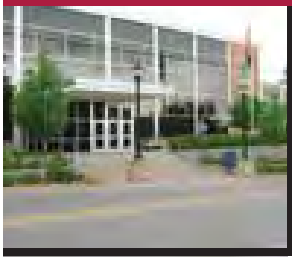
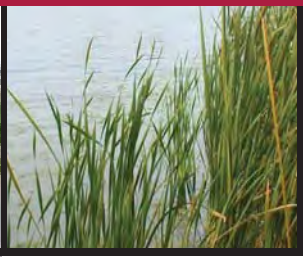
City of South St. Paul
125 3rd Avenue North • South St. Paul, MN 55075

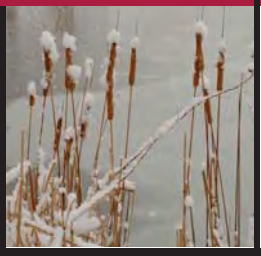
January 2012

COMPREHENSIVE Stormwater Management Plan

WSB Project Number: 1261-56







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COMPREHENSIVE STORM WATER MANAGEMENT PLAN FOR THE CITY OF SOUTH ST. PAUL, MINNESOTA

WSB Project No. 1261-560

January 2012

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 Licensed Professional Engineer under the laws of the State of Minnesota.

Todd E. Hubmer, P.E.
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SECTION I

I. EXECUTIVE SUMMARY

This Comprehensive Storm Water Management Plan for the City of South St. Paul 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 Chapter 8410. It has also been developed to be in conformance with the requirements of the Lower Mississippi Watershed Management Organization, 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 resources related information that affects the City and management of those resources.

Section II of this plan provides an introduction and purpose. This section also lists the personnel contacts involved in the assistance and implementation of this plan.

Section III of this plan provides an inventory of land and water resources within the City. This section of the plan includes a general description and summary of data related to precipitation, geology, topography, flood problem areas, existing flood insurance studies, water quality, shoreline 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.

Section IV of this plan outlines water resource management related goals and policies of the City, which address the needs of the City and County, as well as regional, state and federal agencies. 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 V of this Comprehensive Storm 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. Corrective actions have been identified in response to concerns and typically include studies, capital improvements, or programs which may resolve these identified problems.

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, and is presented in a tabular format. The implementation period identified within this report for the programs, studies and capital improvements is from the year 2012 through 2021.

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. The plan indicates that the majority of funding for the policies and corrective actions will be from the City's Storm Water Utility Fund. Other possible funding sources for the implementation of this plan includes City Capital

Improvement Program, general fund taxes, special assessments, and grant monies, which may be secured from various local, regional, County, State or Federal agencies.

Section VIII discusses the procedures to be followed in the event this Storm Water Management Plan is amended. Once this Storm 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 Organization 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 Organization within the City.

Section IX contains a list of the references and supplemental documentation used in the preparation of this plan. Some of the information on the list is available in the Plan's appendix and some of the information is available in the Water Resource Library at the Engineering Department.

Section X provides definitions of commonly used terms in the plan.

This Storm Water Management Plan will be in effect until significant changes are deemed necessary or the City is required to update the Plan per a Watershed Management Organization Plan update.

This plan contains a number of appendices that provide background resource information for the City. Additional material is referenced within this report and is available at the Water Resource Library located at South St. Paul Engineering Department.

SECTION II

II. INTRODUCTION AND PURPOSE

A. General

This Storm Water Management Plan has been developed to provide the City of South St. Paul 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 watershed 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. Lower Mississippi River Watershed Management Organization Watershed Management Plan
2. State Laws and Rules concerning wetland management as outlined in the Wetland Conservation Act of 1991 and amendments
3. State and Federal laws regarding the need to secure a National Pollutant Discharge Elimination System (NPDES) permit for storm water outfalls to designated drainage ways

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. This plan and its policies will be in effect upon adoption of the plan by the South St. Paul City Council.

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 staff personnel associated with the Lower Mississippi River Watershed Management Organization (LMRWMO). The City is entirely within the LMRWMO 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 the LMRWMO will also be expected. Outlined below are the names, addresses, and telephone numbers for personnel having responsibilities for overseeing or implementing various aspects of the Storm Water Management Plan.

City of South St. Paul
City Engineer
John Sachi, P.E.
125 3rd Avenue North
South St. Paul, MN 55075-2093
(651) 554-3210

Lower Mississippi River Watershed Management Organization
Contact: Laura Jester, Administrator
4100 220th St. West, Suite 102
Farmington, MN 55024
(651) 480-7784

C. Water Resource Related Agreements

The City has entered into water resource-related agreements that govern in part how the City must manage its water resources. These agreements include the joint powers agreement between the City and LMRWMO, agreements between the City and adjoining communities, or agreements it may have with other governmental units or private parties. Listed below is a description of the water resource related agreements into which the City has entered. A copy of these agreements or appropriate portions thereof, are included in **Appendix A.**

Cities of Inver Grove Heights, Lilydale, Mendota Heights, St. Paul, South St. Paul, Sunfish Lake, and West Saint Paul

- Revised and Restated Joint Powers Agreement establishing a Watershed Management Organization for the Lower Mississippi River Watershed, 2001.

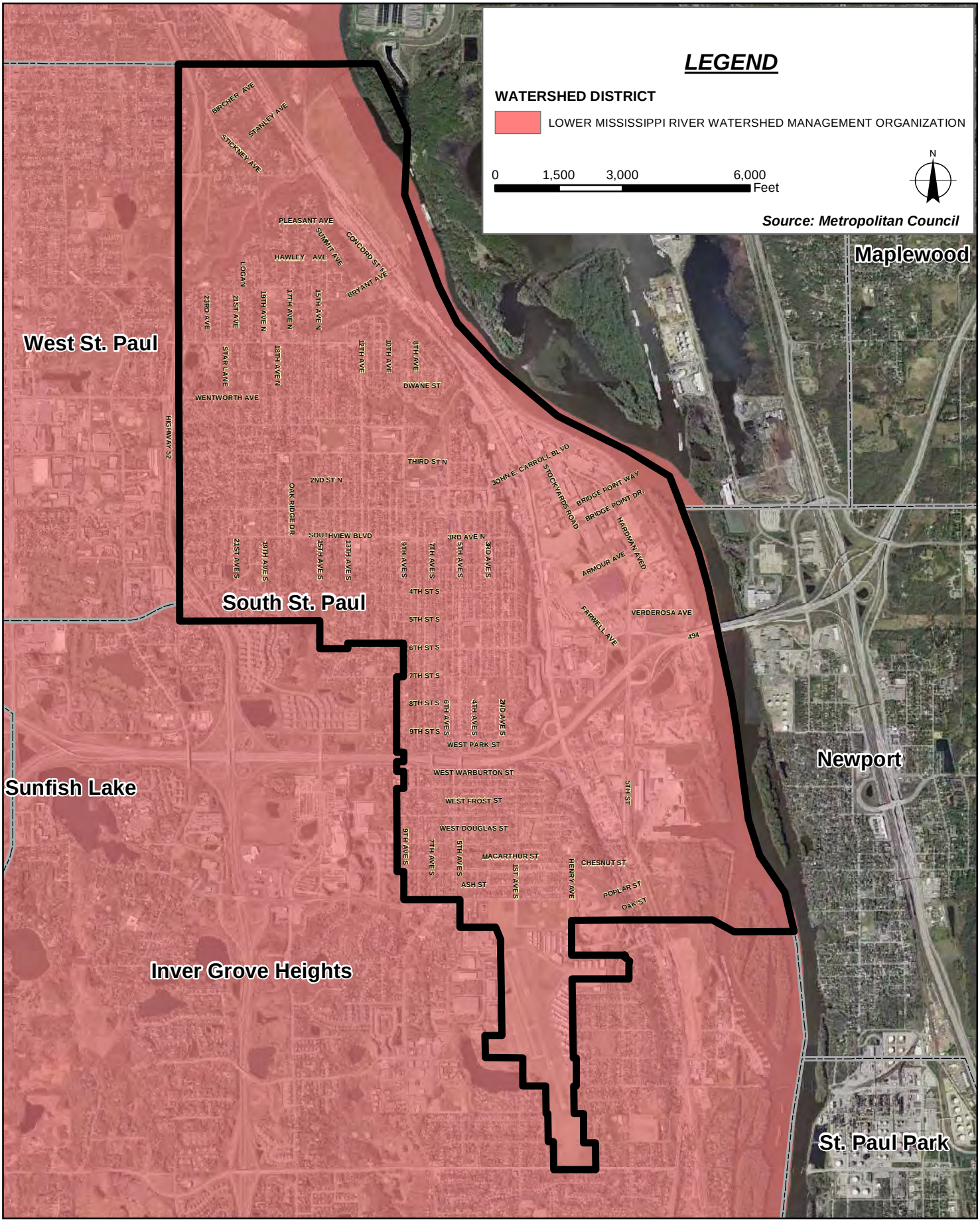

FIGURE II-1
WATERSHED MANAGEMENT ORGANIZATION BOUNDARY MAP

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SECTION III

III. LAND AND WATER RESOURCE INVENTORY

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 28 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, precipitation, and snowfall are shown in **Table III-1.**

2. Precipitation

A rainfall event having a 99% chance of occurrence in any given year (1-year storm event) within a 24-hour period is approximately 2.4 inches. A rainfall event having a 1% chance of occurrence (100-year storm event) in a 24-hour period is approximately 6.0 inches. The 1%, 10-day runoff (snowmelt) 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 the U.S. Weather Bureau Technical Paper 40.

B. Geology and Topographic Information

1. Geology:

The City of South St. Paul is located in northeast Dakota County **(Figure III-3)**. The City of St. Paul lies to the north, West St. Paul to the west, and Inver Grove Heights to the south. The eastern boundary of the City is the Mississippi River. Total area within the corporate limits is approximately 6.2 square miles.

The geomorphology of the City is comprised of nonglacial deposits, deposits indirectly related to glaciation, and Superior Lobe deposits. The composition of the Superior Lobe deposits, located in the western portion of the City, includes various forms of till from reddish-brown sandy loam, cobbles and boulders, to stringers and masses of poorly sorted sand and gravel. Glacial deposits include Lower, Middle and Upper Terrace deposits, composed of clean sand and gravel varying between 5 to 170 feet above the floodplain. The composition of the nonglacial

deposits, along the Mississippi River, consists of clayey floodplain alluvium.

The bedrock formations include Platteville and Glenwood Formations, St. Peter Sandstone, Prairie Du Chein Group, and Jordan Sandstone. Depth to the bedrock varies from less than 50 feet to 200 feet below the surface.

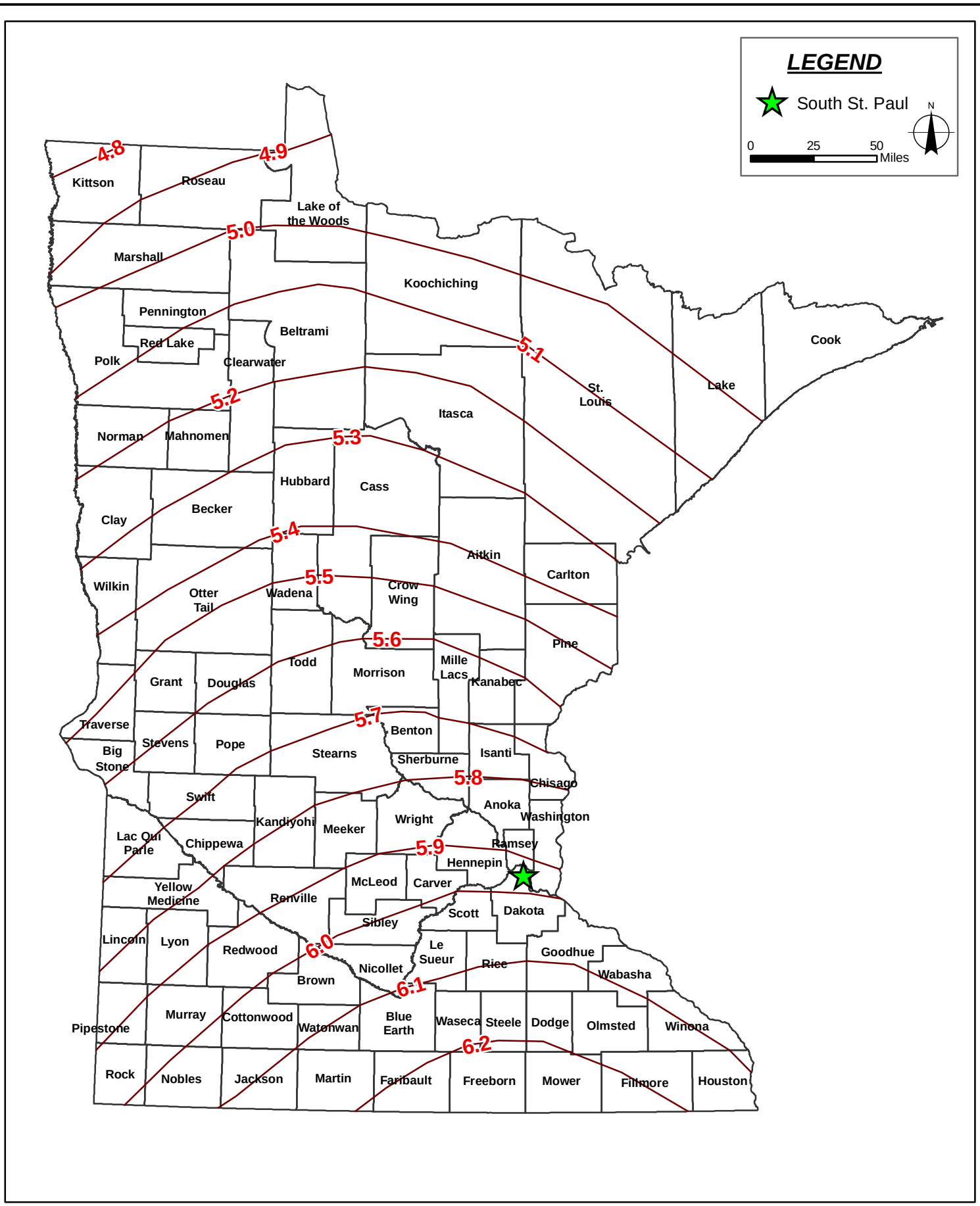
Six aquifers are located within the City boundaries: the Prairie Du Chien-Jordan Aquifer, the Platteville Aquifer, the St. Peter Aquifer, the St. Lawrence-Franconia Aquifer, the Ironton-Galesville Aquifer, and the Mt. Simon-Hinckley Aquifer, which is the deepest high-yield aquifer available to Dakota County.

Additional geologic information for areas within the City can be found in the Geologic Atlas of Dakota County, which is also available in the Water Resource Library at the Engineering Department, South St. Paul.

TABLE III-1 AVERAGE MONTHLY TEMPERATURE, PRECIPITATION, AND SNOWFALL DATA FOR MINNEAPOLIS/ST. PAUL METROPOLITAN AREA

Month	Average Temp. F°	Precip. inches	Snowfall inches
January	11.8	0.95	12.5
February	17.9	0.88	9.2
March	31.0	1.94	11.6
April	46.4	2.42	3.6
May	58.5	3.39	0.1
June	68.2	4.05	0
July	73.6	3.53	0
August	70.5	3.62	0
September	60.5	2.72	0
October	48.8	2.19	0.4
November	33.2	1.55	7.3
December	17.9	1.08	11.3
Annual Average:	44.9	**Total:** 28.32	**Total:** 56.0

Source: State Climatology Office for the Minneapolis/St. Paul Airport



Source: National Oceanic and Atmospheric Administration, Natural Resources Conservation Service, U.S. Department of Agriculture, 2003

FIGURE III-1
1% CHANCE RAINFALL EVENT (INCHES)
SOUTH ST. PAUL

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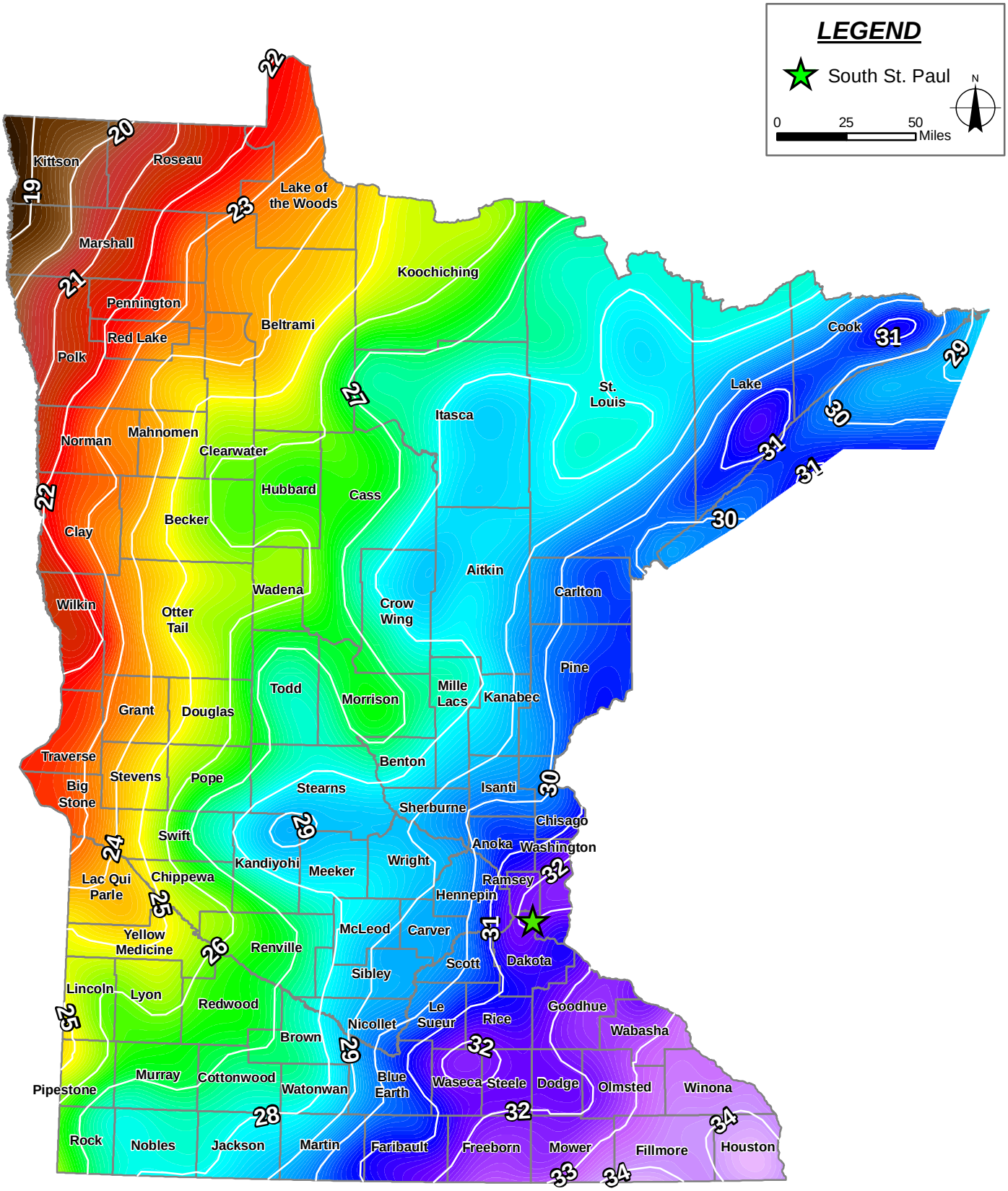

Source: National Oceanic and Atmospheric Administration, Natural Resources Conservation Service, U.S. Department of Agriculture, 2003

FIGURE III-2
ANNUAL NORMAL PRECIPITATION
SOUTH ST. PAUL

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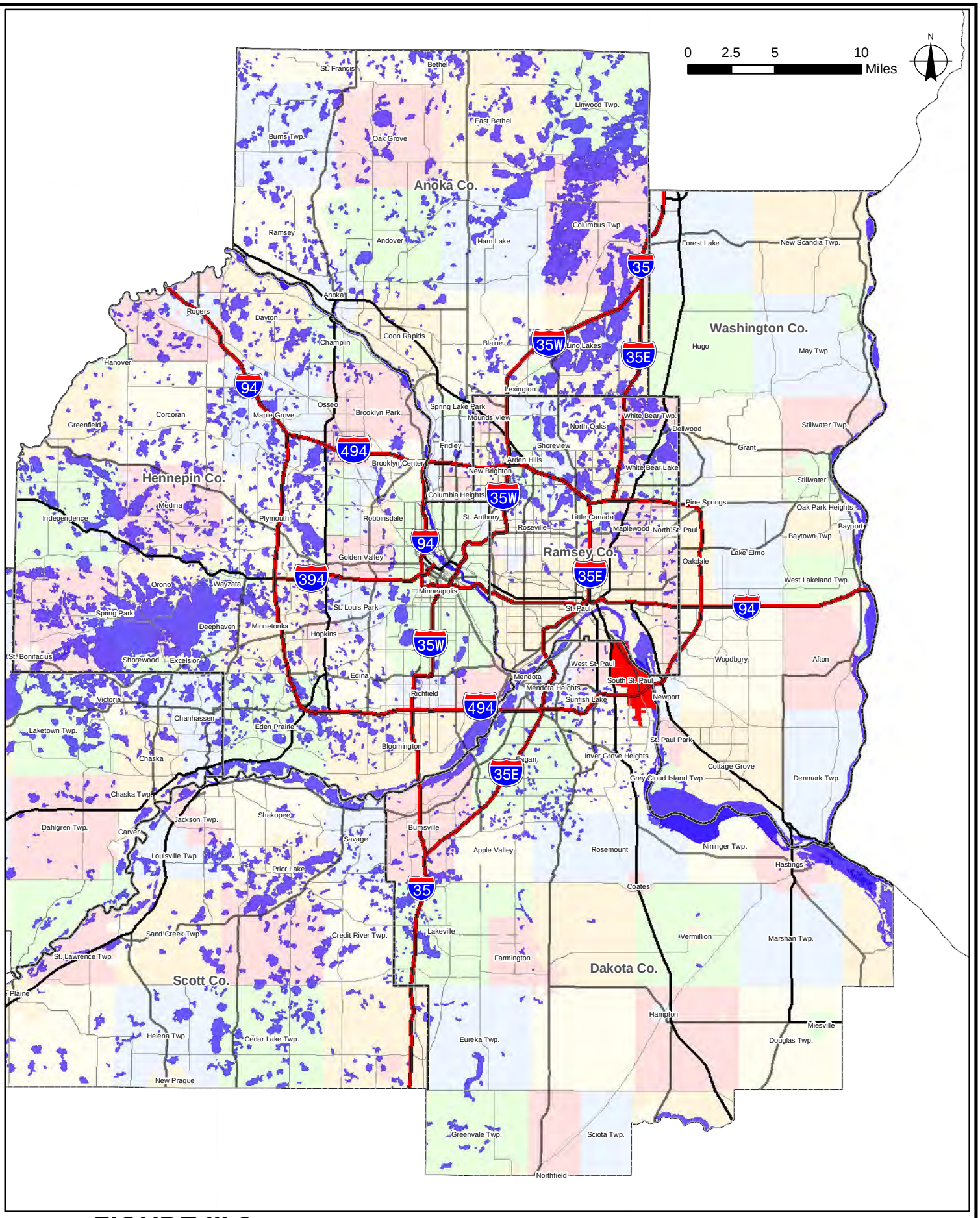

FIGURE III-3
LOCATION MAP
SOUTH ST. PAUL

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2. Topography:

The topography of the City can be described as gently rolling, with steeper areas near the Mississippi River. Storm water runoff from the City of South St. Paul is generally directed from the west to the east into the Mississippi River.

The east side of South St. Paul is a narrow, flat stretch of land with an approximate elevation of 700 feet above sea level. This area is part of the Mississippi River floodplain. The low area is separated from the rest of the City by a steep bluff rising 100 feet above the floodplain. The areas west of the bluff are level in the south and central part of the City and hilly in the north part. The highest points of the City are in the west, with areas reaching heights of 950 feet above sea level.

The specific drainage patterns, which depict topography for areas within the City, are shown on the subwatershed delineation map on **Figure III-4.** As can be observed from the subwatershed delineation map, the City of South St. Paul is divided into many small watersheds. The subwatershed delineations was developed using the City topographic mapping, storm sewer as-builts, aerial photos, and field investigations.

Additional information regarding watershed delineation studies within the City can be found in the following studies:

1. Drainage Plan: Highway 110-494 Watershed.
2. Phase IIA Evaluation: Kaposia Dam.
3. Simons Ravine Feasibility Study.

These studies and the results are available in the Water Resources Library at the City.

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 in the Water Resource Library at South St. Paul Engineering Department.

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

1. Wetland Inventory

A wetland inventory has been completed by U.S. Fish and Wildlife Service as published on the National Wetland Inventory Maps, and by the Minnesota Department of Natural Resources as published in their Public Waters and Wetlands Inventory. These wetland inventories will be utilized to assist in determining if a wetland is present on a given parcel of

property within the City. The DNR Public Waters/Wetlands map is shown on **Figure III-5** and the National Wetland Inventory is shown on **Figure III-6.**

2. Major Bodies of Water

There are few major water bodies that convey and store water within and through the City. These water bodies are as follows:

- Mississippi River and associated wetlands
- Seidl's Lake, which straddles the corporate boundary with Inver Grove Heights
- Anderson's Pond
- LeVander's Pond
- Bohrer Pond, which straddles the corporate boundary with Inver Grove Heights

More information about these water bodies is included in various portions of this section.

3. Hydrologic Modeling (Water Quantity)

The City's hydrologic/hydraulic system consists of the Mississippi River, Seidl's Lake, as well as other ponds, wetlands, and storm sewer pipe systems. The City is divided into subwatershed areas, which are shown on **Figure III-4.** A TR-20 based hydrologic/hydraulic computer model has been developed for the City.

The hydrologic/hydraulic modeling effort quantifies the 10% (10-year), and 1% (100-year) chance 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**.

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

1. Drainage Plan: Highway 110-494 Watershed.
2. Phase I Review of Kaposia Dam.
3. Phase IIA Evaluation: Kaposia Dam.
4. Simons Ravine Feasibility Study.

These studies and the results are available in the Water Resources Library at the City.

D. Flood Insurance Studies

A Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) was completed for areas within the City in 1979. The Flood Insurance Study

consisted of a study report, a flood boundary and floodway map, and a Flood Insurance Rate Maps (FIRM) map. The FIRMs and the FIS are available from the Water Resource Library at the Engineering Department at City Hall. The 100-year floodplain boundaries for the City of South St. Paul are shown in **Figure III-7**.

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. These areas were identified through information obtained from City Staff and from the public input process. The problem areas identified include:

1. Erosion along Mississippi River
2. Seidl's Lake Water Levels
3. Simon's Ravine Erosion (ongoing)
4. Possible Sedimentation at Levander Pond
5. Levee Pump Station Deficiencies
6. Dawn Way Storm Sewer Improvements

More detailed information about these areas is available in **Section IV** of this Plan.

F. Water Quality Data

1. Overview

Water quality data for the City has been obtained from the EQUIS water quality database, which is available through the Minnesota Pollution Control Agency (MPCA). This database is utilized by participating agencies to compile water quality testing data and is almost entirely used for the storage of water quality parameters.

Figure III-9 shows the location of MCES monitoring sites. Available water quality information obtained from the MPCA Environmental Quality Information System (EQUIS) is contained in the Water Resources Library or can be obtained from the MPCA's website at www.pca.state.mn.us.

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

1. 2001 Study of Water Quality of 132 Metropolitan Lakes.
2. 1991 Seidl's Lake Water Quality Study.

These studies and the results are available in the Water Resources Library at the Engineering Department at the City.

2. Water Quality Modeling Data

To provide additional information on existing and future water quality within the City, an urban water quality model was developed. The

computer program used to model water quality within the City is the "Program for Predicting Polluting Particle Passage through Pits, Puddles, and Ponds" referred to as the P8 Urban Catchment Model.

The P8 urban water quality model predicts the generation and transportation of storm water runoff pollutants within the City. This model can estimate pollutant loadings, concentrations, and removal efficiencies for basins subject to single or continuous rainfall events. The model will simulate the performance of a variety of treatment devices, including swales, buffer strips, detention ponds, flow splitters, infiltration basins, and general devices.

The initial calibration of this model corresponds to values measured under the Nationwide Urban Runoff Program, or NURP. Specific calibration of this model for the City will require water quality monitoring data for selected areas in the City. Without calibration of the model to site specific data, predictions for specific parameter concentrations, flows, and loadings will be less reliable. However, the relative predictions concerning the removal efficiency of a basin by particle size will be unaffected by calibration.

The results of the P8 water quality modeling effort are available in **Appendix C.** It should be noted that the actual stage-storage data for treatment basins utilized in this analysis are consistent with the volume between the NWL and the HWL from the TR-20 Hydrologic Modeling effort for the 1% chance rainfall event.
The P8 water quality modeling results include:

a. Estimations of water quality parameters

b. Average treatment efficiency of storm water detention basins within the City

c. Water quality parameters including:

   i. Total suspended solids (TSS)
   ii. Total phosphorous (TP)
   iii. Total Kjeldahl nitrogen (TKN)
   iv. Copper (Cu)
   v. Lead (Pb)
   vi. Zinc (Zn)
   vii. Hydrocarbons (HC)
   viii. Chemical oxygen demand (COD)
   ix. Biological oxygen demand (BOD).

The concentrations of individual water quality parameters estimated by the P8 water quality model may vary significantly with values obtained from field testing. This inconsistency is due to the extreme variation in water quality parameter concentrations from individual subwatersheds.

However, the estimated removal efficiencies of treatment basins would be comparable to the removal efficiencies determined from field investigations. Modeling results and additional information on the P8 water quality modeling effort is available in **Appendix C**.

G. Floodplain Management and Shoreland Regulations

The City of South St. Paul has developed Flood Plain, River Corridor and Shoreland Zoning Regulations. A copy of these regulations can be found in **Appendix D**. These regulations generally prohibit uses or activities within the floodplain that include structures or fill or that obstruct flood flows or cause increased flood elevations.

I. Ground Water Appropriations

Within the City, ground water wells serve the City and private water needs. Each of these wells has a ground water appropriation permit from the DNR. Information on the DNR permit number for each well, its location, permitted volume, and number of gallons withdrawn each year can be found on the DNR website. **Figure III-10** shows the locations of the DNR permitted ground water appropriation sites within the City.

J. Ground Water Resource Data

Ground water resource data for areas within the City are available by reviewing the following reports. A brief description of the content in these documents is provided below. These documents are available at the Water Resource Library, South St. Paul Engineering Department.

1. The Dakota County Geologic Atlas completed in 1990 contains information on aquifers, general depth to ground water table, and areas sensitive to ground water pollution.
2. Dakota County 2020 Environment and Natural Resource Management Policy Plan completed in October, 1999 contains information about ground water within the County.
3. Dakota County Groundwater Protection Plan completed in April, 2000, contains basic information about Dakota County's groundwater resources, a description of the groundwater planning process, local groundwater management information, county geology and hydrology information, groundwater issues, wellhead protection information, and the county's groundwater protection goal, policy, and implementation strategy.
4. South St. Paul Wellhead Protection Plan, is anticipated to contain information on preventing well contamination by effectively managing potential contaminant sources in the recharge areas of the City wells.

