	Adjacent property protected from drainage and sediment.
<input type="checkbox"/>	<input type="checkbox"/>	Stabilized vehicle exit(s) are provided, minimize number.
<input type="checkbox"/>	<input type="checkbox"/>	Silt fences are provided; in concentrated flow areas "high flow, heavy duty" type specified.

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | All storm sewer inlets, existing and proposed have inlet protection/temporary sediment control that remains until up-slope areas are stabilized. |
| <input type="checkbox"/> | <input type="checkbox"/> | Maximum unbroken 3:1 or steeper slope of 75 feet horiz. |
| <input type="checkbox"/> | <input type="checkbox"/> | Control elevations for drainage ways are provided. |
| <input type="checkbox"/> | <input type="checkbox"/> | Minimum slope of small drainage swales is 2%. |
| <input type="checkbox"/> | <input type="checkbox"/> | Drainage easements for flow from more than 1 acre or 4 lots are seeded and protected with erosion control blankets or sodded. Blanket category specified per Mn/DOT 3885.2. Plan depicts required blanket locations. |
| <input type="checkbox"/> | <input type="checkbox"/> | Temporary stockpiles include additional sediment control and temporary cover after 14 days. |
| <input type="checkbox"/> | <input type="checkbox"/> | Percent of slope is shown for streets and drainage swales. |
| <input type="checkbox"/> | <input type="checkbox"/> | Fill & cut property line setbacks are >2' for cut slope ht. >10' or fill slope ht. >4' and setback is dimensioned on the plans. |
| <input type="checkbox"/> | <input type="checkbox"/> | All proposed lot corner elevations are shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | Proposed elevations of garage and lowest floor, ground at front and rear of building, along with the structure type are indicated on the plan. |
| <input type="checkbox"/> | <input type="checkbox"/> | Top of foundation is minimum 6" above the ground. |
| <input type="checkbox"/> | <input type="checkbox"/> | Grade 1' below top of foundation is 10' from building. |
| <input type="checkbox"/> | <input type="checkbox"/> | Free board to structures, floor elevation or the grade adjacent to the building is at least 1' above any overflow elevation, and at least 2' above any 100-year water level, whichever is greater and min. 1' above FEMA flood elev. |
| <input type="checkbox"/> | <input type="checkbox"/> | Drainage flows away from structures at min. 2%. |
| <input type="checkbox"/> | <input type="checkbox"/> | Temporary or permanent diversion swales, stabilized with turf mat, pipe, riprap, are used at the top of slopes exceeding 4:1, when applicable. |
| <input type="checkbox"/> | <input type="checkbox"/> | Minimum lot slopes for vegetated areas are 2% minimum. |
| <input type="checkbox"/> | <input type="checkbox"/> | All exposed soil stabilized in 14 days. |
| <input type="checkbox"/> | <input type="checkbox"/> | Soil within 1 mile of special & impaired waters – stabilized within 7 days. |
| <input type="checkbox"/> | <input type="checkbox"/> | Temporary or permanent cover is indicated for all disturbed areas. Temporary seeding specifies seed mix including disk anchored mulch on all slopes > 200' or >5%. |
| <input type="checkbox"/> | <input type="checkbox"/> | Permanent cover specifies 4" min. topsoil, seed mix and disk anchored mulch, or 4" min. topsoil and sod. |
| <input type="checkbox"/> | <input type="checkbox"/> | Slopes steeper than 4: 1 and 4: 1 slopes longer than 30' are seeded and protected with erosion control blankets or sodded and staked. Blanket category specified per Mn/DOT 3885.2. Plan depicts required blanket locations. |
| <input type="checkbox"/> | <input type="checkbox"/> | Statement that slopes steeper than 4: 1 are stable from land-sliding and surface erosion. Geotechnical report for slopes >3:1. |
| <input type="checkbox"/> | <input type="checkbox"/> | For sites where temporary or permanent cover will not be complete by November 15; plan indicates adequate measures to control spring erosion & sedimentation. |

