COMPREHENSIVE SURFACE WATER MANAGEMENT PLAN FOR THE CITY OF EXCELSIOR, MINNESOTA

WSB Project No. 1140-55

January 2009

PREPARED BY

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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.

Kevin Kawlewski, PE
Reg. No. 25496

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

SECTION I

I. EXECUTIVE SUMMARY

This Comprehensive Surface Water Management Plan for the City of Excelsior has been developed to meet local watershed management planning requirements of the Metropolitan Surface Water Management Act and Board of Water and Soil Resources Rules 8410. It has also been developed to be in conformance with the requirements of the local Watershed District and Watershed Management Organizations, Metropolitan Council requirements, and applicable State and Federal laws. This document and its referenced literature is intended to provide a comprehensive inventory of pertinent water resource related information that affects the City and management of those resources.

Section II

Section II of this plan provides an introduction and purpose. The Surface Water Management Plan has been developed to provide the City with direction concerning the administration and implementation of water resource activities within the City. This plan is intended to meet the requirements for a local surface water management plan as required by the Metropolitan Surface Water Management Act and be in conformance with Board of Water and Soil Resources (BWSR) Rules Chapter 8410. This section also lists the personnel contacts involved in the assistance and implementation of this plan, including the staff from the Minnehaha Creek Watershed District.

Section III

Section III of this plan provides an inventory of land and water resources within the City including a general description and summary of data related to precipitation, geology, topography, flood problem areas, existing flood insurance studies, water quality, water management ordinances, surface and ground water appropriations, ground water, soils, land use, public utilities services, public areas for water-based recreation and access, fish and wildlife habitat, unique features, scenic areas and pollutant source locations within the City. A number of maps were also developed as part of the Plan to assist in summarizing this information.

Section IV

Section IV of this Surface Water Management Plan provides an assessment of the existing and potential water resource related concerns within the City. These concerns were identified based on an analysis of the land and resource data collected as part of this plan preparation and through public input. A number of problem areas were identified through the plan development process. This section summarizes the problems and corrective actions that were identified through this process.

Section V

Section V of this plan outlines water resource management related goals and policies of the City. Goals and policies have been developed for the City concerning water quantity, water quality, recreation, fish and wildlife management, enhancement of public participation, information and education, public ditch system, ground water, wetlands, and erosion.

Section VI

Section VI outlines implementation priorities and develops an implementation program. This section contains a prioritized listing of the studies, programs and capital improvements that have been identified as necessary to respond to the water resource needs within the City.

The implementation period identified within this report for the programs, studies and capital improvements is for 10 years or more from the adoption of this plan. Many of the improvements noted in the plan will most efficiently be implemented over time, as development occurs in the affected areas. This plan is to be used for planning purposes only. Detailed feasibility analysis has not been completed to develop this section; therefore, cost estimates are subject to change and update as more detailed information is obtained.

Section VII

Section VII discusses the financial considerations of implementing the proposed regulatory controls, programs and improvements, which have been identified in this plan and their financial impact on the City. Funding sources available for implementing the policies and corrective actions identified within this plan are included. The plan indicates that the funding for the policies and corrective actions will be either from the City's Storm Water Utility Fund or as part of future re-development or municipal reconstruction projects. Other possible funding sources for the implementation of this plan include special assessments and grant monies, which may be secured from various local, regional, County, State or Federal agencies.

Section VIII

Section VIII discusses the procedures to be followed in the event this Surface Water Management Plan is amended. Once this Surface Water Management Plan is approved, no significant changes to this plan can be facilitated without the approval of the proposed revisions by the Watershed Management Organizations and Districts within the City that are affected by the change. Significant changes to the plan shall be made known to the Mayor, City Council, City Staff, the Metropolitan Council, and the affected Watershed Management Organizations and Districts within the City.

Appendices

Appendices are included in the back of the plan and are summarized below. These documents are included because they provide supporting information to the main body of the plan.

> **Appendix A: Water Resource Related Agreements.** Currently, the City has not entered into any water resource related agreements. However, this appendix is left as a place-holder in the event that such agreements are developed in the future.
>
> **Appendix B: Storm Water System Modeling Information.** A summary of the storm water model that was developed for the City is included in this appendix. The model is a HydroCAD model developed in 2008 for this Plan. This includes

drainage areas, high water levels, and peak discharge rates as well as subwatershed and storm sewer maps.

Appendix C: FEMA Flood Insurance Study. A copy of the FEMA flood insurance rate maps are included in this appendix.

Appendix D: NPDES Phase II Information. A copy of the NPDES permit application and BMP summary sheets are included in this appendix.

Appendix E: Fish and Wildlife Information. Information from the DNR regarding fish and wildlife resources is included in this appendix.

Appendix F: Identified Pollutant Sources. Supporting information from the PCA regarding pollutant sources is included in this appendix.

Appendix G: Lake and Water Quality Information. Information collected about the lakes and water quality is included in this appendix.

Appendix H: Wetland Assessment Summary. This appendix contains the results of the wetland functional assessment for the City.

Appendix I: Ordinances. The City's applicable water resource ordinances are included.

Appendix J: Wellhead Protection Information. Information about the City's Wellhead Protection plan is included in this appendix.

Appendix K: Phosphorus Load Reduction Plan. The City is required by MCWD to remove 10 pounds of phosphorus annually. This plan to address this requirement is located in this appendix.

Additional material is referenced within this report and is available from the Engineering Department.

This document is expected to be a ten year Surface Water Management Plan, after which time this plan should be updated. However, if significant changes to the plan are deemed necessary prior to that date the City may revise this plan in its entirety.

SECTION II

II. INTRODUCTION AND PURPOSE

A. General

This Surface Water Management Plan has been developed to provide the City with direction concerning the administration and implementation of water resource activities within the City. This plan is intended to meet the requirements for a local surface water management plan as required by the Metropolitan Surface Water Management Act and be in conformance with Board of Water and Soil Resources (BWSR) Rules Chapter 8410.

In addition to being in conformance with the above state law, this plan has also been developed to meet the needs, requirements, and direction outlined by the following list:

1. Minnehaha Creek Watershed District Plan and Rules

2. State and Federal laws regarding the need to secure a National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge permit

3. Metropolitan Council Water Resource Management Policy Plan

This plan incorporates the approaches and direction provided in the programs and documents listed above into a comprehensive plan that can be consistently applied across the City.

B. Personnel Contacts

To implement this plan, a coordinated water resource management approach must be used. This approach utilizes the services of staff personnel within the City and surrounding communities, as well as the Watershed Districts within the City. The City is completely within the Minnehaha Creek Watershed District as shown on **Figure II-1.**

The primary implementation responsibility will lie with the appropriate staff members at the City. Assistance from the surrounding municipalities and Watershed District will also be expected. Outlined below are the names, addresses, telephone numbers, and website address for personnel having responsibilities for overseeing or implementing various aspects of the Plan.

City of Excelsior
City Manager
339 Third Street
Excelsior, MN 55331
952-474-5233
http://ci.excelsior.mn.us/

Minnehaha Creek Watershed District
Contact: Eric Evenson
District Administrator
8208 Minnetonka Boulevard
Deephaven, MN 55391
952-471-0590

http://www.minnehahacreek.org/

C. Water Resource Related Agreements

The City has not entered into any water resource-related agreements that govern how the City must manage its water resources.

SECTION II

Figure II-1
Watershed District/Watershed Management Org. Map

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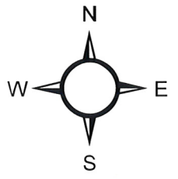
Excelsior

City of Excelsior
Surface Water Management Plan

Watershed District Map

Figure II-1



0 350 700 1,400 Feet

Legend

- Corporate Boundary
- Minnehaha Creek Watershed District

Source: Met Council

WSB & Associates, Inc.

SECTION III

III. LAND AND WATER RESOURCE INVENTORY

In conformance with the Metropolitan Surface Water Management Act and as required in Minnesota Rules Section 8410.0060, this section of the plan provides a general description and summary of the climate, geology, surficial topography, surface and ground water resource data, soils, land use, public utilities services, water-based recreation, fish and wildlife habitat, unique features, scenic areas, and pollutant sources. This section also identifies where detailed information can be obtained for many of these areas of concern.

A. Climate and Precipitation

1. Climate

The climate within the Minneapolis/St. Paul metropolitan area is described as a humid continental climate with moderate precipitation, wide daily temperature variations, warm humid summers and cold winters. The total average annual precipitation is approximately 29 inches, of which approximately one-third occurs in the months of June, July and August. The annual snowfall average is about 56 inches and is equivalent to approximately 5.6 inches of water. Average monthly temperature and precipitation are shown in **Table III-1.**

2. Precipitation

A rainfall event having a 99% chance of occurrence in a 24-hour period is approximately 2.3 inches. A rainfall event having a 1% chance of occurrence in a 24-hour period, or what is most commonly referred to as a 100-year event, is approximately 5.9 inches. The 1%, 10-day runoff is 7.2 inches. **Figures III-1** and **III-2** show the 1% rainfall event and the annual normal precipitation within the State of Minnesota. Additional climatological information for the area can be obtained from State Climatologist website at http://climate.umn.edu/.

B. Geology and Topographic Information

1. Geology:

The City of Excelsior is located in southwestern Hennepin County (**Figure III-3**). The City is surrounded by the City of Shorewood, except for the northeast side where it is bordered by the City of Greenwood. Total area within the incorporated limits of the City is 554.5 acres, with 151.1 acres of this area water.

According to the Hennepin County Geologic Atlas, the geomorphology of the City is the uppermost geologic formation consists of quaternary deposits that can be as thick as 300-400 feet. The unconsolidated quaternary deposits of glacial and post glacial material conceal all the bedrock within the City. The bedrock formations are marine sedimentary rocks of Early Paleozoic age when shallow seas covered southeastern Minnesota.

The bedrock formations throughout the City include the Prairie du Chien and the St. Peter Sandstone. Depth to bedrock varies from approximately 600 to 750 feet above sea level.

There are three main aquifers within the City boundaries: the Prairie du Chien Aquifer, the Franconia-Ironton-Galesville Aquifer, and the Mt. Simon-Hinckley Aquifer.

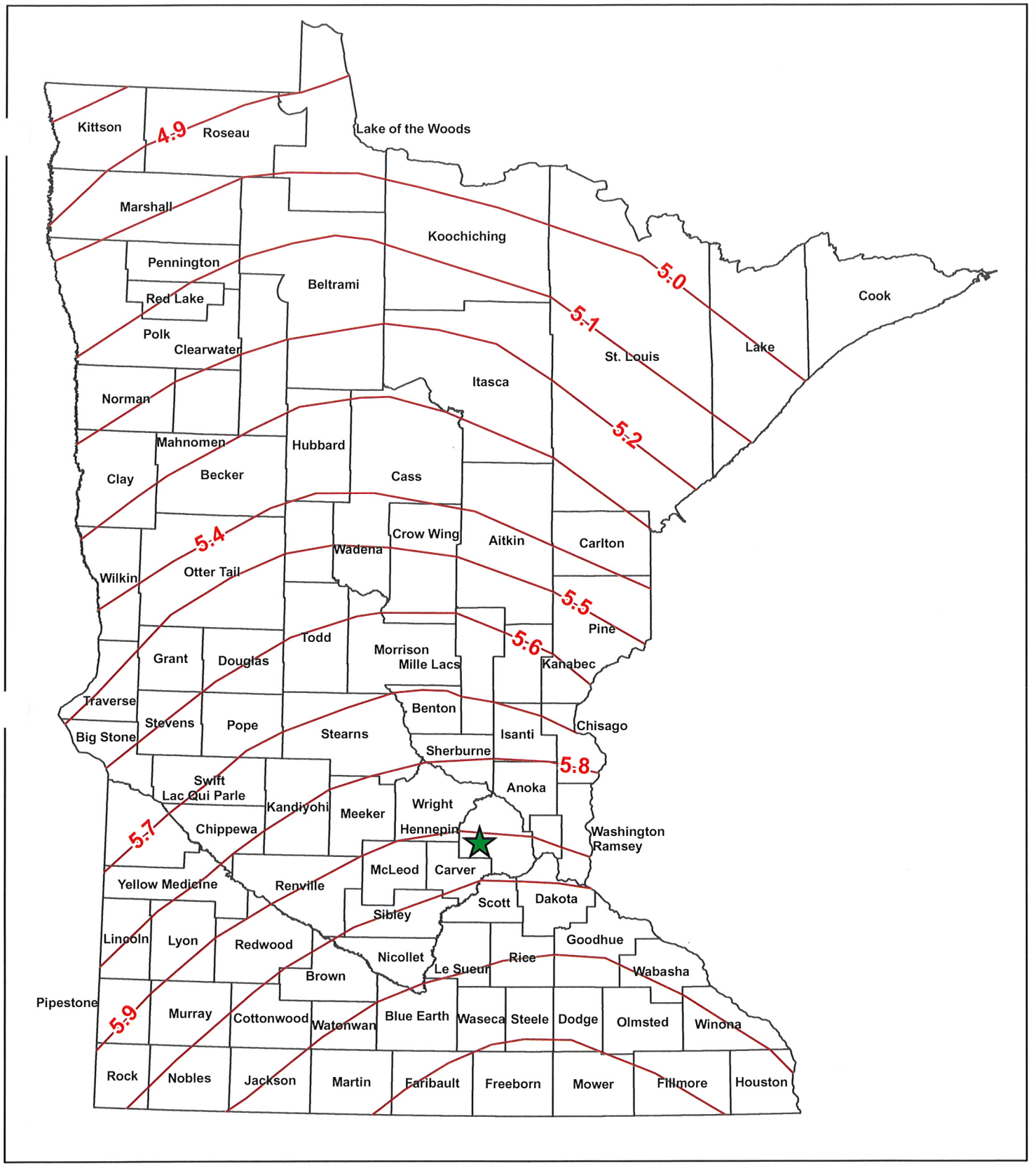
Additional geologic information for areas within the City can be found in the following plans:

- Hennepin County Geologic Atlas
- Minnehaha Creek Watershed District Plan

TABLE III-1 AVERAGE MONTHLY TEMPERATURE AND PRECIPITATION DATA FOR CITY

Months	**Average Temp** (F°)	**Precipitation** (inches)	**Snowfall** (inches)
January	13.1	1.04	13.7
February	20.1	0.79	8.2
March	32.1	1.86	10.5
April	46.6	2.31	3.1
May	59.3	3.24	0.1
June	68.4	4.34	0.0
July	73.2	4.04	0.0
August	70.6	4.05	0.0
September	61.0	2.69	0.0
October	48.7	2.11	0.6
November	32.5	1.94	10.0
December	18.7	1.00	10.1
Totals	**45.4**	**29.41**	**56.3**

Source: Midwest Regional Climate Center, MSP Airport



City of Excelsior

City of Excelsior
Surface Water Management Plan

1% Chance Rainfall Event in 24-hours

Values in Inches

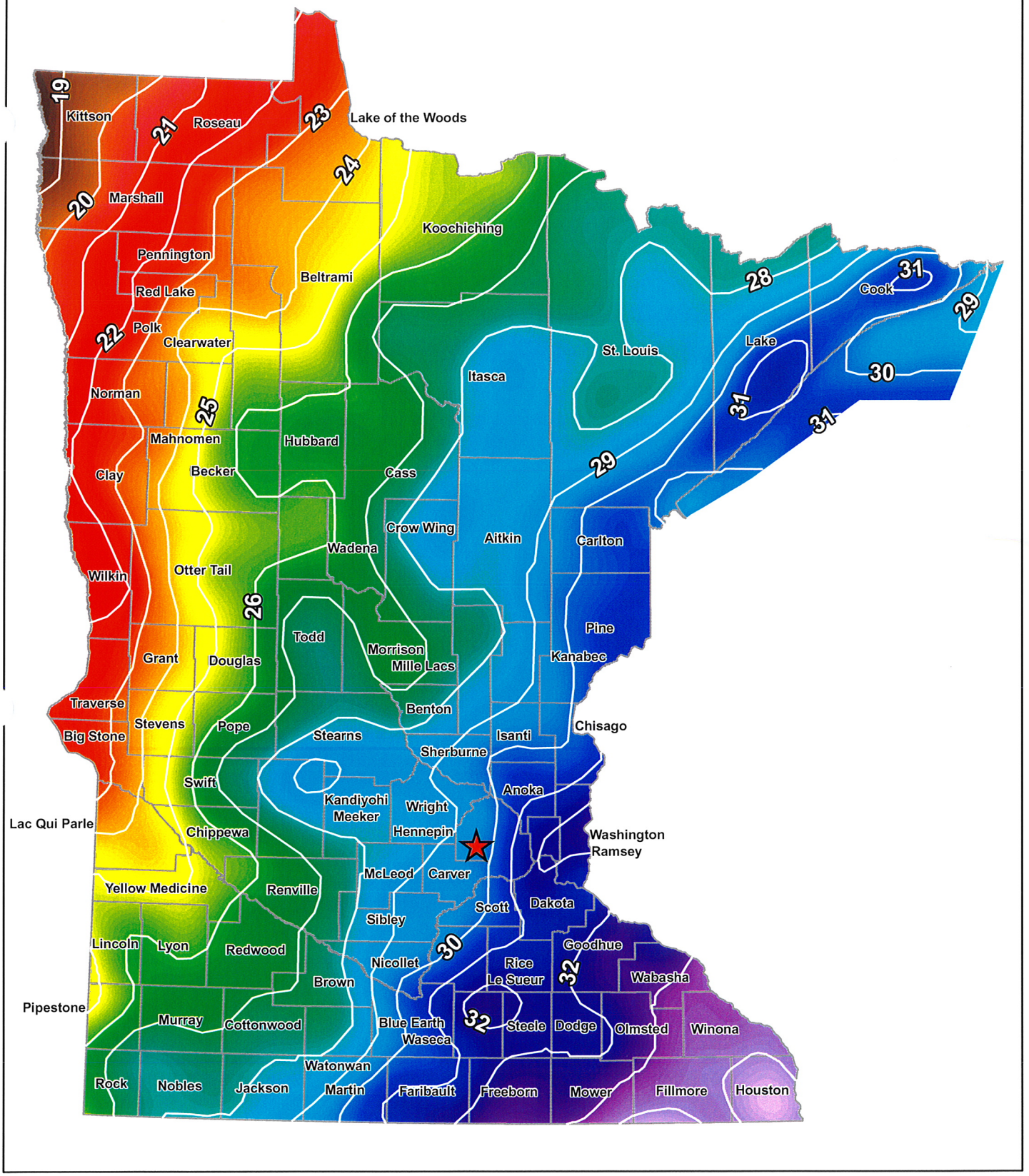
Figure III-1

N
S

0 50 100 Miles

Excelsior

WSB & Associates, Inc.



City of Excelsior

City of Excelsior
Surface Water Management Plan

Annual Normal Precipitation

Values in Inches

Figure III-2

N

S

0 50 100 Miles

Excelsior

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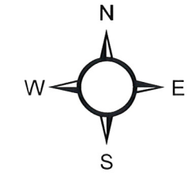
Excelsior

City of Excelsior
Surface Water Management Plan

City Location Map

Figure III-3



0 6 12 Miles

Legend

City of Excelsior

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2. Topography:

The topography of the City can be described as essentially hilly shoreland adjacent to Lake Minnetonka. Storm water runoff from the City is generally directed from the south to the north into Lake Minnetonka. The specific drainage patterns, which depict topography for areas within the City, are shown on the subwatershed delineation map in **Appendix B.** As can be observed from the subwatershed delineation map, the City is divided into several small watersheds. The subwatershed delineations utilized City topographic mapping, storm sewer as-builts, aerial photos, and field investigations.

C. Surface Water Resource Data

Available surface water resource data within the City is summarized in this section. Detailed information has been included either in the appendices to this report or has been identified by reference and is available from the Engineering Department.

The hydrologic system of the City consists of wetlands, streams, and major water bodies as outlined below.

1. Wetlands

The general locations of wetlands within the City are shown on **Figures III-4, III-5, and III-6**. These figures show the Wetland Assessment from the MCWD, National Wetland Inventory, and the DNR Public Waters Map, respectively. These wetlands provide habitat to many species of plants and animals.

In 2003, the MCWD completed a functional assessment of wetlands using the Minnehaha Creek Routine Assessment Method (McRAM) as shown on **Figure III-4.** A summary of these results is included in **Appendix H.**

2. Major Bodies of Water

There are several water bodies that convey and store water within and through the City. These water bodies are Lake Minnetonka, Galpin Lake, Mud Lake, and College Lake (**Figure III-6**). More information about these water bodies in included in various portions of this section.

3. Hydrologic Modeling (Water Quantity)

The City's hydrologic/hydraulic system consists of Lake Minnetonka as well as other lakes, ponds, wetlands, and storm sewer systems. The City is divided into approximately 57 subwatershed areas, which are shown in **Appendix B.**

The hydrologic/hydraulic modeling effort was completed in 2008 using HydroCAD. The model quantifies the 2-year, 10-year, and 100-year rainfall events, peak discharge rates, storage requirements, other pertinent hydrologic/hydraulic information for storm water retention areas, and trunk storm water conveyance systems within the City. The hydrologic/hydraulic modeling results are included as **Appendix B**.

The Federal Emergency Management Agency (FEMA) shows the 100-year floodplain of Lake Minnetonka as 931.0. The Minnehaha Creek Watershed District (MCWD) shows the 100-year floodplain elevation at 931.5. While the City's model did not include Lake Minnetonka, the City recognizes the 100-year floodplain elevation at 931.5.

Additional information regarding water quantity within the City can be found in the following studies:

- Second Avenue Storm Sewer Study
- Bells Street Hydrological Study

D. Flood Insurance Studies

A Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) was completed for Hennepin County and updated in 2004. The Flood Insurance Study consists of a study report, a set of floodway and floodplain delineation maps, and a set of Flood Insurance Rate Maps (FIRM) maps. The FIRMs are available from the City Engineering Department and are in **Appendix C**. The floodplain boundaries for the City are shown in **Figure III-7**. The 100-year flood levels and peak discharge rates based on the City's model are included in **Appendix B.**

While the City's model did not include Lake Minnetonka, the City recognizes the 100-year floodplain elevation at 931.5. The City did model other areas in the City. For College Lake, the City's 100-year critical event elevation is 947.4 and FEMA's elevation is 946. For Galpin Lake, the City's critical event elevation is 945.7 and FEMA's elevation is 946. For Mud Lake, the City's critical event elevation is 945.1 and FEMA's elevation is 946.

E. Water Resource Problem Areas

A number of water resource problem areas were identified within the City. **Figure III-8** shows the locations of these water resource problem areas and **Table VI-5** lists the areas. These areas were identified through information obtained from City Staff and from analyzing the storm water modeling results.

There are three distinct types of problems found in the City; 1) Erosion and silt caused by uncontrolled runoff, 2) Low areas that do not provide adequate freeboard (2 feet) and 3) Small-localized landlocked basins.

More detailed information about these issues is available in **Section V** and **Table VI-5** of this Plan.

F. Water Quality Data

1. Overview

Water quality data for the City has been obtained from the MPCA's Environmental Data Access site at www.pca.state.mn.us/data/edaWater/index.cfm and from the MCWD.

Some of this data is included in **Appendix G. Figure III-9** shows the location of monitoring sites listed on the MPCA web-site. Some of the available water quality information is summarized below:

	Mean Total Phosphorus (ppb)	Mean Chlorophyll a (ppb)	Secchi Disk (meters)	Carlson Trophic Status
Galpin Lake	115	22.7	0.7	Hypereutrophic
Lake Minnetonka	NA	NA	3.2	Mesotrophic
Gideon's Bay (MCWD)	22	2	3.3	Mesotrophic

List of Impaired Waters (Section 303d):
The Minnesota Pollution Control Agency lists the following waterbodies/water courses within the City as having impaired uses due to excess pollutant(s):

- Lake Minnetonka and Christmas Lake *(Mercury)*

These waterbodies/watercourses are designated as having a Total Maximum Daily Load (TMDL) for acceptable levels of those pollutants. The EPA has approved the state-wide TMDL on mercury reductions. **Figure III-9** also shows the location of the impaired waters.

G. Floodplain Management

The City has adopted regulations for activity within the floodplain district. A copy of these regulations can be found on the City's website at www.ci.excelsior.mn.us and in **Appendix I**. These regulations dictate floodplain usage for different types of construction.

H. Shoreland Management

The City has adopted a Shoreland Overlay District. A copy of these regulations can be found on the City's web-site at www.ci.excelsior.mn.us and in **Appendix I**. Based on these regulations, the City has classified the following DNR Public Waters/Wetlands:

Water Body Number	***Water Body Name***	***Classification***
133 P	Lake Minnetonka	General Development
898 W	Unnamed	Natural Environment
896 W	College Lake	Natural Environment
895 W	Mud Lake	Natural Environment
144 P	Galpin Lake	General Development

Figure III-6 shows the location of these water bodies with the Ordinary High Water (OHW) level, if applicable.

I. Ground Water Appropriations

A ground water well serves the City water needs. This well has a ground water appropriation permit from the DNR. **Figure III-10** shows the location of the DNR permitted ground water appropriation site within the City. The City has adopted the Minnesota Department of Health (MDH) rules on wellhead protection. Information from the MDH regarding the City included in **Appendix J.**

J. Ground Water Resource Data

Ground water resource data for areas within the City is contained within the Hennepin County Geologic Atlas. The primary aquifers within the City are the Prairie du Chien-Jordan Aquifer, the Franconia-Ironton-Galesville Aquifer, and the Mt. Simon-Hinckley Aquifer. The Prairie du Chien-Jordan Aquifer is of special concern since it is the most heavily used ground water source in Hennepin County.

K. Soils Information

The soils within the City area have moderate to high infiltration rates and therefore create a modest to high susceptibility to ground water contamination. The hydrologic soil classification map is shown in **Figure III-11**. The four soil classifications are defined as follows (Excelsior only has A and B soils):

Group A - These soils have high infiltration rates even when thoroughly wetted. The infiltration rates range from 0.3 to 0.5 inches per hour. These soils consist chiefly of deep, well drained to excessively drained sands and gravel. Group A soils have a high rate of water transmission, therefore resulting in a low runoff potential.

Group B - These soils have moderate infiltration rates ranging from 0.15 to 0.30 inches per hour when thoroughly wetted. Group B soils consist of deep moderately well to well drained soils with moderately fine to moderately coarse textures.

Group C - These soils have slow infiltration rates ranging from 0.05 to 0.15 inches per hour when thoroughly wetted. Group C have moderately fine to fine texture.

Group D - These soils have very slow infiltration rates ranging from 0 to 0.05 inches per hour when thoroughly wetted. Group D soils are typically clay soils with high swelling potential, soils with high permanent water table, soils with a clay layer at or near the surface, or shallow soils over nearly impervious material.

The City is almost entirely made up of soil from the Hayden-Cordova-Peaty muck association. This association consists of nearly level to rolling medium textured and moderately fine textured soils developed in glacial till, and level organic soils. The soil is patches of loam and sandy loam, commonly capped by and interbedded with thin deposits of silty to gravelly sediment. There is little runoff potential since the soils have moderate to high infiltration rates. Additional information on the geology and soil for the city is included in the Hennepin

County Soil Survey available at the Hennepin Soil and Water Conservation District.

L. Land Use and Public Utilities Services

The City's land use practices include residential, commercial, public and private open space areas. **Figure III-12** is a representation of the existing land use. **Figure III-13a** shows the future land use and **Figure III-13b** shows zoning. All of the residences and businesses in the City are served by public water and sewer systems.

The Minnesota Land Cover Classification System (MLCCS) has been completed within the City. The results of the land cover classification are shown in **Figure III-15.**

M. Public Areas for Water Based Recreation and Access

There are a number of water bodies that offer active recreation such as fishing and passive recreation such as walking. These recreational resources are outlined below:

Lake Minnetonka: Lake Minnetonka provides excellent fishing and boating opportunities. A variety of other recreation is enjoyed during all seasons such as swimming and cross country skiing. There is a swimming beach located at The Commons Parkground. There are public accesses located on the lake; however, none are in the City of Excelsior.

Galpin Lake: Galpin Lake is located in both Excelsior and Shorewood. The DNR does not consider it a fishing lake, but other types of recreation are enjoyed around the lake.

Figure III-13c shows existing and future trail plans. Additional information regarding recreational opportunities within the City is available at the Parks Department at City Hall.

N. Fish and Wildlife Habitat

The City provides habitat for a variety of small mammals, reptiles, birds, amphibians, and insects. Maintenance of habitat for wildlife species is important in maintaining ecological stability of the City's natural areas.

Information from the DNR indicates there is a variety of moderately unique fish and wildlife habitat within the City, much of which is located near or in Lake Minnetonka and Galpin Lake. Lake Minnetonka is often stocked by the DNR to supplement natural reproduction. A Lake Survey Report for Lake Minnetonka can be found at www.dnr.state.mn.us.

O. Unique Features and Scenic Areas

Unique features and scenic areas include State designated Scientific and Natural Areas, designated scenic areas, areas containing rare and endangered species, biologically diverse areas, and historic areas. Information about rare and

endangered species from the DNR County Biological Survey is included in **Appendix E.**

The City has limited natural areas, water bodies, and city/regional parks. The City has no Scientific and Natural Areas or wild and scenic rivers as defined by the State.

The City does have a number or historical and architectural resources as identified by the Minnesota State Historical Preservation Office. The sites and locations of these resources can be found in the water resource library.

P. Pollutant Source Locations

Information from the MPCA is shown on **Figure III-14.** This figure shows the approximate locations of a variety of pollutant sites. Many of the sites on the figure have been cleaned up or are in the process of being cleaned up. The MPCA should be contacted for site-specific details. Additional information is include in **Appendix F.**

Q. NPDES Phase II

The Minnesota Pollution Control Agency (MPCA) implemented the National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Program in March 2003. Phase II requires municipal separate storm sewer systems (MS4's) in urban areas with populations over 10,000 and under 100,000 to obtain an NPDES permit. Permits for construction sites greater than 1 acre will also be required as part of the Phase II. The City has submitted its Stormwater Pollution Prevention Plan and Notice of Intent in conformance with the MPCA guidelines. The application that was sent to the MPCA is included in **Appendix D.**

File: K:\01140-55\GIS\Maps\Figures\Figure III-6E_DNR Public Waters-wetlands.mxd, Mar 13, 2007 2:08:43 PM

Excelsior

City of Excelsior
Surface Water Management Plan

DNR Public Waters and Wetlands Map

Figure III-6

N
W E
S

0 350 700 1,400
Feet

Ordinary High Water Level (OHW)		
Lake Minnetonka	133P	929.4'
Galpin Lake	144P	943.14'

Legend

- Corporate Boundary
- DNR Public Waters/Wetlands

Source: MnDNR

WSB & Associates, Inc.

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Excelsior

City of Excelsior
Surface Water Management Plan

FEMA Floodplain Map

Figure III-7

N
W E
S

0 350 700 1,400
Feet

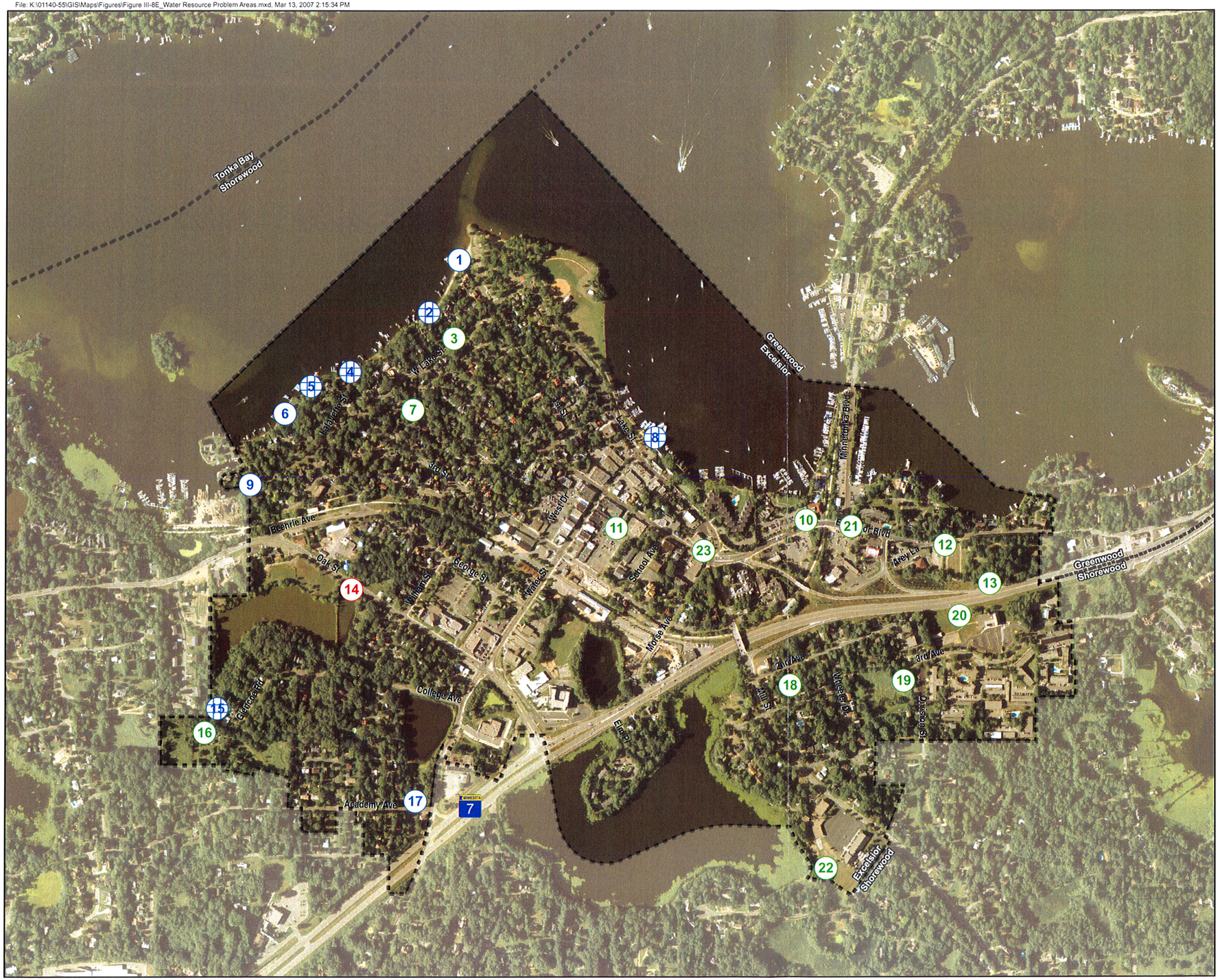
Legend

- Corporate Boundary
- 100-year Floodplain
- 500-year Floodplain

Source: FEMA

WSB & Associates, Inc.

File: K:\01140-55\GIS\Maps\Figures\Figure III-8E_Water Resource Problem Areas.mxd, Mar 13, 2007 2:15:34 PM



Excelsior

City of Excelsior
Surface Water Management Plan

Water Resource Problem Areas

Figure III-8

N
W E
S

0 375 750 1,500
Feet

Legend

- Erosion Problems No Storm Sewer
- Erosion Problems with Storm Sewer
- Existing Freeboard Less Than 2 Feet
- Silt Delta - Pond
- **Corporate Boundary**

WSB & Associates, Inc.

File: K:\01140-55\GIS\Maps\Figures\Figure III-9E_Water Quality Monitoring.mxd, Mar 13, 2007 2:22:18 PM

Excelsior

City of Excelsior
Surface Water Management Plan

Water Quality Monitoring Locations Map

Figure III-9

N
W E
S

0 350 700 1,400
Feet

Legend

- Corporate Boundary
- Impaired Water
- MPCA Monitoring Site

Source: Minnesota Pollution Control Agency

WSB & Associates, Inc.

File: K:\01140-55\GIS\Maps\Figures\Figure III-10E_Ground Water Appropriations.mxd, Mar 13, 2007 2:26:37 PM

Excelsior

City of Excelsior
Surface Water Management Plan

Ground Water Appropriations Location Map

Figure III-10

N
W E
S

0 350 700 1,400
Feet

Legend

- Corporate Boundary
- Waterworks

Source: MnDNR

WSB & Associates, Inc.

File: K:\01140-55\GIS\Maps\Figures\Figure III-11E_Hydrologic Soils Classification.mxd, Mar 13, 2007 2:34:52 PM

Excelsior

City of Excelsior
Surface Water Management Plan

Hydrologic Soils Classification Map

Figure III-11

N
W E
S

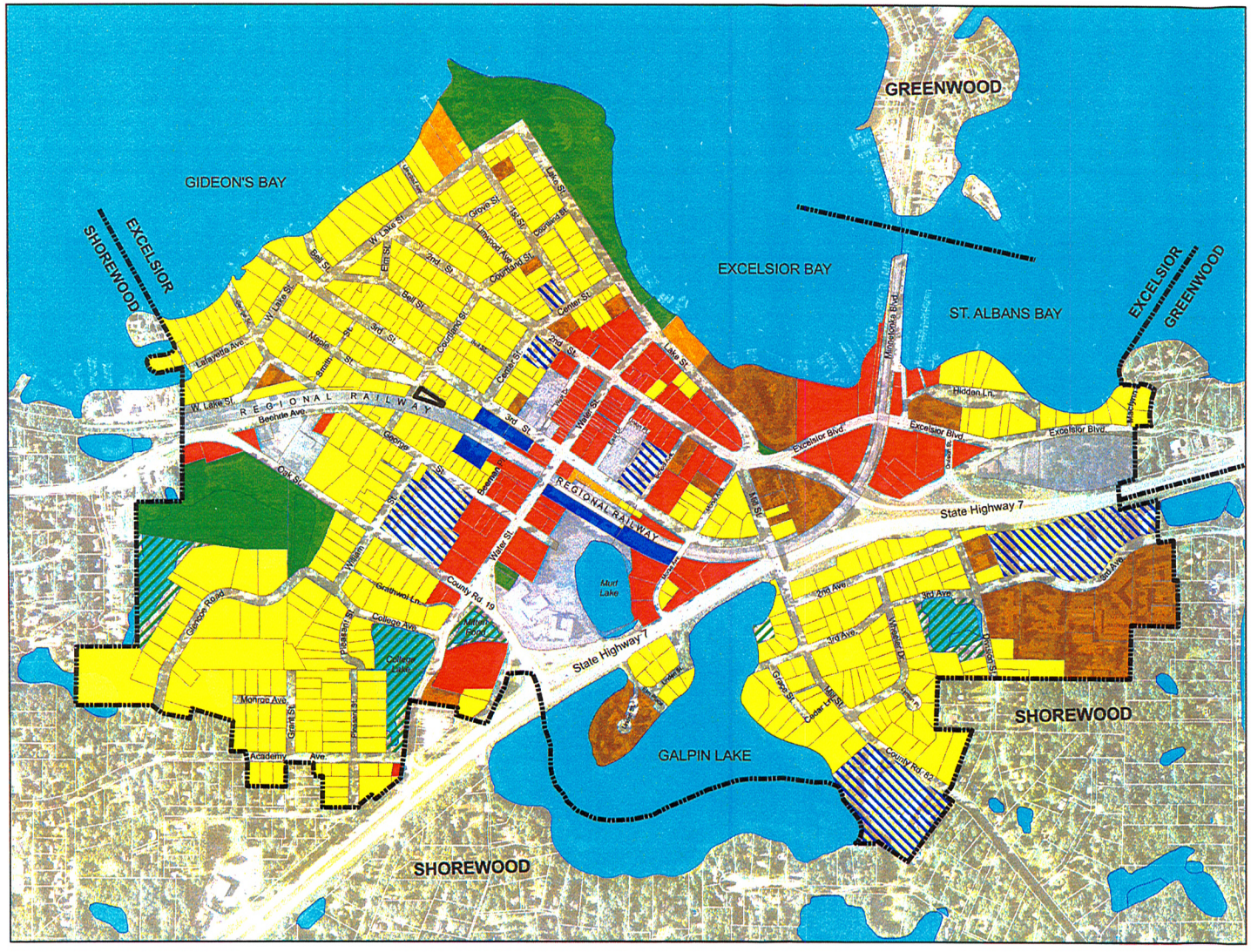
0 350 700 1,400
Feet

Legend

- Corporate Boundary
- A - These Soils have high infiltration rates even when to .5 inches per hour. These soils consist chiefly of deep, well drained to excessively drained sands and gravel. These soils have a high rate of water transmission, therefore resulting in a low runoff potential.
- B - These soils have a moderate infiltration rate ranging from .15 to .3 inches per hour when thoroughly wetted. These soils consist of deep moderately well to well drained soils with moderately fine to moderately coarse textures.
- No Data
- Water

Source: NRCS

WSB & Associates, Inc.



