Surface Water Management Plan

Woodland, MN

Adopted April 13, 2009

SURFACE WATER MANAGEMENT PLAN

For the

CITY OF WOODLAND

Bolton & Menk, Inc.

Adopted April 13, 2009

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.

April 13, 2009
Date

David Poggi
Minnesota Registration No. 44573

CITY OF WOODLAND
SURFACE WATER MANAGEMENT PLAN

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Appendix D: Floodplain Ordinance

Appendix E: Phosphorus Reduction Status Table

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 MCWD phosphorus reduction
- Construction site erosion and sediment control
- Increase in runoff discharge rates from new and redevelopment

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 (to the year 2018) and the process for making amendments consistent with the MCWD Plan.

2. SURFACE WATER MANAGEMENT PLAN PURPOSE

The general purposes and objectives of the Woodland SWMP are as follows:

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.

In 1982, the Minnesota Legislature adopted The Metropolitan Surface Water Management Act requiring all watersheds within the Twin Cities seven county metropolitan area to be incorporated into watershed management organizations (WMOs) and the preparation and adoption of watershed management plans by each of the WMOs. The Act also requires that Local Governmental Units prepare local water management plans which include the official controls and capital improvements necessary to bring local water management into conformance with the WMO plan.

The City of Woodland is situated on Lake Minnetonka and is wholly within the Minnehaha Creek watershed. Figure 1 shows the city, adjacent communities and Lake Minnetonka. This SWMP is intended to meet the requirements, needs and directions of the following regulatory requirements:

1. Metropolitan Surface Water Management Act - Minnesota Statutes Chapter 103B.
2. Metropolitan Area Local Water Management - Minnesota Rules Chapter 8410.
3. Minnehaha Creek Watershed District – Comprehensive Water Resources Management Plan (MCWD Plan) dated February, 2007, as well as related subwatershed Plans.

3. WATER RESOURCES MANAGEMENT RESPONSIBILITIES AND RELATED AGREEMENTS

The MPCA administers the stormwater program for Municipal Separate Storm Sewer Systems (MS4) through the National Pollutant Discharge Elimination System (NPDES) permits. Similar to the surrounding communities, the City of Woodland is a designated mandatory MS4 due to location and population density. Therefore, the City must maintain a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the MPCA's General NPDES Permit for MS4s. Additionally, all construction activity within the city must apply for, and comply with the requirements of, the MPCA's NPDES General Stormwater Permit for Construction Activity.

The City of Woodland is entirely within the Minnehaha Creek watershed and is therefore within the jurisdiction of the Minnehaha Creek Watershed District (MCWD) and must abide by the Rules set forth by the District within its boundaries. The MCWD was established in 1967 under Minnesota Statute 103D and completed its first Water Resources Management Plan in 1997. The revised MCWD Plan (2007)-related Rules and application process are all available for review at the District office or can be viewed on the District website.

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. Precipitation

The climate of the Minneapolis/St. Paul metropolitan area is a humid continental climate with moderate precipitation, wide daily temperature variations, warm humid summers and cold winters. The average annual precipitation in Woodland is approximately 29.4 inches, more than one-third of which occurs in the months of June, July and August. The annual snowfall average is about 56 inches and is equivalent to approximately 5.5 inches of water. The Normals, Means and Extremes table for the Minneapolis area is included in Appendix A.

The 24-hour rainfall event amounts for the 1-year, 10-year, and 100-year storm events are included in Appendix A. In theory, the 1-year rainfall event will occur every year, while the 10-year and 100-year rainfall events have a 10% and 1% chance of occurring in any given year, respectively. The 1-year rainfall (2.35") is the amount often used for stormwater runoff discharge rate control at the bottom end of the spectrum. The 10-year rainfall (4.2") is currently used for the design of lateral storm sewers, while the 100-year event (6.0") is commonly used for the analysis and design of pond and lake outlet structures, as well as trunk storm sewer systems. Occasionally, an "extreme event" is used for analysis of critical areas or landlocked


LONG LAKE
PLYMOUTH
US Hwy 12
I-494
I-494
WAYZATA
WOODLAND
TONKA BEACH
DEEPHAVEN
Minnetonka Blvd
Vine Hill Rd
MINNETONKA
State Hwy 7
State Hwy 7
GREENWOOD
STATE HWY 41
EXCELSIOR
0
1
Miles
SOURCE: DNR DATA DELI-MUNIC
CITY OF WOODLAND
LOCATION MAP
Figure 1
DECEMBER, 2008
BOLTON & MENK
Engineers & Surveyors

areas; typically, this is done with a 10", 24-hour rainfall event, or back-to-back 100-year events (two 100-year events occurring over consecutive days).

4.2.3. Geology

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

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

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

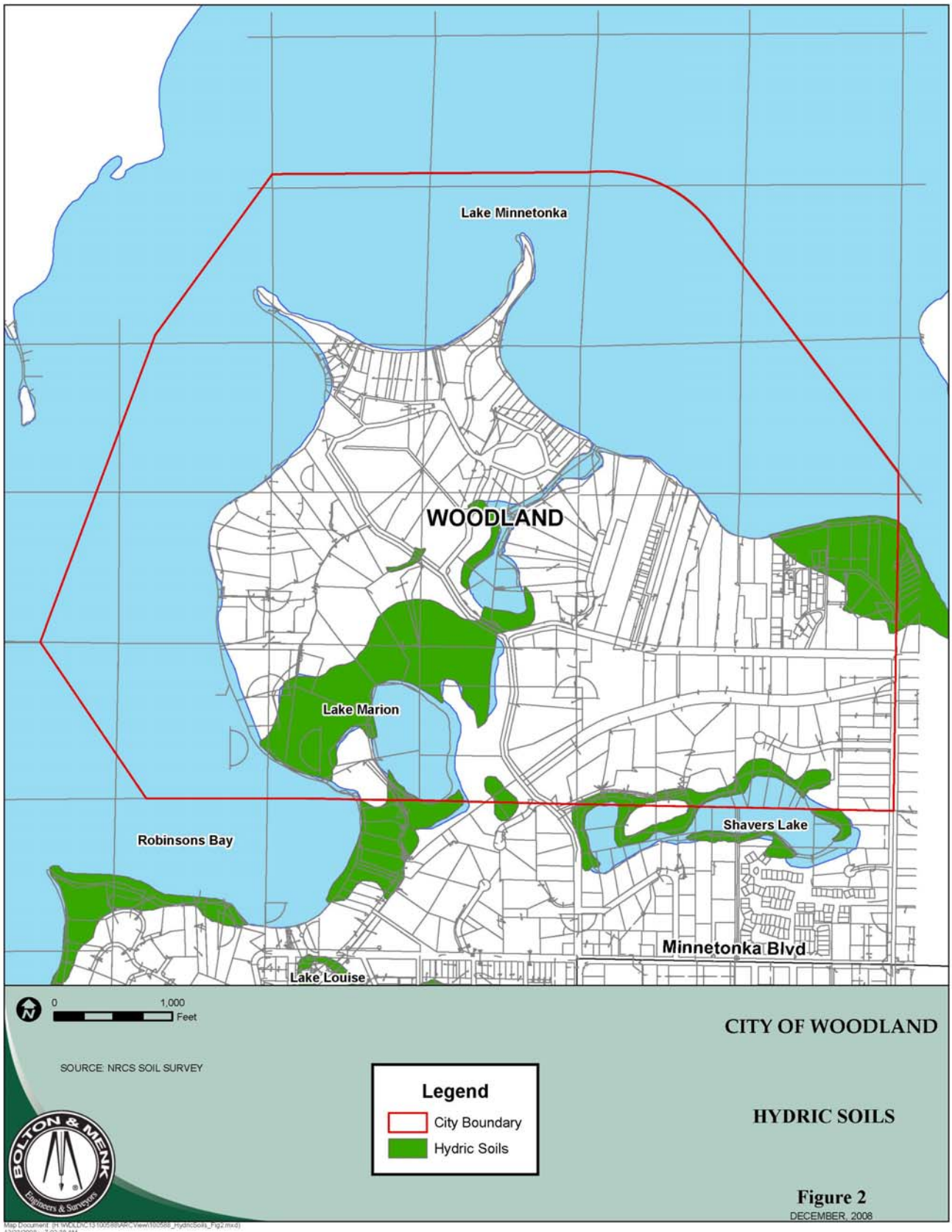
4.2.4. Topography

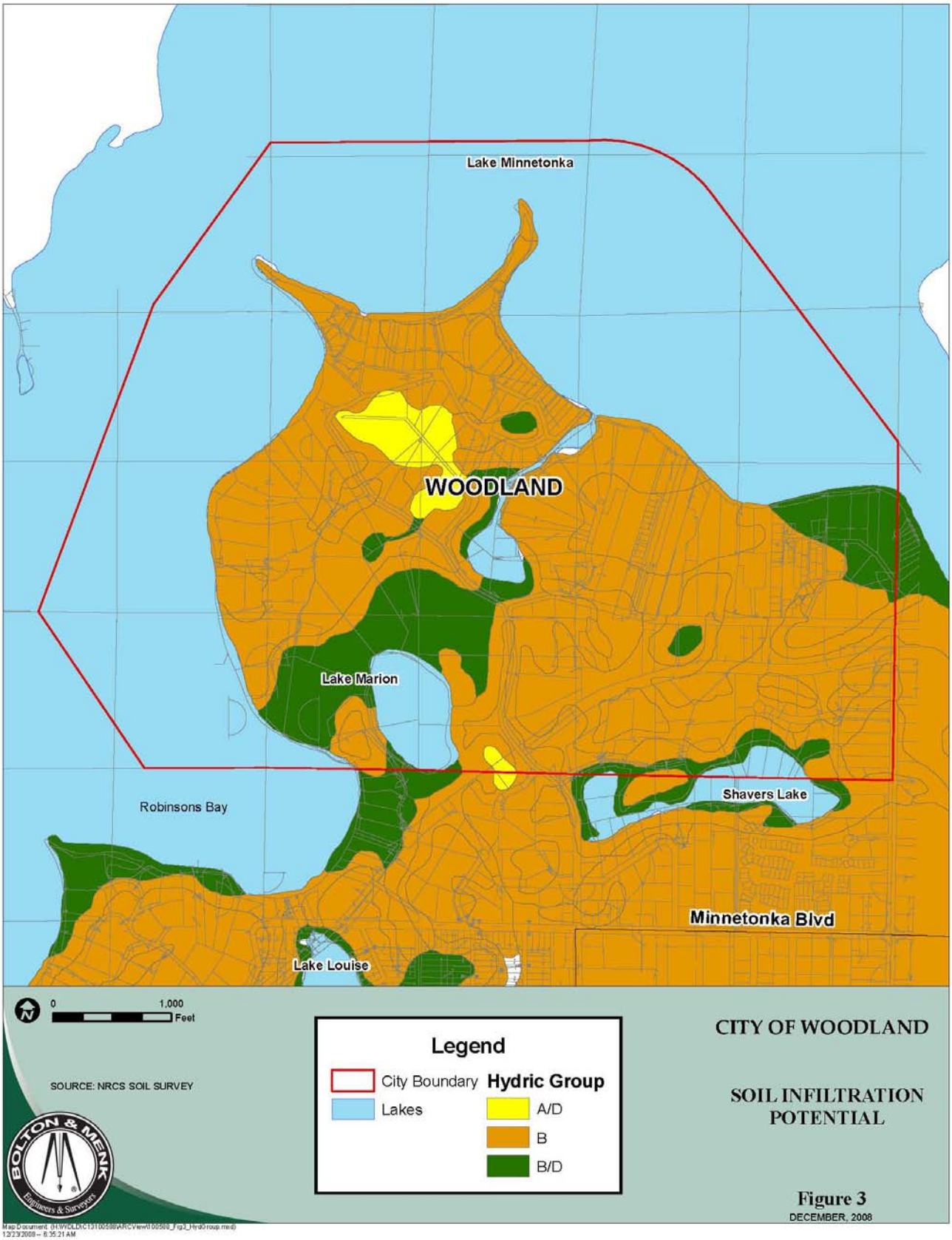
The City of Woodland consists of gently to steeply rolling hills with wetlands prevalent in the low areas, many of which are landlocked basins. The city is contained within the Minnehaha Creek Watershed, with the entire city overflowing to Lake Minnetonka during an extreme event. Surface elevations range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

4.2.5. Soils

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

The Tomall loam and Malardi-Hawick Associations occupy the majority of the City. These soils are loams and sandy loams with a Type B moderate infiltration capacity. Low/wetland areas consist largely of Klossner-Houghton-Muskego mucks consisting of Type D soils with poor infiltration capacity, also known as hydric soils. These soils, as well as the locations of soils of varying infiltration potential (known as hydraulic characteristic *Type*), are important for stormwater-related planning purposes and are therefore included here as Figures 2 & 3.


Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
Minnetonka Blvd
Lake Louise
0
1,000
Feet
SOURCE: NRCS SOIL SURVEY
Legend
City Boundary
Hydric Soils
CITY OF WOODLAND
HYDRIC SOILS
Figure 2
DECEMBER, 2008


Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
Minnetonka Blvd
Lake Louise
0
1,000
Feet
SOURCE: NRCS SOIL SURVEY
Legend
City Boundary
Lakes
Hydric Group
A/D
B
B/D
CITY OF WOODLAND
SOIL INFILTRATION POTENTIAL
Figure 3
DECEMBER, 2008

4.2.6. Fish and Wildlife Habitat

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

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

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

4.2.7. Unique Features and Scenic Areas

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

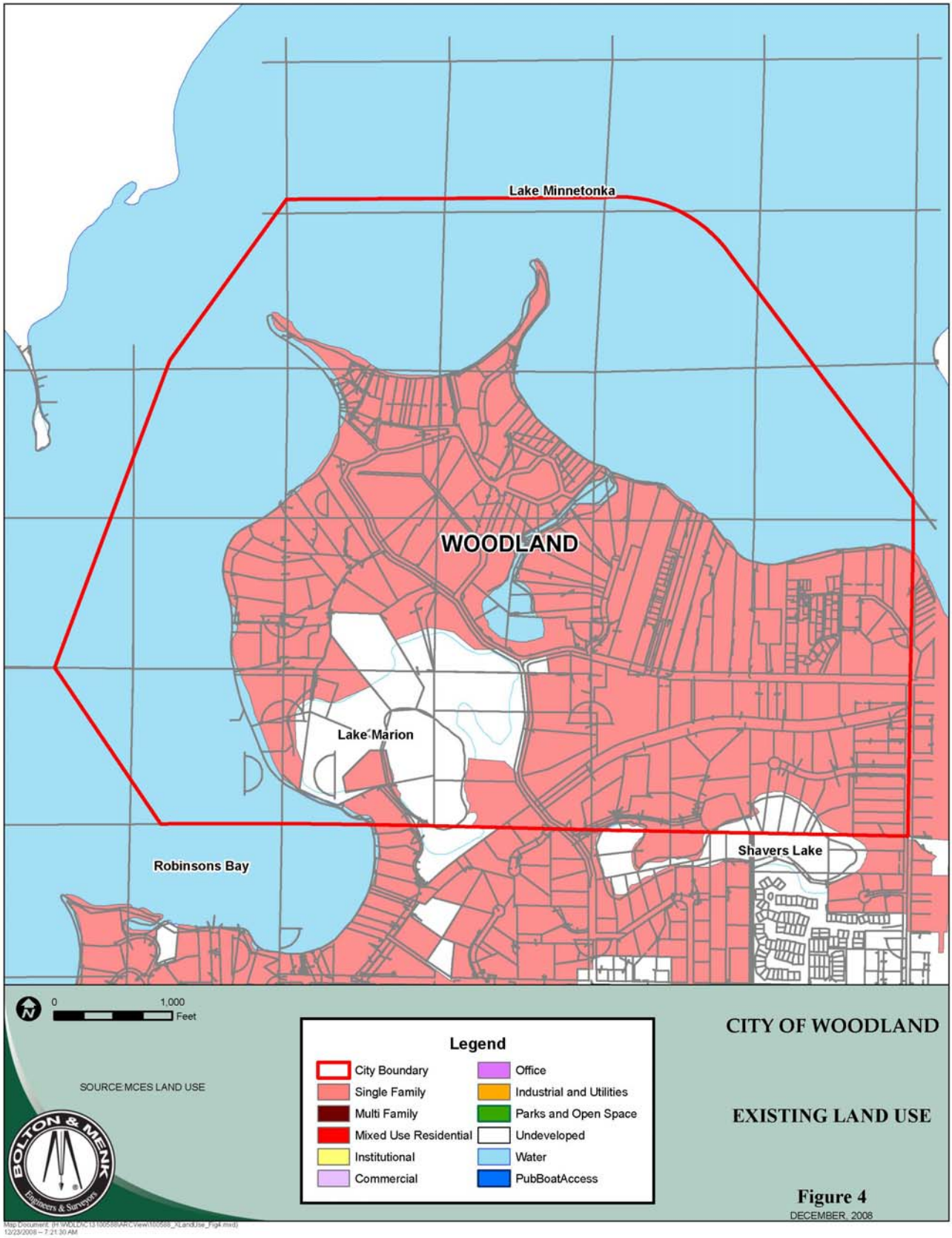
4.2.8. Key Conservation Areas

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

4.3. Human Environment

4.3.1. Land Use

The Existing Land Use and Proposed Land Use Plans for property within the City of Woodland are identical and are shown as "Existing Land Use" in Figure 4. Additionally, the Minnesota Department of Natural Resources and Hennepin County have completed Minnesota Land Cover Classification System (MLCCS) mapping for the county. The land cover type and imperviousness area percentage figures have been included for Woodland in Figures 5 & 6.


Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
0
1,000
Feet
SOURCE:MCES LAND USE
Legend
City Boundary
Single Family
Multi Family
Mixed Use Residential
Institutional
Commercial
Office
Industrial and Utilities
Parks and Open Space
Undeveloped
Water
PubBoatAccess
CITY OF WOODLAND
EXISTING LAND USE
Figure 4
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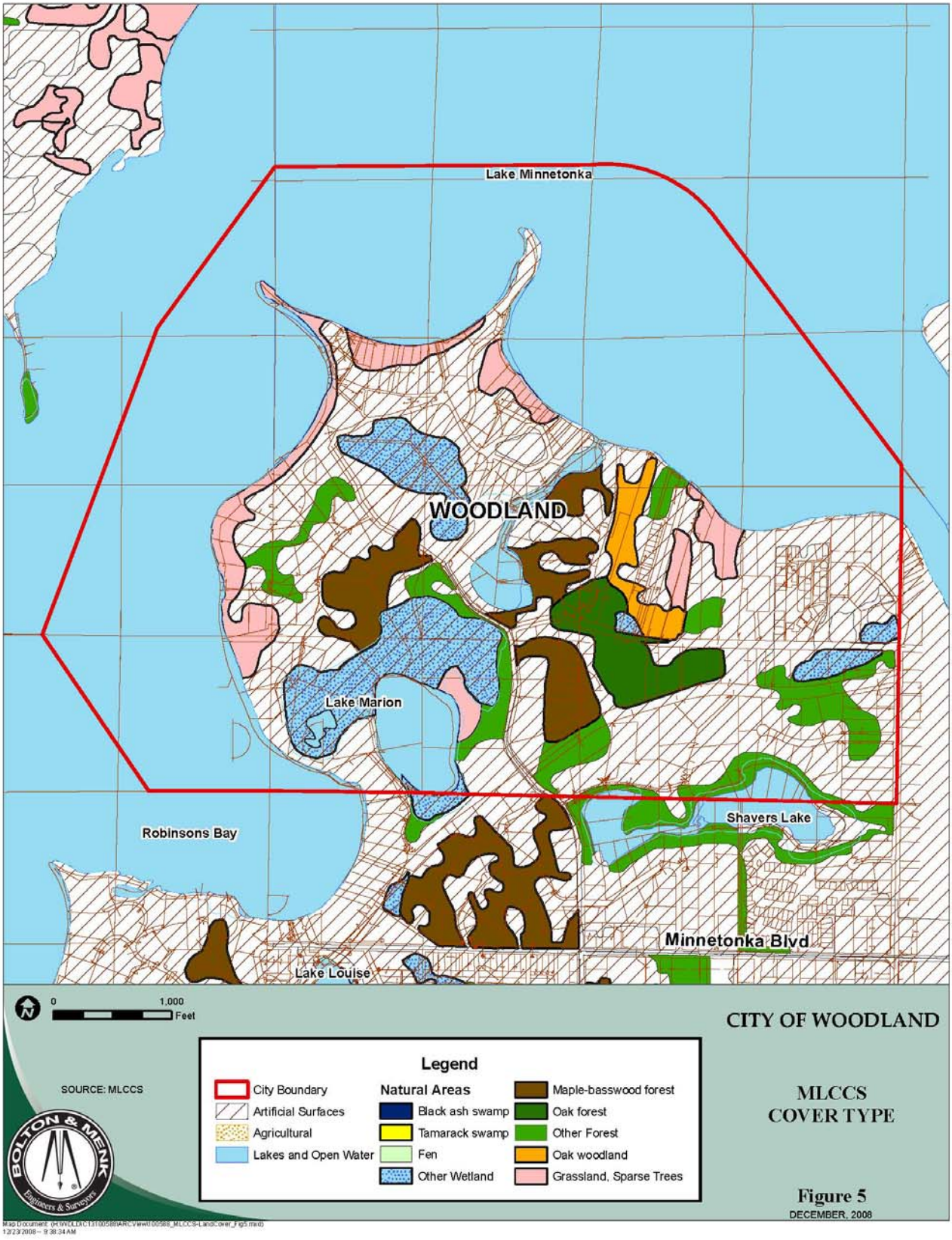
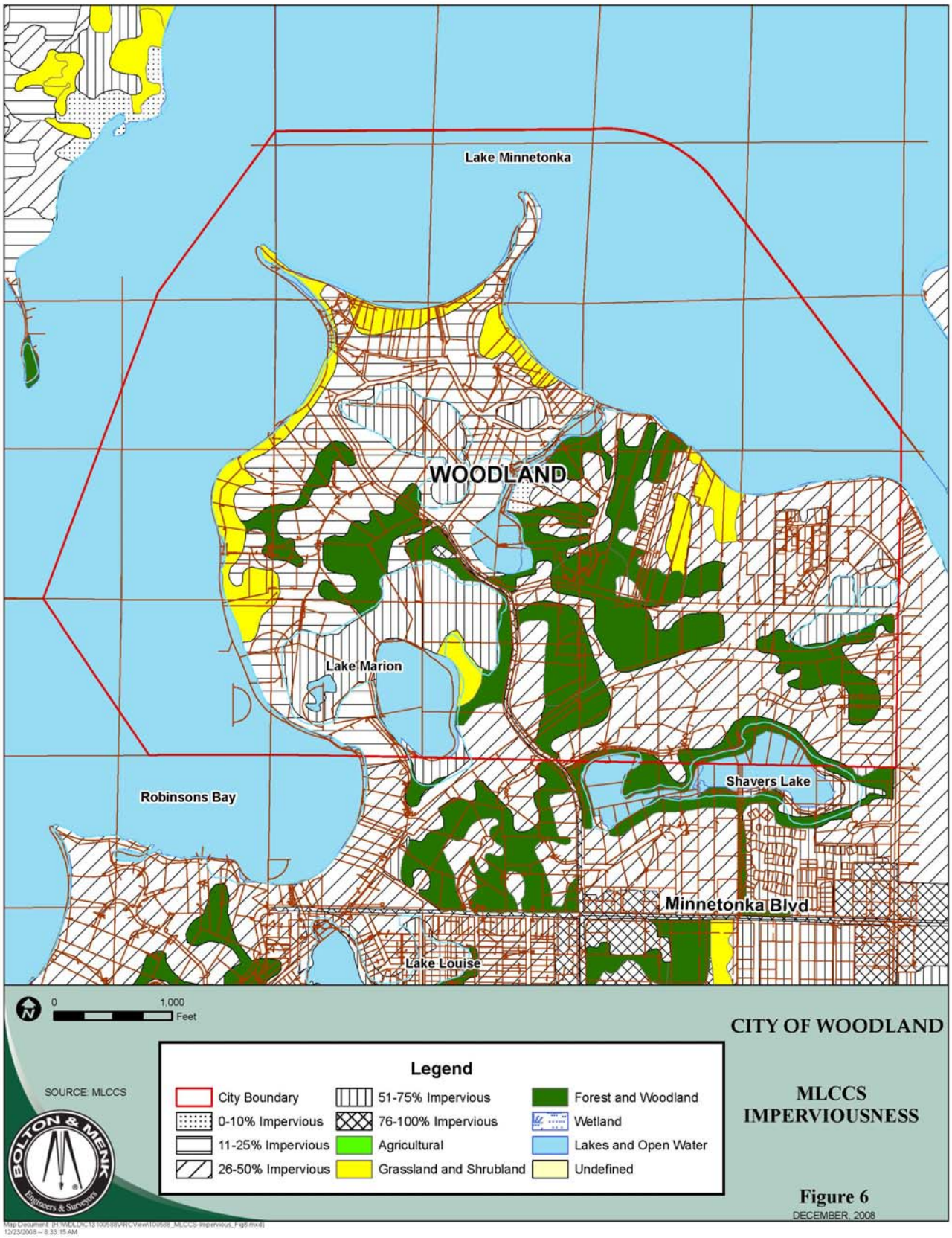

Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
Minnetonka Blvd
Lake Louise
0
1,000
Feet
CITY OF WOODLAND
Legend
City Boundary
Artificial Surfaces
Agricultural
Lakes and Open Water
Natural Areas
Black ash swamp
Tamarack swamp
Fen
Other Wetland
Maple-basswood forest
Oak forest
Other Forest
Oak woodland
Grassland, Sparse Trees
SOURCE: MLCCS
MLCCS
COVER TYPE
Figure 5
DECEMBER, 2008


Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
Minnetonka Blvd
Lake Louise
0
1,000
Feet
CITY OF WOODLAND
Legend
City Boundary
0-10% Impervious
11-25% Impervious
26-50% Impervious
51-75% Impervious
76-100% Impervious
Agricultural
Grassland and Shrubland
Forest and Woodland
Wetland
Lakes and Open Water
Undefined
SOURCE: MLCCS
MLCCS
IMPERVIOUSNESS
Figure 6
DECEMBER, 2008

4.3.2. Public Utilities Services

The City of Woodland has municipal sanitary sewer available to the properties on ther 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 sewer system within the city is somewhat minimal and generally follows topographic drainage patterns and roadway corridors. Much of the storm sewer discharges into city wetlands, waterbodies, and lakes without prior treatment. Many of these low-area "discharge points" are landlocked basins with no outlet other than infiltration and evapotranspiration. Additional information on storm sewer systems and drainage features are presented in the Surface Waters subsection of this SWMP.

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

Various land use practices have the potential to contaminate local surface waters and groundwaters. There is significant contamination potential at open and closed landfills, dumps, hazardous waste sites, animal feed lots, and underground and above ground storage tanks. Even in-place or abandoned wells can allow contamination of groundwater if not properly constructed or taken out of service. Potential sources of surface water and groundwater contamination within the City of Woodland are identified in Appendix B, as provided by Hennepin County Environmental Services.

The Hennepin County Geologic Atlas provides information regarding the sensitivity of groundwater systems and the Prairie du Chien-Jordan aquifer to pollution. Due to the relatively high permeability rate of the surface soils in Woodland, the sensitivity of the groundwater systems to pollution ranges from high to very high. The Prairie du Chien-Jordan aquifer is of special concern since it is the most heavily used source of groundwater in Hennepin County. The Hennepin County Geologic Atlas is available for review at Hennepin County.

Within the City of Woodland, there are no National Pollution Discharge Elimination System (NPDES) permits for wastewater discharges or storm water discharges associated with industrial activities.

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 (Figure 7). 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 from the respective agency.

The various wetland inventories identify and classify wetlands based on various classification systems. The classification systems were developed for a wide number of purposes and to assist in meeting differing water resource management goals. Although not comprehensive, these inventories can all be utilized in determining whether wetlands are present on a specific property and how land uses may be affected.

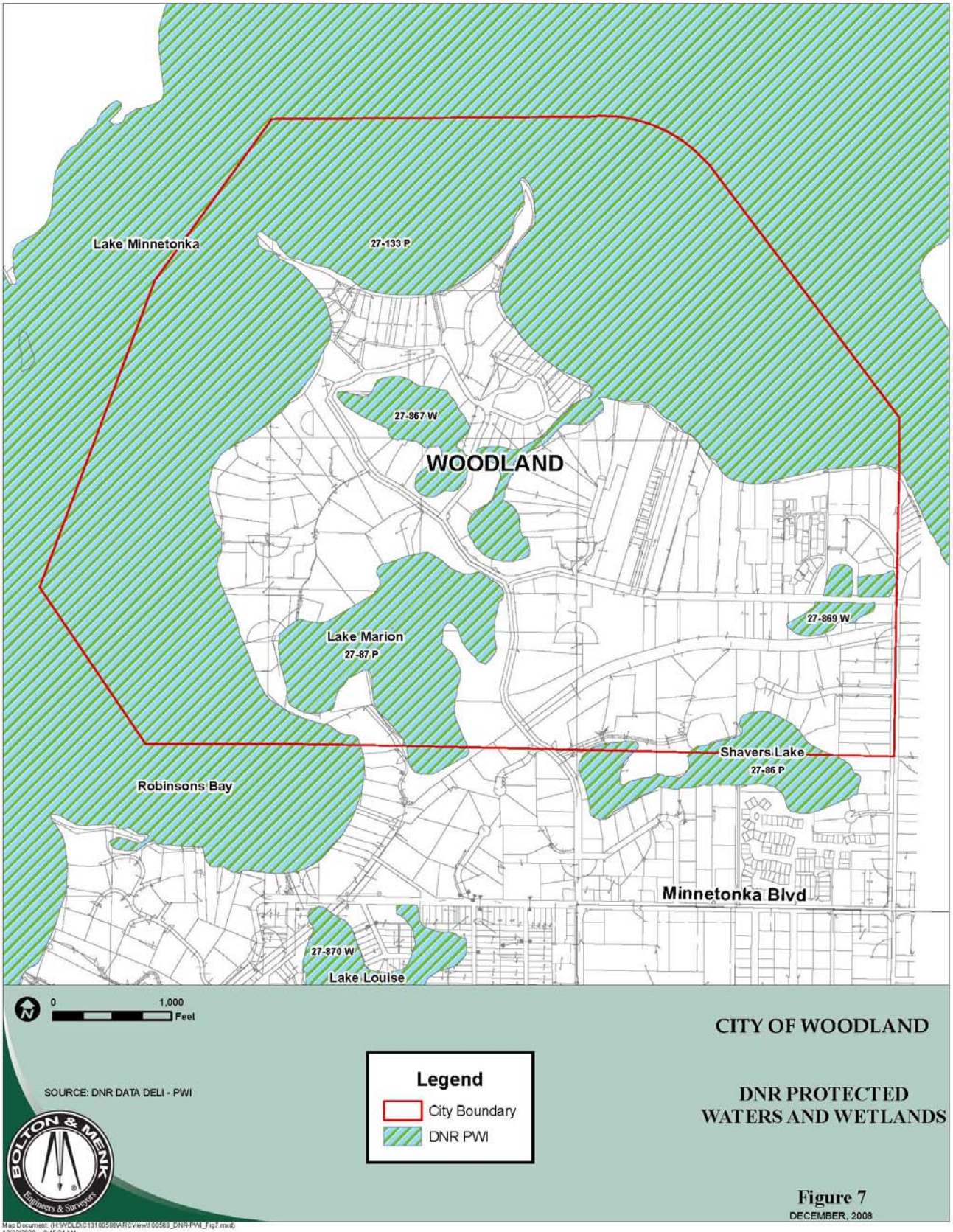
Table 4.4.1: DNR Protected Waters and Wetlands Inventory

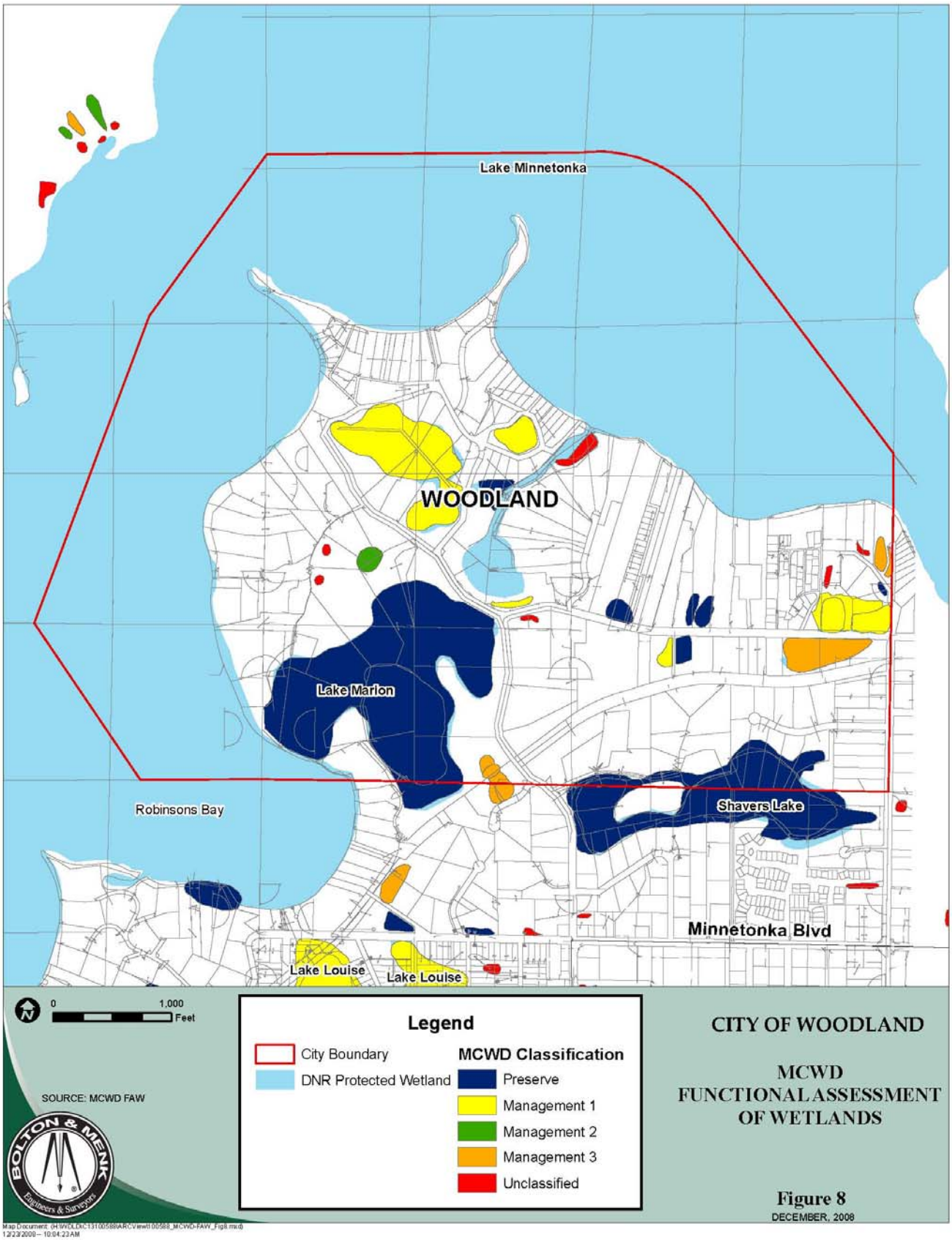
Waterbody Name	MDNR I.D.	Surface Area (acres)	Maximum Depth (ft)	DNR Management Classification
Shavers Lake	27-0086-00	13	N/A	Recreational Development
Lake Marion	27-0087-00	12	N/A	Recreational Development

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, as shown in Figure 8. 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. Specific MCWD Rules will likely be developed in coming years to protect the classifications to varying degrees; the City relies on the District for administration of its wetland Rule (Rule D), as well as the WCA requirements.

4.4.2. Flood Insurance Studies

In 2004 the Federal Emergency Management Agency (FEMA) completed a Flood Insurance Rate Map (FIRM) for the City of Woodland. 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


Lake Minnetonka
27-133 P
27-867 W
WOODLAND
Lake Marion
27-87 P
27-869 W
Shavers Lake
27-86 P
Robinsons Bay
Minnetonka Blvd
27-870 W
Lake Louise
0
1,000
Feet
CITY OF WOODLAND
SOURCE: DNR DATA DELI - PWI
Legend
City Boundary
DNR PWI
DNR PROTECTED
WATERS AND WETLANDS
BOLTON & MENK
Engineers & Surveyors
Figure 7
DECEMBER, 2008


Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
Minnetonka Blvd
Lake Louise
Lake Louise
0
1,000
Feet
SOURCE: MCWD FAW
Legend
City Boundary
DNR Protected Wetland
MCWD Classification
Preserve
Management 1
Management 2
Management 3
Unclassified
CITY OF WOODLAND
MCWD
FUNCTIONAL ASSESSMENT
OF WETLANDS
Figure 8
DECEMBER, 2008
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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. The FEMA 100-year floodplain areas are shown in Figure 9.

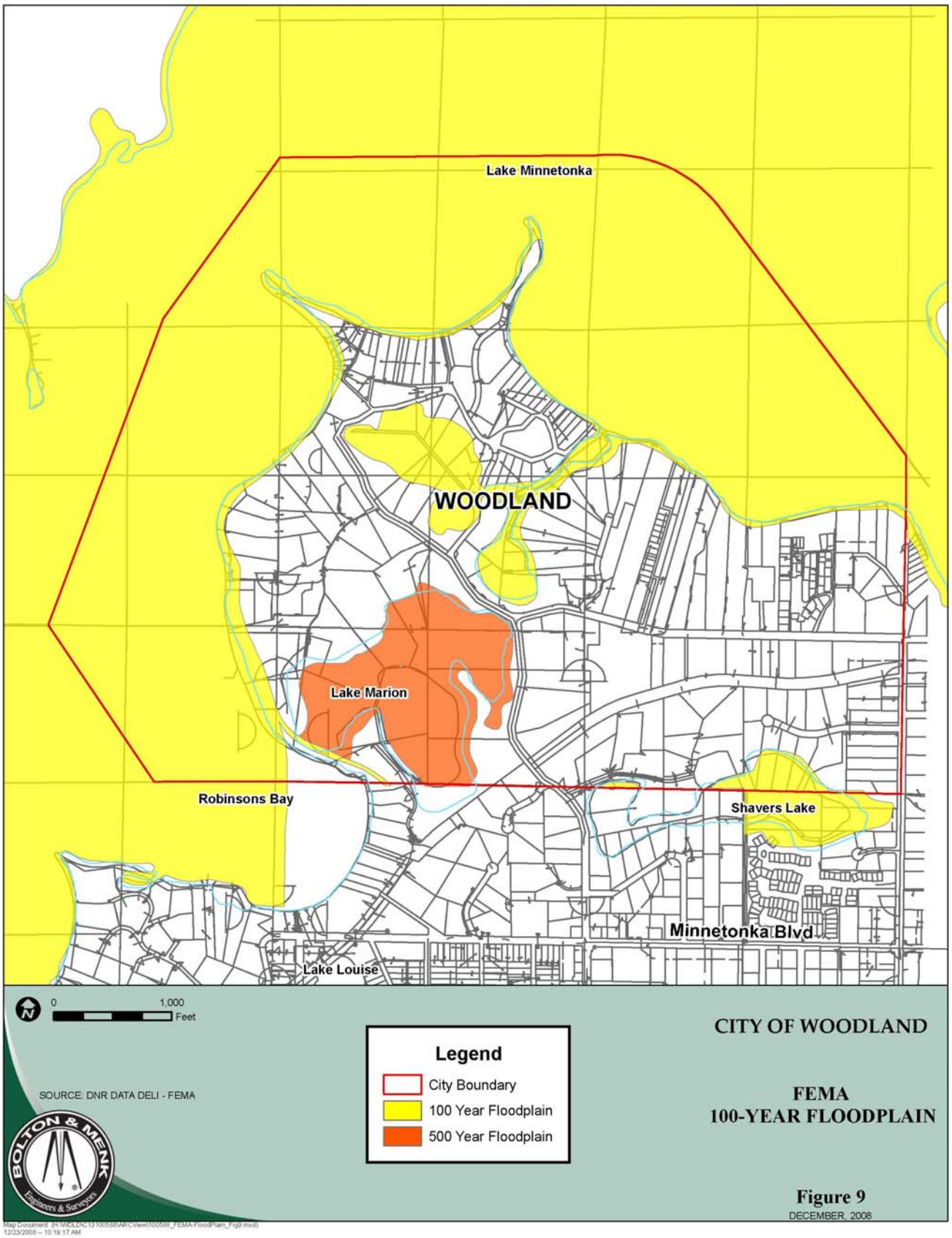
Since the FIRM modeling lacks the small-scale details that may be necessary at the local level, this SWMP modeling and the MCWD Plan HHPLS modeling provide the hydrologic/hydraulic analysis that may be appropriate for specific community planning, flooding protection and capital improvements.

4.4.3. Hydrologic/Hydraulic Analyses

The City of Woodland has no significant storm sewer and only the occasional culvert for conveyance of rainfall runoff. 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 10, with the identification numbers shown corresponding to the modeling performed, as described below. The city does not have a significant storm sewer system, with approximately two culverts within the entire city limits.

As part of the SWMP preparation, a limited hydrologic and hydraulic analysis was conducted for the subwatersheds of the city. This modeling utilized the HydroCAD modeling software, which is widely accepted in the field of water resources for hydrologic/hydraulic analysis of surface water systems to determine runoff from design events using the Soil Conservation Service (SCS) TR-20 methodology. The analysis was not conducted to simulate an actual storm event or to predict the impact from “average” storms, but instead to simulate typical design events. It provides a technical planning tool to address risk, along with a mechanism to consider various stormwater-related alternatives. Note, a model is only as good as its assumptions and the available information allow; therefore, the results are not to be used in an absolute sense or for design-level detail, but rather as a larger-scale planning tool. Basin outlets and storage volumes should be verified prior to any actual design work.