Comments: _____

Drainage Swales & Easements

- | Yes | N/A | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Drainage and Utility easements are shown and labeled on the plan. |
| <input type="checkbox"/> | <input type="checkbox"/> | Drainage easements are provided where concentrated flow is received from more than 1 adjacent lot and also where concentrated flow is received from more than 1 acre of adjacent property. |
| <input type="checkbox"/> | <input type="checkbox"/> | 100-year flow is contained in an easement. |
| <input type="checkbox"/> | <input type="checkbox"/> | Minimum drainage easements for flows from 1 acre or less or 4 lots or less are a minimum 20' wide. Ditch is a minimum of 2' deep with a 4' bottom and 4:1 slopes up to the easement line. 100-year runoff contained in easement. |
| <input type="checkbox"/> | <input type="checkbox"/> | Stormwater management areas are platted as outlots. A facility that will serve only the lot on which it is located may be in a drainage easement on that lot. |
| <input type="checkbox"/> | <input type="checkbox"/> | Emergency overflow with the high point elevation and direction of overflow are clearly marked on plans. |
| <input type="checkbox"/> | <input type="checkbox"/> | Emergency overflow swale meets minimum drainage easement standards noted above. |
| <input type="checkbox"/> | <input type="checkbox"/> | Easement documents are signed and submitted with recording fee or included in plat. |

Comments: _____

Outlets & Energy Dissipation

- | Yes | N/A | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Velocity computations are provided for drainage easements where concentrated flow from more than 2 acres or 8 lots is directed. |
| <input type="checkbox"/> | <input type="checkbox"/> | Where 10-year velocities exceed 5 ft/sec. permanent turf reinforcement mats are installed. Mats per Mn/DOT 3888.2 or manufacturer and product is specified. Plan depicts blanket locations and cross sections. |

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Ditches within 200' of surface water or Property line stabilized in 24 hrs after connection. |
| <input type="checkbox"/> | <input type="checkbox"/> | Discharge direction of flow generally 45 degrees or less to the flow direction of receiving ditch or stream. |
| <input type="checkbox"/> | <input type="checkbox"/> | Discharges to rear property lines shall generally be piped to at least the rear property line. |
| <input type="checkbox"/> | <input type="checkbox"/> | Where discharge pipe velocities are > 10 fps, or less, riprap and filter volumes are indicated in accordance with MnDOT Standard Plates. |
| <input type="checkbox"/> | <input type="checkbox"/> | Where discharge pipe velocities are > 10 fps, energy dissipater is provided along with riprap and filter. |
| <input type="checkbox"/> | <input type="checkbox"/> | Discharges on slopes steeper than 10% shall not be allowed unless discharge is into existing drainage ditch. |
| <input type="checkbox"/> | <input type="checkbox"/> | Evaluation of downstream adequacy provided (capacity and stability). |

Comments: _____

Temporary Sediment Basins

- | Yes | N/A | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Principal and emergency spillway designed per BMP storm frequency standards. |
| <input type="checkbox"/> | <input type="checkbox"/> | Fenced if slopes exceed 4:1. |
| <input type="checkbox"/> | <input type="checkbox"/> | Plan requires any permanent or temporary sediment ponds to be constructed before other construction starts. |

For areas draining less than 10 acres alternative sediment control (5 acres within 1 mile of impaired waters).

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Multiple lines of silt fence. |
| <input type="checkbox"/> | <input type="checkbox"/> | Small basins. |
| <input type="checkbox"/> | <input type="checkbox"/> | Vegetative strips (full permanent vegetation before upslope excavation). |