City of Excelsior

2008 Comprehensive Plan Update

Figure III- 12 Landuse

- Churches
- Commercial
- High Density Residential
- Industrial
- Low Density Residential
- Medium Density Residential
- Open Space/Wetland
- Parks
- Public/Semi-Public
- Undeveloped

N
W
E
S

January 2008

Source: Northwest Associated Consultants, Inc. & WSB

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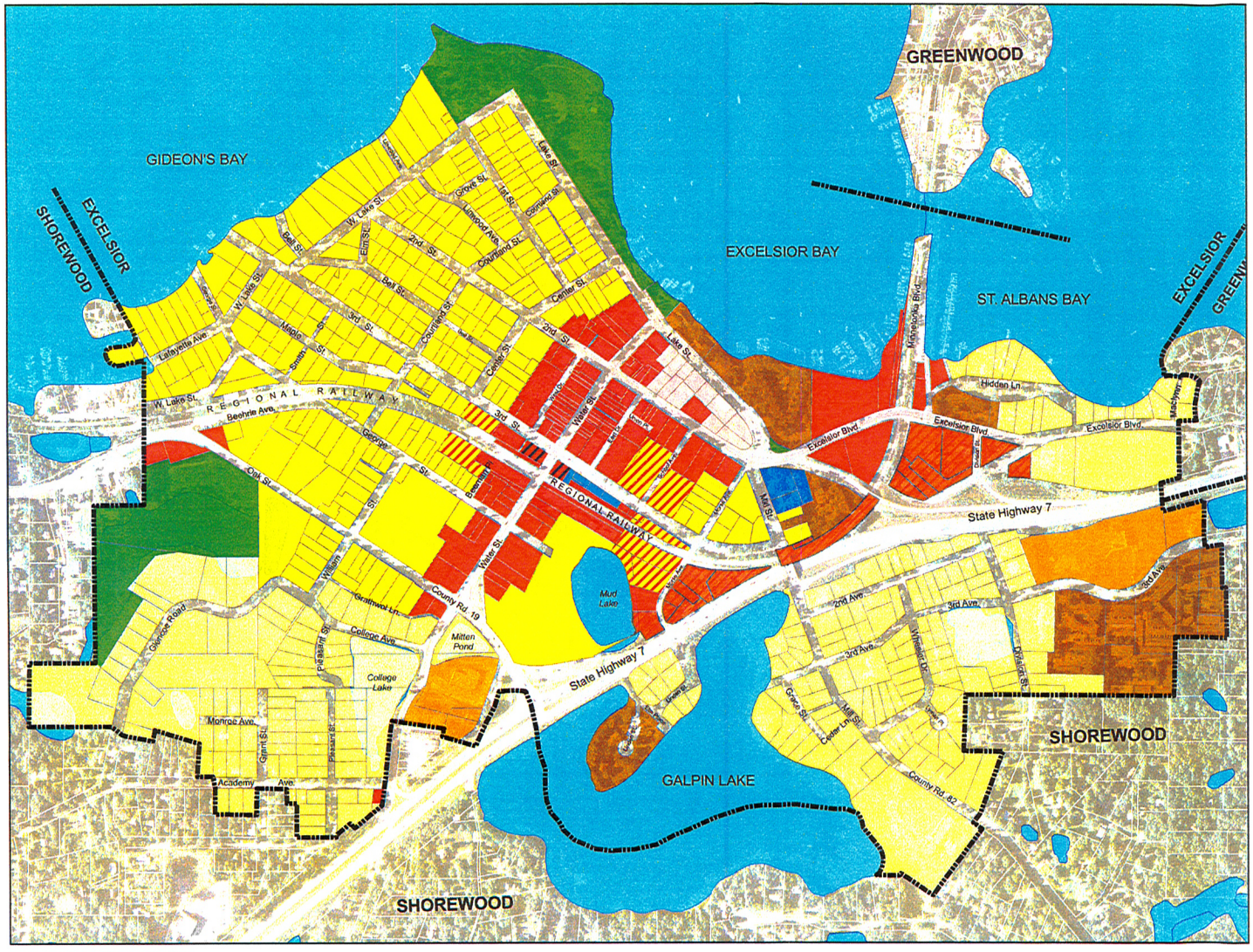
WSB & Associates, Inc.

City of Excelsior

2008 Comprehensive Plan Update

Figure III-13a Zoning



- R-1, Single Family Residential
- R-2, Single and Two Family
- R-3, Medium Density Residential
- R-4, High Density Residential
- B-1, Central Business District
- B-2, General Business District
- B-3, Office/Residential District
- B-4, Office/Residential District
- B-5, Central Business District/Motor Fuel Stations
- B-6, Highway Office, Retail & Residential District
- P, Public Park District
- PUD, Planned Unit Development (Residential)

N W E S

January 2008

Source: Northwest Associated Consultants, Inc. & WSB

0 600 1,200 2,400 3,600 4,800 6,000 Feet

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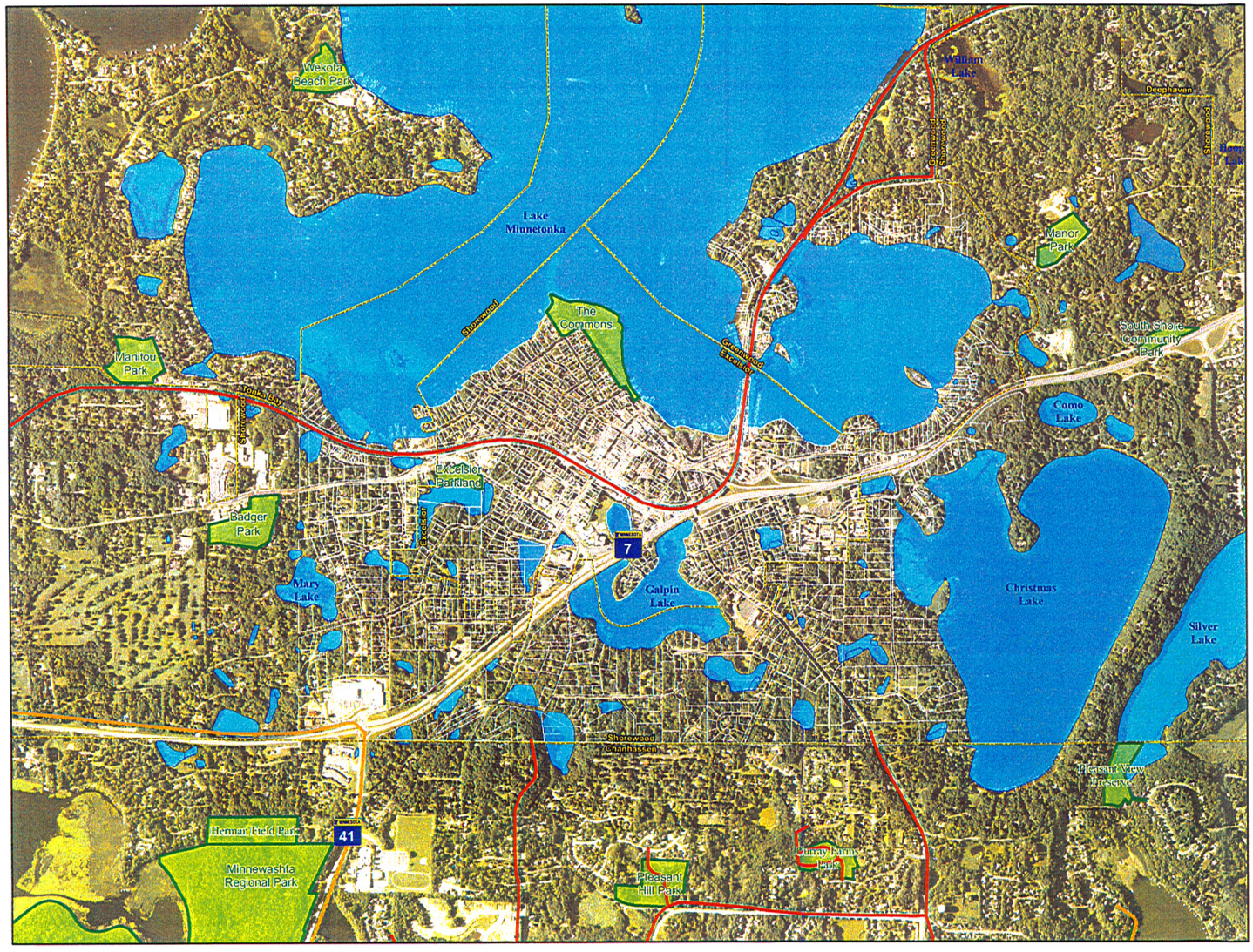

City of Excelsior

2008 Comprehensive Plan Update

Figure III-13b Parks and Trails

- Existing Trail
- Proposed Trail
- Parks

January 2008

Source: Northwest Associated Consultants, Inc. & WSB

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File: K:\01140-55\GIS\Maps\Figures\Figure III-14E_Pollutant Sources.mxd, Mar 13, 2007 2:40:33 PM

Excelsior

City of Excelsior
Surface Water Management Plan

Pollutant Sources Location Map

Figure III-14

N
W E
S

0 350 700 1,400
Feet

Legend

- Corporate Boundary
- Leaking Underground Storage Tanks
- Master Entity System

The Master Entity System List combines 14 state and federal pollutant lists and systems including Brownfield sites, National Priorities List, and others. Sites shown may have been previously cleaned up. They are shown for historical & preliminary site review purposes only. Contact the MPCA for current status.

Source: Minnesota Pollution Control Agency

WSB & Associates, Inc.

File: K:\01140-55\GIS\Maps\Figures\Figure III-15_MLCCS.mxd, Dec 18, 2008 12:27:43 PM

Excelsior

City of Excelsior
Surface Water Management Plan

Land Cover Map

Figure III-15

N
W E
S

0 350 700 1,400
Feet

Legend

Land Cover Classification

- Developed
- Planted or Maintained Vegetation
- Forests
- Woodlands
- Herbaceous (grasslands and wetlands)
- Water
- **Corporate Boundary**

Source: Minnesota Department of Natural Resources

WSB & Associates, Inc.

IV. PROBLEMS AND CORRECTIVE ACTIONS

Outlined below is an assessment of existing and potential water resource-related problems that are known at this time. These problems have been identified based on an analysis of the land and water resource data collected as part of this plan preparation and through information from the City. A description of any existing or potential problems within the topic area has been listed and future corrective actions have been incorporated into an implementation plan.

A. Lake and stream water quality problems

1. Impaired waters to which the City discharges storm water include the following:
   - Lake Minnetonka
   - Christmas Lake (Located outside of the City)

   The impairment for each of these is mercury.

   Corrective Actions: The EPA has approved the statewide TMDL mercury study. No action by the City is needed. If additional TMDL's are identified that affect the City, the City shall participate in the stakeholder process to develop the TMDL and implementation plan.

2. The Minnehaha Creek Watershed District requires that the City provide an annual reduction of 10 pounds of phosphorus for areas that drain to Lake Minnetonka from the City of Excelsior.

   Corrective Actions: The City has an extensive street sweeping program. This includes sweeping all streets once in the spring and once in the fall. It also includes sweeping the downtown area twice a week. It is estimated that this program will remove 11.7 pounds of phosphorus annually. The City will test its swept material to calibrate this analysis. **Appendix K** contains information and analysis about this program.

B. Flooding and storm water rate control concerns

1. Drainage problems have been reported in the following areas:
   - Bell Street
   - Division Street
   - Various areas, in which the structures do not have a 2-foot freeboard protection for the 100-year event.

   Corrective Actions: To date high water in these areas have created short-term nuisances during heavy rainfall events, which have not posed a threat to public health, safety and property. The City will work with the Minnehaha Creek Watershed District to manage flooding and rate control concerns experienced within the City. The City will also complete hydraulic and hydrologic analysis of problem areas as redevelopment and street and utility reconstruction occurs.

2. There are small landlocked subwatersheds are located within the City.

   Corrective Actions: The City will complete feasibility studies for these areas, identifying potential flooding areas as well as strategies to minimize flooding and create new outlets with future re-development or street improvement projects. Outlets will be provided in areas where there is a demonstrated threat to structures or public safety.

C. Impacts of water quantity or quality management practices on recreational opportunities

1. The City has not experienced any impacts to recreational opportunities as the result of water quantity or quality impacts.

   Corrective Actions: No corrective action needed. However, if areas develop or redevelop, the project will be subject to the policies of the MCWD.

D. Impacts of storm water quality on fish and wildlife resources

1. The City has not experienced and impacts on fish and wildlife resources

   Corrective Actions: No corrective action needed. However, if areas develop or redevelop, the project will be subject to the policies of the MCWD.

E. Impacts of erosion and sedimentation on water resources

1. Soil erosion and sediment transportation associated with re-development may impact the quality of water and storage volume available within City lakes, streams, and ditches.

   Corrective Actions: Updated the erosion control requirements in the storm water ordinance. New develop and redevelopment will also be subject to the policies of the MCWD.

2. Erosion problems have been reported at the storm sewer outlets discharging to Lake Minnetonka.

   Corrective Actions: The City will inspect the storm sewer outlets in conformance with the City's NPDES permit. The outlets that discharge directly into Lake Minnetonka will be inspected annually. If the outlets require maintenance, the City will repair the outlet.

3. Erosion at Lake Minnetonka at the Point has been noted as a problem.

   Corrective Actions: The City of Excelsior and MCWD are collaborating on a project to reduce shoreline erosion on the Point, a unique section of lakeshore on the Commons. The project aims to educate local land owners about shoreline stabilization techniques that provide habitat and wave energy dissipation benefits that cannot be achieved through standard riprap (hard armoring). A secondary goal is to stabilize the shoreline around the Point, reversing years of damage and

stopping the flow of sediment from the land into the lake. MCWD is designing and building the project, as well as maintaining it for a three year establishment phase, after which Excelsior will take over maintenance duties. The project is currently in the design phase, with construction anticipated to begin in Spring 2009.

F. Impact of land use practices and development on water resource issues

1. Selected areas of the City have been exposed to increased rates and volumes of storm water runoff as a result of an increase in impervious surface area. Other land development and land use practices have negatively impacted both water quality and quantity outside the City limits.

   Corrective Actions: The City will implement this Comprehensive Surface Water Management Plan. Additionally, areas that develop or redevelop will be subject to the policies of the MCWD. See also **Section IV.A.2.**

G. Adequacy of existing regulations to address adverse impacts on water resources

1. The City of Excelsior generally has adequate regulatory controls in place to manage and mitigate adverse impacts on public waters and wetlands. However, additional ordinances or ordinance updates are necessary to continue to have adequate regulatory controls.

   Corrective Actions: The MCWD will retain permitting authority within the City. The City will continue to implement the City's NPDES Storm Water Pollution Prevention Plan as well as implement the policies with this Comprehensive Surface Water Management Plan. The City will review and revise existing ordinances, as necessary. Also, the City will update the erosion control requirements in the storm water ordinance. Ordinances will be updated to include submission of preliminary plats to the MCWD. Ordinances will be updated within 180 days of MCWD plan approval.

H. Identification of potential problems, which are anticipated to occur in the next 20 years, based on growth projections and planned urbanization.

1. The City is generally fully developed, with little opportunity to construct storm water management projects.

   Corrective Actions: Upon new development and redevelopment, the storm water management policies of the MCWD will apply. By applying these policies, areas that previously did not have storm water treatment will include treatment and implementation of Best Management Practices.

   The City will also pursue alternative funding through local, State, and/or Federal grants for a regional storm water treatment and reuse system to treat storm water in the downtown area. The City does not currently have funding for this project, but will explore options and opportunities to complete such a project.

I. Availability and adequacy of existing technical information to manage water resources

1. The City will need to maintain and update information developed within this Comprehensive Surface Water Management Plan.

   Corrective Actions: The City will continue to update the hydrologic/hydraulic model and GIS database as new development and redevelopment occur.

2. The City recognizes that there is currently not enough water quality monitoring data available to determine the effects of storm water quality on area lakes.

   Corrective Actions: The City defers to and supports water quality monitoring activities of the MCWD.

V. ESTABLISHMENT OF GOALS AND POLICIES

The City has developed a number of goals, strategies, and policies for the management of storm water within the City. These goals and policies have been developed to complement any county, regional, or state goals and policies. The goals of the City are as follows:

Goals

1. Minimize public capital expenditures needed to correct flooding and water quality problems.

2. Identify and plan for means to effectively protect and improve surface and groundwater quality.

3. Prevent erosion of soil into surface water systems.

4. Promote groundwater recharge.

5. Protect and enhance fish and wildlife habitat and water recreational facilities.

6. Secure the other benefits associated with the proper management of surface and ground water.

To order to achieve the City's goals for managing storm water, four strategies were developed. These strategies will assist the City in targeting its main audiences for the purposes of storm water management as follows:

Strategies

Cooperation with other agencies This strategy recognizes that the City is not alone in managing storm water within its boundaries. There are a number of other local, state, and federal agencies that also have rules and regulations related to storm water management. Through this strategy, the City has recognized these other agencies' role in this endeavor and will cooperate and coordinate with these agencies as necessary.

Education: This strategy includes educating various groups within the City about proper storm water management. Education of residents, City Staff, City Council, business owners, and developers is included in this strategy to assist in meeting the City's goals.

Regulation: Much of storm water management comes in the form of regulations put on new or redevelopment within the City. These regulations will also assist the City in achieving their water management goals. Policies related to the management of storm water are included in the regulation strategy.

Internal operations: The final strategy relates to the internal operations of the City. By outlining policies related to how the City's operations will treat and manage storm water, the City can work to achieve its storm water management goals.

A. COOPERATION WITH OTHER AGENCIES

There are a number of other local, state, and federal agencies that have rules and regulations related to storm water management. Through this strategy, the City recognizes these other agencies' role in this endeavor and will cooperate and coordinate with these agencies as necessary.

This Plan is in conformance with but does not restate all other agency rules that are applicable to water quality and natural resource protection. The other agency rules and policies include rules, policies, and guidelines associated with the following organizations:

- Minnesota Department of Health www.health.state.mn.us
- Minnesota Pollution Control Agency www.pca.state.mn.us
- Board of Water and Soil Resources www.bwsr.state.mn.us and the Wetland Conservation Act www.bwsr.state.mn.us/wetlands/wca/index.html
- Minnesota Department of Natural Resources www.dnr.state.mn.us
- US Army Corps of Engineers www.mvp.usace.army.mi
- Minnesota Department of Agriculture www.mda.state.mn.us
- Minnehaha Creek Watershed District www.minnehahacreek.org
- US Fish and Wildlife Service

While these other agency rules, policies, and guidelines are not restated in this Plan, but are applicable to projects, programs, and planning within the City. The Minnesota Stormwater Manual, which is a document intended to be frequently updated, is incorporated by referenced into this Plan and can be found at www.pca.state.mn.us/water/stormwater/stormwater-manual.html.

B. EDUCATION

The purpose of the educations strategy in meeting the City's goals is to foster responsible water quality management practices by educating residents, business owners, City Staff, City Council, and developers about proper storm water management. If these targeted audiences recognize their role in responsible storm water management in their homes, businesses, and practices, it is another means for the City to meet its goals. This education strategy has also been designed to be in conformance with the NPDES requirements.

STRATEGY: EDUCATION	
Policy No.	***Policy***
1	The City will implement public education as part of the NPDES Phase II program.
2	The City will develop and update its website for water resource management information.
3	The City will develop and distribute annual newsletter aimed at fostering responsible water quality management practices. Topics may include, but not be limited to: ● Wetland buffers ● Groundwater quality and protection ● Controlling invasive species ● Water conservation and the water cycle ● Proper hazardous waste disposal ● Yard waste management ● Pet waste disposal
4	The Minnehaha Creek Watershed District, the Lake Minnetonka Conservation District and others, offer a number of education opportunities, including the following: ● Citizen Lake Monitoring ● Newsletters ● Sponsored Events ● General conservation practice information These organizations provide many other educational opportunities. The City will continue to promote and support the educational efforts of these organizations.

C. REGULATION

The policies developed in this strategy outline specific storm water management elements that are required to be implemented through the development and/or permitting process. The regulation strategy is targeted at the public, developers, City Staff, and City Council.

Projects within the City may also trigger the need for a Minnehaha Creek Watershed District (MCWD) permit. Projects within the City are subject to the permitting authority of the MCWD and applicants are encouraged to contact the MCWD early in the plan development process. If there is a conflict between the City requirements and the MCWD requirements and the MCWD requirements cannot be met, a variance from the MCWD will need to be obtained by the applicant or the project will need to be revised.

STRATEGY: REGULATION	
No.	***Policy***
Rate Control	
1	Storm water management facilities shall limit runoff rates generated by any new development or redevelopment to the existing discharge rates for the 2-year, 10-year, and 100-year critical rainfall events. *(Current policy)*
2	The design of the storm drainage system shall be based on a critical duration rainfall event having a 20% chance of occurrence in any given year for local storm sewer, a 10% chance of occurrence for trunk storm sewer, and a 1% chance of occurrence for ponds and open channels. *(Updated policy)*
3	For collection systems not designed to meet rate control standards (i.e. catch basins) a clogging factor or 50% will be utilized in sizing intake structures. *(Updated policy)*
4	An emergency spillway (emergency outlet) from ponding areas shall be installed a minimum of 1 foot below the lowest building opening and shall be designed to have a capacity to overflow water at an elevation below the lowest building opening at a rate not less than 3 times the 100-year peak discharge rate from the basin or the anticipated 100-year peak inflow rate to the basin, whichever is higher. *(Updated policy)*
Flood Control	
5	The basement floor elevation will be 2 feet above the elevation of any known historic high groundwater elevations for the area and 2 feet above the 100-year high surface water elevation in the area. Information on historic high groundwater elevations can be derived form any reasonable sources including piezometer data, soil boring data, percolation testing logs, etc. *(Updated policy)*

6	Any new or redevelopment building construction within the City will maintain a minimum building opening elevation 3 feet above the projected 100-year high water elevation for the area. If this 3 foot building opening freeboard requirement is considered a hardship, the standard could be lowered to 2 feet if the following can be demonstrated: ● That, within the 2-foot freeboard area, storm water storage is available which is equal to or exceeds 50% of the storm water storage currently available in the basin below the 100-year elevation. ● That a 25% obstruction of the basin outlet over a 24 hour period would not result in more than 1 foot of additional bounce in the basin. ● An adequate overflow route from the basin is available that will provide assurance that one foot of freeboard will be maintained for the proposed low building opening. *(New policy)*
7	The City prohibits filling activities within the 100-year floodplain that will cause an increase in the stage of the 100-year or regional flood or cause an increase in the flood damages in the reach affected. Additional detail is provided in the City's floodplain ordinance on the City's web-site at www.ci.excelsior.mn.us/ and in **Appendix I**. *(Current policy)*
Water Quality Treatment	
8	Treatment of storm water to remove 50% of phosphorus and 85% of total suspended solids OR treatment to NURP guidelines is required prior to storm water discharge to a lake, stream, or wetland and prior to discharge from the site as part of development. The NURP guidelines for the design of storm water treatment basins are as follows: a. A permanent pool ("dead storage") volume below the principal spillway (normal outlet) which shall be greater than or equal to the runoff from a 2.5-inch storm over the entire contributing drainage area assuming full development. b. A permanent pool average depth (basin volume/basin area) which shall be $\geq$ 4 feet, with a maximum depth of $\leq$ 10 feet. c. Basin side slopes above the normal water level should be no steeper than 3:1, and preferably flatter. A basin shelf with a minimum width of 10 feet and 1 foot deep below the normal water level is recommended to enhance wildlife habitat, reduce potential safety hazards, and improve access for long-term maintenance. d. The pond should be wedge shaped with the inlet at the narrowest end and the outlet at the widest end. A length to width ratio of 3:1 or greater shall be used whenever possible. Distance between outfalls and outlets should be maximized. e. A 16.5 foot buffer around the pond is required. *(Updated policy)*

9	The City requires skimmers or other devices in the construction of new pond outlets and the addition of skimmers to existing systems whenever feasible and practical. The designs shall provide for skimmers that extend a minimum of 4 inches below the water surface and minimize the velocities of water passing under the skimmer to less than 0.5 feet per second for rainfall events having a 99% frequency. *(Current policy)*
10	New storm water management ponds that are constructed as part of private development shall be covered by drainage and utility easements that are dedicated to the City. *(Current policy)*
Infiltration/Volume Control	
11	Abstraction via infiltration, evapotranspiration, capture, and/or reuse of one inch of rainfall from the site on a regional or site-specific basis is required for development or redevelopment for projects that increase storm water runoff volume, provided that past and existing land use practices do not have a significant potential to contaminate the storm water runoff and the soil characteristics are suitable for infiltration. *(New policy)*
12	New development and redevelopment shall consider and incorporate to the extent practical and feasible Low Impact Development techniques that have been reviewed and approved by the City. A maintenance plan for these features will be submitted to the City for review and approval. *(Updated policy)*
13	It is encouraged that project proposers consult with the MCWD during the project planning process for additional guidance and information on LID techniques. *(New policy)*
Wetlands	
14	The Minnehaha Creek Watershed district is the Local Government Unity (LGU) for the Wetland Conservation Act (WCA) and therefore requires any projects that impact wetlands to conform to the WCA and the district's wetland ordinances. *(Current policy)*
15	The wetland buffer requirements of the MCWD shall apply when these buffers are required by MCWD permit. *(Current policy)*
16	When permits are not required from the MCWD, the City requires a 16.5 foot buffer around wetlands for any project. *(Current policy)*
Groundwater	
17	The City will coordinate with the Minnesota Pollution Control Agency (MPCA) to implement the groundwater protection plans. *(Current policy)*

18	The City has adopted the rules of the Minnesota Department of Health for its wellhead protection. The City will continue to implement and abide by these rules. Information from the MDH is included in **Appendix J.** *(Current policy)*
Erosion and Sediment Control	
19	The City shall require, in conformance with the MPCA NPDES rules, the submission and implementation of erosion and sediment control plans for land disturbance activities of one acre or more in size. These plans shall conform to the general criteria outlined in the Minnesota Stormwater Manual, Surface Water Management Ordinance, and the NPDES Construction Site permit. *(Updated policy)*
20	A storm water pollution control plan is required for any project that requires a building permit, subdivision approval, or grading permit per the City's Surface Water Management ordinance www.ci.excelsior.mn.us/ and also in **Appendix I.** *(Current City Ordinance)*

D. INTERNAL OPERATIONS

The City's internal operations can have a significant impact on storm water management. This strategy is targeted primarily at the City with some areas targeted at the public and/or another agency. These policies are aimed at operation and maintenance activities associated with water resource management within the City.

Many of the following items are current, internal housekeeping activities. Some of the policies have been updated or added. By maintaining the existing storm water infrastructure, the City anticipates providing water quality benefits to original design standards. By providing additional education to residents, small benefits to Lake Minnetonka and surrounding water bodies can be achieved. By regularly reviewing internal housekeeping items and by communicating about Best Management practices, additional benefit to surrounding water resources can be obtained.

STRATEGY: INTERNAL OPERATIONS	
No.	***Policy***
1	The City will sweep all City streets at least twice annually and the downtown area twice a week. Areas that need more frequent sweeping will be swept as needed. These needs are determined by Public Works Staff based on the debris on the roads during the year. Priority areas include the downtown area. **Appendix K** contains more information about the City's street sweeping program. *(Current policy)*
2	The City will inspect storm water treatment basins on a rotating basis at least every 5 years and sump catch basins/manholes every year. Maintenance will be conducted as necessary. *(Current policy)*

STRATEGY: INTERNAL OPERATIONS	
No.	***Policy***
3	Landlocked depressions that presently do not have a defined outlet and do not typically overflow may be allowed a positive outlet to protect adjacent properties provided there is a demonstrated threat to structures and public safety. This outlet must be in conformance with current wetland regulations and demonstrate that downstream properties are not adversely affected by the flows. *(Updated policy)*
4	If an outlet or suitable water level management plan is not available for a landlocked basin, no development will be allowed below the overflow elevation of this area. *(New policy)*
5	The City prefers to use regional detention and treatment areas rather than site specific detention areas where feasible. The City recognizes that development of these areas will likely be incorporated into development activity and not initiated independently by the City. *(Current policy)*
6	The City requires as-builts of all ponding areas and designated emergency overflows. *(Current policy)*
7	The City shall educate, and assist with efforts to control invasive Milfoil and Curly Leaf Pond Weed on Lake Minnetonka. *(New policy)*
8	The City will annually review internal housekeeping practices with Public Works staff. This will include salt/sand usage and storage, street sweeping, lawn care, and waste removal. *(Updated policy)*
9	The City will review the storm water management ordinance (which also contains erosion and sediment control requirements) and the floodplain ordinance and update them for the MCWD and NPDES requirements within 180 days of plan approval. *(New policy)*
10	Barriers to housekeeping activities are related to communication of City Staff and contractors. The City will endeavor to communicate effectively between departments and between staff regarding storm water management items. *(Updated policy)*
11	The City along with the MCWD will inspect sites that require an NPDES permit for erosion and sedimentation control for all new developments and redevelopments one acre and larger in size. *(New policy)*
12	The City adopted an illicit discharge ordinance in 2008 (see **Appendix I**). The City will continue to implement this ordinance. *(New policy)*

SECTION VI

VI. IMPLEMENTATION PRIORITIES/IMPLEMENTATION PROGRAM

Based on the information developed in **Sections III through V**, the City has developed a Surface Water Management Plan that reflects the needs and concerns of the City Council, City Staff, and citizens. This section creates a prioritized listing of the studies, programs and capital improvements that have been identified as necessary to respond to the water resource needs within the City.

The City anticipates implementing at least to some extent the regulatory programs, studies or improvements identified within this plan within the next 10 years while implementing the following priorities in its storm water management program:

1. Meet requirements of regulatory agencies or programs

2. Incorporate Best Management Practices in storm water management maintenance and repairs

3. Maintain and improve the existing system as part of Public Works Capital Improvement Projects

4. Improve the management of water quality and water quantity with future re-development and reconstruction projects.

The City will also actively pursue grant opportunities to fund some projects, studies, or programs.

TABLE VI-1

CAPITAL IMPROVEMENT PROJECTS

Capital Improvement Projects					Proposed Expenses for Year						
CIP No.	Priority	Project Description	Cost Estimate[1]	Potential Funding Sources	2009	2010	2011	2012	2013	2014-2018	Comments
1	High	Conduct storm sewer improvements with maintenance and street reconstruction (includes storm sewer outlet and pond maintenance)	$884,000	Storm Water Utility, Development, Levy	$85,000	$20,000	$75,000	$106,200	$100,000	$497,800	See **Table VI-5** for detailed project descriptions
2	Medium	Construct regional storm water treatment and reuse system for downtown area	$2,000,000	Grants from State, MCWD; Storm Water Utility						$2,000,000	The City does not have the funding for this project but it is identified here as a potential future project when grant funding becomes available. This funding could be from the MCWD, State or Federal Agencies, and/or the Heritage Amendment
			$2,884,000	**TOTAL**	**$85,000**	**$20,000**	**$75,000**	**$106,200**	**$100,000**	**$2,497,800**	

1) Cost estimates provided are for planning purposes only. Detailed feasibility analyses have not been completed for these projects; therefore, cost estimates are subject to change upon final design

TABLE VI-2

STORM WATER MANAGEMENT PROGRAMS

Storm Water Management Programs					Proposed Expenses for Year						
No.	Priority	Project Description	Cost Estimate[1]	Potential Funding Sources	2009	2010	2011	2012	2013	2014-2018	Comments
1	High	Implement public education plan as part of the NPDES MS4 permit, including distributing an annual newsletter	$80,000	Storm Water Utility	$8,000	$8,000	$8,000	$8,000	$8,000	$40,000	
2	High	Update and maintain the City's website with storm water management information	$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$5,000	
3	High	Continue to implement the City's street sweeping program (see **Appendix K**)	$200,000	Storm Water Utility	$20,000	$20,000	$20,000	$20,000	$20,000	$100,000	This street sweeping is the City's method to address the MCWD's requirement for 10 pounds of phosphorus removal.
4	High	Continue to update and maintain GIS database and storm sewer map	$95,000	Storm Water Utility	$5,000	$10,000	$10,000	$10,000	$10,000	$50,000	
5	High	Continue to update and maintain hydrologic/ hydraulic model	$40,000	Storm Water Utility	$4,000	$4,000	$4,000	$4,000	$4,000	$20,000	
6	High	Inspect 20% of storm water ponds and outfalls every year, with priority for the outlets into Lake Minnetonka	$20,000	Storm Water Utility	$2,000	$2,000	$2,000	$2,000	$2,000	$10,000	
7	High	Conduct erosion control inspections on sites that require an NPDES permit	$50,000	Storm Water Utility	$5,000	$5,000	$5,000	$5,000	$5,000	$25,000	

TABLE VI-2

STORM WATER MANAGEMENT PROGRAMS

Storm Water Management Programs					Proposed Expenses for Year						
No.	Priority	Project Description	Cost Estimate[1]	Potential Funding Sources	2009	2010	2011	2012	2013	2014-2018	Comments
8	High	Enforce illicit discharge ordinance and conduct illicit discharge inspections	$20,000	Storm Water Utility	$2,000	$2,000	$2,000	$2,000	$2,000	$10,000	City passed an illicit discharge ordinance in 2008
9	High	Maintain the Point shoreline stabilization and demonstration project	$3,500	Storm Water Utility				$500	$500	$2,500	This project is a collaboration between the MCWD and the City.
10	High	Annually internal housekeeping practices such as mowing, fertilizing, deicing, and herbicide practices within the City and update practices as feasible to protect water quality	$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$5,000	
			$528,500	**TOTAL**	**$48,000**	**$53,000**	**$53,000**	**$53,500**	**$53,500**	**$267,500**	

1) Cost estimates provided are for planning purposes only. Cost estimates are subject to change and/or updates.

TABLE VI-3

STORM WATER MANAGEMENT STUDIES

Water Resources Studies					Proposed Expenses for Year						
SMS No.	Priority	Project Description	Cost Estimate[1]	Potential Funding Sources	2009	2010	2011	2012	2013	2014-2018	Comments
1	Meduim	Participate in TMDL stakeholder process	$3,000	Storm Water Utility				$500	$500	$2,000	This item has been included here as a place-holder as there are no impaired waters within the City as of the completion of this Plan.
2	High	Complete phosphorus loading study of street sweepings to calibrate the phoshorus load reductions for the MCWD	$6,000	Storm Water Utility	$3,000	$3,000					
3	High	Analyze Bell Street, Division Street, and areas without 2-foot freeboard protection.	$10,000	Storm Water Utility			$5,000	$5,000			To be completed as part of redevelopment or street reconstruction.
4	High	Complete feasibility studies for landlocked basins	$20,000	Storm Water Utility		$5,000		$5,000		$10,000	To be completed as part of redevelopment or street reconstruction.
5	High	Update storm water management ordinance to address updated erosion and sediment control policies	$8,000	Storm Water Utility	$8,000						Ordinances are required to be updated within 180 days of Plan approval by the MCWD.
6	High	Update storm water management ordinance to address updated storm water management control policies	$8,000	Storm Water Utility	$8,000						Ordinances are required to be updated within 180 days of Plan approval by the MCWD.

STORM WATER MANAGEMENT STUDIES											
Water Resources Studies					Proposed Expenses for Year						
SMS No.	Priority	Project Description	Cost Estimate[1]	Potential Funding Sources	2009	2010	2011	2012	2013	2014-2018	Comments
7	High	Update floodplain ordinance to address updated policies	$8,000	Storm Water Utility	$8,000						Ordinances are required to be updated within 180 days of Plan approval by the MCWD.
			$63,000	**TOTAL**	**$27,000**	**$8,000**	**$5,000**	**$10,500**	**$500**	**$12,000**	

1) Cost estimates provided are for planning purposes only. Cost estimates are subject to change and/or updates.

TABLE VI-4								
SUMMARY								
		Proposed Expenses for Year						
Improvements, Programs, and Studies	Totals[1]	2009	2010	2011	2012	2013	2014-2018	Comments
Totals for Capital Improvements:	**$2,884,000**	$85,000	$20,000	$75,000	$106,200	$100,000	$2,497,800	
Totals for Management Programs:	**$528,500**	$48,000	$53,000	$53,000	$53,500	$53,500	$267,500	
Totals for Management Studies:	**$63,000**	$27,000	$8,000	$5,000	$10,500	$500	$12,000	
Grand Totals:	**$3,475,500**	$160,000	$81,000	$133,000	$170,200	$154,000	$2,777,300	

1) Cost estimates provided are for planning purposes only. Detailed feasibility analyses have not been completed for these projects, programs, and studies; therefore, cost estimates are subject to change upon final design and/or updated information.

Table VI-5
City of Excelsior - Surface Water Capital Improvement Plan
2009 - 2019

MAP ID	DESCRIPTION	TYPE	PRIORITY LEVEL	FUNDING	ESTIMATED CITY COST	YEAR OF IMPROVEMENT	DRIVING FACTORS
1	1st Street Storm Outlet to Lake Minnetonka	M	MEDIUM	CIP	$10,000	2009	Maintenance Schedule
2	Linwood Avenue Fire Lane	M	MEDIUM	CIP	$10,000	Beyond 2013	Maintenance Schedule
8	Water Street at Port Outlet	RECON	HIGH	CIP,D,OS	$75,000	2009	RE-DEVELOPMENT
4	Bell Fire Lane	M	MEDIUM	CIP	$10,000	2010	Maintenance Schedule
9	Lafayette Fire Lane	M	MEDIUM	CIP	$10,000	2010	Maintenance Schedule
6	George Street Fire Lane	M	MEDIUM	CIP	$10,000	2013	Maintenance Schedule
5	Third Street Outlet of Mtka	M	MEDIUM	CIP	$10,000	Beyond 2013	Maintenance Schedule
14	County Road 19 Pond Outlets	M	MEDIUM	CIP	$30,000	Beyond 2013	Maintenance Schedule
15	Glencoe Road	M	MEDIUM	CIP	$25,000	Beyond 2013	Maintenance Schedule
17	Highway 7 Runoff near Water Street	RECON	LOW	OS	$25,000	Beyond 2013	RE-DEVELOPMENT
10	Excelsior Boulevard-Reconstruction Metro Force Main	RECON	LOW	CIP,OS	$75,000	2011	STREET IMPROVEMENT
18	2nd Avenue and Mill Street	RECON	LOW	OS	$15,000	Beyond 2013	Street Upgrade/Re-development
23	Drainage Area Tributary to Lake Street and 2nd Avenue	M	MEDIUM	CIP,D,OS	$50,000	Beyond 2013	Street Upgrade/Re-development
11	Water Street and Second Street	RECON	MEDIUM	CIP,D,OS	$25,000	Beyond 2013	Street Upgrade/Re-development
3	Linwood and Lake Street	RECON	MEDIUM	CIP,OS	$43,200	Beyond 2013	Street Upgrade
7	Bell Street and Elm Street	RECON	HIGH	CIP	$96,200	2012	Street Upgrade
16	Glencoe Road	RECON	MEDIUM	CIP,OS	$15,000	Beyond 2013	Street Upgrade
22	Upstream of Galpin Lake	RECON	MEDIUM	CIP,OS	$15,000	Beyond 2013	Street Upgrade
21	St. Albans Bay	RECON	MEDIUM	CIP,OS	$30,000	Beyond 2013	Street Upgrade
20	Upstream of Mustafa Pond	RECON	MEDIUM	CIP	$25,000	Beyond 2013	Street Upgrade
NA	Wheeler Drive: 2nd Street - 3rd Street	RECON	LOW	CIP	$28,200	Beyond 2013	Street Upgrade
NA	Courtland Avenue: 2nd Street - 3rd Street	RECON	LOW	CIP	$20,300	Beyond 2013	Street Upgrade
NA	William Street: Oak Street - George Street	RECON	LOW	CIP	$30,700	Beyond 2013	Street Upgrade
NA	Grathwol Lane: Water Street - Dead End	RECON	LOW	CIP	$22,500	Beyond 2013	Street Upgrade
NA	Linden Street: Elm Place - Dead End	RECON	LOW	CIP	$17,900	Beyond 2013	Street Upgrade
19	Division Street	RECON	MEDIUM	CIP	$40,000	Beyond 2013	Street Upgrade/Re-development
13	Unnamed Pond	M	LOW	CIP	$10,000	Beyond 2013	Maintenance Schedule
12	Mufasa Pond Outlet	M	LOW	CIP	$10,000	Beyond 2013	Maintenance Schedule
				TOTAL 5-YR DETAILED CIP CITY STORM COST	$286,200		
				AVG PER YEAR COST (5-YR)	$57,240		
				TOTAL PROJECT COST (ALL YEARS)	$784,000		
				AVG PER YEAR COST (ASSUME 20-YRS)	$39,200		

M - Maintenance

RECON - Reconstruction

CIP - Capital Improvement Funds (includes general operating funds, levys and assessments to benefitted property owners)

OS - Outside Sources (Private Development, Other Agencies, Potential City Cost Share)

D - Development Driven and Funded

SECTION VII

VII. FINANCIAL CONSIDERATIONS

Implementation of the proposed projects, programs and studies that are identified in this plan will have a financial impact on the City. To establish how significant this impact will be, a review of the means and ability of the City to fund these controls, programs and improvements is necessary. Toward this end, please find outlined below a listing of various sources of revenue that could be available to implement the water resource management efforts outlined in this plan.