The hydrologic analysis of the City of Woodland included subwatershed delineation from USGS topography and available 2’ aerial contours (MCWD), field reconnaissance, and the development of the HydroCAD model. 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)


Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
Minnetonka Blvd
Lake Louise
0
1,000
Feet
Legend
City Boundary
100 Year Floodplain
500 Year Floodplain
SOURCE: DNR DATA DELI - FEMA
CITY OF WOODLAND
FEMA
100-YEAR FLOODPLAIN
Figure 9
DECEMBER, 2008

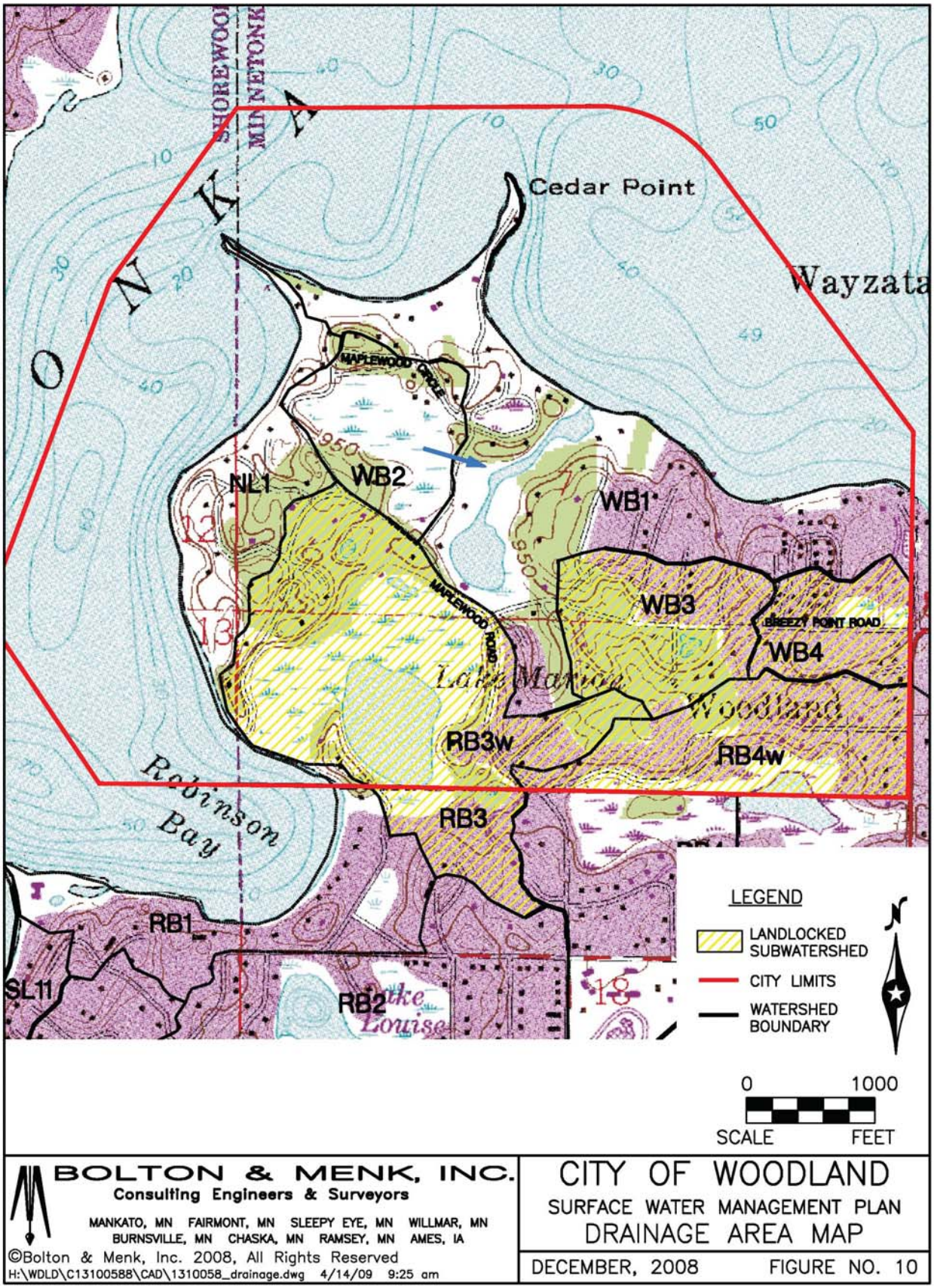

Cedar Point
Wayzata
MAPLEWOOD CIRCLE
MAPLEWOOD ROAD
BREEZY POINT ROAD
NL1
WB2
WB1
WB3
WB4
RB3w
RB4w
RB3
RB1
RB2
SL11
Lake Mary
Robinson Bay
Lake Louise
LEGEND
LANDLOCKED SUBWATERSHED
CITY LIMITS
WATERSHED BOUNDARY
0
1000
SCALE
FEET
BOLTON & MENK, INC.
Consulting Engineers & Surveyors
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN WILLMAR, MN
BURNSVILLE, MN CHASKA, MN RAMSEY, MN AMES, IA
©Bolton & Menk, Inc. 2008, All Rights Reserved
H:\WDLD\C13100588\CAD\1310058_drainage.dwg 4/14/09 9:25 am
CITY OF WOODLAND
SURFACE WATER MANAGEMENT PLAN
DRAINAGE AREA MAP
DECEMBER, 2008
FIGURE NO. 10

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

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

Some of the water bodies in the area have watersheds outside of the city limits, in which case a more comprehensive study is necessary to determine lake water levels during the design events. The Hydrologic, Hydraulic and Pollutant Loading Study (HHPLS) completed by the MCWD (2003, Revised 2008) is just such a study, the results of which can be obtained from the Watershed District.

The HHPLS predicts a 100-year HWL of 930.8 for Lake Minnetonka (100-year snowmelt event) and the MCWD currently recognizes 931.5 as the regulatory high water level. The FEMA recognizes 931.0 as the HWL and the highest level ever recorded was 930.52 in over 100 years of record keeping. Currently, the MCWD requires two feet of freeboard between any

proposed structure low opening and the accepted HWL, which yields a minimum low-opening elevation of 933.5.

As land use patterns change and development or redevelopment occurs within Woodland more detailed and site specific hydrologic/hydraulic analysis should be conducted. The Hydrologic, Hydraulic and Pollutant Loading Study (HHPLS) completed by the MCWD is a larger scale model and is available to the city for cross.

4.4.4. Flood Problem Areas & Landlocked Basins

The modeling done here (as well as the MCWD's HHPLS modeling) indicates that there are many landlocked basins within the city as indicated in Figure 10. These areas may experience inconvenience flooding during extreme events (i.e., not life-threatening) and may not be within the FEMA 100 year flood plains. Additionally, these low areas are areas of natural infiltration and therefore the City will not provide outletting of these basins below the 100-year flood elevation (outletting may be an option at or above the 100-year level, but any work of this nature would be first cleared with the District). Currently, the City pumps landlocked areas on an as-needed basis, which will continue to be the practice. Section 6 provides a listing of areas of drainage concern within the City along with potential corrective actions, most of which do not include these landlocked areas.

4.4.5. Surface Water Quality

4.4.5.1. Available Water Quality Data

There are a variety of sources for water quantity and water quality data within the City of Woodland, including the MCWD, Hennepin County, the Minnesota Pollution Control Agency and the MDNR. The most extensive source of surface water quality data has been compiled by the MCWD and HCD which have regularly collected water quality samples and monitored flows for lakes and streams in the area. Lake sampling has been completed or is underway in Lake Minnetonka and many of its bays (see Figure 11 for water quality monitoring sites) and the MCWD has also established an electronic database where extensive archived water data can be retrieved.

The MCWD has recently completed a subwatershed plan for Lake Minnetonka, which includes a large amount of surface water related information and recommendations for Lake Minnetonka. The following table (Table 4.4.5.1) contains specific baseline information collected from these plans:

Table 4.4.5.1: Base Water Quality Data*

Water Body	TP (µg/L)	Chl-a (µg/L)	Secchi (m)	TSI	HHPLS TP Goal (µg/L)
Lake Minnetonka - Wayzata Bay	17	6	3.4	45	20
Lake Minnetonka – North Lower	20	6	3.3	46	20

*Measurements from 2004


Lake Minnetonka
WOODLAND
Lake Marion
Robinsons Bay
Shavers Lake
Minnetonka Blvd
Lake Louise
Lake Louise
0
1,000
Feet
SOURCE: MCWD
Legend
City Boundary
Water Quality Monitoring Sites
CITY OF WOODLAND
MCWD
WATER QUALITY
MONITORING SITES
Figure 11
DECEMBER, 2008

Data is also available from the STORET water quality database available through the MPCA. STORET is an acronym for storage and retrieval and is the State repository of lake and stream water quality data, which is available for Lake Minnetonka.

As part of the MDNR's Fish Population Assessment and Lake Reports for city lakes, limited water quality data and physical characteristics have been obtained for Lake Minnetonka. These reports are available from the MDNR.

4.4.5.2. MCWD Phosphorous Reduction, Impaired Waters & TMDLs

The MPCA's 303(d) list of impaired waters includes multiple bays of Lake Minnetonka; however, none of the bays around Woodland are on the current list (2008). The water bodies listed will ultimately have Total Maximum Daily Loads (TMDLs) prepared and associated Waste Load Allocations (WLAs) to each LGU. Should any of the bays of Woodland be added in the future, this plan may require revisions to address eventual WLAs; revisions may be required anyway should a WLA apply to Lake Minnetonka. Regardless of the impaired status, the MCWD Plan (2007) contains phosphorus reduction requirements for LGUs within the watersheds; Woodland's requirement is described further in Section 6.1 below.

4.4.6. Shoreland and Flood Plain Ordinances

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

Table 4.4.6: MDNR Waterbody/Shoreland Classification

RECREATIONAL DEVELOPMENT LAKES
- Shavers Lake
- Lake Marion

GENERAL DEVELOPMENT LAKES
- Lake Minnetonka

NATURAL ENVIRONMENT LAKES
- 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 Food Insurance Rate Map (FIRM) developed by the Federal Emergency Management Agency (FEMA) and identifies permitted uses, standards, and evaluation criteria for

improvements proposed in floodplains. The floodplain ordinance (Ordinance Chapter 10) is contained in Appendix D.

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.

4.5.2. Groundwater Resource Data

Hennepin County prepared a draft Groundwater Plan that received State approval in 1994. The plan presents a variety of information on groundwater-related issues including an inventory of groundwater resources, potential contaminant sources, management of the resource, and local groundwater protection strategies. Many of the recommended protection strategies and actions are directed towards local levels of government (i.e., Cities and Townships). Since the plan has not been approved by the County Board, the document does not dictate actions of local governments. If approved, communities may need to implement a variety of additional actions for community compliance with the plan. In addition, this SWMP may need updating for consistency with the Groundwater Plan.

Another source of groundwater data and information is the 1989 Hennepin County Geologic Atlas prepared by the Minnesota Geologic Survey. The Atlas provides information on bedrock geology, surficial geology, depth to bedrock, bedrock topography, quaternary hydrogeology, bedrock hydrogeology, sensitivity of the Prairie du Chien-Jordan Aquifer to pollution, geology and well construction, and geologic resources. Additional description was provided previously in Section 4.2.3.

The unadopted Hennepin County Groundwater Plan and the Geologic Atlas are available for review on the internet.

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 accordance with City Ordinance and the MPCA NPDES Permit. The City relies on the Watershed to administer and enforce its Rules and the wetland requirements of the WCA. The general philosophies of the City goals and policies are as follows:

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 groundwater recharge and general runoff volume reduction;
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.

Additionally, the City's revised MS4 Storm Water Pollution Prevention Plan (SWPPP, 2008) 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. Treatment methods shall be wet detention basins meeting MPCA NPDES permit requirements for Construction Activity, or a facility providing equivalent performance standards, with preference given to alternatives with increased volume abstraction. The City will continue to review and approve construction plans for conformance with the requirements of the NPDES permit. Additionally, projects within the city are required to obtain a Minnehaha Creek Watershed District permit (when site conditions warrant) and meet all requirements of the appropriate Rules. Watershed Rules and MPCA NPDES requirements can be readily viewed on the respective websites.

3. A key requirement of the latest MCWD Watershed Plan is the reduction of phosphorus loads leaving the city land. This requirement quantifies a reduction amount for each subwatershed and allocates the appropriate amount to each LGU within the boundaries. The City shall evaluate ways to meet the MCWD-required reduction, including: requiring infiltration/filtration for development/redevelopment on properties that would not otherwise be required to do so; additional street sweeping; other retrofit LID alternatives. Additional information on the phosphorus load reduction quantification can be found in Section 6.1.

4. The City will continually evaluate opportunities to reduce the phosphorus load to the area surface waters, as required by the MCWD Plan. 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 need to address any TMDL requirements.

5. 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.

6. The City annually inspects and maintains its public stormwater management facilities to ensure their continued effectiveness. When feasible, the City will require stormwater management techniques to be obtained within outlots; however, many facilities will remain private. The City will evaluate requiring the owner of private stormwater facilities intended to meet runoff requirements to execute a maintenance agreement with the City to ensure regular inspection and maintenance occurs. This is a policy currently being evaluated by the City.

7. 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.

8. 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.

9. 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.

10. 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.

11. The City will adjust its ordinance within 180 days of Plan adoption to require that a copy of each proposed preliminary plat, and iterations thereof, will be provided to the District for informational purposes at the time it is submitted to the city.

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 the MPCA NPDES Permit.

2. The City will rely on the MCWD to administer their Rules regarding water quality and will require verification that Watershed permit requirements are being met.

3. The City will review downstream stormwater-related impacts (within the community) of development proposals and proactively address water resource-related concerns.

4. The City recognizes the potential environmental impacts associated with constructing new outlets to existing landlocked areas; therefore, the outletting of landlocked areas shall be done only as a last resort. The city has multiple landlocked areas and will address each on a case-by-case basis.

5. The design of new stormwater storage facilities and trunk lines will accommodate the 100-year storm event without causing flooding to building structures and maintaining required freeboard. Storm sewers will generally be designed to pass the10-year rainfall event under gravity flow conditions, but downstream restrictions may require a reduced-capacity design.

6. Stormwater facilities receiving discharges from adjacent communities will be designed to accommodate existing runoff rates and anticipated volumes.

7. Lowest floor elevations for new buildings shall be at or above the elevations as indicated in the City's floodplain and shoreland 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 drainageways for conveying stormwater where the drainageway 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 MPCA's 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. fThe 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 the MCWD for wetland management and conformance with the MCWD Rule D and the WCA (1991).

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 MCWD has completed its Functional Assessment of Wetlands (FAW) and subsequently created a classification system dependent upon the resulting wetland values (Figure 8). The City will be available to work with the MCWD towards developing a Wetland Management Plan and ensuring appropriate impact restrictions are placed on the various classification categories.

4. 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.

5. 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. Monitoring, Enforcement & Expertise

Inspection and monitoring of water related facilities are done in accordance with the City's regular maintenance schedule by City Staff and its consultants. Current City new construction review process includes the submittal of a preliminary design to include all required information per City of Woodland Regulations and other information as required by Staff; department/consultant review/comment provision; regular inspections (as required); on-going monitoring by Staff; submittal of an as-built survey. Enforcement is accomplished through site inspection during and after construction, with surety held as appropriate.

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
    - Residence "clustering"
    - Increased open "shared" space
    - 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 (a minimum of twice per year).

2. The City currently has no treatment systems; however, should any be constructed in the future, inspection will occur at a rate of 20% per year, with maintenance performed on an as-needed basis.

3. The City should receive annual inspection logs from the appropriate parties for all privately maintained practices for record keeping and reporting purposes (should any be constructed in the future). This will be a requirement of all future private maintenance agreements.

4. Stockpiles and materials handling areas are routinely inspected; annually at a minimum.

5. Inspection and maintenance records are kept and reported annually to the MPCA as part of the MS4 NPDES-required annual reporting process.

6. Potential improvements to housekeeping operations:

    a. Utilization of map created here (including ponds and treatment devices) for scheduling of inspection and maintenance activities.
    b. Improved efficiency (increased or decreased, as appropriate) expected for maintenance activities due to more effective tracking. Potential cost-savings from decreased inspections/maintenance as deemed appropriate.
    c. Research of street sweeper efficiency, quantified benefit and potential for improved equipment.
    d. The primary factor inhibiting any increase in municipal operations would potentially be funding. However, no deficiency in these operations is currently observed; therefore, no change or increase is warranted at this time. The City would reevaluate its stormwater utility charge should additional funding be necessary in the future.

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 in the latest MCWD plan and many of the general issues addressed here are addressed by policies set forth in Section 5 of this plan. The City does not currently have any drainage-related issues requiring construction-related improvement.

6.1. Excessive Nutrient Levels and MCWD 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.

The MCWD Lake Minnetonka Subwatershed Plan (April, 2007) has, through detailed modeling, established a required annual phosphorus load reduction for the city of 15 percent from residential land use areas. The required reduction allocation for the city of Woodland over the Plan period (2000-2019) is as follows:

Lake Minnetonka: 10 lbs/year

Corrective Action:
The City requires new and redevelopment to apply permanent stormwater treatment measures meeting the requirements of the MPCA NPDES permit and the MCWD Rule N. In order to achieve the allocated phosphorus reduction the City will likely employ a combination of a variety of techniques. These techniques may include some of the following:

- Requiring development abstraction of ½" of runoff from impervious areas
- Evaluate municipal projects for incorporation of abstraction of ½" of runoff
- Retrofit treatment devices
- Increased street sweeping frequency (may be quantified in coming years)
- Soil decompaction and/or compost amendment
- Natural area preservation
- Partnering with the MCWD for capital projects

The methods listed above vary in their ease of quantification, with new information seemingly coming out monthly regarding their effectiveness in phosphorus removal. Currently, general agreement among stormwater professionals conservatively points to an assumed removal of approximately 50% of phosphorus through bioretention (rain garden) practices treating ½" of runoff from the impervious areas. Therefore, with some assumptions of future property

redevelopment and municipal projects, we can estimate the expected city-wide phosphorus reduction (Table 6.1). For quantification purposes, an "average" annual project was used that would incorporate a phosphorus reduction measure.

Table 6.1: Proposed Phosphorus Reduction

Source	Assumed Drainage Area/Year (ac/yr)	Phosphorus Discharge/year (lb/yr)	Expected Reduction[1] (%)	Phosphorus Removed (lb/yr)	2010-2019 Timeframe (years)	Total Phosphorus Rem. (lb/yr)
Future Municipal Projects[2]	0.50	0.46	50%	0.23	10	2.30
Future Redevelopment[3]	1.50	1.73	50%	0.87	10	8.65
Total						10.95

[1] Assumes bioretention treating ½" of runoff from impervious areas, with draintile
[2] Assumes municipal projects involving drainage area of 0.50 acre/year *on average*
[3] Assumes redevelopment of 1.50 acres/year *on average*

The bioretention technique was selected for example purposes, but other methods may be employed to meet the requirements listed. The City will work to determine threshold criteria for the infiltration requirements described above, which will be developed after the revised District Rule N is released. The table included in Appendix E will be revised on an on-going basis to incorporate new developments in achieving the phosphorus reduction goal. In this way, the City will always have a current picture of where it is at relative to the reduction requirement.

Public education – see City Storm Water Pollution Prevention Plan for additional detail. The City will direct residents to information pertaining to design and potential funding (as available) for BMPs that can be incorporated at the lot-level. This information is available from the MCWD. Additionally, the City will request notification from residents when BMPs are installed so as to incorporate these instances into the summary table shown in Appendix E.

The City will modify its Ordinance language to adhere to new permit and rule requirements as necessary.

Timeframe
2009-2010: Incorporate into ordinance in 2010
Ongoing: Site plan review for permit compliance.
Ongoing: Evaluation of retrofit treatment opportunities to decrease P load

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 the MPCA's NPDES permit, through the review and inspection process currently in place.

Timeframe:
Ongoing: Plan review and construction site inspection.
2009-2010: Ordinance revisions.

6.3. Increase in 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 the MPCA NPDES permit and the MCWD Rule N.

The city is fully developed and does not expect to see much development or redevelopment.

Timeframe:
Ongoing: site plan review for permit compliance.

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
Maintain and follow the City MS4 Storm Water Pollution Prevention Plan (SWPPP)	HIGH
Comprehensive focus on meeting MCWD required phosphorus load reduction goal	HIGH
Continued promotion of LID techniques, infiltration and general runoff volume reduction as recommended in the MCWD Plan	HIGH
Expand public education program to make wider use of City website	MED
Develop a credit system to promote natural area avoidance and LID development techniques	LOW
Address Total Maximum Daily Load waste load allocations as they are developed (future)	LOW
Construction site erosion and sediment control ordinance revisions	LOW

7.2. Funding Sources

The City currently does not have a stormwater utility fee. The City will evaluate its current funding situation relative to the need addressed in this Plan and the SWPPP. A stormwater utility fee is a common funding source established by a community to pay for stormwater-related improvements and maintenance; however, a designated utility fee is not always necessary. The City of Woodland will incorporate any new funding needs into its existing fee base, adjusting as needed to acquire the necessary funds. The costs associated with the potential improvements mentioned in Secion 6.1 could vary significantly, but have been currently estimated at approximately $4,240/yr for the

Municipal project storm water treatment improvements. The estimated costs associated with other regulatory controls have not been broken out as they are covered within the general budget and are performed on an as-needed basis.

Two other revenue sources available to the City are the establishment of a watershed management tax district under Minnesota Statute 103B.245 and a stormwater area charge. Another possible funding source for addressing stormwater related issues, especially water quality, is the ad valorem taxing authority of the MCWD. Projects that have watershed district-wide benefits may be placed on the MCWD's capital improvements program and implemented in accordance with the watershed's schedule and funding priorities. The City will need to review each of these potential funding sources and determine the most appropriate and acceptable course of action for each program or project. The impacts of the funding sources on the City's CIP, as well as the households within the city, are currently unknown as they would depend on project specifics unidentified at this time.

Additionally, the City may be able to acquire funds from the Clean Water Legacy Amendment passed in November, 2008, which will provide dedicated funding for cleaning up and protecting water resources. The allocation of these funds and the administrating agency is still being determined, but the funds will begin to be available for fiscal year 2010.

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; however, the general future municipal projects described in Table 6.1 have been approximated to yield an average annual cost as listed in Table 7.3 (it should be noted that these costs could vary significantly dependent upon actual site conditions).

Table 7.3: Capital Improvement Program

I.D.	Project Description	Estimated Cost	Approximate Timeframe	Potential Funding Source
NA	Future Municipal Projects	$4,240/yr	Annual (average)	General Budget

The projects listed above should not require increased monetary expenditures from homeowners above the typically expected amounts, but this amount may be considered in the annual assessment of the city's taxing. The additional project costs associated with the treatment would be paid for through the general budget and grants or partnerships that become available.

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 due in 2008.