K. Soils Information

The soils in most areas of the City are sandy, gravelly material deposited by glaciers or outwash from the river. The hydrologic soil classification map is shown in **Figure III-11**. The four soil classifications are defined as follows:

Group A - 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 A/D - Soils hydrology is a mixture of Group A and Group D. Group A/D soils contain the features and characteristics of both Group A and Group D soils depending on whether the soils are drained or undrained.

Group B - 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 B/D - Soils hydrology is a mixture of Group B and Group D. Group B/D soils contain the features and characteristics of both Group B and Group D soils depending on whether the soils are drained or undrained.

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

Group D - 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 soils in most of the City are classified as part of the Kingsley-Mahtomedi series. This series consists of gently sloping to very steep, well drained and excessively drained soils formed in loamy and sandy glacial till and sandy glacial outwash; on uplands and pitted outwash plains. These soils contain a mixture of Group A and B soils.

The eastern areas along the bluff leading down to the Mississippi River contain mainly soils of the Waukegan-Wadena Hawick series. This series consists of level to very steep, well drained and excessively drained soils formed in silty and loamy sediments over sandy outwash; on outwash plains and terraces. These soils contain a mixture of Group A and B soils.

Along the Mississippi River, the soils are mainly classified as the Colo-Algansee-Minneiska series. This series consists of nearly level, poorly drained to moderately well drained soils formed in loamy, silty, or sandy alluvium; on flood plains of major rivers. These soils contain primarily Group B soils.

Additional information on the geology and soil for the City is included in the Soil Survey of Dakota County available at the Water Resource Library at the Engineering Department.

L. Land Use and Public Utilities Services

The City of South St. Paul land use practices include residential, commercial, industrial, public and private overlay districts, a riverfront development district, and a rail transportation district. **Appendix E** contains the existing and proposed land use maps, along with the City zoning map, as shown in the 2011 City Comprehensive Plan.

The City of South St. Paul provides all City water and sewer services. The City has completed a sewer separation project to separate the combined sanitary and storm sewers.

The City contains approximately 20 Subsurface Sewer Treatment Systems (SSTS). Approximately 16 are located at the airport (holding tanks). The others are located in areas too low to access the City's system. Redevelopment of these areas could require the construction of a lift station.

M. Public Areas for Water Based Recreation and Access

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

Mississippi River: The Mississippi River provides boating, fishing, and hiking opportunities within the City. The South St. Paul Boat Launch is located directly south of the Highway 494 Bridge off Verderosa Avenue. It is a Department of Natural Resources (DNR) Level 1 boat launch facility. The Mississippi River is also a State Canoe Route.

Seidl's Park: Seidl's Lake straddles the corporate boundary with Inver Grove Heights and is used for both passive recreation and fishing according to the South St. Paul website. Seidl's Lake is surrounded by parkland, which is heavily wooded with steep topography. There is an observation platform, but no public access or beach.

Additional information regarding recreational opportunities within the City is available in the City of South St. Paul 2011 Comprehensive Plan available in the Water Resource Library and in the City of South St. Paul's website at http://www.southstpaul.org/departments/Parks/.

N. Fish and Wildlife Habitat

South St. Paul 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 in South St. Paul natural areas. The City

contains one lake, Siedl's Lake, which is capable of supporting a fish population according to the City of South St. Paul website.

Appendix F contains information obtained from the DNR Natural Heritage database. This data indicates there is a variety of unique fish and wildlife habitat within the City, much of which is located along the Mississippi River, which is within the area designated as the Mississippi River Critical Area Corridor. This information was obtained using Minnesota DNR licensed Natural Heritage Information System (License # La-579, issued May 16, 2011).

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, and historic areas.

The City of South St. Paul has natural areas within two of its 12 parks and open space areas, Kaposia Park and Seidl's Lake Park. Kaposia Park contains rare and endangered species and special habitats. **Appendix F** contains information from the DNR Natural Heritage Database outlining the rare and endangered species and special habitats within and near the City.

The City has no wild and scenic rivers as defined by the State.

The City does have a number of historical and architectural resources as identified by the Minnesota State Historical Preservation Office. These resources include the following areas:

Table III-2. Historic Properties/Sites within the City of South St. Paul

Site and Property Date	***Approximate Location***
Clark House	Section 22, T28N, R22W
Kochendorfer House	Section 16, T28N, R22W
House	Section 16 &21, T28N, R22W
House (razed?)	Section 16, T28N, R22W
IOOF Hall	Section 16, T28N, R22W
St. Stefans Romanian Orthodox Church	Section 16, T28N, R22W
Croatian Hall	Section 27, T28N, R22W
Veterans Memorial United Church of Christ	Section 21, T28N, R22W
Stockyards Exchange Building*	Section 22, T28N, R22W
Harold E. Stassen House	Section 27, T28N, R22W
Serbian Home*	Section 27, T28N, R22W
South St. Paul Post Office	Section 22, T28N, R22W

Source : Minnesota State Historic Preservation Office, * Listed on the National Register of Historic Places.

P. Pollutant Source Locations

Figure III-12 shows the approximate locations of a variety of sites that are listed with MPCA's "What's in My Neighborhood" database. The status of these sites

varies from active sites to sites that have been cleaned up and closed by MPCA. Specific details of each site can be obtained from MPCA.

Other potential pollutant sources include industrial, commercial, residential, and other highly impervious land uses. Stormwater runoff from these land uses could carry pollutants into the stormwater system (nonpoint source pollution), especially if there are direct inlets into the storm sewer system that do not drain first into a stormwater pond. Facilities within these land use types may be covered by a NPDES General Industrial Stormwater Permit, which requires preparation of stormwater pollution prevention plans to prevent nonpoint source pollution.

Q. NPDES Phase II

The MPCA implemented the National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Program in March 2003. Phase II requires Municipal Separate Storm Sewer Systems (MS4s) to obtain an NPDES permit. MS4s designated by rule are urban areas with populations over 10,000 or urban areas with populations greater than 5,000 with the potential to discharge to valuable or polluted waters. Permits for construction sites greater than one acre will also be required as part of Phase II.

As an MS4, the City will be required to implement the following six minimum control measures:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management
6. Pollution Prevention/Good Housekeeping for Municipal Operations

The new draft permit is currently (2011) out for review as the existing general permit has expired. For more information on the MS4 Permit requirements refer to www.pca.state.mn.us.

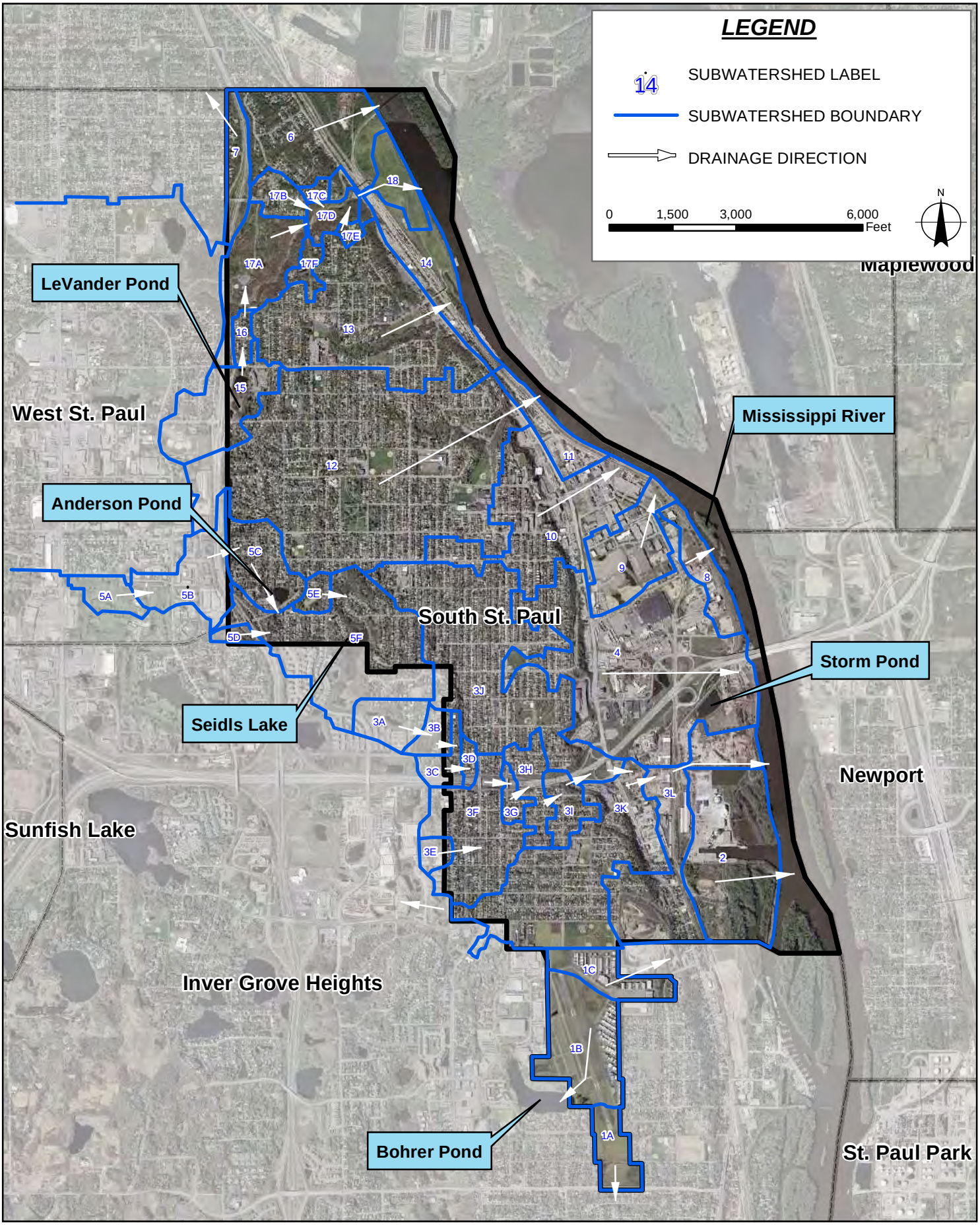

FIGURE III-4
SUBWATERSHED DELINEATION MAP
SOUTH ST. PAUL

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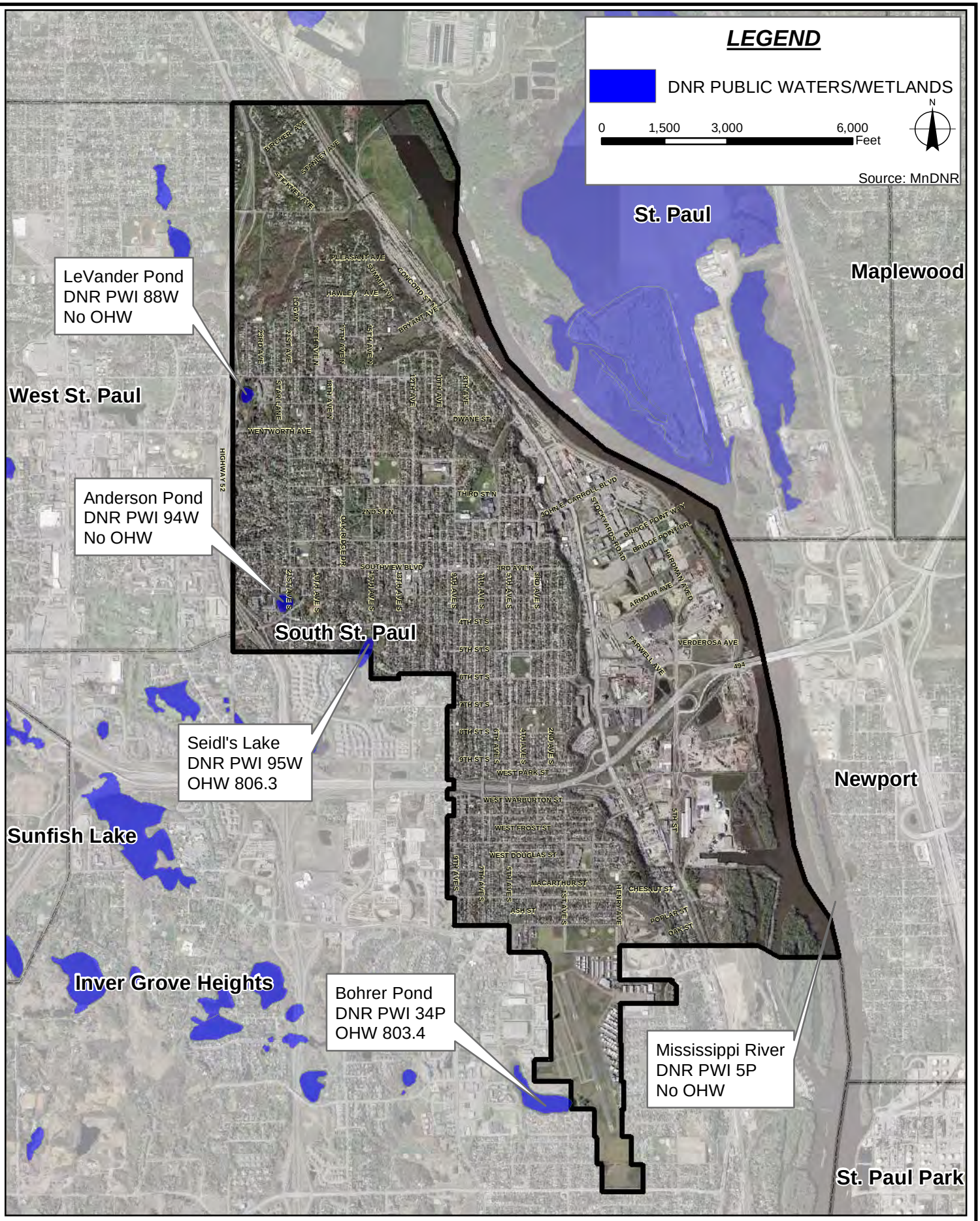

FIGURE III-5
MnDNR PUBLIC WATERS/WETLANDS MAP
SOUTH ST. PAUL

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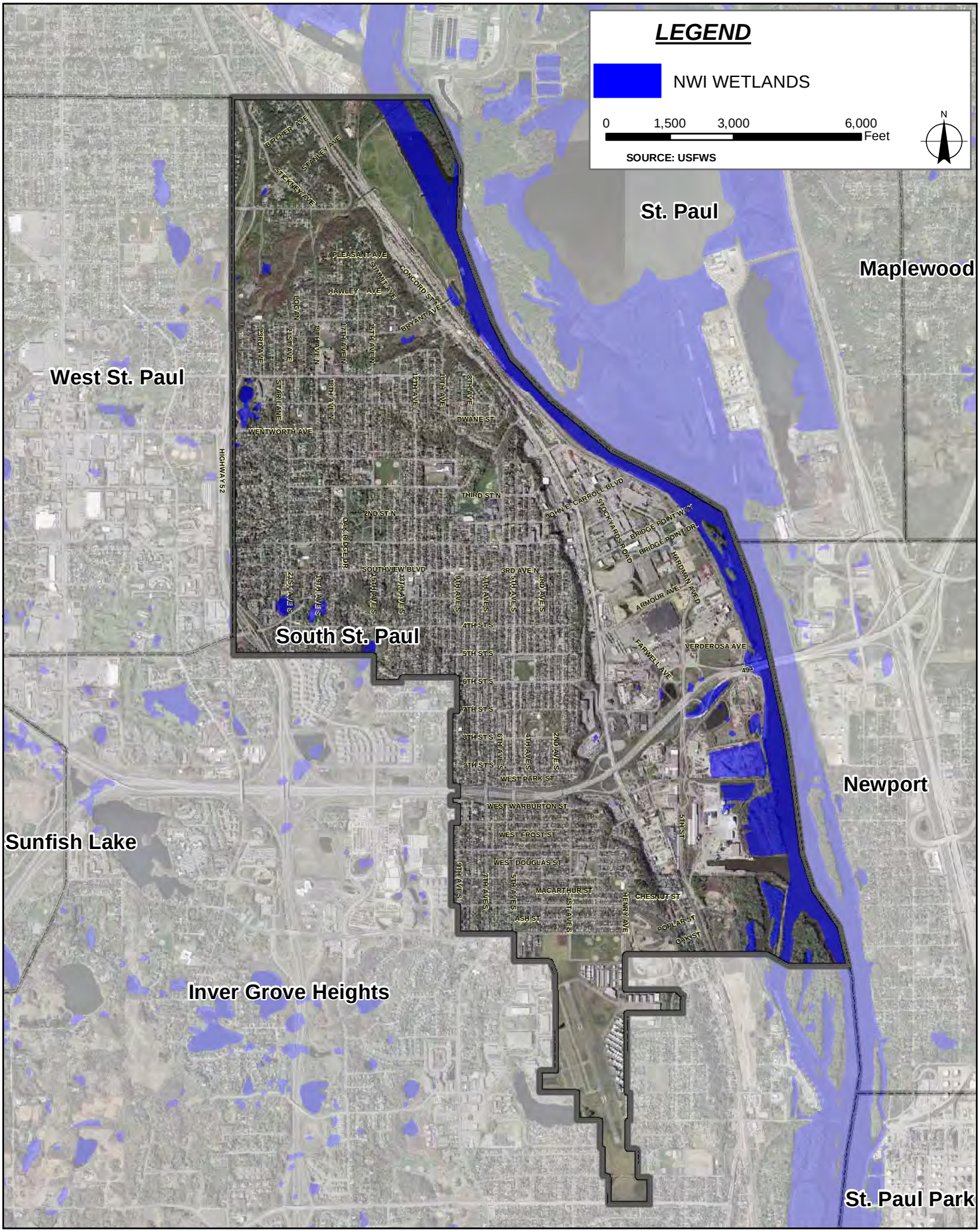

FIGURE III-6
NWI WETLANDS MAP
SOUTH ST. PAUL

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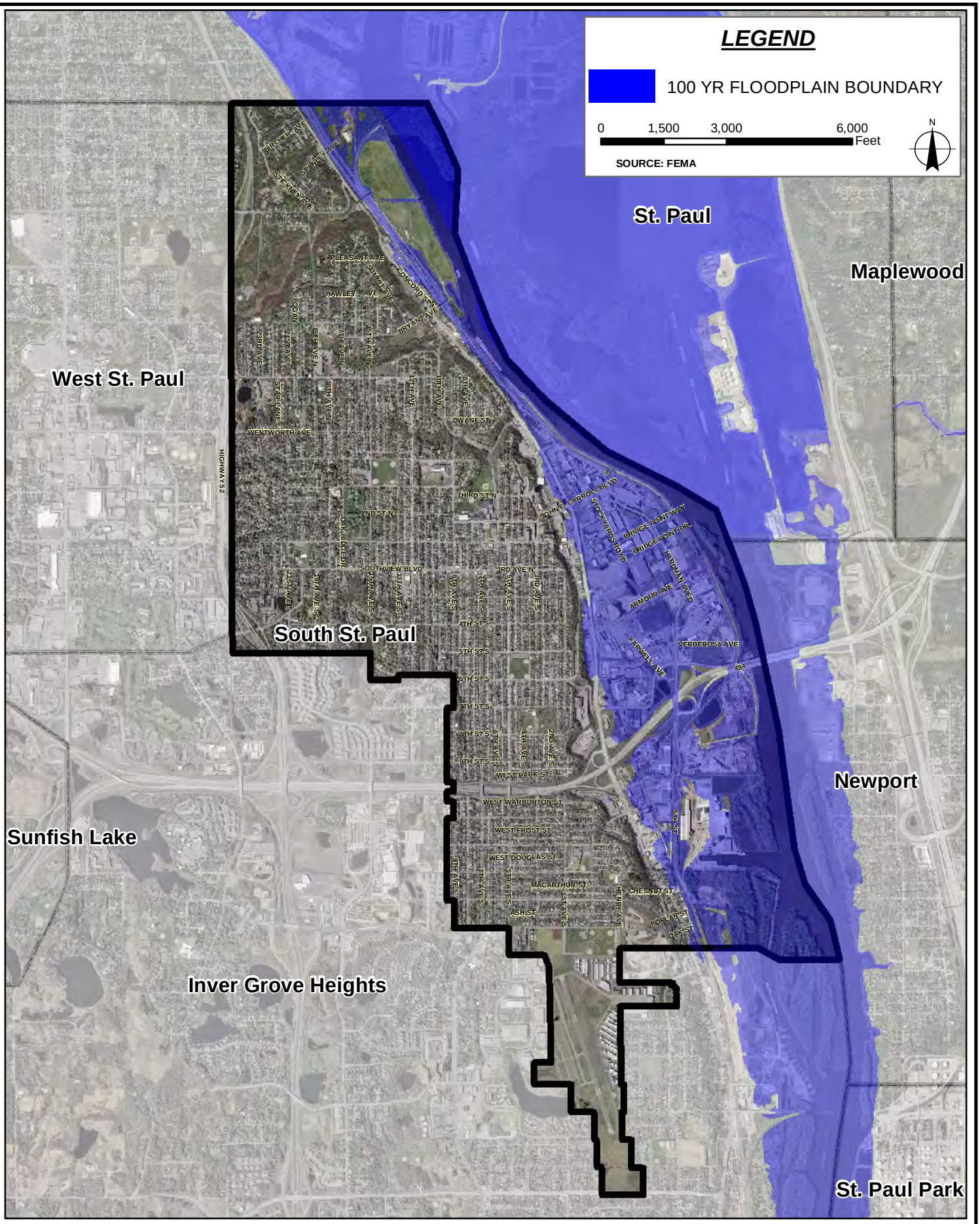

FIGURE III-7
100-YEAR FLOODPLAIN BOUNDARY MAP
SOUTH ST. PAUL

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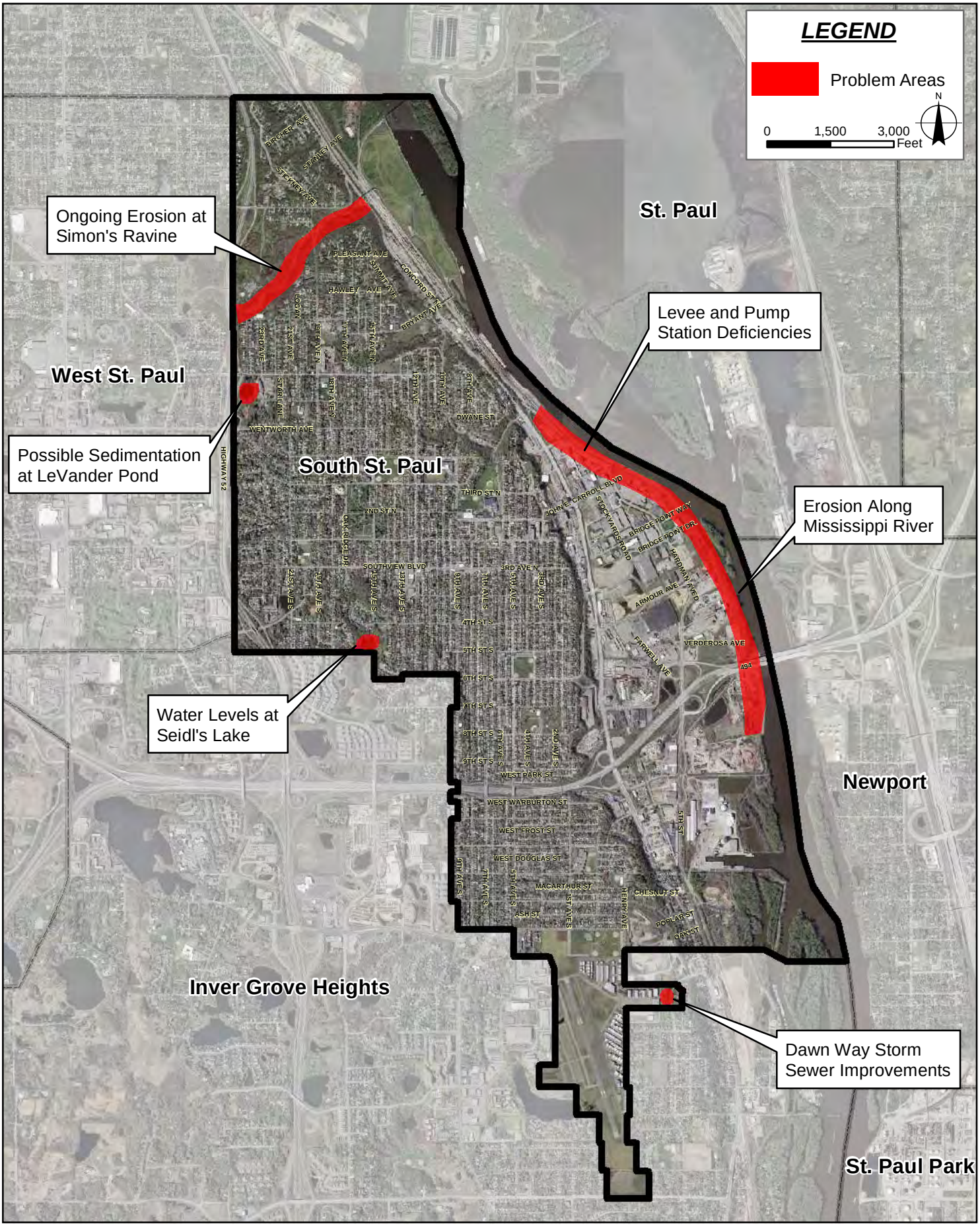

FIGURE III-8
WATER RESOURCE PROBLEM AREA MAP
SOUTH ST. PAUL

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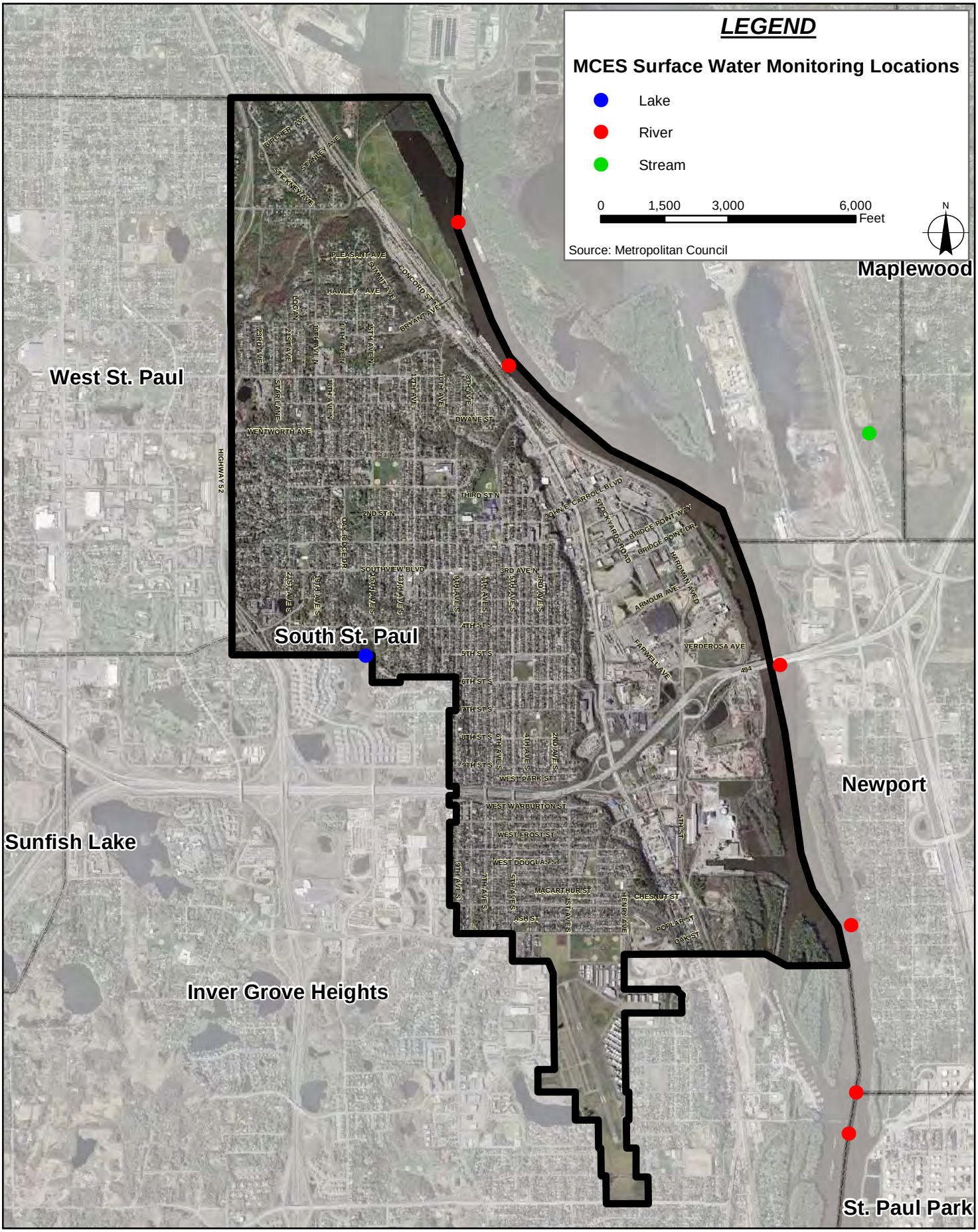

FIGURE III-9
WATER QUALITY MONITORING LOCATIONS MAP
SOUTH ST. PAUL

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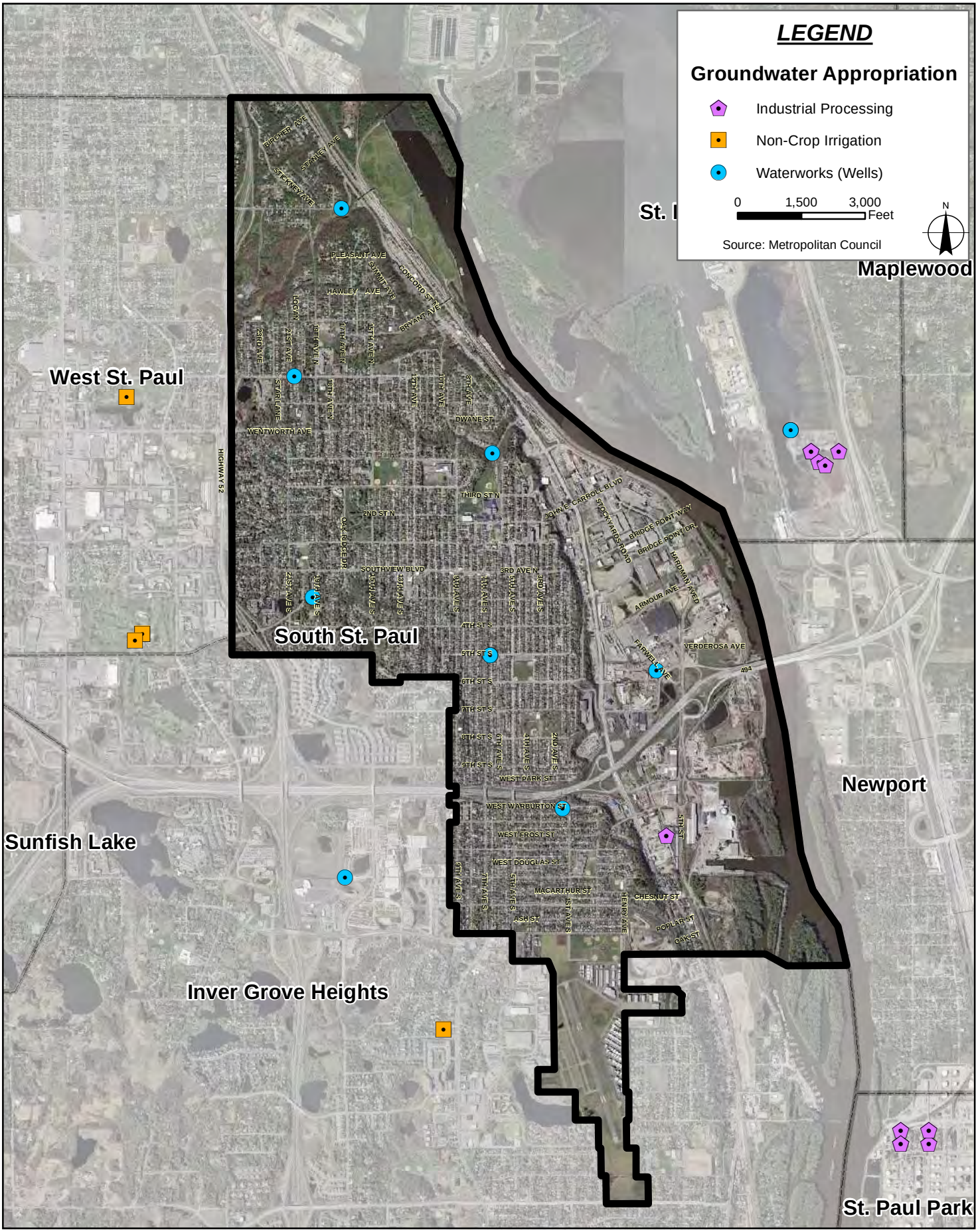