The costs to implement this Plan are outlined in **Section VI.** The City anticipates funding these projects, studies, and programs primarily through the storm water utility fund. This fund generates approximately $123,598 annually. As is evident from the tables in **Section VI**, the Storm Water Utility Fund alone is not sufficient to fund these activities. The City will also use a levy for construction projects that have a direct benefit to landowners where appropriate (see **Table VI-5**). Grants or partnership opportunities will also be sought. The City has chosen not use ad valorem for funding water resource projects at this time, but may use special assessments for specific projects if appropriate.

While the City's funds do not appear to be able to fully fund these activities, the City does not wish to remove items from the Plan. The Plan acts as a placeholder and planning tool for these projects, programs, and studies. The City also knows that to be eligible for many State grants and loans, projects must be listed in the local surface water management plan. Therefore, this Plan will act as a road map and tool to complete projects, to seek out additional funding sources, and to assess updates to the Storm Water Utility.

SECTION VIII

VIII. AMENDMENT PROCEDURES

It is the intention of the City to have this Surface Water Management Plan reviewed and approved by the Minnehaha Creek Watershed District and the Metropolitan Council. Once approved, no significant changes to this plan can be facilitated without the approval of the proposed revisions by the Watershed District or Metropolitan Council. Significant changes to the local plan shall be made known to the following parties:

1. City Manager, Director of Public Works, and City Engineer
2. Minnehaha Creek Watershed District
3. Metropolitan Council
4. Public within the City through a public hearing process

Following notification of the above parties, they shall have 60 days to comment on the proposed revisions. The Metropolitan Council shall have 45 days to comment on the revisions. Failure to respond within 60 days constitutes approval. Upon receipt of approvals from the affected Watershed Management Organizations and Watershed Districts within the City, any proposed amendments will be considered approved.

Minor changes to the Plan shall be defined as changes that do not modify the goals, policies, or commitments expressly defined in this plan by the City. Adjustment to subwatershed boundaries will be considered minor changes provided that the change will have no significant impact on the rate or quality in which storm water runoff is discharged from the City boundaries. Minor changes to this plan can be made by the staff at the City without outside review. It is the intention of the City that this Plan be updated ten years after the adoption of this Plan unless significant changes to the plan are deemed necessary prior to that date.

Amendments to this Plan will be required within two years of the adoption of an updated Watershed Management Plan from the MCWD pursuant to MR8410.0160.

The Minnehaha Creek Watershed District anticipates completing their rule making processes by 2008 or 2009. The MCWD will retain the permitting authority within the City. The City will submit a Surface Water Management Plan amendment, if needed, to the MCWD and Metropolitan Council for a 60 day review and amended approval.

APPENDIX A
Water Resource Related Agreements

No agreements currently exist

APPENDIX B

Storm Water System Modeling Information

CITY OF EXCELSIOR
SURFACE WATER MANAGEMENT PLAN
100-YEAR EVENT

Problem Area #	SUB-WATERSHED NUMBER	AREA (Acre)	Tc (min)	SCS CN	PEAK RUNOFF RATE (cfs)		FULLY DEVELOPED PEAK DISCHARGE RATE				NWL (B)	HWL (B)		REQUIRED STORAGE (B) (ac-ft)				
				FULLY DEVELOPED	100-YR 10-DAY	100-YR 24-HR FULLY DEVELOPED	100-YR 10-DAY PEAK OUTFLOW FROM POND (cfs)	100-YR 24-HR PEAK OUTFLOW FROM POND (cfs)	100-YR 10-DAY PEAK FLOW IN CHANNEL (cfs)	100-YR 24-HR PEAK FLOW IN CHANNEL (cfs)	FULLY DEVELOPED	100YR 10-DAY	100-YR 24-HR	100-YR 10-DAY	100-YR 24-HR FULLY DEVELOPED	LOW BUILDING ELEVATIONS (A)	OVERLAND OVERFLOW (A)	COMMENTS
	MP 1	2.9	15.0	76.0	1.4	12.6	14.96	15.7	NA	NA	942.8	947.4	947.0	7.43	6.66	952.0	950.0	MITTEN POND LOCATED EAST & DOWNSTREAM OF COLLEGE LAKE
	CL 1B1	3.5	20	69	1.6	10.4	1.8	1.7	NA	NA	938.5	939.1	939.1	0.41	0.41	N/A	942.4	SHOREWOOD DRAINAGE AREA EAST OF CITY LIMITS TO STORAGE AREA
	CL 1B2	0.2	20	78	0.1	0.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	956.0	954.0	EXCELSIOR DRAINAGE AREA FLOWS EAST TO SHOREWOOD STORAGE AREA
	CL 2A	4.4	16	66	2.1	13.4	1.0	0.8	NA	NA	938.5	939.3	939.2	0.63	0.56	N/A	940.1	SHOREWOOD DRAINAGE AREA EAST OF CITY LIMITS TO STORM WATER STORAGE AREA
	CL 2B	0.2	15	72	0.1	0.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	956.0	N/A	EXCELSIOR DRAINAGE AREA FLOWS EAST TO SHOREWOOD STORAGE AREA
	CL 5A	3.4	21	74	1.6	11.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	958.6	N/A	EXCELSIOR DRAINAGE AREA FLOWS EAST TO SHOREWOOD STORAGE AREA
	CL 5B	14.0	21	72	6.6	45.4	5.7	24.8	NA	NA	951.0	953.3	954.1	0.50	1.30	N/A	952.0	SHOREWOOD DRAINAGE AREA EAST OF CITY LIMITS TO STORM WATER STORAGE AREA
	COL 1	30.7	30	79	14.2	98.3	30.4	31.9	NA	NA	942.9	947.4	947.0	24.05	21.16	950.0	946.0	COLLEGE LAKE DISCHARGE TO MITTEN POND HYDRAULIC CONNECTION ON SOUTH END W/GALPIN LAKE
	EB 1	5.6	20	89	2.6	28.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	933.0	N/A	DRAINAGE AREA NORTH OF EXCELSIOR BLVD & LAKE ST. DIRECTLY TRIBUTARY TO EXCELSIOR BAY
	EB 10	9.4	30	88	4.3	36.8	8.5	36.2	NA	NA	940.5	941.7	949.5	0.00	0.01	950.0	949.8	DRAINAGE AREA TRIBUTARY TO 3RD ST. & WATER ST. INTERSECTION STORM SEWER
	EB 11	9.1	30	78	4.2	28.2	4.2	19.9	NA	NA	943.8	944.6	947.8	0.01	1.06	948.0	949.1	DRAINAGE AREA TRIBUTARY TO DEPRESSION NORTHWEST OF GEORGE ST. & WATER ST.
	EB 12	9.7	25	78	4.5	33.9	6.6	33.4	NA	NA	930.1	931.5	937.1	0.00	0.17	940.0	934.0	DRAINAGE AREA TRIBUTARY TO STORM SEWER WEST OF WATER ST. -OUTFALL TO EXCELSIOR BAY
	EB 13	4.4	20	81	2.1	19.1	2.1	7.4	NA	NA	940.3	945.7	947.3	0.00	0.27	950.0	952.0	DRAINAGE AREA TRIBUTARY TO PARKING LOT STORAGE NORTHWEST OF 3RD ST. & WATER ST.
	EB 14	14.5	30	64	6.7	27.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	933.4	N/A	PARK AREA & DRAINAGE AREA NORTHWEST OF LAKE ST. /CENTER ST.
	EB 2	8.8	30	92	4.1	37.0	20.2	27.7	NA	NA	927.3	931.5	933.4	0.12	1.28	938.5	932.0	PARKING LOT STORAGE SOUTH OF EXCELSIOR BOULEVARD
	EB 3	14.4	30	82	6.6	49.7	17.1	22.9	NA	NA	928.3	933.3	936.4	0.67	1.42	945.8	939.4	DRAINAGE AREA TRIBUTARY TO TH 7 SIMBA POND
	EB 4A	4.6	22.5	72	2.2	14.3	5.3	10.9	NA	NA	932.9	934.1	936.0	0.22	1.27	937.9	946.3	DRAINAGE AREA SOUTH OF TH 7 UPSTREAM OF SIMBA POND
18	EB 4B	8.0	25	72	3.7	23.2	3.6	9.2	NA	NA	939.8	941.1	943.8	0.09	0.53	942.0	946.9	DEPRESSION SOUTHEAST OF 2ND AVE. & MILL ST.-PROPOSED OUTLET
	EB 5	0.6	15	85	0.3	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	940.0	932.1	DRAINAGE AREA NORTH OF LAKE ST. DIRECTLY TRIBUTARY TO EXCELSIOR BAY
23	EB 6	13.9	30	85	6.4	51.6	6.4	51.6	NA	NA	930.3	931.6	935.9	0.00	0.00	938.9	938.0	DRAINAGE AREA TRIBUTARY TO LAKE ST. & SECOND AVE. STORM SEWER
	EB 7	2.0	15	77	1.0	9.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	934.0	N/A	AREA NORTH OF LAKE ST. - DIRECT TO EXCELSIOR BAY
	EB 8	3.9	20	91	1.8	20.4	12.7	61.9	NA	NA	930.5	932.5	936.5	0.00	0.00	944.0	942.8	DRAINAGE AREA TRIBUTARY TO WATER ST. & SECOND ST. STORM SEWER
11	EB 9	5.2	25	89	2.4	23.3	2.4	9.2	NA	NA	942.5	943.2	946.8	0.00	0.41	946.0	948.5	DRAINAGE AREA TO PARKING LOT DEPRESSION SOUTHEAST OF WATER ST. & SECOND ST.
	GB 11	17.1	21.1	74	8.0	58.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	932.0	N/A	NORTHWEST DRAINAGE AREA OF CITY TO GIDEON'S BAY
	GB 12	6.8	60	72	3.0	10.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	958.0	938.8	DRAINAGE AREA DISCHARGES WEST TO SHOREWOOD
	GB 13A	25.7	33.9	79	11.8	75.9	13.8	11.9	NA	NA	930.1	932.3	932.1	18.72	16.54	937.0	938.7	EAST BASIN OF OLD WASTEWATER TREATMENT SYSTEM
	GB 13B	9.9	32.5	82	4.6	32.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	N/A	N/A	SHOREWOOD DRAINAGE AREA RUNOFF TO EXCELSIOR
	GB 14	7.7	29.6	74	3.5	21.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	938.0	937.0	DRAINAGE AREA NORTH OF OLD WASTE WATER TREATMENT BASIN (EAST CELL)
	GB 15	19.1	34.2	75	8.7	49.7	8.8	30.2	NA	NA	930.1	932.3	932.4	2.91	3.05	938.0	937.0	EAST BASIN OF OLD WASTEWATER TREATMENT SYSTEM
	GB 16A	8.6	40.3	71	3.9	17.6	4.9	9.9	NA	NA	951.3	952.3	953.4	0.06	0.67	956.3	954.2	EXCELSIOR DRAINAGE AREA TO STORAGE AREA EAST OF GLENCOE ROAD
	GB 16B	2.8	32.7	72	1.3	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	N/A	N/A	SHOREWOOD DRAINAGE AREA TO STORAGE AREA EAST OF GLENCOE ROAD
	GB 17	14.9	37.3	70	6.8	30.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	932.0	N/A	LAKE ST. & 1ST ST. DRAINAGE AREA TO GIDEON BAY
3	GB 18	6.7	20.3	72	3.1	22.0	2.6	15.6	NA	NA	938.2	941.5	942.3	0.04	0.34	942.4	942.0	DRAINAGE AREA TO LYNWOOD AVE & LAKE ST. STORM SEWER
7	GB 19	20.6	30	72	9.5	53.1	6.0	7.1	NA	NA	940.4	944.8	946.2	0.52	2.12	945.6	954.6	DRAINAGE AREA TO BELL ST. & ELM ST. LOW POINT
16	GB 8A	3.6	22.7	70	1.7	10.3	9.7	9.4	NA	NA	940.0	941.9	941.8	7.87	7.14	944.0	944.5	EXCELSIOR DRAINAGE AREA TO DEPRESSION WEST OF GLENCOE ROAD
	GB 8B	36.6	42.7	71	16.5	71.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	N/A	N/A	SHOREWOOD DRAINAGE AREA TO DEPRESSION WEST OF GLENCOE ROAD INCLUDED IN GL 8A STORMWATER STORAGE
	GL 20	56.5	60	87	24.7	135.7	12.3	8.6	NA	NA	942.9	945.7	944.7	138.17	86.11	948.0	947.8	GALPIN LAKE DRAINAGE AREA TO TH 7 STORM SEWER
	GL 21A	5.0	38.8	74	2.3	11.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	952.0	N/A	EXCELSIOR DRAINAGE AREA TO POND NORTHWEST OF CSAH 19 & TH 7
	GL 21B	1.1	15	70	0.5	3.8	15.4	16.1	NA	NA	942.0	946.4	945.8	1.09	0.83	N/A	950.3	SHOREWOOD DRAINAGE AREA TO POND NW QUADRANT OF CSAH 19 & TH 7
	GL 21C	1.5	20	91	0.7	7.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	N/A	N/A	SHOREWOOD DRAINAGE AREA TO POND NW QUADRANT OF CSAH 19 & TH 7
	GL 22	2.2	15	82	1.0	11.0	0.6	3.7	NA	NA	944.0	946.4	947.4	0.15	0.24	952.3	950.0	ALLIENT COMPANY TREATMENT POND
	GL 2A	1.6	18	80	0.8	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	972.0	N/A	EXCELSIOR DRAINAGE AREA TO SOUTHWEST INTO SHOREWOOD
22	GL 2B	49.1	30	72	22.7	126.9	9.1	5.8	NA	NA	943.5	948.0	947.7	26.98	24.17	947.0	947.8	SHOREWOOD STORAGE AREA UPSTREAM OF GALPIN LAKE
	GL 6A	1.2	20	83	0.6	5.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	N/A	952.0	EXCELSIOR DRAINAGE AREA AT SOUTHWEST QUADRANT OF TH 7 & GALPIN LAKE ROAD
	ML 1	17.5	20	84	8.2	80.6	0.6	3.4	NA	NA	942.6	945.1	944.0	10.15	5.45	949.0	949.8	MUD LAKE OUTLETS TO GALPIN LAKE
	SAB 10	7.7	20	78	3.6	30.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	933.0	N/A	AREA NORTH OF EXCELSIOR BOULEVARD DIRECTLY TRIBUTARY TO ST. ALBAN'S BAY
	SAB 11A	3.2	15	72	1.5	12.4	6.8	38.7	NA	NA	0.0	928.7	930.6	0.00	0.00	936.0	936.0	EXCELSIOR BOULEVARD AREA DIRECTLY TRIBUTARY TO ST. ALBAN'S BAY
	SAB 12	1.8	15	74	0.9	7.6	6.2	20.7	NA	NA	930.0	931.8	932.6	0.28	0.46	N/A	936.0	EXCELSIOR AREA FLOWS EAST TO TH 7 POND LOCATED IN SHOREWOOD
	SAB 13	1.1	15	82	0.5	5.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	938.0	931.4	EXCELSIOR AREA FLOWS EAST TO TH 7 CENTERLINE CULVERT IN SHOREWOOD
21	SAB 14	6.3	20	78	3.0	25.2	2.8	14.6	NA	NA	929.4	930.3	931.7	0.12	0.45	932.5	932.5	EXCELSIOR BOULEVARD AREA FLOWS TO STORM SEWER TO ST. ALBAN'S BAY
	SAB 15	2.0	20	74	0.9	7.1	26.4	46.4	NA	NA	0.0	927.0	928.8	0.00	0.00	940.6	938.0	EXCELSIOR BOULEVARD AREA FLOWS TO STORM SEWER TO ST. ALBAN'S BAY
	SAB 16	6.4	30	79	2.9	20.4	4.3	8.1	NA	NA	932.0	933.8	934.4	0.86	1.56	N/A	938.2	DRAINAGE AREA DIRECTLY TRIBUTARY TO TH 7 MUFASA POND
20	SAB 17	18.8	30	81	8.7	63.6	21.4	37.4	NA	NA	931.9	934.3	937.2	0.68	3.70	935.0	937.1	DRAINAGE AREA SOUTH OF TH 7 TRIBUTARY CENTERLINE CULVERT UPSTREAM OF MUFASA POND
	SAB 18A	16.7	35	73	7.6	40.2	0.0	0.0	NA	NA	0.0	0.0	0.0	0.00	0.00	944.0	948.0	EXCELSIOR AREA TO STORAGE AREA SOUTHWEST OF 3RD AVE. & DIVISION ST.
	SAB 18B	3.4	25	72	1.6	9.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	N/A	N/A	SHOREWOOD AREA TO STORAGE AREA SOUTHWEST OF 3RD AVE. & DIVISION ST.
	SAB 19	4.0	20	84	1.9	18.3	2.2	13.3	NA	NA	933.9	934.5	935.4	0.14	0.37	952.0	950.0	DRAINAGE AREA DIRECTLY TRIBUTARY TO TH 7 SARABI POND
	SAB 20						0.6	2.4	NA	NA	937.5	937.9	938.4	0.02	0.06	944.0	948.2	DRAINAGE AREA SOUTH OF TH 7 UPSTREAM OF SARABI POND
	1R								38.4	116.7	NA	NA	NA	NA	NA	NA	NA	ST. ALBAN'S BAY INFLOW
	2R								54.6	226.7	NA	NA	NA	NA	NA	NA	NA	EXCELSIOR BAY INFLOW

CITY OF EXCELSIOR
SURFACE WATER MANAGEMENT PLAN
100-YEAR EVENT

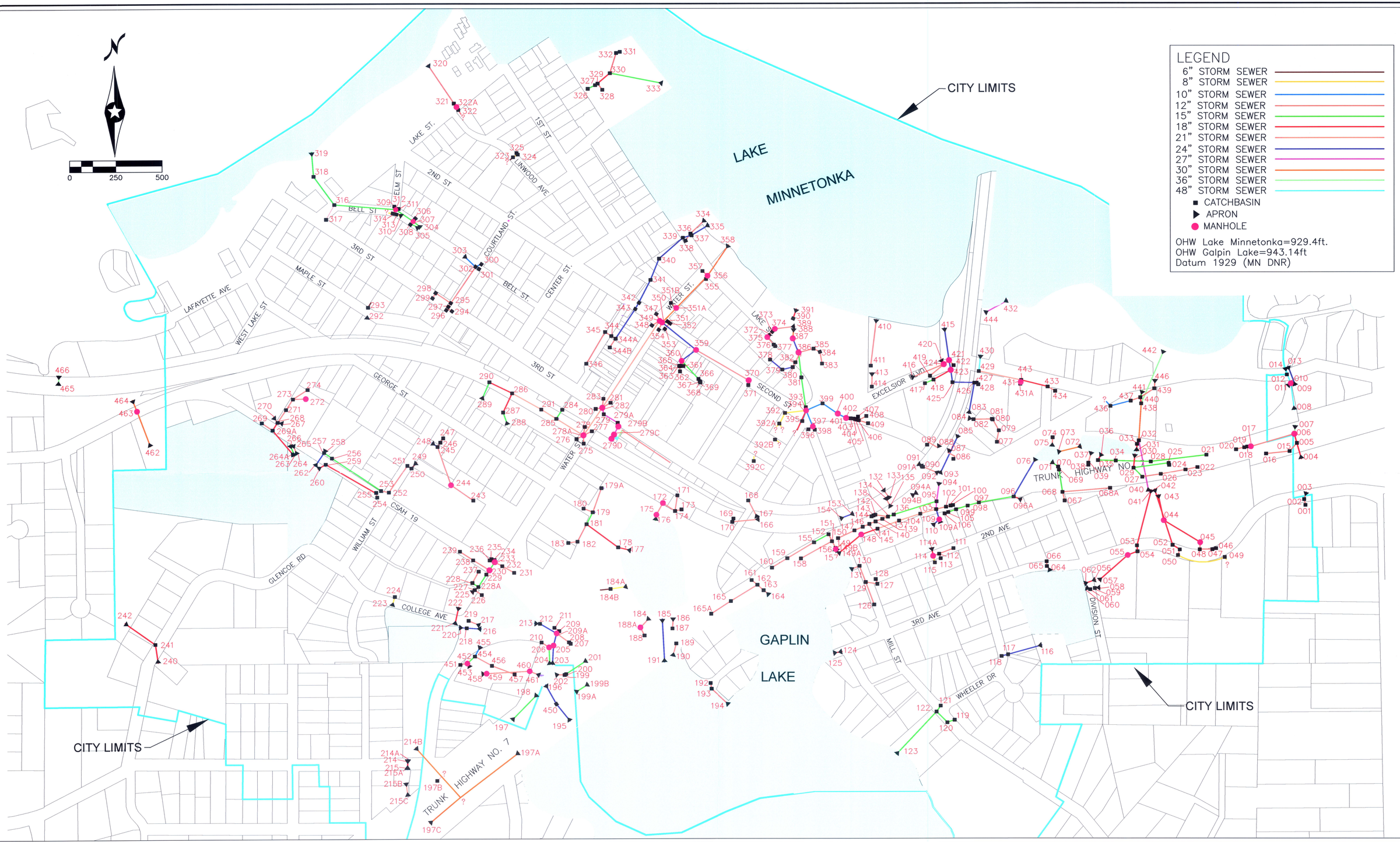
Problem Area #	SUB-WATERSHED NUMBER	AREA (Acre)	Tc (min)	SCS CN	PEAK RUNOFF RATE (cfs)		FULLY DEVELOPED PEAK DISCHARGE RATE				NWL (B)	HWL (B)		REQUIRED STORAGE (B) (ac-ft)				
				FULLY DEVELOPED	100-YR 10-DAY	100-YR 24-HR FULLY DEVELOPED	100-YR 10-DAY PEAK OUTFLOW FROM POND (cfs)	100-YR 24-HR PEAK OUTFLOW FROM POND (cfs)	100-YR 10-DAY PEAK FLOW IN CHANNEL (cfs)	100-YR 24-HR PEAK FLOW IN CHANNEL (cfs)	FULLY DEVELOPED	100YR 10-DAY	100-YR 24-HR	100-YR 10-DAY	100-YR 24-HR FULLY DEVELOPED	LOW BUILDING ELEVATIONS (A)	OVERLAND OVERFLOW (A)	COMMENTS
	3R								35.7	104.9	NA	NA	NA	NA	NA	NA	NA	GIDEON'S BAY INFLOW

A) The overflow elevation and low building elevations should be considered approximate, detailed field surveys are required to obtain actual elevations.

B) The model assumes that the pond elevation is equal to the NWL at the beginning of the event. The HWL is affected by the accuracy of the data such as drainage area, storage capacity, outlet description and condition, and runoff factors and has not been field calibrated. The actual or observed HWL could be affected by land use, etc. All of these factors should be reviewed when HWL is considered critical.

SUBWATERSHED IDENTIFICATION

MP - MITTEN POND
COL - COLLEGE LAKE
GB - GIDEON'S BAY
ML - MUD LAKE
CL - CHRISTMAS LAKE
EB - EXCELSIOR BAY
GL - GALPIN LAKE
SAB - ST. ALBAN'S BAY



WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
763-541-4800 - Fax 763-541-1700
INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

OVERALL VIEW

STORM SEWER STUDY

EXCELSIOR, MINNESOTA

August 15,2007
WSB Project No. 01140-50

Exhibit
1

CITY OF EXCELSIOR
SURFACE WATER MANAGEMENT PLAN
2007

WSB & Associates, Inc.

Excelsior

LEGEND

- GB 11 SUBWATERSHED ID
- MAJOR SUBWATERSHED BOUNDARY
- MINOR SUBWATERSHED BOUNDARY
- STORM SEWER
- FLOW DIRECTION

200 100 0 200 400
SCALE IN FEET

GIDEON'S BAY
EXCELSIOR BAY
ST. ALBANS BAY
GB 17
GB 18
GB 19
GB 10
GB 11
GB 12
GB 7
GB 9
GB 14
GB 15
GB 13A
GB 13B
GB 8A
GB 16A
GB 8B
GB 16B
GB 8C
LMAR 2
LAKE MARY
LMAR 1
GL 10
GL 9
GL 6A
GL 6B
GL 4
GL 3
GL 7
GL 21B
GL 21A
GL 22
GL 21C
GL 20
GL 7A
GL 2A
GL 2B
COL 1
COL 2
COLLEGE LAKE
MP 1
MITTEN POND
ML 1
MUD LAKE
EB 14
EB 12
EB 13
EB 8
EB 7
EB 5
EB 1
EB 11
EB 9
EB 10
EB 6
EB 2
EB 3
EB 4A
EB 4B
SAB 10
SAB 11A
SAB 11B
SAB 5
SAB 4
SAB 15
SAB 14
SAB 12
SAB 19
SAB 16
SAB 13
SAB 17
SAB 20
SAB 18A
SAB 18B
MUFASA POND
SARABI POND
SIMBA POND
CL 4
CL 3
CL 1B2
CL 1B1
CL 2B
CL 2A
CHRISTMAS LAKE
CL 6
CL 5A
CL 5B
CL 1
CL 1A

APPENDIX C
FEMA Flood Insurance Maps

NOTES TO USERS

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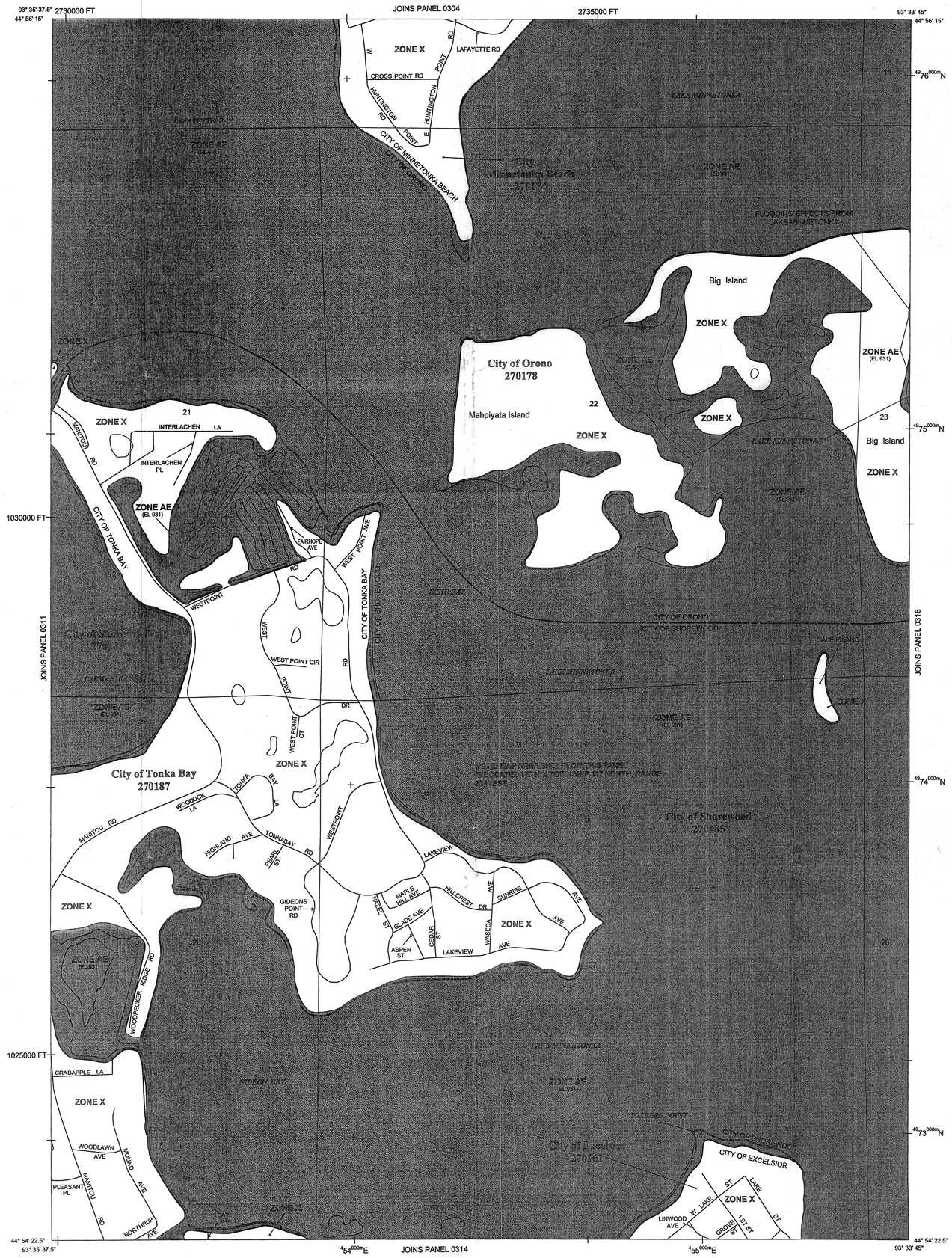

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** Area of special hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance of greater flood event.
- **ZONE A99** Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet *
- (EL 978) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°10'30.5",32°10'30.5" — Geographic coordinates referenced to North American Datum of 1983 (NAD 83)
- 4 76 000m E — 1000-meter Universal Transverse Mercator grid values, zone 15
- 600000 FT — 5000-foot grid ticks: Minnesota State Plane coordinate system, South zone (FIPSZONE 2203), Lambert Conformal Conic projection
- MG5510 x — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- *M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 2, 2004

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

- to update corporate limits, to update map format, to add roads and road names.

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MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0312F

FIRM

FLOOD INSURANCE RATE MAP

HENNEPIN COUNTY, MINNESOTA (ALL JURISDICTIONS)

PANEL 312 OF 479

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EXCELSIOR, CITY OF	270161	0312	F
MINNETONKA BEACH, CITY OF	270174	0312	F
ORONO, CITY OF	270178	0312	F
SHOREWOOD, CITY OF	270185	0312	F
TONKA BAY, CITY OF	270187	0312	F

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MAP NUMBER 27053C0312F

MAP REVISED

Federal Emergency Management Agency

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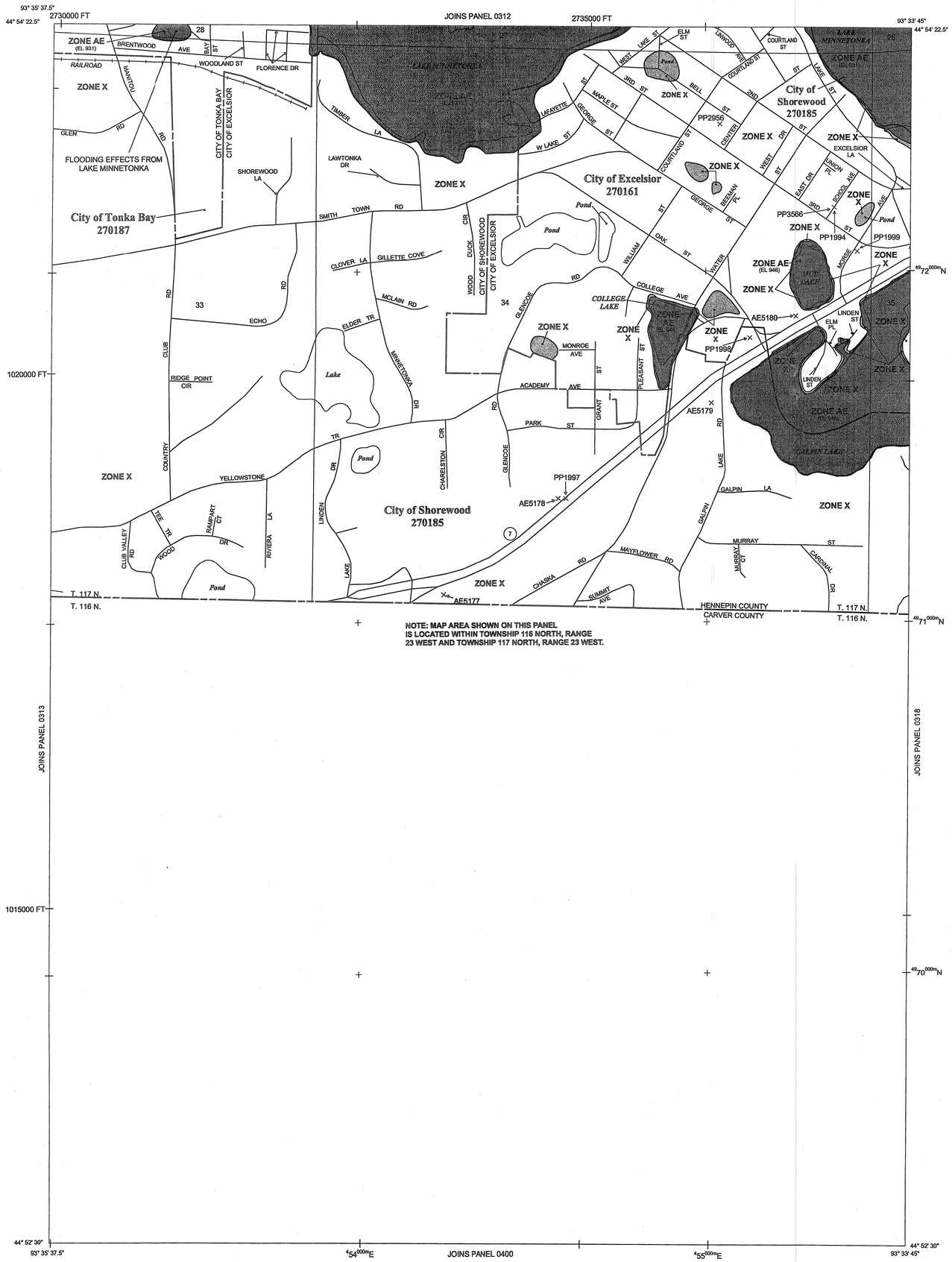

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 116 NORTH, RANGE 23 WEST AND TOWNSHIP 117 NORTH, RANGE 23 WEST.

LEGEND

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NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0314F

FIRM

FLOOD INSURANCE RATE MAP

HENNEPIN COUNTY, MINNESOTA (ALL JURISDICTIONS)

PANEL 314 OF 479

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

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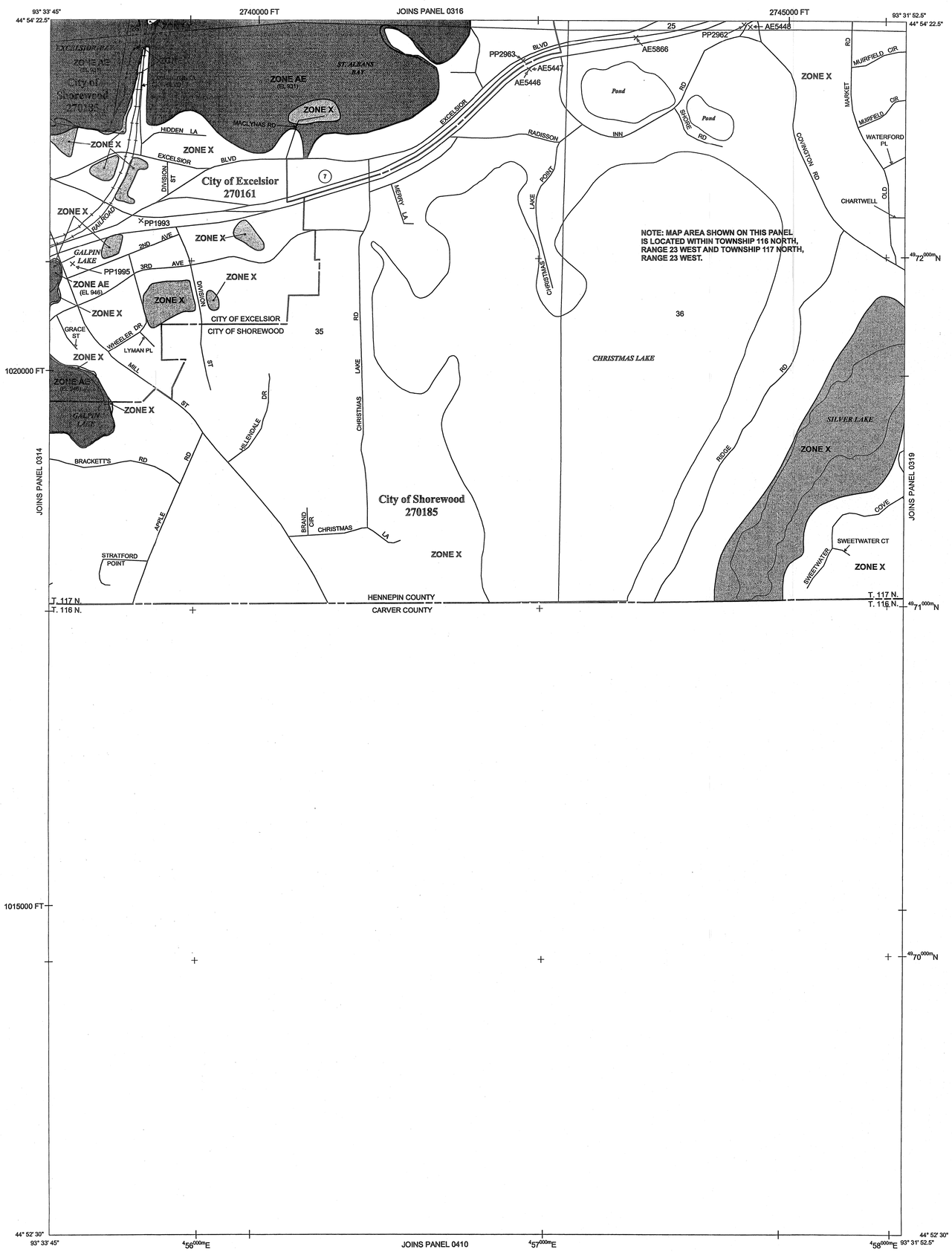


LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Area of special hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance of greater flood event.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet *
- (EL 978) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°10'30.5",32°10'30.5" — Geographic coordinates referenced to North American Datum of 1983 (NAD 83)
- 4276000mE — 1000-meter Universal Transverse Mercator grid values, zone 15
- 600000 FT — 5000-foot grid ticks: Minnesota State Plane coordinate system, South zone (FIPSZONE 2203), Lambert Conformal Conic projection
- MG5510x — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 2, 2004

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

- to update corporate limits, to update map format, to add roads and road names.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0318F

FIRM

FLOOD INSURANCE RATE MAP

HENNEPIN COUNTY, MINNESOTA (ALL JURISDICTIONS)

PANEL 318 OF 479

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EXCELSIOR, CITY OF	270161	0318	F
GREENWOOD, CITY OF	270164	0318	F
SHOREWOOD, CITY OF	270185	0318	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 27053C0318F

MAP REVISED

Federal Emergency Management Agency

APPENDIX D
NPDES Phase II Information

Minnesota Pollution Control Agency

General Stormwater Permit (MN R 040000) Application for Small Municipal Separate Storm Sewer Systems (MS4s)

RETURN THIS APPLICATION TO:
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

NO FEE

Application deadline: **June 1, 2006**

PLEASE READ: As you complete this form, read the instructions carefully. Use your keyboard's "Tab" key to move through the fields of this form. Select check-boxes and enter text as indicated. Save, and print.