8.2. City Amendments

This SWMP has been prepared to extend through the year 2018. If the City proposes changes to this SWMP before year 2018, 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 reviewal 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 highwater 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. Outside Impact Amendments

In addition to the periodic piecemeal revisions above, this plan will be completely revised within two years of the adoption of a revised MCWD Water Resources Management Plan. The plan will also require revisions per future Comprehensive Plan updates

APPENDIX A

Precipitation Data

NORMALS, MEANS, AND EXTREMES

MINNEAPOLIS, MN (MSP)

LATITUDE: 44° 52′ 59″ N LONGITUDE: 93° 13′ 44″ W ELEVATION (FT): GRND: 871 BARO: 874 TIME ZONE: CENTRAL (UTC + 6) WBAN: 14922

	ELEMENT	POR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
TEMPERATURE °F	NORMAL DAILY MAXIMUM	30	21.9	28.4	40.6	57.0	70.1	79.0	83.3	80.4	71.1	58.4	40.1	26.4	54.7
	MEAN DAILY MAXIMUM	61	21.7	27.5	39.0	56.3	68.8	78.5	83.4	80.8	71.2	59.3	40.8	26.8	54.5
	HIGHEST DAILY MAXIMUM	67	58	61	83	95	96	102	105	102	98	90	77	68	105
	YEAR OF OCCURRENCE		1944	2000	1986	1980	1978	1985	1988	1947	1976	1997	1999	1998	JUL 1988
	MEAN OF EXTREME MAXS.	61	41.0	45.5	62.0	79.3	87.5	93.3	94.9	93.5	88.9	80.2	61.6	46.0	72.8
	NORMAL DAILY MINIMUM	30	4.3	11.8	23.5	36.2	48.5	57.8	63.0	60.8	50.8	38.9	24.8	10.9	35.9
	MEAN DAILY MINIMUM	61	4.4	10.1	22.1	36.1	47.9	57.9	63.1	60.8	50.8	39.6	25.2	11.6	35.8
	LOWEST DAILY MINIMUM	67	-34	-32	-32	2	18	34	43	39	26	13	-17	-29	-34
	YEAR OF OCCURRENCE		1970	1996	1962	1962	1967	1945	1972	1967	1974	1997	1964	1983	JAN 1970
	MEAN OF EXTREME MINS.	61	-19.1	-12.8	-.1	20.7	32.7	43.8	51.7	48.9	35.1	24.9	5.6	-11.2	18.4
	NORMAL DRY BULB	30	13.1	20.1	32.1	46.6	59.3	68.4	73.2	70.6	61.0	48.7	32.5	18.7	45.4
	MEAN DRY BULB	61	13.0	18.8	30.6	46.2	58.2	68.2	73.3	70.9	61.0	49.5	33.0	19.3	45.2
	MEAN WET BULB	21	14.6	19.5	28.9	40.8	51.7	61.5	65.7	64.0	55.8	43.7	29.8	19.0	41.2
	MEAN DEW POINT	21	9.2	14.0	22.0	31.7	44.3	55.7	61.0	59.7	51.0	37.4	24.4	14.2	35.4
	NORMAL NO. DAYS WITH:														
	MAXIMUM ≥ 90°	30	0.0	0.0	0.0	0.1	0.7	2.7	5.6	3.0	0.9	*	0.0	0.0	13.0
	MAXIMUM ≤ 32°	30	23.6	16.7	7.1	0.4	0.0	0.0	0.0	0.0	0.0	0.1	8.0	20.4	76.3
	MINIMUM ≤ 32°	30	30.8	26.8	24.1	10.1	0.7	0.0	0.0	0.0	0.5	7.3	23.7	30.2	154.2
	MINIMUM ≤ 0°	30	12.9	6.9	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	7.5	29.9
H/C	NORMAL HEATING DEG. DAYS	30	1616	1273	1034	560	222	44	7	20	178	516	978	1428	7876
	NORMAL COOLING DEG. DAYS	30	0	0	0	4	41	146	259	190	56	3	0	0	699
RH	NORMAL (PERCENT)	30	71	71	67	59	60	64	66	69	70	67	72	74	68
	HOUR 00 LST	30	74	75	72	65	66	72	75	78	77	73	76	77	73
	HOUR 06 LST	30	75	77	77	74	75	78	81	84	84	80	80	79	79
	HOUR 12 LST	30	68	65	60	50	50	54	55	58	58	58	66	70	59
	HOUR 18 LST	30	69	67	60	48	48	52	54	58	60	59	68	72	60
S	PERCENT POSSIBLE SUNSHINE	58	53	59	57	58	61	66	72	69	62	55	39	42	58
W/O	MEAN NO. DAYS WITH:														
	HEAVY FOG(VISBY≤1/4 MI)	67	1.2	1.4	1.3	0.5	0.5	0.5	0.3	0.6	0.8	0.9	1.1	1.3	10.4
	THUNDERSTORMS	67	0.0	0.2	1.0	2.6	5.2	7.8	7.6	6.4	4.3	1.8	0.6	0.1	37.6
CLOUDINESS	MEAN:														
	SUNRISE-SUNSET (OKTAS)	58	5.1	5.0	5.4	5.3	5.1	4.9	4.2	4.2	4.4	4.6	5.7	5.5	5.0
	MIDNIGHT-MIDNIGHT (OKTAS)	32	4.9	4.8	5.1	5.0	4.8	4.5	4.0	4.0	4.2	4.6	5.3	5.2	4.7
	MEAN NO. DAYS WITH:														
	CLEAR	58	8.3	7.7	7.1	6.9	7.0	7.2	9.8	10.0	9.8	9.8	5.5	6.4	95.5
	PARTLY CLOUDY	58	7.3	6.9	7.4	7.7	9.1	10.4	11.8	11.2	8.5	7.5	6.4	6.4	100.6
	CLOUDY	58	15.4	13.7	16.5	15.3	14.8	12.4	9.5	9.8	11.8	13.7	18.1	18.2	169.2
PR	MEAN STATION PRESSURE(IN)	32	29.17	29.18	29.10	29.06	29.04	29.03	29.08	29.11	29.12	29.12	29.11	29.17	29.11
	MEAN SEA-LEVEL PRES. (IN)	21	30.12	30.12	30.05	29.96	29.93	29.92	29.96	30.00	30.01	30.02	30.05	30.10	30.02
WINDS	MEAN SPEED (MPH)	56	10.5	10.3	11.3	12.3	11.3	10.4	9.5	9.3	10.0	10.6	10.9	10.2	10.6
	PREVAIL.DIR(TENS OF DEGS)	37	31	31	31	36	14	14	15	14	18	31	31	31	31
	MAXIMUM 2-MINUTE:														
	SPEED (MPH)	9	35	37	37	45	49	48	40	35	39	38	39	39	49
	DIR. (TENS OF DEGS)		29	31	29	28	22	33	22	26	23	31	28	31	22
	YEAR OF OCCURRENCE		2004	2002	2004	2000	1998	1998	1999	2000	2004	2001	2005	2004	MAY 1998
	MAXIMUM 5-SECOND:														
	SPEED (MPH)	9	47	47	49	59	64	60	52	46	48	47	49	52	64
	DIR. (TENS OF DEGS)		32	33	32	28	26	29	21	26	23	29	28	31	26
	YEAR OF OCCURRENCE		2004	2002	2000	2000	1998	2005	1999	2000	2004	2001	2005	2004	MAY 1998
PRECIPITATION	NORMAL (IN)	30	1.04	0.79	1.86	2.31	3.24	4.34	4.04	4.05	2.69	2.11	1.94	1.00	29.41
	MAXIMUM MONTHLY (IN)	67	3.63	2.14	4.75	7.00	8.03	9.82	17.90	9.31	7.53	5.68	5.29	4.27	17.90
	YEAR OF OCCURRENCE		1967	1981	1965	2001	1962	1990	1987	1977	1942	1971	1991	1982	JUL 1987
	MINIMUM MONTHLY (IN)	67	0.10	0.06	0.32	0.16	0.61	0.22	0.58	0.43	0.41	0.01	0.02	T	T
	YEAR OF OCCURRENCE		1990	1964	1994	1987	1967	1988	1975	1946	1940	1952	1939	1943	DEC 1943
	MAXIMUM IN 24 HOURS (IN)	67	1.21	1.10	1.66	2.23	3.03	3.28	10.00	7.36	3.55	4.83	2.91	2.47	10.00
	YEAR OF OCCURRENCE		1967	1966	1965	1975	1965	2003	1987	1977	1942	2005	1940	1982	JUL 1987
	NORMAL NO. DAYS WITH:														
	PRECIPITATION ≥ 0.01	30	9.9	7.5	10.2	11.3	10.9	11.1	10.4	10.4	9.8	8.4	9.1	9.7	118.7
	PRECIPITATION ≥ 1.00	30	*	*	0.1	0.3	0.5	1.2	1.0	1.0	0.6	0.4	0.3	0.1	5.5
SNOWFALL	NORMAL (IN)	30	13.5	8.2	10.4	3.1	0.1	0.0	0.0	0.0	0.*	0.6	10.0	10.0	55.9
	MAXIMUM MONTHLY (IN)	62	46.4	26.5	40.0	21.8	3.0	T	T	T	1.7	8.2	46.9	33.2	46.9
	YEAR OF OCCURRENCE		1982	1962	1951	1983	1946	1995	1994	1992	1942	1991	1991	1969	NOV 1991
	MAXIMUM IN 24 HOURS (IN)	62	18.5	9.3	14.7	13.6	3.0	T	T	T	1.7	8.2	21.0	16.5	21.0
	YEAR OF OCCURRENCE		1982	1939	1985	1983	1946	1995	1994	1992	1942	1991	1991	1982	NOV 1991
	MAXIMUM SNOW DEPTH (IN)	55	38	30	27	10	2	0	0	0	0	1	23	21	38
	YEAR OF OCCURRENCE		1982	1967	1965	1985	1984					1969	1991	1991	JAN 1982
	NORMAL NO. DAYS WITH:														
	SNOWFALL ≥ 1.0	30	4.1	3.0	3.1	0.9	0.0	0.0	0.0	0.0	0.0	0.1	2.8	2.9	16.9

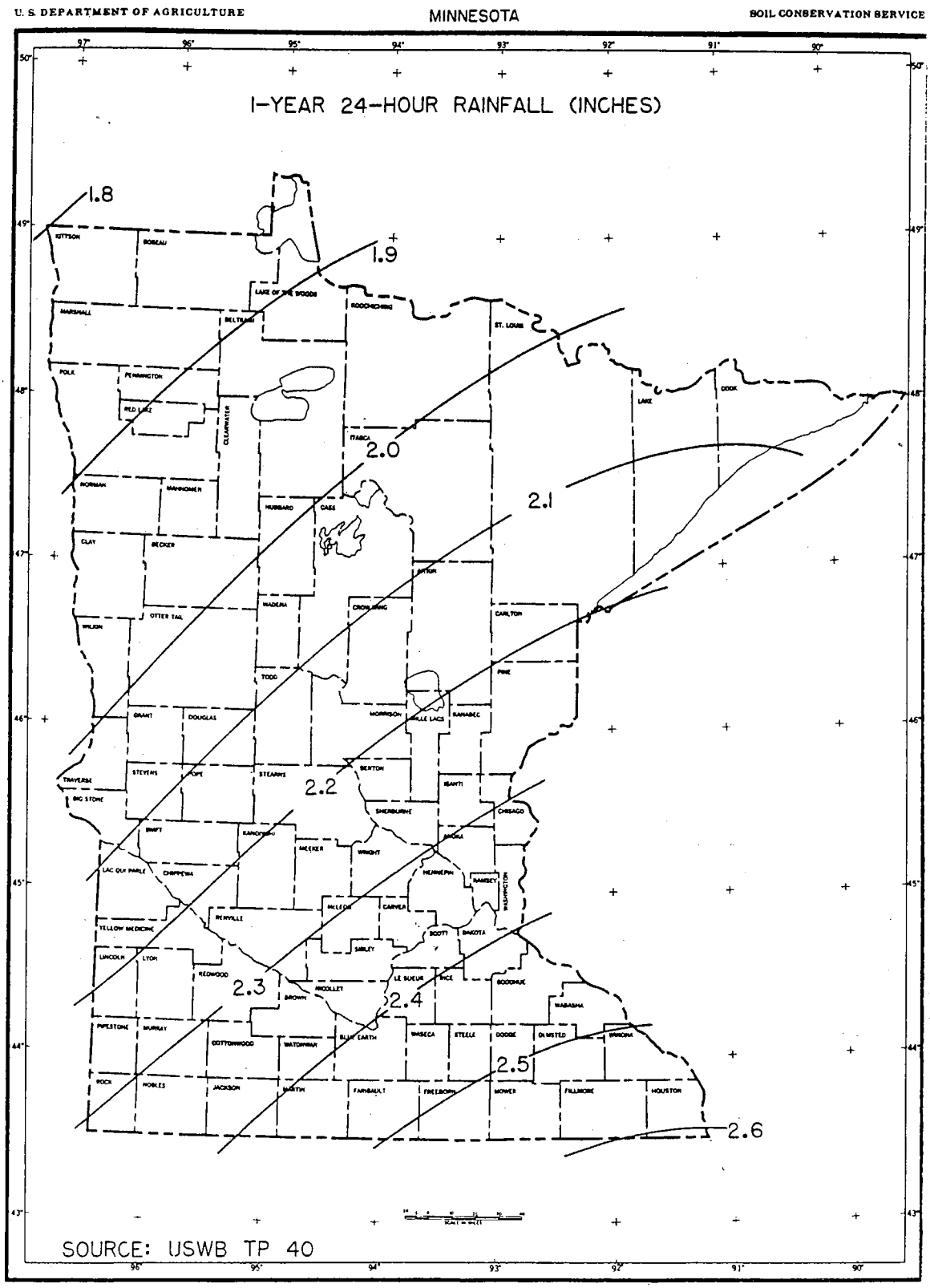


Figure 7.1-7: 1-year, 24-hour rainfall

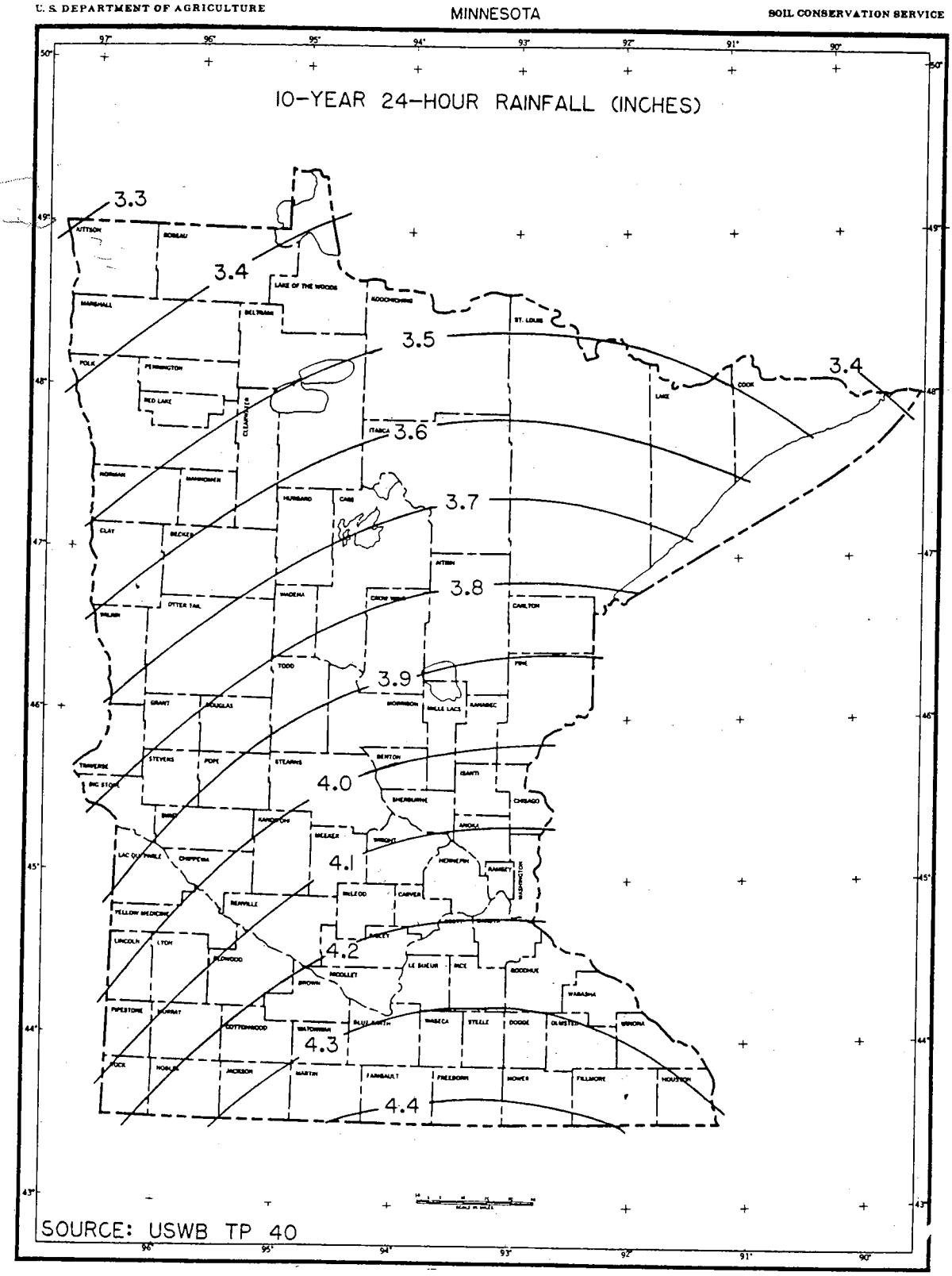


Figure 7-1-10: 10-year, 24-hour rainfall

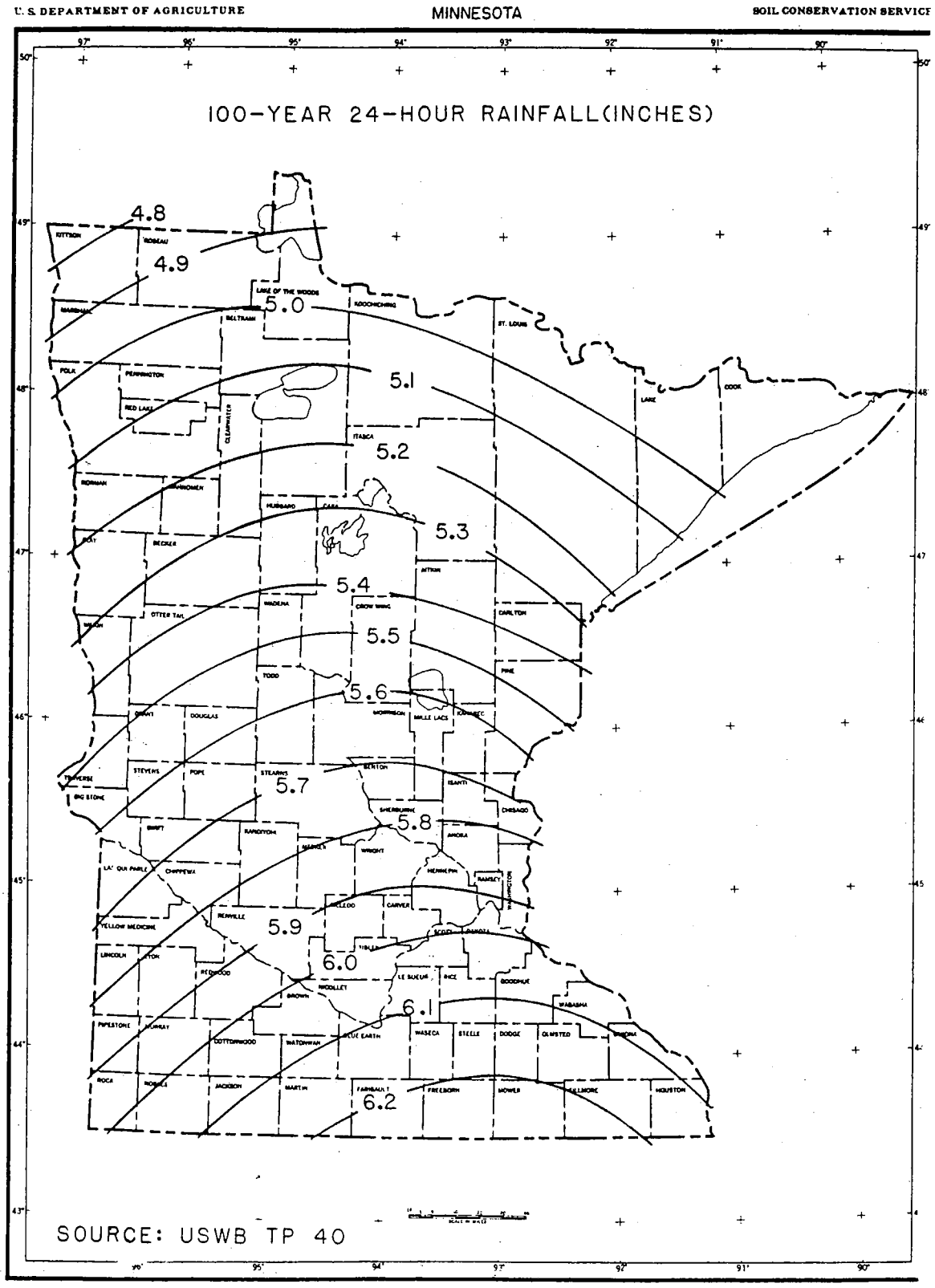
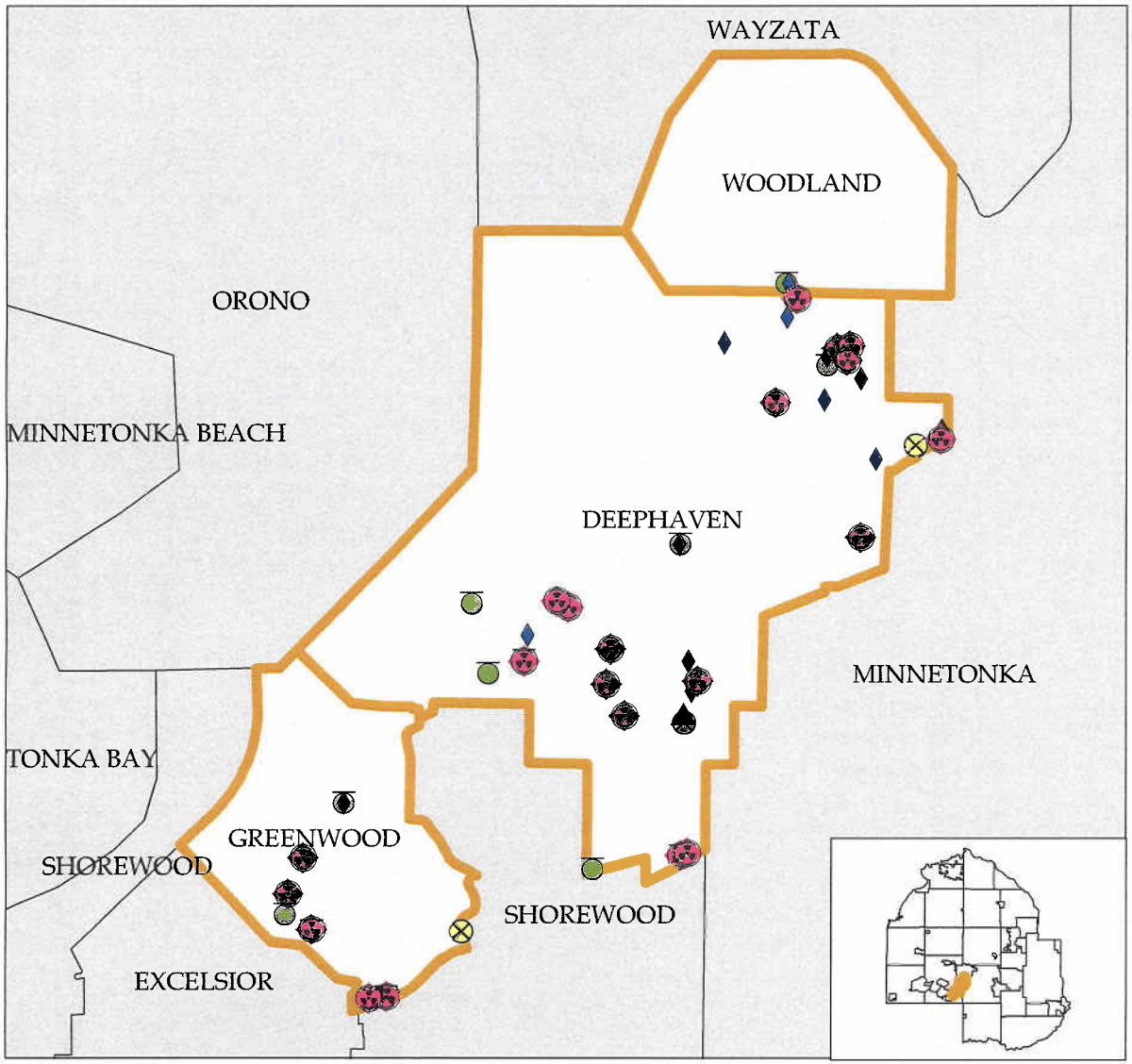