Comments: _____

Permanent Wet Retention Ponds

- | Yes | N/A | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Entire drainage/service area shown (in drainage report). |
| <input type="checkbox"/> | <input type="checkbox"/> | 50 scale or larger grading plan with pond cross-section. |
| <input type="checkbox"/> | <input type="checkbox"/> | Where possible, provide a forebay at the inlet; locate inlet and outlet at opposite ends of pond; and provide length to width ratio >3. |
| <input type="checkbox"/> | <input type="checkbox"/> | Inlets are at or below normal water level. |
| <input type="checkbox"/> | <input type="checkbox"/> | 10:1 bench is provided for first 1' of depth below the normal water elevation. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3:1 max slope from normal water elevation to 100-year water elevation. |
| <input type="checkbox"/> | <input type="checkbox"/> | 3:1 max slope below normal water elevation. |
| <input type="checkbox"/> | <input type="checkbox"/> | Normal Water Elevation is shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | 100-year high water elevation is shown. |
| <input type="checkbox"/> | <input type="checkbox"/> | Energy dissipation at outlet piping. |
| <input type="checkbox"/> | <input type="checkbox"/> | Emergency overflow spillway is provided to accommodate 100-yr event. High point elevation and direction of overflow are marked on plans. |
| <input type="checkbox"/> | <input type="checkbox"/> | Emergency overflow spillway is located to protect adjacent property and large fill sections. |
| <input type="checkbox"/> | <input type="checkbox"/> | 100-yr runoff which is designed to flow to the pond does not bypass the pond; unmodeled 100-yr flow does not enter the pond. |
| <input type="checkbox"/> | <input type="checkbox"/> | Minimum 10' width at bottom of spillway. |
| <input type="checkbox"/> | <input type="checkbox"/> | Minimum 8' wide maintenance access and turn-around for maintenance vehicles is shown on a slope ≤ 15%, cross slope ≤ 6%. |
| <input type="checkbox"/> | <input type="checkbox"/> | Seed mix Mn/DOT 33-261 or 33-361 for a 10' wide perimeter around the pond. Seed mix Mn/DOT 35-241 for the remainder of the pond outlot |
| <input type="checkbox"/> | <input type="checkbox"/> | DNR dam safety permit obtained if dam height is > 6' and storage to top of dam is > 15 acre-ft. |

Areas less than 1 acre not draining to a pond managed by:

- | | | |
|--------------------------|--------------------------|----------------|
| <input type="checkbox"/> | <input type="checkbox"/> | Grassed swales |
| <input type="checkbox"/> | <input type="checkbox"/> | Small ponds |
| <input type="checkbox"/> | <input type="checkbox"/> | Grit chambers |
| <input type="checkbox"/> | <input type="checkbox"/> | Other _____ |

Comments: _____

Volume Reduction / Water Quality BMPs

Yes	N/A	
Type(s) used:		
<input type="checkbox"/>	<input type="checkbox"/>	Sump manholes
<input type="checkbox"/>	<input type="checkbox"/>	SAFL / Preserver Baffles
<input type="checkbox"/>	<input type="checkbox"/>	Hydrodynamic Separators (HDS)
<input type="checkbox"/>	<input type="checkbox"/>	WQ Treatment Devices
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration basins
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration trenches
<input type="checkbox"/>	<input type="checkbox"/>	Bioretention basins
<input type="checkbox"/>	<input type="checkbox"/>	Iron Enhanced Sand Filters (IESFs)
<input type="checkbox"/>	<input type="checkbox"/>	Underground infiltration/filtration
<input type="checkbox"/>	<input type="checkbox"/>	Stormwater Reuse
<input type="checkbox"/>	<input type="checkbox"/>	Permeable Pavement
<input type="checkbox"/>	<input type="checkbox"/>	Rain Guardians
<input type="checkbox"/>	<input type="checkbox"/>	Other: _____
<input type="checkbox"/>	<input type="checkbox"/>	Pre-treatment provided prior to infiltration / filtration systems.
<input type="checkbox"/>	<input type="checkbox"/>	Site sensitivity analysis included.
<input type="checkbox"/>	<input type="checkbox"/>	Evaluation of hydrologic impact included.
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration / filtration systems scheduled after full site development and stabilization
<input type="checkbox"/>	<input type="checkbox"/>	Runoff routed away from infiltration / filtration systems during construction
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration / filtration sites controlled to minimize soil compaction.
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration / filtration systems designed for 1" of runoff from total impervious surface areas for ultimate development, drains within 48 hours.
<input type="checkbox"/>	<input type="checkbox"/>	Emergency overflow provided to bypass flows from larger events.
<input type="checkbox"/>	<input type="checkbox"/>	Minimum vertical separation of 3' between seasonally saturated soils (or bedrock) and bottom of infiltration system.
<input type="checkbox"/>	<input type="checkbox"/>	Soil test results, system capacity calculations, and computer modeling results included.
<input type="checkbox"/>	<input type="checkbox"/>	Minimum 8' width maintenance access provided.
<input type="checkbox"/>	<input type="checkbox"/>	Infiltration / filtration system locations not permitted for vehicle fueling or service areas.