FIGURE III-10
GROUNDWATER APPROPRATION MAP
SOUTH ST. PAUL

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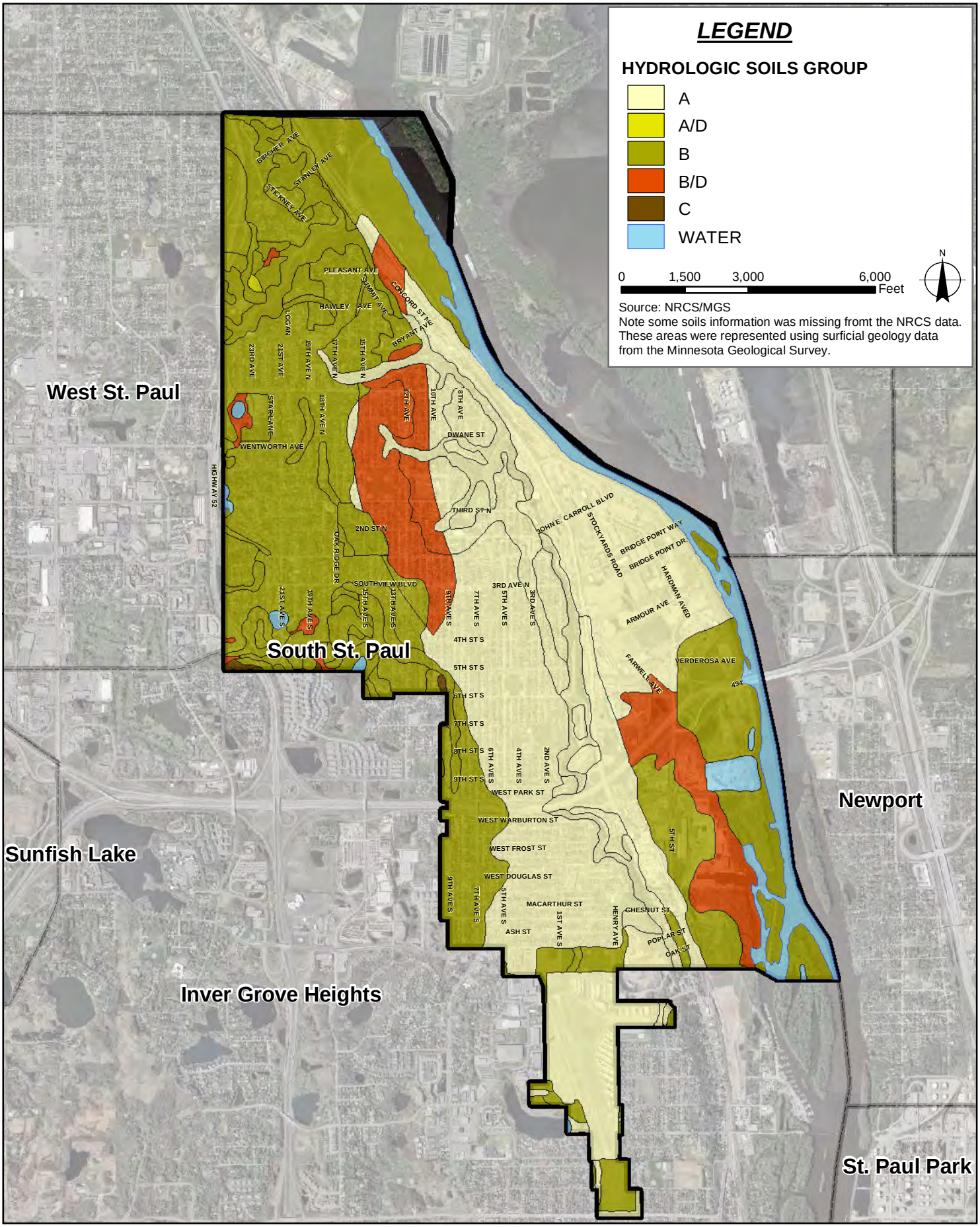

FIGURE III-11
SOILS CLASSIFICATION MAP
SOUTH ST. PAUL

Path: K:\01261-560\GIS\Maps\Figure3-11_Soils.mxd Date Saved: 12/16/2011 1:58:26 PM

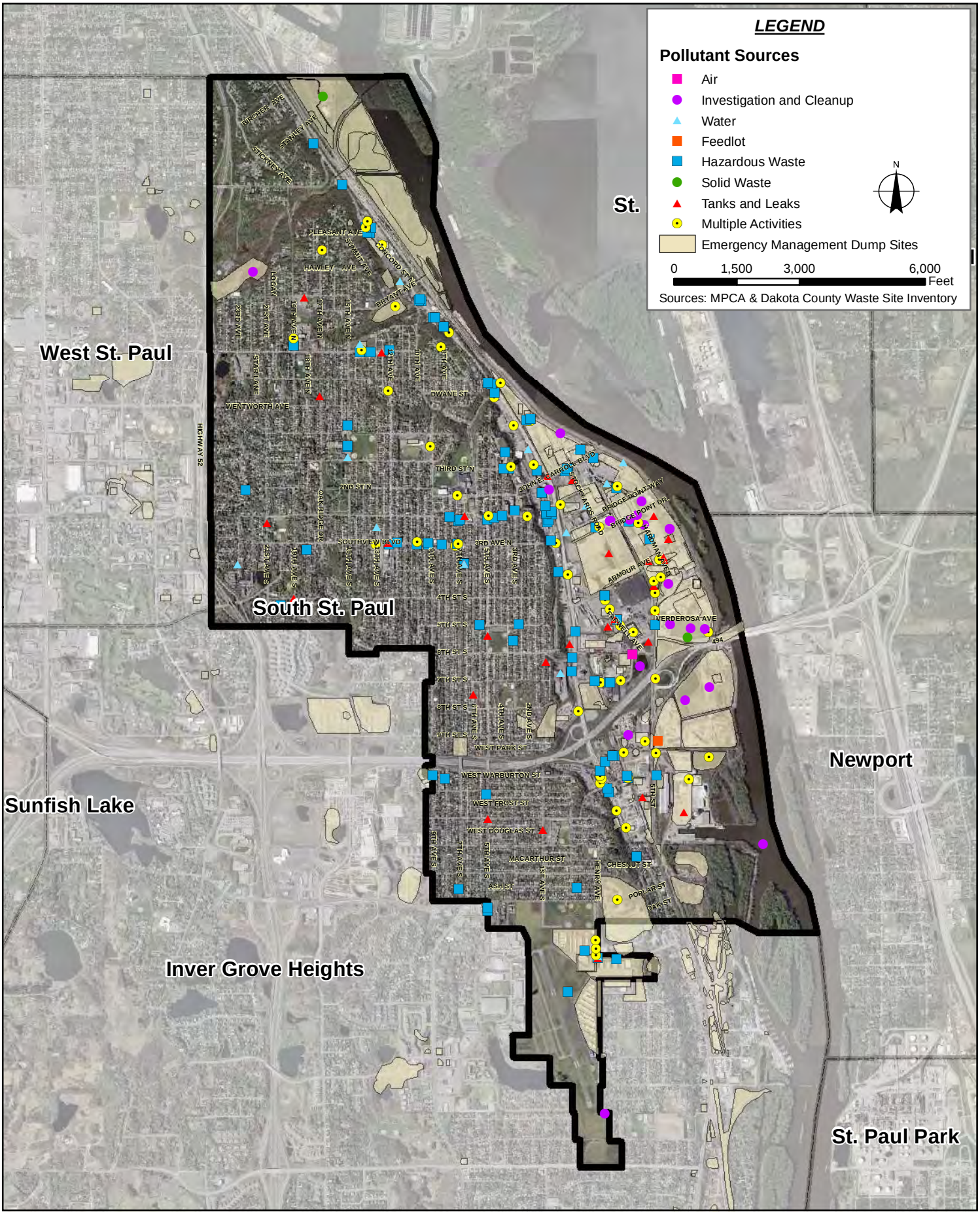

FIGURE III-12
POLLUTANT SOURCE LOCATION MAP
SOUTH ST. PAUL

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SECTION IV

IV. ESTABLISHMENT OF GOALS AND POLICIES

The City of South St. Paul has developed a number of goals and policies that conform to the overall purpose that is specified in Minnesota Statutes Section 103B.201. These goals and policies have been developed to complement County, Regional or State goals and policies, and to be in conformance with the policies required by the Watershed Management Plan for the Lower Mississippi River Watershed Management Organization, noted as LMRWMO in this section, plan dated August 2011. The City of South St. Paul will work with the LMRWMO on intercommunity issues.

These goals and policies have also been developed to preserve and use natural water storage and retention systems in order to:

A. Limit public capital expenditures that are necessary to control excessive volumes and rates of runoff.

B. Improve water quality.

C. Prevent erosion of soil into surface water systems.

D. Promote ground water recharge.

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

F. Secure the other benefits associated with the proper management of surface water.

The goals and policies the City has developed address issues related to water quantity, water quality, recreation, fish and wildlife, enhancement of public participation, information and education, public ditch system management, ground water management, wetland management and soil erosion management. Outlined below are the goals and policies that have been developed for each of the above areas of concern.

A. Water Quantity

Goal:

Limit public capital expenditures that are necessary to control excessive runoff volumes, rates, and downstream impacts from development.

Policies:

1. The level of flood protection to be provided along trunk conveyance systems streams, channels, wetlands, ponds, detention basins, and lakes shall be based on the critical-duration 100-year flood.

2. Trunk stormwater systems shall be designed to provide discharge capacity for the critical-duration runoff event that is not less than a 10-year frequency

event. For open channel conveyance systems, the design criteria shall be for the critical 100-year event. Variances to this standard may apply in areas where in-place storm sewers are designed for a 5-year frequency event. *(LMRWMO)*

3. The critical 1% chance event will be defined as the event that requires the greatest storm water storage volume in a storage facility. These facilities include lakes, ponds, and their outlets.

4. Emergency overflow structures (e.g. swales, spillways) are to be incorporated, where feasible, into pond outlet structure designs to prevent undesired flooding resulting from storms larger than the 100-year (one percent) event or plugged outlet conditions. *(LMRWMO)*

5. All minor drainage systems (non-trunk) and local storm water collection systems analyses and design will be based on a 10-year event unless otherwise specified.

6. Future discharge rates from new development and redevelopment will at a minimum not exceed the existing discharge rates, or rates which would interfere with sensitive downstream uses.

7. The City prefers to provide rate control through the use of regional storm water detention/retention systems versus site-by-site retention systems. If regional systems are not available, on-site systems may be required. *(LMRWMO)*

8. Drainage calculations for the 1-, 2-, 10-, and 100-year critical events must be submitted and approved as part of any development or redevelopment applications of 1 acre in size or greater prior to the issuance of any building or grading permit.

9. The design storm events shall be Soil Conservation Service (SCS) Type II distributions with the following rainfall:

Event Frequency	***Event Duration***	***Probability of Occurrence in Any Given Year***	***Rainfall Amount (inches)***
1 – Year	24 – Hour	99%	2.4
2 – Year	24 – Hour	50%	2.8
5 – Year	24 – Hour	20%	3.6
10 – Year	24 – Hour	10%	4.2
100 – Year	24 – Hour	1%	6.0

100 – Year	10 – Day Runoff (snowmelt)	1%	7.2 (inches of runoff)

10. Detention facility design will include access for maintenance of the outlet structure and to the facility in general.

11. Easements over floodplains, detention areas, wetlands, ditches, and all other parts of the stormwater system as areas develop or redevelop is required. *(LMRWMO)*

12. Outlets for landlocked basins will be provided based on the following conditions:

    a. Only the existing tributary area may discharge to a landlocked basin, unless provision has been made for an outlet from the basin.

    b. The form of outlet may range from temporary pumps to gravity storm sewers. The outlet is to be in place before increased water levels are likely to affect vegetation, slope stability and property values. *(LMRWMO)*

    c. The City will encourage the reduction of impervious area coverage and increase infiltration opportunities in watersheds tributary to landlocked basins. *(LMRWMO)*

    d. In establishing high water elevations and whether outlets are needed for landlocked basins, the long duration events, such as multiple-year wet cycles and high runoff volume events will be considered (e.g. snowmelt events that last for many weeks). *(LMRWMO)*

    e. Emergency overflows or outlets to drainage systems will be provided to any landlocked area if the available storm water storage capacity is inadequate to prevent flooding of residences and if the available downstream conveyance system capacity is adequate to accept additional flow.

13. The City's natural ponding areas, such as wetlands and lakes, currently provide and will continue to provide for the impoundment and treatment of surface water runoff as appropriate and according to local, state, and federal regulations.

14. The City intends to use both designated and non-designated areas to store storm water runoff. Non-designated areas include general depressions, areas lacking easements, low points, and streets where structures and/or property is not damaged and any inundation that occurs will only be temporary in nature.

15. The City will encourage the development of enhanced infiltration practices wherever practical. The City will not maintain private infiltration areas.

16. Infiltration is not allowed as a stormwater BMP in areas where there are known contaminants or in drinking water supply management areas/wellhead protection areas. In addition, infiltration will not be encouraged where the soils are not suitable for infiltration or in areas where there is less than three feet of separation between the bottom of the infiltration system and the groundwater or bedrock. In-situ field tests shall be required to verify the infiltration rates of on-site soils prior to the construction of infiltration BMPs. *(LMRWMO)*

17. Pretreatment of stormwater shall be provided prior to discharge to any new infiltration system to protect the functionality of the system. Pretreatment shall collect sediment, skim floatables, and be easily accessed for inspection and maintenance. *(LMRWMO)*

18. The City will require that a maintenance plan that includes procedures for maintenance and funding be submitted prior to approval of private infiltration basins.

19. Low Impact Development (LID) techniques are to be used to the greatest extent reasonable to reduce the amount of impervious surfaces for new development and redevelopment projects, taking into consideration land use, zoning, topography, previous site uses, and site constraints. LID techniques may include, but are not limited to, those presented on the MPCA-Low Impact Development website, http://www.pca.state.mn.us/water/stormwater/stormwater-lid.html. *(LMRWMO)*

20. Should flooding occur the City intends to assist in addressing problems associated with structural inundation caused by overland flow in the 1% chance or lesser probability rainfall event in 24-hours by working with property owners to identify and implement economic solutions to minimize damage risks to existing structures in flood prone areas. The City's assistance can be through public improvements or technical advice for private flood proofing improvements.

21. Uses or activities within the 100-year floodplain that include structures, fill, obstruction of flood flows, or cause increased flood elevations are prohibited.

22. The City will consider the effects of events larger than the 100-year flood when setting a minimum building elevation. Higher minimum building elevations will be considered for structures adjacent to ponding areas with large tributary watersheds and for structures adjacent to landlocked basins.

23. The City will ensure that proposed development, redevelopment, and/or infrastructure projects will not overtax the existing downstream stormwater drainage system. *(LMRWMO)*

24. Any new development or redevelopment within the City will maintain a minimum building opening of 3 feet above the anticipated 100-year high water elevation as a standard practice. However, if this 3 foot freeboard requirement is considered a hardship, the standard could be lowered to 2 feet if the following can be demonstrated:

    a. 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.

    b. 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.

    c. An adequate overflow route from the basin is available to provide assurance that one foot of freeboard will be maintained for the proposed low building opening.

25. Multi-stage outlets are to be incorporated into pond designs to control flows from smaller, less frequent storms and help maintain base flows in downstream open channels where practicable. *(LMRWMO)*

B. Water Quality

Goal:

Maintain or improve the quality of water in lakes, streams or rivers within or immediately downstream of the City.

Policies:

1. The City prefers to provide water quality improvement through the use of regional storm water treatment systems versus site-by-site systems. If regional systems are not available, on-site treatment may be required. *(LMRWMO)*

2. The City requires a 50% total phosphorus removal from runoff leaving new development and redevelopment projects that exceed one acre of land disturbance (for this policy, mill and overlay and pavement rehabilitation projects are not considered land disturbance). For areas that discharge directly to the Mississippi River or to an impaired water body for which a TMDL has been completed, the findings of the TMDL will replace this requirement (whether more or less stringent). The required reduction of total phosphorus may be accomplished through the use of regional or on-site stormwater BMPs such as: ponds, NURP (National Urban Runoff Program) basins, infiltration basins, biofiltration, vegetated swales, mechanical devices, porous pavements, or any other techniques effective at phosphorus reduction. *(LMRWMO)*

3. Linear construction projects should meet water quality policy 2 where possible and feasible. Linear projects will be required to meet NPDES Construction Permit requirements. *(LMRWMO)*

4. The City may develop and implement a water quality monitoring program.

5. The City will require implementation of best management practices during development and redevelopment to achieve the goal of reducing nonpoint source pollution, with emphasis placed on the watersheds that drain (or will drain) to the Mississippi River. *(LMRWMO)*

6. The City will encourage the reduction in the amount of impervious surface upon development or redevelopment. *(LMRWMO)*

7. The City will consider both the water quality and flooding impacts of proposed outlets from landlocked basins on downstream water resources. *(LMRWMO)*

8. For replacement discharge points/outfalls or existing stormwater discharge points/outfalls, the WMO encourages member cities to provide pretreatment of stormwater prior to its discharge to wetlands and other water resources. *(LMRWMO)*

9. For new stormwater discharge points/outfalls, the City will provide pretreatment (at least grit removal) of stormwater prior to its discharge to wetlands and other water resources. *(LMRWMO)*

10. The City has developed a Storm Water Pollution Prevention Program (SWPPP), in conformance with the Minnesota Pollution Control Agency's NPDES Phase II Rule. The SWPPP can be found in **Appendix G**.

11. The City will follow the maintenance plan outlined in the SWPPP, which includes maintenance of storm manholes, trap manholes, catch basins, storm sewer pipe, pond inlets and pond outlets.

12. The City will sweep all the City streets twice annually and more frequently in sensitive areas as outlined in the SWPPP (**Appendix G**).

13. The City will require skimmers in the construction of new pond outlets, and will add skimmers to the existing system whenever feasible and practical.

14. The City will continue to implement the City's Public Education Program. The City will utilize information developed by the LMRWMO (when available) to supplement its education efforts.

15. The City will continue to work cooperatively with Dakota County to implement the household hazardous waste disposal program and educate residents on the proper disposal of household hazardous waste.

16. Buffers will be encouraged around storm ponds, lakes, wetlands, and streams upon new or redevelopment. These buffers will be promoted and encouraged for all existing properties adjacent to lakes, streams, and wetlands.

17. The City will attempt to eliminate known illegal connections to the City's storm water conveyance system.

18. The City will work with neighboring municipalities to require rate control and treatment prior to the discharge of storm water across municipal boundaries.

19. A response plan to minimize the impact of hazardous spills on protected waters will be developed by the City.

20. The City will continue to follow the MPCA NPDES Phase II guidelines and has completed a Municipal Separate Storm Sewer Systems (MS4) Storm Water Pollution Prevention Plan (SWPPP) as part of the MPCA requirements.

21. The City will share water quality data and trends with the Lower Mississippi River Water Management Organization and surrounding cities. *(LMRWMO)*

C. Recreation, Fish and Wildlife

Goal:

Protect and enhance recreational facilities and fish and wildlife habitat.

Policies:

1. The City will cooperate with the Minnesota Department of Natural Resources, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and other appropriate agencies in promoting public enjoyment and protecting fish, wildlife, and recreational resources in the City.

2. The City will preserve wetlands that provide habitat for wildlife and spawning of fish.

3. The City will encourage land owners to maintain wetlands and open space areas for the benefit of wildlife.

4. The City will encourage buffers to be implemented around storm ponds, lakes, wetlands, and streams upon new development or redevelopment. These buffers will be promoted and encouraged for all existing properties adjacent to lakes, streams, and wetlands.

5. Activities related to recreation, parks, open space, and trails systems shall be consistent with the City of South St. Paul 1999 Comprehensive Plan.

6. The City may incorporate into proposed projects alternative landscape designs that:

   - increase beneficial habitat, wildlife and recreational uses; promote infiltration and vegetative water use; and

   - decrease detrimental wildlife uses (such as beaver dams, goose overabundance) that damage water control facilities, shoreline vegetation, water quality or recreational facilities. *(LMRWMO)*

D. Enhancement of Public Participation, Information, and Education

Goal:

Educate and inform the public on pertinent water resource management issues and increase public participation in water management activities.

Policies:

i. The City will coordinate its education efforts with the Dakota County Environmental Education Program. *(LMRWMO)*

ii. The City will disseminate information to the public regarding its water resources, stormwater management, etc. *(LMRWMO)*

iii. The City will continue to implement an education program which may use the following: city newsletters, community access cable TV, individual mailings, and the city website (http://www.southstpaul.org/).

iv. The City will implement public education as part of the NPDES Phase II program.

v. The City will make information available to active community groups such as Rotary, Lions, Kiwanis, All Around the Neighborhood, and Chamber of Commerce to educate and increase awareness of water resource issues throughout the City. Distributed information may include water resource material developed by the Lower Mississippi River WMO or other organizations. *(LMRWMO)*

E. Public Ditch Systems

Goal:

There are no public ditch systems within the City of South St. Paul.

F. Ground Water

Goal:

To coordinate activities and/or manage surface water runoff to the degree necessary to meet requirements for ground water protection or management as required by Dakota County, Minnesota Pollution Control Agency, the Minnesota Department of Health, and the Department of Natural Resources.

Policies:

1. The City will encourage groundwater recharge and protect recharge areas from potential sources of contamination. *(LMRWMO)*

2. The City will use grassed waterways to maximize infiltration where feasible and not detrimental to groundwater supplies. *(LMRWMO)*

3. The City will maintain updated records of all known on-site septic systems and prohibits the installation of new individual septic systems or alterations, repairs or extensions of existing systems when connection can be made to the city sanitary system.

4. The City will support the policies in the Dakota County Groundwater Plan. *(LMRWMO)*

5. Cooperate with state and regional agencies on ground water monitoring, inventorying or permitting programs.

6. The City will encourage the development of alternative storm water management methods including vegetated swales and infiltration practices provided these methods do not contaminate ground water.

7. The City will cooperate with the Department of Health to insure that all unsealed or improperly abandoned wells within the City are properly sealed. Technical requirements for the abandonment of these wells will be in conformance with the local and state regulations.

8. The City will sweep the streets twice annually.

9. The City will cooperate with the Dakota County Environmental Management Department to assure proper sealing of unsealed and unused wells in the City. Technical requirements for sealing these wells will be in conformance with Dakota County Ordinance No. 114 (Well and Water Supply Management), which incorporates Minnesota Rules Chapter 4725 Wells and Borings. Dakota County has been granted the authority, under Minnesota Statutes 1031, and subsequent amendments, to regulate Wells and Water Supplies.

G. Wetlands

Goal:

The City will protect wetlands in conformance with the requirements of the Wetland Conservation Act of 1991, as amended.

Policies:

1. The City is the local governmental unit (LGU) responsible for administering the Wetland Conservation Act and rules. *(LMRWMO)*

2. The City will inventory, classify and determine the functions and values of wetlands on an as-needed basis. *(LMRWMO)*

3. The City will use a wetland classification system that ranks wetlands and sets wetland management standards based on the rank and desired level of protection (e.g. highest to lowest protection). The wetland management standards should include buffer strip width, structural setback distance from buffer strip, amount of pretreatment required for phosphorus removal, restrictions on water bound from various design storms, and susceptibility of the wetlands to degradation by stormwater inputs. *(LMRWMO)*

4. The City will encourage public and private landowners to maintain wetlands and open space areas for the benefit of wildlife. *(LMRWMO)*

5. Prior to issuance of any city grading or building permits, all development and redevelopment activities must comply with the Wetland Conservation Act.

6. An average 15 foot buffer of natural vegetation above the 100-year High Water Level (if established) or wetted boundary is required by the City around lakes, streams, and wetlands, for new or redevelopment projects that exceed one acre in land disturbance (for this policy, mill and overlay and pavement rehabilitation projects are not considered land disturbance). *(LMRWMO)*

7. Wetland banking opportunities will be pursued by the City in accordance with the Wetland Conservation Act.

H. Erosion

Goal:

To prevent soil erosion and sedimentation.

Policies:

1. The City will require erosion control plans for land development and construction work that will disturb one or more acres of land in conformance with NPDES Phase II Construction requirements.

2. The City requires the submission and approval of erosion control and grading plans prior to the issuance of any grading or building permits.

3. The City will continue to manage and enforce ordinances addressing erosion and sediment control, including the permitting and inspection of such controls. *(LMRWMO)*

4. Point discharges of stormwater to open channels or detention basins shall be constructed in a manner that minimizes added erosion. *(LMRWMO)*

5. Effective energy dissipation devices should be provided at all conveyance system discharges to prevent bank, channel or shoreline erosion. *(LMRWMO)*

6. Design of stream bank stabilization and streambed control measures should consider unique or special site conditions, energy dissipation potential, adverse effects, preservation of natural processes and habitat, and aesthetics in addition to standard engineering and economic criteria. *(LMRWMO)*

7. The City will require any development or redevelopment to comply with the erosion control and steep slope standards found in the City's Storm Water Management Ordinance, a copy of which is included in **Appendix H.**

8. The City will update (when necessary) its erosion and sediment control standards to be in conformance with the Watershed Management Organization and Dakota County's requirements.

9. It shall be the responsibility of the developer / contractor to keep streets and property adjacent to construction areas free from sediment carried by

construction traffic at site entrances and access points, and from site runoff and blowing dust.

10. The City will require developers and other project proposers to prepare and implement a Runoff Control Plan and an Erosion and Sediment Control Plan for activities affecting equal to or greater than 1 (one) acre of land. *(LMRWMO)*

11. Acceptable erosion in drainageways is limited to that which causes no net degradation of the watercourse or destruction of properties adjacent to the watercourse. *(LMRWMO)*

12. Select City staff will attend joint certification training program on designing and inspecting erosion control plans and inspecting erosion control measures when facilitated by the Lower Mississippi River WMO.

13. Select City staff will attend non-certification training to address items in the MS4 permit when conducted/coordinated by the Lower Mississippi River WMO.

I. Mississippi River

Goal:

To continue to protect and preserve the Mississippi River corridor, Mississippi River, and associated wetlands.

Policies:

1. Work cooperatively with Federal, State, and County agencies in the development of resource management and implementation plans affecting the Mississippi River

.

2. Address disturbed shoreland area issues.

3. Areas of the City within the Mississippi River Critical Corridor Area/Mississippi National River Recreation Area (MRCCA/MNRRA) are to conform to the current rules for the MRCCA/MNRRA. Refer to http://www.dnr.state.mn.us/index.html for more information. *(LMRWMO)*

J. Administration

Goal:

Meet the requirements of the Lower Mississippi River WMO and regulatory agencies while managing the City's water resources in an effective and efficient manner.

Policies:

1. Report annual progress of the City implementation plan to the Lower Mississippi River WMO. *(LMRWMO)*

2. Work with the Lower Mississippi River WMO to apply for grant funding available to Watersheds in effort to help fund projects throughout the City. *(LMRWMO)*

V. ASSESSMENT OF 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 local plan preparation and through information collected at the public input meetings.

A. Lake and stream water quality

1. Past and future development in the Seidl's Lake watershed, which includes the Cities of Inver Grove Heights, West St. Paul, and South St. Paul has impacted the water quality in the lake.

   Corrective Action
   a. Work with the LMRWMO to review water quality impacts on storm water that transcends municipal boundaries.

   b. Consider both structural and non-structural BMP's within the watershed to improve the water quality of runoff to Seidl's Lake.

   c. Work with volunteers to monitor the water quality of Seidl's Lake.

2. General water quality concerns of the Mississippi River.

   Corrective Action
   a. Work with the LMRWMO and others to reduce the pollutants entering the Mississippi River.

3. Water quality concerns at LeVander Pond.

   Corrective Action
   a. Complete a feasibility study to investigate possible contamination, water quality degradation, and sedimentation. Depending on the findings of the study, improvement may need to be constructed.

4. TMDL Requirements

   Corrective Action
   a. Work with the LMRWMO and other member cities to address the South Metro Mississippi TMDL study and implementation plan and other TMDLs as they are completed.

B. Flooding and storm water rate control concerns within the City

1. The City's existing flood protection system along the Mississippi River has levee and pump station deficiencies that need to be addressed.

   Corrective Action
   a. Work with the US Army Corps of Engineers and other agencies to construct improvements to the existing flood protection system. This will

include levee improvements, Grand Avenue and Stockyard pump station improvements, removal of the Treatment Plant pump station, construction of a new pump station, and other appurtenant improvements.

2. On-going erosion issues associated with Simon's Ravine

Corrective Action

a. Perform regular maintenance activities to stabilize erosion prone areas and reduce downstream sedimentation.

C. Flooding or storm water rate control concerns between the City and adjoining entities

1. Past and future development within the City of Inver Grove Heights, West St. Paul, and South St. Paul and climatic events have the potential to increase water elevations in landlocked Seidl's Lake. Increased water elevations may result in loss of vegetation around the lake, flood trails, and the observation platforms.

Corrective Action

a. Work with the LMRWMO and the City of Inver Grove Heights to minimize the impact of development on high water elevations in Seidl's Lake.

b. Construct an outlet from Seidl's Lake to reduce the impact of high water elevations on the lake. Cost share has yet to be determined.

2. Existing Storm Sewer at Dawn Way and 59th Street East in Inver Grove Heights receives water from South St. Paul airport, which may contribute to manhole covers being blown off manhole structures.