Figure 7.1-13: 100-year, 24-hour rainfall

APPENDIX B

Pollutant Sources

Pollution Sources in the Cities of Greenwood, Deephaven, and Woodland



Legend

- Hazardous Waste Generators
- Tank Facilities
- Superfund Sites
- LUSTs
- Dump Sites
- Unpermitted Dumps
- Voluntary Investigation and Cleanup Sites

N
W E
S

Hennepin

0 0.5 1 2 Miles

Tank Facilities

PID	Site Name	Address	City	Zip
1811722210006	William Dolan Residence	3100 Maplewood Rd	Woodland	55391

APPENDIX C

Zoning Ordinance

CHAPTER 9. ZONING

900.01 Purpose, Scope and Interpretation.

Subd.1. Purpose. This Chapter is adopted to protect the public health, safety, order, quality of life, environment, convenience, prosperity, and general welfare. It is intended to provide for a permanently wholesome community environment, adequate municipal services and safe streets, and to preserve and enhance the quality of the City's lakes, wetlands and shorelands. All property within the incorporated territory of the City of Woodland has been determined to be residential in character. Consequently, this Chapter is intended to preserve and protect the residential character of the City, preserve property values within the City, and promote the health, safety, and public welfare.

Subd. 2. Scope. The use of all land and every building and the erection of any structural alteration of any building or portion of a building in the City shall be in conformity with the provisions of this Chapter 9. Any structure or use lawfully existing on September 10, 2001 but not in conformity with this Chapter 9 as amended may be continued subject to the provisions of Section 900.05.

Subd. 3. Interpretation. The provisions of this Chapter shall be interpreted as the minimum requirements for the promotion of the public health, safety, morals, convenience and general welfare, and also shall be interpreted as provided in Section 105.12. Where the provisions of this Chapter impose greater restrictions than those of any statute, other City Ordinance or regulation, this Chapter shall apply. Where the provisions of any statute, other City Ordinance or regulation impose greater restrictions than this Chapter, the more restrictive provisions shall apply.

900.02 Definitions. For the purposes of this Chapter, the terms set forth in this Section have the meanings given them in this Section.

Subd. 1. Bluff means a topographic feature such as a hill, cliff, or embankment having the following characteristics (an area with an average slope of less than 18 percent over a distance of 50 feet or more, measured on the ground, shall not be considered part of the bluff):

(a) Part or all of the feature is located within 1000 feet of any lake;

(b) The slope rises at least 25 feet above the ordinary high water level of the lake;

(c) The grade of the slope from the toe of the bluff to a point 25 feet or more above the ordinary high water level averages 30 percent or greater; and

(d) The slope drains toward the lake.

Subd. 2. Bluff impact zone means a bluff and land located within 20 feet from the top of a bluff.

Subd. 3. Boat house means a structure designed and used solely for the storage of boats or boating equipment.

Subd. 4. Building means a structure designed, built or occupied as a shelter or roofed enclosure for persons, animals or property. The term includes tents, trailers, and other roofed structures on wheels or other supports. The term "roof" includes an awning or other similar covering, whether or not permanent in nature.

Subd. 5. Building, Accessory means a subordinate building, the use of which is incidental to that of the main building located on the same lot.

Subd. 6. Building, Main means a building in which the principal use of the lot is conducted.

Subd. 7. Building Line means a line parallel to a lot line or the ordinary high water level at the required setback beyond which a structure may not extend.

Subd. 8. Building Site or Building Lot - See "Lot".

Subd. 9. Commissioner means the commissioner of the Minnesota Department of Natural Resources.

Subd. 10. Deck means a horizontal, unenclosed platform with or without attached railings, seats, trellises, or other features, attached or functionally related to a principal use or site and at any point extending more than 3 feet above ground.

Subd. 11. Dwelling means a building having running water and cooking and toilet facilities and customarily occupied by only one family.

Subd. 12. Dump (or Junk Yard) means an area used for the outdoor storage, keeping or abandonment of junk or discarded materials, including rubbish, trash, cans, bottles, garbage, vehicles, machinery or mechanical parts.

Subd. 13. Essential Services means gas, electrical, steam, or water transmission or distribution systems and structures, or collection, communication, supply or disposal systems and structures, reasonably necessary to provide adequate service by a public utility, governmental entity or commission, or required to protect the public health, safety or general welfare. The term includes towers, poles, wires, mains, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, and accessories but does not include buildings, microwave radio relay structures, or satellite dishes.

Subd. 14. Family means one person or two or more persons each related to the others by blood, marriage, adoption, or foster care, or a group of not more than three persons not so related occupying a residence, maintaining a common household and using common cooking and kitchen facilities.

Subd. 15. Finished Grade means the elevation of grade at the base of an existing structure or the existing grade of a vacant lot. Regulation of finished grade shall be as follows:

a) Finished grade of construction shall not increase more than one foot above the grade of an existing structure for structures to be removed or expanded or more than one foot on any portion of the lot which does not currently have a structure on it unless a Special Use Permit is granted by the City in accordance with Section 900.15 of this code.

b) Finished grade of construction on a vacant parcel shall not increase more than one foot of the existing elevations on the property unless a Special Use Permit is granted by the City in accordance with Section 900.15 of this code.

Subd. 16. Guesthouse means a structure used as a dwelling for non-paying guests or persons employed on the premises.

Subd. 17. Hardship has the meaning given that term in Minnesota Statutes, Chapter 462.

Subd. 18. Height of Building means the vertical distance between the highest adjoining ground level at the building or 10 feet above the lowest ground level, whichever is lower, and the highest point of any roof.

Subd. 19. Home Occupation means a use carried on for gain or as a hobby by an occupant of a dwelling entirely within a dwelling or within an accessory building, which use is incidental to the residential use and does not change the residential character of the property.

Subd. 20. Home Professional Office means an office or studio of a physician, attorney, clergyman, architect, artist, engineer or similar professional person, located in the professional's dwelling.

Subd. 21. Impervious Surface means a surface which will not permit the passage of rainwater through it, including such surfaces as roofs, awnings, concrete or bituminous driveways, walkways, tennis courts, swimming pools and patios and plastic landscaping sheets or barriers. In determining the impervious surface area of a house or other structure, the entire area of the roof will be considered impervious surface, together with any additional impervious surface areas. For purposes of this Code, slatted decking will be deemed to be 90% impervious.

Subd. 22. Intensive Vegetation Clearing means the complete removal of trees or shrubs in a contiguous patch, strip, row or block.

Subd. 23. Lake means any one of the following public waters located in whole or in part in the City, which are given the following classifications by the Minnesota Department of Natural Resources:

		P.W.I.D.#	Ord. High Water Level
Lake Minnetonka	General Development	27-133	929.4 ft. above sea level
Lake Marion	Recreational Development	27-87	930.9 ft. above sea level
Shavers Lake	Recreational Development	27-86	930.4 ft. above sea level

Subd. 24. Lot means a contiguous parcel of land, which may consist of unplatted land and/or one or more platted parcels.

Subd. 25. Lot Line, Front means the lot line adjacent to an existing or proposed street. In the case of a corner lot, the front lot line means the lot line adjacent to the street which the main building faces.

Subd. 26. Lot Width means the shortest distance between lot lines measured at the midpoint of the building line.

Subd. 27. Non-conforming Use means a structure or use that does not conform to the requirements of this Code at the time of adoption of the Code or at the time of an amendment of the Code which causes the structure or use not to conform.

Subd. 28. On-Site Sewage Treatment System has the meaning assigned that term in Section 705.02 of this Code.

Subd. 29. Ordinary High Water Level, used to define the boundary of public waters and wetlands, means an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial.

Subd. 30. Public Waters means any waters defined in Minnesota Statutes § 103G.005, The designation of waters herein as "public waters" does not (1) grant the public additional or greater right of access to the waters, (2) diminish the right of ownership or usage of the beds underlying the designated public waters, or (3) affect state or local law forbidding trespass on private lands.

Subd. 31. Setback means the minimum horizontal distance between a structure, on-site sewage treatment system or other facility and an ordinary high water level, on-site sewage treatment system, top of a bluff, road, highway, property line or other facility.

Subd. 32. Shore Impact Zone means land located between the ordinary high water level of a public water and a line parallel to it at a setback of 50 percent of the structure setback.

Subd. 33. Significant Historic Site means any archaeological site, standing structure, or other property that meets the criteria for eligibility to the National Register of Historic Places or is listed in the State Register of Historic sites, or is determined to be an unplatted cemetery that falls under the provisions of Minnesota Statutes, § 307.08. A historic site meets these criteria if it is presently listed on either register or if it is determined to meet the qualifications for listing after review by the Minnesota state archaeologist or the director of the Minnesota Historical Society. All unplatted cemeteries are automatically considered to be significant historic sites.

Subd. 34. Steep Slope means lands, exclusive of bluffs, having average slopes exceeding 12 percent over distances of 50 feet or more, measured on the ground, or lands that are otherwise poorly suited for development without appropriate design and construction techniques because of slope steepness and soil characteristics.

Subd. 35. Street means a public roadway which affords the principal means of access to abutting property.

Subd. 36. Structure means anything constructed or erected on or under the ground or attached to something having location on or under the ground. The term "structure" includes, but is not limited to, buildings, air conditioning units, compressors, cooling structures, condensers, generators, pumps, motors, swimming pools, spas, hot tubs, pump houses, antennas, satellite dishes, and similar fixtures and equipment.

Subd. 37. Structural Alteration means any change in or addition to the supporting members of a structure, including the enlargement or extension of outside building dimensions or building height or depth, and including conversion of a dwelling used for summer living only to a dwelling intended for use during all seasons.

Subd. 38. Toe of the Bluff means the point on a bluff where there is, as visually observed, a clearly identifiable break in the slope, from gentler to steeper slope above. If no break in the slope is apparent, the toe of the bluff shall be determined to be the lower end of a 50-foot segment, measured on the ground, with an average slope exceeding 18 percent.

Subd. 39. Top of the Bluff means the point on a bluff where there is, as visually observed, a clearly identifiable break in the slope, from steeper to gentler slope above. If no break in the slope is apparent, the top of the bluff shall be determined to be the upper end of a 50-foot segment, measured on the ground, with an average slope exceeding 18 percent.

Subd. 40. Tree means a woody, perennial plant usually with one stem or trunk and with many branches which has a diameter greater than six inches when measured at a point four feet above the ground.

Subd. 41. Use means the purpose for which land or a building or structure is or is to be used, occupied or maintained.

Subd. 42. Use, Accessory means a subordinate use on the same lot with the principal use and incidental and accessory to the principal use.

Subd. 43. Variance has the meaning assigned that term in Minnesota Statutes, Chapter 462.

Subd. 44. Wetland means the areas crosshatched on the Wetland Maps dated March, 1988 on file with the City Clerk, and made a part of this Code by reference.

Subd. 45. Yard means the open space between a lot line and a structure on the lot.

Subd. 46. Yard, Front means a yard extending across the full width of a lot having a depth equal to the shortest distance between the front lot line and the nearest portion of a structure.

Subd. 47. Yard, Rear means the yard extending across the full width of a lot and having a depth equal to the shortest distance between the rear lot line and any portion of a structure. If the rear lot line is less than 10 feet in length, or if the lot forms a point at the rear, the rear lot line shall be a line 10 feet in length within the lot, parallel to, and at the maximum distance from, the front lot line.

Subd. 48. Yard, Side means a yard between the side lot line and a structure extending from the front yard to the rear yard and having a width equal to the shortest distance between the side lot line and any portion of the structure..

900.03 Residential Districts Established.

(a) The entire incorporated territory of the City of Woodland is designated as a residential district.

(b) The land in the City platted as the "Methodist Lakeside Assembly Grounds", according to the plat on file in the office of the Hennepin County Recorder, is designated as a separate residential district referred to in this Code as the "Assembly Grounds".

900.04 Uses in the Residential Districts.

Subd. 1. Structures. No structure may be erected, constructed, reconstructed, altered, enlarged, moved or used within the City except as permitted by this Chapter, and only after issuance of all necessary permits.

Subd. 2. Uses Permitted. The following uses are permitted within the City:

(a) One-family dwellings.

(b) Accessory buildings, structures, uses and equipment necessary or incidental to a one-family dwelling, including public and private ways and easements, essential

services, guesthouses complying with Section 900.12, Subd. 3, garages for use of the persons residing on the premises, pump houses, swimming pools, spas, hot tubs, recreational sports courts, and other structures for yard, garden and private recreational purposes or ornamentation subject to the following:

(1) An accessory use may not be dangerous, obnoxious or offensive to persons residing in the vicinity, or impair the use, enjoyment or value of any property.

(2) No accessory building may be rented or leased for any purpose.

(3) No accessory building or structure may be constructed on a lot prior to construction of the main building on the lot.

(4) An accessory building shall be considered an integral part of the principal building if it is connected to the principal building by a covered passageway.

(5) No accessory buildings shall be erected or located within any required setback or utility easement. All minimum setback requirements from lot lines (minimum yards) shall be the same for accessory structures as they are for principal buildings. All accessory structures shall be located on that side of the principal building opposite the front lot line, except that in the case of a lakeshore lot, all accessory structures (except gazebos, hot tubs, pool houses, pump houses, spas and pools) shall be located on that side of the principal building opposite the lakeshore.

(6) Accessory building height shall not exceed 14 feet as measured from the lowest point of grade surrounding the structure to the peak.

(7) Accessory buildings shall occupy no more than 25 percent of the area of the yard in which they are located.

(8) No building permit shall be issued for the construction of more than one detached garage and one detached storage building for each single family dwelling. No lot shall have more than three accessory buildings.

(9) No accessory structure or combination of accessory structures shall exceed the lesser of 1,000 square feet of gross floor area, 1,000 square feet of footprint area or 30% of the area of the footprint of the principal structure on the lot.

(10) No accessory building shall be located closer than 12 feet from the principal structure.

(11) Air conditioning units, compressors, cooling structures, condensers, generators, pumps, motors, pump houses, swimming pools, spas, hot tubs,

and other items which generate noise, may be located only in the rear yard or front yard, or in a side yard abutting a street, and in all cases the equipment must be fully screened from view.

(12) Any accessory building, structure, use or equipment lawfully existing on September 10, 2001 may continue as a legally existing non-conforming use subject to the provisions of Section 900.05.

(13) The same or similar quality exterior material shall be used for an accessory building and the principal building. All accessory buildings shall also be compatible with the principal building on the lot. "Compatible" means that the exterior appearance of the accessory building, including roof pitch and style, is not materially different from the principal building from an aesthetic and architectural standpoint, so as to cause:

a. A difference to a degree sufficient to cause incongruity.

b. A depreciation of neighborhood values or adjacent property values.

c. A nuisance, such as an unsightly building exterior.

(14) All buildings having exterior trash receptacles shall provide an enclosed area in conformance with the following:

a. Exterior wall treatment shall be similar to and/or complement the principal building.

b. The enclosed trash receptacle areas shall be located in the rear or side yard.

c. The trash enclosure must be in an accessible location for pick up hauling vehicles.

d. The trash receptacles must be fully screened from view of adjacent properties and the public right-of-way.

e. The design and construction of the trash enclosure shall be subject to the approval of the Zoning Administrator.

f. The trash receptacle must meet all required setbacks of the zoning district.

(15) Application for a special use permit under Section 900.04, Subd. 2 shall be made under Section 900.15. Such a special use permit may be granted provided that:

a. There is a demonstrated need and potential for continued use of the structure for the purpose stated.

b. No commercial or home occupation activities are conducted on the property.

c. The building has an evident re-use or function related to the principal use.

d. An accessory building shall be compatible with the adjacent residential uses and shall not present a hazard to the public health, safety or general welfare.

e. A determination is made that any proposed accessory building and activity are in compliance with the criteria specified in Section 900.15.

(16) No accessory building may be used for manufacturing, home occupation or commercial purposes.

Subd. 3. Uses Prohibited. The following uses are prohibited in the City:

(a) A trailer or tent occupied as living quarters, or a cellar or basement of an uncompleted dwelling occupied as living quarters.

(b) Feed yards or the raising or keeping of horses, cattle, swine, sheep or goats.

(c) The keeping of any animal or fowl for commercial purposes.

(d) Aircraft strips or ports or seaplane slips or anchorages.

(e) Any use other than those specifically identified in Subdivisions 2 and 4 of this Section.

Subd. 4. Uses Permitted with a Special Use Permit. The following uses may be permitted by special use permit approved by the City Council, subject to any conditions imposed in the granting of the permit:

(a) Assembly hall, community center, park, playground, library or museum sponsored and maintained by a property-owners' association or group, or a similar community group.

(b) Buildings for public and community uses.

(c) Churches and parish houses.

(d) Private school, nursery school, or child nursery, the permit for which is issued for not more than one year.

(e) Building for essential services.

900.05 Non-conforming Uses. The lawful use or location of any structure existing at the time of enactment of this Code may be continued although the use or location does not conform to this Code, subject to Section 900.06, Section 900.09, Subd. 4(f), and the following conditions:

(a) Interior Alterations and Ordinary Repairs. Interior alterations may be made to an existing structure which does not conform to current setbacks or other dimensional or design requirements of this Code without a variance. No variance will be required for ordinary repairs and maintenance done in accordance with applicable building codes and regulations notwithstanding the fact that the structure does not conform to the current dimensional or design requirements. Ordinary repairs and maintenance may include repair, replacement or addition of roofing, siding and windows so long as the same does not involve structural alteration.

(b) Additions or New Structures. If an addition or new structure is added to an existing main building which is on a lot which has less than the area required under Section 900.07, or to a main building which does or does not meet current setback requirements, or if an existing main building is destroyed or demolished and a new main building is to be constructed, and the addition or new structure itself meets current setback requirements, a building permit for the addition or new structure may be issued without a variance or other Council approval if the proposal meets all other requirements of this Code.

(c) Changes. No non-conforming structure or use may be changed to another non-conforming use.

(d) Abandonment. A non-conforming use which has been abandoned or discontinued for a period of 12 consecutive months, or which has been superseded by a permitted use, may not be resumed.

900.06 Permit for Alteration of Non-Conforming Structure.

Subd. 1. Scope. This Section applies only to requests to alter an existing main building which does not conform to current setback requirements of this Code where the alteration(a) is not permitted under Section 900.05, (b) would not conform to current setback requirements, (c) would not extend into the setbacks required under this Code by any distance greater than the existing main building, and (d) is not a physical alteration of a main building such that fifty (50) percent or more of the surface area of all exterior walls of such main building, in the aggregate are removed. If the alteration extends a greater distance into the required setback, it may be permitted only by variance.