1. MS4 Information

A. Application Type

☐ New applicant (this MS4 has no previous application for MS4 coverage on file at MPCA)

☒ Application for re-issuance of coverage (this MS4 applied in 2003)

B. MS4 Owner General Contact (the community, municipality, agency or other party having ownership or operation control of the MS4)

City of Excelsior
Community, municipality, agency or other party having ownership or operational control of the MS4

339 3rd St.
Mailing Address

Excelsior | MN | 55331
City | *State* | *Zip Code*

Hennepin
County

Federal Tax ID | *State Tax ID*

C. General Contact (official, staff member, consultant or other) for all general correspondence about Permit compliance issues between the MPCA and your MS4

Elkin, P.E. | Phil | City Engineer
Last Name | *First Name* | *Title*

701 Xenia Ave. South, Suite 300
Mailing Address

Minneapolis | MN | 55416
City | *State* | *Zip Code*

763-541-4800 | pelkin@wsbeng.com
Telephone (include area code) | *E-mail Address*

II. Certification of the Storm Water Pollution Prevention Program (SWPPP)

A. Have you developed a Storm Water Pollution Prevention Program for your MS4? ☒Yes

Municipalities must demonstrate how their Storm Water Pollution Prevention Program will be implemented and enforced over the term of the five-year Permit. SWPPPs must incorporate appropriate educational components, all required BMPs and the measurable goals associated with each. Storm Water Pollution Prevention Programs must address the specific requirements contained in Part V. G. of the Permit. SWPPPs must outline how the six minimum control measures will be addressed, the contact person, department in charge, timeline and measures that will be implemented to meet the schedules required by the Permit. Attach a BMP Summary Sheet to this application for *each* BMP in your SWPPP.

B. Does your SWPPP address all of the six Minimum Control Measures as outlined in the Permit? ☒Yes

The General Permit requires that you incorporate all six of the defined Minimum Control Measures in your Stormwater Pollution Prevention Program. You are required to implement mandatory BMPs which are directly associated to each of the Six Minimum Control Measures.

C. Have you attached the included BMP Summary Sheets, one for each of the Best Management Practices required by the Permit? ☒Yes

There are 34 required BMPs all of which require that the provided BMP Summary Sheet be filled out completely and included with your Storm Water Pollution Prevention Program. If any of these required sheets are missing, your application will not be considered complete and will be returned to you.

III. Reporting and Recordkeeping

A. I have read and understand Part VI *Evaluating, Recordkeeping, and Reporting* of the MS4 General Permit and certify that we intend to comply with the applicable requirements of those sections as well as the Permit as a whole. ☒Yes

B. Where will your SWPPP be available to the public for review?

Excelsior City Hall		NA
Name of Location		*If your SWPPP is available electronically, indicate location*
339 3rd St.		
Street Address		
Exelsior	MN	**55331**
City	*State*	*ZIP Code*
Phil Elkin, P.E.	763-541-4800	
Contact Name	*Contact Phone Number*	
Monday-Friday, 8am to 4:30pm		
Hours of Availability		

IV. Limitations of Coverage

A. Part II Limitations on Coverage and Appendix C

I have read and understand Part II *Coverage Under This Permit* and Appendix C *Limitations on Coverage* of the MS4 General Permit and certify that we intend to comply with the applicable requirements of those sections as well as the Permit as a whole. ☒Yes

B. Outstanding Resource Value Waters (ORVWs)

Please refer to the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* to complete this section. An interactive map is available on the MPCA Web site that identifies Special Waters: http://pca-gis04.pca.state.mn.us

1. Prohibited Waters

Does the MS4 discharge into **Prohibited Waters** as defined in Minn. R. 7050.0180, subp. 3, 4, and 5? See Attachment Four of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information. ☐Yes ☒No

2. Restricted Discharge

Does the MS4 discharge into waters with a **Restricted Discharge** as defined in Minn. R. 7050.0180, subp. 6, 6a, and 6b? If yes, please list below and comply with Part IX, Appendix C, Item B. See Attachment Four of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information. ☐Yes ☒No

3. Prohibited or Restricted Waters

If you answered "yes" to either Question 1 or 2, have you included a map that outlines, at a minimum, the DNR minor sub-watersheds in your jurisdiction with ANY discharges to Prohibited or Restricted Waters? You are required by the Permit to provide this map along with your application. **[IX.B.2.b]** ☐Yes ☒No

Identify all discharges to Outstanding Resource Value Waters (ORVWs) from your MS4:

Name of Water Body	Type (Lake, Stream, River)

4. If you answered "yes" to either Question 1 or 2, who is the person responsible for ensuring compliance with this Permit condition?

Name: _____ *Position:* _____ *Phone:* _____

C. Special Waters

1. Trout Waters

Does the MS4 discharge into **Trout Waters** as defined in Minn. R. 6264.0050 subp. 2 & 4? If yes, please list below and comply with Part IX, Appendix C, Item C. See Attachments Two and Three of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information. ☐Yes ☒No

2. Wetlands

Does the MS4 discharge into **Wetlands** as defined in Minn. R. 7050.0130, subp. F? See Attachment Four of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information. ☒Yes ☐No

3. Environmental Review

Does the MS4 have a process to assure coordination with appropriate Agencies and to evaluate discharges that require applicable **Environmental Review** as required by State or federal laws? See Part IX of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information. ☒Yes ☐No

Who is the person responsible for ensuring compliance with this Permit condition?

Name: Phil Elkin, P.E. *Position:* City Engineer *Phone:* 763-541-4800

4. Endangered or Threatened Species

Does the MS4 have a process to assure coordination with appropriate Agencies and to evaluate discharges whose direct, indirect, interrelated, interconnected, or independent impacts may jeopardize a listed **Endangered or Threatened Species** or adversely modify a designated critical habitat? See Part IX of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information. ☒Yes ☐No

Who is the person responsible for ensuring compliance with this Permit condition?

Name: Phil Elkin, P.E. *Position:* City Engineer *Phone:* 763-541-4800

5. Historic Places and Archeological Sites

Does the MS4 have a process to assure coordination with appropriate Agencies and to evaluate discharges which may adversely affect properties listed or eligible for listing in the National Register of **Historic Places** or affecting known or discovered **archeological sites**? See Part IX of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information. ☒Yes ☐No

Who is the person responsible for ensuring compliance with this Permit condition?

Name: Phil Elkin, P.E. *Position:* City Engineer *Phone:* 763-541-4800

6. Drinking Water Sources

Does the MS4 have any discharges that may affect Source Water Protection as defined in part **IX.H** of the General Permit? ☒Yes ☐No

If "yes," does the MS4 have BMPs incorporated into the SWPPP to protect drinking water sources that the MS4 discharge may affect? ☒Yes ☐No

V. Owner or Operator Certification

The person with overall, MS4 legal responsibility must sign the application. This person shall be duly authorized to sign the application and may be either a principal executive officer or ranking elected official. (see Minn. R. 7001.0060).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete (Minn. R. 7001.0070).

I also certify under penalty of law that I have read, understood, and accepted all terms and conditions of the National Pollutant Discharge Elimination System (NPDES) General Storm Water Permit for MS4s that authorizes storm water discharges identified in this application form.

I understand that as a Permittee, I am legally accountable under the Clean Water Act to ensure compliance with the terms and conditions of the NPDES General Storm Water Permit for MS4s.

I also understand that MPCA enforcement actions (pursuant to Minn. Stat. §115.07, 116.072, and Section 309 of the Clean Water Act) may be taken against me or the MS4 if the terms and conditions of the NPDES General Storm Water Permit for MS4s are not met.

C. General Contact (official, staff member, consultant or other) for all general correspondence about Permit compliance issues between the MPCA and your MS4

X

Authorized Signature		*Date*
Whittaker	*Larry*	*City Manager*
Last Name	*First Name*	*Title*
339 3rd St.		
Mailing Address		
Excelsior	*MN*	*55331-1809*
City	*State*	*ZIP Code*
952-474-5233	*lwhittaker@ci.exelsior.mn.us*	
Telephone (include area code)	*E-mail Address*	

STORM WATER POLLUTION PREVENTION PROGRAM FOR THE MANAGEMENT OF MUNICIPAL SEPARATE STORM SEWER SYSTEMS WITHIN THE CITY OF EXCELSIOR

CERTIFICATION

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

Phil Elkin, P.E.

Date: May 15, 2006 Lic.No.26856

Table of Contents

I. INTRODUCTION

This Storm Water Pollution Prevention Program (SWPPP) has been prepared in conformance with the National Pollutant Discharge Elimination System (NPDES), Phase II Rules and is in compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251ET SEQ; hereafter, the "Act"), 40 CFR 122, 123, and 124, as amended, ET SEQ; Minnesota Statutes Chapters 115 and 116, as amended and Minnesota Rules, Chapter 7001. The urbanized area covered by this SWPPP is shown in **Figure 1**.

The goal of the National Pollutant Discharge Elimination System Permit is to restore and maintain the chemical, physical, and biological integrity of waters of the state through management and treatment of urban storm water runoff. The Department of Natural Resources Wetland and Waters, and the wetlands identified in the National Wetland Inventory located within the project area are shown in **Figure 2 & 3**. This program requires that this be accomplished through the management of Municipal Separate Storm Sewer Systems (MS4s) through the preparation of a Storm Water Pollution Prevention Program (SWPPP).

The SWPPP identifies the goals and the Best Management Practices (BMPs) that will be undertaken to meet the requirements of the NPDES Phase II rules. Measurable goals have been established for each of the BMPs included in the SWPPP along with an implementation plan and the persons responsible for implementing the BMPs.

This SWPPP has been prepared to manage and reduce the discharge of pollutants from MS4s to the maximum extent practicable (MEP). This will be accomplished through the implementation of the BMPs outlined within this SWPPP. These BMPs could be a combination of education, maintenance, control techniques, system design and engineering methods, and other such provisions that are appropriate to meet the requirements of the NPDES Phase II permit. BMPs have been prepared to address each of the six minimum control measures as outlined in the rules. These six minimum control measures are:

1. Public education and outreach on storm water impacts.
2. Public participation/involvement.
3. Illicit discharge detection and elimination.
4. Construction site stormwater runoff control.
5. Post construction storm water management in new development and redevelopment.
6. Pollution prevention/good housekeeping for municipal operations.

For each of these six minimum control measures, appropriate BMPs have been identified along with measurable goals, an implementation schedule, and the persons responsible to complete each measure.

Figure 1
Location Map

Figure 2
DNR Public Waters Map

Figure 3
National Wetlands Inventory Map

II. MUNICIPAL SEPARATE STORM SEWER SYSTEM EVALUATION

An evaluation of the storm sewer system was completed to determine the factors affecting the Maximum Extent Practicable (MEP) standards set forth within the NPDES Phase II Rule. Factors which were used in developing the BMPs outlined in this SWPPP were as follows:

1. Sources of pollutants
2. Potential polluting activities being conducted in the watershed
3. Sensitivity of receiving waters and wetlands within the system
4. Intended uses of receiving waters
5. Local concerns and storm water issues
6. The size of the MS4, the available staff, and the number of residents
7. BMP implementation schedules
8. Ability to finance storm water related programs
9. Hydraulics and hydrology of the watershed
10. Geology
11. Ability to finance and perform operation and maintenance of the MS4
12. Land uses
13. Development and redevelopment expectations
14. Watershed characteristics
15. Organizational structure of the municipal operator

In conformance with the requirements for the preparation of the SWPPP, a number of non-storm water discharges were evaluated to determine if they are significant contributors of pollutants to the storm sewer system. Non-storm water discharges which were evaluated include:

1. Flushing of municipal waterlines
2. Residential, commercial and agricultural landscape irrigation
3. Stream flow diversions
4. Groundwater outputs and rising elevations
5. Uncontaminated pumped ground water
6. Uncontaminated groundwater infiltration
7. Filtration backwash from municipal water treatment facility
8. Discharge of foundation drains into the MS4
9. Potable water source discharges
10. Condensation from air conditioning units
11. Car washing by individual residents
12. Discharges from the chlorinated swimming pools
13. Wash water from street sweeping activities
14. Water discharged from firefighting activities

These sources of non-storm water inputs into the municipal separate storm sewer system were determined **not** to be significant contributors of pollutants. Therefore, BMPs will not be prepared to address these storm water discharges.

The City of Excelsior has developed this SWPPP, and the Best Management Practices within it, to reach the goal of reducing the discharge of pollutants to the "maximum extent practicable."

This SWPPP incorporates new activities and existing practices to develop a program, designed to protect water quality as required by the Clean Water Act. The BMPs included within this SWPPP, are the results of the City carefully and thoughtfully evaluating the storm water discharges within their jurisdiction, and as a result believe implementation of these BMPs meet the prescribed "maximum extent practicable" standard.

III. STORM WATER POLLUTION PREVENTION PROGRAM

This Storm Water Pollution Prevention Program (SWPPP) outlines the Best Management Practices (BMPs) which are appropriate for the City of Excelsior to control or reduce the pollutants in storm water runoff to the maximum extent practicable. This SWPPP was developed based on the factors previously discussed within the areas tributary to the Municipal Separate Storm Sewer System.

The City of Excelsior reserves the right to amend and/or delete the described BMPs based on the availability of funding for this program. Furthermore, the City may coordinate the responsibility of selected BMPs with other governing agencies such as community groups, non-profit organizations, soil and water conservation districts, watershed districts, watershed management organizations, school districts, University of Minnesota Extension, or county, regional, state, and federal government programs, which represent storm water within the City.

Best Management Practices (BMPs) have been prepared for each of the six minimum control measures. A description of each BMP, an implementation schedule, measurable goals that determine the success or benefit, and the person responsible to complete each BMP is included in **Section II.**

A description of the six minimum control measures and the BMPs which have been developed to meet the requirements of each minimum control measure are outlined in the following pages:

MCM 1.0 PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS

The public education program has been developed to distribute educational materials to the community or conduct equivalent outreach activities. The BMPs identified will focus on the impact of storm water discharges on streams, rivers, and wetlands, and the steps that the public can take to reduce pollutants in storm water runoff.

These activities have been prepared to individually address each of the six minimum control measures. For each minimum control measure, the education program identifies the audience or audiences involved, educational goals for each audience, activities used to reach educational goals for each audience, activity implementation plans, including responsible persons in charge, entities responsible for given activities, and schedules and performance measures that can be used to determine success in reaching educational goals.

The public education and outreach BMPs that will be undertaken include:

1) Produce and distribute information on illicit discharges, erosion, shoreline management, composting and pollution prevention and other applicable BMPs utilized in the SWPPP. This information may be distributed through City mailings, newsletters, bill stuffing, and on the City website.

2) Incorporate public information on the SWPPP issues into a separate page on the City's website. The web page would specifically describe the SWPPP, each minimum control measure, the goals and actions planned by the City, provide links to BMPs, articles on each control measure, and collect feedback from site visitors.

3) Provide training opportunities for City staff including erosion control, BMPs, good housekeeping, and pollution prevention. Training topics could include, but are not limited to:

    a) Mn/DOT Erosion Control Certification
    b) Storm Water Pollution Prevention Program Workshops
    c) Best Management Practices Workshops
    d) Brochures and publications distributed to staff

MCM 2.0 PUBLIC PARTICIPATION/INVOLVEMENT

This minimum control measure requires that the City provide measures to receive public input and opinion on the adequacy of the SWPPP. This input can be received from public meetings, oral testimony, and written correspondence. To reach this goal, the City anticipates implementing the following BMPs:

1) Conduct an annual public meeting on the City's Storm Water Pollution Prevention Program and solicit opinion on the plan and consider written and oral input on the adequacy of the SWPPP.

2) The City intends to incorporate public information on SWPPP issues into a separate page on the City's website. The web page would specifically describe the SWPPP, each

minimum control measure, the goals and actions planned by the City, provide links to BMPs, articles on each control measure, and collect feedback from site visitors.

MCM 3.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION

A number of BMPs have been developed to implement and enforce a program to detect and eliminate illicit discharges into the municipal separate storm sewer system. These BMPs include:

1) Review existing city ordinances relating to illicit discharges, and develop/adopt an illicit discharge ordinance (if necessary).

2) Annually update all identified City-owned storm sewer conveyances (24" or greater) to reflect changes or additions to the storm sewer system. This will also identify all outfalls and discharge points leaving the City.

3) Continue to visually inspect and record all reported non-stormwater discharges within 24 hours of discovery and/or report.

4) Train City staff, implement procedures, and incorporate BMPs in handling equipment and hazardous materials used by the City.

MCM 4.0 CONSTRUCTION SITE STORM WATER RUNOFF CONTROL

A number of BMPs have been developed and will be implemented and enforced to reduce pollutants and storm water runoff from construction activities with land disturbances equal to or greater than one acre. These BMPs include:

1) Review current permit stipulations/City codes relating to project specific erosion and sediment control for conformance to NPDES requirements (update as necessary).

2) Every applicant for a City permit to allow land disturbing activities must submit a project specific stormwater management plan (if applicable) and/or erosion control plan to the City.

3) Provide a phone number, website, and point of contact for the public to report storm water pollution issues. Staff procedures for stormwater non-compliance are defined in BMP summary sheet 4e-1.

4) Construction site operators must conform to NPDES Phase II, watershed district, and City ordinances pertaining to erosion and sediment controls and waste controls.

5) All erosion control inspections, violations, and remedial actions taken by the City will comply with NPDES Phase II construction permit guidelines. New City staff will be provided erosion control training within 3 years of the individual's hire date.

MCM 5.0 POST CONSTRUCTION STORM WATER MANAGEMENT FOR NEW DEVELOPMENT AND REDEVELOPMENT

A program of BMPs has been prepared to address storm water runoff from new development and redevelopment projects that disturb equal to or greater than one acre. This program insures that controls are in place that would prevent or minimize water quality impacts from development activities. These BMPs include:

1) Continue to use existing development review policies currently in place to address water quality, erosion control, and BMP's

2) City staff will document and record all repairs, maintenance, or new construction of structural and non-structural BMP's used on City construction projects.

3) Annually review and document modifications to the BMP schedule as defined in the Public Works work schedule.

MCM 6.0 POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

To meet the requirements of the pollution prevention and good housekeeping for municipal operations, a number of BMPs have been prepared. These BMPs include:

1) Annual inspection of 20% of the outfalls, sediment basis, and ponds within the city's storm sewer system.. The results of these inspections will be compiled in a report and include sediment levels, watershed information and record recommended maintenance and maintenance schedules

2) Inspect and document all structural pollution control devices a minimum of once per year.

3) Evaluating, annually inspecting, and modifying (if necessary) current BMP's in place on all exposed stockpiles, storage, and materials located within City owned property.

4) The City will annually evaluate landscaping and lawn-care practices, which may include the use of fertilizers, pesticides, herbicides, lawn mowing, grass clipping collection, mulching and composting, and develop BMPs to reduce storm water pollution.

5) The City will annually review practice and policies of road salt applications. The City will consider alternative products, calibration of equipment, inspection of vehicles and staff training to reduce pollutants from road deicing activities.

6) The City will continue with the current street sweeping program, identify improvements, and implement changes to reduce storm water pollutants.

IV. BEST MANAGEMENT PRACTICES IMPLEMENTATION PLAN

A summary of BMPs are provided in **Table 1**. Detailed descriptions of each of the BMPs contained within the SWPPP are provided in **Section II.**

Table 1
BMP IMPLEMENTATION PROGRAM

Best Management Practices	Description of BMP & Goal	Schedule
MCM 1 **Public Education and Outreach**		
1a-1 Distribute Educational Materials Brochures, Handouts, and Newsletters, SWPPP Web Page, Annual Public Meeting	Produce and distribute information on illicit discharges, erosion control, 6 MCM's, BMP's, shoreline management, and other SWPPP practices.	Annually evaluate and update as needed 2006 – 2011. Distribute throughout the year from 2006-2011
1b-1 Implement an Education Program	Record attendance, web site visits, keep minutes, record statements/requests, and written comments.	Develop program beginning August 2006; annually evaluate and update as needed through May 31, 2011.
1c-l through 1c-6 Education Programs	Increase awareness, understanding, and knowledge of daily behavior changes, the City's SWPPP, and 6 MCM's that reduce stormwater pollution within the City.	Develop in 2006, implement and continuously evaluate and update as needed through May 31, 2011.
1d-1 Coordination of Educational Programming	Continue to coordinate educational components, programming, and schedule with outside organizations.	Annually evaluate and update as needed 2006 – 2011
1e-1 Annual Public Meeting	Hold an annual public meeting to distribute educational materials and present an overview of the MS4 program and City's SWPPP	Minimum of once/year, annually through May 31, 2011.
MCM 2 **Public Participation and Involvement**		
2a-1 Comply with Public Notice Requirements	Notice the annual public meeting in the official newspaper 30 days prior to the meeting date	Annually through May 31, 2011
2b-1 Solicit Public Input and Opinion on the Adequacy of the SWPPP	Hold an annual public meeting and host a web page to solicit public opinion on the SWPPP	Minimum of once/year, annually through 2011.
2c-1 Consider Public Input	Record attendance, keep minutes, record statements, and written comments and document changes made to the SWPPP	Minimum of once/year, annually through 2011.
MCM 3 **Illicit Discharge Detection and Elimination**		
3a-1 Storm Sewer System Map	Update storm sewer system map, as needed.	Annually 2006 – May 31, 2011
3b-1 Regulatory Control Program	Review existing city ordinances relating to illicit discharges, and develop/adopt an illicit discharge ordinance (if necessary).	Review existing ordinance/Draft ordinance/public comment period (if applicable) in 2006. City Council review/Adopt ordinance in 2007 (if applicable). Annually review existing ordinances or adopt ordinance 2008-May 31, 2011.

Best Management Practices	Description of BMP & Goal	Schedule
3c-1 Illicit Discharge Detection and Elimination Plan	All non-storm water discharges (as defined in Part V.G.3.e) were evaluated and determined to be insignificant sources of pollutants to the MS4.	Completed
3d-1 Public and Employee Illicit Discharge Information Program	Train City staff, implement procedures, and incorporate BMPs in handling equipment and hazardous materials used by the City.	Annual review in 2006 to May 31, 2011
3e-1 Identification of Non Stormwater Discharges and Flows	Maintain a record of all non-stormwater discharges including visual inspections within 24 hours of receipt, responsible parties, and corrective actions.	Implement inspection schedule (as defined in 3e-1) in 2006. Annually update records in 2006, through May 31, 2011.
MCM 4 **Construction Site Storm Water Runoff Control**		
4a-1 Ordinance or other Regulatory Mechanism	Review current permit stipulations/City codes relating to project specific erosion and sediment control for conformance to NPDES requirements (update as necessary).	Review and add additional requirements (if applicable) by January 1, 2007
4b-1, 4c-1 Construction Site Implementation of Erosion and Sediment Control BMP's: Waste Controls for Construction Site Operators	Construction site operators must conform to NPDES Phase II, watershed district, and City ordinances pertaining to erosion and sediment controls and waste controls.	Review and add additional requirements (if applicable) in 2006. Enforce new permit requirements in 2007 to May 31, 2011.
4d-1 Procedure for Site Plan Review	Every applicant for a City permit to allow land disturbing activities must submit a project specific stormwater management plan (if applicable) and/or erosion control plan to the City.	Implement in 2006; monitor submittals throughout May 31, 2011.
4e-1 Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance	Provide a phone number, website, and point of contact for the public to report storm water pollution issues. Staff procedures for stormwater non-compliance are defined in BMP summary sheet 4e-1.	Develop program in 2006; evaluate and update as needed in 2007 through May 31, 2011.
4f-1 Establishment of Procedures for Site Inspections and Enforcement	All erosion control inspections, violations, and remedial actions taken by the City will comply with NPDES Phase II construction permit guidelines. New City staff will be provided erosion control training within 3 years of the individual's hire date.	New staff training within 3 years of hire date. Implement program in 2006; annually update training records through May 31, 2011.
MCM 5 **Post Construction Storm Water Management Measures**		

Best Management Practices	Description of BMP & Goal	Schedule
5a-1 Development and Implementation of Structural and/or Non-Structural BMP's	City staff will document and record all repairs, maintenance, or new construction of structural and non-structural BMP's used on City construction projects.	Recordkeeping a minimum of once/year, annually through May 31, 2011.
5b-1 Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment	Continue to use existing development review policies currently in place to address water quality, erosion control, and BMP's	Annually evaluate and update as needed 2007 to May 31, 2011
5c-1 Long-term Operation and Maintenance of BMP's	Annually review and document modifications to the BMP schedule as defined in the Public Works work schedule.	Annually review and update as needed 2006 – May 31, 2011
MCM 6 **Pollution Prevention/Good Housekeeping Measures**		
6a-1 Municipal Operations and Maintenance Program	Develop and implement a pollution prevention operations & maintenance schedule consistent with the BMPs detailed in this permit and minimum control measure #6.	Implement in 2006; annually evaluate and update as needed 2007 – May 31, 2011.
6a-2 Street Sweeping Program	Street sweep once annually. Record the annual number of times streets are brush swept as well as document any additional activities that were undertaken regarding this program	Sweep once per year; record annually 2006- May 31, 2011.
6b-2 Annual Inspection of All Structural Pollution Control Devices	Inspect and document all structural pollution control devices a minimum of once per year.	Minimum of once/year, annually through May 31, 2011.
6b-3 Inspection of a Minimum of 20% of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis.	Record the number of outfalls, sediment basins, and ponds inspected. Inspect all outfalls, sediment basins, and ponds by 2011.	Inspect a minimum of 20% per year. Begin recording inspections in 2006, and continue through May 31, 2011 or until 100% complete prior to May 31, 2011.
6b-4 Annual Inspection of All Exposed Stockpile, Storage, and Material Handling Areas.	Evaluate and document all modifications and/or additional BMP's implemented to all stockpiles, storage, and material areas located within City owned property.	Begin recording inspections in 2006 and continue annually through May 31, 2011.
6b-5 Inspection Follow-up, Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures.	The City engineer will determine and document all repair, replacement, or maintenance measures.	Annually update records in 2006 to May 31, 2011.
6b-6 Record Reporting and Retention of All Inspections and Responses to the Inspections	The City will record the number of inspection record requests and distributed materials.	Minimum of one/year, annually through May 31, 2011.
6b-7 Evaluation of Inspection Frequency	Record retention of inspection results and maintenance performed or recommended. The frequency of inspections may be adjusted after 2 years at the discretion of the City engineer.	Minimum of one/year, annually through May 31, 2011.

Best Management Practices	Description of BMP & Goal	Schedule
6b-8 Landscaping & Lawn Care Practices Review	Continue to evaluate current practices of fertilizer, pesticide, and herbicide application, mowing operations, grass clipping collection, mulching, and composting.	Minimum of one/year, annually through May 31, 2011.
6b-9 Road Salt Application Review	Continue to evaluate current practices of road salt applications, alternative products, calibration of equipment, inspection of vehicles and staff training.	Minimum of one/year, annually through May 31, 2011.

V. ANNUAL REPORT

An annual report will be prepared and submitted to the MPCA prior to June 30 of each year from 2006 through 2011. This annual report will summarize the following:

A. Status of Compliance With Permit Conditions

The annual report will contain an assessment of the appropriateness of the BMPs and progress toward achieving the identified measurable goals for each of the minimum control measures. This assessment will be based on results collected and analyzed, inspection findings, and public input received during the reporting period.

B. Work Plan

The annual report will contain a list of storm water activities that are planning to be undertaken in the next reporting cycle.

C. Modifications to the SWPPP

The annual report will identify changes to BMPs or measurable goals for any of the minimum control measures.

D. Notice of Coordinated Activities

A notice will be included in the annual report for any portions of the permit for which a government entity or organization outside of the MS4 is being utilized to fulfill any BMP contained in the SWPPP.

Application Instructions for General Stormwater Permit Number MN R 040000 for Small Municipal Separate Storm Sewer Systems (MS4s)

The Municipal Separate Storm Sewer System (MS4) Permit requires that you develop, implement and enforce a Stormwater Pollution Prevention Program (SWPPP) designed to reduce the discharge of pollutants from your small MS4 to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act to the Maximum Extent Practicable (MEP).

What the Application Means

Submission of this application is notice that you, as the owner and/or operator identified on the application, intend to comply with National Pollutant Discharge Elimination System (NPDES) Permit Number MN R 040000 (Permit). This Permit is issued for stormwater discharges associated with operation of a MS4 in the State of Minnesota. The application provides a certification to ensure that the owner/operator has completed the Permit application requirements—and accompanying SWPPP—and will comply with the terms of the MS4 Permit. (In Minnesota, the MPCA Permit application is equivalent to the United States Environmental Protection Agency Notice of Intent.)

Starting the Process

The general stormwater Permit for your MS4 is the start of a five-year process to develop and implement a plan to control, reduce and minimize the discharge of pollutants from your MS4. The Minnesota Pollution Control Agency (MPCA) requires that you implement Best Management Practices (BMP) including educational programs. During this five-year process, you will evaluate and receive public input on the BMPs to improve their effectiveness. The evaluation and input process will lead to more effective programs, which will ultimately result in improved water quality in the receiving waters.

Special Situations

If your MS4 discharges to a Prohibited Water, a Restricted Water, a Trout Water, Lake Trout Lake, a Scientific and Natural Area, or a Calcareous Fen, you must include a map outlining all outfalls to such waters. A mapping tool to locate these waters is available at the MPCA Web site at http://www.pca.state.mn.us/water/stormwater/stormwater-ms4.html. Refer to this map when you complete Section IV of the application.

Format of the Application

The application form is available in two formats: (1) a Microsoft Word document that can be filled out electronically or by hand; and (2) a PDF document. If you choose the Microsoft Word document, the necessary fields will expand automatically as you enter information without changing the format of the document. Additional pages can be added as necessary. If you choose to fill out the application by hand, please type or print clearly. Illegible or incomplete applications will be returned.

I. MS4 Information

(See Part I of the Permit Application)

A. Application Type

- Check the "New applicant" check box if your MS4 has no previous application for MS4 coverage on file at MPCA.
- Check the "Application for re-issuance of coverage" check box if your MS4 applied for coverage in 2003

B. MS4 Owner

- The MS4 owner can be a city, county, community, municipality, government agency, college or university, or another party/entity having ownership or operational responsibility, or control of the MS4.

- Provide the name and address of the MS4 owner or operator. Include the county in which the MS4 is located.
- Include your Federal and State Tax Identification numbers on the application. The MPCA is requesting this information to assist us in reducing duplicate records. Also, should the MPCA collect a future fee from MS4s, this will facilitate the fee process.

C. General Contact

- General contact is the person you want the MPCA to communicate with regarding Permit compliance issues. This person may be the same as the person with overall Stormwater Pollution Prevention Program (SWPPP) implementation responsibility or someone else assigned to this role. Generally, the contact person should be the owner's representative in charge of stormwater Permit compliance for the MS4 (for example, Sandy Smith, Director of Public Works; Joe Johnson, Project Manager; etc.).
- Provide the street address, city, state, ZIP code, and telephone number, including area code, of the person with official status representing the owner of the MS4, or other entity, which has operational control of the MS4. For example, the owner is the city; the representative is the party the MPCA will contact regarding the SWPPP. Preferably, this person has overall coordination of the SWPPP's operations. Include an e-mail address if available.

II. Certification of the Stormwater Pollution Prevention Program (SWPPP)

(See Part II of the Permit Application)

A. Stormwater Pollution Prevention Program (SWPPP)

- You must certify to the specific requirements of the Permit that pertain to Stormwater Pollution Prevention Programs (SWPPPs) by checking the appropriate box next to question.
- By checking the box "Yes," you are certifying that you have developed a SWPPP; and that you will implement and enforce your SWPPP including the educational components, Best Management Practices (BMP) and measurable goals, within the five-year timeframe of the Permit. By not checking the box, you are certifying that you have not completed a SWPPP for your MS4. Under this circumstance, you are submitting an incomplete application and it will be returned.

B. Minimum Control Measure

- The Permit requires that you address all 6 of the defined Minimum Control Measures (MCMs) in your SWPPP. By checking the "yes" box, you are certifying that this has been done.

C. BMP Summary Sheets

- It is required that you attach a BMP Summary Sheet for each of the required BMP, as defined by the Permit. Checking the "Yes" box indicates that you have included all thirty-four (34) BMP Summary Sheets.
- You must use the numbering system established by the MPCA for numbering your BMP on the BMP Summary Sheets. Please see specific instructions for completing the BMP Summary Sheets for additional information.

III. Reporting and Record Keeping

(See Part III of the Permit Application)

A. Evaluating, Recordkeeping, and Reporting

- By checking the box "Yes," you are certifying that you have read and understand Part VI of the MS4 Permit (Evaluating, Recordkeeping, and Reporting), and you intend to comply with the applicable requirements in addition to the Permit as a whole.

- You must include in your SWPPP the process for which you will maintain your records to remain in compliance with the requirements of the Permit.

B. Public Availability of the SWPPP

- It is required that you make your SWPPP available to the public for review. Indicate the exact location of the SWPPP, the hours that it is available, and who can be contacted to receive a copy of the SWPPP for review.
- Include electronic (Web) location of your SWPPP. The MPCA strongly encourages Web access to your SWPPP.

IV. Limitations of Coverage

(See Part IV of the Permit Application)

A. Limitations on Coverage and Appendix C

By checking the box "Yes," you are certifying that you have read Part II of the MS4 Permit (Limitations on Coverage), and Appendix C and that you intend to comply with the applicable requirements of Part II and Appendix C.

B. Outstanding Resource Value Waters (ORVW)

If this MS4 is located on a Prohibited Water, a Restricted Water, a Trout Water, Lake Trout Lake, a Scientific and Natural Area, or a Calcareous Fen, a map was included with the Permit application. Use this map to complete this section of the application. Also, lists of Prohibited Waters, Restricted Waters, and Trout Waters, can be found in the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)*. The list of Prohibited Waters and Restricted Waters is found in Attachment 4. The list of Trout Waters is found in Attachment 2 (lakes) and Attachment 3 (streams). The guidance manual and associated attachments can be found on the MPCA's Web site at www.pca.state.mn.us/water/stormwater/stormwater-ms4.html.

Wetlands are also discussed in Attachment 4 to the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)*.

Will your MS4 have the following discharges?

1. **Discharges to Waters with Prohibited Discharges.** This Permit does not authorize new or expanded discharges to waters where the water quality standards prohibit new or expanded discharges as described in Minn. R. 7050.0180 subp. 3, 4, and 5. Any new or expanded discharges to these waters must be avoided.
2. **Discharges to Waters with Restricted Discharges.** These waters must be listed on the application. The Permit requires steps to be taken over the life of the Permit such as a plan to address prudent and feasible alternatives to discharge, and the measures taken to ensure protection of the values that made these waters outstanding resources. See Part IX Appendix C Item B numbers 1-5 of the Permit for further information.

   Identify all discharges to ORVWs from your MS4. You must fill in the table on the application with information pertaining to all ORVW discharges; include the name and type of each water body. If you do have any such discharges, you must also provide a map that outlines them. This map must, at a minimum, include the DNR minor sub-watersheds in your jurisdiction with any discharges to Prohibited or Restricted Waters. An interactive map is available on the MPCA website that identifies Special Waters: http://pca-gis04.pca.state.mn.us.

C. Special Waters

1. **Discharges to Trout Waters.** This Permit does not authorize new or expanded discharges to trout waters without additional requirements. At a minimum, you must make the determinations required by the Permit in Part IX, Appendix C, item C, numbers 1 and 2. You must document the rationale for your conclusions.

Best management practices must address how to avoid or minimize raising the temperature, as well as other impacts.

2. **Discharges to Wetlands.** This Permit does not authorize physical alterations, including new or expanded discharges to wetlands, if the alteration will have a significant adverse impact to the designated uses of a wetland. Any physical alteration to wetlands that will cause a potential for a significant adverse impact to a designated use must be mitigated as required in Minn. R. 7050.0186 and/or other applicable rules.

   The mitigation process for wetlands is to avoid, minimize, and mitigate impacts to wetlands. This Permit expects the Permittee to follow this process and obtain applicable Permits.

3. **Discharges Requiring Environmental Review.** This Permit does not replace or satisfy any environmental review requirements, including those under the Minnesota Environmental Policy Act (MEPA) or the National Environmental Policy Act (NEPA). You must complete any environmental review required by law, including any required Environmental Assessment Work Sheets or Environmental Impact Statements, Federal environmental review, or another required review.

   This Permit does not cover discharges that have not conducted the required environmental review. Discharges that have not conducted required reviews are discharges without a Permit. Environmental review includes Environmental Impact Statements, Environmental Assessment Work Sheets, or other environmental documents that are required to be completed before Permits can be issued. For the purpose of this Permit, a process may be an individual or position assigned to meet this requirement.

4. **Discharges Affecting Endangered or Threatened Species.** This Permit does not replace or satisfy any review requirements for endangered or threatened species, from new or expanded discharges whose direct, indirect, interrelated, interconnected, or independent impacts would jeopardize a listed endangered or threatened species or adversely modify a designated critical habitat. You must conduct any required review and coordinate with appropriate agencies for any project with the potential of affecting threatened or endangered species, or their critical habitat. Endangered species coordination must be conducted when required by law. This Permit does not cover any discharge where such coordination is required unless the coordination has been conducted. For the purpose of this Permit, a process may be an individual or position assigned to meet this requirement.

5. **Discharges Affecting Historic Places or Archeological Sites.** This Permit does not replace or satisfy any review requirements for historic places or archeological sites, from new or expanded discharges which adversely affect properties listed or eligible for listing in the National Register of Historic Places or affecting known or discovered archeological sites. You must be in compliance with the National Historic Preservation Act and conduct all required review and coordination related to historic preservation, including significant anthropological sites and any burial sites, with the Minnesota Historic Preservation Officer. Where it is determined that historic or archeological coordination is required, the appropriate processes must be completed before this Permit can be in effect for those discharges. For the purpose of this Permit, a process may be an individual or position assigned to meet this requirement.

6. **Discharges Affecting Source Water Protection Areas.** Indicate if the MS4 has any discharges that may affect drinking water sources due to infiltration or surface water discharges.