Corrective Action

a. Cities of Inver Grove Heights and South St. Paul need to determine solutions to correct the safety concerns associated with the storm sewer system. This may be accomplished through a feasibility study of the Dawn Way and 59th Street Storm Sewer system.

b. Construct Dawn Way Storm Sewer Improvement Project to alleviate drainage concerns. Refer to the allowable flow cost apportionment dated October 22, 2008 for the previously calculated cost splits for Inver Grove Heights and South St. Paul.

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

1. High water levels in Seidl's Lake have flooded both the observation deck and the pedestrian trail.

Corrective Action

a. Work with the LMRWMO and the City of Inver Grove Heights to install an outlet from Seidl's Lake. The outlet should be sized to establish a normal and high water elevations for Seidl's Lake.

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

1. Water quality impacts to the Mississippi River have impacted fish and wildlife resources.

Corrective Action

a. Work with the LMRWMO and other Federal, State, and local agencies to improve the water quality in the Mississippi River.

F. Impacts of soil erosion on water quality and water quantity

1. During significant rainfall events, soil erosion has carried sediment to water bodies within the City. Sediment deposits reduce the depth of water and degrade the quality of water within a basin.

Corrective Action

a. Implement the goals, policies, capital improvements program, and studies outlined within this Comprehensive Storm Water Management Plan.

b. Implement the City's NPDES Phase II Program.

c. Implement the Storm Water Pollution Prevention Plan (SWPPP) (**Appendix G**) for removal of sediment deltas at storm sewer inlets and outlets.

2. Addressing erosion and sedimentation along streambanks and lakeshores has been identified as a priority by the Lower Mississippi River WMO.

Corrective Action

a. The City will identify and prioritize shoreland areas for restoration.

b. The City will construct prioritized shoreland restoration projects as necessary and as funding mechanisms allow.

c. The City will work with the WMO and the Army Corps of Engineers to identify the location and extent of erosion problems along the Mississippi River within the City of South St. Paul.

G. General impact of land use practices and in particular land development and land alteration on water quality and water quantity

1. The City of South St. Paul is a fully developed urban city with very limited water resources. The City is directly tributary to the Mississippi River and discharges storm water directly to the River. In many cases this water is not controlled or treated prior to discharge.

Corrective Action

a. The City will implement storm water rate control and treatment of runoff directed to the Mississippi River when redevelopment opportunities allow for these improvements.

H. The adequacy of existing regulatory controls to manage or mitigate adverse impacts on public waters and wetlands

1. The City has adequate floodplain, river corridor, shoreland zoning, and illicit discharge ordinances. A copy of these ordinances is located in **Appendix D**.

2. The City is required to be in conformance with the NPDES Phase II Program.

Corrective action

a. The City will implement the NPDES Phase II Program and enforce the City ordinances.

b. The City will develop a program for inspecting and maintaining outfalls, sediment basins, ponds, and other BMPs.

I. The adequacy of programs to limit soil erosion and corresponding water quality degradation

1. The City's stormwater management ordinance contains erosion control provisions.

2. The City has developed a Storm Water Pollution Prevention Plan (SWPPP). A copy of the SWPPP can be found in **Appendix G.**

Corrective Action

a. The City will revise its storm water management ordinance to be in conformance with this Storm Water Management Plan and the NPDES Phase II program.

b. The City will implement and annually update/review the SWPPP in **Appendix G.**

c. Implement the goals, policies, capital improvements program, and studies outlined within this Comprehensive Storm Water Management Plan.

J. The adequacy of programs to maintain the tangible and intrinsic values of natural storage and retention systems

1. It is the position of the City that the goals and policies outlined in the Storm Water Management Plan, the Best Management Practices outlined in the City's NPDES Phase II Storm Water Pollution Prevention Plan, City ordinances, policies of the LMRWMO, and the policies of other agencies are adequate to maintain the tangible and intrinsic values of natural storage and retention systems within the City.

Corrective Action
No corrective action needed.

K. The adequacy of programs to maintain water level control structures

1. It is the position of the City that the goals and policies outlined in the Storm Water Management Plan, the Best Management Practices outlined in the City's NPDES Phase II Storm Water Pollution Prevention Plan, City ordinances, policies of the LMRWMO, and the policies of other agencies are adequate to maintain the water level control structures within the City.

Corrective Action
No corrective action needed.

L. The adequacy of capital improvement projects to correct problems relating to water quantity, water quality management, fish and wildlife habitat, public waters and wetland management, and recreational opportunities

1. The capital improvement projects outlined within this plan and the general operating procedures of the City are sufficient to address water resource related concerns. However, the Storm Water Utility Fund, by itself, may not be an adequate funding source to allow for the aggressive implementation of the capital improvement projects.

Corrective action

a. The City will review the needs for storm water Capital Improvements on a regular basis and adjust its fees accordingly.

b. The City will actively seek outside grant funding and assistance to help in the implementation of these projects.

M. Identification of potential problems which are anticipated to occur within the next twenty years based on growth projections and planned urbanization

1. The City anticipates that there will be increased demand to improve the quality of water within the City and the appearance of storm water retention areas. Additional funding sources will need to be sought to address this demand.

Corrective Action

a. The implementation of this Storm Water Management Plan will address water quantity, quality, and maintenance issues associated with storm water retention areas. Maintenance of these storm water retention areas will be undertaken as outlined in the Storm Water Pollution Prevention Plan outlined in **Appendix G.**

b. The City will actively seek outside grant funding and assistance when available and practical, to improve the quality and appearance of storm water retention areas.

N. The adequacy of existing technical and background information on systems in the City that are used to manage water resources

1. The City acknowledges that additional technical and background information is required to efficiently and effectively manage water resources.

Corrective Action

a. Continue to implement a long-range water quantity and quality-monitoring plan for the City.

b. Continue to keep up to date with technological advances and pursue innovative technologies to manage water resources.

c. Improve the transfer of surface water resource information to the public through the City's education program.

SECTION VI

VI. IMPLEMENTATION PRIORITIES/IMPLEMENTATION PROGRAM

Based on the information developed in **Sections III through V**, the City has developed a Comprehensive Storm Water Management Plan that reflects the needs and concerns of the City Council, City Staff, citizens, and the funding capabilities of the City. 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 is outlined on the following tables. The City anticipates implementing at least to some extent the regulatory programs, studies, or improvements identified within this plan within the next 10 years.

Table VI-1 contains Storm Water Capital Improvement Projects (CIP), **Table VI-2** contains Storm Water Management Programs (SMP), and **Table VI-3** contains Storm Water Management Studies (SMS). **Table VI-4** summarizes the information from all of these tables. The costs associated with these items reflect year 2012 costs and do not take into account inflation. These tables are for planning and budgeting purposes and are considered rough estimates. It is anticipated that these cost estimates will be reviewed annually and updated as needed.

TABLE 6-1														
CAPITAL IMPROVEMENT PROJECTS														
No.	Project Description	Cost Estimate[1]	Potential Funding Sources	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Plan References/ Comments
1	Construct Levee and Pump Station Improvements	$1,200,000	DNR Grant Monies, SWU, and TIF	$1,000,000	$200,000									V.B.1
2	Construct Levander Pond Improvements	$150,000	Storm Water Utility			$150,000								V.A.3
3	Annual Replacement of Storm Sewer with Road Project	$1,500,000	Storm Water Utility	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	
4	Construct improvements to stabilize erosion-prone areas along the Mississippi River.	$125,000	SWU, ACOE, or Grant funding (WMO to facilitate where necessary and determine cost share)				$125,000							V.F.2
5	Construct Seidls Pond/Lake lift station.	$200,000	SWU, Inver Grove Heights, West St. Paul, (Cost share as determined previously by WMO)			$200,000								V.C.1, V.D.1, Feasibility Study was completed in 2004
6	Construct Dawn Way Storm Sewer Improvement Project	$191,000	SWU, Inver Grove Heights, (Cost Share as determined previously by WMO)		$191,000									V.C.2, Allowable flow cost apportionment was completed in 2008.
		$3,366,000	**TOTAL**	**$1,150,000**	**$541,000**	**$500,000**	**$275,000**	**$150,000**	**$150,000**	**$150,000**	**$150,000**	**$150,000**	**$150,000**	

1) Cost estimates provided are for planning purposes only and are subject to change upon final design and/or updated information. Costs reflect 2011 value and do not account for inflation.

TABLE 6-2														
STORMWATER MANAGEMENT PROGRAMS														
No.	Project Description	Cost Estimate[1]	Potential Funding Sources	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Plan References/ Comments
1	Be an active participant in the activities of the Lower Mississippi Watershed Management Organization	$100,000	Storm Water Utility	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	
2	Provide review for all new development or redevelopment of sites within the City to assure the goals, policies, and objectives outlined in this plan are implemented. Includes cost for City staff as well as any consultant review time.	$120,000	Storm Water Utility	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	$12,000	
3	Perform Local Government Unit (LGU) Role for Wetland Conservation Act	$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	IV.G
4	Sponsor City-wide clean up day	$150,000	General Fund	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	
5	Complete periodic inspections identifying areas within the City with erosion problems.	$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	IV.H
6	Simon's Ravine Maintenance	$30,000	Storm Water Utility	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	V.B.3
7	Engineering staff inspection & enforcement of erosion control measures required for site development activities within the City with the NPDES Erosion Control Program now being administered by the MPCA.	$50,000	Storm Water Utility or Permit Fees	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	IV.H
8	Implement water quantity and quality monitoring program	$30,000	SWU, LMRWMO, CAMP, CSMP	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000	IV.B

TABLE 6-2														
STORMWATER MANAGEMENT PROGRAMS														
No.	Project Description	Cost Estimate[1]	Potential Funding Sources	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Plan References/ Comments
9	Implementation of community education plan to increase the residents awareness concerning proper water resource management	$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	IV.D
10	Wetland Health & Evaluation Program	$9,000	Storm Water Utility	$900	$900	$900	$900	$900	$900	$900	$900	$900	$900	
11	Sweep streets at least twice per year	$350,000	Storm Water Utility	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	$35,000	IV.B
12	Inspect storm water outfalls and ponds on a rotating basis	$100,000	Storm Water Utility	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	IV.B
13	Utilize educational resources developed by the LMRWMO to assist in the City's public education program	$5,000	Storm Water Utility	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	IV.D
14	Develop program for inspecting and maintaining outfalls, sediment basins, ponds, and other BMPs	$15,000	Storm Water Utility	$15,000										V.H
15	Address the South Metro Mississippi TMDL and other TMDLs as they are completed.	$6,000	Storm Water Utility		$2,000	$2,000	$2,000							V.A.4
16	Annually review and update City SWPPP	$100,000	Storm Water Utility	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	V.I.2
17	Develop a response plan to minimize the impact of hazardous spills on protected waters	$500	Storm Water Utility	$0	$500	$0	$0	$0	$0	$0	$0	$0	$0	IV.B.23
18	Report annual progress of the City implementation plan to the Lower Mississippi River WMO.	$2,500	Storm Water Utility	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	IV.J.1
		$579,000	**TOTAL**	**$70,750**	**$58,250**	**$57,750**	**$57,750**	**$55,750**	**$55,750**	**$55,750**	**$55,750**	**$55,750**	**$55,750**	

1) Cost estimates provided are for planning purposes only and are subject to change upon final design and/or updated information. Costs reflect 2011 value and do not account for inflation.

TABLE 6-2														
STORMWATER MANAGEMENT PROGRAMS														
No.	Project Description	Cost Estimate[1]	Potential Funding Sources	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Plan References/ Comments

TABLE 6-3														
STORMWATER MANAGEMENT STUDIES														
No.	Project Description	Cost Estimate[1]	Potential Funding Sources	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Plan References/ Comments
1	Levander Pond Improvements Feasibility Study	$20,000	Storm Water Utility		$20,000									V.A.3
2	Evaluate DNR protected water bodies with known or potential problems and pursue shoreland restoration where needed.	$4,000	Storm Water Utility			$4,000								V.F.2
3	Work with ACOE to identify location/extent of erosion problems on Mississippi River.	$10,000	SWU, ACOE, or Grant funding (WMO to facilitate where necessary and determine cost share)			$10,000								V.F.2
4	Complete Water Quality Monitoring of Seidl's Lake	$10,000	Storm Water Utility	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	V.A.1
		$44,000	**TOTAL**	**$1,000**	**$21,000**	**$15,000**	**$1,000**	**$1,000**	**$1,000**	**$1,000**	**$1,000**	**$1,000**	**$1,000**	

1) Cost estimates provided are for planning purposes only and are subject to change upon final design and/or updated information. Costs reflect 2011 value and do not account for inflation.

TABLE 6-4												
SUMMARY												
Improvements, Programs, and Studies	**Totals[1]**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Comments**
Totals for Capital Improvements:	**$3,366,000**	$1,150,000	$541,000	$500,000	$275,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	
Totals for Management Programs:	**$579,000**	$70,750	$58,250	$57,750	$57,750	$55,750	$55,750	$55,750	$55,750	$55,750	$55,750	
Totals for Management Studies:	**$44,000**	$1,000	$21,000	$15,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	
Grand Totals:	**$3,989,000**	$1,221,750	$620,250	$572,750	$333,750	$206,750	$206,750	$206,750	$206,750	$206,750	$206,750	

1) Cost estimates provided are for planning purposes only and are subject to change upon final design and/or updated information. Costs reflect 2011 value and do not account for inflation.

SECTION VII

VII. FINANCIAL CONSIDERATIONS

Implementation of the proposed regulatory controls, programs and improvements 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. Outlined below is a listing of various sources of revenue that the City will endeavor to implement the water resource management efforts outlined in this plan.

For 2012-2021, the capital improvement projects are estimated to cost approximately $3,366,000. The storm water management program costs are estimated at about $576,000. The storm water studies are estimated to cost about $44,000. Over this 10-year period, these projects, programs, and studies are estimated to cost about $4 million.

DESCRIPTION OF FUNDING SOURCE	REVENUE GENERATED
1. Revenue generated by City's Storm Water Utility	$400,000/yr.
2. Special assessments for local improvements made under the authority granted by Minnesota Statutes Chapter 429 and 444.	Variable depending on activities undertaken
3. Revenue generated by Watershed Management Special Tax Districts provided for under Minnesota Statutes Chapter 473.882	Variable depending on activities undertaken
4. Capital improvement projects being completed by or in cooperation with the Lower Mississippi River Watershed Management Organization (LMRWMO) are required to be in conformance with the Revised and restated LMRWMO Joint Powers Agreement (See Section 9).	Variable depending on activities undertaken
5. Grant monies that may be secured from various local, regional, County, State, or Federal agencies. This would include MnDOT, MPCA, Metropolitan Council, the DNR and others	Variable depending on activities undertaken
6. Other Sources: These may be other sources of funding for storm water activities such as tax increment financing, state aid, etc. The City will continue to explore additional revenue sources as they become available.	Variable depending on activities undertaken
7. Tax abatement	Variable

SECTION VIII

VIII. AMENDMENT PROCEDURES

It is the intention of the City to have this Storm Water Management Plan reviewed and approved by the Lower Mississippi River Watershed Management Organization. Once approved, no significant changes to this plan can be facilitated without the approval of the proposed revisions by the Watershed Management Organization. Significant changes to the local plan shall be made known to the following parties:

1. City Administrator and City Engineer.
2. City Council
3. Lower Mississippi River Watershed Management Organization.
4. Metropolitan Council
5. Public within the City through a public hearing process
6. Dakota County

Following notification of the above parties, they shall have 60 days to comment on the proposed revisions. Failure to respond within 60 days constitutes approval. Upon receipt of approvals from the Watershed Management Organization, 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 when significant changes to the plan are deemed necessary or an update is required by a Watershed Management Organization Plan update.

SECTION IX

IX. REFERENCES/SUPPLEMENTAL DOCUMENTS

The following documents have been referenced within the text of the Plan and are available within the Appendices of the Plan, the Water Resource Library at the Engineering Department, or from the Engineering Staff.

1. Lower Mississippi River Watershed Management Organization. 2011. Watershed Management Plan.

2. City of South St. Paul. 2011. City Comprehensive Plan.

3. Water Resource Related Agreements. See **Appendix A** of City of South St. Paul Storm Water Management Plan.

4. Minnesota Geological Survey. 1990. Dakota County Geologic Atlas.

5. National Wetland Inventory Maps. U.S. Fish and Wildlife Service.

6. Federal Emergency Management Agency. 1980. Flood Insurance Rate Maps.

7. Federal Emergency Management Agency. 1979. Flood Insurance Study.

8. US Environmental Protection Agency/Minnesota Pollution Control Agency. STORET Database.

9. City of South St. Paul. Flood Plain, River Corridor and Shoreland Zoning Regulations.

10. Minnesota Department of Natural Resources. DNR Water Appropriations Permits.

11. Dakota County. 1999. Dakota County 2020 Environment and Natural Resource Management Policy Plan.

12. Dakota County. 2000. Dakota County Groundwater Protection Plan.

13. South St. Paul Wellhead Protection Plan. 2003.

14. Soil Conservation Service. 1980. Dakota County Soil Survey.

15. City of South St. Paul. 1999. Comprehensive Plan.

16. Minnesota Department of Natural Resources – Natural Heritage Database report for City of South St. Paul. 2003.

17. Minnesota Pollution Control Agency. 2003. List of pollutant sources within the City of South St. Paul.

18. Minnesota Historical Society. 2003. Geographical search of archeological inventory.

19. City of South St. Paul. 2003. Stormwater Pollution Prevention Program (SWPPP).

20. Minnesota Pollution Control Agency. 2000. Protecting Water Quality in Urban Areas: Best Management Practices for Dealing with Storm Water Runoff from Urban, Suburban, and Developing Areas of Minnesota.

21. Barr Engineering. Memorandum. September 28, 2001. Seidl's Pond Long Term Hydrological Study.

22. Barr Engineering. 1988. Phase I Evaluation of Kaposia Dam.

23. Barr Engineering. 1990. Phase IIA Evaluation: Kaposia Dam.

24. Barr Engineering. 1992. 1991 Seidl's Lake Water Quality Study.

25. Barr Engineering. 1989. Drainage Plan: Highway 110-494 Watershed.

26. Barr Engineering. November 1991. Simon's Ravine Feasibility Study.

27. WSB & Associates. Memorandum. October 14, 1998. Application for 1999 Fiscal Year Municipal Agreement Program Funding of Simon's Ravine.

SECTION X

X. GLOSSARY

1% CHANCE RAINFALL EVENT	A rainfall event that has a 1 % chance of being equaled or exceeded during any given year.
ALLUVIUM	Material, such as sand, silt, or clay, deposited on land by streams.
AQUIFER	A formation, group of formations, or part of a formation that contains enough saturated permeable material to yield significant quantities of water.
ARTESIAN AQUIFER	An aquifer which is bounded above and below by formations of impermeable material or relatively impermeable material.
BEDROCK	The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
CONVEYANCE SYSTEM	A surface water transport system that may include rivers, streams, man-made channels, grass waterways, storm water sewers, culverts, and other man-made control structures.
CRITICAL EVENT STORM	When comparing the 1%, 24-hour high water level and discharge rate to the 1%, 10-day high water level and discharge rate, the event that produces the highest high water level and discharge rate is defined as the critical event storm.
DRIFT (GLACIAL)	Rock material transported by glacial ice or material deposited by streams from glaciers.
EUTROPHIC	A condition where a body of water has reduced level of dissolved oxygen producing an increased level of plant life. A water body with a Trophic State Index from 51 to 70.
FLOOD PLAIN	A nearly level alluvial plain that borders a river or stream and is subject to flooding unless protected artificially.
GEOMORPHOLOGY	The geologic study of the configuration and evolution of land forms.
HWL	High Water Level. The highest water level achieved in a pond is predicted by the 100-year critical event model.
HYDRAULIC	Involving, moved, or operated by a fluid, especially water, under pressure.

HYDROGRAPH	A plot of stream flow against time.
HYDROLOGIC BOUNDARY	The boundary defining watershed or subwatershed units.
HYDROLOGY	The science concerned with waters of the earth, their occurrence, distribution, and circulation; their physical and chemical properties; and their reaction to the environment.
MEAN	Average. The sum of the magnitudes of all items of a set, divided by the items.
NWL	Normal Water Level. The lowest controlling elevation of the pond.
100-YEAR FLOOD PLAIN	That flood plain associated with a storm that has a 1 percent chance of being equaled or exceeded during any year (100-year recurrence interval). Usually calculated assuming a rainfall event of 24 hours in duration.
ORDINARY HIGH WATER MARK (OHWM)	The boundary of protected waters as defined in Minnesota Statutes.
OUTWASH	Stratified sand and gravel produced by glaciers and carried, sorted, and deposited by glacial melt water.
OUTWASH PLAIN	A land form of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it is generally low in relief.
P8	"Program for Predicting Polluting Particle Passage through Pits, Puddles, and Ponds." This computer program is used for water quality monitoring within subwatersheds.
PARENT MATERIAL	The unconsolidated organic and mineral material in which soil forms.
PERMEABILITY	A characteristic of soil that enables water to move downward through the profile. Measured in inches per hour.
MAJOR STORM WATER STORAGE FACILITY	A facility which has the ability to provide flood protection for the critical 1% chance storm event.
NVGD	National Vertical Geodetic Datum. The nationwide reference surface for elevations.
PROTECTED WATERS	Those waters of the state identified as Public Waters or

AND WETLANDS	Wetlands under Minnesota Statutes. Generally, all lakes and Type 3, 4, and 5 wetlands as identified in the Department of Interior Circular 39, Wetlands of the United States, 1971. Public wetlands are generally those 10 or more acres in size in unincorporated areas, or 2.5 or more acres in size in incorporated areas.
SOIL ASSOCIATION	A group of soils geographically associated in a characteristic repeating pattern defined and delineated as a single map unit.
SUBWATERSHED	A minor drainage unit and a hydrologic component of a watershed.
SURFICIAL MATERIAL	Unconsolidated deposits of variable content and texture that overlie the bedrock surface. Major textural categories include alluvium, terraced sands and gravels, loess, till and outwash.
TILL	Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.
TILL PLAIN	An extensive flat to undulating area underlain by glacial till.
TROPHIC STATE INDEX	A numeric index for lakes that rates the water quality of the lakes from a scale of 0 to 100 based on algal biomass. The index number can be calculated from any of several parameters, including secchi disc transparency, chlorophyll, and total phosphorus.
WATER APPROPRIATIONS	Waters of the state that are appropriated in excess of 10,000 gallons per day and/or 1 million gallons/year. A permit from the DNR is required for this type of activity.
WATER RESOURCE LIBRARY	A compilation of information from various agencies used in the preparation of the Surface Water Management Plan. This library is available at the Engineering Department.
WATERSHED	All lands which are enclosed by a continuous hydrologic drainage divide and lie upslope from a specified outlet point.
XPSWMM	Expert System Stormwater Management Model. This computer program models normal and high-water elevations.

Appendix A

Water Resource Related Agreements

REVISED AND RESTATED

JOINT POWERS AGREEMENT
ESTABLISHING A WATERSHED MANAGEMENT ORGANIZATION
FOR THE LOWER MISSISSIPPI RIVER WATERSHED

THE PARTIES TO THIS AGREEMENT ("Agreement") are Members of the Lower Mississippi River Watershed Management Organization and have land that drain surface water into the Mississippi River. This Agreement amends and restates the original Joint Powers Agreement between the Members which became effective in 1985 and includes all prior Amendments to the 1985 Joint Powers Agreement. This Agreement is made pursuant to the authority conferred upon the parties by Minn. Stat. §§ 471.59 and 103B.201 - 103B.252.

SECTION 1. NAME AND LEGAL BOUNDARY. The parties hereby establish the Lower Mississippi River Watershed Management Organization, hereinafter referred to as the "WMO." The "Legal Boundary Map of the Lower Mississippi River Watershed Management Organization" is attached hereto as Exhibit A.

SECTION 2. PURPOSE. The purpose of this Agreement is to provide an organization to regulate the natural water storage and retention of the Lower Mississippi watershed to:

A. Protect, preserve, and use natural surface and ground water storage and retention systems;

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

C. Identify and plan for means to effectively protect and improve surface and ground water quality;

D. Establish more uniform local policies and official controls for surface and ground water management;

E. Prevent erosion of soil into surface water systems;

F. Promote ground water recharge;

G. Protect and enhance fish and wildlife habitat and water recreational facilities;

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

I. Carry out all the duties and responsibilities in Minn. Stat. §§ 471.59 and 103B.201 - 103B.252.

SECTION 3. DEFINITIONS.

Subdivision 1. *"Allowable Flow"* means the rate and volume of flow, according the to design criteria set forth in the Watershed Management Plan, at which a Member community may discharge into the drainage system without financial obligation and as the rate and volume of surface water runoff from a tributary area under natural conditions, with a drainage system in place which has been designed and constructed according to the criteria stated herein, excluding diverted waters. Current topographic data that exists on the enactment date of this Agreement shall be used for the determination of the natural conditions and calculation of the allowable flow.

Subdivision 2. *"Board"* means the board of managers of the WMO.

Subdivision 3. *"Council"* means the governing body of a governmental unit which is a Member of this WMO.

Subdivision 4. *"Drainage Facilities"* means any improvement constructed for the conveyance or storage of surface water.

Subdivision 5. *"Drainage System"* means the combination of drainage facilities required to safely control or convey runoff water from a major tributary drainage area(s) to a point of final discharge into a water body.

Subdivision 6. *"Excessive Flow"* means that rate and volume of flow, calculated according to the design criteria in the Watershed Management Plan, from a Member which is in excess of the allowable flow of that Member.

Subdivision 7. *"Governmental Unit"* means any city.

Subdivision 8. *"Lower Mississippi River Watershed"* or *"Watershed"* means the area contained within the "Legal Boundary Map of the Lower Mississippi River Water Management Organization" attached hereto as Exhibit "A".

Subdivision 9. *"Manager"* means the representative appointed to the Board by a Member.

Subdivision 10. *"Member"* means a governmental unit which enters into this Agreement.

Subdivision 11. *"Natural Conditions"* means the characteristics of the land on the date of enactment without regard to any urban development including structures, parking lots, or other artificial improvements.

Subdivision 12. *"Rate of Flow"* means the discharge of surface water runoff as a function of time which has been calculated according to the design criteria identified in the Watershed Management Plan. The rate of flow shall apply to the design and construction of open channels and storm sewer conduits.

Subdivision 13. *"Volume of Flow"* means the total discharge of all surface water runoff which has been calculated according to the design criteria identified in the Watershed Management Plan. The volume of runoff flow shall apply to the design and construction of detention facilities.

Subdivision 14. *"Watershed Management Organization"* or *"WMO"* means the organization created by this Agreement the full name of which is "Lower Mississippi River Watershed Management Organization." It shall be a public agency of its Members.

SECTION 4. MEMBERSHIP. The Membership of the WMO shall consist of the following governmental units, each entitled to the following eligible votes:

Member	Votes
City of Inver Grove Heights	3 votes
City of Lilydale	1 vote
City of Mendota Heights	2 votes
City of Saint Paul	2 votes
City of South Saint Paul	2 votes
City of Sunfish Lake	1 vote
City of West Saint Paul	2 votes

No change in governmental boundaries, structure, organizational status, or character shall affect the eligibility of any governmental unit listed above to be represented on the WMO, so long as such governmental unit continues to exist as a separate political subdivision. A majority of all eligible votes shall be sufficient for all matters, unless otherwise provided for in this Agreement. A majority vote of all Members, with each Member having one vote, shall be required for Section 7. A Member may not cast a split vote. Any Member that fails to contribute their share of the WMO annual administration fund or their allocation of a capital improvement cost, shall be declared ineligible for voting on all matters before the Board, until such contribution is made to the WMO.

SECTION 5. ADVISORY COMMITTEES.

Subdivision 1. Technical Advisory Committee. The following governmental subdivisions or agencies shall be requested to appoint a non-voting advisory Member to the WMO: Dakota County, Ramsey County, Dakota County Soil and Water Conservation District. The advisory Members shall not be required to contribute funds for the operation

of the WMO, except as provided in Minn. Stat. § 103B.251, but may provide technical services.

Subdivision 2. Citizen Advisory Committee. The WMO may establish a citizen advisory committee ("CAC") from the public at large to provide input on Watershed Management Plan revisions and other matters as deemed appropriate. The CAC shall be appointed by the WMO considering individuals nominated by each Member. The WMO will notify each Member of its intent to establish a CAC, will specify the purpose and duration of the CAC, and will request each Member to nominate candidates to be considered for appointment by the WMO. At the time of establishment of a CAC, the WMO will appoint a chair of the CAC, a board member liaison to the CAC, establish a time for submittal of any comments, and specify the support the WMO will provide to the CAC.

SECTION 6. BOARD OF MANAGERS.

Subdivision 1. Appointment. The governing body of the WMO shall be its Board. Each Member shall be entitled to appoint one Manager and an alternate on the Board. The alternate shall have the right to vote in the absence of their representative. Vacancies in the office of Manager shall be filled for the remainder of the term by the Member which appointed or had the right to appoint the Manager. All vacancies shall be filled within ninety (90) days after they occur.

Subdivision 2. Eligibility or Qualification. The Council of each Member shall determine the eligibility or qualification of its representative on the WMO.

Subdivision 3. Term. The Managers shall not have a fixed term, but shall serve at the pleasure of the Member appointing such Manager to the Board.

Subdivision 4. Removal. A Manager may not be removed from the Board prior to the expiration of his or her term, unless the Manager consents in writing or unless removed in accordance with the procedures provided under Minnesota Rules 8410.0040.

Subdivision 5. Compensation. Managers shall serve without compensation from the WMO, but this shall not prevent a Member from providing compensation for its Manager.

Subdivision 6. Organizational Meeting. At the first meeting of the Board each year, the Board shall elect from its Managers a chair, a vice chair, a secretary/treasurer, and such other officers as it deems necessary to conduct its meetings and affairs. The Board shall adopt rules of order and procedure governing its meetings and affairs. The rules of order and procedure may be amended from time to time at either a regular or a special meeting of the Board provided that at least ten (10) days' prior notice of the proposed amendment has been furnished to each person to whom notice of the Board meetings is required to be sent. A majority vote of all eligible votes of the Members of the WMO shall be sufficient to adopt any proposed amendment to such rules of order and procedure.

Subdivision 7. Annual Meeting Requirement. The Board shall meet at least annually, at times and places selected by the Board. If the Board changes its regularly established meeting place or time, it shall place a notice of the change on a bulletin board at least three (3) days in advance in the building where it was scheduled to meet.

Subdivision 8. Committees. The Board may establish committees as it deems appropriate.

Subdivision 9. Quorum. The Board shall not take any action without a quorum present. A quorum shall be at least four Members.

SECTION 7. POWERS AND DUTIES OF THE WMO. The WMO, acting by its Board:

Subdivision 1. Shall prepare, adopt and implement a Watershed Management Plan meeting the requirements of Minn. Stat. § 103B.231;

Subdivision 2. Shall review and approve local water management plans as provided in Minn. Stat. § 103B.235;

Subdivision 3. Shall exercise the authority of a watershed district under Minn. Stat. Chapter 103D to regulate the use and development of land in the watershed when one or more of the following conditions exist:

A. The local government unit exercising planning and zoning authority over the land under Minn. Stat. §§ 366.10 to 366.19, 394.21 to 394.37, or 462.351 to 462.364 does not have a local water management plan approved and adopted in accordance with requirements of Minn. Stat. § 103B.235 or has not adopted the implementation program described in the plan.