Subd. 2. Procedures. The procedures relating to a permit for any such alteration will be as set forth for special use permits under Section 900.15, and the applicant will be required to pay the application fee set forth in Section 305.02. In addition, the application must include a survey or other drawing showing the location of the existing structure and the location of all proposed alterations. The drawing must also show the

structures on the property adjoining the setback or setbacks in question. The permit application will be considered by the Council, and notice of the hearing will be given, all as provided in Section 900.15. After the hearing, the Council will grant or deny the permit, stating its reasons for doing so.

Subd. 3. Matters Considered. In granting or denying the permit, the Council may consider the following matters:

(a) Whether the alteration maintains or enhances the general character and welfare of the community.

(b) The magnitude and extent of the proposed alteration.

(c) The resulting impact on the use and enjoyment of surrounding properties and other properties in the community.

(d) The need for the proposed alteration in order to permit adequate use of the property.

(e) The proximity of the proposed alteration to any structure on the adjoining property.

(f) The effect of the proposed alteration on the light and visibility available to the adjoining property.

(g) The extent of vegetation or other screening on the subject property and the adjoining property.

(h) The effect on the property values of the subject property and the surrounding properties.

(i) Matters of fire safety.

(j) The ability to locate the proposed alteration elsewhere on the property.

(k) Any unusual characteristics of the property related to the requested alteration.

(l) The extent to which the existing structure is non-conforming.

(m) Any other matters which may be relevant to the alterations being requested.

Subd. 4. Main Buildings Ineligible for Permit. Any main building which has been permitted to be reconstructed pursuant to Section 900.09, Subdivision 4(i), shall not be eligible for a permit under this Section for any alteration thereto until two years following the date of issuance of the certificate of occupancy with respect to the reconstructed main building.

Subd. 5. Effect of Permit. If an alteration for which a permit is granted under this Section is not commenced within a period of 12 months after the permit is issued, the permit will expire. If the permit provided for in this Section is granted, and the alteration is commenced within 12 months, the permit will run with the title to the property for which it was granted so long as the alteration for which it was granted continues to exist. If that alteration is destroyed or removed, the permit will automatically expire.

900.07 Required Lot Area. No main building shall be constructed, erected, established, or structurally altered, upon a lot containing an area of less than two acres except for the following:

(a) A main building located or to be located on a lot in the Assembly Grounds of record as of September 10, 2001 and containing an area of at least 4,760 square feet.

(b) Ordinary repairs and interior alterations permitted under Section 900.05(a).

(c) Additions or structures permitted under Section 900.05(b).

(d) Alterations of non-conforming structures permitted under Section 900.06.

(e) Reconstruction permitted under Section 900.09, Subdivision 4(i).

(f) A new main building to be constructed on land containing an area of at least one acre designated as one separate lot or parcel in a recorded plat or other subdivision approved by the Council, where (i) there is no adjoining land in common ownership and no adjoining land in common ownership on January 1, 1988 was conveyed in violation of Chapter 8 of this Code, or (ii) any adjoining land in common ownership qualifies as a separate parcel under Section 800.01(c).

For purposes of this Section, lot area measurements will not include land below the ordinary high water level, wetlands or easements for road or driveway purposes.

If a lot in an area other than the Assembly Grounds is divided by a street or privately owned driveway or road designed to serve three or more parcels of land in separate ownership, no part of the lot will be included unless at least one of the portions of the lot not itself so divided has an area of at least 72,000 square feet.

900.08 Required Lot Width. Except in the Assembly Grounds, and except for reconstruction permitted under Section 900.09, Subdivision 4(i), no main building may be constructed, erected or established upon a lot which is less than 100 feet in width. The lot width standards must be met at both the front building line and the ordinary high water level.

900.09 Location of Structures.

Subd. 1. General Requirements. Except for reconstruction permitted under Section 900.09, Subdivision 4(i), no structure may be erected, constructed, reconstructed, or

moved onto a lot unless located within the minimum yards required under this Section. In no event may there be more than one main building on a lot.

Subd. 2. Reductions Below Required Minimums. No lot may be reduced or diminished in area, and no structure may be enlarged or moved, so as to reduce or diminish the yards, lot area or open spaces required by this Chapter. No yard or other open space required for any structure will be considered as providing yard or open space for any other structure, and no yard or open space on a lot or parcel will be considered as providing a yard or open space on an adjoining lot unless those lots have been combined by Council resolution to form a single lot for purposes of this Code.

Subd. 3. Required Yards – Certain Lots in the Assembly Grounds and Certain Lots Less Than 16,500 Square Feet. The following minimums are required for all yards for lots in the Assembly Grounds which contain an area of less than 16,500 square feet and for any other lots which contain an area of less than 16,500 square feet and are served by City sanitary sewer and City water:

(a) The minimum side yard and rear yard in each case is 10 feet from the lot line or 20 feet from the nearest structure on an adjoining lot, whichever creates the larger yard. The minimum side yard on the street sides of a corner lot is 15 feet.

(b) The minimum front yard is the yard created by a straight line drawn between the fronts of the dwellings on the adjoining lots, or the front yard of the adjoining dwelling if there is only one adjoining dwelling, or 15 feet if there are no adjoining dwellings.

Subd. 4. Required Yards - Other Lots. The following minimums are required for all yards in the City other than for lots in the Assembly Grounds which contain an area of less than 16,500 square feet and for any other lots which contain an area of less than 16,500 square feet and are served by City sanitary sewer and City water:

(a) The minimum side yard is 30 feet, and the minimum side yard on the street sides of a corner lot is 40 feet.

(b) The minimum rear yard is 40 feet.

(c) The minimum front yard is 50 feet.

(d) The minimum distance between any portion of a structure and the shore of Lake Minnetonka is 75 feet, measured from the ordinary high water line.

(e) The minimum distance between any portion of a structure and the shore of Shaver's Lake or Lake Marion is 50 feet measured from the ordinary high water line.

(f) The minimum distance between any portion of a structure and the top of a bluff is 30 feet.

(g) The minimum distance between any portion of a structure and a wetland is 25 feet.

(h) The minimum distance between any portion of a structure and an unplatted cemetery is 50 feet.

(i) If an existing structure is destroyed, it may be rebuilt on the existing foundation if located wholly within the lot lines, or in a location which is no closer to any lot line than was the structure destroyed, so long as in either case there is no substantial increase in the height of the structure.

(j) Where structures exist on the adjoining lots on both sides of a proposed building site, structure setbacks from the ordinary high water level may be altered without a variance to conform to the average setback of the adjoining lots, provided the proposed building site is not located in a shore impact zone or in a bluff impact zone.

Subd. 5. Bluff Impact Zone. No structures other than stairways and landings shall be placed within bluff impact zones.

Subd. 6. Steep Slopes. The Building Inspector, in consultation with a professional engineer, as necessary, will evaluate possible soil erosion impact before issuing a permit for construction on steep slopes of sewage treatment systems, roads, driveways, structures, or other improvements. When determined necessary, conditions will be attached to such permits to prevent erosion and to preserve existing vegetation which screens structures, vehicles and other facilities as viewed from the surface of public waters, assuming summer, leaf-on vegetation.

Subd. 7. Significant Historic Sites. No structure may be placed on a significant historic site in a manner that adversely affects the aspects of the site that give it historic significance unless adequate information about the site has been obtained or removed from the site and documented in a public repository.

Subd. 8. Impact on Existing Lots. To the extent a lot of record on December 31, 1992 is rendered unbuildable by reason of the enactment of Section 900.09, Subd. 4(e) hereof, such a lot shall be entitled to a variance as a matter of right to the extent necessary to make the lot reasonably buildable in relation to its size and value.

900.10 Lot Coverage. This section regulates the amount of area a property can have which is covered with structures and impervious surface. For the purposes of this section, "lot" area measurements will not include land below the Ordinary High Water Level, wetlands or easements for roadways and driveways.

Subd. 1. For lots containing an area greater than 16,500 square feet, the percentage of lot area covered by all structures may not exceed 10 percent of the gross lot area and may not exceed twenty-five (25) percent of the lot area in impervious surface. This percentage may not be exceeded, nor properties already in excess of this percentage

reconfigured without the issuance of a Variance in accordance with Section 900.14 of this code.

Subd. 2. Lots containing an area less than 16,500 square feet and serviced by municipal water and sanitary sewer, the percentage of lot area covered by an impervious surface, including the area covered by buildings, may not exceed forty (40) percent. This percentage may be increased to forty-five (45) percent with the issuance of a special use permit. Applications for a Special Use Permit shall be made under Section 900.15 of this code. In granting or denying the permit, the Council may consider the following matters:

(a) Whether the increase in the amount of lot area covered by an impervious surface maintains or enhances the general character or welfare of the community.

(b) The magnitude and extent of the increase in lot area covered by an impervious surface.

(c) The resulting impact on the use and enjoyment of surrounding properties or other properties in the community.

(d) The need for the increase in lot area covered by an impervious surface in order to permit adequate use of the property.

(e) The proximity of any proposed alteration to any structure on the adjoining property.

(f) The effect on the light and visibility available to the adjoining property.

(g) The extent of vegetation or other screening on the subject property and the adjoining property.

(h) The effect on the property value of the subject property and the surrounding properties.

(i) Any other matters which may be relevant to the increase in lot area covered by an imperious surface.

For purposes of this Section 900.10, "lot" area measurements will not include land below the ordinary high water level, wetlands or easements for roadways and driveways. No portion of any lot may be covered by any impervious surface without a building permit.

900.11 Minimum Floor Area. Except in the Assembly Grounds, no main building erected, constructed, established or structurally altered as a dwelling unit may have a first floor area (exclusive of garages or other accessory buildings) of less than 1,200 square feet for a one-story building or a first floor area of less than 800 square feet for a building one and one-half or more stories.

900.12 Additional Requirements; Structures in Yards.

Subd. 1. General. Every required yard or open space must be unobstructed by any building or structure, from the ground upward, except as follows:

(a) When a yard adjoins a lake, then a pump house not exceeding 5 feet in height and 30 square feet in area may be located closer to the lake than permitted under the applicable setback from the ordinary high water line, but must be located at least 12 feet back from the ordinary high water line. Any such pump house must be treated to reduce visibility from public waters and adjacent shorelands by vegetation, topography, increased setbacks, color or other means acceptable to the City, assuming summer, leaf-on conditions.

(b) Sills, cornices, buttresses, eaves, open work fire balconies and fire escapes, chimneys, flues and similar building appurtenances, may extend not more than 4 feet into a required minimum yard.

(c) Except in the Assembly Grounds, uncovered porches, decks, and steps to building entrances may extend not more than 12 feet into any minimum front yard or rear yard and not more than 6 feet into any minimum side yard, but must not extend beyond any shoreland, bluff or wetland setback lines. The foregoing sentence notwithstanding, a deck addition to a structure not meeting the required lake setback may be allowed without a variance if all of the foregoing criteria and standards are met: (1) the structure existed on the date the structure setbacks were established, (2) a thorough evaluation of the property and structure reveals no reasonable location for a deck meeting or exceeding the existing ordinary lake setback of a structure, (3) the deck encroachment toward the lake does not exceed 15 percent of the existing setback of the structure from the lake or does not encroach closer than 30 feet, whichever is more restrictive and (4) the deck is constructed primarily of wood, and is not roofed or screened.

(d) Walks, steps on ground slopes, retaining walls, hedges and natural growth, fences, paved terraces, and structures used ornamentally or for essential services, when accessory to and customarily incidental to the principal use, are permitted in the required minimum yards.

(e) Driveways may be placed within the required side yard setback for structures but in no case shall be place closer than five feet from a delineated side property line or within a platted drainage or utility easement. Driveways may not be placed within bluff and shore impacts zone and may not be placed in the required shoreland setback.

Subd. 2. Stairways, Lifts and Landings. Stairways and lifts are the preferred alternative to major topographic alterations for achieving access up and down bluffs and steep slopes to shore areas. Stairways and lifts must meet the following design requirements:

(a) stairways and lifts must not exceed 4 feet in width;

(b) landings for stairways and lifts must not exceed 32 square feet in area;

(c) canopies or roofs are not allowed on stairways, lifts, or landings;

(d) stairways, lifts, and landings may be either constructed above the ground on posts or pilings, or placed into the ground, provided they are designed and built in a manner that ensures control of soil erosion;

(e) stairways, lifts, and landings must be located, whenever practical, in the most visually inconspicuous portions of lots, as viewed from the surface of the public water assuming summer, leaf-on conditions, whenever practical.

Subd. 3. Guesthouses. The following requirements shall be applicable to guesthouses:

(a) a guesthouse is not permitted on any lot less than 2 acres in size;

(b) a guesthouse must not cover more than 700 square feet of land surface and must not exceed 20 feet in height;

(c) a guesthouse must be designed or located to reduce its visibility from public waters by use of vegetation, topography, increased setbacks or color (assuming summer leaf-on conditions).

Subd. 4. Fences. All fences in the City shall meet the following requirements:

(a) No fence may exceed 6 feet in height, other than a chain link or wire mesh fence for a tennis court or paddle tennis court not exceeding 10 feet in height. Any other chain link or wire mesh fence shall not exceed 3-1/2 feet in height.

(b) No fence shall be placed within the required setback for structures from any lakeshore. No fence may be erected within 5 feet of a lot line until a survey of the lot line and stakes placed by the surveyor showing the proposed fence have been approved by the Zoning Administrator. All fences shall be set back from the property line a distance equal to at least two-thirds of the height, unless the owner of the adjoining property agrees in writing to a lesser setback. Any agreement from the adjacent property owner referred to in this paragraph must be submitted to the City Zoning Administrator prior to fence construction.

(c) The front or decorative side of any fence which has a front and rear side must face the abutting property.

(d) No fence or hedge in any yard of a corner lot within 20 feet of the corner at the street intersection may be more than 3 feet above the level of the center of the roadway nearest it if the fence or hedge obstructs the view of traffic on the roadway.

(e) All fences must be maintained by the owner in a condition of good repair and appearance.

(f) Existing non-conforming fences may be maintained, but may not be enlarged, extended, reconstructed or structurally altered. If 25 % or more of an existing non-conforming fence is damaged, the fence must be removed or reconstructed in compliance with this Subdivision 4.

900.13 Structure Elevation and Height Requirements.

Subd. 1. Structure Height Limits. No portion of a structure may exceed 35 feet in height, as measured in accordance with Section 900.02, Subd. 18. No portion of an accessory structure may exceed 14 feet in height, as measured in accordance with Section 900.04, Subd. 2(b)(6). Structure height limits do not apply to chimneys or flues.

Subd. 2. Minimum Lowest Floor Elevation. Structures must be placed in accordance with any floodplain regulations applicable to the site. Where those controls do not exist, the lowest floor of a structure must be placed at or flood proofed to a level at least 3 feet above the highest known water level, or 3 feet above the ordinary high water level, whichever is higher.

900.14 Variances.

Subd. 1. Scope. This section applies to all exceptions to the requirements of this Code, except where the paragraph stating the requirement calls for a different permitting process, e.g., Special Use Permit.

Subd. 2. Evidence. The City Council may grant variances from the strict application of the provisions of this Chapter and impose conditions and safeguards in the variance so granted, but no variance shall be granted unless the evidence presented discloses all of the following facts:

(a) The subject matter of the application is within the scope of this Section.

(b) Strict enforcement would cause undue hardship because:

(1) The property cannot be put to a reasonable use without the variance.

(2) The circumstances causing the hardship were not created by the owner.

(3) The variance, if granted, will not alter the essential character of the locality; and

(4) Economic considerations alone are not the basis of the hardship.

(c) The circumstances causing the hardship are unique to the individual property under consideration.

(d) The granting of the variance is in keeping with the spirit and intent of the Code and consistent with the City's Comprehensive Plan.

(e) For existing developments, not served with municipal sewer and water, a complying sewage treatment system is present for the intended use of the property. The variance, if issued, must require reconstruction of a non-conforming sewage treatment system.

Subd. 3. Application. Written application for a variance is to be made to the Clerk and accompanied by the filing fee in the amount stated in Section 305.02.

Subd. 4. Council Consideration. The Council will consider the application and hold a public hearing on the matter within 60 days after receipt of the application. The Council will by motion grant or deny the application according to the provisions of Subdivision 2 of this Section.

Subd. 5. Notice. The Clerk will publish notice of the Council meeting at which the variance application will be heard in the City's official newspaper at least 10 days prior to the Council meeting, and will mail such notice at least 10 days prior to the Council meeting to all persons who own property within 500 feet of the perimeter of the lot in question, to the applicant and to the Council Members.

Subd. 6. Expiration. If a variance is granted for a property and the construction of the structure for which it was granted is not commenced within one year after the date of the Council Resolution approving the variance, the variance will expire and will be of no further force and effect.

900.15 Special Use Permits.

Subd. 1. Scope. This Section applies to all specified uses delineated elsewhere in this Chapter.

Subd. 2. Evidence. The applicant is responsible for substantiating the application with authoritative evidence. In considering a request for a special use permit, the Council must be supplied with and consider evidence of the effect of the proposed use on the character and development of the neighborhood; the health, safety, and welfare of occupants of surrounding lands; existing and anticipated traffic conditions, including parking; and the effect on property values in the surrounding area. In addition, the Council must be supplied with such evidence and studies as it deems necessary in order to (1) conduct a thorough evaluation of the topographic, vegetation and soil conditions on the site to ensure the prevention of soil erosion or other possible pollution of public waters, roadways, and adjacent private property, both during and after construction, to ensure limiting visibility of structures and other facilities as viewed from public waters, roadways, and adjacent private property, and to ensure adequacy of the site for water supply and on-site sewage treatment, and (2) assess the types, uses, and numbers of watercraft and motor vehicles that the project will generate in relation to the suitability of public waters, roads and private lands to safely accommodate watercraft, motor vehicles and proposed structures. Insufficiency of authoritative evidence will result in denial of the application.

Subd. 3. Application. Application for a special use permit will be made in writing on forms provided by the Clerk, and will be filed with the Clerk together with a filing fee in the amount required under Section 305.02.

Subd. 4. Notice. The Clerk will publish notice of the Council meeting at which the application will be heard in the City's official newspaper at least 10 days before the Council hearing and will mail notice at least 10 days before the hearing to all persons who own property within 500 feet of the perimeter of the lot in question, to the applicant and to the Council Members.

Subd. 5. Council Hearing. The Council will consider the application at a public hearing at its next regular meeting held not sooner than 10 days after the notice. After the hearing, the Council will grant or deny the application by resolution which will include findings of fact and the conditions imposed in connection with the special use permit.

Subd. 6. Assignment. Applicants may not assign any application, evidentiary material or special use permit without consent of the Council.

Subd. 7. Expiration. If a special use permit is granted and the structure for which it was granted is not constructed or erected within one year after the special use permit is granted, the special use permit will expire and will be of no further force or effect.

900.16. Wetland Regulations.

Subd. 1. Purposes. It is in the public interest to protect the wetlands, lowlands, watershed areas, lakes and watercourses within the City from uncoordinated and unplanned development, pollution and other damage. In addition to such general purposes, this Section is intended to:

(a) Reduce danger to health from impure surface and ground water supplies by providing safe and sanitary drainage.

(b) Permit and encourage land uses compatible with preservation of natural vegetation and marshes, for the purposes of maintaining constant rates of water flow and sustaining wildlife and plant growth.

(c) Encourage a system of ponding areas to avoid fast runoff of surface waters from developed areas and to avoid drainage of pollutants into streams and lakes.

(d) Restrict development of structures which will adversely affect wetland areas and public waters.

Subd. 2. Pollution Prohibited. It is unlawful for any person to cause pollution of wetlands or any body of water into which they drain, by depositing or discharging within wetlands, or permitting to drain into such waters, contrary to then applicable state standards, sewage, chemical wastes, pesticides, insecticides, plant fertilizers, salt, or other

substances which would render the wetlands or such waters unclean, noxious, or impure according to then applicable state standards.

Subd. 3. Certain Development Prohibited. No filling, grading, dredging, excavation or construction is allowed within wetlands if such activity is incompatible with the purposes set forth in this Section or would result in the pollution prohibited in this Section.

Subd. 4. Permit for Development. There may be no filling, grading, dredging, excavation or subdivision of wetlands, and no structure or obstruction may be placed or erected within wetlands, until an appropriate permit has been issued by the City.

Subd. 5. Application for Permit. An application for a permit under this Section is to be filed with the Clerk, and paying the license fee as set forth in Section 305.02. The applicant must submit four copies of the application which include:

(a) The name of the landowner.

(b) The mailing address of the landowner.

(c) The address and legal description of the land.

(d) A description, including specific locations shown by map or survey, of any filling, grading, dredging or excavation to be done.

(e) A description, including specific locations shown by map or survey, of any structure or obstruction to be placed or erected.

(f) Other changes which would be made in the natural condition of the area, including loss or change of ground cover, destruction of trees and grade changes, and their effects upon the wetlands and the lakes and water courses into which they drain.

(g) Engineering and hydrological data as required by the City.

(h) The applicant's reasons for proceeding with the items described in (d), (e), and (f) of this Subsection.

(i) Provisions for drainage, sediment control, pollution control, water management, maintenance of landscaped features, and any additional matters intended to improve or maintain the quality of the environment.

(j) An explanation of why issuance of the requested permit would be consistent with each of the purposes set forth in this Section.

(k) The name of the watershed district, or districts, in which the subject property is located.

Subd. 6. Review by Watershed Districts. Upon filing of the application, a copy will be sent by the City to the watershed district, or districts, in which the property is located, for review and comment by the watershed districts. The watershed district will file its comments and recommendations, if any, with the City within 40 days after receipt of the application unless additional time is authorized by the City. If no response is received from a watershed district within the 40-day period, the City may assume that the district has no comments or recommendations.