V. Owner or Operator Certification

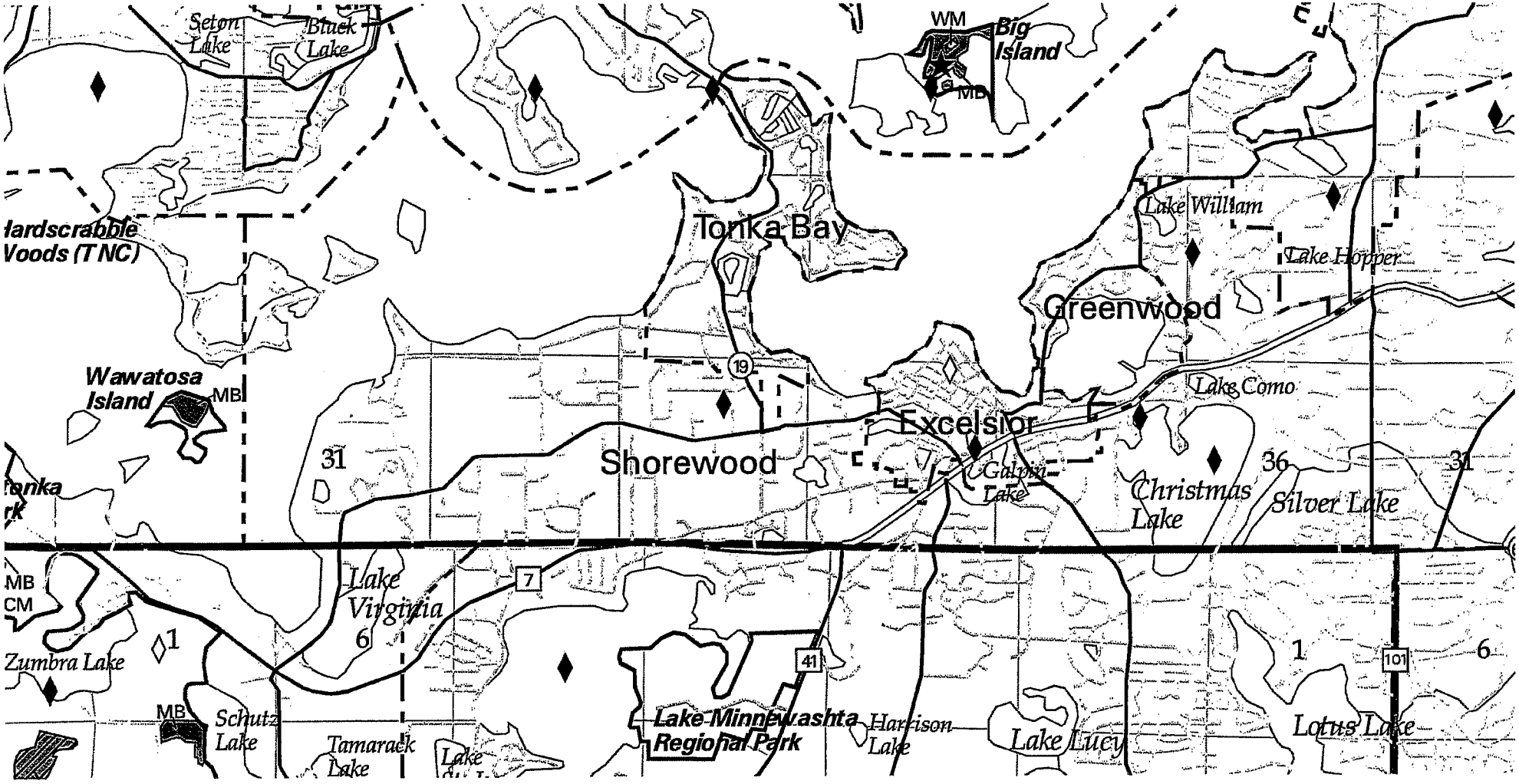
(See Part V of the Permit Application)

After completing this application, the person with overall authority for ensuring implementation of the Stormwater Pollution Prevention Program must sign the form. The signature can be from either a principal executive officer, (for example, mayor, designated public works director, president of the university, city or county engineer, administrator or manager), or a ranking elected official (mayor, manager, etc.). For additional

information on "signatures" and who is required to sign a Permit application form, please see Minn. R. 7001.0060.

Print or type the name of the individual signing the application. Include their title, and date of signature in the appropriate spaces. Include an e-mail address if available. If you have questions about the application or preparation of your SWPPP, please contact the MPCA's Keith Cherryholmes at (651) 296-6945, Scott Fox at (651) 296-9433, or call the MPCA Customer Assistance Center toll-free at (800) 646-6247.

APPENDIX E
Fish and Wildlife Information


Seton Lake
Black Lake
WM
Big Island
MB
Tonka Bay
Lake William
Lake Hopper
Greenwood
Wawatosa Island
MB
19
Lake Como
Excelsior
Shorewood
31
Galpin Lake
Christmas Lake
36
Silver Lake
31
MB
CM
Lake Virginia
7
6
1
Zumbra Lake
MB
Schutz Lake
Tamarack Lake
41
Lake Minnewashta Regional Park
Harrison Lake
Lake Lucy
1
101
6
Lotus Lake

RARE SPECIES AND ANIMAL AGGREGATIONS

Locations of rare plants, rare animals, and selected animal aggregations are maintained in the Natural Heritage Information System [6]. The following rare species and animal aggregations (that include rare and common species) have been found in Carver, Hennepin, and Scott counties. Mapped locations include both historical records and the results of field surveys conducted by the Minnesota County Biological Survey in 1996 and 1997. Most rare species are protected under the provisions of the Federal Endangered Species Act or the Minnesota Endangered Species Statute and associated Rules [7]. An asterisk (*) indicates that no recent observation (1970-1997) of that species has been confirmed. A dagger (†) indicates that the species has been documented in one of the counties but its exact location is not determinable.

★ Plants, federally- or state-listed

Fernleaf false foxglove * †	*(Aureolaria pedicularia)*
White wild indigo	*(Baptisia alba)*
Kitten-tails	*(Besseya bullii)*
Handsome sedge * †	*(Carex formosa)*
Plantain-leaved sedge *	*(Carex plantaginea)*
Sterile sedge	*(Carex sterilis)*
Hill's thistle	*(Cirsium hillii)*
Twig-rush	*(Cladium mariscoides)*
Ram's-head lady's-slipper * †	*(Cypripedium arietinum)*
Small white lady's-slipper	*(Cypripedium candidum)*
Waterwillow *	*(Decodon verticillatus)*
Big tick-trefoil *	*(Desmodium cuspidatum* var. *longifolium)*
Goldie's fern	*(Dryopteris goldiana)*
Beaked spike-rush	*(Eleocharis rostellata)*
Rattlesnake-master	*(Eryngium yuccifolium)*
Rock clubmoss *	*(Huperzia porophila)*
Rhombic-petaled evening primrose	*(Oenothera rhombipetala)*
Clustered broomrape * †	*(Orobanche fasciculata)*
American ginseng	*(Panax quinquefolius)*
Club-spur orchid * †	*(Platanthera clavellata)*
Hair-like beak-rush	*(Rhynchospora capillacea)*
Sessile-flowered cress * †	*(Rorippa sessiliflora)*
Tooth-cup * †	*(Rotala ramosior)*
Tall nut-rush * †	*(Scleria triglomerata)*
Whorled nut-rush	*(Scleria verticillata)*
Snow trillium	*(Trillium nivale)*
Valerian	*(Valeriana edulis* var. *ciliata)*
Narrow-leaved vervain * †	*(Verbena simplex)*
Lance-leaved violet * †	*(Viola lanceolata)*
Twisted yellow-eyed grass * †	*(Xyris torta)*

☆ Plants, previously state-listed [8]

Dragon's-mouth *	*(Arethusa bulbosa)*
Halberd-leaved tearthumb	*(Polygonum arifolium)*
Marsh arrow-grass	*(Triglochin palustris)*

■ Colonial waterbird nesting site

Western grebe	*(Aechmophorus occidentalis)*
Great egret	*(Ardea albus)*
Great blue heron	*(Ardea herodias)*
Green heron	*(Butorides virescens)*
Black-crowned night-heron	*(Nycticorax nycticorax)*
Double-crested cormorant	*(Phalacrocorax auritus)*
Eared grebe	*(Podiceps nigricollis)*
Forster's tern	*(Sterna forsteri)*

▣ Bat concentration

Big brown bat	*(Epiesicus fuscus)*
Little brown myotis	*(Myotis lucifugus)*
Eastern pipistrelle	*(Pipistrellus subflavus)*

♦ Animals, federally- or state-listed

Mammals

Prairie vole *	*(Microtus ochrogaster)*
Plains pocket mouse	*(Perognathus flavescens)*
Eastern pipistrelle	*(Pipistrellus subflavus)*
Eastern spotted skunk * †	*(Spilogale putorius)*

Birds

Henslow's sparrow	*(Ammodramus henslowii)*
Red-shouldered hawk	*(Buteo lineatus)*
Cerulean warbler	*(Dendroica cerulea)*
Acadian flycatcher	*(Empidonax virescens)*
Peregrine falcon	*(Falco peregrinus)*
Common moorhen	*(Gallinula chloropus)*
Bald eagle	*(Haliaeetus leucocephalus)*
Loggerhead shrike	*(Lanius ludovicianus)*
Hooded warbler	*(Wilsonia citrina)*

Reptiles

Smooth softshell	*(Apalone mutica)*
Blanding's turtle	*(Emydoidea blandingii)*
Western hognose snake	*(Heterodon nasicus)*
Gopher snake	*(Pituophis catenifer)*

Fish

Skipjack herring *	*(Alosa chrysochloris)*
Blue sucker	*(Cycleptus elongatus)*
Least darter	*(Etheostoma microperca)*
Pugnose shiner	*(Notropis anogenus)*

Mussels

Mucket mussel	*(Actinonaias ligamentina)*
Elktoe mussel	*(Alasmidonta marginata)*
Rock pocketbook mussel	*(Arcidens confragosus)*
Ebonyshell mussel	*(Fusconaia ebena)*
Higgins eye mussel	*(Lampsilis higginsi)*
Yellow sandshell mussel	*(Lampsilis teres)*
Creek heelsplitter mussel	*(Lasmigona compressa)*
Fluted-shell mussel	*(Lasmigona costata)*
Black sandshell mussel	*(Ligumia recta)*
Hickorynut mussel	*(Obovaria olivaria)*
Round pigtoe mussel	*(Pleurobema coccineum)*
Monkeyface mussel	*(Quadrula metanevra)*
Wartyback mussel	*(Quadrula nodulata)*
Pistolgrip mussel	*(Tritogonia verrucosa)*

◊ Animals, previously state-listed [8]

Birds

Upland sandpiper	*(Bartramia longicauda)*
American bittern	*(Botaurus lentiginosus)*
Osprey	*(Pandion haliaetus)*

Reptiles

Fox snake	*(Elaphe vulpina)*
Eastern hognose snake	*(Heterodon platyrhinos)*
Milk snake	*(Lampropeltis triangulum)*

Fish

American brook lamprey	*(Lampetra appendix)*
Shovelnose sturgeon	*(Scaphirhynchus platorynchus)*

APPENDIX F
Identified Pollutant Source Information

RCRA Investigation/Cleanup Sites

MPCA ID:	Entity Name:	SITE CATEGORY
VP21390 (6428)	**Anderson Property Management** 5609-63 Manitou Rd Tonka Bay, MN 55331	VIC
VP18640	**Carmichael Auto Parts** 20755 Manor Rd Excelsior, MN 55331	VIC
VP13580	**Cochrane's Marina** See location description Excelsior, MN 55331	VIC
VP0170	**Excelsior Gas Mfg Site** 152 Morse Ave Excelsior, MN 55331	VIC - CERCLIS
MNMDI0000145	**Excelsior Stab Pond** See location description Excelsior, MN 55331	UNPERMITTED DUMP
VP13470	**Fina #0161** 24365 Smithtown Road Shorewood, MN 55331	VIC
VP17600	**Shorewood Village Shopping Center** 23660-23750 State Highway 7 Shorewood, MN 55331	VIC
VP21110	**Smithtown Rd property** Unknown Shorewood, MN 55331	VIC
VP18000	**Tonka Printing** 287 Water St Excelsior, MN 55331	VIC

Voluntary Investigation and Cleanup (VIC) Program

The Voluntary Investigation and Cleanup (VIC) Program allows buyers, sellers, developers or local governments to voluntarily investigate and, if necessary, clean up contaminated land to facilitate its sale, financing or redevelopment. Voluntary parties that complete investigation and/or cleanup activities under MPCA oversight can receive liability assurances that protect them from future Superfund liability. In some cases, the MPCA may use Institutional Controls as part of the overall site remedy and to notify interested parties of any property use conditions or restrictions. For more information, visit the VIC Program page. Or, contact the MPCA VIC Program at 651-296-7212. See Also Superfund,

CERCLIS

Suspected hazardous waste sites throughout the United States are listed in the Comprehensive Environmental Response, Compensation and Liability Information System, or CERCLIS. This federal database contains information on preliminary assessments, potential and actual hazardous waste sites, site inspections, and cleanup activities. CERCLIS sites are candidates for addition to the federal and state Superfund lists. The database is updated periodically as new sites are discovered. For more information, contact the MPCA at 651-296-6139, or toll-free at 800-657-3864.

Unpermitted Dump Sites

The list of Unpermitted Dump Sites was created in the 1980's and was originally called the Open Dump Inventory (ODI). Sites maintained in this list were later referred to as Outstate Dump Inventory (ODI) and Metro Dump Inventory (MDI) sites. Because these sites are no longer open the name has been changed to Unpermitted Dump Sites and contains dump sites for the entire state. Included in the list are abandoned dumps, demolition sites, tree disposal sites, industrial dumps and other dumps. Most of these sites existed prior to the creation of the MPCA in 1967, and detailed information about them is not generally available. When these sites are investigated and found to present a risk to human health or the environment, they are moved into the appropriate cleanup program. For more information, contact the MPCA at 651-297-5177, or toll-free at 1- 800-657-3864.

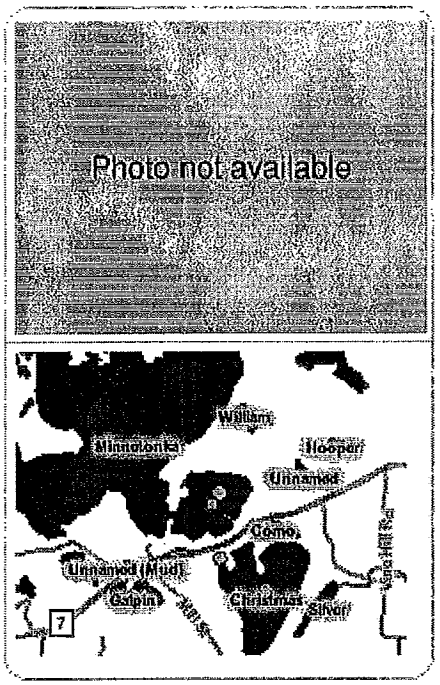
Excelsior Aboveground / Underground Storage Tanks

Leak ID	Site Name
8794	Apartment At 500 Linden St
581	Excelsior Car Wash
559	Crown Oil-ez Stop
4215	Steve Chase Residence
4304	Tonka Building
4375	City Of Excelsior-utility Project
4890	Saint Albans Bay Marina
5404	Minnewashta Elementary School
5423	Saint John The Baptist Catholic Church
5422	Saint John Baptist Catholic School
5905	Red Wing Mobil Station
6204	Lyman Lumber Company
8869	Gilbertson Residence
9385	Excelsior Manor Apartments
9911	Poe Residence
10881	Excelsior Union 76
11596	Excelsior Community Center
12706	Residential Property
13962	Abc Automated Building Components
13215	First Class Car Care
13270	St. Albans Boat House
13871	Former Ez Stop Bulk Site
16177	Hance Building 200
16482	Manning Property
16858	Bruce Gniffke Property
16940	Excelsior Lift Station L-19
16998	Swain Property
17103	Tonk Away
17212	Minnewashta Elementary School

RCRA Investigation/Cleanup Sites

MPCA ID:	Entity Name:	SITE CATEGORY
VP21390 (6428)	**Anderson Property Management** 5609-63 Manitou Rd Tonka Bay, MN 55331	VIC
VP18640	**Carmichael Auto Parts** 20755 Manor Rd Excelsior, MN 55331	VIC
VP13580	**Cochrane's Marina** See location description Excelsior, MN 55331	VIC
VP0170	**Excelsior Gas Mfg Site** 152 Morse Ave Excelsior, MN 55331	VIC - CERCLIS
MNMDI0000145	**Excelsior Stab Pond** See location description Excelsior, MN 55331	UNPERMITTED DUMP
VP13470	**Fina #0161** 24365 Smithtown Road Shorewood, MN 55331	VIC
VP17600	**Shorewood Village Shopping Center** 23660-23750 State Highway 7 Shorewood, MN 55331	VIC
VP21110	**Smithtown Rd property** Unknown Shorewood, MN 55331	VIC
VP18000	**Tonka Printing** 287 Water St Excelsior, MN 55331	VIC

Minnesota Pollution Control Agency



Lat/Lon: 44.9072/-93.5525
Datum: NAD83
County: Hennepin

Lake Station Information

Station Name	MINNETONKA(ST.ALBANS BA EXCELS'R
Alternate IDs:	27-0133-04 MTSA
Waterbody Name:	L MINNETONKA
Data Steward Org:	MPCA
Station ID: (Lake ID)	27-0133-04
Hydrologic Unit Code (HUC):	07010206
Assessment Unit:	
Period of Record:	1949 through 2005

Projects Associated with this Station

Project	Purpose
Three Rivers Park District	Condition monitoring (long-term trend)
Lake Trend Monitoring	Lake Trend Monitoring
Citizen Lake-Monitoring Program	Monitor lake eutrophication status.
MPCA Lake Monitoring Program Project	This is an inclusive project created to migrate data to modernized STORET from tl Agency Code in Legacy STORET where project information was not stored on the level. Specific purposes for Legacy STORET data collection may be available in tl descriptions.

Station Data Collection Years

2005 2004 2003 2002 2001 1990 1989 1988 1987 1986 1959 1949

Station Data

Sample Date:	Sample Type	Sample Depth	BOD mg/L	Chl-a µg/L	DO mg/L	TKN mg/L	NOx mg/L	pH	Pheo µg/L	TP mg/L	TSS mg/L	Temp Degrees C	Turb	F #/
	Routine													

10/18/2005	Sample/Observation	0.109 m	6.6	10.26	7.6	0.041	14.0
10/18/2005	Routine Sample/Observation	1.031 m		10.16	7.7		14.0
10/18/2005	Routine Sample/Observation	2.017 m		10.13	7.7		13.9
10/18/2005	Routine Sample/Observation	3.063 m		10.12	7.7		13.9
10/18/2005	Routine Sample/Observation	4.025 m		10.11	7.7		13.9
10/18/2005	Routine Sample/Observation	5.037 m		10.10	7.7		13.9
10/18/2005	Routine Sample/Observation	6.035 m		10.10	7.7		13.9
10/18/2005	Routine Sample/Observation	7.081 m		10.11	7.7		13.8
10/18/2005	Routine Sample/Observation	8.059 m		9.73	7.7		13.6
10/18/2005	Routine Sample/Observation	9.043 m		3.34	7.4		11.4
10/18/2005	Routine Sample/Observation	9.973 m		1.61	7.3	0.136	10.3
09/27/2005	Routine Sample/Observation	0.106 m	5.0	9.55	8.0	0.018	19.3
09/27/2005	Routine Sample/Observation	1.017 m		9.03	8.1		19.3
09/27/2005	Routine Sample/Observation	2.087 m		8.99	8.1		19.3
09/27/2005	Routine Sample/Observation	3.019 m		8.93	8.2		19.2
09/27/2005	Routine Sample/Observation	4.097 m		8.90	8.2		19.2
09/27/2005	Routine Sample/Observation	5.031 m		8.90	8.3		19.0
09/27/2005	Routine Sample/Observation	6.041 m		8.60	8.2		18.8
09/27/2005	Routine Sample/Observation	7.067 m		0.85	7.7	0.018	15.0
09/27/2005	Routine Sample/Observation	8.067 m		0.51	7.6		11.5
09/27/2005	Routine Sample/Observation	9.013 m		0.38	7.5		10.2
09/27/2005	Routine Sample/Observation	10.093 m		0.31	7.4	0.076	9.2
09/27/2005	Routine Sample/Observation	10.492 m		0.26	7.2		8.8
09/06/2005	Routine Sample/Observation	0 m	7.3			0.017	
09/06/2005	Routine Sample/Observation	8 m				0.030	
09/06/2005	Routine Sample/Observation	10 m				0.086	
08/23/2005	Routine Sample/Observation	0.221 m	7.9	8.73	8.4	0.030	23.0
	Routine						

08/23/2005	Sample/Observation	1.042 m		8.81	8.6		23.0
08/23/2005	Routine Sample/Observation	2.068 m		8.87	8.6		22.9
08/23/2005	Routine Sample/Observation	3.059 m		8.87	8.6		22.9
08/23/2005	Routine Sample/Observation	4.045 m		8.84	8.6		22.9
08/23/2005	Routine Sample/Observation	5.073 m		8.96	8.5		22.3
08/23/2005	Routine Sample/Observation	6.038 m		0.93	7.6	0.037	16.8
08/23/2005	Routine Sample/Observation	7.033 m		0.77	7.6		13.2
08/23/2005	Routine Sample/Observation	8.049 m		0.71	7.5		10.5
08/23/2005	Routine Sample/Observation	9.07 m		0.57	7.3	0.132	8.9
08/23/2005	Routine Sample/Observation	10.037 m		0.57	7.1		8.3
08/23/2005	Routine Sample/Observation	10.389 m		0.49	7.0		7.9
08/22/2005	Routine Sample/Observation	0 m					
08/22/2005	Routine Sample/Observation		8.33		*Present	0.024	4.0
08/09/2005	Routine Sample/Observation	0.043 m	10.1	9.28	7.8	0.024	26.5
08/09/2005	Routine Sample/Observation	1.013 m		9.18	8.0		26.6
08/09/2005	Routine Sample/Observation	2.007 m		9.18	8.0		26.5
08/09/2005	Routine Sample/Observation	3.019 m		9.14	8.0		26.5
08/09/2005	Routine Sample/Observation	4.062 m		8.72	8.0		26.2
08/09/2005	Routine Sample/Observation	5.062 m		2.61	7.7	0.024	21.0
08/09/2005	Routine Sample/Observation	6.049 m		1.66	7.5		15.8
08/09/2005	Routine Sample/Observation	7.016 m		0.80	7.2		12.1
08/09/2005	Routine Sample/Observation	8.079 m		0.60	7.1		9.7
08/09/2005	Routine Sample/Observation	9.045 m		0.49	6.9		8.6
08/09/2005	Routine Sample/Observation	10.061 m		0.43	6.8	0.084	7.9
08/09/2005	Routine Sample/Observation	10.569 m		0.37	6.6		7.6
07/26/2005	Routine Sample/Observation	0.053 m	12.3	7.81	8.6	0.023	25.9
07/26/2005	Routine Sample/Observation	1.067 m		8.02	8.6		25.9
	Routine						

07/26/2005	Sample/Observation	2.034 m		8.05	8.6		25.9
07/26/2005	Routine Sample/Observation	3.084 m		8.03	8.6		25.9
07/26/2005	Routine Sample/Observation	4.087 m		8.01	8.5		25.9
07/26/2005	Routine Sample/Observation	5.068 m		4.85	7.9		20.4
07/26/2005	Routine Sample/Observation	6.047 m		4.57	7.6	0.025	15.8
07/26/2005	Routine Sample/Observation	7.017 m		3.08	7.3		12.1
07/26/2005	Routine Sample/Observation	8.146 m		0.91	7.2		9.3
07/26/2005	Routine Sample/Observation	9.13 m		0.71	7.1		8.6
07/26/2005	Routine Sample/Observation	9.953 m		0.50	7.0	0.051	7.9
07/12/2005	Routine Sample/Observation	0.241 m	7.8	8.04	8.4	0.022	26.8
07/12/2005	Routine Sample/Observation	1.051 m		8.31	8.5		26.8
07/12/2005	Routine Sample/Observation	2.07 m		8.35	8.4		26.7
07/12/2005	Routine Sample/Observation	3.084 m		8.35	8.4		26.7
07/12/2005	Routine Sample/Observation	4.038 m		7.74	8.2		25.3
07/12/2005	Routine Sample/Observation	5.082 m		7.87	8.1		19.8
07/12/2005	Routine Sample/Observation	6.072 m		8.02	8.0		16.1
07/12/2005	Routine Sample/Observation	7.014 m		7.92	7.8		12.1
07/12/2005	Routine Sample/Observation	8.038 m		3.48	7.4		9.3
07/12/2005	Routine Sample/Observation	9.038 m		1.86	7.3	0.028	8.5
07/12/2005	Routine Sample/Observation	10.023 m		1.08	7.2		7.5
07/12/2005	Routine Sample/Observation	10.782 m		0.68	7.0	0.204	7.3
06/28/2005	Routine Sample/Observation	0.033 m	5.3	8.24	7.8	0.030	25.6
06/28/2005	Routine Sample/Observation	1.089 m		8.34	7.7		25.7
06/28/2005	Routine Sample/Observation	2.076 m		8.42	7.7		25.7
06/28/2005	Routine Sample/Observation	3.035 m		8.46	7.7		25.7
06/28/2005	Routine Sample/Observation	4.085 m		8.54	7.8		24.5
06/28/2005	Routine Sample/Observation	5.058 m		12.41	8.0	0.028	17.4
	Routine						

06/28/2005	Sample/Observation	6.03 m		11.37	8.0		13.7
06/28/2005	Routine Sample/Observation	7.06 m		9.98	7.8		10.6
06/28/2005	Routine Sample/Observation	8.039 m		5.57	7.7		8.9
06/28/2005	Routine Sample/Observation	9.009 m		4.27	7.6	0.050	8.1
06/28/2005	Routine Sample/Observation	9.753 m		2.49	7.5		7.6
06/14/2005	Routine Sample/Observation	0.065 m	2.8	8.35	8.0	0.012	23.2
06/14/2005	Routine Sample/Observation	1.077 m		8.27	8.0		23.2
06/14/2005	Routine Sample/Observation	2.121 m		8.29	8.0		23.2
06/14/2005	Routine Sample/Observation	3.044 m		8.30	8.1		23.1
06/14/2005	Routine Sample/Observation	4.093 m		9.32	8.2		20.2
06/14/2005	Routine Sample/Observation	5.081 m		10.67	8.1		15.6
06/14/2005	Routine Sample/Observation	6.087 m		10.46	8.1	0.030	13.2
06/14/2005	Routine Sample/Observation	7.062 m		9.91	8.0		10.5
06/14/2005	Routine Sample/Observation	8.003 m		6.50	7.8		8.2
06/14/2005	Routine Sample/Observation	9.047 m		5.46	7.7		7.8
06/14/2005	Routine Sample/Observation	9.916 m		1.75	7.5	0.040	7.2
05/31/2005	Routine Sample/Observation	0.15 m	2.1	11.89	8.7	0.022	19.0
05/31/2005	Routine Sample/Observation	1.035 m		11.40	8.6		18.3
05/31/2005	Routine Sample/Observation	2.06 m		11.10	8.6		18.1
05/31/2005	Routine Sample/Observation	3.05 m		10.72	8.5		17.0
05/31/2005	Routine Sample/Observation	4.059 m		10.28	8.4		16.1
05/31/2005	Routine Sample/Observation	5.053 m		10.11	8.2		14.3
05/31/2005	Routine Sample/Observation	6.006 m		9.53	8.0		11.6
05/31/2005	Routine Sample/Observation	7.019 m		8.17	7.8	0.035	8.8
05/31/2005	Routine Sample/Observation	8.071 m		5.69	7.7		7.3
05/31/2005	Routine Sample/Observation	9.032 m		3.36	7.7		6.5
05/31/2005	Routine Sample/Observation	10.048 m		0.54	7.7	0.019	6.2
	Routine						

Excelsior Aboveground / Underground Storage Tanks

Leak ID	Site Name
8794	Apartment At 500 Linden St
581	Excelsior Car Wash
559	Crown Oil-ez Stop
4215	Steve Chase Residence
4304	Tonka Building
4375	City Of Excelsior-utility Project
4890	Saint Albans Bay Marina
5404	Minnewashta Elementary School
5423	Saint John The Baptist Catholic Church
5422	Saint John Baptist Catholic School
5905	Red Wing Mobil Station
6204	Lyman Lumber Company
8869	Gilbertson Residence
9385	Excelsior Manor Apartments
9911	Poe Residence
10881	Excelsior Union 76
11596	Excelsior Community Center
12706	Residential Property
13962	Abc Automated Building Components
13215	First Class Car Care
13270	St. Albans Boat House
13871	Former Ez Stop Bulk Site
16177	Hance Building 200
16482	Manning Property
16858	Bruce Gniffke Property
16940	Excelsior Lift Station L-19
16998	Swain Property
17103	Tonk Away
17212	Minnewashta Elementary School

05/31/2005	Sample/Observation	10.7 m		0.58	7.6		6.1
05/17/2005	Routine Sample/Observation	0.308 m	0.9	10.47	8.3	0.020	11.9
05/17/2005	Routine Sample/Observation	1.083 m		11.21	8.3		11.9
05/17/2005	Routine Sample/Observation	2.044 m		11.34	8.4		11.9
05/17/2005	Routine Sample/Observation	3.031 m		11.42	8.4		11.9
05/17/2005	Routine Sample/Observation	4.034 m		11.45	8.3		11.9
05/17/2005	Routine Sample/Observation	5.038 m		11.47	8.3		11.9
05/17/2005	Routine Sample/Observation	6.003 m		11.37	8.3		11.2
05/17/2005	Routine Sample/Observation	7.034 m		11.40	8.3		8.6
05/17/2005	Routine Sample/Observation	8.056 m		10.16	8.2		6.7
05/17/2005	Routine Sample/Observation	9.033 m		6.35	8.1	0.016	5.9
05/17/2005	Routine Sample/Observation	9.783 m		1.45	7.9		5.9
04/26/2005	Routine Sample/Observation	0.102 m	1.9	11.29	8.2	0.016	11.6
04/26/2005	Routine Sample/Observation	1.08 m		11.23	8.1		11.6
04/26/2005	Routine Sample/Observation	2.032 m		11.18	8.1		11.6
04/26/2005	Routine Sample/Observation	3.052 m		11.16	8.1		11.6
04/26/2005	Routine Sample/Observation	4.026 m		11.02	8.1		11.5
04/26/2005	Routine Sample/Observation	5.057 m		11.02	8.0		11.2
04/26/2005	Routine Sample/Observation	6.091 m		11.78	7.9	0.013	6.3
04/26/2005	Routine Sample/Observation	7.124 m		10.47	7.9		5.4
04/26/2005	Routine Sample/Observation	8.023 m		7.15	7.9		5.0
04/26/2005	Routine Sample/Observation	8.786 m		5.29	7.9		5.0
04/26/2005	Routine Sample/Observation	9.045 m		6.95	7.9	0.029	4.8

Station Dataset Download

Download Standard Parameter Data (Same format as above) 

Download All Monitoring Data (Including all Parameters) 

Additional Information and Links

Secchi Disk readings for L minnetonka Lake

- Full Secchi information from the MPCA site
- Lake Water Quality Information from the MPCA site

This page was last updated July 7, 2008

If you have suggestions on how we can improve this site, or if you have questions or problems, please contact us.
If you have technical questions or problems with this site, contact webmaster@pca.state.mn.us
Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155-4194
Phone: 651-296-6300, 800-657-3864; 24-hour emergency number: 651-649-5451 or 800-422-0798; TTY: 651-282-5332, TTY 24-hour emergency num 3529

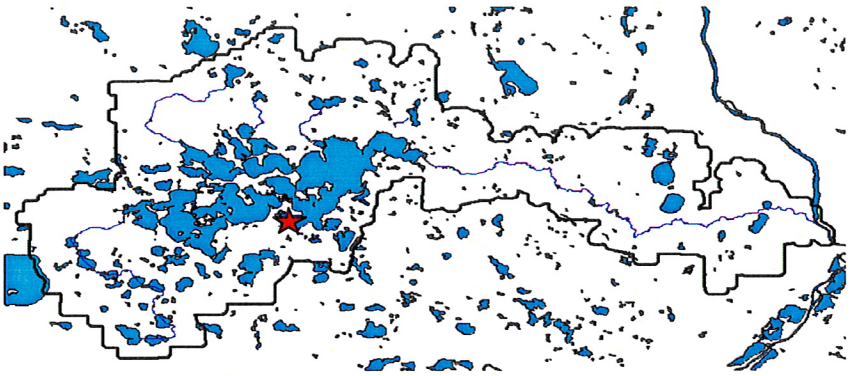
triton

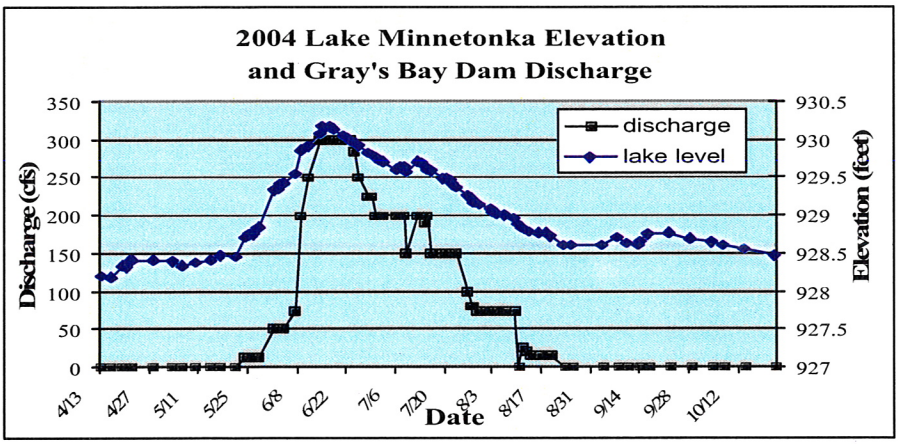
APPENDIX G
Lake and Water Quality Information

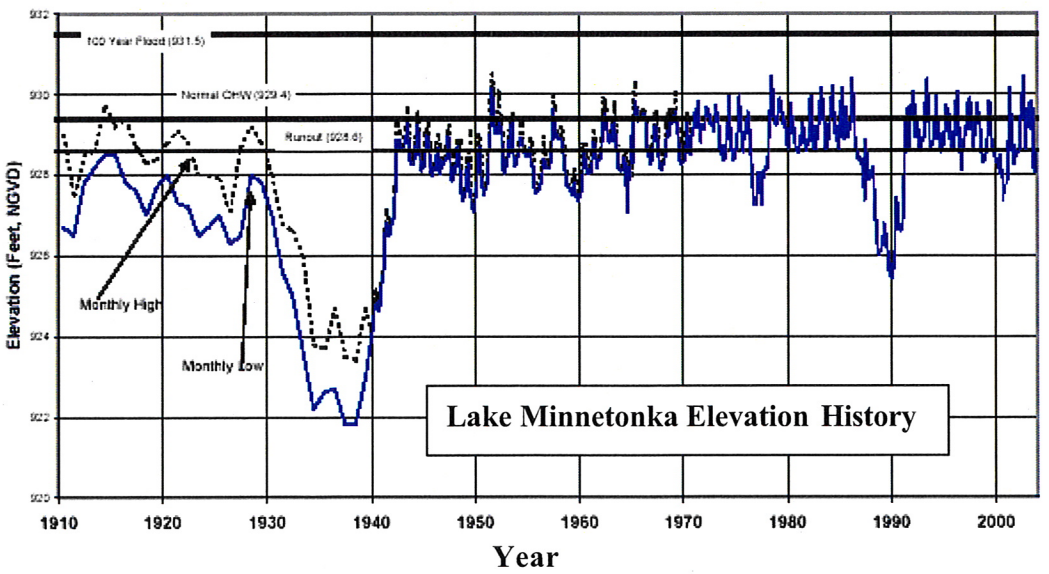
Gideons Bay (Lake Minnetonka) 2004 Grade: A

Surface Area:
Mean Depth:
Maximum Depth: 57 feet

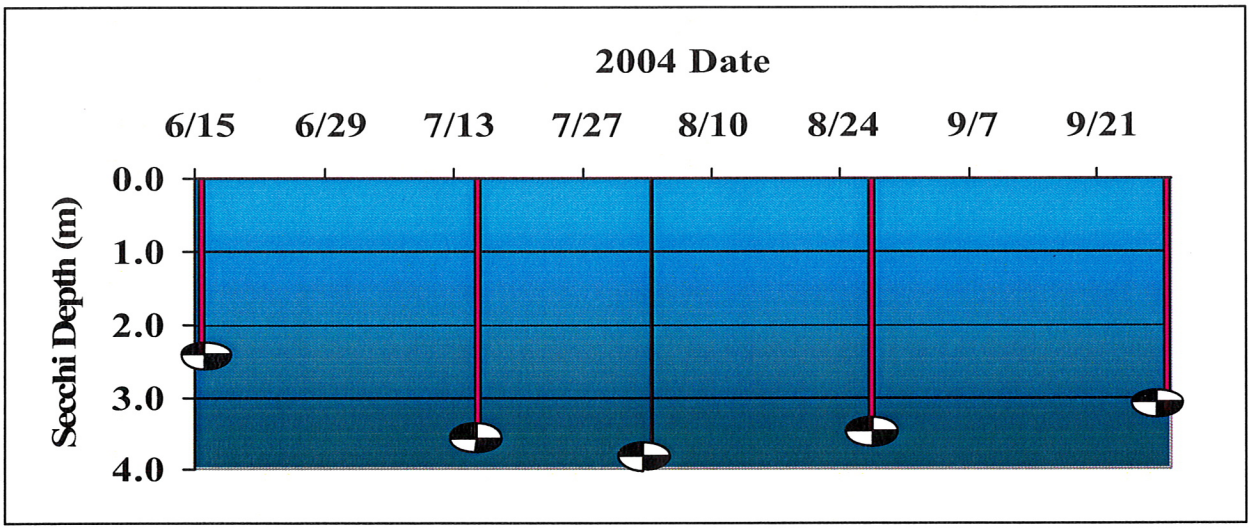
Total Phosphorus (TP): 22 ppb (49 TSIP)
Soluble Reactive P (SRP): 2 ppb
Chlorophyll *a*: 2 ppb (36 TSIC)
Secchi Depth: 3.3 m (43 TSIS)
Overall TSI: 42