Comments: _____

Construction Stormwater Inspection Checklist

CITY OF WOODLAND

Project Information

Project name: _____
Project address: _____ Permit number: _____
City: _____ State: _____ Zip code: _____

Inspection Information

Inspector name: _____ Phone number: _____
Date (mm/dd/yyyy): _____ Time: _____ ☐ am ☐ pm
Is Inspector certified in ESC and is it documented in the Stormwater Pollution Prevention Plan (SWPPP)? ☐ Yes ☐ No
Is this inspection routine or in response to a storm event: _____
Rainfall amount (if applicable): _____
Is the site within one aerial mile of special or impaired water? ☐ Yes ☐ No
If yes, follow Appendix A of the Construction Stormwater General Permit, MN R100001, and other applicable permit requirements.

Note: If NA is selected at any time, specify **why** in the comment area for that section.

Erosion Control Requirement (Part IV.B)

	Yes	No	NA
1. Have areas not to be disturbed been delineated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Soil stabilization where no construction activity for 14 days? (7 days were applicable, including stockpiles)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Has the need to disturb steep slopes been minimized?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. All ditches stabilized 200' back from point of discharge within 24 hours? (not mulch)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Are there erosion BMP's for onsite stockpiles?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are appropriate BMP's installed protecting inlets/outlets?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Do pipe outlets have energy dissipation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Sediment Control Requirement (Part IV.C.)

	Yes	No	NA
1. Perimeter control installed on all down gradient perimeters?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Perimeter control trenched in where appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. 50 Foot-natural buffer maintained around all surface waters?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If No, have redundant sediment controls been installed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Inlet protection on all catch basins and culvert inlets?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Vehicle tracking Best Management Practices (BMPs) at all site exits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. All tracked sediment removed within 24 hours?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Are all infiltration systems staked and marked to avoid compaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Are all infiltration areas protected with a pretreatment device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Do all stockpiles have perimeter control?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Maintenance-Erosion and Sediment Control BMPs (Part IV.E.)

	Yes	No	NA
1. Are all previously stabilized areas maintaining 90% ground cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Any ditch erosion observed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Perimeter Control – Has sediment reached one half the height of the device?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are inlet protection devices maintained and functioning properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

Other

	Yes	No	NA
1. Are all materials that can leach pollutants under cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Has access been restricted to onsite hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Does on-site fueling only occur in a contained area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are all solid wastes being properly disposed of?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the concrete washout area completely contained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Is the concrete washout area marked with a sign?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Comments:

7. Were any discharges seen during this inspection, sediment, water, or otherwise? ☐ Yes ☐ No

If yes, state the exact location of all points of discharge. Photograph the discharge and describe the discharge (color, odor, foam, oil sheen, etc). How will it be removed? How did the discharge happen? How much was discharged? How will it be stopped, and how long will it take to stop? Is the discharge going into an adjacent site? Was the discharge a sediment delta? If yes, will the delta be recovered within 7 days?

8. Will a permanent stormwater management system be utilized in this project as required and in accordance with Part III.D of the permit? Describe:

9. Is any dewatering occurring on site? ☐ Yes ☐ No

If yes, where? What BMP is being used? How much water is being dewatered? Is the water clear? Where is the water being discharged to?

10. Is a copy of the SWPPP located on the construction site? ☐ Yes ☐ No
11. Has the SWPPP been followed and implemented on site? ☐ Yes ☐ No
12. Is a sedimentation basin required for this project as specified in the permit? ☐ Yes ☐ No
If yes, are they maintained as specified in the permit? ☐ Yes ☐ No
13. Is the topsoil on this project being preserved? ☐ Yes ☐ No
If yes, explain how the topsoil is being preserved. If not, explain why it was infeasible.

14. Are all infiltration systems marked to avoid compaction? ☐ Yes ☐ No
Do all infiltration areas have pretreatment devices? ☐ Yes ☐ No

15. Description of areas of non-compliance noted during the inspection, required corrective actions, and recommended date of completion of corrective actions:

16. Proposed amendments to the SWPPP:

17. Potential areas of future concern:

18. Additional comments:

Disclosures:

- After discovery, the Construction Stormwater General Permit, MN R100001, requires many of the deficiencies that may be found in this checklist be corrected within a specified period of time. See the permit for more details.
- This inspection checklist is an option for small construction sites. Large construction sites and linear projects require more extensive/more location specific inspection requirements.
- The Permittee(s) is/are responsible for the inspection and maintenance of temporary and permanent water quality management BMP's as well as erosion prevention and sediment control BMPs until another Permittee has obtained coverage under the Construction Stormwater General Permit, MN R100001, according to Part II.B.5., or the project has undergone Final Stabilization and a Notice of Termination has been submitted to the MPCA.