Subd. 7. Hearing by Council. The Council will, at its next regular meeting after receipt of the recommendations of the watershed district, set a date for a public hearing regarding the application for permit. At least 10 days before the hearing, a notice of the date, time, place and purpose of the hearing will be published in the City's official newspaper, and will be mailed to all persons who own property within 500 feet of the property for which the permit has been requested. At the hearing, the Council will hear persons who wish to be heard in the matter. The Council will make its decision at the same meeting or at the next regularly scheduled meeting.

Subd. 8. Effect of Permit. The granting of a permit under the provisions of this Section will in no way affect the owner's responsibility to obtain all approvals required by any other ordinance of the City, or any statute, ordinance or regulation of the state or any State agency or subdivision, and any items authorized by the permit must comply with all other ordinances, statutes, and regulations.

900.17. Administration and Enforcement.

Subd. 1. Voting. Voting on matters under this Chapter will be conducted as follows:

Purpose	Votes
Amendment to Chapter to change any land from a residential zoning district to commercial or industrial zoning district	Four
Any other Amendment to this Chapter	Three
Variance	Three
Special Use Permit and Permits Under Section 900.06	Three
Resolution	Majority of Members present
Motion	Majority of Members present

Subd. 2. Board of Appeals. The Board of Appeals consists of the Mayor and Council and will function under Section 900.14 and to hear any alleged error in any requirement or determination by the Building Inspector or other City official. Five copies of the appeal and all necessary surveys, drawings and other information must be filed with the Clerk at least 10 days prior to the meeting at which the appeal is to be heard. The Mayor or Acting Mayor will chair the Board of Appeals which will be governed by the rules of procedure applicable to the Council.

Subd. 3. Building Permits. No person may erect, alter, wreck, or move any structure or part thereof, without first securing a building permit. Application for a building permit may be made in accordance with the building code of the City. Each application must state among other things, the dimensions of the lot to be built upon, the size and location of the structure or structures to be erected, the purpose or purposes of the structure or structures, as may be deemed necessary for the proper enforcement of this Code. The fees for building permits are provided in the building code of the City. The City will issue a building permit only after determining that the building plans together with the application comply with the applicable provisions of the building code and City Ordinance.

Subd. 4. Land Alteration Permits. No land in the City may be excavated, graded, filled or substantially altered without a permit from the City Engineer. For purposed of this section substantially altered shall mean an change of grade from an existing elevation of one foot or more. The applicant will provide a scalable survey for the proposed alteration, showing the present and proposed elevations or contours, the existing and proposed drainage pattern, including the volume and rate of runoff currently and proposed to leave the property and any other information requested by the City Engineer. In determining whether to issue the permit, the City Engineer and Zoning Administrator will consider whether the alteration and any related structures will comply with the applicable provisions of this Code, and the effects on drainage and destruction of ground cover and water holding areas.

All applications for building permit in the City must be accompanied with a land alteration permit.

Any grading that would substantially alter the existing grade, as defined above, must be granted a Special Use Permit from the City Council following the application procedure outlines in Section 900.15 of this Code.

Subd. 5. Notification to Department of Natural Resources

(a) Copies of all notices of any public hearings to consider variances, amendments, or conditional uses respecting the City's shoreland management controls will be sent to the commissioner or the commissioner's designated representative and postmarked at least 10 days before the hearings. Notices of hearings to consider proposed plats will include copies of the plats.

(b) A copy of any approved amendment to the City's shoreland management controls, of approved plats, and final decisions granting variances or conditional uses respecting the City's shoreland management controls will be sent to the commissioner or the commissioner's designated representative and postmarked within 10 days after final action.

900.18. Topographic Alterations. The following considerations and conditions apply to the issuance of permits involving topographic alterations, including building permits, grading and filling permits, conditional use permits, variances and subdivision approvals:

(a) alterations must be designed and conducted in a manner that ensures only the smallest amount of bare ground is exposed for the shortest time possible;

(b) mulches or similar materials must be used, where necessary, for temporary bare soil coverages, and a permanent vegetation cover must be established as soon as possible;

(c) methods to minimize soil erosion and to trap sediments before they reach any lake, channel, stream, pond or wetland must be used;

(d) altered areas must be stabilized to acceptable erosion control standards consistent with the field office technical guides of the local soil and water conservation districts and the United States Soil Conservation Services;

(e) fill or excavated material must not be placed in a manner that creates an unstable slope;

(f) plans to place fill or excavated material on steep slopes must be reviewed by qualified professionals for continued slope stability and must not create finished slopes of 30 percent or greater;

(g) fill or excavated material must not be placed in bluff impact zones;

(h) any alterations below the ordinary high water level of public waters must first be authorized by the commissioner under Minnesota Statutes, section 103G.245;

(i) alterations of topography will be allowed only if they are accessory to permitted or conditional uses and do not adversely affect the adjacent or nearby properties; and

(j) placement of natural rock rip-rap, including associated grading of the shoreline and placement of a filter blanket, is permitted if the finished slope does not exceed 3 feet horizontal to one foot vertical, the landward extent of the rip-rap is within 10 feet of the ordinary high water level, and the height of the rip-rap above the ordinary high water level does not exceed 3 feet.

Permits for excavations where the intended purpose is connection to a public water, such as boat slips canals, lagoons, and harbors, may be issued only after the commissioner has approved the proposed connection to public waters.

900.19 Tree Removal and Vegetation Maintenance and Alterations.

Subd. 1. Purpose. The City finds that it has been established that trees and other vegetation stabilize the soil and control water pollution by preventing soil erosion and flooding, reduce air pollution, temper noise, and provide a natural habitat for wildlife. Indiscriminate removal of trees and clearing of vegetation cause deprivation of these benefits and that it is in the interests of the City and its residents to prevent the indiscriminate removal of trees and clearing of vegetation.

Subd. 2. Activities Requiring a Permit. Except as provided in Subd. 3 in this Section, no person shall engage in any of the following activities:

(a) intensive vegetation clearing

(b) removal of any tree except the species of Boxelder, Buckthorn, Willow, Cottonwood, Green Ash, Siberian Elm and Prickly Ash or the removal of any tree having a diameter of more than six inches.

(c) tree and vegetation removal necessary for the construction of structures and public utilities and the construction of roads and parking areas otherwise complying with the applicable provisions of the Code; provided that any trees removed as a result of such construction shall be replaced as provided in Subd. 6 of this Section.

Subd. 3. Exceptions. The requirements of Subd. 2 of this Section do not apply to the following removal of trees and vegetation:

(a) removal of any tree and vegetation that is dead or diseased.

(b) tree and vegetation pruning within accepted tree management parameters.

Subd. 4. Permit. Prior to engaging in any activity that requires a permit under Subd. 2 of this Section, an application shall be submitted to the Zoning Administrator for a permit, which shall remain valid for 8 months from the date of issuance, for such activity. The application shall describe the proposed activity and its purpose in detail (landscape drawing included when appropriate; lot lines and structures noted when appropriate) and a description of all replacement plants and materials. The Zoning Administrator will not grant a permit for such activity unless the following criteria are met:

(a) the activity will not adversely affect the ecological systems or increase the potential for soil erosion.

(b) the activity is in conformance with accepted tree management practices.

(c) the activity will not adversely impact property values of surrounding properties or the aesthetics of the neighborhood in which such activity is proposed to occur.

Subd. 5. Fertilizers and Pesticides. Fertilizers and pesticides must be used in such a manner as to minimize run off into shore impact zones and public waters by use of earth, vegetation or both.

Subd. 6. Replacement of Trees. Any tree removed pursuant to clause (c) of Subd. 2 of this Section or pursuant to a permit issued under Subd. 4 of this Section shall be replaced on the lot upon which removed if the Zoning Administrator determines that such replacement is necessary to meet the purpose set forth in Subd. 1. of this Section. Any replacement tree required by this Subd. 6 shall meet the following conditions:

(a) Replacement trees shall be of a species similar to the trees to be replaced and shall be no less than the following sizes:

(1) Deciduous trees – no less than three caliper inches

(2) Coniferous trees – no less than 7 feet high

(b) Replacement trees shall be planted no later than the first fall or spring following the removal of the tree to be replaced or by such later date agreed to by the Zoning Administrator if planting during such period would not be in conformance with accepted tree management practices.

(c) Any replacement tree that is not alive or healthy one year after the date of planting shall be removed and a new healthy tree of the same size and species planted in its place. Planting shall occur no later than the first fall or spring following the expiration of such year.

Subd. 7. Shade Tree Disease Program. It is the intention of the City to conduct a program of shade tree disease control pursuant to authority granted by Minnesota Statutes, Section 18.023. This program is directed specifically at the control and elimination within the City of Dutch elm disease fungus, elm bark beetles, and of oak wilt fungus.

(a) The City shall have the right to order or cause the removal of any trees that are dead or diseased on private property within the city, when such trees constitute a hazard to life and property, or harbor insects or disease which constitute a potential threat to other trees within the city.

(b) Unless such trees pose immediate hazard to public safety, the owner of such trees will be ordered, in writing, to remove said trees, stating the reason for removal and the location of said tree or trees to be removed. Removal shall be done by said owners at the owner's expense within (30) days after the date of the order to remove or a time parameter placed by the Zoning Administrator in consideration of the time of year or protection against spread of disease. In the event the owner fails to comply with such order to remove, or if public safety considerations require immediate removal, the City shall then proceed to remove said tree or

trees, and to charge removal costs to the owner of the property as provided by law in the case of special assessments.

Subd. 8. Fines. Any builder, contractor or agent who may have intentionally assisted in the commission of any such violation, shall be guilty of a separate offense. All such violations which are of a continuing nature shall constitute a separate offense for each day of such continuance, and each tree removed shall constitute a separate offense. Any person violating any provision of this Section, upon conviction, will be guilty of a misdemeanor.

Subd. 9. Enforcement. The Zoning Administrator is hereby charged with the responsibility for the enforcement of this Section and may serve notice to any person in violation thereof or institute legal proceedings as may be required, and the City Attorney is hereby authorized to institute appropriate proceedings to that end.

Subd. 10. Appeals. A person aggrieved by the administration of this Section may have thirty (30) days to appeal by petitioning the Zoning Administrator in writing. The Zoning Administrator will consult the City Council at its next scheduled meeting.

900.20. Roads, Driveways, Parking Areas.

(a) Public and private roads and parking areas must be designed to take advantage of natural vegetation and topography to achieve screening of view from public waters. Documentation must be provided by a qualified individual that all roads and parking areas are designed and constructed to minimize and control erosion into public waters consistent with the field office technical guides of the local soil and water conservation district, or other applicable technical materials.

(b) Roads, driveways, and parking areas must meet the required lake setback for structures and must not be placed within bluff and shore impact zones when other reasonable and feasible placement alternatives exist. If no such alternatives exist, they may be placed within these areas with the issuance of a variance, but must be designed to minimize adverse impacts.

(c) Public and private watercraft access ramps, approach roads, and access-related parking areas may be placed within shore impact zones provided the vegetative screening and erosion control conditions of this Code are met. For private facilities, the grading and filling provisions of this Code must also be met.

900.21 Storm Water Management.

(a) When possible, existing natural drainage ways, wetlands and vegetated soil surfaces must be used to convey, store, filter and retain stormwater runoff before discharge into public waters. When development density or site conditions are such that natural features are inadequate, various types of constructed facilities such as skimming devices, dikes, waterways and ponds may be used if they comply with the field office technical guide of the local soil and water

conservation district. Newly constructed stormwater outfalls to public waters must provide for filtering or settling of suspended solids and skimming of surface debris before discharge.

(b) All development must be planned and conducted in a manner that will minimize erosion.

900.22 Controlled Accesses to Public Waters. Lots intended as controlled accesses to public waters or as recreation areas for use by owners of non-riparian lots within subdivisions are permissible and must meet or exceed the following standards:

(a) Controlled access lots must meet the width and size requirements for residential lots, and be suitable for their intended uses.

(b) Controlled access lots must be jointly owned by all purchasers of lots in the subdivision or by all purchasers of non-riparian lots in the subdivision who are provided riparian access rights on the access lot.

(c) Covenants or other equally effective legal instruments must be developed that specify which lot owners have authority to use the access lot and what activities are allowed. The activities may include watercraft launching, loading, storage, beaching, mooring or docking. They may also include other outdoor recreational activities that do not significantly conflict with general public use of the public water or the enjoyment of normal property rights by adjacent property owners. Examples of such non-conflicting activities include swimming, sunbathing, and picnicking. The covenants must limit the total number of vehicles allowed to be parked and the total number of watercraft allowed to be continuously moored, docked, or stored over water, and must require centralization of all common facilities and activities in the most suitable locations on the lot to minimize topographic and vegetation alterations. They must also require all parking areas, storage buildings and other facilities to be screened by vegetation or topography as much as practical from view from the public water, assuming summer, leaf-on conditions.

900.23 Lighting. Within all zoning districts, sources of artificial light shall be so fixed, directed, designed and sized so that the sum total of their illumination will not increase the level of illumination on any nearby residential property by more than 0.1 foot candle in or within 25 feet of a dwelling nor more than 0.5 foot candle on any part of the property. The source of light shall not be visible beyond the property from which it originates. Bare incandescent light bulbs shall not be permitted in view of adjacent property, over public water, or public right-of-way.

900.24 Construction Site Management. The purpose of these requirements is to ensure preparation and implementation of construction site management plans in order to limit the impact of construction on the immediate neighborhood.

Subd 1. General Regulations. All residential and commercial construction sites shall

comply with the following:

(a) Prior to issuance of a building permit, the applicant will be required to provide proof that they have contacted all adjacent property owners within five hundred (500) feet of the applicant's property to make them familiar with the proposed construction and to provide them with contact information for the applicant.

(b) Work at construction sites shall be limited to 7 a.m. to 6 p.m. Monday through Friday and 9 a.m. to 6 p.m. on Saturdays and holidays. Construction activities are prohibited on Sundays.

(c) The applicant shall submit a Construction Site Management Plan as outlined in Subdivision 2 of this Section.

(d) Onsite parking of construction vehicles and equipment will be provided to the extent feasible. If street parking is necessary, it must be done in coordination with the city. Parking will be limited to only those zones designated by city resolution.

(e) All equipment shall be stored within the confines of the construction site. If necessary, a property line fence will be required to ensure that no construction vehicles, materials or other debris encroaches onto adjacent properties.

(f) A functioning toilet and a minimum of one dumpster are required on the site prior to commencement of construction activity. These are to be considerately placed in relation to adjacent properties.

(g) Daily site clean up of debris and garbage is required.

(h) Weekly street cleaning is required to remove all dirt, mud and debris from public streets. City staff will monitor the condition of public streets and may require more frequent street cleaning.

Subd 2. Construction Site Management Plan. The Construction Site Management Plan is a stand-alone document and shall include the following:

(a) A site plan showing:
  (1) Site address.
  (2) Names, addresses and telephone numbers of persons responsible for preparing the construction site management plan.
  (3) Site property lines.
  (4) Location of proposed buildings and structures on site.
  (5) Identification and location of all significant natural boundaries/buffers to neighboring properties.
  (6) All property line fencing and erosion control fencing.
  (7) Location of soil stockpiling.

(8) Locations of the temporary toilet, if required, and dumpster.
(9) Site entrance and on-site parking areas, and/or proposed street parking plan.

(b) A document requiring:
(1) A statement that all garbage/debris on the site will be picked up daily.
(2) A statement that the street will be swept clean once per week, and that the applicant will endeavor to have sweeping take place on Friday, so the street is clean for the weekend.
(3) A statement that the applicant has communicated with adjacent property owners that the project will be commencing and have provided them with contact information.

(c) Waiver. Specific provisions of this ordinance may be waived by City Staff based on the scope and duration of the specific construction project.

(d) Notification and Inspection. The applicant or its authorized agent shall notify the City on completing the installation of all property line and silt fencing. The applicant shall not proceed with site activity until the City has been notified and allowed two full business days to inspect the site and, as necessary, confer with applicant.

APPENDIX D

Floodplain Ordinance

TABLE OF CONTENTS

"GENERAL FLOODPLAIN ORDINANCE"

For Communities with Flood Insurance Rate Map (FIRM)

SECTION 1000.01 STATUTORY AUTHORIZATION, FINDINGS OF FACT AND PURPOSE

Subd. 1. Statutory Authorization. The Legislature of the State of Minnesota has, in Minnesota Statutes Chapters 103F and Chapter 462 delegated the authority to local governmental units to adopt regulations designed to minimize flood losses. Minnesota Statute, Chapter 103F further stipulates that communities subject to recurrent flooding must participate and maintain eligibility in the National Flood Insurance Program. Therefore the City of Woodland, Minnesota does ordain as follows:

Subd. 2. Statement of Purpose. The purpose of this Ordinance is to maintain the Community's eligibility in the National Flood Insurance Program and to minimize potential losses due to periodic flooding including loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

Subd. 3. Warning of Disclaimer of Liability. This Ordinance does not imply that areas outside of the flood plain district or land uses permitted within such districts will be free from flooding and flood damages. This Ordinance shall not create liability on the part of the City of Woodland or any officer or employee thereof for any flood damages that result from reliance on this Ordinance or any administrative decisions lawfully made thereunder.

Subd. 4. National Flood Insurance Program Compliance. This Ordinance is adopted to comply with the rules and regulations of the National Flood Insurance Program codified as 44 Code of Federal Regulations Parts 59 -78, as amended, so as to maintain the Community's eligibility in the National Flood Insurance Program.

SECTION 1000.02 GENERAL PROVISIONS

Subd. 1. Adoption of Flood Insurance Study and Flood Insurance Rate Map. The Flood Insurance Study, Volume 1 of 2 and Volume 2 of 2, Hennepin County, Minnesota, All Jurisdictions and the Flood Insurance Rate Map panels numbered 27053C030E for the City of Woodland, dated September 2, 2004, as developed by the Federal Emergency Management Agency, are hereby adopted by reference as the Official Flood Plain Zoning District Map and made a part of this ordinance.

Subd. 2. Lands to Which Ordinance Applies. This Ordinance shall apply to all lands designated as flood plain within the jurisdiction of city. Flood plain areas within city shall encompass all areas designated as Zone A, Zone AE, Zone AO, or Zone AH as shown on the Flood Insurance Rate Map adopted in Section 1000.02(1) of this Ordinance.

Subd. 3. Interpretation. The boundaries of the flood plain district shall be determined by scaling distances on the Official FloodPlain Zoning District Map. Where interpretation is needed as to the exact location of the boundaries of the flood plain district, the Zoning Coordinator shall make the necessary interpretation based on the ground elevations that existed on the site at the time the community adopted its initial floodplain ordinance and the regional (100-year) flood profile, if available. If 100-year flood elevations are not available, the community shall: 1) Require a flood plain evaluation consistent with Section 1000.04(3) of this Ordinance to determine a 100-year flood elevation for the site; or 2) base its decision on available hydraulic/hydrologic or site elevation survey data which demonstrates the likelihood the site is within or outside of the flood plain.

Subd. 4. Definitions. Unless specifically defined below, words or phrases used in this Ordinance shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this Ordinance its most reasonable application.

(a) Accessory Use or Structure - a use or structure on the same lot with, and of a nature customarily incidental and subordinate to, the principle use or structure.

(b) Basement - means any area of a structure, including crawl spaces, having its floor or base subgrade (below ground level) on all four sides, regardless of the depth of excavation below ground level.

(c) Flood Fringe - that portion of the flood plain outside of the floodway.

(d) Flood Plain - the channel or beds proper and the areas adjoining a wetland, lake or watercourse that have been or hereafter may be covered by the regional flood. Flood plain areas within city shall encompass all areas designated as Zone A, Zone AE, Zone AO, or Zone AH on the Flood Insurance Rate Map adopted in Section 1000.02(1) of this Ordinance.

(e) Floodway - the bed of a wetland or lake and the channel of a watercourse and those portions of the adjoining flood plain that are reasonably required to carry or store the regional flood discharge.

(f) Lowest Floor – the lowest floor of the lowest enclosed area (including basement).

(g) Manufactured Home – a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include the term "recreational vehicle."

(h) Obstruction - any dam, wall, wharf, embankment, levee, dike, pile, abutment, projection, excavation, dredged spoil, channel modification, culvert, building, wire, fence, stockpile, refuse, fill, structure, stockpile of sand or gravel or other material, or matter in, along, across, or projecting into any channel, watercourse, lake bed, or regulatory flood plain which may impede, retard, or change the direction of flow, either in itself or by catching or collecting debris carried by floodwater.

(i) Recreational Vehicle – a vehicle that is built on a single chassis, is 400 square feet or less when measured at the largest projection, is designed to be self-propelled or permanently tow-able by a light duty truck, and is designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use. For the purposes of this Ordinance, the term recreational vehicle shall be synonymous with the term travel trailer/travel vehicle.

(j) Regional Flood - a flood which is representative of large floods known to have occurred generally in Minnesota and reasonably characteristics of what can be expected to occur on an average frequency in magnitude of the 100-year recurrence interval. Regional flood is synonymous with the term "base flood" used on the Flood Insurance Rate Map.

(k) Regulatory Flood Protection Elevation. The regulatory flood protection elevation shall be an elevation no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that result from designation of a floodway.

(l) Structure - anything constructed or erected on the ground or attached to the ground or on-site utilities, including, but not limited to, buildings, factories, sheds, detached garages, cabins, manufactured homes, travel trailers/vehicles not meeting the exemption criteria specified in Section 1000.12(1) of this Ordinance and other similar items.

(m) Substantial Damage – means damage of any origin sustained by a structure where the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

(n) Substantial Improvement – within any consecutive 365-day period, any reconstruction, rehabilitation (including normal maintenance and repair), repair after damage, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:

(1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions.