B. An application to the local government unit for a permit for the use and development of land, requires an amendment to, or variance from, the adopted local water management plan or implementation program of the local unit.

C. The local government unit has authorized the WMO to require permits for the use and development of land.

Subdivision 4. Shall adopt an annual work plan.

Subdivision 5. May employ such persons as it deems necessary to accomplish its duties and powers.

Subdivision 6. May contract for space and for material and supplies to carry on its activities either with a Member or elsewhere.

Subdivision 7. May acquire necessary personal and real property to carry out its powers and its duties.

Subdivision 8. May make necessary surveys or use other reliable surveys and data, and develop projects to accomplish the purposes for which the WMO is organized.

Subdivision 9. May cooperate or contract with the State of Minnesota or any subdivision thereof or federal agency or private or public organization to accomplish the purposes for which it is organized.

Subdivision 10. May order any governmental unit to carry out the local water management plan which has been approved by the Board. If the local unit of government fails to do so, in addition to other remedies, in its discretion, the Board may implement any required action or improvement in accordance with this Agreement.

Subdivision 11. May acquire, operate, construct, and maintain the capital improvements delineated in the Watershed Management Plan adopted by the Board.

Subdivision 12. May contract for or purchase such insurance as the Board deems necessary for the protection of the WMO and its Board.

Subdivision 13. May establish and maintain devices for acquiring and recording hydrological and water quality data within the watershed area of the WMO.

Subdivision 14. May enter upon lands within or without the watershed to make surveys and investigations to accomplish the purposes of the WMO.

Subdivision 15. May provide any Member with technical data or any other information of which the WMO has knowledge which will assist the Member in preparing land use classifications or local water management plans within the watershed.

Subdivision 16. May provide legal and technical assistance in connection with litigation or other proceedings between one or more of its Members and any other political subdivision, commission, board, corporation, individual, or agency relating to the

planning or construction of facilities to drain or pond storm waters or relating to water quality within the WMO.

Subdivision 17. May accumulate reserve funds for the purposes herein mentioned and may invest funds of the WMO not currently needed for its operations.

Subdivision 18. May collect money, in accordance with the provisions of this Agreement, from its Members and from any other source approved by the Board.

Subdivision 19. May make contracts, incur expenses, and make expenditures necessary and incidental to the effectuation of its purposes and powers.

Subdivision 20. Shall cause to be made an annual audit of the books and accounts of the WMO and shall make and file a report to its Members at least once each year including the following information:

A. The financial condition of the WMO;

B. The status of all WMO projects and work within the watershed; and

C. The business transacted by the WMO and other matters which affect the interests of the WMO. Copies of the report shall be transmitted to the clerk of each Member by March 31 of each year.

Subdivision 21. Shall make the WMO's books, reports, and records available for and open to inspection by its Members or the public at all reasonable times.

Subdivision 22. May recommend changes in this Agreement to its Members. Any amendments shall require ratification by all the parties to this Agreement.

Subdivision 23. May exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth herein and as authorized by Minn. Stat. §§ 103B.201 through 103B.252.

Subdivision 24. Must solicit proposals for all legal, engineering, auditing, and other technical services in accordance with Minnesota Statutes § 103B.227, subd. 5.

Subdivision 25. Shall coordinate its planning activities with contiguous watershed management organizations and counties conducting water planning and implementation under Minn. Stat. Chapter 103B.

Subdivision 26. Shall designate one or more legal newspapers of general circulation which are published in the county(ies) in which the watershed is located.

SECTION 8. POWERS AND DUTIES OF THE OFFICERS OF THE BOARD.

Subdivision 1. It shall be the duty of the Chair of the Board to:

A. Attend and preside at all meetings of the Board;

B. Assist in the preparation of meeting agendas and the annual work plan;

C. See that orders and resolutions of the Board are carried into effect;

D. Sign and execute documents as may be required for the Board's exercise of its powers, except as otherwise required by law; and

E. Perform such other duties applicable to the office as are necessary to fulfill the powers and duties of the Board as set forth in this Agreement, and as provided by law.

Subdivision 2. It shall be the duty of the Vice Chair of the Board to:

A. Perform the duties of the Chair in the Chair's absence; and

B. Perform other duties as assigned from time to time by the Board.

Subdivision 3. It shall be the duty of the Secretary/Treasurer of the Board to:

A. Keep and post a true and accurate record of the proceedings of all meetings of the Board;

B. Keep a record of all amendments, alterations and additions to this Agreement;

C. Prepare and process all correspondence;

D. Prepare and file all reports and statements as required by law and this Agreement;

E. Keep all financial accounts of the WMO, and prepare and present to the Board full and detailed financial statements of the WMO prior to its annual meeting; and

F. Perform other duties as assigned from time to time by the Board.

SECTION 9. CONSTRUCTION OF IMPROVEMENTS.

Subdivision 1. All construction, reconstruction, extension or maintenance of WMO improvements, including outlets, lift stations, dams, reservoirs, or appurtenances of a surface water or storm sewer system ordered by the WMO which involve potential construction by or assessment against any Member or against privately or publicly owned land within the watershed shall adhere to the following procedures set forth in this section. The Board shall secure from its engineers or some other competent person a preliminary report advising it whether the proposed improvement is feasible, whether there are feasible alternatives, whether the proposed improvement shall best be made as proposed or in conjunction with some other improvement, a determination of the quantity and/or quality of storm and surface water contributed to the improvement by each Member, the estimated cost of the improvement(s), including maintenance, the estimated cost to each Member, and evaluating the consistency of the improvement with the Watershed Management Plan capital improvement section. The Board shall then hold a public hearing on the proposed improvement. Notice of the hearing shall be mailed to the clerk of each affected Member and shall also be published in the Board's official newspaper(s). The notice shall be mailed not less than forty-five (45) days before the hearing, shall state the time and place of the hearing, the general nature of the improvement, the estimated total cost, and the estimated cost to each Member.

To order the improvement, a resolution setting forth the order shall require a favorable majority vote of all eligible votes of the Members of the WMO. The order shall

describe the improvement, shall allocate in percentages the cost allocation among the Members, shall determine the method of financing, shall designate the engineers to prepare plans and specifications, and shall designate the entity that will contract for the improvement. The Board shall not order and no engineer shall prepare plans and specification before the Board has adopted a resolution ordering the improvement. After the Board has ordered an improvement, it shall forward the preliminary report to all affected Members with an estimated time schedule for the construction of the improvement.

The Board shall allow not less than 90 days, nor more than 270 days, for each Member to conduct hearings as provided by law or applicable charter requirements, to approve the construction and the method of financing of the improvement which the Member will use to pay its proportionate share of the costs of the improvement.

If the WMO proposes to use Dakota County's and/or Ramsey County's bonding authority, or if the WMO proposes to certify all or any part of an improvement to Dakota and/or Ramsey County for payment, then and in that event all proceedings shall be carried out in accordance with Minn. Stat. § 103B.251.

The Board may order advertising for bids upon receipt of notice from each Member which will be assessed that it has completed its hearing or determined its method of payment, or upon expiration of 270 days after the mailing of the preliminary report to the Members, whichever occurs first.

Subdivision 2. Any Member aggrieved by the determination of the Board as to the financing of an improvement or allocation of the costs of an improvement shall have thirty (30) days after the WMO resolution ordering the improvement to appeal the determination to arbitration. The appeal shall be in writing requesting the arbitration and

shall be addressed to the Board in c/o City of South St. Paul, 125 3rd Ave. N., South St. Paul, MN 55075. The determination of the Member's appeal shall be referred to a Board of Arbitration. The Board of Arbitration shall consist of three (3) persons: one to be appointed by the Board, one to be appointed by the appealing Member, and the third to be appointed by the two so selected. In the event the two persons so selected do not appoint the third person within fifteen (15) days after their appointment, then the chief judge of the District Court of Dakota County shall have jurisdiction to appoint, upon application of either or both of the two earlier selected, the third person to the Board of Arbitration. The third person selected shall not be a resident of any Member and if appointed by the chief judge, shall be a person knowledgeable in the subject matter of the dispute. The arbitrators' expenses and fees, together with the other expenses, not including counsel fees, incurred in the conduct of the arbitration shall be divided equally between the WMO and the appealing Member. Arbitration shall be conducted in accordance with the Uniform Arbitration Act, Minn. Stat. Chapter 572. Arbitration must be completed within the 270 day period provided for in Subdivision 1 of this Section.

Subdivision 3. Contracts for Improvements. The bidding and contracting of the work may be let by any Member or by the WMO as determined by the Board, in compliance with state statutes. Contracts and bidding procedures shall comply with all legal requirements.

Subdivision 4. Supervision. All improvement contracts shall be supervised by the entity awarding the contract. A WMO representative shall also be authorized to observe and review the work in progress and the Members agree to cooperate with the WMO representative in accomplishing the WMO's purposes. Representatives of the WMO shall have the right to enter upon the place or places where the improvement work is in

progress for the purpose of making reasonable tests and inspections. The WMO representative shall report to the Board on the progress of the work.

Subdivision 5. Land Acquisition. The WMO shall not have the power of eminent domain. All easements or interest in land which are necessary for an improvement will be negotiated or condemned in accordance with Minn. Stat. Chapter 117 by the Member where the land is located, and each Member agrees to acquire the necessary easement or right-of-way or partial or complete interest in land upon order of the Board to accomplish the purposes of this Agreement. All reasonable costs of the acquisition, including attorney's and appraiser's fees, shall be a cost of the improvement, and shall be allocated according to the formula for allocating Capital Improvement cost in Section 10, Subdivision 7. If a Member determines it is in its best interests to acquire additional rights in lands for some other purposes, in conjunction with the taking of lands for the improvement, the costs of the acquisition of additional rights in lands will not be included in the improvement costs. The Board, in determining the amount of the improvement costs to be assessed to each Member, may take into consideration the land use for which the additional lands are being acquired and may credit the acquiring Member for the land acquisition to the extent that it benefits the other Members. Any credits may be applied to the cost allocation of the improvement, or the Board, if feasible and necessary, may defer the credits to a future improvement.

Members may not condemn or negotiate for land acquisition to pond or drain storm and surface waters within the corporate boundaries of another Member within the WMO.

SECTION 10. FINANCES.

Subdivision 1. Disbursements. The WMO funds may be expended by the Board in accordance with this Agreement in a manner determined by the Board. The Board shall designate one or more national or state bank or trust companies authorized to receive deposits of public monies to act as depositories for the WMO funds. In no event shall there be a disbursement of WMO funds without approval by the Board and the signature of at least two (2) Board Members, one of whom shall be an officer. The Board may require the secretary/treasurer to file with the Board a bond in the sum of at least $10,000 or such higher amount as shall be determined by the Board. The WMO shall pay the premium on said bond.

Subdivision 2. Budget. On or before July 1 of each year, the Board shall adopt a general fund budget ("Budget") by a majority vote of all Members (with each Member having one vote) for the ensuing year and decide upon the total amount necessary for the general fund. The secretary/treasurer of the Board shall certify the Budget to the clerk of each Member, together with a statement of the proportion of the Budget to be provided by each Member, computed in accordance with Section 10, Subdivision 5. The council of each Member shall review the Budget, and the Board shall upon notice from any Member received prior to August 1, hear objections to the Budget, and may, upon notice to all Members of the time, date, place of and right to participate in the hearing and after a hearing, modify or amend the Budget, and then give notice to the Members of any and all modifications or amendments. Each Member agrees to provide the funds required by the Budget by February 15th of each year.

If a Member fails to provide its share of the funds required by the Budget by February 15 of each year, the unpaid balance of the funds shall accrue interest at a rate of

eight percent (8%) per annum commencing the day following February 15th of the year in which the funds were due. The WMO may take whatever action, at law or in equity it deems appropriate, to collect any amounts due from a Member under this Agreement. The Member agrees to pay the cost of collection, including reasonable attorneys' fees.

Subdivision 3. Maintenance. The Board shall have the option of funding maintenance work through the Budget, or funding as a capital improvement in accordance with Subdivision 6 of this Section. Maintenance costs that are associated with an improvement in the approved Capital Improvement Program, shall be allocated according to the same formula as is applicable for allocating capital improvement costs as identified in Section 10, Subdivision 7. The Members affected by the improvement shall decide on the level of maintenance to be applied to the improvement. If the Members cannot agree, the Board shall make the determination.

Subdivision 4. Tax Levy. If authorized by law, the WMO may levy a tax. The proceeds of any tax levied under this subdivision shall be expended only for the purposes authorized by law. The WMO may accumulate the proceeds of levies as an alternative to issuing bonds to finance improvements.

Subdivision 5. General Fund. Each Member agrees to contribute each year to a general fund to be used for general administration purposes including, but not limited to: improvement projects, salaries, rent, supplies, development of an overall plan, insurance, bonds, and to purchase and maintain devices to measure hydrological and water quality data. The funds may also be used for any other purpose authorized by this Agreement. The annual contribution by each Member shall be based fifty percent (50%) on taxable market value (for the preceding year) and fifty percent (50%) on area in accordance with the following formula:

Annual Watershed Levy = L

Taxable Market Value of a
Member's Property in the Watershed = MV

Taxable Market Value of All Property in the Watershed = TV

Acres of Property a Member Has in the Watershed = A

Total Acres in Watershed = TA

Member Required Contribution = C

$$\frac{1}{2} L \times \frac{MV}{TV} + \frac{1}{2} L \times \frac{A}{TA} = C$$

Subdivision 6. Capital Improvement.

A. All capital improvements ordered by the Board must be included in the WMO's adopted capital improvement program. An improvement fund shall be established for each improvement ordered by the WMO. If ordered by the Board, each Member agrees to contribute to the funds its proportionate share of the engineering, legal, and administrative costs as determined by the amount to be assessed against each Member as a cost of the improvement. The Board shall submit in writing a statement to each Member, setting forth in detail the expenses incurred by the WMO for each improvement.

Each Member further agrees to pay its proportionate share of the cost of the improvement in accordance with the determination of the Board, under Section 10, Subdivision 7. The Board or the Member awarding the contract shall submit in writing copies of the engineer's certificate authorizing payment during construction and the Member being billed agrees to pay its share of the costs within thirty (30) days after receipt of the statement. The Board may also require payment from Members before awarding a contract based upon an engineer's estimate of cost. Billings will then be adjusted when actual costs are known. The Board or the Member awarding the contract shall advise other contributing Members of the tentative time schedule of the work and the estimated times when the contributions shall be necessary.

B. Notwithstanding the provisions of paragraph (A) of this Subdivision, the WMO may also fund all or any part of the cost of a capital improvement contained in the capital improvement program of the plan in accordance with Minn. Stat. § 103B.251. The WMO and Dakota County and/or Ramsey County may establish a maintenance fund to be used for normal and routine maintenance of an improvement constructed in whole or in part with money provided by Dakota and/or Ramsey County pursuant to Minn. Stat. § 103B.251. The levy and collection of an ad valorem tax levy for maintenance shall be by Dakota and/or Ramsey County based upon a tax levy resolution adopted by the WMO and remitted to the

county(ies) on or before October 1 of each year. If it is determined to levy for maintenance, the WMO shall be required to follow the hearing process established by Minn. Stat. §103D.921. Mailed notice shall also be sent to the clerk of each Member at least thirty (30) days prior to the hearing.

C. The WMO may also fund all or any part of the cost of a capital improvement contained in the capital improvement program of the plan in accordance with Minn. Stat. § 103B.241.

Subdivision 7. Capital Cost Allocation of Improvements in the Board's Watershed Management Plan. All capital improvement costs of improvements designated in the WMO's adopted Watershed Management Plan for construction by the WMO pursuant to Section 10, Subdivision 6A of this Agreement shall be apportioned by the following methods or a combination of these methods:

A. For improvements related to water quality:

1. For water quality monitoring, water quality trend analyses, water quality modeling, and water quality studies, the cost sharing will be proportional to the tributary watershed area.

2. For water quality projects and maintenance, the cost sharing will be based on Allowable Flow, tributary area, and/or relative phosphorus loading.

3. The cost sharing for WMO operation of a future Watershed Outlet Monitoring Program station, or other program that monitors the quality of the stormwater runoff that discharges into the Mississippi River from the WMO, will be proportional to the tributary watershed area.

4. Or other cost sharing method approved by the Board.

5. Pursuant to Minn. Stat. § 103B.251.

B. For improvements related to water quantity:

1. A Member shall be responsible for the costs of construction of that portion of a drainage system that is located within its borders and that is necessary to accommodate its Allowable Flow and the Allowable Flow of all other tributary Members.

2. A Member shall also be responsible for its share of construction costs of a drainage system, whether or not that system is located within its borders, that is necessary to convey Excessive Flows originating within the Member's borders.

3. Increased costs of construction incurred for acquisition of lands, easements and rights of way within natural watercourses shall be the obligation of the Member in which the land lies and shall not be apportioned to other Members to the extent that such costs exceed costs which would have been incurred if there had been no improvement on such lands, easements, or rights of way.

4. Costs of construction shall include all costs associated with a WMO approved improvement (whether trunk sewer or natural conveyance) and whether or not actually constructed, including, but not limited to, costs for design, administration, construction supervision, legal fees, acquisition of lands and improvements and actual construction and maintenance costs.

5. The WMO shall consider any grant money received or to be received by a Member for sanitary sewer/storm sewer separation or for the construction, reconstruction or replacement of storm sewer facilities before making cost allocations among Members and may consider the application of any grant proceeds toward the cost of the improvement before allocating costs between or among the Members involved, provided that such allocation would not violate the terms and conditions of the grant.

6. The attached Exhibit B is incorporated by reference and serves as a compilation of general examples of cost allocation under this Agreement for the hypothetical circumstances stated in the examples.

Subdivision 8. Capital Cost Allocation of Improvements Delineated in Local Watershed Management Plans. All capital improvement costs incurred by the WMO for improvements delineated in local watershed management plans that benefit only that Member, which the WMO undertakes because the Member fails to do so, shall be apportioned entirely to that Member.

SECTION 11. SPECIAL ASSESSMENTS. The WMO shall not have the power to levy special assessments. All such assessments shall be levied by the Member within which the land is located.

SECTION 12. DURATION.

Subdivision 1. Each Member agrees to be bound by the terms of this Agreement until January 1, 2012. It may be continued thereafter upon the agreement of all the parties.

Subdivision 2. This Agreement may be terminated prior to January 1, 2012, by the written agreement of a majority of the Members.

Subdivision 3. In addition to the manner provided in Subdivision 2 for termination, any Member may petition the Board to dissolve the WMO. Upon thirty (30) days' notice in writing to the clerk of each Member, the Board shall hold a hearing and upon a favorable majority vote of all eligible votes of the Members, the Board may by resolution recommend that the WMO be dissolved. The resolution shall be submitted to each Member and if ratified by a majority of the governing bodies of all Members within sixty (60) days, the Board shall then give ninety (90) days written notice of its intent to dissolve the WMO to Dakota County, Ramsey County and the Board of Water and Soil Resources. After the expiration of this 90-day notice period, the Board shall dissolve the WMO, allowing a reasonable time to complete work in progress and to dispose of personal property owned by the WMO.

SECTION 13. DISSOLUTION. Upon dissolution of the WMO or termination of this Agreement, all property of the WMO shall be sold and the proceeds thereof, together with monies on hand, shall be distributed to the Members. Such distribution of WMO assets shall be made in proportion to the total contribution to the WMO required by the last annual Budget.

SECTION 14. EFFECTIVE DATE. This Agreement shall be in full force and effect when all seven (7) Members file a certified copy of a resolution approving this Agreement and have executed this Agreement and filed the executed Agreement with the Board. All Members need not sign the same copy.

IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this Agreement to be executed in accordance with the authority of Minn. Stat. § 471.59.

Approved by the City Council
November 26, 20 01.

CITY OF INVER GROVE HEIGHTS

BY: _____

Attest: _____

Approved by the City Council
April 28, 2003.

CITY OF LILYDALE

BY: _____

Attest: William L. Hawkes

Approved by the City Council
_____, 20____.

CITY OF MENDOTA HEIGHTS

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF ST. PAUL

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF SOUTH ST. PAUL

BY: _____

Attest: _____

IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this Agreement to be executed in accordance with the authority of Minn. Stat. § 471.59.

Approved by the City Council
_____, 20____.

CITY OF INVER GROVE HEIGHTS

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF LILYDALE

BY: _____

Attest: _____

Approved by the City Council
November 20, 2001.

CITY OF MENDOTA HEIGHTS

BY: Charles E. Mathews

Attest: Linda L. Shipton

Approved by the City Council
_____, 20____.

CITY OF ST. PAUL

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF SOUTH ST. PAUL

BY: _____

Attest: _____

IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this Agreement to be executed in accordance with the authority of Minn. Stat. § 471.59.

Approved by the City Council
_____, 20____.

CITY OF INVER GROVE HEIGHTS

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF LILYDALE

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF MENDOTA HEIGHTS

BY: _____

Attest: _____

Approved by the City Council
JANUARY 16, 20 02.
COUNCIL FILE #02-52

Approved as to Form:

BY: Lisa A. Veith
Assistant City Attorney

CITY OF ST. PAUL

BY: Randy Kelly
Randy Kelly, Mayor

Approved by the City Council
_____, 20____.

CITY OF SOUTH ST. PAUL

BY: _____

Attest: _____

IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this Agreement to be executed in accordance with the authority of Minn. Stat. § 471.59.

Approved by the City Council
_____, 20____.

CITY OF INVER GROVE HEIGHTS

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF LILYDALE

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF MENDOTA HEIGHTS

BY: _____

Attest: _____

Approved by the City Council
_____, 20____.

CITY OF ST. PAUL

BY: _____

Attest: _____

Approved by the City Council
November 5, 20 01.

CITY OF SOUTH ST. PAUL

BY: Kathleen A Gaylord

Attest: Christy M. Wilcox

Approved by the City Council
1/2/4, 20 01.

CITY OF SUNFISH LAKE

BY: _____

Attest: _____, Clerk

Approved by the City Council
_____, 20____.

CITY OF WEST ST. PAUL

BY: _____
Its Mayor

BY: _____
Its City Manager

Approved by the City Council
_____, 20____.

CITY OF SUNFISH LAKE

BY: _____

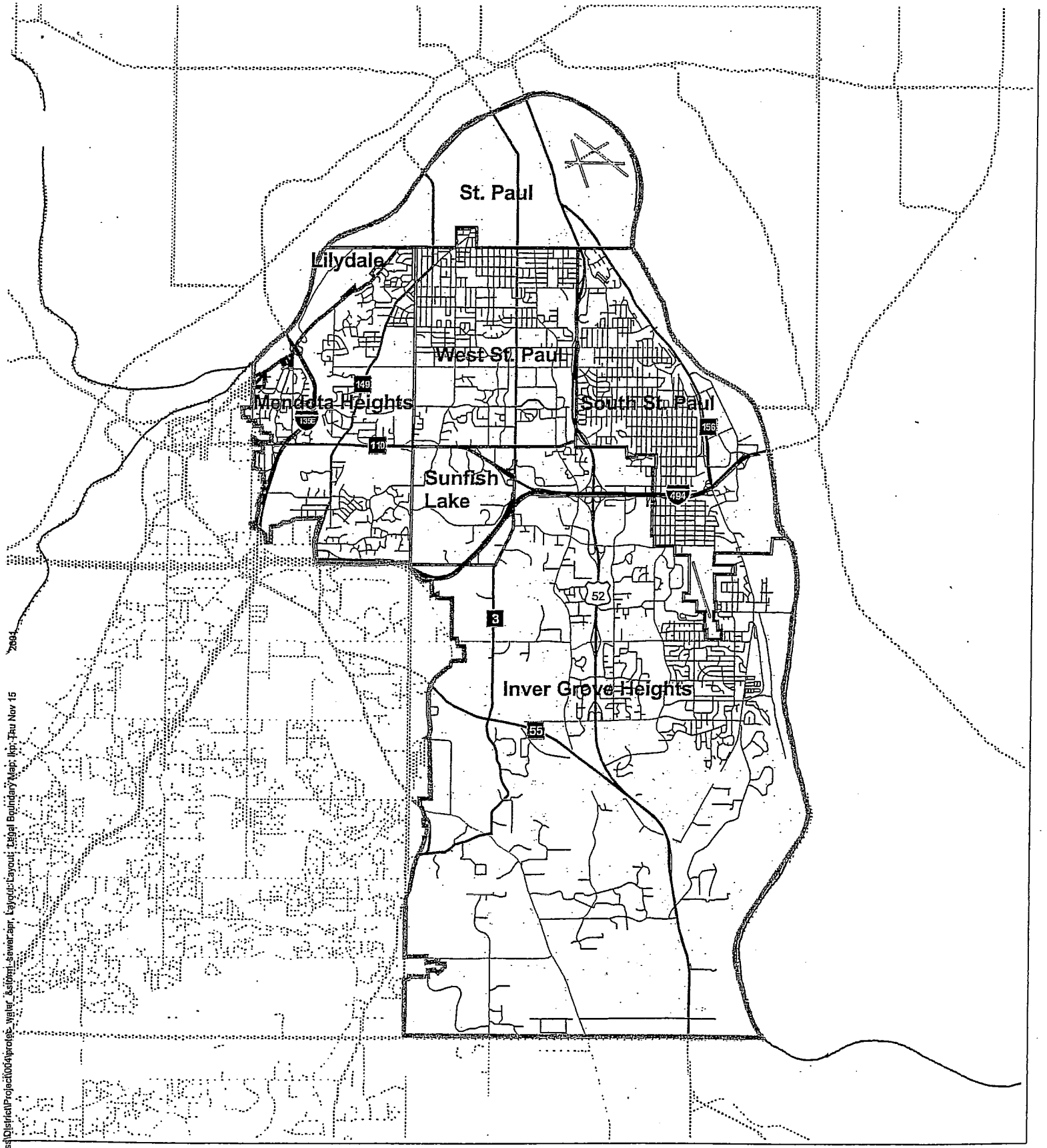
Attest: _____

Approved by the City Council
Nov. 26, 2001.

CITY OF WEST ST. PAUL

BY: _____
Its Mayor

BY: _____
Its City Manager



Legal Boundary Map of the
Lower Mississippi River
Watershed Management Organization

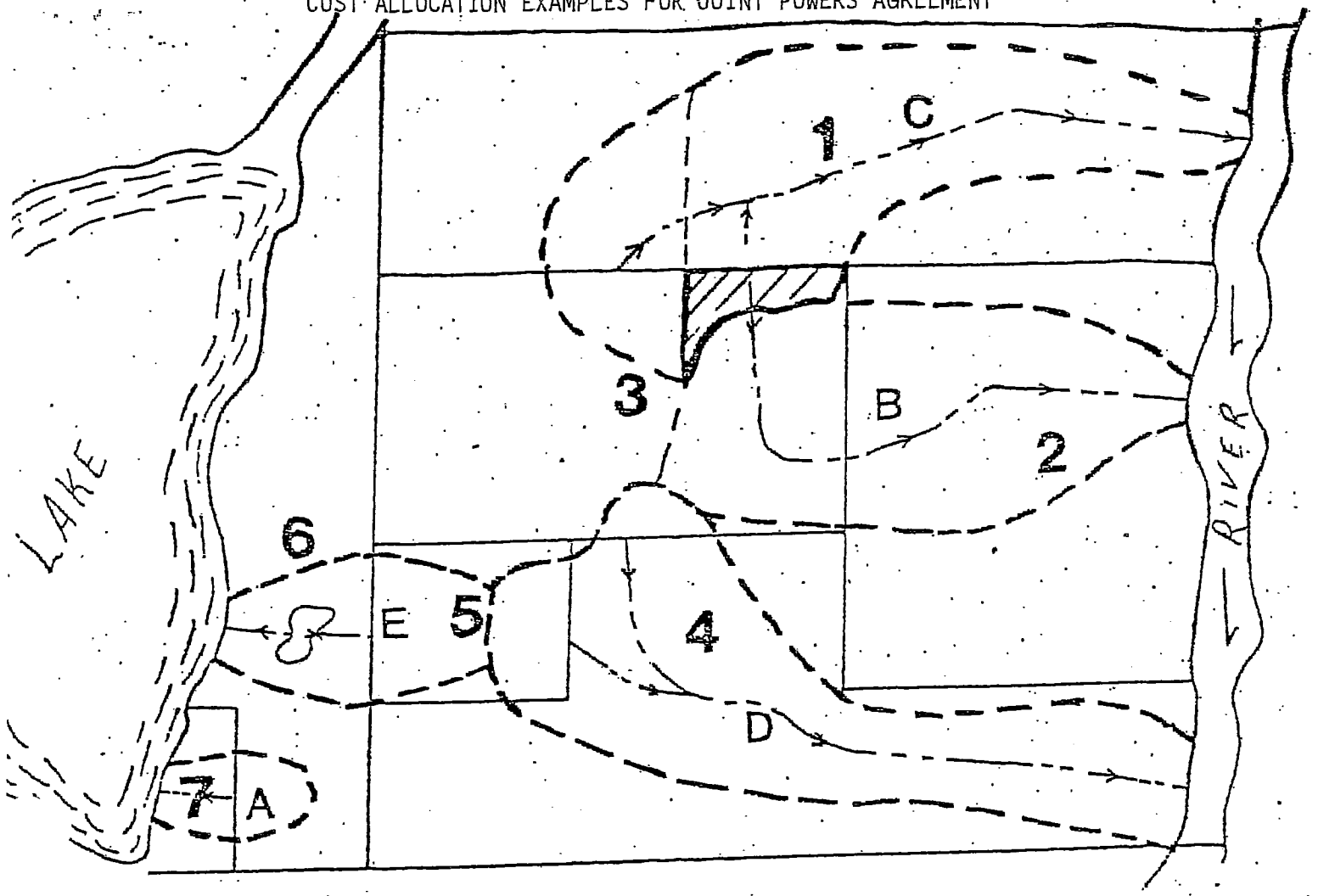
Exhibit A

1 0 1 Miles

N

Barr: Arcview 3.1,PIII/ ...ent\LowerMiss\District\Project\004\protec_water_&storm_sewer.apr, Layout: Layout: Legal Boundary Map; lkp; Thu Nov 15 2001

COST ALLOCATION EXAMPLES FOR JOINT POWERS AGREEMENT



EXAMPLE	DESCRIPTION
A.	Two Cities
B.	Two Cities With Diversion In
C.	Two Cities With Diversion Out
D.	Three Cities
E.	Added Ponding

LEGEND

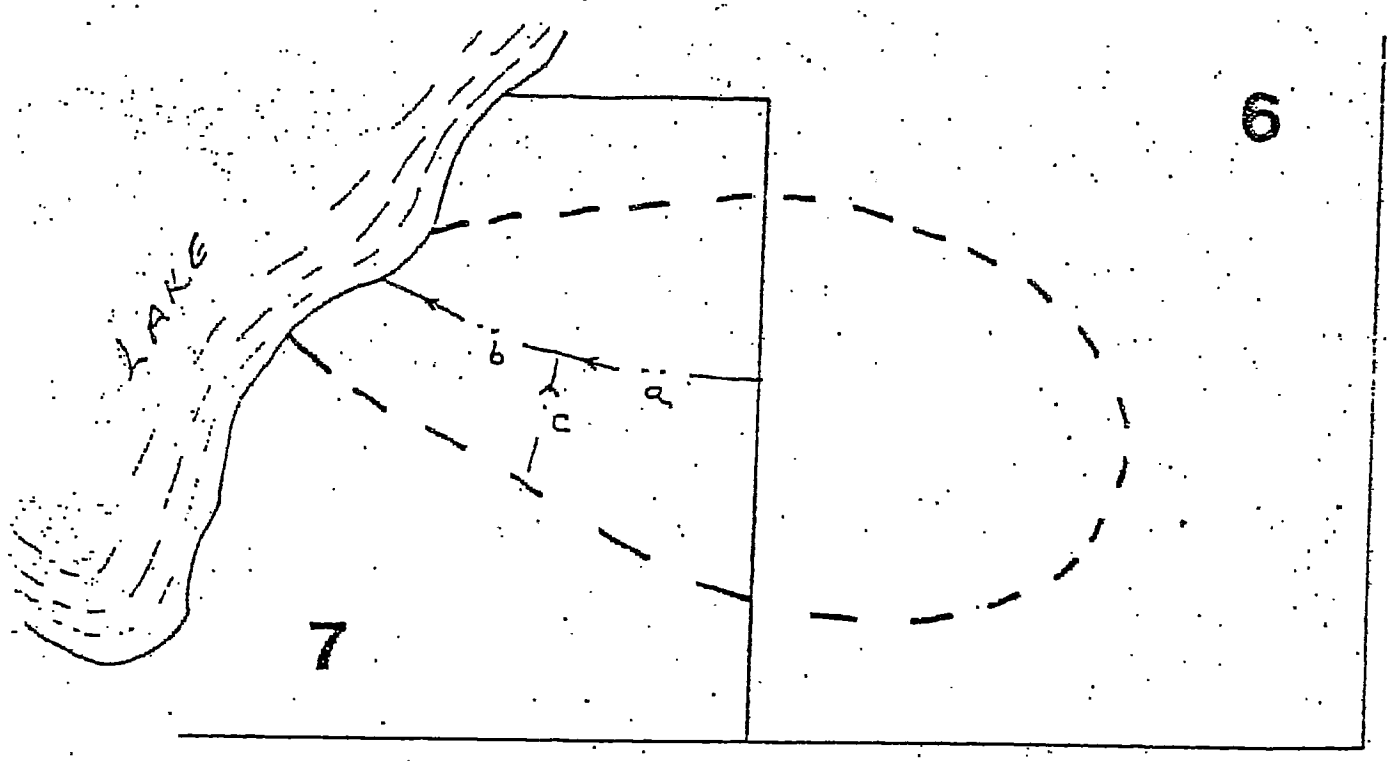
Watershed Boundary

Drainage Facility

City Boundary

Detention Pond

Diverted Area



EXAMPLE "A" - TWO CITIES

Project: Construct project (Segments "a" and "b") in City #7 to provide drainage for Cities #6 and #7 under fully developed conditions.