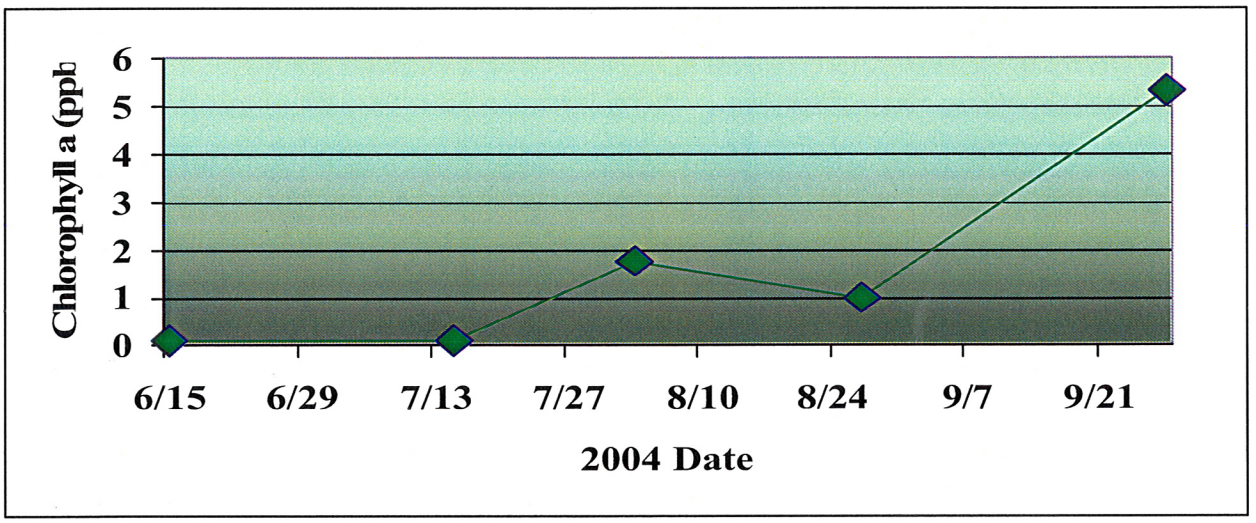


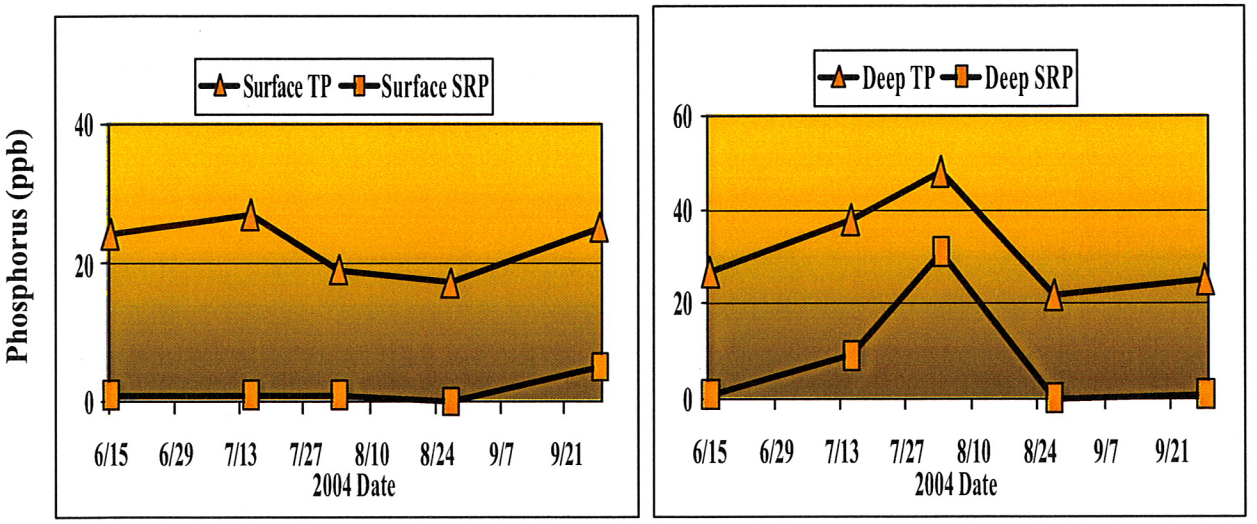


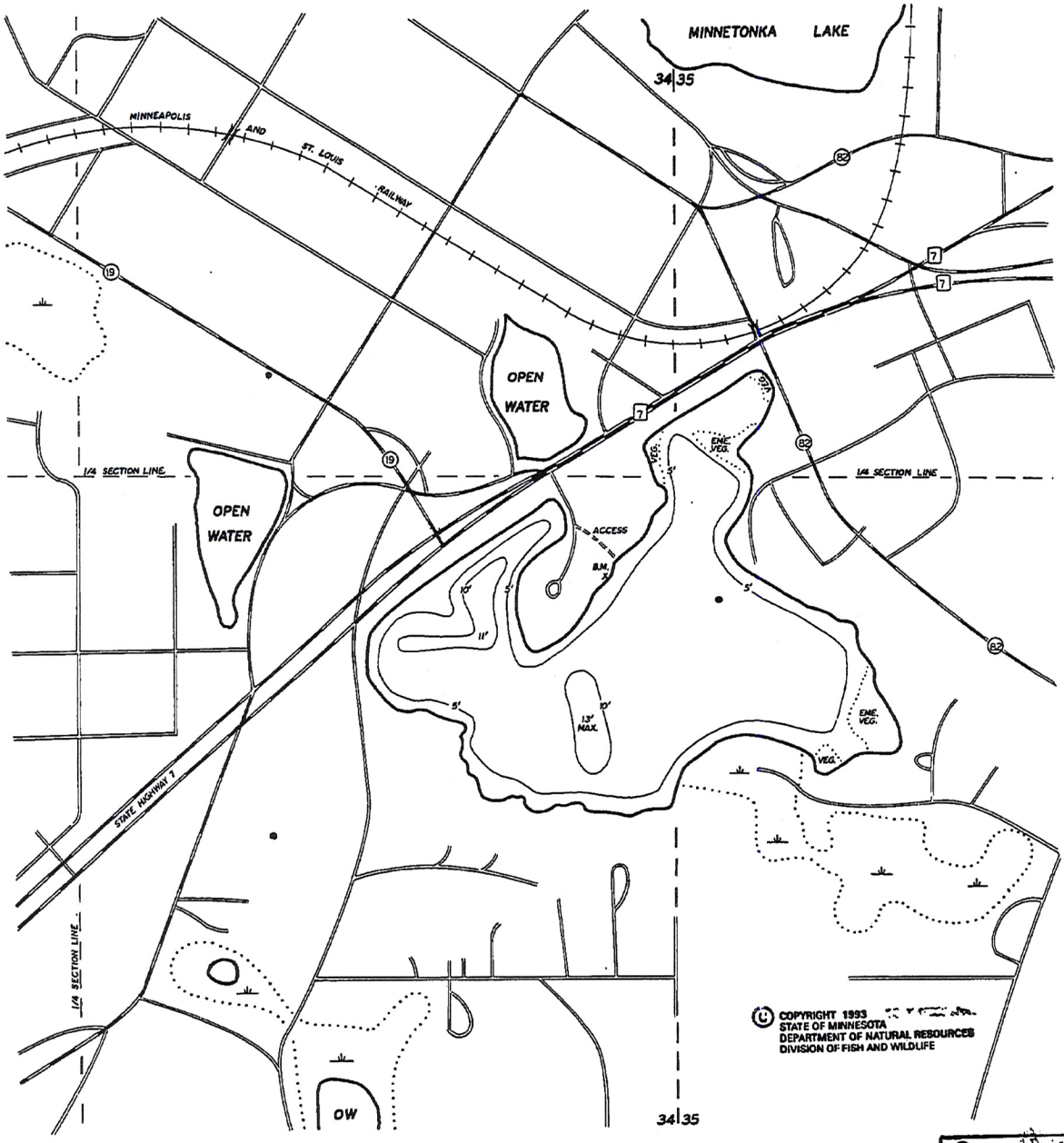


Gideons Bay (Lake Minnetonka) 2004 Values









N
W E
S

LEGEND

STATE HIGHWAY SYSTEM

COUNTY-STATE AID ROAD

BITUMINOUS ROAD

GRAVEL ROAD

MARSH AREA

PLANIMETERED AREA = 48.0 ACRES

B.M. = TOP EAST EDGE OF CONCRETE RETAINING WALL AT OUTLET OF HENNEPIN COUNTY WELL NO. 5 ON POINT ON NORTHERN SHORE OF THE LAKE.

W.S. ELEV. = 4.5' BELOW B.M.

OUTLINE DRAWN FROM 1962 HIGHWAY DEPT. AERIAL PHOTO AA-19-44

0 165 330 660

SCALE IN FEET

STATE OF MINNESOTA
DEPARTMENT OF CONSERVATION

DIVISION OF GAME AND FISH
RESEARCH AND PLANNING SECTION

GALPIN LAKE 27-144
HENNEPIN COUNTY

T. 117 N. R. 23 W. S. 34-35

FIELDWORK D.A.L.	DRAWN BY R.W.B.	PROJ. IDENT. NO.
DATE 7-16-63	DATE 5-18-64	FW-1-E-8

C-1541

Minnesota Department of Natural Resources

search

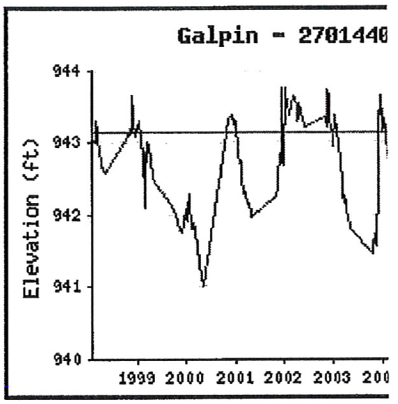
Lake water level report

Lake name: Galpin Coun

Water Level Data

Period of record: 04/16/1998 to 05/01/2008
# of readings: 221
Highest recorded: 943.77 ft (05/01/2006)
Lowest recorded: 940.99 ft (10/18/2000)
Recorded range: 2.78 ft
Last reading: 942.74 ft (05/01/2008)
OHW elevation: 943.14 ft
Datum: NGVD 29 (ft)

Download lake level data as: [**dBase**] [**ASCII**] (If you have trouble try right clicking on the appropriate link and choosing the "Save ... As" option.)



Last 10 years of data, clicl

Benchmarks

Elevation: 952.26 ft Date Set: 06/01/2006
Datum: NGVD 29 (ft)

Benchmark Location
Township: 117 Range: 23 Secti

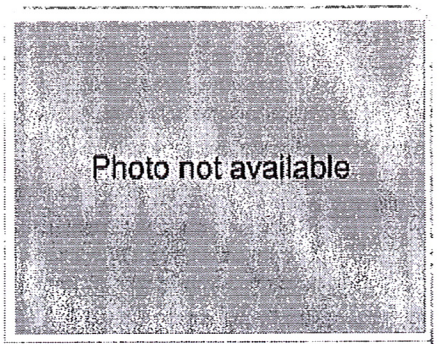
Description: Found 2007. Top lakeside edge of sanitary sewer manhole, about 20' from W 40' from centerline of avenue, and 50' from gage.

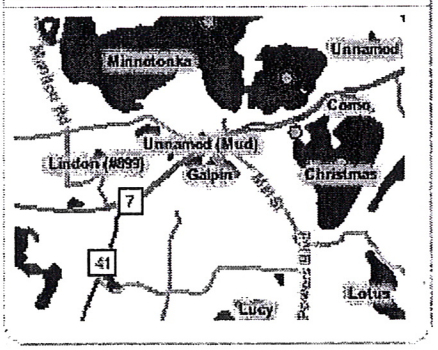
Elevation: 937.3 ft Date Set: 05/01/2008
Datum: NGVD 29 (ft)

Benchmark Location
Township: 117 Range: 23 Secti

Description: On W tip of lake, S of Hwy 7 on Galpin Lk Rd, Excelsior

Minnesota Pollution Control Agency





Lat/Lon: 44.8964/-93.5653
Datum: NAD83
County: Hennepin

Lake Station Information

Station Name	GALPIN IN EXCELSIOR
Alternate IDs:	27-0144
Waterbody Name:	L MINNETONKA
Data Steward Org:	MPCA
Station ID: (Lake ID)	27-0144
Hydrologic Unit Code (HUC):	07010206
Assessment Unit:	
Period of Record:	1977 through 1991

Projects Associated with this Station

Project	Purpose
Citizen Lake-Monitoring Program	Monitor lake eutrophication status.
MPCA Lake Monitoring Program Project	This is an inclusive project created to migrate data to modernized STORET from th Agency Code in Legacy STORET where project information was not stored on the result level. Specific purposes for Legacy STORET data collection may be availabl descriptions.

Station Data Collection Years

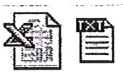
1991 1990 1989 1988 1977

Station Data

Sample Date:	Sample Type	Sample Depth	BOD mg/L	Chl-a µg/L	DO mg/L	TKN mg/L	NOx mg/L	pH	Pheo µg/L	TP mg/L	TSS mg/L	Temp Degrees C	Turb	FC #/1(
07/15/1991	Routine Sample/Observation	0.50 m		11	10.8		< 0.02			0.05		27		
07/15/1991	Routine Sample/Observation	1.00 m			10.1							25		
07/15/1991	Routine Sample/Observation	2.00 m			2.9							24		

07/15/1991	Routine Sample/Observation	3.00 m	0.7	< 0.02		0.15	20.5

Station Dataset Download

Download Standard Parameter Data (Same format as above) 

Download All Monitoring Data (Including all Parameters) 

Additional Information and Links

Secchi Disk readings for L minnetonka Lake

- Full Secchi information from the MPCA site
- Lake Water Quality Information from the MPCA site

This page was last updated July 7, 2008

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Minnesota Pollution Control Agency, 520 Lafayette Road, St. Paul, MN 55155-4194
Phone: 651-296-6300, 800-657-3864; 24-hour emergency number: 651-649-5451 or 800-422-0798; TTY: 651-282-5332, TTY 24-hour emergency num 3529

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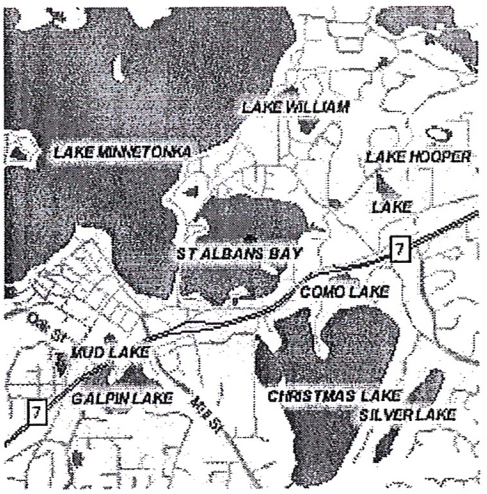
Minnesota Pollution Control Agency



Physical Information

Name: Minnetonka-St. Albans
DNR Lake ID number: 27-0133-04
County: HENNEP
Location from nearest town: 1 MI NE EXCELS'R
Ecoregion: NCHF
Basin: UM
Hydrologic Unit Code: 0701020
Surface Area: 159.998 (acres)
Maximum depth: 43 (feet)
Water Body Type: P

Latitude/Longitude: 44.90722222/-93.5525
UTMx/UTMy: 456388/4972788

Lake Water Quality Assessment

This summary is based on available summer (June through September) data in STORET (STORET is the national water quality data repository developed by the United States Environmental Protection Agency. All water quality data collected by MPCA or received from external groups is placed in STORET.) collected between 1997 and 2006.

Data Quality: Excellent
Aquatic Recreation Use Support: Fully Supporting Lakes are better than the aquatic recreation use support thresholds with sufficient data to make an assessment. These lakes are considered to be assessed for aquatic recreation and fully supporting by the MPCA.

Lake Water Quality Data Summary

Total Phosphorus Mean: 22 ppb (parts per billion)
Total Phosphorus Standard Error: 1 ppb
Total Phosphorus # of Observations: 40

Chlorophyll-a Mean: 5.4 ppb
Chlorophyll-a Standard Error: 0.4 ppb
Chlorophyll-a # of Observations: 39

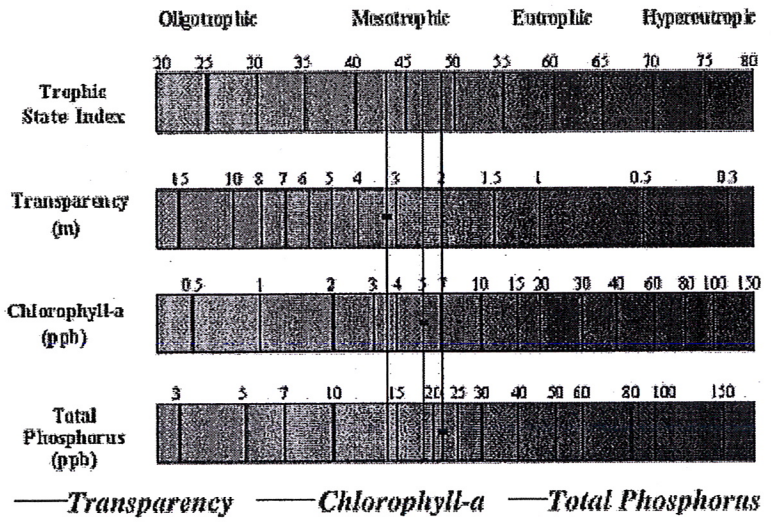
Secchi Disk Mean: 3.2 meters
Secchi Disk Standard Error: 0.2 meters
Secchi Disk # of Observations: 39

Alkalinity Mean: ppm (parts per million)
Color Mean: Platinum-cobalt Units
Carlson Trophic Status for Total Phosphorus: 49
Carlson Trophic Status for Chlorophyll-a: 47
Carlson Trophic Status for Secchi Disk: 43
Overall Trophic Status: M
(O=oligotrophic, M=mesotrophic, E=eutrophic, H=hypereutrophic)

See the Difference! **Oligotrophic** vs. **Hypereutrophic**

Watch how lakes change over the summer.

Compare this lake to reference lakes or all assessed lakes.



APPENDIX H
Wetland Functional Assessment Results

Minnehaha Creek Watershed District - Functional Assessment of Wetlands
Wetland Management Classification

Wetland ID Number	Management Classification	Circular 39 Classification	Vegetative Diversity	Wildlife Habitat Quality	Fishery Habitat Quality	Wetland Water Quality	Aesthetic Quality
D-117-23-34-001	Manage 3	Type 7, Type 2	Not Applicable	Not Applicable	Not Assessed	Not Applicable	Not Applicable
D-117-23-34-003	Manage 3	Type 2	Low	Low	Low	High	Moderate
D-117-23-34-003	Manage 3	Type 2	Low	Low	Low	Low	Moderate
D-117-23-34-003	Manage 3	Type 2	Low	Low	Low	Moderate	Moderate
D-117-23-34-004	Not Classified						
D-117-23-34-005	Not Classified						
D-117-23-34-006	Not Classified						
D-117-23-34-007	Not Classified					Moderate	
D-117-23-34-009	Manage 2	Type 2	Low	Moderate	Low	Moderate	Moderate
D-117-23-34-011	Manage 2	Type 2	Moderate	Moderate	Low	Low	Moderate
D-117-23-34-012	Manage 2	Type 3	Low	Low	Low		Low
D-117-23-35-001	Not Classified						
D-117-23-35-002	Not Classified						
D-117-23-35-003	Manage 1	Type 6	Moderate	Low	Low	Low	Moderate
D-117-23-35-004	Manage 3	Type 5, Type 4	Low	Low	Low		Low
D-117-23-35-005	Manage 2	Type 3, Type 1	Low	Moderate	Low	Moderate	Moderate
D-117-23-35-011	Preserve	Type 3, Type 4	Moderate	Moderate	Exceptional	Low	Exceptional
D-117-23-35-022	Not Classified					Moderate	
D-117-23-35-023	Not Classified					Moderate	
E-117-23-34-002	Manage 1	Type 5	Low	Moderate	Moderate	Moderate	Exceptional
E-117-23-34-003	Manage 1	Type 4, Type 5	Moderate	Moderate	Moderate		Exceptional
E-117-23-34-004	Manage 1	Type 3, Type 5	High	Moderate	Moderate	Low	Exceptional
E-117-23-34-005	Manage 2	Type 5	Moderate	Low	Not Assessed	Low	Moderate
E-117-23-34-006	Manage 1	Type 4	Moderate	Moderate	Moderate	Low	Exceptional

See Figure III-4 for wetland locations
Data from January 2003 Functional Assesssment Report from MCWD

APPENDIX I
Ordinances

ARTICLE 60

SHORELAND MANAGEMENT DISTRICT

SECTION:

60-1: STATUTORY AUTHORIZATION AND POLICY:

A. Statutory Authorization: The shoreland regulations contained in this section are adopted pursuant to the authorization and policies contained in Minnesota Statutes, Chapter 103F, Minnesota Regulations, Parts 6120.2500 - 6120.3900, and the planning and zoning enabling legislation in Minnesota Statutes, Chapter 462.

B. Policy: The uncontrolled use of shorelands of the City of Excelsior, Minnesota affects the public health, safety and general welfare not only by contributing to pollution of public waters, but also by impairing the local tax base. Therefore, it is in the best interests of the public health, safety and welfare to provide for the wise subdivision, use and development of shorelands of public waters. The Legislature of Minnesota has mandated responsibility to local governments of the State to regulate the subdivision, use and development of the shorelands of public waters and thus preserve and enhance the quality of surface waters, conserve the economic and natural environmental values of shorelands, and provide for the wise use of waters and related land resources. This responsibility is hereby recognized by the City of Excelsior.

C. Jurisdiction: The provisions of this ordinance shall apply to the shorelands of the public water bodies as classified in Section 60-3.

60-2: ADMINISTRATION:

A. Permits Required: In addition to building permits required by Section 9-11, a permit shall be required for those grading and filling activities not exempted by Section 60-4.D. Application for a permit shall be made to the Zoning Administrator on the forms provided. The application shall include the necessary information so that the Zoning Administrator can determine the site's suitability for the intended use.

B. Variances:

1. Variances may only be granted in accordance with Minnesota Statutes, Chapter 462 and as prescribed by Article 6. No variance may be granted that would allow any use that is prohibited in the zoning district in which the subject property is located.

2. When a variance is approved after the Department of Natural Resources has formally recommended denial in the hearing record, the notification of the approved variance required in Section 60-2.C.2 below shall also include the City Council's summary of the public record/testimony and the findings of facts and conclusions which supported the issuance of the variance.

C. Notifications to the Department of Natural Resources:

1. Copies of all notices of any public hearings to consider variances, amendments, or conditional uses under Excelsior's shoreland management controls must be sent to the commissioner or the commissioner's designated representative and postmarked at least ten (10) days before the hearings. Notices of hearings to consider proposed subdivisions/plats must include copies of the subdivision/plat.

2. A copy of approved amendments and subdivisions/plats, and final decisions granting variances or conditional uses under Excelsior's shoreland management controls must be sent to the commissioner or the commissioner's designated representative and postmarked within ten days of final action.

60-3: SHORELAND CLASSIFICATION SYSTEM: The public waters within and adjacent to Excelsior have been classified below consistent with the criteria found in Minnesota Regulations, Part 6120.3300, and the Protected Waters Inventory Map for Hennepin County, Minnesota.

General Development Lake	DNR I.D. #
Lake Minnetonka Sections 27,34,35 T117 R23	27-133P
Recreational Development Lake	
Galpin Lake Sections 34,35 T117 R23	27-144P

The shoreland area to which the regulations of this Article apply is as shown on the Official Zoning Map. The area includes land located within one thousand (1,000) feet of the ordinary high water level of the above lakes, or a lesser distance if the topographic divide is less than one thousand (1,000) feet. In the area where Lake Minnetonka shoreland overlaps Galpin Lake shoreland, the regulations pertaining to Lake Minnetonka shall apply.

60-4: ZONING PROVISIONS:

A. Lot Area and Width Standards: The minimum lot area (in square feet) and lot width standards (in feet) for residential lots created after the date of enactment of this Ordinance are as found in the individual district standards of this Ordinance.

B. Additional Special Provisions: Minimum lot area requirements within shoreland areas may be calculated on an average lot area basis, so long as the overall net density requirements of Section 60-4.A. above are met. The absolute minimum lot area shall be as permitted by the underlying zoning district. Residential subdivisions with dwelling unit densities exceeding those in the above tables can only be allowed if designed and approved as a conditional use permit under Section 60-6 of this Ordinance. Only land above the ordinary high water level of public waters can be used to meet lot area standards, and lot width standards must be met at both the ordinary high water level and at the building line.

C. Placement, Design, and Height of Structures:

1. Placement of Structures on Lots. Where structures exist on the adjoining lots on both sides of a proposed building site, structure setbacks may be altered in accordance with Section 17-6 of this Ordinance, provided the proposed building site is not located in a shore impact zone or in a bluff impact zone. Principal and accessory structures shall be located as follows.

   a. The minimum setback of principal and accessory structures from the ordinary high water level of Minnetonka and Galpin Lakes shall be fifty (50) feet.

   b. Additional Structure Setbacks.

Setback From:		Setback (feet)
(1)	top of bluff;	30
(2)	unplatted cemetery;	50

(3)	right-of-way line of federal, state or county highway; and	30
(4)	right-of-way line of city streets or other roads or streets not classified.	As regulated by Articles 41 through 52 of this Ordinance

c. Bluff Impact Zones. Structures and accessory facilities, except stairways and landings, must not be placed within bluff impact zones.

d. Uses Without Water-oriented Needs. Uses without water-oriented needs that are located on lots or parcels with public waters frontage must either be set back double the normal ordinary high water level setback or be substantially screened from view from the water by vegetation or topography, assuming summer, leaf-on conditions.

2. Design Criteria For Structures.

a. High Water Elevations. Structures must be placed in accordance with any floodplain regulations applicable to the site. Where these controls do not exist, the elevation to which the lowest floor, including basement, is placed or flood-proofed must be determined:

(1) By placing the lowest floor at a level at least three feet above the highest known water level, or three feet above the ordinary high water level, whichever is higher.

(2) Water-oriented accessory structures may have the lowest floor placed lower than the elevation determined in this item if the structure is constructed of flood-resistant materials to the elevation, electrical and mechanical equipment is placed above the elevation and, if long duration flooding is anticipated, the structure is built to withstand ice action and wind-driven waves and debris.

b. Accessory Structures. Accessory structures shall be permitted as regulated by Article 18 of this Ordinance. Detached decks must not exceed eight feet above grade at any point.

c. 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:

(1) Stairways and lifts must not exceed four feet in width on residential lots. Wider stairways may be used for commercial properties, public open-space recreational properties, and planned unit developments;

(2) Landings for stairways and lifts on residential lots must not exceed thirty-two (32) square feet in area. Landings larger than thirty-two (32) square feet may be used for commercial properties, public open-space recreational properties, and conditional use permit allowances for development;

(3) Canopies or roofs are not allowed on stairways, lifts, or landings;

(4) 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;

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

(6) Facilities such as ramps, lifts, or mobility paths for physically handicapped persons are also allowed for achieving access to shore areas, provided that the dimensional and performance standards of Section 60-4.C.2.c.(1)-(5) are complied with in addition to the requirements of Minnesota Regulations, Chapter 1340.

d. Historic Buildings and Sites. No structure may be placed on a historic building or site in a manner that affects the values of the site unless adequate information about the site has been removed and documented in a public repository.

e. Steep Slopes. The City Engineer must evaluate possible soil erosion impacts and development visibility from public waters before issuing a permit for construction of roads, driveways, structures, or other improvements on steep slopes. When determined necessary, conditions must be attached to issued permits to prevent erosion and to preserve existing vegetation screening of structures, vehicles, and other facilities as viewed from the surface of public waters, assuming summer, leaf-on vegetation.

3. Height of Structures. All structures shall comply with the height standards of the Excelsior Zoning Ordinance.

D. Shoreland Alterations: Alterations of vegetation and topography will be regulated to prevent erosion into public waters, fix nutrients, preserve shoreland aesthetics, preserve historic values, prevent bank slumping, and protect fish and wildlife habitat.

1. Vegetation Alterations.

a. Vegetation alteration necessary for the construction of structures and the construction of roads and parking areas regulated by Section 60-4.E below are exempt from the vegetation alteration standards that follow.

b. Removal or alteration of vegetation is allowed subject to the following standards:

(1) Intensive vegetation clearing within the shore and bluff impact zones and on steep slopes is not allowed.

(2) In shore and bluff impact zones and on steep slopes, limited clearing of trees and shrubs and cutting, pruning, and trimming of trees is allowed to provide a view to the water from the principal dwelling site and to accommodate the placement of stairways and landings, picnic areas, access paths, beach and watercraft access areas, and permitted water-oriented accessory structures or facilities, provided that:

(a) The general character of the shoreline is not changed as viewed from the water, assuming summer, leaf-on conditions, is not substantially reduced;

(b) The above provisions are not applicable to the removal of trees, limbs, or branches that are dead, diseased, or pose safety hazards.

c. Use of fertilizers and pesticides shall be strongly discouraged, but at the very least, shall be done in such a way as to minimize runoff into the shore impact zone or public water by the use of earth, vegetation or both.

2. Topographic Alterations/Grading and Filling.

a. Grading and filling and excavations necessary for the construction of structures and driveways under validly issued construction permits for these facilities do not require the issuance of a separate grading and filling permit; however, the grading and filling standards in this Section must be incorporated into the issuance of such permits.

b. Public roads and parking areas are regulated by Section 60-4.E below.

c. Notwithstanding Section 60-4.D.2.a and b above, a grading and filling permit will be required for:

(1) The movement of more than ten (10) cubic yards of material on steep slopes or within shore or bluff impact zones; and

(2) The movement of more than fifty (50) cubic yards of material outside of steep slopes and shore and bluff impact zones shall require a conditional use permit pursuant to Article 4 and Section 60-4.H.

d. The following considerations and conditions must be adhered to during the issuance of construction permits, grading and filling permits, conditional use permits, variances and subdivision approvals:

(1) In addition to requirements of the State of Minnesota Wetland Conservation Act of 1991, grading or filling in any type 2 through 8 wetland must be evaluated to determine how extensively the proposed activity would affect the following functional qualities of the wetland*:

(a) sediment and pollutant trapping and retention;

(b) storage of surface runoff to prevent or reduce flood damage;

(c) fish and wildlife habitat;

(d) recreational use;

(e) shoreline or bank stabilization; and

(f) noteworthiness, including special qualities such as historic significance, critical habitat for endangered plants and animals, or others.

*This evaluation must also include a determination of whether the wetland alteration being proposed requires permits, reviews, or approvals by other local, state, or federal agencies such as the Minnehaha Creek Watershed District, the Minnesota Department of Natural Resources, or the United States Army Corps of Engineers. The applicant will be so advised.

(2) 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;

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

(4) Methods to minimize soil erosion and to trap sediments before they reach any surface water feature must be used;

(5) 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 Service;

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

(7) 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 thirty (30) percent or greater;

(8) Fill or excavated material must not be placed in bluff impact zones;

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

(10) Alterations of topography must only be allowed if they are accessory to permitted or conditional uses and do not adversely affect adjacent or nearby properties; and

(11) Placement of natural rock riprap, including associated grading of the shoreline and placement of a filter blanket, is permitted if the finished slope does not exceed three (3) feet horizontal to one (1) foot vertical, the landward extent of the riprap is within ten feet of the ordinary high water level, and the height of the riprap above the ordinary high water level does not exceed three feet.

e. Connections to public waters. Excavations where the intended purpose is connection to a public water, such as boat slips, canals, lagoons, and harbors, must be controlled by local shoreland controls. Permission for excavations may be given only after the commissioner has approved the proposed connection to public waters.

E. Placement and Design of Roads, Driveways, and Parking Areas:

1. Public and private roads and parking areas must be designed to take advantage of natural vegetation and topography to achieve maximum screening from 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 to public waters consistent with the field office technical guides of the local soil and water conservation district, or other applicable technical materials.

2. Roads, driveways, and parking areas must meet structure setbacks and must not be placed within bluff and shore impact zones, when other reasonable and feasible placement alternatives exist. If no alternatives exist, they may be placed within these areas, and must be designed to minimize adverse impacts.

3. 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 subpart are met. For private facilities, the grading and filling provisions of Section 60-4.D.2 above must be met.

F. Stormwater Management: The following general and specific standards shall apply:

1. General Standards:

a. When possible, existing natural drainageways, wetlands, and vegetated soil surfaces must be used to convey, store, filter, and retain stormwater runoff before discharge to public waters.

b. Development must be planned and conducted in a manner that will minimize the extent of disturbed areas, runoff velocities, erosion potential, and reduce and delay runoff volumes. Disturbed areas must be stabilized and protected as soon as possible and facilities or methods used to retain sediment on the site.

c. When development density, topographic features, and soil and vegetation conditions are not sufficient to adequately handle stormwater runoff using natural features and vegetation, various types of constructed facilities such as diversions, settling basins, skimming devices, dikes, waterways, and ponds may be used. Preference must be given to designs using surface drainage, vegetation, and infiltration rather than buried pipes and man-made materials and facilities.

2. Specific Standards:

a. Maximum impervious surface coverage of lots shall be as follows:

(1)	Low density residential (R1, R-1A, R2, R-2A):	35%
(2)	Multiple family residential (R3, R4):	40%
(3)	Commercial: (B2, B3, B4, B5)	90%
	(B6)	75%
	(B1)	100%
(4)	Public buildings and parks:	50%

(Section 60-4(F)(2) Amended by Ordinance 401 - Adopted the 2nd day of October 2006)

Credit shall be allowed in cases where stormwater runoff is effectively held on site by retention basins or other acceptable means such as flat rooftops and parking lots with built-in basins.

Open patterned decks and stairways shall not be counted as impervious cover, provided they are installed over a permeable surface. Those constructed over an impermeable surface or are impermeable themselves shall be counted as one hundred (100) percent impervious cover.

b. When constructed facilities are used for stormwater management, documentation must be provided by a qualified individual that they are designed and installed consistent with the field office technical guide of the local soil and water conservation districts.

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

G. Special Provisions for Commercial, and Public/Semipublic Uses:

1. Surface water-oriented commercial uses and industrial, public, or semipublic uses with similar needs to have access to and use of public waters may be located on parcels or lots with frontage on public waters. Those uses with water-oriented needs must meet the following standards:

a. In addition to meeting impervious coverage limits, setbacks, and other zoning standards in this ordinance, the uses must be designed to incorporate topographic and vegetative screening of parking areas and structures;

b. Uses that require short-term watercraft mooring for patrons must centralize these facilities and design them to avoid obstructions of navigation and to be the minimum size necessary to meet the need; and

c. Uses that depend on patrons arriving by watercraft may use signs and lighting to convey needed information to the public, subject to the following general standards:

(1) No advertising signs or supporting facilities for signs may be placed in or upon public waters. Signs conveying information or safety messages may be placed in or on public waters by a public authority or under a permit issued by the county sheriff;

(2) Signs may be placed, when necessary, within the shore impact zone if they are designed and sized to be the minimum necessary to convey needed information. The signs must not be located higher than ten feet above the ground, and must not exceed thirty-two (32) square feet in size. If illuminated by artificial lights, the lights must be shielded or directed to prevent illumination out across public waters; and

(3) Other outside lighting may be located within the shore impact zone or over public waters if it is used primarily to illuminate potential safety hazards and is shielded or otherwise directed to prevent direct illumination out across public waters. This does not preclude use of navigational lights.

2. Uses without water-oriented needs must be located on lots or parcels without public waters frontage, or, if located on lots or parcels with public waters frontage, must either be set back double the normal ordinary high water level setback or be substantially screened from view from the water by vegetation or topography, assuming summer, leaf-on conditions.

H. Conditional Use Criteria and Conditions: Conditional uses allowable within shoreland areas shall be subject to the review and approval procedures, and criteria and conditions for review of conditional uses established community-wide. The following additional evaluation criteria and conditions apply within shoreland areas:

1. Evaluation criteria. A thorough evaluation of the waterbody and the topographic, vegetation, and soils conditions on the site must be made to ensure:

a. The prevention of soil erosion or other possible pollution of public waters, both during and after construction;

b. The visibility of structures and other facilities as viewed from public waters is limited;

c. The types, uses, and numbers of watercraft that the project will generate are compatible in relation to the suitability of public waters to safely accommodate these watercraft.

2. Conditions attached to conditional use permits. The City Council, upon consideration of the criteria listed above and the purposes of this Section, may attach such conditions to the issuance of the conditional use permits as it deems necessary to fulfill the purposes of this ordinance. Such conditions may include, but are not limited to, the following:

   a. Increased setbacks from the ordinary high water level;

   b. Limitations on the natural vegetation to be removed or the requirement that additional vegetation be planted; and

   c. Special provisions for the location, design, and use of structures, watercraft launching and docking areas, and vehicle parking areas.

60-5: NON-CONFORMITIES: All legally established non-conformities as of the date of this Ordinance may continue as provided in Article 15. In addition, the following standards will also apply in shoreland areas:

A. Construction on Non-Conforming Lots of Record:

1. Lots of record in the office of the county recorder on the date of enactment of Article 60 that do not meet the requirements of Section 60-4.A may be allowed as building sites without variances from lot size requirements provided the use is permitted in the zoning district, the lot has been in separate ownership from abutting lands at all times since it became substandard, was created compliant with official controls in effect at the time, setback requirements of this ordinance are met, and the requirements of Section 15-5 of this Ordinance are met.

2. A variance from setback requirements must be obtained before any use or building permit is issued for a lot. In evaluating the variance, the City Council shall consider capabilities or constraints of the lot and shall deny the variance if adequate facilities cannot be provided.

3. If, in a group of two or more contiguous lots which have come under the same ownership after February 9, 2003, any individual lot does not meet the requirements of Section 60-4.A of this Ordinance, the lot must not be considered as a separate parcel of land for the purposes of sale or development. The lot must be combined with one or more contiguous lots so they equal one or more parcels of land, each meeting the requirements of Section 60-4.A as much as possible.

B. Additions/Expansions to Non-Conforming Structures:

1. All additions or expansions to the outside dimensions of an existing nonconforming structure must meet the setback, height, and other requirements of Section 60-4.A of this Ordinance. Any deviation from these requirements must be authorized by a variance pursuant to Article 6 of this Ordinance.

2. Deck additions which do not extend above the ground level of the principal building shall be permitted as provided by Section 17-6, but shall be located no closer than ten (10) feet from the OHWL.

3. Deck additions which extend above the height of the ground level of the principal building may be allowed without a variance to a structure not meeting the required setback from the ordinary high water level, if all of the following criteria and standards are met:

   a. The structure existed on the date the structure setbacks were established;

   b. A thorough evaluation of the property and structure reveals no reasonable location for a deck meeting or exceeding the existing ordinary high water level setback of the structure;

   c. The deck encroachment toward the ordinary high water level does not exceed fifteen (15) percent of the existing setback of the structure from the ordinary high water level or does not encroach closer than thirty (30) feet, whichever is more restrictive; and

   d. The deck is constructed primarily of wood, and is not roofed or screened.

ARTICLE 61

GENERAL FLOODPLAIN DISTRICT

SECTION:

61-1: STATUTORY AUTHORIZATION, FINDINGS OF FACT AND PURPOSE:

A. 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 Excelsior, Minnesota does ordain as follows:

B. 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.

C. Warning of Disclaimer of Liability: This Ordinance does not imply that areas outside of the Floodplain 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 Excelsior or any officer or employee thereof for any flood damages that result from reliance on this Ordinance or any administrative decisions lawfully made thereunder.

D. 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.

61-2: GENERAL PROVISIONS:

A. Adoption of 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 27053C0312E, 27053C0314E, 27053C0316E, and 27053C0318E for the City of Excelsior, dated , September 2, 2004, as developed by the Federal Emergency Management Agency are hereby adopted by reference as the Official Floodplain Zoning District Map and made a part of this ordinance.

B. Lands to Which Ordinance Applies: This ordinance shall apply to all lands designated as floodplain within the City of Excelsior. Flood plain areas within the City of Excelsior 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 61-2 A of this ordinance.

C. Interpretation: The boundaries of the Floodplain 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 Floodplain District, the Zoning Administrator shall make the necessary interpretation based on the ground elevations that existed on the site at the time the community adopted its initial floodplain ordinances and the regional 100-year flood profile, if available. If 100-year flood elevations are not available, the community shall: 1) Require a floodplain evaluation consistent with Sections 61-4 and 61-5 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 floodplain.

D. Definitions. Definitions for the words or phrases used in this Ordinance are set forth in Article 2, Section 2-2 of this Ordinance. Unless specifically defined in this ordinance, words or phrases shall be interpreted so as to give them the same meaning as they havein common usage and so as to give this Ordinance its most reasonable application.

61-3: CONFLICT WITH PRE-EXISTING ZONING REGULATIONS AND GENERAL COMPLIANCE:

A. The Floodplain District as Overlay Zoning District: The Floodplain Zoning District shall be considered an overlay zoning district to all existing land use regulations of the community. The uses permitted in Sections 61-4 and 61-6 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.

B. 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 61-4 shall be prohibited. In addition, a caution is provided here that:

1. New manufactured homes, replacement manufactured homes and certain travel trailers and travel vehicles are subject to the general provisions of this Ordinance and specifically Sections 61-4 and 61-13;

2. 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 61-10; and

3. As-built elevations for elevated structures must be certified by elevation surveys as stated in Section 61-8 of this Ordinance.