Structural Pollution Control Device Inspection Checklist

CITY OF WOODLAND

SPCD Information

SPCD ID: _____	Inspector: _____
Type of SPCD: _____	Date: _____
Location/Coordinates: _____	Temperature: _____
Owner: _____	Weather: _____
Year Constructed: _____	
Date Last Cleaned: _____	
Drainage Area: _____	
No. Inlets / Size: _____	
No. Outlets / Size: _____	
Design Storage Depth: _____	
Current Storage Depth: _____	

Maintenance Priority
(1=Low 5=High)

Inspection:

Maintenance Item	Satisfactory/Unsatisfactory	Comments
1. Level of sediment in sump		
2. Sediment accumulation inside pipe(s)		
3. Floating Debris		
4. Corrosion		
5. Manhole condition		
a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Visible pollution / Illicit discharge		
7. Complaints from residents		
8. Public safety hazards (specify)		
9. Other (specify)		

Comments: _____

Outfall Inspection Checklist

CITY OF WOODLAND

Outfall Information

Outfall ID:		Inspector:	
Outfall Waterbody:		Date:	
Location/Coordinates:		Temperature:	
Year Constructed:		Weather:	
Size:			
Material:			
Date Last Cleaned:			

Maintenance Priority
(1=Low 5=High)

Inspection:

Maintenance Item	Satisfactory/Unsatisfactory	Comments
1. Trashguard		
a. Properly attached		
b. Corrosion		
c. Free of debris		
2. Pipe condition		
a. Sediment accumulation in pipe		
b. Cracks or displacement		
c. Spalling / corrosion		
d. Joint failure / watertightness		
3. Riprap / energy dissipation		
4. Channel scouring downstream		
5. Visible pollution / Illicit discharge		
6. Complaints from residents		
7. Public safety hazards (specify)		
8. Other (specify)		

Comments: _____

**ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM
CITY OF WOODLAND**

IDDE Report & Response Form

I. Incident Report

Incident Number: _____

Date/Time: _____ AM / PM Received By: _____

Location: _____

Initial Report of Conditions: _____

Reported By: _____ Phone: _____

II. Investigation

Date: _____ By: _____

Location Description/Storm Drain ID/Outfall: _____

Discharge Entered Storm Drain System/Receiving Waters? ____ Yes ____ No

Material Type

Hazardous

Sediment

Wastewater

Oil/Grease

Other _____

Unknown

Est. Quantity: _____

Additional Information: _____

Sample(s) Collected: ____ Yes ____ No

Photo(s) Taken: ____ Yes ____ No

Observed Land Use

Residential

Commercial/Industrial Stormwater Permit ____ Yes ____ No ____ Unknown

Public

Direct/Constructed Connections Found? ____ Yes ____ No

Source Description: _____

Source/Responsible Party: _____

III. Action and Closure

Referred To: _____ Date: _____

Action Taken: _____

Date Closed: _____

7. Documentation

7a. Employee Training Documentation

Employee Training Documentation

CITY OF WOODLAND

[illegible]

7b. SWPPP Comments

7c. IDDE Reports

7d. Inspections

7e. Maintenance Activities

7f. MS4 Annual Assessments

Appendix

Appendix A: Annual MS4 Reports

Appendix B: MS4 Pond, Wetland, and Lake Inventory



Information	
Facility ID	Facility Name
1	City Lot
2	City Lot
3	City Lot
MnDNR Public Waters	
A	Maplewood Pond
B	Lake Minnetonka
C	Lake Marion
D	Unnamed Wetland
E	Lake Shaver

Legend

- City Parcels
- MnDNR Public Water
- Hennepin County Lake
- Parcels
- City Limits

0

600

Feet

Source: ESRI Imagery (2012), MnDOT, MnDNR