Cost Allocation:

City #6: Cost share $= \frac{Q_{E6}}{Q_T} \times$ Total project cost for "a".

City #7: Cost share = Total project cost $- \left(\frac{Q_{E6}}{Q_T} \times \text{Total project cost} \right)$

Where: $Q_{E6} = Q_{T6} - Q_{A6}$;

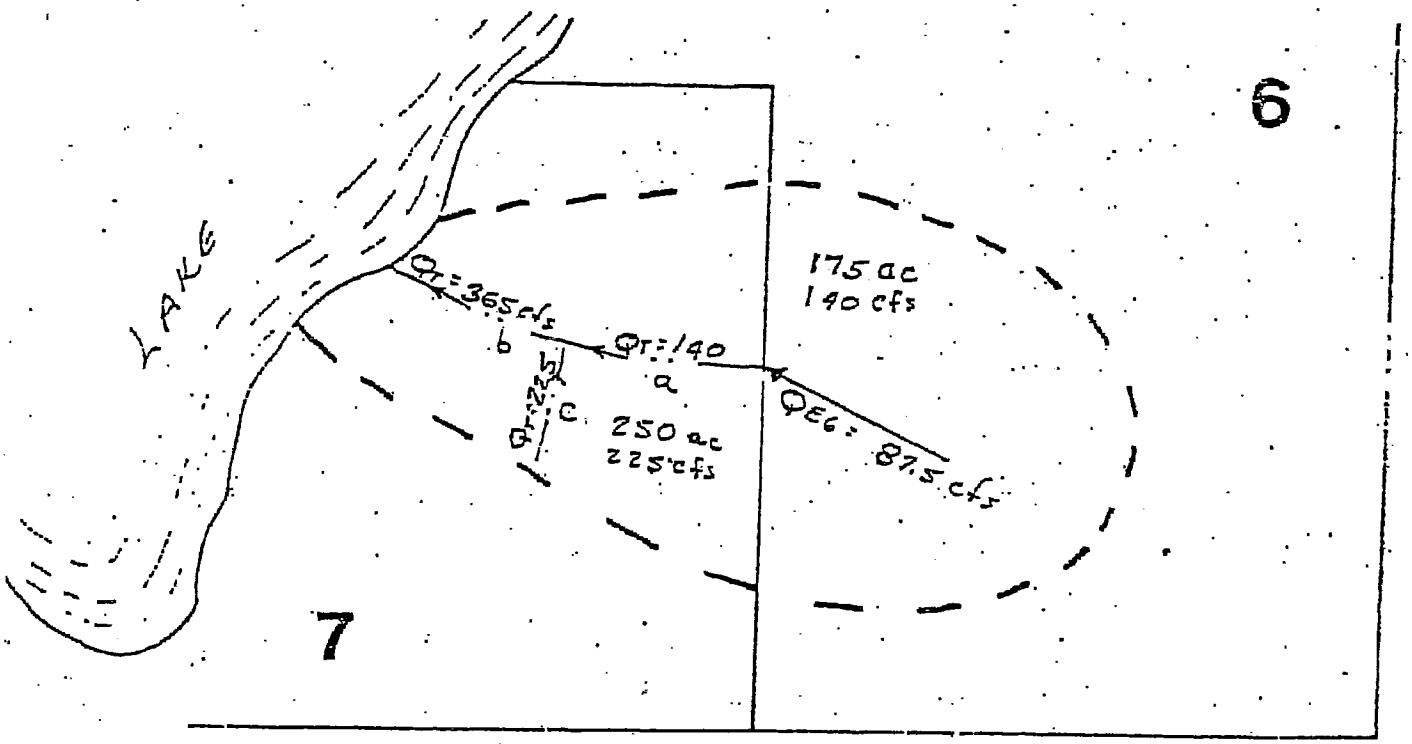
Q_{E6} is the design flow rate from City #6 which is in excess of the allowable flow rate from City #6;

Q_{A6} is the allowable flow rate from City #6;

Q_{T6} is the total design flow rate from City #6;

Q_T is the total flow rate for which the project is designed in each Segment.

City #6: Cost share for Segment "c" = Zero dollar (no tributary flow).



EXAMPLE "A" - TWO CITIES

Sample Calculations

Assume:

City #6 - Area of Watershed within City #6 = 175 acres
Full development runoff (Q_{T6}) = CIA = 0.40 x 2.0"/h x 175 = 140 cfs
Predevelopment runoff (Q_{A6}) = CIA = 0.15 x 2.0"/h x 175 = 52.5 cfs

Then:

Excess runoff (Q_{E6}) (from formulae: $Q_E = Q_T - Q_A$) = 87.5 cfs

1. City #6 cost share for Segment "a" = $\frac{87.5}{140}$ x project cost for "a" = .63 x Project cost for "a".

(From formulae: share = $\frac{Q_E}{Q_T}$ x Project cost)

Note: Segment "a" ends at first point of entry into the system from City #7.

Assume:

City #7 - Area of Watershed within City #7 = 250 acres and all flows from City #7 enter system by way of Segment "c".
Full development runoff (Q_{T7}) = CIA = .50x1.8x250 = 225 cfs
Design flow for Segment "b" = $Q_{T(SEG.\ "a")} + Q_{T7}$ = 140 + 225 = 365 cfs

2. City #6 has no cost share obligation in Segment "c" when there is no tributary flow from City #6.

(continued)

hen:

3. City #6 cost share for Segment "b" = $\frac{87.5}{365}$ x Project cost for "b" = 0.24 Project cost of "b".

(From formulae: Share = $\frac{Q_{E6}}{Q_T}$ x Project cost)

Note:

City #6 can reduce the excess flow (Q_{E6}) by detention ponding even to the amount that the rate of flow from City #6 (Q_{T6}) is no greater than the allowable flow rate (Q_{A6}). Any reduction in the total rate from City #6 would be applied to the excess rate and thereby reduce the obligation of City #6 to share in the cost of constructing any conveyance system in City #7.

SUMMARY OF COSTS

Segment "a":

City #6: Cost share = $\frac{87.5}{140}$ x Project cost for "a".

City #7: Cost share = $\frac{52.5}{140}$ x Project cost for "a".

Segment "b":

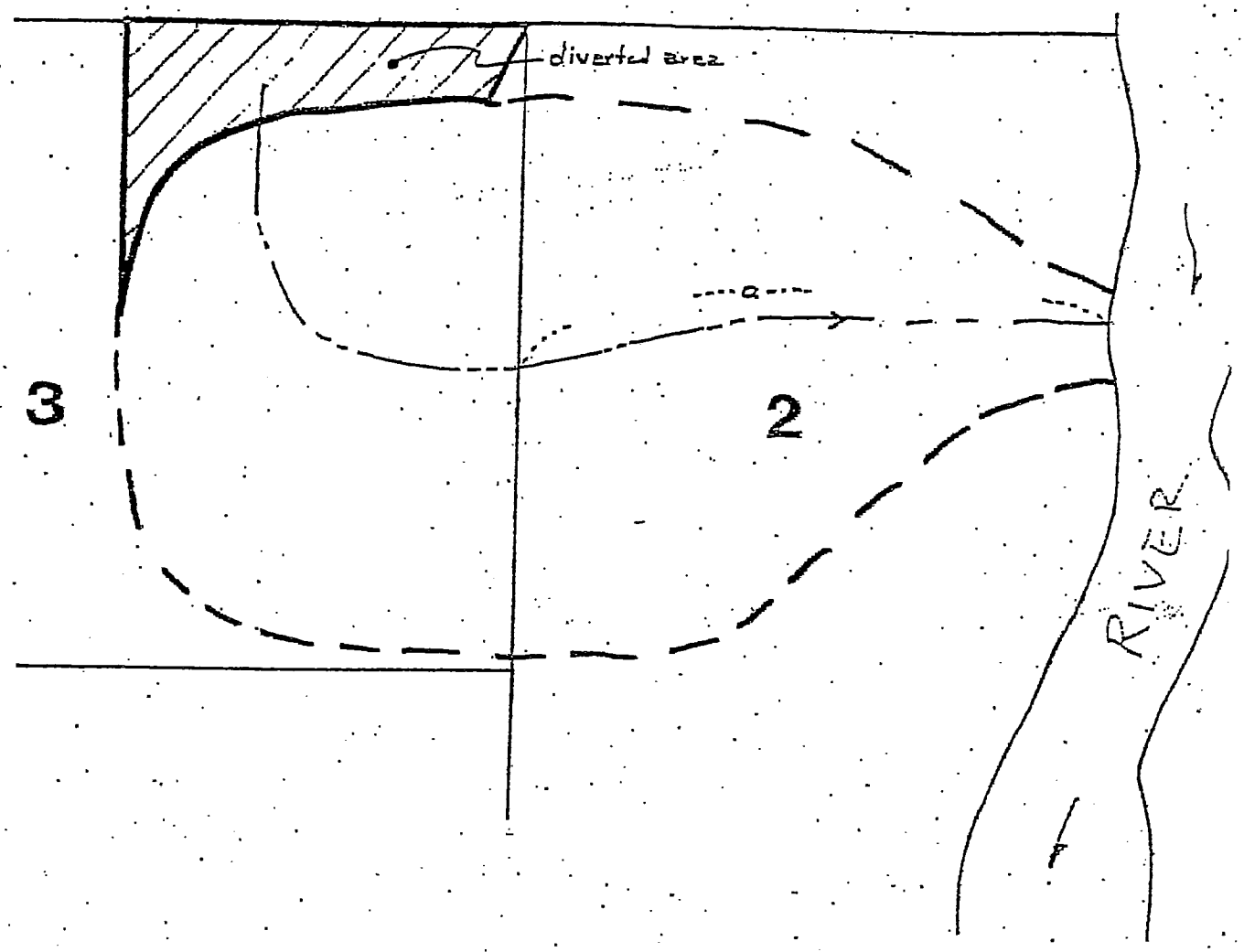
City #6: Cost share = $\frac{87.5}{365}$ x Project cost for "b".

City #7: Cost share = $\frac{277.5}{365}$ x Project cost for "b".

Segment "c":

City #6: Cost share = Zero dollar (no tributary flow).

City #7: Cost share = All of Project cost for "c".



EXAMPLE "B" - TWO CITIES WITH DIVERSION IN

Project: Construct Trunk facility "a" in City #2 only for Cities #2 and #3 under fully developed conditions.

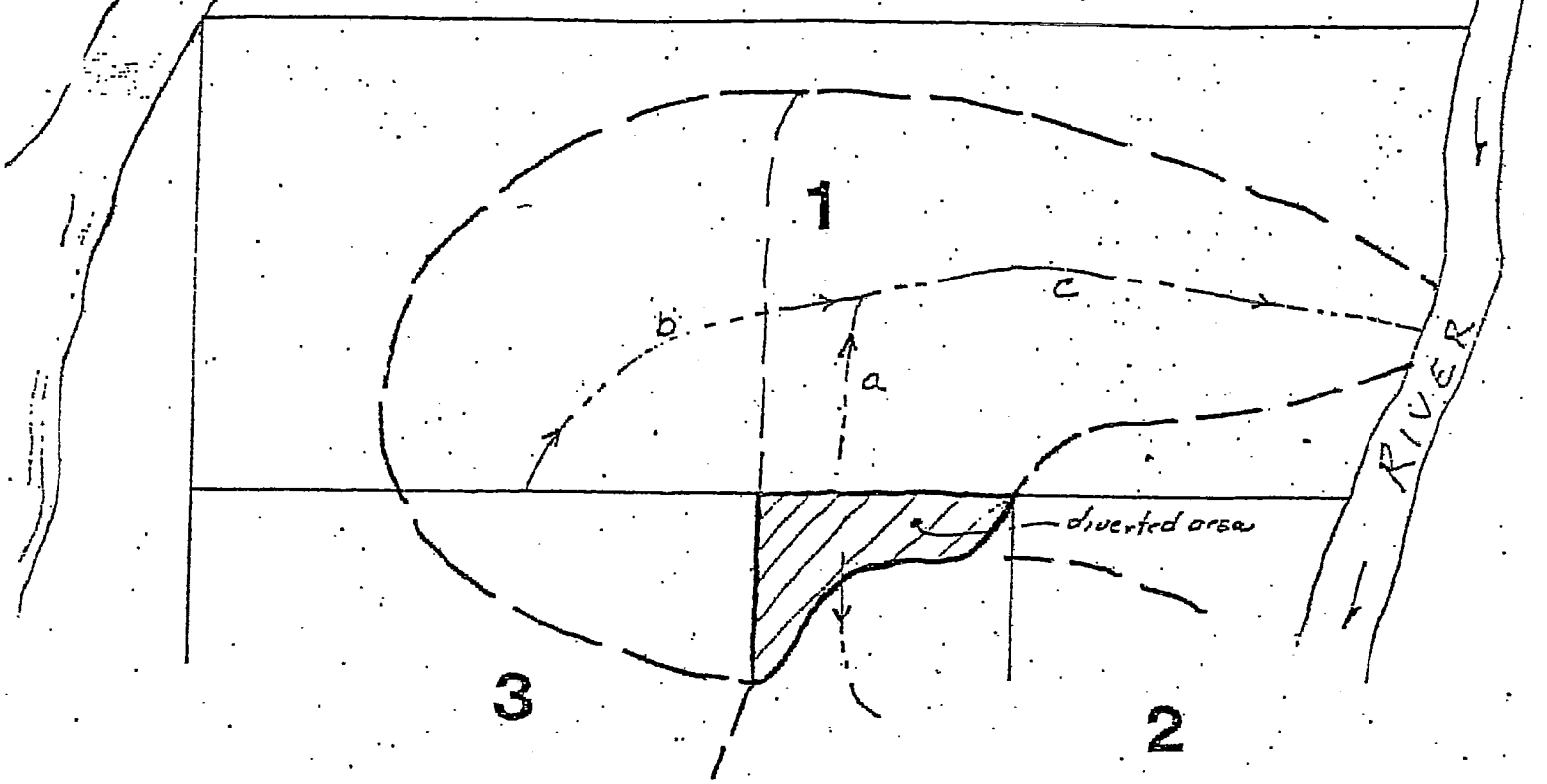
Cost Allocation:

City #3: Cost share $= \frac{Q_{E3}}{Q_T}$ x Total project cost.

Where: $Q_{E3} = Q_{T3} - Q_{A3}$
And Q_{E3} is the design flow from City #3 as described in Example "A" plus all flows coming from the area diverted. All facilities within City #3 are constructed by City #3. Detention in City #3 can reduce Q_{E3};

Q_T and Q_A are as defined in Example "A".

Note: This case applies only where waters are diverted from one City to another City or from one major drainage district to another.



EXAMPLE "C" - TWO CITIES WITH DIVERSION OUT

Project: Construct Trunk Segments "a", "b", "c" in City #1 under fully developed conditions.

Cost Allocation:

City #3: Cost share for Segment "a" = Zero dollars (all flows have been diverted away)

Cost share for Segment "b" $= \frac{Q_{E3}}{Q_T}$ x Total project cost for "b".

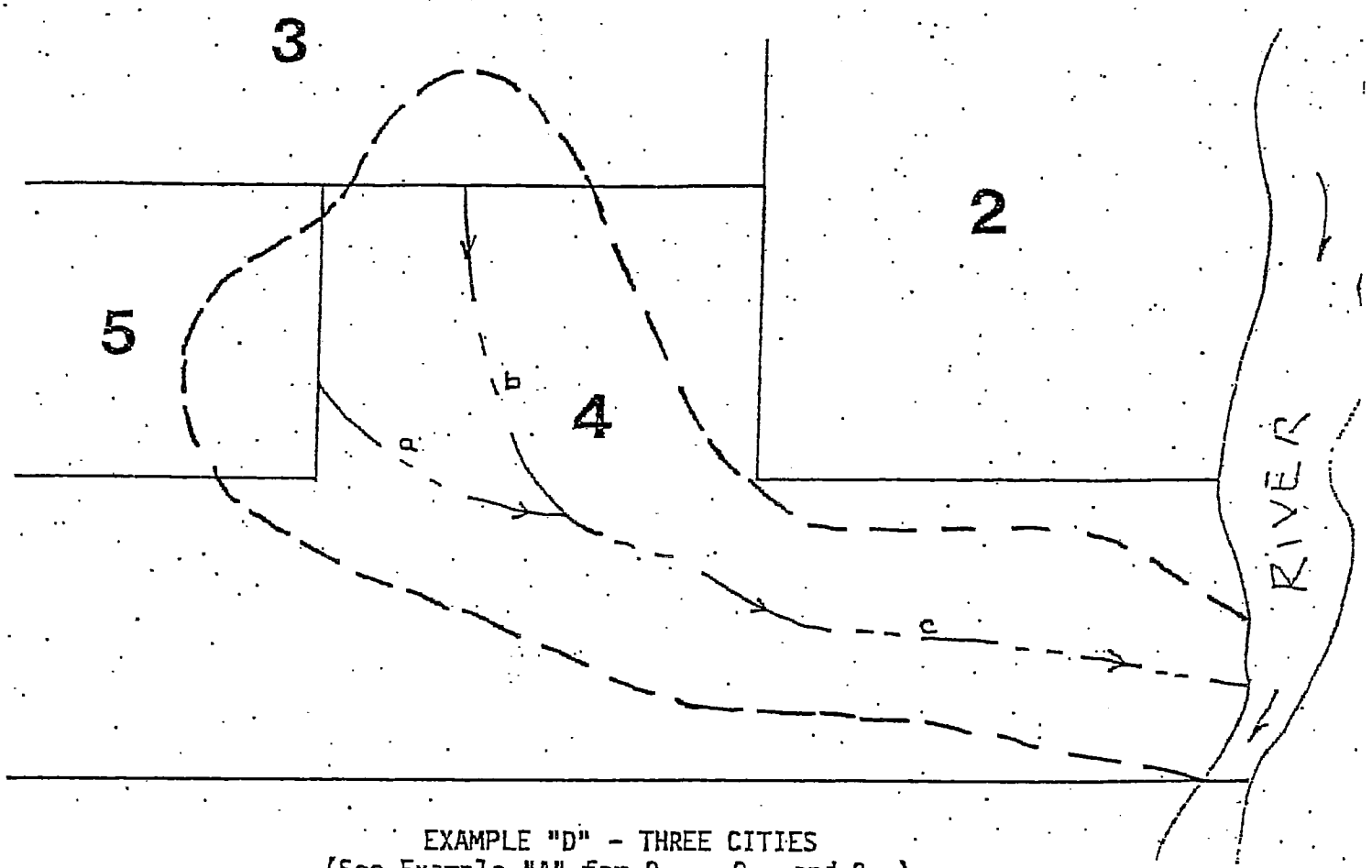
Where: Q_{E3} is the excess flow from City #3 that is tributary to Segment "b" only.

City #3: Cost share for Segment "c" $= \frac{Q_{E3}}{Q_T}$ x Total project cost for "c".

Where: Q_{E3} is the excess flow from City #3 that is tributary to Segment "c" calculated as Q_{E3} tributary to "b" minus Q_{A3} that would have been tributary to "a" had there been no diversion out of the drainage district.

Q_T and Q_A are as defined in Example "A".

Note: This case applies only where waters are diverted from one City to another City. or from one major drainage district to another.



EXAMPLE "D" - THREE CITIES
(See Example "A" for Q_T, Q_A and Q_E)

Project: Construct Project (Segments "a", "b" and "c") in City #4 to provide drainage for Cities #3, #4, and #5 under fully developed conditions.

Cost Allocations:

City #3: Cost share Segment "b" = $\frac{Q_{E3}}{Q_T}$ x Project cost for "b".

Cost share Segment "a" = Zero dollars (no tributary flow).

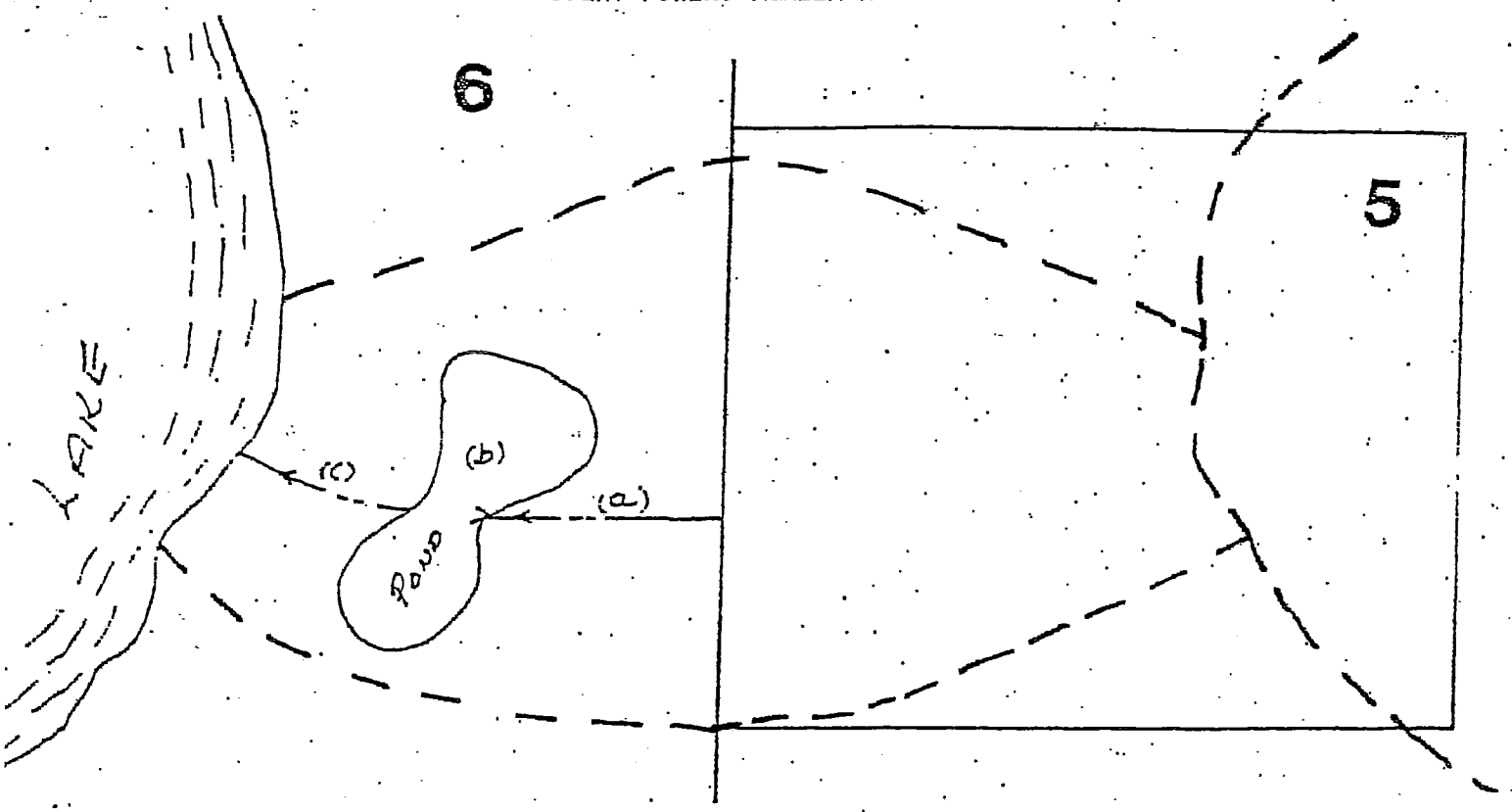
Cost share Segment "c" = $\frac{Q_{E3}}{Q_T}$ x Project cost for "c".

City #5 Cost share Segment "a" = $\frac{Q_{E5}}{Q_T}$ x Project cost for "a".

Cost share Segment "b" = Zero Dollars (no tributary flow).

Cost share Segment "c" = $\frac{Q_{E5}}{Q_T}$ x Project cost for "c".

Where: Q_T is the total flow rate for which each respective Segment is designed.



EXAMPLE "E" - ADDED PONDING
(See Example "A" for definition of Q_T , Q_A and Q_E)

ct: Construct Trunk "a", Detention Pond "b" and Outlet "c" for cities #5 and #6 under fully developed conditions.

Cost Allocation:

City #5 (Trunk "a"): Cost share $= \frac{Q_{E5}}{Q_T}$ x Project cost of Trunk "a".

Where: Q is the total flow rate in Trunk "a".

City #5 (Pond "b"): Cost share $= \frac{V_{E5}}{V_T}$ x Project cost of Pond "b".

Where: V_{E5} is the design Volume of runoff from City #5 which is in excess of the allowable Volume from City #5;

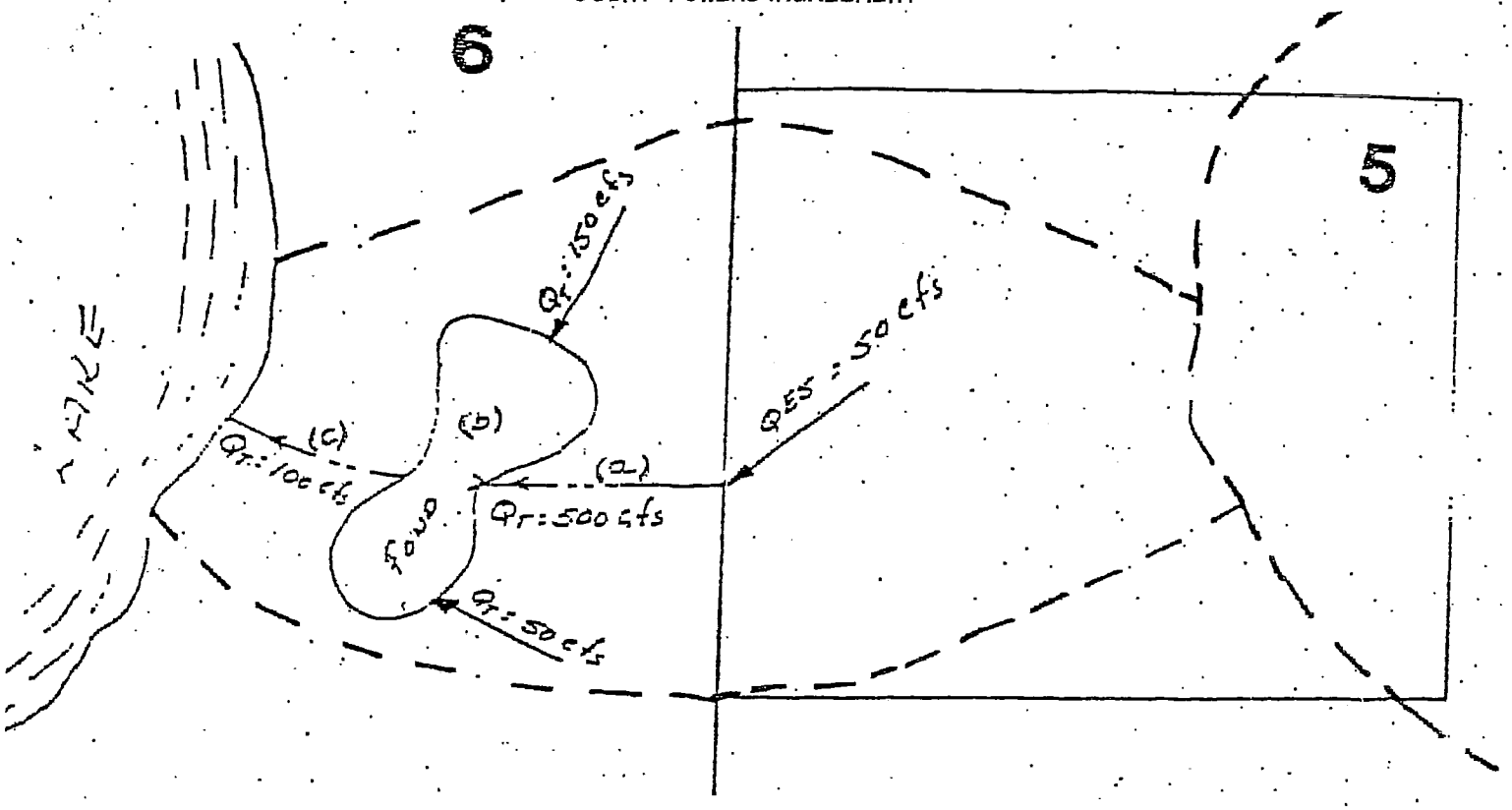
V_T is the total Volume used in the design of the detention pond.

City #5 (Outlet "c"): Cost share $= \frac{Q_{E5}}{Q_T}$ x Project cost of Outlet "c".