(2) Any alteration of an "historic structure," provided that the alteration will not preclude the structure's continued designation as an "historic structure." For the purpose of this Ordinance, "historic structure" shall be as defined in Code of Federal Regulations, Part 59.1.

SECTION 1000.03 CONFLICT WITH PRE-EXISTING ZONING REGULATIONS AND GENERAL COMPLIANCE

Subd. 1. The Flood Plain District as Overlay Zoning District. The flood plain zoning district shall be considered an overlay zoning district to all existing land use regulations of the Community. The uses permitted in Sections 1000.04 and 1000.05 of this Ordinance shall be permitted only if not prohibited by any established, underlying zoning district. The requirements of this Ordinance shall apply in addition to other legally established regulations of the Community and where this Ordinance imposes greater restrictions, the provisions of this Ordinance shall apply.

Subd. 2. Compliance. No new structure or land shall hereafter be used and no structure shall be constructed, located, extended, converted, repaired, maintained, or structurally altered without full compliance with the terms of this Ordinance and other applicable regulations which apply to uses within the jurisdiction of this Ordinance. Within the Floodway and Flood Fringe, all uses not listed as permitted uses in Section 1000.04 shall be prohibited. In addition, a caution is provided here that:

(a) New manufactured homes, replacement manufactured homes and certain recreational vehicles are subject to the general provisions of this Ordinance and specifically Sections 1000.04 and 1000.12;

(b) Modifications, repair and maintenance, additions, structural alterations or repair after damage to existing nonconforming structures and nonconforming uses of structures or land are regulated by the general provisions of this Ordinance and specifically Section 1000.09; and

(c) As-built elevations for elevated structures must be certified by elevation surveys as stated in Section 1000.07 of this Ordinance.

SECTION 1000.04 PERMITTED USES, STANDARDS, AND FLOOD PLAIN EVALUATION CRITERIA

Subd. 1. Permitted Uses in the Flood Plain. The following uses of land are permitted uses in the flood plain district:

(a) Any use of land which does not involve a structure, a fence, an addition to the outside dimensions to an existing structure (including a fence) or an obstruction to flood flows such as fill, excavation, or storage of materials or equipment.

(b) Any use of land involving the construction of new structures, a fence, the placement or replacement of manufactured homes, the addition to the outside dimensions of an existing structure (including a fence) or obstructions such as fill or storage of materials or equipment, provided these activities are located in the flood fringe portion of the flood plain. These uses shall be subject to the development standards in Section 1000.04(2) of this Ordinance and the flood plain evaluation criteria in Section 1000.04(3) of this Ordinance for determining floodway and flood fringe boundaries.

(c) Recreational vehicles are regulated by Section 1000.12 of this Ordinance.

Subd. 2. Standards for FloodPlain Permitted Uses.

(a) Fill shall be properly compacted and the slopes shall be properly protected by the use of riprap, vegetative cover or other acceptable method. The Federal Emergency Management Agency (FEMA) has established criteria for removing the special flood hazard area designation for certain structures properly elevated on fill above the 100-year flood elevation - FEMA's requirements incorporate specific fill compaction and side slope protection standards for multi-structure or multi-lot developments. These standards should be investigated prior to the initiation of site preparation if a change of special flood hazard area designation will be requested.

(b) Storage of Materials and Equipment:

(1) The storage or processing of materials that are, in time of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.
(2) Storage of other materials or equipment may be allowed if readily removable from the area within the time available after a flood warning or if placed on fill to the regulatory flood protection elevation.

(c) No use shall be permitted which will adversely affect the capacity of the channels or floodways of any tributary to the main stream, or of any drainage ditch, or any other drainage facility or system.

(d) All structures, including accessory structures, additions to existing structures and manufactured homes, shall be constructed on fill so that the lowest floor, including basement floor, is at or above the regulatory flood protection elevation. The finished fill elevation must be no lower than one foot below the regulatory flood protection elevation and shall extend at such elevation at least 15' beyond the limits of the structure constructed thereon.

(e) All Uses. Uses that do not have vehicular access at or above an elevation not more than two feet below the regulatory flood protection elevation to lands outside of the flood plain shall not be permitted unless granted a variance by the Board of Adjustment. In granting a variance, the Board of Adjustment shall specify limitations on the period of use or occupancy of the use and only after determining that adequate flood warning time and local emergency response and recovery procedures exist.

(f) Commercial and Manufacturing Uses. Accessory land uses, such as yards, railroad tracks, and parking lots may be at elevations lower than the regulatory flood protection elevation. However, a permit for such facilities to be used by the employees or the general public shall not be granted in the absence of a flood warning system that provides adequate time for evacuation if the area would be inundated to a depth and velocity such that when multiplying the depth (in feet) times velocity (in feet per second) the product number exceeds four (4) upon occurrence of the regional flood.

(g) On-site Sewage Treatment and Water Supply Systems: Where public utilities are not provided: 1) On-site water supply systems must be designed to minimize or eliminate infiltration of flood waters into the systems; and 2) New or replacement on-site sewage treatment systems must be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters and they shall not be subject to impairment or contamination during times of flooding. Any sewage treatment system designed in accordance with the State's current statewide standards for on-site sewage treatment systems shall be determined to be in compliance with this Section.

(h) All manufactured homes must be securely anchored to an adequately anchored foundation system that resists flotation, collapse and lateral movement. Methods of anchoring may include, but are not to be limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state or local anchoring requirements for resisting wind forces.

Subd. 3. Flood Plain Evaluation.

(a) Upon receipt of an application for a permit for a use or other approval within the Flood Plain District, the applicant shall be required to furnish such of the following information as is deemed necessary by the Zoning Administrator for the determination of the regulatory flood protection elevation and whether the proposed use is within the floodway or flood fringe.

(1) A typical valley cross-section(s) showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high water information.

(2) Plan (surface view) showing elevations or contours of the ground, pertinent structure, fill, or storage elevations, the size, location, and spatial arrangement of all proposed and existing structures on the site, and the location and elevations of streets.

(3) Photographs showing existing land use, vegetation upstream and downstream, and soil types.

(4) Profile showing the slope of the bottom of the channel or flow line of the stream for at least 500 feet in either direction from the proposed development.

(b) The applicant shall be responsible to submit one copy of the above information to a designated engineer or other expert person or agency for technical assistance in determining whether the proposed use is in the floodway or flood fringe and to determine the regulatory flood protection elevation. Procedures consistent with Minnesota Regulations 1983, Parts 6120.5000 - 6120.6200 and 44 Code of Federal Regulations Part 65 shall be followed in this expert evaluation. The designated engineer or expert is strongly encouraged to discuss the proposed technical evaluation methodology with the respective Department of Natural Resources' Area Hydrologist prior to commencing the analysis. The designated engineer or expert shall:

(1) Estimate the peak discharge of the regional flood.

(2) Calculate the water surface profile of the regional flood based upon a hydraulic analysis of the stream channel and overbank areas.

(3) Compute the floodway necessary to convey or store the regional flood without increasing flood stages more than 0.5 foot. A lesser stage increase than .5' shall be required if, as a result of the additional stage increase, increased flood damages would result. An equal degree of encroachment on both sides of the stream within the reach shall be assumed in computing floodway boundaries.

(c) The Zoning Administrator shall present the technical evaluation and findings of the designated engineer or expert to the Governing Body. The Governing Body must formally accept the technical evaluation and the recommended Floodway and/or Flood Fringe District boundary or deny the permit application. The Governing Body, prior to official action, may submit the application and all supporting data and analyses to the Federal Emergency Management Agency, the Department of Natural Resources or the Planning Commission for review and comment. Once the Floodway and Flood Fringe District Boundaries have been determined, the Governing Body shall refer the matter back to the Zoning Administrator who shall process the permit application consistent with the applicable provisions of this Ordinance.

SECTION 1000.05 UTILITIES, RAILROADS, ROADS AND BRIDGES IN THE FLOOD PLAIN DISTRICT

All utilities and transportation facilities, including railroad tracks, roads and bridges, shall be constructed in accordance with state flood plain management standards contained in Minnesota Rules 1983 Parts 6120.5000 - 6120.6200.

SECTION 1000.06 SUBDIVISIONS*

(*Note: This Section is not intended as a substitute for a comprehensive city or county subdivision ordinance. It can, however, be used as an interim control until the comprehensive subdivision ordinance can be amended to include necessary flood plain management provisions.)

Subd. 1. No land shall be subdivided and no manufactured home park shall be developed or expanded where the site is determined to be unsuitable by the for reason of flooding, inadequate drainage, water supply or sewage treatment facilities. The City Council shall review the subdivision/development proposal to insure that each lot or parcel contains sufficient area outside of the floodway for fill placement for elevating structures, sewage systems and related activities.

Subd. 2. In the flood plain district, applicants for subdivision approval or development of a manufactured home park or manufactured home park expansion shall provide the information required in Section 1000.04(3)(a) of this Ordinance. The Zoning Coordinator shall evaluate the proposed subdivision or mobile home park development in accordance with the standards established in Sections 1000.04(2), 1000.04(3) and 1000.05 of this Ordinance.

Subd. 3. For all subdivisions in the flood plain, the floodway and flood fringe boundaries, the regulatory flood protection elevation and the required elevation of all access roads shall be clearly labeled on all required subdivision drawings and platting documents.

Subd. 4. Removal of Special Flood Hazard Area Designation: The Federal Emergency Management Agency (FEMA) has established criteria for removing the special flood hazard area designation for certain structures properly elevated on fill above the 100-year flood elevation. FEMA's requirements incorporate specific fill compaction and side slope protection standards for multi-structure or multi-lot developments. These standards should be investigated prior to the initiation of site preparation if a change of special flood hazard area designation will be requested.

SECTION 1000.07 ADMINISTRATION

Subd. 1. Permit Required. A Permit issued by the Zoning Coordinator shall be secured prior to the erection, addition, modification, rehabilitation (including normal maintenance and repair), or alteration of any building or structure or portion thereof; prior to the use or change of use of a building, structure, or land; prior to the construction of a dam, fence, or on-site septic system, prior to the change or extension of a nonconforming use, prior to the repair of a structure that has been damaged by flood, fire, tornado, or any other source, and prior to the placement of fill, excavation of materials or the storage of materials or equipment within the flood plain.

Subd. 2. State and Federal Permits. Prior to granting a permit or processing an application for a variance, the Zoning Coordinator shall determine that the applicant has obtained all necessary state and federal permits.

Subd. 3. Certification of Lowest Floor Elevations. The applicant shall be required to submit certification by a registered professional engineer, registered architect, or registered land surveyor that the finished fill and building elevations were accomplished in compliance with the provisions of this Ordinance. The Zoning Coordinator shall maintain a record of the elevation of the lowest floor (including basement) for all new structures and alterations or additions to existing structures in the flood plain district.

Subd. 4. Notifications for Watercourse Alterations. The Zoning Administrator shall notify, in rivering situations, adjacent communities and the Commissioner of the Department of Natural Resources prior to the community authorizing any alteration or relocation of a watercourse. If the applicant has applied for a permit to work in the beds of public waters pursuant to Minnesota Statute, Chapter 103G, this shall suffice as adequate notice to the Commissioner of Natural Resources. A copy of said notification shall also be submitted to the Chicago Regional Office of the Federal Emergency Management Agency (FEMA).

Subd. 5. Notification to FEMA When Physical Changes Increase or Decrease the 100-year Flood Elevation. As soon as is practicable, but not later than six (6) months after the date such supporting information becomes available, the Zoning Administrator shall notify the Chicago Regional Office of FEMA of the changes by submitting a copy of said technical or scientific data.

SECTION 1000.08 VARIANCES

Subd. 1. A variance means a modification of a specific permitted development standard required in an official control including this Ordinance to allow an alternative development standard not stated as acceptable in the official control, but only as applied to a particular property for the purpose of alleviating a hardship, practical difficulty or unique circumstance as defined and elaborated upon in a community's respective planning and zoning enabling legislation and this Ordinance.

Subd. 2. The Board of Adjustment may authorize upon appeal in specific cases such relief or variance from the terms of this Ordinance as will not be contrary to the public interest and only for those circumstances such as hardship, practical difficulties or circumstances unique to the property under consideration, as provided for in the respective enabling legislation for planning and zoning for cities or counties as appropriate. In the granting of such variance, the Board of Adjustment shall clearly identify in writing the specific conditions that existed consistent with the criteria specified in this Ordinance, any other zoning regulations of the Community, and the criteria specified in the respective enabling legislation which justified the granting of the variance. The following additional variance criteria of the Federal Emergency Management Agency must be satisfied:

(a) Variances shall not be issued by a community within any designated regulatory floodway if any increase in flood levels during the base flood discharge would result.

(b) Variances shall only be issued by a community upon (i) a showing of good and sufficient cause, (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

(c) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

Subd. 3. Variances from the provisions of this Ordinance may be authorized where the Board of Adjustment has determined the variance will not be contrary to the public interest and the spirit and intent of this Ordinance. No variance shall allow in any district a use prohibited in that district or permit a lower degree of flood protection then the regulatory flood protection elevation. Variances may be used to modify permissible methods of flood protection.

Subd. 4. The Board of Adjustment shall submit by mail to the Commissioner of Natural Resources a copy of the application for proposed variance sufficiently in advance so that the Commissioner will receive at least ten days notice of the hearing. A copy of all decisions granting a variance shall be forwarded by mail to the Commissioner of Natural Resources within ten (10) days of such action.

Subd. 5. Appeals. Appeals from any decision of the Board of Adjustment may be made, and as specified in this Community's Official Controls and also Minnesota Statutes.

Subd. 6. Flood Insurance Notice and Record Keeping. The zoning administrator shall notify the applicant for a variance that: 1) The issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage and 2) Such construction below the 100-year or regional flood level increases risks to life and property. Such notification shall be maintained with a record of all variance actions. This Community shall maintain a record of all variance actions, including justification for their issuance, and report such variances issued in its annual or biennial report submitted to the Administrator of the National Flood Insurance Program.

SECTION 1000.09 NONCONFORMITIES

A structure or the use of a structure or premises which was lawful before the passage or amendment of this Ordinance but which is not in conformity with the provisions of this Ordinance may be continued subject to the following conditions. Historic structures, as defined in Section 1000.02(4)(n)(2) of this Ordinance, shall be subject to the provisions of Sections 1000.09(1) – 1000.09(3) of this Ordinance.

Subd. 1. No such use shall be expanded, changed, enlarged, or altered in a way, which increases its nonconformity.

Subd. 2. A structural alteration within the inside dimensions of a nonconforming use or structure is permissible provided it utilizes flood resistant materials so as not to result in increasing the flood damage potential of that use or structure. A structural addition to a structure must be elevated to the regulatory flood protection elevation in accordance with Section 1000.04(2)(d) of this Ordinance.

Subd. 3. If any nonconforming use of a structure or land or nonconforming structure is substantially damaged, as defined by Section 1000.02(4)(m) of this Ordinance, it shall not be reconstructed except in conformity with the provisions of this Ordinance. The City Council may issue a permit for reconstruction if the use is located outside the floodway and, upon reconstruction, is adequately elevated on fill in conformity with the provisions of this Ordinance.

Subd. 4. If a substantial improvement occurs, as defined in Section 1000.02(4)(n) of this Ordinance, from any combination of a building addition to the outside dimensions of the existing building or a rehabilitation, reconstruction, alteration, or other improvement to the inside dimensions of an existing nonconforming building, then the building addition (as required by Section 1000.09(2) above) and the existing nonconforming building must meet the requirements of Section 1000.04 of this Ordinance for new structures, depending upon whether the structure is in the floodway or flood fringe, respectively.

SECTION 1000.10 PENALTIES FOR VIOLATION

A violation of the provisions of this Ordinance or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variance) shall constitute a misdemeanor.

Subd. 1. In responding to a suspected ordinance violation, the Zoning Administrator and the Community may utilize the full array of enforcement actions available to it including but not limited to prosecution and fines, injunctions, after-the-fact permits, orders for corrective measures or a request to the National Flood Insurance Program for denial of flood insurance availability to the guilty party. The Community must act in good faith to enforce these official controls and to correct ordinance violations to the extent possible so as not to jeopardize its eligibility in the National Flood Insurance Program.

Subd. 2. When an ordinance violation is either discovered by or brought to the attention of the Zoning Administrator, the Zoning Administrator shall immediately investigate the situation and document the nature and extent of the violation of the official control. As soon as is reasonably possible, this information will be submitted to the appropriate Department of Natural Resources' and Federal Emergency Management Agency Regional Office along with the Community's plan of action to correct the violation to the degree possible.

Subd. 3. The Zoning Administrator shall notify the suspected party of the requirements of this Ordinance and all other Official Controls and the nature and extent of the suspected violation of these controls. If the structure and/or use is under construction or development, the Zoning Administrator may order the construction or development immediately halted until a proper permit or approval is granted by the Community. If the construction or development is already completed, then the Zoning Administrator may either (1) issue an order identifying the corrective actions that must be made within a specified time period to bring the use or structure into compliance with the official controls, or (2) notify the responsible party to apply for an after-the-fact permit/development approval within a specified period of time not to exceed 30-days.

Subd. 4. If the responsible party does not appropriately respond to the Zoning Administrator within the specified period of time, each additional day that lapses shall constitute an additional violation of this Ordinance and shall be prosecuted accordingly. The Zoning Administrator shall also upon the lapse of the specified response period notify the landowner to restore the land to the condition that existed prior to the violation of this Ordinance.

SECTION 1000.11 AMENDMENTS

All amendments to this ordinance, including revisions to the Official Flood Plain Zoning District Map, shall be submitted to and approved by the Commissioner of Natural Resources prior to adoption. The flood plain designation on the Official Flood Plain Zoning District Map shall not be removed unless the area is filled to an elevation at or above the regulatory flood protection elevation and is contiguous to lands outside of the flood plain. Changes in the Official Zoning Map must meet the Federal Emergency Management Agency's (FEMA) Technical Conditions and Criteria and must receive prior FEMA approval before adoption. The Commissioner of Natural Resources must be given 10-days written notice of all hearings to consider an amendment to this Ordinance and said notice shall include a draft of the ordinance amendment or technical study under consideration.

SECTION 1000.12 TRAVEL TRAILERS AND TRAVEL VEHICLES

Recreational vehicles that do not meet the exemption criteria specified in Section 1000.12(1) below shall be subject to the provisions of this Ordinance and as specifically spelled out in Sections 1000.12(3)-(4) below.

Subd. 1. Exemption. Recreational vehicles are exempt from the provisions of this Ordinance if they are placed in any of the areas listed in Section 1000.12(2) below and further they meet the following criteria:

(a) Have current licenses required for highway use.

(b) Are highway ready meaning on wheels or the internal jacking system, are attached to the site only by quick disconnect type utilities commonly used in campgrounds and recreational vehicle parks and the recreational vehicle has no permanent structural type additions attached to it.

(c) The recreational vehicle and associated use must be permissible in any preexisting, underlying zoning use district.

Subd. 2. Areas Exempted For Placement of Recreational Vehicles:

(a) Individual lots or parcels of record.

(b) Existing commercial recreational vehicle parks or campgrounds.

(c) Existing condominium type associations.

Subd. 3. Recreational vehicles exempted in Section 1000.12(1) lose this exemption when development occurs on the parcel exceeding $500 for a structural addition to the recreational vehicle or exceeding $500 for an accessory structure such as a garage or storage building. The recreational vehicle and all additions and accessory structures will then be treated as a new structure and shall be subject to the elevation requirements and the use of land restrictions specified in Sections 1000.04 of this Ordinance. There shall be no development or improvement on the parcel or attachment to the recreation vehicle that hinders the removal of the recreational vehicle to a flood free location should flooding occur.

Subd. 4. New commercial recreational vehicle parks or campgrounds and new residential type subdivisions and condominium associations and the expansion of any existing similar use exceeding five (5) units or dwelling sites shall be subject to the following:

(a) Any new or replacement recreational vehicle will be allowed in the floodway or flood fringe districts provided said recreational vehicle and its contents are placed on fill above the regulatory flood protection elevation determined in accordance with the provisions of Section 1000.04(3) of this Ordinance and proper elevated road access to the site exists in accordance with Section 1000.04 of this Ordinance. No fill placed in the floodway to meet the requirements of this Section shall increase flood stages of the 100-year or regional flood.

(b) All new or replacement recreational vehicles not meeting the criteria of 1000.12(4)(g) above may, as an alternative, be allowed if in accordance with the following provisions. The applicant must submit an emergency plan for the safe evacuation of all vehicles and people during the 100 year flood. Said plan shall be prepared by a registered engineer or other qualified individual, shall demonstrate that adequate time and personnel exist to carry out the evacuation, and shall demonstrate that the provisions of Sections 1000.12(1)(a) and 1000.12(1)(b) of this Ordinance will be met. All attendant sewage and

water facilities for new or replacement recreational vehicles must be protected or constructed so as to not be impaired or contaminated during times of flooding in accordance with Section 1000.04(2)(a) of this Ordinance.

APPENDIX E

Phosphorus Reduction Status Table

City of Woodland: Subwatershed Phosphorus Reduction Allocation (Annual - MCWD)

H:\WDLD\C13100588\EXCEL\[P load Reduction Projects.xls]Budget Table

City to Populate Table as Projects Occur

Lake Minnetonka:	10	lb/yr

Project name	Retrofit/New Treatment Type	Year	Drainage Area (acres)	Annual P Load (lbs)	P Removal[1] (%)	P Removed (lbs/year)	% Applied to Mound Load Reduction Allocation[2]	Mound Phosph Removed (lbs/year)
		Total:						

[1] P Removal % Assumptions: Treatment Unit: 40% removal of 80% of annual runoff
Ponds: William Walker's Pondnet Model
Bioretention (Tiled): 50% removal (1/2" design)

[2] Based on % funding source (% funded by MCWD does not count towards load allocation)