61-4: PERMITTED USES, STANDARDS, AND FLOODPLAIN EVALUATION CRITERIA:

A. Permitted Uses in the Floodplain. The following uses of land are permitted uses in the Floodplain District:

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

2. 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 or obstructions such as fill or storage of materials or equipment, provided these activities are located in the flood fringe portion of the floodplain. These uses shall be subject to the development standards in Section 61-4.B below and the floodplain

districting criteria in Section 61-5 and 61-4C, of this Ordinance for determining floodway and flood fringe boundaries.

3. Recreational vehicles are regulated by Section 61-13 of this Ordinance.

B. Standards for Floodplain Permitted Uses:

1. 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.

2. Storage of Materials and Equipment:

   a. 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.

   b. 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.

3. 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.

4. All structures, including accessory structures and additions to existing structures shall be constructed on fill so that the lowest 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 fifteen (15) feet beyond the limits of the structure constructed thereon.

5. 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 floodplain shall not be permitted unless granted a variance . In granting a variance, the City Council 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.

6. Commercial 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.

7. 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.

C. Floodplain Evaluation:

1. Upon receipt of an application for a permit or subdivision approval within the Floodplain District, the Zoning Administrator shall require the applicant to furnish sufficient site development plans and a hydrologic/hydraulic analysis by a qualified engineer or hydrologist specifying the nature of the development and whether the proposed use is located in the floodway or flood fringe and the Regulatory Flood Protection Elevation for the site. Procedures consistent with Minnesota Rules 1983 Parts 6120.5600 (Technical Standards and Requirements For Floodplain Evaluation) and 6120.5700 (Minimum Floodplain Management Standards for Local Ordinances) shall be followed during the technical evaluation and review of the development proposal.

2. The Zoning Administrator shall submit one copy of all information required by Section 61-4.C above to the respective Department of Natural Resources' Area Hydrologist for review and comment at least twenty (20) days prior to the granting of a permit or subdivision approval by the community. The Zoning Administrator shall notify the respective Department of Natural Resources Area Hydrologist within ten (10) days after a permit or subdivision approval is granted.

61-5: ESTABLISHMENT OF ZONING DISTRICTS

A. Floodway District. The Floodway District shall include those areas at or below the respective Ordinary High Water elevations for Lake Minnetonka, College Lake, Mud Lake, and Galpin Lake. Ordinary High Water elevation shall be defined as Minnesota Statute, Section 103G.005, Subd. 14.

B. Flood Fringe District. The Flood Fringe District shall include those areas shown on the Flood Insurance Rate Map panels as adopted in Section 61-2B as being within Zone AE, Zone AO, or Zone AH but being located outside of the floodway.

61-6: UTILITIES, RAILROADS, ROADS AND BRIDGES IN THE FLOODPLAIN DISTRICT: All utilities and transportation facilities, including railroad tracks, roads and bridges, shall be constructed in accordance with state floodplain management standards contained in Minnesota Rules 1983 Parts 6120.5000 - 6120.6200.

61-7: SUBDIVISIONS:

A. No land shall be subdivided, developed or expanded where the site is determined to be unsuitable by the City Council 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.

B. In the Floodplain District, applicants for subdivision approval shall provide the information required in Section 61-4.C of this Ordinance and in compliance with Chapter 30, Subdivisions of the Excelsior Code of Ordinances. The Zoning Administrator shall evaluate the proposed subdivision in accordance with the standards established in Sections 61-4.B and 61-4.C, and Section 61-5, and 61-6 of this Ordinance and Chapter 30.

C. For all subdivisions in the floodplain, 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.

D. 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.

61-8: ADMINISTRATION:

A. Permit Required: A Permit issued by the Zoning Administrator 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 or fence, 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.

B. State and Federal Permits: Prior to granting a Permit or processing an application for a Variance, the Zoning Administrator shall determine that the applicant has obtained all necessary State and Federal permits.

C. 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 Administrator 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 Floodplain District.

D. 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.

E. Notifications for Watercourse Alterations. The Zoning Administrator shall notify, in riverine 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).

61-9: VARIANCES:

A. Variances shall be processed in accordance with Article 6 of this Ordinance.

B. The following additional variance criteria of the Federal Emergency Management Agency must be satisfied:

1. 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.

2. 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.

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

C. No variance shall permit a lower degree of flood protection then the Regulatory Flood Protection Elevation. Variances may be used to modify permissible methods of flood protection.

D. In the granting of a variance, the City Council shall clearly identify in writing the specific conditions that existed consistent with the criteria specified in the respective enabling legislation which justified the granting of the variance.

E. The Zoning Administrator 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 (10) 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.

F. 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 twenty-five dollars ($25.00) for one hundred dollars ($100.00) 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. A 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.

61-10: NON-CONFORMITIES: In addition to provisions of Article 15, 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:

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

B. An alteration within the inside dimensions of a nonconforming use or structure is permissible provided it will not result in increasing the flood damage potential of that use or structure.

C. The cost of all structural alterations or additions both inside and outside of a structure to any nonconforming structure over the life of the structure shall not exceed fifty (50) percent of the market value of the structure unless the conditions of this Section are satisfied. The cost of all structural alterations and additions constructed since the adoption of the City's initial floodplain controls must be calculated into today's current cost which will include all costs such as construction materials and a reasonable cost placed on all manpower or labor. If the current cost of all previous and proposed alterations and additions exceeds 50 percent of the current market value of the structure, then the structure must meet the standards of Section 61-4 for new structures.

D. If any nonconforming use of a structure or land or nonconforming structure is substantially damaged by any means, including floods, to an extent of 50 percent or more of its market value at the time of destruction, it shall not be reconstructed except in conformity with the provisions of this Ordinance. The City of Excelsior 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.

E. If a substantial improvement occurs, as defined in Article 2, Section 2-2 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 61-10B) and the existing nonconforming building must meet the requirements of Section 61-4 of this

Ordinance for new structures, depending upon whether the structure is in the floodway or flood fringe, respectively.

61-11: 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.

A. In responding to a suspected ordinance violation, the Zoning Administrator 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 make 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 eligiblity in the National Flood Insurance Program.

B. 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 shall be submitted to the appropriate Department of Natural Resources' and Federal Emergency Management Agency Regional Office along with a plan of action to correct the violation to the degree possible.

C. 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 thirty (30) days.

D. 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 which existed prior to the violation of this Ordinance.

61-12: AMENDMENTS: All amendments to this Article, including revisions to the Official Floodplain Zoning District Map, shall be submitted to and approved by the Commissioner of Natural Resources prior to adoption. The floodplain designation on the Official Floodplain 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 floodplain. 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 ten (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.

61-13: TRAVEL TRAILERS AND TRAVEL VEHICLES: Travel trailers/recreational vehicles may be stored but not used as dwellings in the floodplain. Further, any such unit must be removed from the property immediately after a flood warning is issued. Recreational vehicles that do not meet the exemption criteria specified in Section 61-13A below shall be subject to the provisions of this Ordinance and as specifically spelled out in Sections 61-13A, items 1-3 below.

A. Exemption - Recreational vehicles are exempt from the provisions of this Ordinance if they are placed in any of the areas listed in Section 61-13B below and further they meet the following criteria:

   1. Have current licenses required for highway use.

   2. 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.

   3. The recreational vehicle and associated use must be permissible in any pre-existing, underlying zoning use district.

B. Areas Exempted for Placement of Recreational Vehicles:

   1. Individual lots or parcels of record.

   2. Existing condominium type associations.

(Section 61 — Amended by Ordinance No. 380 - adopted 16th day of August, 2004)

ARTICLE 36

GENERAL STORM WATER MANAGEMENT

SECTION:

36-1: STATUTORY AUTHORIZATION: The stormwater management regulations contained in this Section are adopted pursuant to Minnesota Statutes Section 462.351.

36-2: FINDINGS: The City of Excelsior hereby finds that uncontrolled and inadequately planned use of wetlands, woodlands, natural habitat areas, areas subject to soil erosion and areas containing restrictive soils adversely affects the public health, safety and general welfare by impacting water quality and contributing to other environmental problems, creating nuisances, impairing other beneficial uses of environmental resources and hindering the ability of the City of Excelsior to provide adequate water, sewage, flood control, and other community services. In addition, extraordinary public expenditures may be required for the protection of persons and property in such areas and in areas which may be affected by unplanned land usage.

36-3: PURPOSE: The purpose of this Ordinance is to promote, preserve and enhance the natural resources within the City of Excelsior and protect them from adverse effects occasioned by poorly sited development or incompatible activities by regulating land disturbing or development activities that would have an adverse and potentially irreversible impact on water quality and unique and fragile environmentally sensitive land; by minimizing conflicts and encouraging compatibility between land disturbing and development activities and water quality and environmentally sensitive lands; and by requiring detailed review standards and procedures for land disturbing or development activities proposed for such areas, thereby achieving a balance between urban growth and development and protection of water quality and natural areas.

36-4: SCOPE AND EFFECT:

A. Applicability: Every applicant for a building permit, subdivision approval, or a permit to allow land disturbing activities must submit a storm water management plan to

the City. No building permit, subdivision approval, or permit to allow land disturbing activities shall be issued until approval of the storm water management plan or a variance of the approval requirement has been obtained in strict conformance with Section 36-4.C of this Ordinance.

B.___Exemptions: The provisions of this Ordinance do not apply to:

1. Any part of a subdivision if a plat for the subdivision has been approved by the City Council on or before February 9, 2003;

2. Any land disturbing activity for which plans have been approved by the watershed management organization within six (6) months prior to February 9, 2003;

3. A lot for which a building permit has been approved on or before February 9, 2003;

4. Installation of fence, sign, telephone, and electric poles and other kinds of posts or poles;

5. Interior remodeling;

6. Any activity requiring a building permit which does not disturb any land and does not increase the area of impervious surface of the subject parcel;

7. Emergency work to protect life, limb, or property.

8. A proposed addition or the construction of an accessory structure when the plans have been reviewed and the site has been inspected by the Zoning Administrator and/or the City Engineer and it has been determined that the land is flat and/or drainage will not have an impact on neighboring property(s) or any body of water.

C. Variance: The City Council, upon recommendation of the Planning Commission, may grant a variance to any requirement of this Ordinance upon making a finding that compliance with the requirement will involve an unnecessary hardship and the variance of such requirement will not adversely affect the standards and requirements set forth in Section 36-5. The City Council of Excelsior may require as a condition of the variance, such dedication or construction, or agreement to dedicate or construct as may be necessary to adequately meet said standards and requirements.

36-5: STORM WATER MANAGEMENT PLAN APPROVAL PROCEDURES:

A. Application: A written application for storm water management plan approval, along with the proposed storm water management plan, shall be filed with the City and

shall include a statement indicating the grounds upon which the approval is requested, that the proposed use is permitted by right or as an exception in the underlying zoning district, and adequate evidence showing that the proposed use will conform to the standards set forth in this Ordinance. Four (4) sets of clearly legible blue or black lined copies of drawings and required information shall be submitted to the Zoning Administrator. Drawings shall be prepared to a scale appropriate to the site of the project and suitable for the review to be performed. At a minimum the scale shall be one (1) inch equals one hundred (100) feet.

B. Storm Water Management Plan: At a minimum, the Storm Water Management Plan shall contain the following information.

1. Existing Site Map. A map of existing site conditions showing the site and immediately adjacent areas, including:

   a. The name and address of the applicant, the section, township and range, north point, date and scale of drawing and number of sheets;

   b. Location of the tract by an insert map at a scale sufficient to clearly identify the location of the property and giving such information as the names and numbers of adjoining roads, railroads, utilities, subdivisions, towns and districts or other landmarks;

   c. Existing topography with a contour interval appropriate to the topography of the land but in no case having a contour interval greater than two (2) feet;

   d. A delineation of all streams, rivers, public waters and wetlands located on and immediately adjacent to the site and any classification given to the water body or wetland by the Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, and/or the United States Army Corps of Engineers.

   e. Location and dimensions of existing storm water drainage systems and natural drainage patterns on and immediately adjacent to the site delineating in which direction storm water is conveyed from the site, identifying the receiving stream, river, public water, or wetland, and setting forth those areas of the unaltered site where storm water collects;

   f. 100-year floodplains, flood fringes and floodways.

2. Site Construction Plan. A site construction plan including:

   a. Locations and dimensions of all proposed land disturbing activities and any phasing of those activities;

b. Locations and dimensions of all temporary soil or dirt stockpiles;

c. Locations and dimensions of all construction site erosion control measures necessary to meet the requirements of this Ordinance;

d. Schedule of anticipated starting and completion date of each land disturbing activity including the installation of construction site erosion control measures needed to meet the requirements of this Ordinance; and

e. Provisions for maintenance of the construction site erosion control measures during construction.

3. Plan of Final Site Conditions. A plan of final site conditions on the same scale as the existing site map showing the site changes including:

a. Finished grading shown at contours at the same interval as provided above or as required to clearly indicate the relationship of proposed changes to existing topography and remaining features;

b. A drainage plan of the developed site delineating in which direction and at what rate storm water will be conveyed from the site and setting forth the areas of the site where storm water will be allowed to collect;

c. The proposed size, alignment and intended use of any structures to be erected on the site;

d. A clear delineation and tabulation of all areas which shall be paved or surfaced, including a description of the surfacing material to be used; and

e. Any other information pertinent to the particular project which in the opinion of the Zoning Administrator is necessary for the review of the project.

36-6: PLAN REVIEW PROCEDURE:

A. Process: Storm water management plans meeting the requirements of Section 36-5 shall be submitted to the Zoning Administrator for review in accordance with the standards of Section 36-7. The Zoning Administrator shall approve, approve with conditions, or deny the storm water management plan. The decision by the Zoning Administrator may be appealed in accordance with Article 7 of this Ordinance.

B. Duration: Approval of a plan submitted under the provisions of this Ordinance shall expire one year after the date of approval unless construction has commenced in

accordance with the plan. However, if prior to the expiration of the approval, the applicant makes a written request to the Zoning Administrator for an extension of time to commence construction setting forth the reasons for the requested extension, the Zoning Administrator may grant one extension of not greater than one single year. Receipt of any request for an extension shall be acknowledged by the Zoning Administrator within fifteen (15) days. The Zoning Administrator shall make a decision on the extension within thirty (30) days of receipt. Any plan may be revised in the same manner as originally approved.

C. Conditions: A storm water management plan may be approved subject to compliance with conditions reasonable and necessary to insure that the requirements contained in this Ordinance are met. Such conditions may, among other matters, limit the size, kind or character of the proposed development, require the construction of structures, drainage facilities, storage basins and other facilities, require replacement of vegetation, establish required monitoring procedures, stage the work over time, require alteration of the site design to insure buffering and require the conveyance to the City of Excelsior or other public entity of certain lands or interests therein.

D. Financial Guarantee: Prior to approval of any storm water management plan, the applicant shall submit an agreement to construct such required physical improvements, to dedicate property or easements, or to comply with such conditions as may have been agreed to. Such agreement shall be accompanied by a financial guarantee to cover the amount of the established cost of complying with the agreement. The agreement and guarantee shall insure completion and compliance with conditions within a specific time, which may be extended in accordance with Section 36-6.B of this Ordinance.

E. Fees and Escrow: All applications for storm water management plan approval shall be accompanied by a processing fee of fifty dollars ($50.00) and cash escrow in accordance with the following schedule:

Lot Size	Amount of Cash Escrow
10,000 S.F. or Less	$ 200.00
10,001 S.F. to 1 Acre	$ 400.00
Over 1 Acre	$ 700.00

The City Council may change, amend or revise the processing fee and escrow amounts from time to time by resolution of the Council.

36-7: APPROVAL STANDARDS:

A. No storm water management plan which fails to meet the standards contained in this section shall be approved by the Zoning Administrator.

B. Site Dewatering: Water pumped from the site shall be treated by temporary sedimentation basins, grit chambers, sand filters, upflow chambers, hydro-cyclones, swirl concentrators or other appropriate controls as appropriate. Water may not be discharged in a manner that causes erosion or flooding of the site or receiving channels or a wetland.

C. Water and Material Disposal: All waste and unused building materials (including garbage, debris, cleaning wastes, wastewater, toxic materials or hazardous materials) shall be properly disposed of off-site and not allowed to be carried by runoff into a receiving channel or storm sewer system.

D. Tracking: Each site shall have graveled roads, access drives and parking areas of sufficient width and length to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public or private road shall be removed by street cleaning (not flushing) before the end of each workday.

E. Drain Inlet Protection: All storm drain inlets shall be protected during construction until control measures are in place with a straw bale, silt fence or equivalent barrier meeting accepted design criteria, standards and specifications contained in the MPCA publication "Protecting Water Quality in Urban Areas."

F. Site Erosion Control: The following criteria (1 through 4) apply only to construction activities that result in runoff leaving the site.

1. Channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Otherwise, the channel shall be protected as described below. Sheet flow runoff from adjacent areas greater than ten thousand (10,000) square feet in area shall also be diverted around disturbed areas, unless shown to have resultant runoff rates of less than 0.5 $ft.^3$/sec. across the disturbed area for the one (1) year storm. Diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels.

2. All activities on the site shall be conducted in a logical sequence to minimize the area of bare soil exposed at any one time.

3. Runoff from the entire disturbed area on the site shall be controlled by meeting either subsections (a) and (b) or (a) and (c).

   a. All disturbed ground left inactive for fourteen (14) or more days shall be stabilized by seeding or sodding (only available prior to September 15) or by mulching or covering or other equivalent control measure.

   b. For sites with more than ten (10) acres disturbed at one time, or if a channel originates in the disturbed area, one (1) or more temporary or permanent sedimentation basins shall be constructed. Each sedimentation basin shall have a surface area of at least one (1) percent of the area draining to the basin and at least three (3) feet of

depth and constructed in accordance with accepted design specifications. Sediment shall be removed to maintain a depth of three (3) feet. The basin discharge rate shall also be sufficiently low as to not cause erosion along the discharge channel or the receiving water.

c. For sites with less than ten (10) acres disturbed at one time, silt fences, straw bales, or equivalent control measures shall be placed along all side slope and down slope sides of the site. If a channel or area of concentrated runoff passes through the site, silt fences shall be placed along the channel edges to reduce sediment reaching the channel. The use of silt fences, straw bales, or equivalent control measures must include a maintenance and inspection schedule.

4. Any soil or dirt storage piles containing more than ten (10) cubic yards of material should not be located with a down slope drainage length of less than twenty-five (25) feet from the toe of the pile to a roadway or drainage channel. If remaining for more than seven (7) days, they shall be stabilized by mulching, vegetative cover, tarps or other means. Erosion from piles which will be in existence for less than seven (7) days shall be controlled by placing straw bales or silt fence barriers around the pile. In-street utility repair or construction soil or dirt storage piles located closer than twenty-five (25) feet of a roadway or drainage channel must be covered with tarps or suitable alternative control, if exposed for more than seven (7) days, and the storm drain inlets must be protected with straw bale or other appropriate filtering barriers.

G. Storm Water Management Criteria for Permanent Facilities:

1. An applicant shall install or construct, on or for the proposed land disturbing or development activity, all storm water management facilities necessary to manage increased runoff so that the two-year, ten-year, and 100-year storm peak discharge rates existing before the proposed development shall not be increased and accelerated channel erosion will not occur as a result of the proposed land disturbing **or** development activity. At the discretion of the City, an applicant may also make an in-kind or monetary contribution to the development and maintenance of community storm water management facilities designed to serve multiple land disturbing and development activities undertaken by one (1) or more persons, including the applicant.

2. The applicant shall give consideration to reducing the need for storm water management facilities by incorporating the use of natural topography and land cover such as wetlands, ponds, natural swales and depressions as they exist before development to the degree that they can accommodate the additional flow of water without compromising the integrity or quality of the wetland or pond.

3. Special attention shall be given to existing residential developments which do not currently comply with the thirty-five (35) percent impervious cover limitation of Excelsior's shoreland management ordinance. When installing sidewalk and driveways, adding decks and building additions or constructing garages and storage buildings, the following methods are suggested as solutions to the problem of managing stormwater runoff from impervious surfaces:

   a. Building additions and decks shall be constructed to direct runoff to more pervious grassed filter strips, such as lawns and gardens.

   b. Runoff from garages or storage buildings can be separated from impervious surfaces by different roof designs and/or use of gutters and down spouts directing water to pervious areas.

   c. Sidewalks and driveways shall be sloped to drain towards pervious surfaces, such as lawns or gardens.

4. The following storm water management practices shall be investigated in developing a storm water management plan in the following descending order of preference:

   a. Natural infiltration of precipitation on-site;

   b. Flow attenuation by use of open vegetated swales and natural depressions;

   c. Storm water retention facilities; and

   d. Storm water detention facilities.

5. A combination of successive practices may be used to achieve the applicable minimum control requirements specified in subsection A above. Justification shall be provided by the applicant for the method selected.

H. Design Standards: Storm water detention facilities constructed in the City of Excelsior shall be designed according to the most current technology as reflected in the MPCA publication "Protecting Water Quality in Urban Areas", and shall contain, at a minimum, the following design factors:

1. A permanent pond surface area equal to two percent of the impervious area draining to the pond or one percent of the entire area draining to the pond, whichever amount is greater;

2. An average permanent pool depth of four (4) to ten (10) feet;

3. A permanent pool length-to-width ratio of 3:1 or greater;

4. A minimum protective shelf extending ten feet into the permanent pool with a slope of ten to one (10:1), beyond which slopes should not exceed 3:1;

5. A protective buffer strip of vegetation surrounding the permanent pool at a minimum width of one (1) rod;

6. All storm water detention facilities shall have a device to keep oil, grease, and other floatable material from moving downstream as a result of normal operations;

7. Storm water detention facilities for new development must be sufficient to limit peak flows in each sub-watershed to those that existed before the development for the ten year storm event. All calculations and hydrologic models/information used in determining peak flows shall be submitted along with the storm water management plan;

8. All storm water detention facilities must have a forebay to remove coarse-grained particles prior to discharge into a watercourse or storage basin.

I. Wetlands:

_____1. Runoff shall not be discharged directly into wetlands without presettlement of the runoff.

2. A protective buffer strip of natural vegetation at least one (1) rod (16.5 feet) in width shall surround all wetlands.

4. Wetlands must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland areas of at least equal public and natural value. Replacement must be guided by the following principles in descending order of priority:

   a. Avoiding the direct or indirect impact of the activity that may destroy or diminish the wetland;

   b. Minimizing the impact by limiting the degree or magnitude of the wetland activity and its implementation;

   c. Rectifying the impact by repairing, rehabilitating, or restoring the affected wetland environment;

   d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the activity; and

e. Compensating for the impact by replacing or providing substitute wetland resources or environments.

J. Bluffs: No land disturbing or development activities shall be allowed on bluffs as defined under Definitions in Article 2 of this Ordinance.

K. Structures: In a newly constructed or rehabilitated storm sewer system, the last downstream structure before discharge to a receiving water body shall be provided with a sump area for the collection of coarse-grained material. Such sumps shall be cleaned when they are half-filled with material.

L. Drain Leaders: All newly constructed and reconstructed buildings will route drain leaders to pervious areas wherein the runoff can be allowed to infiltrate. The flow rate of water exiting the leaders shall be controlled so no erosion occurs in the pervious areas.

M. Inspection and Maintenance: All storm water management facilities shall be designed to minimize the need of maintenance, to provide access for maintenance purposes and to be structurally sound. All storm water management facilities shall have a plan of operation and maintenance that assures continued effective removal of pollutants carried in storm water runoff. The Director of Public Works, or designated representative, shall inspect all storm water management facilities during construction, during the first year of operation, and at least once every five (5) years thereafter. The inspection records will be kept on file at the Public Works Department for a period of six (6) years. It shall be the responsibility of the applicant to obtain any necessary easements or other property interests to allow access to the storm water management facilities for inspection and maintenance purposes.

N. Models/Methodologies/Computations: Hydrologic models and design methodologies used for the determination of runoff and analysis of storm water management structures shall be approved by the City Engineer. Plans, specifications and computations for storm water management facilities submitted for review shall be sealed and signed by a registered professional engineer. All computations shall appear on the plans submitted for review, unless otherwise approved by the City Engineer.

O. Watershed Management Plans/Groundwater Management Plans: Storm water management plans shall be consistent with adopted watershed management plans and groundwater management plans prepared in accordance with Minnesota Statutes section 103B.231 and 103B.255 respectively, and as approved by the Minnesota Board of Water and Soil Resources in accordance with state law.

P. Easements: If a storm water management plan involves direction of some or all runoff off of the site, it shall be the responsibility of the applicant to obtain from adjacent property owners any necessary easements or other property interests concerning flowage of water.

36-8: LAWN FERTILIZER REGULATIONS:

A. Use of Impervious Surfaces: No person shall apply fertilizer to or deposit grass clippings, leaves or other vegetative materials on impervious surfaces, or within storm water drainage systems, natural drainageways, or within wetland buffer areas.

B. Unimproved Land Areas: Except for driveways, sidewalks, patios, areas occupied by structures or areas which have been improved by landscaping, all areas shall be covered by plants or vegetative growth.

C. Fertilizer Content: No person shall apply any lawn fertilizer, liquid or granular, that contains any amount of phosphorous or other compounds containing phosphorous, such as phosphate, except small quantities when a soil text indicates added phosphorous is needed to support healthy turf growth, or during the first year when new area of turf is being established.

D. Buffer Zone: Fertilizer applications shall not be made within one rod (16.5 feet) of any wetland or water resource.

E. Sale and Display of Lawn Fertilizer. No person, firm, corporation, franchise, or commercial establishment shall sell or display for sale and lawn fertilizer, liquid or granular, within the City of Excelsior that contains any amount of phosphorous or other compound containing phosphorous, such as phosphate, unless:

   a. Phosphorous-free fertilizer is also available for sale.

   b. Phosphorous-free fertilizer and fertilizer with phosphorous are separately displayed which each display being clearly marked as to whether or not the fertilizer contains phosphorous.

   c. Displays of phosphorous-free fertilizer are of equal or greater size and prominence.

   d. A sign or brochure is on prominent display next to any fertilizer display containing the City of Excelsior's regulations concerning the use of fertilizer with phosphorous.

City of Excelsior

Ordinance No. _____

An Ordinance Amending the City's Sewer Ordinance to Prohibit the Illicit Discharge of Pollutants into the City's Stormwater Drainage System

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THE CITY OF EXCELSIOR DOES HEREBY ORDAIN:

SECTION ONE: Chapter 34, Article II of the City of Excelsior Code of Ordinances is here by amended to read as follows:

Sec. 34-31. Purpose. The purpose of this ordinance is to provide for the health, safety, and general welfare of the citizens of the City of Excelsior through the regulation of the sanitary and stormwater sewer systems to the maximum extent practicable (MEP) as required by federal and state law. This ordinance establishes methods for controlling the introduction of pollutants into the City's Municipal Separate Storm Sewer System (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES).

Sec. 34-32. Sewer and water connection required. Every owner or occupant with any property having a dwelling, house, or business building situated thereon, which property abuts upon a public street along which a municipal water or sewer main shall have been constructed, shall install a toilet in such dwelling or business property and connect the same with the water or sewer in the street adjacent thereto, within one year from the date of acceptance of the work of constructing the water or sewer main by the council.

Sec. 34-33. Definitions. For the purposes of this ordinance, the following shall mean:

Authorized Enforcement Agency: The City of Excelsior or its designee.

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

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

Construction Activity. Any activity subject to NPDES Construction Permits. Currently these include construction projects resulting in land disturbance of 1 (one) acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating and demolition.

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

Illegal Discharge. Any direct or indirect non-storm water discharge to the storm drain system.

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

Municipal Separate Storm Sewer System (MS4). The system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned and operated by the City of Excelsior and designed or used for collecting or conveying storm water, and is not used for collecting or conveying sewage (including combined sewers).

National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit. A permit issued by EPA (or by a State under authority delegated pursuant to 33 USC § 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area.

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

Pollutant. Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects and accumulations, so that

same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

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

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

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

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

Se. 34-34. Sanitary Sewer.

(a) Foreign matter restrictions. No person shall knowingly permit grit, dirt, oil, grease, petroleum, combustible, toxic substance, acid, dye, radioactive substances, heavy substances, sewage of quality exceeding 500 parts per million, five-day biological oxygen demand, or any other substance harmful to the treatment process to be introduced into any part of the sanitary sewage system. If any such substance is introduced into such system, the public works superintendent shall immediately notify the owner or occupant in writing specifying the substance, the extent of the spill, the source of the spill, or the probable source.

(b) Interception; catchbasins; traps. Every building or premises used or occupied where any operations are conducted or permitted which could result in the discharge into the municipal sanitary sewer system any of the products, waste products, or other substances in the manner and to the extent prohibited in this article shall be equipped with an adequate and suitable catchbasin, grease trap, filter, or other interceptor, installed in such a manner that the products, waste products, or other substances set forth in this section will not flow into or be discharged into the sanitary sewer system. No person shall knowingly permit the flow of waste from such building or premises into the sanitary sewer system unless such interceptor is installed and in good working order.

(c) Prohibition on Introduction of Storm Water. No person shall discharge or cause to

be discharged directly or indirectly into the sanitary sewer collection system any storm water, surface water, groundwater, roof runoff, or subsurface drainage. Any person having a roof drain, foundation drain, sump pump, unauthorized swimming pool discharge, cistern overflow pipe or surface drain connected and/or discharging into the sanitary sewer shall disconnect and remove any piping or system conveying the water to the sanitary sewer system by July 1, 2006.

Sec. 34-35. Storm Water Sewer.

(a) General Discharge Prohibitions.

(1) Prohibition of Illegal Discharges: No person shall discharge or cause to be discharged into the MS4 or watercourses any materials, including but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.

(2) The following discharges are exempt from discharge prohibitions established by this ordinance:

(i) Water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if dechlorinated - typically less than one PPM chlorine, or if discharged non-directly to a public waterbody through a vegetative swale or grass way a minimum of 300 feet as to provide pre-treatment prior to entering the City storm water system), fire fighting activities, and any other water source not containing Pollutants.

(ii) Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

(b) The General Discharge Prohibitions provided in clause (a) above shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

(c) Prohibition of Illicit Connections.

(1) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

(2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(3) A person is considered to be in violation of this ordinance if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

(4) Improper connections in violation of this ordinance must be disconnected and redirected, if necessary, to an approved onsite wastewater management system or the sanitary sewer system upon approval of the City of Excelsior.

(d) Inspection; compliance required. Compliance with this Chapter shall be assured through inspection by authorized employees of the city, or its agents, or by a licensed plumber who can certify compliance with the requirements of this section, of all properties or structures connected to the sanitary sewer system to confirm there is no sump pump or other prohibited discharge into the sanitary sewer system. Any owner of any property found to violate this section shall make the necessary changes to comply with this subchapter by July 1, 2006, and the change shall be verified by authorized employees of the city or its agents. Any property or structure not inspected or not in compliance by July 1, 2006 shall, following notification from the city, comply within 21 days or be subject to the surcharge hereinafter provided for.

(e) Sump pumps. All sump pumps shall have a discharge pipe installed to the outside wall of the building. The pipe attachment must be of a rigid permanent-type pipe such as PVC, copper or galvanized pipe. The discharge shall extend at least three feet beyond the foundation and may not be pumped directly or indirectly onto the public right-of-way unless approved by the public works superintendent or an agent thereof. Any disconnects or openings in the sanitary sewer shall be closed and repaired in compliance with applicable codes.

(f) Surcharge. A nonrefundable surcharge of $75.00 is hereby established and shall be added to every utility billing mailed on or after July 1, 2006 to any property not in compliance with this subchapter until the property is in compliance. If, after six months, any property is still found to be in violation of the ordinance, the surcharge shall increase to $150.00.

(g) Requests for waivers. If a property owner is in dispute with the assessment of their stormwater, surface water, groundwater, roof runoff or subsurface drainage, the city will facilitate an appeal process in which a property owner may request a waiver from the provisions of this subchapter where strict enforcement would cause undue hardship because of circumstances unique to the individual property under consideration. Any request for waiver shall be submitted to the city manager in writing.

A grievance hearing will be held and a final decision will be determined by a panel appointed by the city council consisting of two city council members and one planning commissioner. The public works superintendent shall participate in the hearing, as an ex-officio member of the panel, to provide information regarding the assessment and any other relevant issues.

(h) Additional fees. Upon approval of a waiver from the provisions of this subchapter, the property owner shall agree to pay an additional fee for sanitary sewer services based on the number of gallons discharged into the sanitary system as estimated by the city.

Sec. 34-36. Watercourse Protection. Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

Sec. 34-37. Enforcement.

(a) The City shall be entitled to utilize any authority available to it to gain access to premises for the purposes of enforcing the requirements of this ordinance including, but not limited to, making access at reasonable times a condition of permits and seeking, where appropriate, judicial assistance.

(b) Injunction. The imposition of the surcharge referred to in section 34-35 shall not limit the right of city to seek an injunction in district court or from pursuing any other legal remedies available.

SECTION TWO: Effective Date: This ordinance shall be in effect 30 days after publication.

Adopted by the City Council of the City of Excelsior this __th day of _____, 2008.

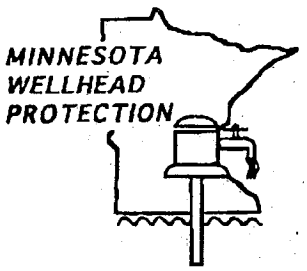
_____
J. Nicholas Ruehl, Mayor

ATTEST:

_____
Cheri Johnson, City Clerk

_____
Kristi Luger, City Manager

APPENDIX J
Wellhead Protection Information



WELLHEAD PROTECTION FOR MINNESOTA

What is it? - Wellhead protection is a means of safeguarding public water supply wells by preventing contaminants from entering the area that contributes water to the well or wellfield over a period of time. The wellhead protection area is determined by using geologic and hydrologic criteria, such as the physical characteristics of the aquifer and the effects which pumping has on the rate and direction of groundwater movement. A management plan is developed for the wellhead protection area that includes inventorying potential sources of groundwater contamination, monitoring for the presence of specific contaminants, and managing existing and proposed land and water uses that pose a threat to groundwater quality.

What is a public water supply well? A public water supply well provides piped drinking water for human use to 15 or more service connections or to 25 or more persons for at least 60 days a year. A public water supply well is further defined as either a community or noncommunity water supply well.

A community water supply well serves 15 or more service connections used by year-round residents or at least 25 year-round residents. Examples include municipalities, subdivisions, and nursing homes.

Noncommunity water supply wells are divided into two groups:

- A nontransient noncommunity supply well serves at least 25 of the same people over six months of the year. Examples include schools, factories, and hospitals.

- A transient noncommunity supply well serves all other public water systems. Examples include restaurants, gas stations, and churches.

What laws require wellhead protection? - The Minnesota Groundwater Protection Act of 1989 grants the commissioner of health authority to develop wellhead protection measures for wells serving public water supplies. Also, the 1986 Amendments to the federal Safe Drinking Water Act require states to implement wellhead protection programs for public water wells.

Who administers wellhead protection? - The Minnesota Department of Health (MDH) is the lead agency for administering Minnesota's wellhead protection program. However, wellhead protection will be effective only through the cooperation of state and local governments, public water suppliers, contaminant source owners, and general public.

Will wellhead protection be required for all public water supply wells? - The long-term goal is to implement wellhead protection measures for all public water supply wells. However, the large number of public water supply wells (13,000), the diversity of geologic conditions in Minnesota, and current resource constraints require that wellhead protection be implemented in phases. MDH began implementing wellhead protection measures in 1998 for new municipal community wells. Other existing community wells and other types of public water supply wells will be phased in as time and resources are available.

Between June 1998 and June 2003, all public water suppliers will be required to:

1) Maintain the isolation distances from potential contamination sources defined in the state Well Code;
2) Monitor noncomplying sources located on their property; and
3) Report to MDH other violations to the isolation distance, or ask a local governmental unit to regulate these sources.

In addition to maintaining the isolation distances, owners of community and nontransient noncommunity wells, when notified by MDH or a new well is added to a municipal water supply system, must develop a wellhead protection plan which includes:

1) A map of the wellhead protection area,
2) A vulnerability assessment of the well and the wellhead protection area,
3) An inventory of potential sources of contamination within the wellhead protection area,
4) A plan to manage and monitor existing or proposed potential source(s) of contamination, and
5) A water supply contingency strategy.

There has been a bit of a misunderstanding about the timeframe for the completion of a wellhead protection plan. It is not required that all public water suppliers complete a wellhead protection plan by the summer of 1998.

What are the costs associated with the contamination of public water supplies in Minnesota? - Since 1982, 26 community water supplies in Minnesota have spent $44,401,724 to provide safe and adequate drinking water to their consumers following groundwater contamination of their wells. For communities where the population served is less than 1,000 people, the average cost per capita was $1,336. For larger communities (i.e., greater than 1,000), the average cost per capita was $336.

A 1995 U.S. Environmental Protection Agency report entitled "Benefits and Costs of Prevention: Case Studies of Community Wellhead Protection" concludes that the combined average per well benefit-cost ratio for a basic prevention program considering the results of all seven communities is 27:1.

How were state wellhead protection rules developed? - MDH established an advisory committee in early 1993 to assist with rule development and draft language was prepared in May 1995. Public involvement in rule development and program implementation will be encouraged and is mandated by state and federal law. Copies of the rule language and the statement of need and reasonableness are available at MDH.

For further information about wellhead protection, please contact:

Wellhead Protection Program - (651) 215-0800

Minnesota Department of Health
Source Water Protection Unit
Drinking Water Protection Section
P.O. Box 64975
St. Paul, Minnesota 55164-0975

To request this document in another format, call:
Unit Receptionist - (651) 215-0800,
Division TDD - (651) 215-0707, or
Minnesota Relay Service for Greater Minnesota - 1-800-627-3529 (ask for [651] 215-0800).

IC #141-0169 (6/98)

ID Number: 1270012

Facility Contact:
Lester Plath
(952) 474-3464
Excelsior
339 Third Street
Excelsior, MN 55331

MDH Contact:
Terry Bovee
(507) 389-6597
Nichols Office Center
410 Jackson Street, Suite 500
Mankato, MN 56001-3752
terry.bovee@health.state.mn.us

Status of the Source Water Protection Plan:

The water supply system is not formally preparing a wellhead protection plan as defined under Minnesota Rules Chapter 4720.

Source Water Protection Area - See accompanying map(s). Wells without accurate locations will not be shown on a map.

Description of the source water - The water supply for Excelsior is obtained from 3 primary wells. Well depth (in feet), well status, aquifer(s) used, and sensitivity of the source(s) of drinking water are listed in the following table.

Unique Well No	Well ID	Depth	Well Use	Aquifer	Aquifer Sensitivity	*Well Sensitivity
205674	Well #1	465.0	Primary	Bedrock	Low	See (2)
205675	Well #2	448.0	Primary	Bedrock	Low	See (2)
232336	Well #3	460.0	Primary	Bedrock	Low	See (2)

Well construction assessment - The water wells used by the Excelsior meet current standards for construction and maintenance. These factors do not contribute to the susceptibility of the source water to contamination.

Well Sensitivity - Well sensitivity refers to the integrity of the well due to its construction and maintenance. It is based on the results of the well construction assessment. It can be one of the following:

(1) The well is susceptible to contamination because it does not meet current construction standards or no information about well construction is available, regardless of aquifer sensitivity.
(2) The well is not susceptible because it meets well construction standards and does not present a pathway for contamination to readily enter the water supply.

Aquifer Sensitivity - Aquifer sensitivity refers to the degree of geological protection afforded the aquifer(s) used by the public water supply.