Where: Q_{E5} is reduced from Trunk "a" Inlet Q_{E5} by the ratio of $\frac{\text{Outlet } Q_T}{\text{Inlet } Q_T}$;

Inlet Q_T is the summation of all flows into the pond;
Outlet Q_T is the total flow rate out of the pond under design conditions.

Note: See Page 9 for sample calculations



EXAMPLE "E" - ADDED PONDING

ample calculation for City #5 cost share for Outlet "c":

Assume:

Q_{E5} = 50 cfs

Q_T Pond inflow in Segment "a" = 500 cfs

Q_T Pond inflow from other areas = 200 cfs

Σ Q_T Pond inflow = 700 cfs

Q_T Pond Outlet "c" = 100 cfs

And:

$$Q_{E5\ (OUTLET)} = Q_{E5\ (INLET)} \times \frac{Q_{T\ (OUTLET)}}{\Sigma Q_{T\ (INLET)}}$$

$$\text{City \#5 cost share} = \frac{Q_{E5\ (OUTLET)}}{Q_{T\ (OUTLET)}} \times \text{Project cost of Outlet "c"}$$

Then:

$$Q_{E5}\ \text{(for Segment "c")} = \frac{100}{700} \times 50 = 7.14\ \text{cfs}$$

$$\text{City \#5 cost share} = \frac{7.14}{100} \times \text{Project cost of Outlet "c"}$$

Appendix B

Storm Water System Modeling Information

City of South St. Paul
Stormwater Modeling Results

Subwatershed	Area (acres)	SCS CN	Direct Peak Discharge Rate (CFS)		Culumative Peak Discharge Rate (CFS)		HWL		Storage Volume (AF)		NWL	Drainage Destination
			10-Year	100-Year	10-Year	100-Year	10-Year	100-Year	10-Year	100-Year		
1A**	37.5	67	28	67	28	67	NA	NA	NA	NA	NA	Inver Grove Heights
1B**	110.9	61	25	60	25	60	NA	NA	NA	NA	NA	Bohrer Pond
1C**	48.1	85	23	55	23	55	NA	NA	NA	NA	NA	Inver Grove Heights
2**	185.9	78	156	278	156	278	NA	NA	NA	NA	NA	Mississippi River
* 3A (H1)	39	NA	5	5	***	***	819.3	821.2	3.0	6.1	816.6	Mississippi River
* 3B (H2)	19.5	NA	5	7	***	***	844.7	846	1.5	3.0	842.4	Mississippi River
* 3C (H3)	22.9	NA	52	96	***	***	NA	NA	NA	NA	NA	Mississippi River
* 3D (H4)	8.7	NA	66	128	***	***	NA	NA	NA	NA	NA	Mississippi River
* 3E (H5)	13	NA	4	6	***	***	832.4	833.7	1.9	2.8	830.4	Mississippi River
* 3F (H6)	121.5	NA	290	454	***	***	NA	NA	NA	NA	NA	Mississippi River
* 3G (H7)	13.3	NA	261	494	***	***	NA	NA	NA	NA	NA	Mississippi River
* 3H (H8)	40.1	NA	313	596	***	***	NA	NA	NA	NA	NA	Mississippi River
*3I (H9)	32	NA	366	697	***	***	NA	NA	NA	NA	NA	Mississippi River
* 3J (H10)	310.3	NA	618	1180	***	***	NA	NA	NA	NA	NA	Mississippi River
* 3K (H11)	238.7	NA	829	1573	***	***	NA	NA	NA	NA	NA	Mississippi River
3L**	158	79	31	80	***	***	NA	NA	NA	NA	NA	Mississippi River
4**	440	79	484	870	130	200	690.7	693.7	35.0	64.0	684.6	MnDOT Pond
*5A (P1)	26.3	NA	0	4	***	***	978.4	979.2	2.1	3.6	976.2	Anderson Pond
* 5B (P2)	75.2	NA	20	20	***	***	NA	NA	6.0	11.7	933.5	Anderson Pond
* 5C (P3)	66.7	NA	15	20	***	***	903	903.9	13.7	19.3	900.8	Anderson Pond
* 5D (P4)	8.8	NA	2	2	***	***	939.6	940.5	0.5	1.2	936.5	Seidls Lake
* 5E (P5)	14.1	NA	1	3	***	***	888.6	889.3	1.0	2.0	888.0	Seidls Lake
* 5F (P6)	221.2	NA	0	0	***	***	814.1	827.4	65.4	205.3	803.8	Seidls Lake
6	149.6	70	186	372	186	372	NA	NA	NA	NA	NA	Mississippi River
7 (4)	38.5	81	135	246	135	246	NA	NA	NA	NA	NA	St. Paul
8	45.4	75	67	139	67	139	NA	NA	NA	NA	NA	Mississippi River
9	90.4	77	175	308	175	308	NA	NA	NA	NA	NA	Mississippi River
10	206.8	73	240	455	240	455	NA	NA	NA	NA	NA	Mississippi River

City of South St. Paul
Stormwater Modeling Results

Subwatershed	Area (acres)	SCS CN	Direct Peak Discharge Rate (CFS)		Culumative Peak Discharge Rate (CFS)		HWL		Storage Volume (AF)		NWL	Drainage Destination
			10-Year	100-Year	10-Year	100-Year	10-Year	100-Year	10-Year	100-Year		
11	43.9	71	80	155	80	155	NA	NA	NA	NA	NA	Mississippi River
12 (1)	604.1	72	450	868	450	868	NA	NA	NA	NA	NA	Mississippi River
13	276.5	72	305	590	305	590	NA	NA	NA	NA	NA	Mississippi River
14	78.3	72	150	286	150	286	NA	NA	NA	NA	NA	Mississippi River
15 (2)	37.9	73	5	6.8	6	15	912.7	914.8	8.3	14.4	909.0	LeVander Pond
16	12.4	75	20	37	23	42	NA	NA	NA	NA	NA	Simon's Ravine
17A (3)	91.2	66	154	178	125	190	770.6	772.6	0.0	1.3	769.5	Simon's Ravine
17B	25.7	70	29	59	29	59	NA	NA	NA	NA	NA	Simon's Ravine
17C	6.8	73	14	21	14	21	NA	NA	NA	NA	NA	Simon's Ravine
17D	21.7	64	255	352	236	350	715.7	717.3	0.8	1.2	712.0	Mississippi River
17E	6	74	10	22	10	22	NA	NA	NA	NA	NA	Simon's Ravine
17F	15.8	73	45	85	45	85	NA	NA	NA	NA	NA	Simon's Ravine
18	48.7	62	31	76	31	76	NA	NA	NA	NA	NA	Mississippi River

Notes:

* These are the "design conditions" modeling results as taken from the June 1989 Barr Engineering report "Drainage Plan for Highway 110-494 Watershed" prepared for the Lower Mississippi River Water Management Organization. The full results are available at the office of the South St. Paul City Engineer. The watershed labels in parenthesis correspond to the watershed labels in the 110-494 study.

** The Peak flow rates for the subwatershed used Hydrocad Stormwater Modeling software based on the SCS TR20 methodology.

*** Analysis completed in June 1989 Barr Engineering report "Drainage Plan for Highway 110-494 Watershed" prepared for the Lower Mississippi River Water Management Organization.

(1) Approximately 28 acres of West St. Paul drains into South St. Paul at Subwatershed 12.

(2) Approximately 57 acres of West St. Paul drains into South St. Paul at Subwatershed 15.

(3) Subwatershed 17A receives additional flows from West St. Paul. These flows and the modeling of the areas upstream of this subwatershed are available in the "Simon's Ravine Feasibility Study" prepared by Barr Engineering in 1991.

(4) Approximately 38 acres enters Subwatershed 7 from West St. Paul into Mn/DOT TH52 drainage system.

Appendix C

Water Quality Modeling Information

City of South St. Paul
Comprehensive Stormwater Management Plan
P8 Results

Subwatershed Identification	Subwatershed Number	Area (acres)	Impervious Fraction	Pervious CN	Treatment Device Number	Flows to Number:	Area of Pond (acres)			Storage at HWL (acre-feet)
							Bottom	NWL	HWL	
SW1	1	196.5	0.26	61	1	out	---	---	---	---
SW2	2	185.9	0.46	61	2	out	---	---	---	---
SW3	3	640.0	0.5	61	3	out	---	---	---	---
SW4	4	681.7	0.48	61	4	out	6.1	6.6	8.4	51
SW5	5	113.9	0.41	61	5	out	---	---	---	---
SW6*	6	56.3	0.43	61	6	5	2.3	2.7	3.6	16.9
SW7	7	9.0	0.25	61	7	Landlocked	1.9	3.6	---	---
SW8	8	46.0	0.32	61	8	out	---	---	---	---
SW9	9	90.4	0.66	61	9	out	---	---	---	---
SW10	10	214.9	0.58	61	10	out	---	---	---	---
SW11	11	43.9	0.55	61	11	out	---	---	---	---
SW12*	12	633.2	0.44	61	12	out	---	---	---	---
SW13	13	274.7	0.3	61	13	out	---	---	---	---
SW14	14	78.3	0.44	61	14	out	---	---	---	---
SW15*	15	37.9	0.33	61	15	17	0.3	0.5	5.7	47
SW16MH-9*	16	11.8	0.38	61	16	18	---	---	---	---
PH1CHAN1**	17	31.8	0.20	61	17	18		Swale		
PH2CHAN1**	18	49.0	0.20	61	18	19		Swale		
PH2CH2&3**	19	11.4	0.20	61	19	20		Swale		
					20	21		Swale		
5006POND**	20	24.7	0.25	61	21	out	0.03	0.13	0.37	0.97
BUTLER**	21	26.4	0.30	61	22	out	---	---	---	---
SW18	22	46.9	0.12	61	23	out	---	---	---	---
SW19	23	149.4	0.25	61	24	out	---	---	---	---
SW20	24	75.7	0.57	61	25	out	---	---	---	---

* Pollutant Loads entering South St. Paul from other communities are not included in the P8 model.
** Included as part of Subwatershed 17 in HydroCAD Model

Note: Storage is the flood pool available to 100 year HWL.

City of South St. Paul
Comprehensive Stormwater Management Plan
P8 Results

PERCENT REMOVAL EFFICIENCY OF TREATMENT DEVICE
FOR EACH PARTICLE CLASS

Device Number	Device	Subwatershed Number	Subwatershed Name	1	2	3	4	5
				P 0%	P 10%	P 30%	P 50%	P 80%
1	SW1 OUT	1	SW1	0	0	0	0	0
2	SW2 OUT	2	SW2	0	0	0	0	0
3	SW3 OUT	3	SW3	0	0	0	0	0
4	SW4 POND	4	SW4	0	29.2	55.3	77.9	97.6
5	SW5 OUT	5	SW7	0	0	0	0	0
6	SW6 POND	6	SW5	0	66.2	87.4	95.1	99.6
7	SW7 POND	7	SW6*	0	80.1	99.5	100	100
8	SW8 OUT	8	SW8	0	0	0	0	0
9	SW9 OUT	9	SW9	0	0	0	0	0
10	SW10 OUT	10	SW10	0	0	0	0	0
11	SW11 OUT	11	SW11	0	0	0	0	0
12	SW12 OUT	12	SW12*	0	0	0	0	0
13	SW13 OUT	13	SW13	0	0	0	0	0
14	SW14 OUT	14	SW14	0	0	0	0	0
15	SW15POND	15	SW15*	0	24.7	53.9	75.5	96.9
16	SW16	16	SW16MH-9*	0	0	0	0	0
17	PH1 CHAN	17	PH1CHAN1**	0	2.3	13.4	37.7	86.9
18	PH2CHAN1	18	PH2CHAN1**	0	0.3	2.2	8.7	47.3
19	PH2CHAN2	19	PH2CH2&3**	0	0.3	2.4	9.8	50.1
20	PH2CHAN3	19	PH2CH2&3**	0	0.2	1.5	6.6	39.1
21	5006POND	20	5006POND**	0	2.4	8.4	27.3	81.8
22	BUTLER	21	BUTLER**	0	0	0	0	0
23	SW18 OUT	22	SW18	0	0	0	0	0
24	SW19 OUT	23	SW19	0	0	0	0	0
25	SW20 OUT	24	SW20	0	0	0	0	0
49	OVERALL	- -	OVERALL	0	7.7	14.3	20.0	25.1

* Pollutant Loads entering South St. Paul from other communities are not included in the P8 model.

** Included as part of Subwatershed 17 in HydroCAD Model

City of South St. Paul
Comprehensive Stormwater Management Plan
P8 Results

PERCENT REMOVAL EFFICIENCY OF TREATMENT DEVICE
FOR EACH WATER QUALITY COMPONENT

Device Number	Device Name	Subwatershed Number	Subwatershed Name	TSS	TP	TKN	Cu	Pb	Zn	HC	COD	BOD
1	SW1 OUT	1	SW1	0	0	0	0	0	0	0	0	0
2	SW2 OUT	2	SW2	0	0	0	0	0	0	0	0	0
3	SW3 OUT	3	SW3	0	0	0	0	0	0	0	0	0
4	SW4 POND	4	SW4	71.5	39	33.8	33.8	65	33.8	65	53.1	54.3
5	SW5 OUT	5	SW5	0	0	0	0	0	0	0	0	0
6	SW6 POND	6	SW6*	89.6	59.8	51.7	51.7	81.4	51.7	81.4	79.5	80.5
7	SW7 POND	7	SW7	95.9	67.2	58.1	58.1	87.2	58.1	87.2	89.2	90.0
8	SW8 OUT	8	SW8	0	0	0	0	0	0	0	0	0
9	SW9 OUT	9	SW9	0	0	0	0	0	0	0	0	0
10	SW10 OUT	10	SW10	0	0	0	0	0	0	0	0	0
11	SW11 OUT	11	SW11	0	0	0	0	0	0	0	0	0
12	SW12 OUT	12	SW12*	0	0	0	0	0	0	0	0	0
13	SW13 OUT	13	SW13	0	0	0	0	0	0	0	0	0
14	SW14 OUT	14	SW14	0	0	0	0	0	0	0	0	0
15	SW15POND	15	SW15*	69.6	37	32	32	63.2	32	63.2	50.2	51.6
16	SW16	16	SW16MH-9*	0	0	0	0	0	0	0	0	0
17	PH1 CHAN	17	PH1CHAN1**	26.5	8	6.5	6.5	21.2	6.5	21.2	12.2	12.9
18	PH2CHAN1	18	PH2CHAN1**	13.0	1.8	1.4	1.4	10.7	1.4	10.7	5.4	5.6
19	PH2CHAN2	19	PH2CH2&3**	10.7	1.9	1.6	1.6	8.7	1.6	8.7	4.4	4.5
20	PH2CHAN3	19	PH2CH2&3**	5.3	1.2	1	1	4.2	1	4.2	2.1	2.2
21	5006POND	20	5006POND**	19.5	6.1	5	5	15.8	5	15.8	9.1	9.6
22	BUTLER	21	BUTLER**	0	0	0	0	0	0	0	0	0
23	SW18 OUT	22	SW18	0	0	0	0	0	0	0	0	0
24	SW19 OUT	23	SW19	0	0	0	0	0	0	0	0	0

City of South St. Paul
Comprehensive Stormwater Management Plan
P8 Results

CONCENTRATION (PPM) PRESENT IN THE INFLOW OF EACH TREATMENT DEVICE
FOR EACH PARTICLE CLASS

Device Number	Subwatershed Number	1	2	3	4	5
		P 0%	P 10%	P 30%	P 50%	P 80%
1	1	1.00	22.12	22.12	22.12	44.24
2	2	1.00	22.12	22.12	22.12	44.24
3	3	1.00	22.12	22.12	22.12	44.24
4	4	1.00	22.12	22.12	22.12	44.24
5	5	0.90	16.40	15.52	14.94	29.20
6	6	1.00	22.12	22.12	22.12	44.24
7	7	1.00	22.12	22.12	22.12	44.24
8	8	1.00	22.12	22.12	22.12	44.24
9	9	1.00	22.12	22.12	22.12	44.24
10	10	1.00	22.12	22.12	22.12	44.24
11	11	1.00	22.12	22.12	22.12	44.24
12	12	1.00	22.12	22.12	22.12	44.24
13	13	1.00	22.12	22.12	22.12	44.24
14	14	1.00	22.12	22.12	22.12	44.24
15	15	1.00	22.12	22.12	22.12	44.24
16	16	1.00	22.12	22.12	22.12	44.24
17	17	1.00	16.71	11.97	7.93	7.80
18	18	1.00	17.78	13.32	9.27	11.91
19	19	1.00	17.94	13.41	9.01	7.77
20	19	1.00	17.90	13.10	8.14	3.88
21	20	1.00	18.24	13.76	8.97	6.34
22	21	1.00	22.12	22.12	22.12	44.24
23	22	1.00	22.12	22.12	22.12	44.24
24	23	1.00	22.12	22.12	22.12	44.24
25	24	1.00	22.12	22.12	22.12	44.24
49	- -	1.00	22.12	22.12	22.12	44.24

City of South St. Paul
Comprehensive Stormwater Management Plan
P8 Results

CONCENTRATION (PPM) PRESENT IN THE INFLOW OF EACH TREATMENT DEVICE
FOR EACH WATER QUALITY COMPONENT

Device Number	Device	Subwatershed Number	TSS	TP	TKN	Cu	Pb	Zn	HC	COD	BOD
1	SW1 OUT	1	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
2	SW2 OUT	2	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
3	SW3 OUT	3	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
4	SW4 POND	4	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
5	SW5 OUT	5	76.05	0.43	1.99	0.02	0.06	0.11	1.94	91.29	13.42
6	SW6 POND	6	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
7	SW7 POND	7	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
8	SW8 OUT	8	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
9	SW9 OUT	9	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
10	SW10 OUT	10	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
11	SW11 OUT	11	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
12	SW12 OUT	12	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
13	SW13 OUT	13	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
14	SW14 OUT	14	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
15	SW15POND	15	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
16	SW16	16	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
17	PH1 CHAN	17	44.40	0.39	1.83	0.02	0.04	0.11	1.25	71.35	10.33
18	PH2CHAN1	18	52.28	0.41	1.93	0.02	0.04	0.11	1.43	79.14	11.49
19	PH2CHAN2	19	48.12	0.41	1.93	0.02	0.04	0.11	1.33	77.10	11.18
20	PH2CHAN3	19	43.03	0.40	1.90	0.02	0.04	0.11	1.22	73.85	10.69
21	5006POND	20	47.31	0.41	1.94	0.02	0.04	0.11	1.31	77.50	11.24
22	BUTLER	21	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
23	SW18 OUT	22	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
24	SW19 OUT	23	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91

City of South St. Paul
Comprehensive Stormwater Management Plan
P8 Results

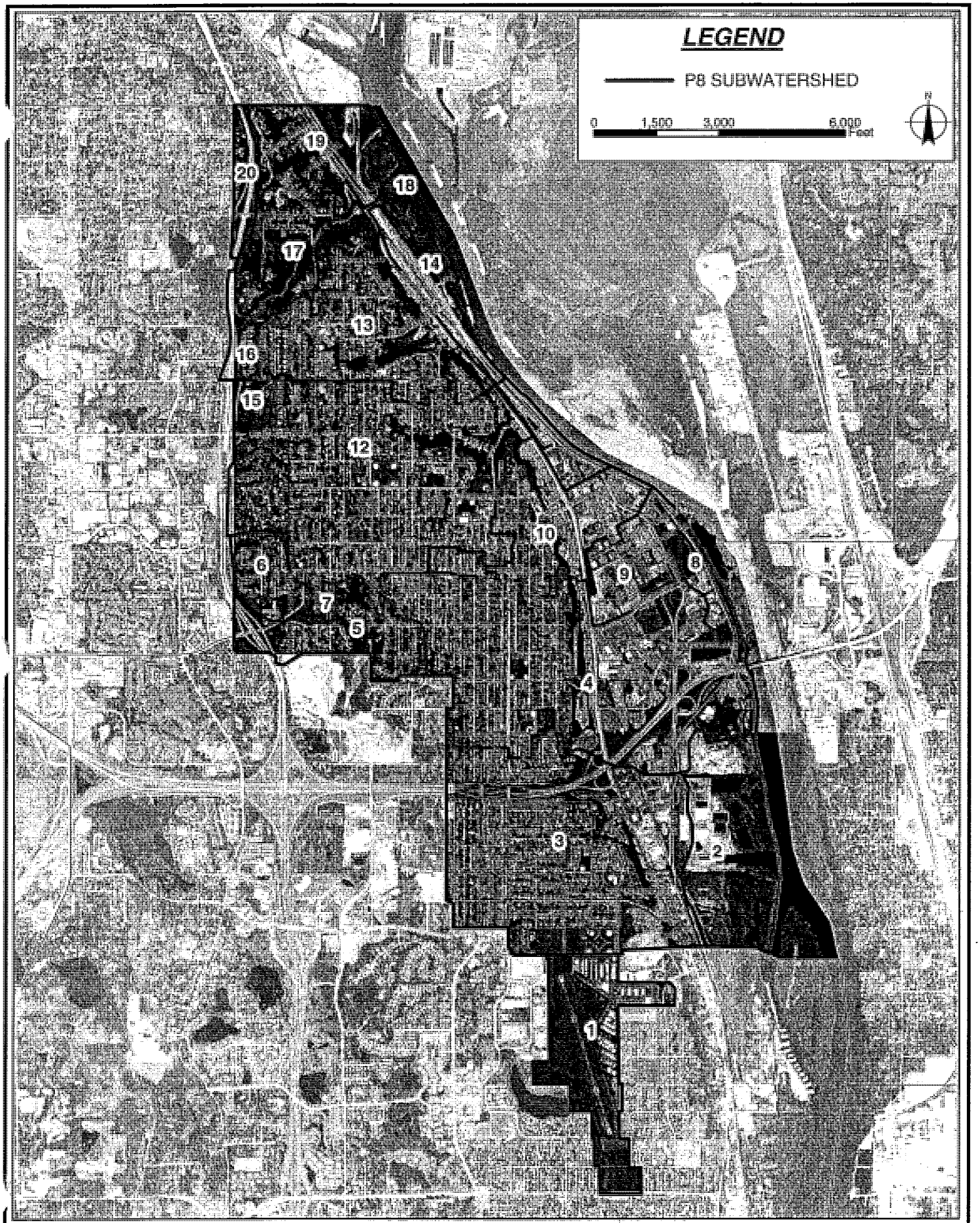
CONCENTRATION (PPM) PRESENT IN THE OUTFLOW OF EACH TREATMENT DEVICE
FOR EACH PARTICLE CLASS

Device Number	Subwatershed Number	1	2	3	4	5
		P 0%	P 10%	P 30%	P 50%	P 80%
1	1	1.00	22.12	22.12	22.12	44.24
2	2	1.00	22.12	22.12	22.12	44.24
3	3	1.00	22.12	22.12	22.12	44.24
4	4	1.00	14.74	9.88	4.89	1.08
5	5	0.90	16.40	15.52	14.94	29.20
6	6	0.70	5.37	2.78	1.09	0.18
7	7	0.09	0.32	0.04	0.01	0.00
8	8	1.00	22.12	22.12	22.12	44.24
9	9	1.00	22.12	22.12	22.12	44.24
10	10	1.00	22.12	22.12	22.12	44.24
11	11	1.00	22.12	22.12	22.12	44.24
12	12	1.00	22.12	22.12	22.12	44.24
13	13	1.00	22.12	22.12	22.12	44.24
14	14	1.00	22.12	22.12	22.12	44.24
15	15	0.99	15.75	10.18	5.42	1.36
16	16	1.00	22.12	22.12	22.12	44.24
17	17	1.00	16.32	10.35	4.94	1.02
18	18	1.00	17.77	13.06	8.48	6.30
19	19	1.00	17.90	13.10	8.14	3.88
20	19	1.00	17.83	12.88	7.59	2.36
21	20	1.00	17.76	12.60	6.52	1.15
22	21	1.00	22.12	22.12	22.12	44.24
23	22	1.00	22.12	22.12	22.12	44.24
24	23	1.00	22.12	22.12	22.12	44.24

City of South St. Paul
Comprehensive Stormwater Management Plan
P8 Results

CONCENTRATION (PPM) PRESENT IN THE OUTFLOW OF EACH TREATMENT DEVICE
FOR EACH WATER QUALITY COMPONENT

Device Number	Device	Subwatershed Number	TSS	TP	TKN	Cu	Pb	Zn	HC	COD	BOD
1	SW1 OUT	1	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
2	SW2 OUT	2	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
3	SW3 OUT	3	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
4	SW4 POND	4	30.59	0.34	1.66	0.02	0.03	0.10	0.94	57.67	8.30
5	SW5 OUT	5	76.05	0.43	1.99	0.02	0.06	0.11	1.94	91.29	13.43
6	SW6 POND	6	9.42	0.17	0.89	0.01	0.01	0.05	0.39	20.00	2.85
7	SW7 POND	7	0.37	0.02	0.09	0.00	0.00	0.01	0.03	1.07	0.15
8	SW8 OUT	8	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
9	SW9 OUT	9	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
10	SW10 OUT	10	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
11	SW11 OUT	11	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
12	SW12 OUT	12	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
13	SW13 OUT	13	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.25	18.91
14	SW14 OUT	14	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
15	SW15POND	15	32.71	0.35	1.71	0.02	0.03	0.10	0.99	61.30	8.81
16	SW16	16	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
17	PH1 CHAN	17	32.63	0.35	1.71	0.02	0.03	0.10	0.98	62.59	8.99
18	PH2CHAN1	18	45.60	0.40	1.90	0.02	0.04	0.11	1.28	75.04	10.87
19	PH2CHAN2	19	43.03	0.40	1.90	0.02	0.04	0.11	1.22	73.85	10.69
20	PH2CHAN3	19	40.67	0.40	1.88	0.02	0.03	0.11	1.17	72.18	10.43
21	5006POND	20	38.04	0.39	1.84	0.02	0.03	0.11	1.11	70.31	10.15
22	BUTLER	21	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
23	SW18 OUT	22	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
24	SW19 OUT	23	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91
25	SW20 OUT	24	110.60	0.57	2.55	0.03	0.08	0.15	2.74	128.24	18.91



COMPREHENSIVE STORMWATER MANAGEMENT PLAN
P8 SUBWATERSHED MAP
SOUTH ST. PAUL

SSP

WSB & Associates, Inc.

Appendix D

Floodplain, River Corridor, Shoreland Zoning, and Illicit Discharge Ordinances

DIVISION 2. - SP, SPECIAL PURPOSE ZONING DISTRICTS

Sec. 118-165. - Regulations additional to base requirements; list of districts.
Sec. 118-166. - Public land overlay district.
Sec. 118-167. - Mississippi River Corridor zoning.
Sec. 118-168. - Floodplain districts.
Sec. 118-169. - Shorelands zoning.
Sec. 118-170. - EB, existing business overlay district.
Secs. 118-171—118-193. - Reserved.

Sec. 118-165. - Regulations additional to base requirements; list of districts.

(a) *General.* These are regulations in addition to the base zoning district requirements that serve a special or unique public need or purpose.

(b) *Districts.* The various special purpose zoning districts are as follows:

- **(1)** Public land overlay district, section 118-166
- **(2)** Airport land use, section 118-206
- **(3)** Planned unit development, section 118-132
- **(4)** Floodplain, section 118-168
- **(5)** Mississippi River corridor, section 118-167
- **(6)** Shorelands zoning, section 118-169
- **(7)** Existing business overlay district, section 118-170

(Code 1992, § 1500.26, subds. 1, 2)

Sec. 118-166. - Public land overlay district.

All public (city, state, federal, school district, and other) land and buildings owned and/or operated for public purposes are zoned for what may be the most appropriate private land use should the land be sold, leased, or otherwise transferred from public ownership and/or use, to and for a private use. Regulations are as follows:

(1) The public land overlay district is in addition to and not in lieu of the regular or original zoning district applied on the zoning district map for the purpose of designating land and structures for which, if sold or otherwise made available for private use, the city council may determine the permanent zoning after a public hearing. No private building or occupancy permits shall be issued until said determination is made by the city council. After receipt of a recommendation from the planning commission, the city council may permit the private use of any or all of public land parcels and/or buildings to remain in public ownership but only by conditional use permit; if a private use of public land and/or buildings is authorized by issuance of a conditional use permit, an occupancy permit shall also be required prior to the private use beginning operations.

(2) City, school district, state, federal, county, and other public lands and buildings are to be developed and operated in accordance with official public plans as may be on file with the city.

(Code 1992, § 1500.26, subd. 3)

Sec. 118-167. - Mississippi River Corridor zoning.

(a) *Findings of fact; purpose.*

(1) The city finds that the Mississippi River Corridor (Minnesota National River Recreation Area or "MNRRA") within the Metropolitan Twin Cities area and within the city is a unique and valuable resource. The river is an essential element of local, regional, state and national systems of transportation, recreation, sewer and water, and serves important biological and ecological functions. The prevention and mitigation of irreversible damage to this resource and the

preservation and enhancement of its natural, aesthetic, cultural and historic values is in furtherance of the health, safety, and general welfare of the city.

(2) It is the purpose and intent of this chapter to prevent and mitigate irreversible damage to the Mississippi River Corridor, to preserve and enhance its value to the public, and to protect and preserve the Mississippi River Corridor as an essential element in the city's transportation, recreation, sewer and water systems in accordance with the following policies:

a. The Mississippi River Corridor shall be managed as a multipurpose public resource by continuing use of the river channel for transportation and commerce, conserving the scenic, environmental, recreational, commercial, historical and cultural resources and functions of the river corridor and providing for the continuation of a variety of urban uses within the river corridor.

b. The Mississippi River Corridor shall be managed in a manner consistent with its natural characteristics and its existing development and in coordination with regional plans for the development of the metropolitan area.

c. The Mississippi River Corridor shall be managed in accordance with the state's Critical Areas Act of 1973 (Minn. Stat. § 116G.01 et seq.), and Minn. Stat. ch. 116D, the Governor's Order Designating the Mississippi River Corridor Critical Area, and other applicable state and federal statutes and regulations.

d. The Mississippi River Corridor shall be managed in accordance with applicable provisions of Minn. Stat. ch. 103F.

(b) *Establishment of river corridor overlay zoning district.*

(1) The official zoning map of the city, which is on file in the office of the city clerk and which is incorporated by reference in this Code, is hereby amended to include a map overlay district and incorporated by reference, setting forth the boundaries of a river corridor district as established and defined herein.

(2) The river corridor district shall be that area which has been designated as the Mississippi River Corridor Critical Area in accordance with Minn. Stat. ch. 116G, 6 MCAR 3.051-2.057, and Executive Orders 130 and 130A (November 1976), and whose boundaries are shown on the referenced river corridor zoning map.

(3) The river corridor district may be referred to by the abbreviation MR.

(c) *General provisions.*

(1) *Lands to which this section applies.* This section shall apply to all lands within the jurisdiction of the city shown on the official zoning map as being located within the boundaries of the river corridor district.

(2) *Compliance.* No structure or land shall hereafter be used, and no structure shall be located, extended, converted or structurally altered, without full compliance with the terms of this section and other applicable regulations that apply to uses within the jurisdiction of this section.