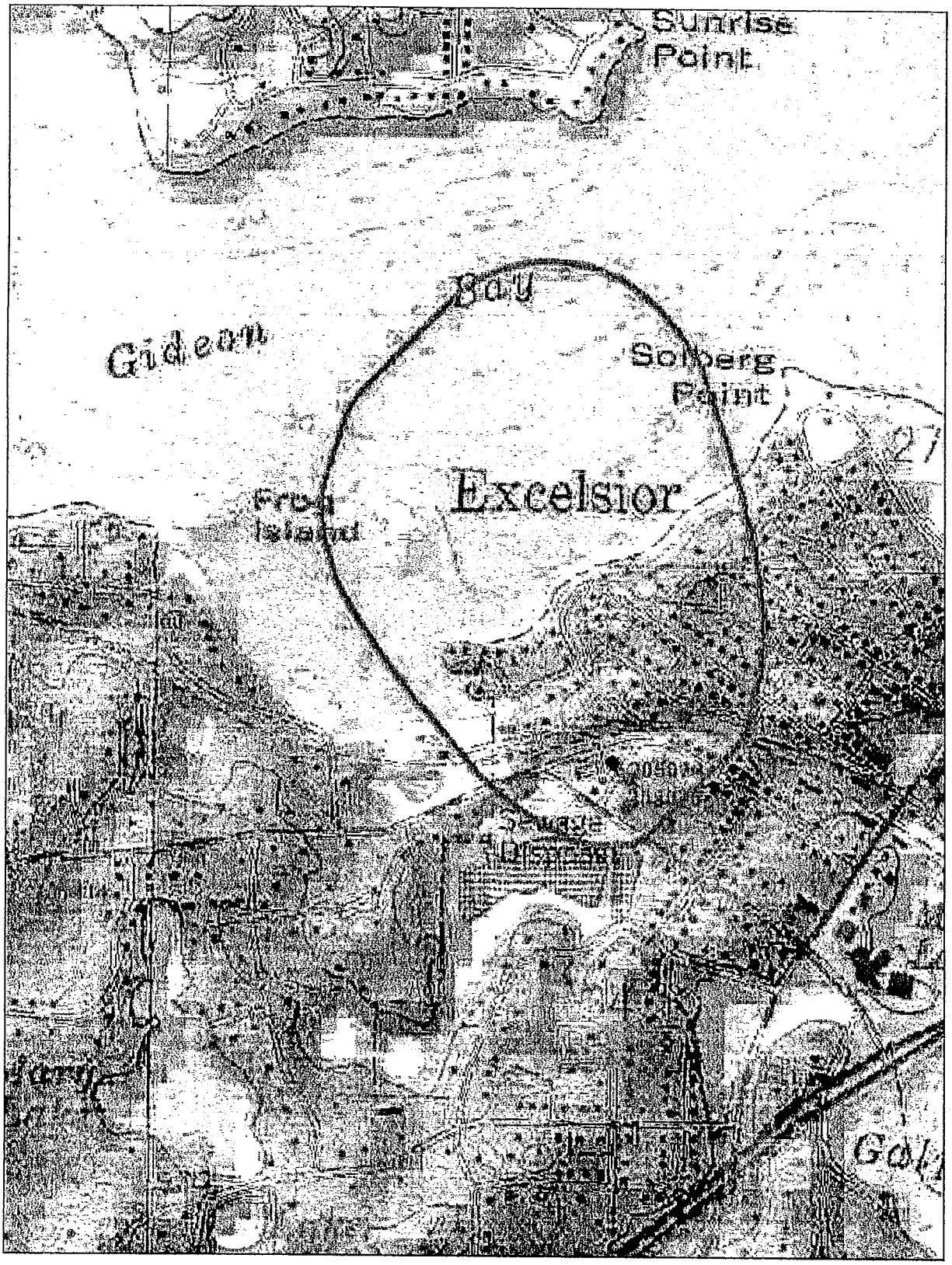
Low - The bedrock aquifer is covered by one or more layers of fine-grained material that probably protect it from potential sources of contamination.

Source Water Susceptibility - Source water susceptibility refers to the likelihood that a contaminant will reach the source of drinking water. It reflects the results of assessing well sensitivity, aquifer sensitivity, and water quality data.

Low - The source of drinking water is covered by one or more layers of fine-grained material that probably protect it from potential sources of contamination.

Contaminants of concern - The following statement summarizes the potential contaminants for which a source of drinking water may be at risk:

None of the contaminants regulated under the federal Safe Drinking Water Act for this public water supply system have been detected in the source water. A listing of these contaminants can be found at http://www.epa.gov/safewater.



Scale: 1:10477

NOTE: This map shows the area that may contribute water to the well(s) used by the public water supply system but it does not represent a drinking water supply management area that has been approved by the Minnesota Department of Health.

MINNESOTA MDH DEPARTMENT OF HEALTH

Protecting, Maintaining and Improving the Health of All Minnesotans

April 17, 2000

Excelsior Water Superintendent
339 Third Street
Excelsior, MN 55331

Dear Public Water Supplier:

Enclosed please find a number of items including the completed inner wellhead management zone (IWMZ) inventory form for each well presently used by your facility. As of June 1999, IWMZ inventories have been completed for all community and nontransient noncommunity public water supply (PWS) wells serving children. While this activity was technically a responsibility of the public water supplier under the wellhead protection (WHP) rules (Minnesota Rules 4720.5100 to 4720.5590), a significant amount of technical assistance was provided by the Minnesota Department of Health staff to meet the June 1999 deadline. We are now at a point where the implementation of the WHP measures is necessary. **Please review the inventories for accuracy and completeness and contact me if changes need to be made to the enclosed inventories.**

Under the WHP rule (part 4720.5110, subpart 1), the public water suppliers must:

1. *maintain the isolation distances for new potential contaminant sources located around the public water supply well . . .* ***(see enclosed cherry colored factsheet)****;*
2. *monitor potential contaminant sources that were in existence, recorded, or authorized before May 10, 1993, and that are not in compliance . . .* ***(see enclosed blue colored factsheet)****; and*
3. *implement wellhead protection measures for potential contaminant sources within the inner wellhead management zone* ***(see enclosed yellow factsheet)****.*

Please use the enclosed flowchart to help you apply the WHP requirements to your system. You will understand the examples cited in this letter better if you review the flowchart prior to reading the remainder of this letter.

For the purpose of understanding how a public water supplier carries out the responsibilities cited above, the following are examples for each of the IWMZ responsibilities stated.

- In order to **maintain isolation distances for new potential contaminant sources**, the public water supplier must know what is happening regarding land-use changes in the 200-foot radius around each well. If you or a neighbor is installing a new septic tank, it is important for the PWS operator to make sure that the septic tank is greater than 50 feet (the required isolation distance) from the well.

If you or the neighboring business next door is storing agricultural chemicals, it is the responsibility of the PWS operator to make sure that the storage site within the facility is at least 150 feet (the required isolation distance) from the well. In some cases there may be an opportunity to comment at a public meeting for the issuance of a zoning permit for the facility. Here, it would make good sense for the public water supplier to make known the setback requirements for PWS wells and request the setback requirements be a condition of any permit issued. In the event that there is no opportunity to comment at a public hearing, the public water supplier should still talk to parties involved about the issues of concern. **The enclosed cream colored factsheet lists the isolation distances.**

- In order to **monitor potential contaminant sources that were in existence . . . and that are not in compliance,** the public water supplier needs to be on a regular schedule of observing and monitoring the nonconforming activity which is occurring in the IWMZ (which is a 200-foot radius). The water operator is already on a regular schedule for water sampling and equipment maintenance, and the monitoring can simply be added to that schedule.

  For example, if there is an above-ground fuel storage tank that is less than the required isolation distance, the operator should visually observe the condition of the fuel tank each time.

- For the public water supplier to **implement WHP measures for potential contaminant sources,** the operator needs to be thinking about how to prevent potential contaminant sources from contaminating the well. **The enclosed pink colored factsheet is a list of suggested WHP measures.**

  For example, even if there are no identified potential contaminant sources currently in your IWMZ, it is a good idea to simply know who the adjacent property owners are, communicate with them on a regular basis, and make them aware of your concerns as a public water supplier. This is especially true if you do not own or control the entire 200-foot IWMZ. Another example might involve a sewage treatment system that meets the isolation distance. Implementing a WHP measure here might be as simple as pumping the septic tank annually. A third example, if a petroleum storage tank belonging to the PWS is too close to the well, the operator could evaluate options such as finding a place to relocate the tank to meet setback requirements or requesting funds to replace a tank if it is in such condition that an imminent leak will create a serious hazard.

If you have any questions or need assistance with any of the responsibilities outlined above, please feel free to contact me. Complete contact information is listed on the enclosed light purple color factsheet.

Sincerely,

Terry L. Bovee, Planner
Source Water Protection Unit
Drinking Water Protection Section

TLB:tvw
Enclosures

Minnesota Department of Health
Drinking Water Protection Section
121 East Seventh Place
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE - CONTAMINANT SOURCE INVENTORY FORM

PUBLIC WATER SYSTEM INFORMATION

NAME: Excelsior **PWSID:** 1270012
ADDRESS: 339 Third Street
Excelsior, MN 55331

FACILITY (WELL) INFORMATION

NAME: Well #1 **FACILITY ID:** S01

LOCATIONAL INFORMATION: **UNIQUE WELL NO:** 00205674

COUNTY: Hennepin

GPS FILE ID: 9904192 (wp 010)

TWSP: 117 **RANGE:** 23 **SECTION:** 34

SITE CONDITIONS

- ☐ Surface drainage toward well
- ☐ Well cap missing
- ☐ Water heard running in well
- ☐ Wellhead damaged
- ☐ Wellhead buried
- ☐ Casing < 12" above ground
- ☐ Other: _____

CONSTRUCTION INFORMATION

Date Constructed: ____/____/____ Last Serviced: ____/____/____ Well Log Available: ☐ Yes ☐ No

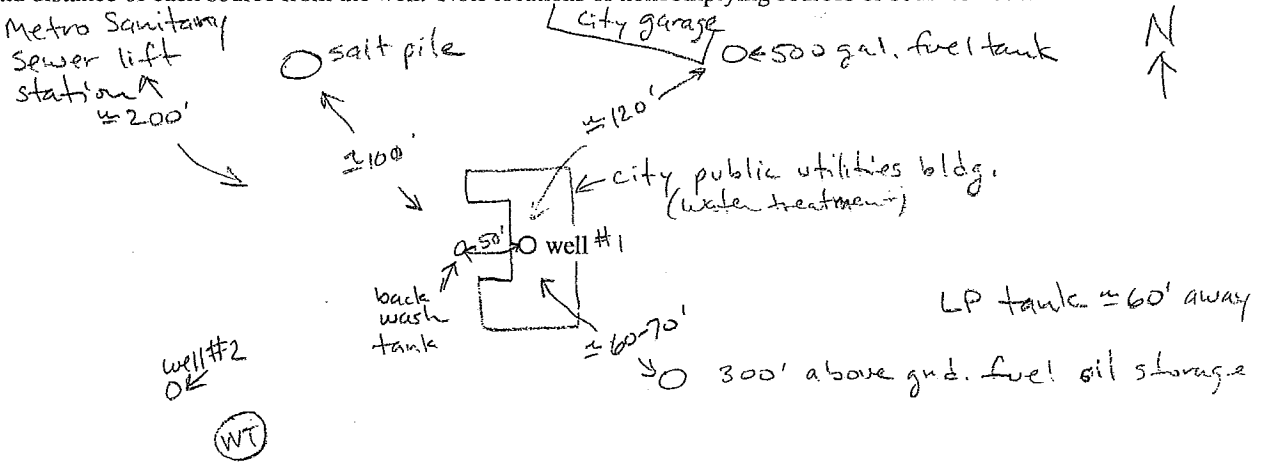
Construction Type: ☐ Drilled ☐ Augered ☐ Driven ☐ Hand dug ☐ Jetted
ifer Completion: ☐ Screened ☐ Open borehole ☐ Open bottom
Depth: _____ Static Water Level: _____ Pumping Water Level: _____

Casing Type: ☐ Steel ☐ Stainless steel ☐ Plastic ☐ PVC ☐ Cement ☐ Masonry ☐ Wood ☐ Thin walled metal
Casing Joints: ☐ Metal couplings ☐ Welded ☐ Cemented/Solvent welded
Bore Hole Seal: ☐ Cement grout ☐ Bentonite ☐ Drilled cuttings ☐ Puddled clay ☐ Drilling fluid ☐ None
Well Completion: ☐ Pitless adaptor ☐ Well house ☐ Approved cap ☐ Pit ☐ Basement offset ☐ Pump sits on casing

Casing Depth: _____ Casing Diameter: smallest: _____ largest: _____
☐ Casing extends to land surface ☐ Cement grout between all casings

NONCOMPLYING SETBACK DISTANCES

Diagram the location and distance of each source from the well. Note locations of noncomplying sources or sources not listed on the back of this sheet.



Inspector: Terry L Bowen **Date:** Apr. 16, 1999

IC # (3/98)

ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET) (Circle appropriate distance.)			LOCATION			
	MEETS MINIMUM DISTANCE	SENSITIVE WELL*	COMMUNITY	WITHIN 200 FEET OF SOURCE	MEETS CURRENT STANDARDS		
					Y	N	U
Agricultural chemical storage or preparation area, more than 25 gallons or 100 pounds dry weight	150						
Agricultural chemical storage or preparation area with safeguards	100						
Agricultural chemical storage or preparation area with safeguards and roofed	50						
Agricultural chemical supply tank	20		50				
Anhydrous ammonia tank	50						
Animal feedlot	50	100					
Animal or poultry building	50	100					
Building	3						
Building projection, overhang	3						
Cesspool	75	150					
Construction debris/Demolition landfill	50						
Discharge of water treatment chemical waste	50			✓	✓		
Dry well (sewage)	75	150					
Dump	150						
Electric transmission line	5						
Electric transmission line in excess of 50 kv	25						
Feeding or watering area within a pasture	50	100					
Frost proof yard hydrant	10						
Gas pipe	5						
Grave	50						
Hazardous substance storage or preparation area, more than 25 gallons, or 100 pounds dry weight	150						
Hazardous substance storage tank with safeguards	100						
Holding tank	50						
Interceptor (waste)	50						
Leaching pit	75	150					
LP tank	5			✓	✓		
Manure storage area	100	200					
Ordinary high water level of a stream, river, pond, or lake	50						
Petroleum storage or preparation area, more than 25 gallons, or 100 pounds dry weight	150						
Petroleum storage tank with safeguards	100						
Petroleum storage tank, underground, less than 1100 gallons	50						
Petroleum storage tank, above ground, less than 1100 gallons (300 g.)	20		50	✓	✓		
Pit	20		50				
Pollutant, contaminant, or hazardous substance	50						
Privy	50	100					
Road salt storage	50			✓	✓		
Salvage yard	50						
Sanitary landfill	150						
Seepage pit	75	150					
Septic tank	50						
Sewage lift station	50						
Sewage sludge or waste land spreading	50						
Sewage sump, watertight	20		50				
Sewage sump, non-watertight	50						
Sewer, buried, approved air-tested	20		50				
Sewer, buried, pressure, approved, air-tested serving a single family residence	20		50				
Sewer, buried collector, municipal, pressurized, open jointed, or unapproved materials	50		✓		✓		
Solid waste transfer station	50						
Storm water drain pipe 12 inches or greater in diameter	20		50				
Subsurface disposal field (drainfield)	50	100					
Swimming pool, in-ground	20		50				
Unfilled space	20		50				
Unused, unsealed well or boring	50						
Waste stabilization pond	150						
ADDITIONAL ISOLATION DISTANCES FOR COMMUNITY PUBLIC WATER SUPPLY GROUNDWATER SOURCES							
Fire or flushing hydrant			10				
Gravel pocket receiving clear water drainage			30				
Highest water or flood level			50				
Property line or easement			50				

* A sensitive well has less than 50 feet of casing or less than 10 feet of impervious material between the well intake and the land surface.

Minnesota Department of Health
Drinking Water Protection Section
121 East Seventh Place
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE - CONTAMINANT SOURCE INVENTORY FORM

PUBLIC WATER SYSTEM INFORMATION

NAME: Excelsior
ADDRESS: 339 Third Street
Excelsior, MN 55331

PWSID: 1270012

FACILITY (WELL) INFORMATION

NAME: Well #2

FACILITY ID: S02

LOCATIONAL INFORMATION:

UNIQUE WELL NO: 00205675

COUNTY: Hennepin

GPS FILE ID: 9904192 (wp. 011)

TWSP: 117 **RANGE:** 23 **SECTION:** 34

SITE CONDITIONS

- ☐ Surface drainage toward well
- ☐ Well cap missing
- ☐ Water heard running in well
- ☐ Wellhead damaged
- ☐ Wellhead buried
- ☐ Casing < 12" above ground
- ☐ Other: _____

CONSTRUCTION INFORMATION

Date Constructed: ____/____/____ Last Serviced: ____/____/____ Well Log Available: ☐ Yes ☐ No

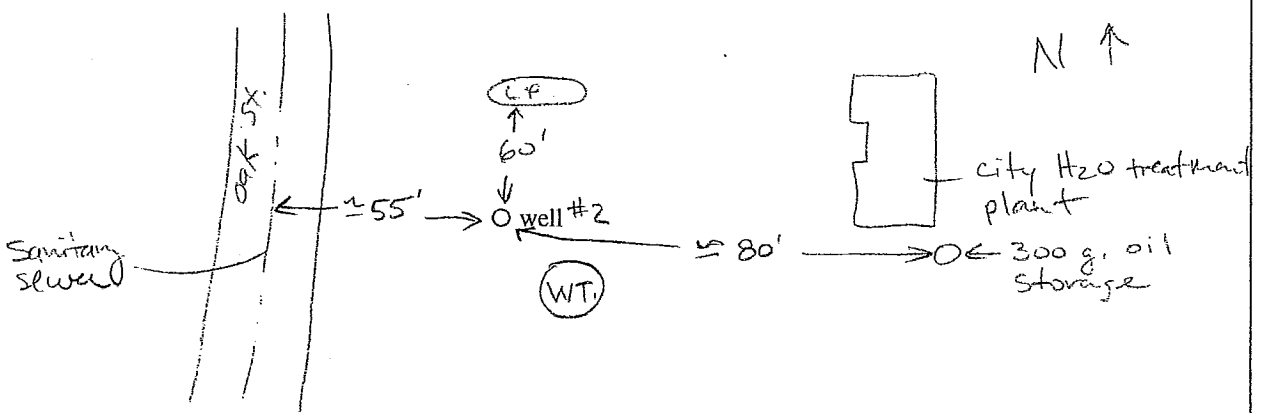
Construction Type: ☐ Drilled ☐ Augered ☐ Driven ☐ Hand dug ☐ Jetted
ifer Completion: ☐ Screened ☐ Open borehole ☐ Open bottom
.ll Depth: _____ Static Water Level: _____ Pumping Water Level: _____

Casing Type: ☐ Steel ☐ Stainless steel ☐ Plastic ☐ PVC ☐ Cement ☐ Masonry ☐ Wood ☐ Thin walled metal
Casing Joints: ☐ Metal couplings ☐ Welded ☐ Cemented/Solvent welded
Bore Hole Seal: ☐ Cement grout ☐ Bentonite ☐ Drilled cuttings ☐ Puddled clay ☐ Drilling fluid ☐ None
Well Completion: ☐ Pitless adaptor ☐ Well house ☐ Approved cap ☐ Pit ☐ Basement offset ☐ Pump sits on casing

Casing Depth: _____ Casing Diameter: smallest: _____ largest: _____
☐ Casing extends to land surface ☐ Cement grout between all casings

NONCOMPLYING SETBACK DISTANCES

Diagram the location and distance of each source from the well. Note locations of noncomplying sources or sources not listed on the back of this sheet.



Inspector: Terry Bowles **Date:** Apr. 16, 1999

IC # (3/98)

ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET) (Circle appropriate distance.)			LOCATION			
	MEETS MINIMUM DISTANCE	SENSITIVE WELL*	COMMUNITY	WITHIN 200 FEET OF SOURCE	MEETS CURRENT STANDARDS		
					Y	N	U
Agricultural chemical storage or preparation area, more than 25 gallons or 100 pounds dry weight	150						
Agricultural chemical storage or preparation area with safeguards	100						
Agricultural chemical storage or preparation area with safeguards and roofed	50						
Agricultural chemical supply tank	20		50				
Anhydrous ammonia tank	50						
Animal feedlot	50	100					
Animal or poultry building	50	100					
Building	3						
Building projection, overhang	3						
Cesspool	75	150					
Construction debris/Demolition landfill	50						
Discharge of water treatment chemical waste	50			✓	✓		
Dry well (sewage)	75	150					
Dump	150						
Electric transmission line	5						
Electric transmission line in excess of 50 kv	25						
Feeding or watering area within a pasture	50	100					
Frost proof yard hydrant	10						
Gas pipe	5						
Grave	50						
Hazardous substance storage or preparation area, more than 25 gallons, or 100 pounds dry weight	150						
Hazardous substance storage tank with safeguards	100						
Holding tank	50						
Interceptor (waste)	50						
Leaching pit	75	150					
LP tank	5				✓		
Manure storage area	100	200					
Ordinary high water level of a stream, river, pond, or lake	50						
Petroleum storage or preparation area, more than 25 gallons, or 100 pounds dry weight	150						
Petroleum storage tank with safeguards	100						
Petroleum storage tank, underground, less than 1100 gallons	50						
Petroleum storage tank, above ground, less than 1100 gallons	20		50	✓	✓		
Pit	20		50				
Pollutant, contaminant, or hazardous substance	50						
Privy	50	100					
Road salt storage	50			✓	✓		
Salvage yard	50						
Sanitary landfill	150						
Seepage pit	75	150					
Septic tank	50						
Sewage lift station	50						
Sewage sludge or waste land spreading	50						
Sewage sump, watertight	20		50				
Sewage sump, non-watertight	50						
Sewer, buried, approved air-tested	20		50				
Sewer, buried, pressure, approved, air-tested serving a single family residence	20		50				
Sewer, buried collector, municipal, pressurized, open jointed, or unapproved materials	50			✓	✓		
Solid waste transfer station	50						
Storm water drain pipe 12 inches or greater in diameter	20		50				
Subsurface disposal field (drainfield)	50	100					
Swimming pool, in-ground	20		50				
Unfilled space	20		50				
Unused, unsealed well or boring	50						
Waste stabilization pond	150						
ADDITIONAL ISOLATION DISTANCES FOR COMMUNITY PUBLIC WATER SUPPLY GROUNDWATER SOURCES							
Fire or flushing hydrant			10				
Gravel pocket receiving clear water drainage			30				
Highest water or flood level			50				
Property line or easement			50				

* A sensitive well has less than 50 feet of casing or less than 10 feet of impervious material between the well intake and the land surface.

Minnesota Department of Health
Drinking Water Protection Section
121 East Seventh Place
P.O. Box 64975
St. Paul, Minnesota 55164-0975

INNER WELLHEAD MANAGEMENT ZONE - CONTAMINANT SOURCE INVENTORY FORM

PUBLIC WATER SYSTEM INFORMATION

NAME: Excelsior
ADDRESS: 339 Third Street
Excelsior, MN 55331

PWSID: 1270012

FACILITY (WELL) INFORMATION

NAME: Well #3

FACILITY ID: S03

LOCATIONAL INFORMATION:

UNIQUE WELL NO: 00232336

COUNTY: Hennepin

GPS FILE ID: 9904192 (wp 012)

TWSP: 117 **RANGE:** 23 **SECTION:** 34

SITE CONDITIONS

- ☐ Surface drainage toward well
- ☐ Wellhead damaged
- ☐ Other: _____
- ☐ Well cap missing
- ☐ Wellhead buried
- ☐ Water heard running in well
- ☐ Casing < 12" above ground

CONSTRUCTION INFORMATION

Date Constructed: ___/___/___ Last Serviced: ___/___/___ Well Log Available: ☐ Yes ☐ No

Construction Type: ☐ Drilled ☐ Augered ☐ Driven ☐ Hand dug ☐ Jetted
Well Completion: ☐ Screened ☐ Open borehole ☐ Open bottom
Depth: _____ Static Water Level: _____ Pumping Water Level: _____

Casing Type: ☐ Steel ☐ Stainless steel ☐ Plastic ☐ PVC ☐ Cement ☐ Masonry ☐ Wood ☐ Thin walled metal
Casing Joints: ☐ Metal couplings ☐ Welded ☐ Cemented/Solvent welded
Bore Hole Seal: ☐ Cement grout ☐ Bentonite ☐ Drilled cuttings ☐ Puddled clay ☐ Drilling fluid ☐ None
Well Completion: ☐ Pitless adaptor ☐ Well house ☐ Approved cap ☐ Pit ☐ Basement offset ☐ Pump sits on casing

Casing Depth: _____ Casing Diameter: smallest: _____ largest: _____
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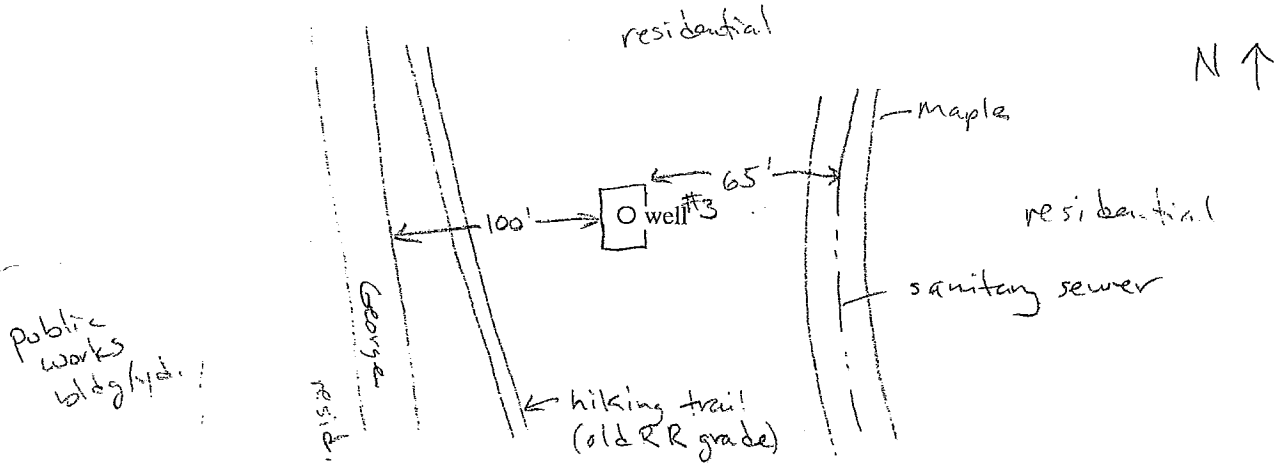
Diagram the location and distance of each source from the well. Note locations of noncomplying sources or sources not listed on the back of this sheet.



Inspector: Tanya Bower **Date:** Apr. 16, 1999

IC # (3/98)

ACTUAL OR POTENTIAL CONTAMINATION SOURCE	ISOLATION DISTANCES (FEET) (Circle appropriate distance.)			LOCATION			
	MEETS MINIMUM DISTANCE	SENSITIVE WELL*	COMMUNITY	WITHIN 200 FEET OF SOURCE	MEETS CURRENT STANDARDS		
					Y	N	U
Agricultural chemical storage or preparation area, more than 25 gallons or 100 pounds dry weight	150						
Agricultural chemical storage or preparation area with safeguards	100						
Agricultural chemical storage or preparation area with safeguards and roofed	50						
Agricultural chemical supply tank	20		50				
Anhydrous ammonia tank	50						
Animal feedlot	50	100					
Animal or poultry building	50	100					
Building	3						
Building projection, overhang	3						
Cesspool	75	150					
Construction debris/Demolition landfill	50						
Discharge of water treatment chemical waste	50						
Dry well (sewage)	75	150					
Dump	150						
Electric transmission line	5						
Electric transmission line in excess of 50 kv	25						
Feeding or watering area within a pasture	50	100					
Frost proof yard hydrant	10						
Gas pipe	5						
Grave	50						
Hazardous substance storage or preparation area, more than 25 gallons, or 100 pounds dry weight	150						
Hazardous substance storage tank with safeguards	100						
Holding tank	50						
Interceptor (waste)	50						
Leaching pit	75	150					
LP tank	5						
Manure storage area	100	200					
Ordinary high water level of a stream, river, pond, or lake	50						
Petroleum storage or preparation area, more than 25 gallons, or 100 pounds dry weight	150						
Petroleum storage tank with safeguards	100						
Petroleum storage tank, underground, less than 1100 gallons	50						
Petroleum storage tank, above ground, less than 1100 gallons	20		50				
Pit	20		50				
Pollutant, contaminant, or hazardous substance	50						
Privy	50	100					
Road salt storage	50						
Salvage yard	50						
Sanitary landfill	150						
Seepage pit	75	150					
Septic tank	50						
Sewage lift station	50						
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Sewage sump, watertight	20		50				
Sewage sump, non-watertight	50						
Sewer, buried, approved air-tested	20		50				
Sewer, buried, pressure, approved, air-tested serving a single family residence	20		50	✓	✓		
Sewer, buried collector, municipal, pressurized, open jointed, or unapproved materials	50			✓	✓		
Solid waste transfer station	50						
Storm water drain pipe 12 inches or greater in diameter	20		50				
Subsurface disposal field (drainfield)	50	100					
Swimming pool, in-ground	20		50				
Unfilled space	20		50				
Unused, unsealed well or boring	50						
Waste stabilization pond	150						
ADDITIONAL ISOLATION DISTANCES FOR COMMUNITY PUBLIC WATER SUPPLY GROUNDWATER SOURCES							
Fire or flushing hydrant			10				
Gravel pocket receiving clear water drainage			30				
Highest water or flood level			50				
Property line or easement			50				

* A sensitive well has less than 50 feet of casing or less than 10 feet of impervious material between the well intake and the land surface.

MINNESOTA MDH DEPARTMENT OF HEALTH

Protecting, maintaining and improving the health of all Minnesotans

Apr-10-2003

Excelsior City Council
c/o Mr. James Olds, Clerk
Excelsior City Hall
339 Third Street
Excelsior, MN 55331

Dear Council Members:

We are writing to give you the results of the source water assessment for your water supply system. The assessment is for informational purposes.

Congress requires that states prepare source water assessments for all public water supply systems by May 30, 2003. Your water supply system is designated as a community public water supply because either 1) you provide drinking water to 25 or more people who are year-round residents or 2) your water supply system has 15 or more service connections. Each assessment for a public water supply must contain the following information:

1) A description of the source of drinking water and the area that provides water to your well(s);
2) A determination of the susceptibility of your well(s) to potential contaminant sources; and
3) The drinking water contaminants of concern to anyone using the source of drinking water.

This information is presented in your assessment as two parts: 1) text that contains information about your well(s) and the aquifer's susceptibility to certain types of contamination and 2) a map showing the area that supplies water to your well(s).

Congress requires that states make source water assessments available to the public, and we intend to do this after presenting assessment results to public water suppliers. The Minnesota Department of Health will serve assessment results out to the public using its worldwide web site; however, for security reasons, we will provide only the text portion of the assessment and will not show the locations of any wells used to provide drinking water. Also, we will show a map, if already approved, of your drinking water supply management area.

Please review your assessment, and contact the person listed as the Minnesota Department of Health representative within two weeks if you have any questions. Please keep in mind that, as new information is available, we will be updating your assessment in the future as part of wellhead protection efforts.

Sincerely,

Bruce M. Olsen, Supervisor
Source Water Protection Unit

BMO:tvw
Enclosure

APPENDIX K
Phosphorus Load Reduction Plan

PHOSPHORUS LOAD REDUCTION PLAN

CITY OF EXCELSIOR

JANUARY 2008

Prepared by:

WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
(763) 541-4800
(763) 541-1700

TABLE OF CONTENTS

List of Figures

I. INTRODUCTION AND PURPOSE

The Minnehaha Creek Watershed District (MCWD) is requiring the cities within its boundaries to reduce the level of phosphorus discharged to the Minnehaha Creek system to meet the Total Maximum Daily Load requirements for the Minnehaha Creek. Each city has been given a load reduction amount based on the MCWD's modeling that was completed and outlined in the technical memorandum entitled "Methodology for HHPLS-P-Load model Application to Development of Subwatershed Rules Under Performance-Based Management". Based on the MCWD's analysis, the City of Excelsior is required to remove 10 pounds of phosphorus annually.

This report outlines the City's plan to address the removal of 10 pounds of phosphorus as part of the City's street sweeping program. The City sweeps once in the spring, once in the fall, and sweeps the downtown area twice a week. The areas outside downtown also receive one more sweeping throughout the year. The analysis for the phosphorus removal is outlined in the study. Additionally, the City will test its swept material to calibrate this study.

II. PROCEDURES AND METHODS FOLLOWED

This section of the report provides the procedures and methods followed for the loading assessment and analysis. The City's plan to address the phosphorus loading reduction anticipates the following elements:

- Sweep downtown streets twice a week between April and November
- Sweep all streets once in fall

While the City does a spring sweeping and does sweep other areas of the City more frequently, it has not been included in this analysis.

To determine the amount of phosphorus removed by street sweeping, the amount of total material removed from each sweeping was determined from City records. The downtown street sweeping route is shown on **Figure 1.** Based on the City's information, the downtown sweeping removes approximately 500 pounds of material per sweeping event. With a sweeping event twice a week between April and November, this equates to 1,000 pounds of material per week and 34,000 pounds per year. The fall sweeping throughout the City removes 15,000 pounds each fall, mostly consisting of leaves.

To determine the amount of phosphorus (P) in the swept material, data from the City of Plymouth was used. Plymouth has estimated an average concentration of 235 mg/kg of P in swept material based on testing results from 2007. This concentration has been used for this analysis.

Downtown Sweeping: Based on 235.5 mg/kg of P in the swept material, this equates to 0.24 pounds of P per week as follows.

235.5 mg/kg = 0.00024 lbs/lb

P[0.00024 lbs] x 1,000 lbs of material per week = 0.24 lbs of P per week swept

0.24 lbs x 34 weeks of sweeping = ***8.16 lbs of P removed***

Fall Sweeping: Based on the same concentration of P and 15,000 lbs of material swept throughout the City, the P removal for the fall sweeping is estimated as follows:

P[0.00024 lbs] x 15,000 lbs of material per fall = ***3.6 lbs of P removed***

III. DISCUSSION/EVALUATION OF RESULTS

The downtown sweeping route is shown on **Figure 1.** As stated, this downtown sweeping is estimated to remove 1,000 pounds of material per week and 34,000 pounds of material per year between April and November. The fall sweeping city-wide is estimated to remove 15,000 pounds of material. The downtown sweeping is expected to remove 8.16 lbs of P and the fall sweeping is expected to remove 3.6 lbs of P. With this program, the City anticipates removing 11.76 lbs of P annually.

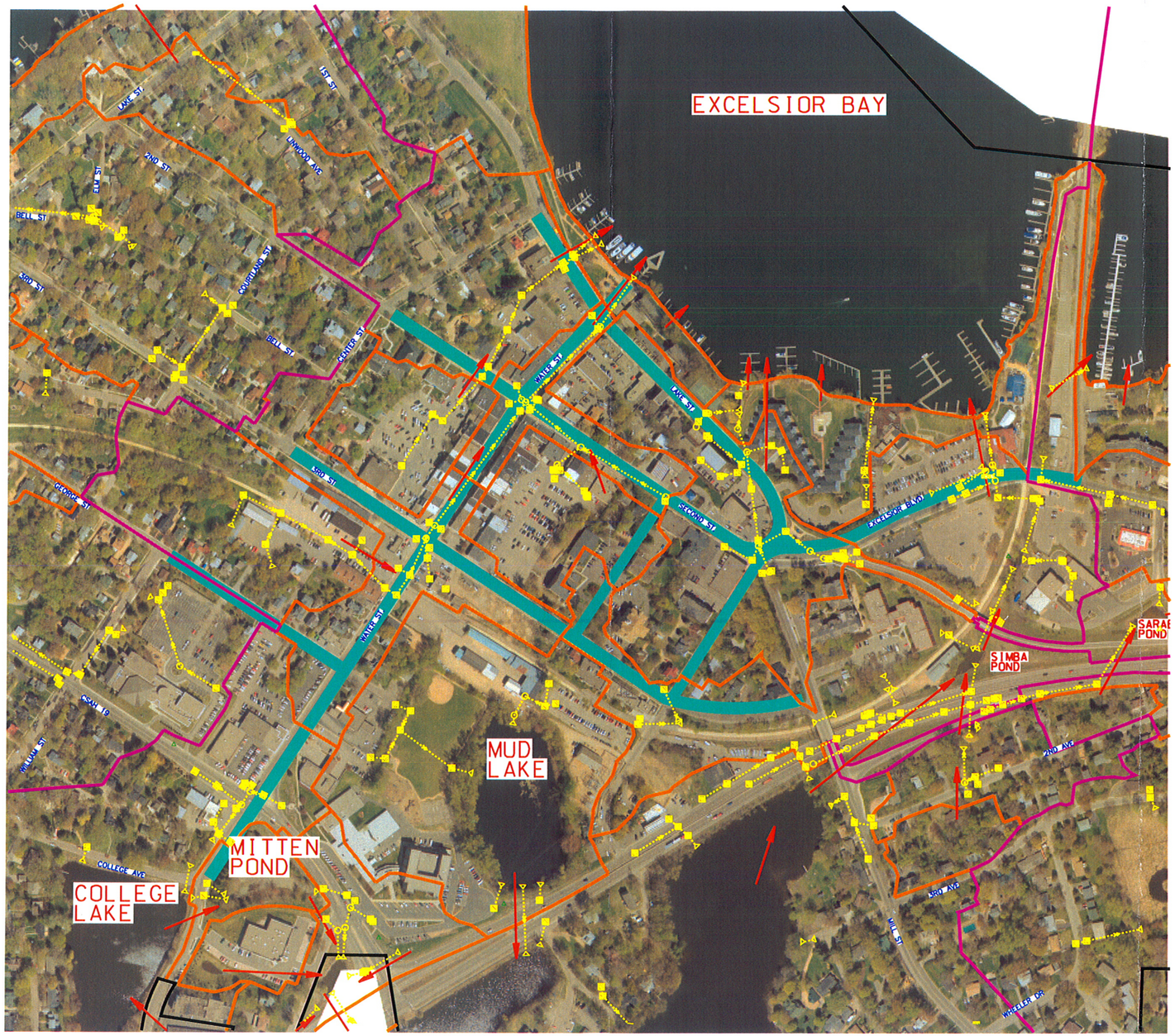
Most of the City discharges directly to Lake Minnetonka or another natural water body that then in turn discharges to the Lake. There are very few ponding areas within the City so treatment is limited. The exception to this is the Mitten Pond subwatershed and the Galpin Lake subwatershed 21A, 21B, and 22 (see subwatershed map in **Appendix B** of the Surface Water Management Plan). The street area within these subwatersheds is very small compared to the rest of the City and therefore was not excluded from the P calculation as the amount of street sweepings from this area would be too small to calculate.

IV. CONCLUSIONS

The City's plan to address the MCWD's phosphorus loading reduction includes the following elements:

- Sweep downtown streets twice a week between April and November.
- Sweep all streets once in fall

The City has been undertaking this sweeping program for a number of years. This program is anticipated to remove 11.76 pounds of phosphorus annually. Since the phosphorus concentration is based on testing results from the City of Plymouth, the City of Excelsior commits to testing its swept material in 2009 and 2010. From this data, the results of this analysis will be adjusted. Additional testing will be completed if needed.



LEGEND

- STREET SWEEPING ROUTE
- MAJOR SUBWATERSHED BOUNDARY
- MINOR SUBWATERSHED BOUNDARY
- STORM SEWER
- FLOW DIRECTION

K:\0l140-55\Cad\Exhibits\StreetSweeping.dgn

WSB & Associates, Inc.
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
763-541-4800 - Fax 763-541-1700
INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

EXCELSIOR

Downtown Street Sweeping Routes

Excelsior, Minnesota

WSB Project No. 1140-55

Date: January, 2009

Figure 1