(3) *Rules for interpretation of district boundaries.* The boundaries of the zoning districts shall be determined by scaling distances on the official zoning map. Where interpretation is needed as to the exact location of the boundaries of the district as shown on the official zoning map, as, for example, where there appears to be a conflict between a mapped boundary and actual field conditions, the board of zoning appeals shall make the necessary interpretation. The person contesting the location of the district boundary shall be given a reasonable opportunity to present the case to the board and to submit technical evidence if so desired.

(4) *Abrogation and greater restrictions.* It is not intended by this section to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this section imposes greater restrictions, the provision of this section shall prevail. All other codes inconsistent with this section are hereby repealed to the extent of the inconsistency only.

(5) *Interpretation.* In their interpretation and application, the provisions of this section shall be held to be liberally construed in favor of the city council and shall not be deemed a limitation or repeal of any other powers granted by state statutes.

(d) *Relation of other zoning districts.*

(1) Lands within the river corridor overlay district shall be subject to the requirements established in this section as well as the requirements of the underlying zoning districts.

(2) Lands within the river corridor overlay district which also lie within the floodway district of the flood fringe district, as established in this article, shall also be subject to the requirements of floodplain zoning, as described in section 118-168

(3) Lands within the river corridor overlay district that also lie within the shorelands district, as established by this article, shall also be subject to the requirements of shorelands zoning.

(4) Where two or more provisions of this section or of other sections of this chapter or other applicable laws or regulations, are in effect, the more restrictive provision shall apply.

(e) *Definitions.* For the purposes of this section, certain words, terms, and phrases are defined as follows:

Accessory use or structure. A use or structure on the same lot with and of a nature customarily incidental and subordinate to the principal use or structure.

Adjacent. Having a boundary that physically touches or adjoins.

Barge fleeting area. An area on or adjacent to a river where barges are temporarily parked and secured while tows are assembled or disassembled.

Barge slip. A basin or other body of water, usually adjacent to a wharf, jetty, dock, or other cargo handling facility, where barges are brought for the purpose of loading or unloading cargo.

Bluffline. A line delineating the top of a slope connecting the points at which the slope becomes less than 18 percent. More than one bluffline may be encountered proceeding landward from the water.

Boathouse. A structure used solely for the storage of boats or boating equipment.

Building line. That line measured across the width of the lot at the point where the main structure is placed in accordance with setback provisions.

Clearcutting. The removal of an entire stand of trees and shrubs.

Crowding potential. The ratio of total acreage of a water body to shore miles.

Development. The making of any material change in the use or appearance of any structure or landing, including, but not limited to, a reconstruction, alteration of the size or material change in the external appearance of a structure or the land; a change in the intensity of use of the land; alteration of a shore or bank of a river, stream, lake, or pond; a commencement of drilling (except to obtain a soil sample); mining ore excavation; demolition of a structure; clearing of land as adjunct to construction; deposit of refuse, solid or liquid waste, or fill on a parcel of land; or the dividing of land into two or more parcels.

Equal degree of encroachment. A method of determining the location of encroachment lines so that the hydraulic capacity of floodplain lands on each side of a stream are reduced by an equal amount when calculating the increases in flood stages due to floodplain encroachments.

Erosion. The general process by which soils are removed by flowing surface or subsurface water or by wind.

Flood. A temporary rise in streamflow or stage that results in inundation of the areas adjacent to the channel.

Flood frequency. The average frequency, statistically determined, for which it is expected that a specific flood stage or discharge may be equaled or exceeded.

Flood fringe. The portion of the floodplain outside of the floodway.

Floodplain. The areas adjoining a watercourse that have been or hereafter may be covered by the regional flood.

Floodproofing. A combination of structural provisions, changes, or adjustments to properties and structures subject to flooding primarily for the reduction or elimination of flood damages.

Floodway. The channel of the watercourse and those portions of the adjoining floodplains that are reasonably required to carry and discharge the regional flood.

Hardship. The property in question cannot be put to a reasonable use under the conditions allowed by the official controls; the plight of the landowner is due to circumstances unique to the property not created by the landowner; and the variance, if granted, will not alter the essential character of the locality.

Landscaping. The arrangement of plants such as trees, grass and shrubs in order to improve the aesthetics of an area.

Mining. The extraction of sand, gravel, rock, soil or other material from the land in the amount of 500 cubic yards or more and the removing thereof from the site without processing with the exception of the removal of materials associated with the construction of a building that is approved in a building permit.

Normal high-water mark. A mark delineating the highest water level that has been maintained for a sufficient period of time to leave evidence of the level upon the adjacent land or terrain. It is commonly that point where the natural vegetation changes from predominately aquatic to predominately terrestrial. When the normal high-water mark is not evident, setbacks shall be measured from the stream bank at the normal pool elevation of the river.

Obstruction. Any dam, wall wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel, rectification, culvert, building, wire, fence, stockpile, refuse, fill structure, or matter in, along, across,

or projecting into any channel, watercourse or regulatory flood hazard area which may impede, retard, or change the direction of flow of water, either in itself or by catching or collecting debris carried by such water, or that is placed where the flow of water might carry the same downstream to the damage of life or property.

Planned unit development. A type of development that may incorporate a variety of land uses planned and developed as a unit. The planned unit development is distinguished from the traditional subdivision process of development in that zoning standards such as density, setbacks, height limits, and minimum lot sizes may be altered by negotiation and agreement between the developer, the city, and the commissioner.

Ponding area. A basin that retains stormwater runoff from an adjacent or tributary area.

Reach. A hydraulic engineering term to describe a longitudinal segment of a stream or river influenced by a natural or manmade obstruction. In an urban area, the segment of a stream or river between two consecutive bridge crossings would most typically constitute a reach.

Regional flood. A flood which is representative of large floods known to have occurred generally in the state and reasonably characteristic of what can be expected to occur on an average frequency in the magnitude of the 100-year recurrence interval.

Regulatory flood protection elevation. A point not less than one foot above the water surface profile associated with the regional flood, plus any increases in flood heights attributable to encroachments on the floodplain. It is the elevation to which uses regulated by this section are required to be elevated or floodproofed.

Root aeration zone. The area of land that lies under the tree's canopy. This area is measured by finding the farthest-reaching branches along its circumference and projecting vertically from those branches to the ground.

Sewage disposal system. Any system for the collection, treatment, and dispersion of sewage, including, but not limited to, septic tank soil absorption systems and combined sanitary and storm sewers.

Shoreland. Land located within the following distances from public water:

(1) One thousand feet from the ordinary high water mark of a lake, pond, or flowage; and

(2) Three hundred feet from a river or stream, or the landward extent of a floodplain designated by this Code on such a river or stream, whichever is greater. The practical limits of shorelands may be less than the statutory limits whenever the waters involved are bounded by topographic divides that extend landward from the waters for lessor distances and when approved by the commissioner.

Slope. The inclination of the natural surface of the land from the horizontal.

State building code. As authorized by Minn. Stat. § 16.83 et seq. and promulgated as to MCAR 1.0101 et seq.

Structure. Any building or appurtenance thereto, except aerial or underground utility lines, such as sewer, electric, telephone, telegraph, or gas lines, including towers, poles, and other supporting appurtenances.

Substandard use. Any use of shorelands existing prior to the date of enactment of any city ordinance which is permitted within the applicable zoning district but does not meet the minimum lot area and length of water frontage, structure setbacks, or other dimensional standards of this section.

Treeline. The more or less continuous line formed by the tops of trees in a wooded area when viewed from a particular point. Such line shall be determined during all seasons as if under full foliage.

Wetlands. Low-lying areas that may be covered with shallow water. They are frequently associated with a high-water table. Swamps, bogs, marshes, potholes, wet meadows and sloughs are wetlands. They may occur adjacent to or within natural drainageways or as freestanding low areas. Wetlands shall consist of types 1-B as defined in United States Department of Interior Fish and Wildlife Service Circular 39.

(f) *Site plan requirements.*

(1) *Plan approval; environmental information required.* No building permit, conditional use permit, zoning approval or subdivision approval shall be issued for any development located in the river corridor district unless a site plan has been prepared and approved in accordance with the terms of this section. Such site plans, when submitted, must include environmental information and plans which limit vegetative cutting in riverbank setback areas, protect wetlands, protect slopes over 12 percent, limit the role of surface water runoff, manage reclamation, and encourage underground placement of utility crossing and clustering of overhead crossings.

(2) *Exceptions.* The site plan application requirements of this section shall not be applied to a single-family dwelling or to the extension, enlargement, change or alteration thereof, nor accessory structure thereto, provided that the dwelling remains a single-family dwelling. Such developments will remain subject to the building permit application requirements of this Code. In the review of an application for a building permit for such a development, a permit shall not be granted where the proposed action is not in compliance with the standards for river corridor development enumerated in this section.

(g) *Site plan application.* An application for site plan review shall be filed with the city engineer on forms provided by the city. On receipt of the application, the city engineer shall submit it to the planning commission for recommendations. Upon receiving an application for a site plan review, the planning commission and city council shall, prior to rendering their respective recommendation or decision thereon:

(1) Require the applicant to furnish such of the following information and any additional information as deemed necessary by the planning commission and city council for determining if the proposed use conforms to the provisions of this section:

a. Plans in duplicate drawn to the scale of one inch equals ten feet for parcels of one-half acre in size or less, and to the scale of one inch equals 50 feet for parcels larger than one-half acre in size, prepared and signed by a registered engineer, architect, and/or land surveyor, as applicable, showing the nature, location, dimensions and elevation of the land; existing and proposed surface contours, structures, fill and the locations and elevations of proposed streets, water supply, sanitary facilities, and other utilities, showing the relationship of the above to the river channel and to the river corridor.

b. Where applicable provisions of this section apply, combined sets of plans may be required to be submitted by the applicant.

(2) Require the applicant to submit copies of this information to the city engineer. The city engineer shall review the plans to see if they meet the criteria and standards set out in this section and shall provide, in writing, to the planning commission and city council and the applicant the engineer's considered opinion of the plans and recommendation as to how the planning commission and city council should respond to the applicant's request for a building permit, zoning approval or subdivision approval. In conducting a review of plans, the city engineer is authorized to solicit the opinions of other city officials and to engage the services of expert persons to assist in the review.

(h) *Site plan criteria and approval standards.* No site plan that fails to satisfy the following standards shall be approved, unless otherwise permitted by the city engineer:

(1) *Protection of wetlands.* Filling in a wetland shall comply with the requirements of the United States Army Corps of Engineers, Environmental Protection Agency, Fish and Wildlife Service and the state department of natural resources and pollution control agency.

(2) *Dredging of water bodies.* Dredging of water bodies shall be permitted if it will not result in a substantially or significantly adverse effect on the ecological and hydraulic characteristics of the water body and is proposed for a purpose consistent with the critical area designation.

(3) *Development on slopes—Classification of zones.* Slopes in excess of 12 percent within the critical area are divided into two classifications. These are:

a. *Zone A.* Zone A slopes are those in excess of 12 percent that are still in a natural, undisturbed state.

b. *Zone B.* Zone B slopes are those in excess of 12 percent and which have been in one way or another disturbed or affected by cutting, filling, excavating, installation of public improvements, utilities or roadways, or construction of building or retaining walls.

(4) *Same—Regulations.*

a. No development or disturbance shall be permitted on slopes within Zone A other than for necessary actions to maintain the integrity of the slopes, such as prevention of erosion.

b. No development shall be permitted on slopes in zone B over 12 percent unless an applicant submits a plan showing proposed development, drainage, erosion control and landscaping, and proves that the following conditions are met:

1. The foundation and underlying material of any structure, including roads, shall be adequate for the slope condition and soil type.

2. Adequate controls and protections exist uphill from the proposed development such that there is no danger of structures or roads being struck by falling rock, mud, uprooted trees, or other materials, and no loss of lateral support.

3. The proposed development presents no danger of falling rock, mud, uprooted trees or other materials to structures downhill.

4. The view of the developed slope from the river and opposite riverbank is consistent with the natural appearance of the undeveloped slopes, consistent with any historic areas nearby, compatible with surrounding architectural features, and compatible with the view from any historic areas.

5. All structures other than building and roadway surfaces, but including retaining walls, shall meet the following design requirements:
   (i) Retaining walls or terrace contours shall not generally exceed five feet in height.
   (ii) Construction should be of native stone or wood or other similar approved methods or materials where conditions so dictate.
6. Development on lands with slopes in excess of 12 percent shall be permitted if approved by the city council and in accordance with other applicable laws and regulations.
7. Any lift stations required to service the slope development with local sewer systems are designed in accordance with local design standards and approved by the city engineer. The applicant shall furnish a satisfactory arrangement or agreement by which the costs of maintenance and operation of the lift station are borne by those serviced by the facility.
8. No septic tank or other similar waste disposal system shall be permitted.

(5) *Minimizing erosion.*
   a. In order to protect and preserve slopes in the river corridor, erosion as a result of construction and development shall be minimized. During construction and until such time as final control measures are fully implemented, adequate development practices shall be maintained to ensure that gross soil loss levels (expressed in terms of tons per acre per year) shall not exceed five tons per acre per year during construction or two tons per acre per year when the site is adjacent to a water body or watercourse; and one-half ton per acre after the construction activities are completed. Soil loss shall be calculated in accordance with the uniform soil loss equation, as provided in the technical appendix to this section on file with the city.
   b. The proposed development will not unduly impact the city's stormwater management.
   c. Erosion protection measures shall make maximum use of natural, in-place vegetation rather than the placing of new vegetation on site as erosion control facilities. The use of natural erosion control devices shall be preferred to the maximum extent over the construction of artificial devices such as culverts, holding ponds and ditches.

(6) *Sediment traps.* Wetlands and other water bodies shall not be used as primary sediment traps during or after construction.

(7) *Preservation of views.* The development shall be consistent with the reasonable preservation of the view of the river corridor from other properties and by the public, and the obstruction of views of the river corridor from other properties and public rights-of-way shall be minimized.

(8) *Preservation of vegetation and trees.*
   a. The development shall be located in such a manner so as to minimize removal of vegetation and alteration of the natural topography.
   b. The applicant shall demonstrate that there are no feasible or prudent alternatives to cutting trees on the site, and if trees are cut, the density of trees shall be restored to that which existed before development, but in no case shall the applicant be required to increase the density above ten trees per acre. The applicant shall demonstrate that all grading which takes place shall be conducted in a manner that preserves the root aeration zone and stability of existing trees and provides an adequate watering area equal to at least one-half of each tree's crown cover.
   c. The selective cutting of trees greater than four inches in diameter may be permitted when the cutting is appropriately spaced and stated so that a continuous natural cover is maintained.
   d. Clearcutting shall not be permitted on the slope or faces of bluffs and within 40 feet of established blufflines.

(9) *Grading and filling.* Grading and filling in the river corridor or any other substantial alteration of the natural topography shall be controlled in accordance with the following criteria:
   a. The smallest amount of bare ground shall be exposed for as short a time as feasible.
   b. Temporary groundcover, such as mulch, shall be used, and permanent vegetativeground cover, such as sod, shall be provided.
   c. Methods to prevent erosion and trap sediment shall be employed.
   d. Fill shall be stabilized to accepted engineering standards.
   e. Dredge spoils are acceptable as fill.

(10) *Use of maintenance equipment.* Any and all erosion control, stormwater runoff, utility access, and similar structures shall be designed to be maintained, cleaned out and otherwise operated without requiring the crossing of private lands with or by the operation of motorized heavy maintenance equipment and vehicles, such as bulldozers, trucks and backhoes, on slopes in excess of approximately eight percent.

(11) *Street grades.* The grade of any street shall not generally exceed ten percent.

(12) *Structure setback.* Structures and roads shall be placed no less than 100 feet from the normal high-water mark of the river and no less than 40 feet from the landward side of the blufflines.

(13) *Soil suitability.* The applicant shall demonstrate that the types and densities of land use proposed shall be suited to the site and soil conditions, shall not present a threat to the maintenance of the groundwater quality or a potential increase in maintenance costs of utilities, parking areas or roads, and shall not be subject to problems due to soil limitation, including, but not limited to, soil bearing strength, shrink/swell potential and excessive frost movement.

(14) *Runoff quality.* The quality of runoff and water infiltrated to the water table or aquifer shall be as high after development as it was before development on the site.

(15) *Traffic.* Traffic associated with the proposed development, both vehicular and pedestrian, shall be consistent with local transportation and thoroughfare system capacities and planning.

(16) *Parking facilities.* Adequate parking facilities shall be provided to service the proposed development. The construction of said parking facilities shall be consistent with the character of the river corridor, screened from river view by natural vegetation and not in excess of facilities reasonably foreseen to be required by the development proposal.

(17) *Public access.* The proposed development shall neither reduce public access to and along the riverbank, nor preclude consideration of public opportunity to view the river from within the corridor.

(18) *Preservation of islands.* No developments shall be permitted on presently undeveloped islands except those developments specifically related to wildlife, preservation, recreation and open space uses.

(19) *Consistency with critical area plan.* The conduct of all grading, landscaping, structure placement and street routing shall be consistent with and to the maximum extent in furtherance of the goals and policies set forth in the plan adopted for the critical area by the city.

(i) *Mining operations in the river corridor.* Mining operations shall be subject to the following conditions:

(1) *Operation.* Mining operations shall be regulated according to the standards established by the state pollution control agency, the United States EPA, and other applicable standards, regulations and laws.

(2) *Reclamation.* All mining operations shall be required to submit plans for reclamation of mining sites to the planning commission for recommendation and the city council for approval. In these plans, the operators shall indicate they will comply with the following requirements:

a. Reclamation shall be a continuing operation occurring as quickly as possible after the mining operating has moved into another part of the extraction site.

b. All banks and slopes shall be rehabilitated as necessary. Such ground shall be tended as necessary until it is self-sustaining.

c. Reclamation plans shall be submitted within six months of the enactment of the ordinance from which this section is derived.

(j) *Utility facilities.* Utility crossing of the critical area corridor or routing within the corridor shall meet the following standards:

(1) Underground placing of the utility facility shall be required unless economic, technological and land characteristic factors make underground placement infeasible. Economic considerations alone shall not be made the major determinate regarding feasibility.

(2) Overhead crossings, if required, shall meet the following criteria:

a. The crossings shall be adjacent to or part of an existing utility corridor, including bridge or overhead utility lines.

b. All structures utilized shall be as compatible as practicable with land use, scenic views, and existing transmission structures in height, material, color and design.

c. Right-of-way clearance shall be kept to a minimum.

d. Vegetative screening shall be utilized to the maximum extent consistent with safety requirements.

e. Routing shall avoid unstable soils, blufflines, or high ridges; the alteration of the natural environment, including grading, shall be minimized.

f. The crossings shall be subject to the site planning requirements set forth in other parts of this section.

(k) *Public access to the river.*

(1) Public pedestrian access shall be provided to the riverfront of all public property.

(2) Public pedestrian access shall be provided to the riverfront of development on publicly owned or publicly controlled property, whether leased to private lessees or not, except where:

a. Unavoidable hazards exist to the public.

b. Pedestrian access at a particular location cannot be designed or developed to provide a pleasant view or recreational experience.

c. Access to the riverfront may be denied to any person who creates a nuisance or who engages in illegal conduct on the property. Public access may be temporarily or permanently denied upon a finding by the city that such offensive conduct cannot otherwise be reasonably controlled.

(3) The city shall cooperate with private property owners to create and maintain public pedestrian access to the riverfront on private property, where practicable.

(l) *Subdivisions of land.*

(1) *Land suitability.* No land in the river corridor district shall be subdivided which is held unsuitable by the city for the proposed use because of flooding, inadequate drainage, soil and rock formations with severe limitations for development, severe erosion potential, unfavorable topography, inadequate water supply or sewage disposal capabilities, or any other feature likely to be harmful to the health, safety, or welfare of future residents of the proposed subdivision or of the community.

(2) *Dedications of land.* In any subdivision of land in the river corridor district, the city may require a land dedication or cash donation in lieu thereof. The dedication shall comprise about ten percent of the land area to be subdivided. Dedication may include areas of steep slope or river frontage in order to further the preservation of natural areas in the river corridor, and to promote the recreational usage of the Mississippi River and its environs. Dedication may also include lands for parks, scenic overlooks, trails, or similar public uses.

(3) *Floodplain district requirements.* All lots within the floodplain districts created by this division shall contain a building site at or above the regulatory flood protection elevations. All subdivisions shall have water and sewage disposal facilities that comply with the provisions of this division and have road access both to the subdivision and to the individual building sites no lower than two feet below the regulatory flood protection elevation.

(4) *Shoreland district requirements.* Any plat within the shoreland district created which is inconsistent with the requirements of this division shall be reviewed by the commissioner of natural resources before approval by the city may be granted. The proposed plat must be received by the commissioner at least ten days before a hearing is called by the city for consideration of approval of a final plat. Copies of all plats within the shoreland district shall be submitted to the commissioner within ten days of final approval by the city.

(Code 1992, § 1500.33, subds. 1—12)

State law reference— Minnesota Wild and Scenic Rivers Act, Minn. Stat. § 103F.301 et seq.

Sec. 118-168. - Floodplain districts.

(a) *Authority; findings of fact; purpose.*

(1) *Statutory authorization.* The legislature of the state has, in Minn. Stat. ch. 103F and Minn. Stat. ch. 462, delegated the responsibility to local government units to adopt regulations designed to minimize flood losses. Therefore, the city council has ordained as provided herein.

(2) *Findings of fact.*

a. The flood hazard areas of the city are subject to periodic inundation which results in potential 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.

b. This section is based upon a reasonable method of analyzing flood hazards that is consistent with the standards established by the state department of natural resources.

(3) *Statement of purpose.* It is the purpose of this section to promote the public health, safety, and general welfare and to minimize those losses described in subsection (a)(1) of this section by provisions contained herein.

(b) *General provisions.*

(1) *Lands to which this section applies.* This section shall apply to all lands within the jurisdiction of the city shown on the official zoning map and/or the attachments thereto as being located within the boundaries of the floodway or flood fringe districts.

(2) *Establishment of official zoning map.* The official zoning map, together with all materials attached thereto, is hereby adopted by reference and declared to be a part of this section. The attached material shall include the flood insurance study for the city prepared by the Federal Insurance Administration dated December 1979, and the flood boundary and floodway map, dated June 18, 1980, and flood insurance rate map, dated June 18, 1980, therein. The official zoning map shall be on file in the office of the city clerk and the city engineer.

(3) *Regulatory flood protection elevation.* The regulatory flood protection elevation shall be an elevation no lower than one foot above the elevation of the regional flood plus any increases in

flood elevation caused by encroachments on the floodplain that result from designation of a floodway.

(4) *Interpretation.*

a. In their interpretation and application, the provisions of this section shall be held to be minimum requirements, shall be liberally construed in favor of the city council, and shall not be deemed a limitation or repeal of any other powers granted by state statutes.

b. The boundaries of the zoning districts shall be determined by scaling distances on the official zoning map. Where interpretation is needed as to the exact location of the boundaries of the district as shown on the official zoning map, for example, where there appears to be a conflict between a mapped boundary and actual field conditions and there is a formal appeal of the decision of the zoning administrator, the board of adjustment shall make the necessary interpretation. All decisions will be based on elevations on the regional 100-year flood profile and other available technical data. Persons contesting the location of the district boundaries shall be given a reasonable opportunity to present their case to the board and to submit technical evidence.

(5) *Abrogation and greater restrictions.* It is not intended by this section to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this section imposes greater restrictions, the provisions of this section shall prevail. All ordinances inconsistent with this section are hereby repealed to the extent of the inconsistency only.

(6) *Warning and disclaimer of liability.* This section does not imply that areas outside the floodplain districts or land uses permitted within such districts will be free from flooding or flood damages. This section shall not create liability on the part of the city or any officer or employee thereof for any flood damages that result from reliance on this section or any administrative decision lawfully made thereunder.

(7) *Definitions.* For the purposes of this section, certain words, terms, and phrases are defined as follows:

Board of adjustment means the city council.

Equal degree of encroachment means a method of determining the location of floodway boundaries so that floodplain lands on both sides of a stream are capable of conveying a proportionate share of flood flows.

Flood frequency means the frequency for which it is expected that a specific flood stage or discharge may be equaled or exceeded.

Flood fringe means that portion of the floodplain outside of the floodway. Flood fringe is synonymous with the term "floodway fringe" used in the flood insurance study for the city.

Floodplain means the beds proper and the areas adjoining a wetland, lake or watercourse that have been or hereafter may be covered by the regional flood.

Floodproofing means a combination of structural provisions, changes, or adjustments to properties and structures subject to flooding primarily for the reduction or elimination of flood damages.

Floodway means the bed of a wetland or lake and the channel of a watercourse and those portions of the adjoining floodplain that are reasonably required to carry or store the regional flood discharge.

Regional flood means a flood that is representative of large floods known to have occurred generally in the state and reasonably characteristic of what can be expected to occur on an average frequency in the magnitude of the 100-year recurrence interval. Regional flood is synonymous with the term "base flood" used in the flood insurance study.

Regulatory flood protection elevation means an elevation no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the floodplain that result from designation of a floodway.

Structure means anything constructed or erected on the ground or attached to the ground or on-site utilities, including, but not limited to, buildings, factories, sheds, detached garages, cabins, manufactured homes, travel trailers/vehicles not meeting the exemption criteria specified in subsection (h)(4)a of this section and other similar items.

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

Zoning administrator means the city engineer or the city engineer's designee.

(c) *Establishment of zoning districts.*

(1) *Districts.*

a. *Floodway district.* The floodway district shall include those areas designated as floodway on the flood boundary and floodway map adopted in subsection (b) of this section.

b.

Flood fringe district. The flood fringe district shall include those areas designated as floodway fringe on the flood boundary and floodway map adopted in subsection (b) of this section.

c. *General floodplain district.* The general floodplain district shall include those areas designated as unnumbered A zones on the flood insurance rate map.

(2) *Compliance.* No new structure or land shall hereafter be used, and no structure shall be located, extended, converted, or structurally altered without full compliance with the terms of this section and other applicable regulations that apply to uses within the jurisdiction of this section. Within the floodway and flood fringe districts, all uses not listed as permitted uses or conditional uses in subsections (d) or (e) of this section that follow, respectively, shall be prohibited. In addition, a caution is provided here that:

a. New manufactured homes, replacement manufactured homes and certain travel trailers and travel vehicles are subject to the general provisions of this section and specifically subsection (h) of this section;

b. Modifications, 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 section and specifically subsection (j) of this section; and

c. As-built elevations for elevated or floodproofed structures must be certified by ground surveys and floodproofing techniques must be designed and certified by a registered professional engineer or architect as specified in the general provisions of this section and specifically as stated in subsection (i) of this section.

(d) *FW, floodway district.*

(1) *Permitted uses.*

a. General farming, pasture, grazing, outdoor plant nurseries, horticulture, truck farming, forestry, sod farming, and wild crop harvesting.

b. Industrial-commercial loading areas, parking areas, and airport landing strips.

c. Private and public golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat-launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, and single-purpose or multipurpose recreational trails.

d. Residential lawns, gardens, parking areas, and play areas.

(2) *Standards for floodway permitted uses.*

a. The use shall have a low flood damage potential.

b. The use shall be permissible in the underlying zoning district if one exists.

c. The use shall not obstruct flood flows or increase flood elevations and shall not involve structures, fill, obstructions, excavations or storage of materials or equipment.

(3) *Conditional uses.*

a. Structures accessory to the uses listed in subsection (d)(1) of this section and the uses listed in subsections (d)(3)b through (d)(3)h of this section.

b. Extraction and storage of sand, gravel, and other materials.

c. Marinas, boat rentals, docks, piers, wharves, and water control structures.

d. Streets, bridges, utility transmission lines, and pipelines.

e. Storage yards for equipment, machinery, or materials.

f. Placement of fill.

g. Travel trailers and travel vehicles either on individual lots of record or in existing or new subdivisions or commercial or condominium-type campgrounds, subject to the exemptions and provisions of subsection (h)(3) of this section.

h. Structural works for flood control, such as levees, dikes and floodwalls constructed to any height where the intent is to protect individual structures and levees or dikes where the intent is to protect agricultural crops for a frequency flood event equal to or less than the ten-year frequency flood event.

(4) *Standards for floodway conditional uses.*

a. *All uses.* No structure, whether temporary or permanent, fill (including fill for roads and levees), deposit, obstruction, storage of materials or equipment, or other uses may be allowed as a conditional use that will cause any increase in the stage of the 100-year or regional flood or cause an increase in flood damages in the reach or reaches affected.

b. *Procedures and standards.* All floodway conditional uses shall be subject to the procedures and standards contained in subsection (i)(4) of this section.

c. *Where permissible.* The conditional use shall be permissible in the underlying zoning district if one exists.

d. *Fill.*

1.

Fill, dredge spoil and all other similar materials deposited or stored in the floodplain shall be protected from erosion by vegetative cover, mulching, riprap or other acceptable method.

2. Dredge spoil sites and sand and gravel operations shall not be allowed in the floodway unless a longterm site development plan is submitted which includes an erosion/sedimentation prevention element to the plan.

3. As an alternative, and consistent with subsection (d)(4)d.2 of this section, dredge spoil disposal and sand and gravel operations may allow temporary, on-site storage of fill or other materials which would have caused an increase to the stage of the 100-year or regional flood but only after the city council has received an appropriate plan which ensures the removal of the materials from the floodway based upon the flood warning time available. The conditional use permit must be title registered with the property in the office of the county recorder.

e. *Accessory structures.*

1. Accessory structures shall not be designed for human habitation.

2. Accessory structures, if permitted, shall be constructed and placed on the building site so as to offer the minimum obstruction to the flow of floodwaters.

(i) Whenever possible, structures shall be constructed with the longitudinal axis parallel to the direction of flood flow.

(ii) So far as practicable, structures shall be placed approximately on the same flood flow lines as those of adjoining structures.

3. Accessory structures shall be elevated on fill or structurally dry floodproofed in accordance with the FP-1 or FP-2 floodproofing classifications in the state building code. As an alternative, an accessory structure may be floodproofed to the FP-3 or FP-4 floodproofing classification in the state building code, provided the accessory structure constitutes a minimal investment, does not exceed 500 square feet in size and, for a detached garage, the detached garage must be used solely for parking of vehicles and limited storage. All floodproofed accessory structures must meet the following additional standards, as appropriate:

(i) The structure must be adequately anchored to prevent flotation, collapse or lateral movement of the structure and shall be designed to equalize hydrostatic flood forces on exterior walls; and

(ii) Any mechanical and utility equipment in a structure must be elevated to or above the regulatory flood protection elevation or be properly floodproofed.

f. *Storage of materials and equipment.*

1. The storage or processing of materials that are, in time of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.

2. Storage of other materials or equipment may be allowed if readily removable from the area within the time available after a flood warning and in accordance with a plan approved by the city council.

g. *Structural works standards.* Structural works for flood control that will change the course, current or cross section of protected wetlands or public waters shall be subject to the provisions of Minn. Stat. ch. 103G. Community wide structural works for flood control intended to remove areas from the regulatory floodplain shall not be allowed in the floodway.

h. *100-year or regional flood not to be increased by structural works.* A levee, dike or floodwall constructed in the floodway shall not cause an increase to the 100-year or regional flood, and the technical analysis must assume equal conveyance or storage loss on both sides of a stream.

(e) *FF, flood fringe district.*

(1) *Permitted uses.* Permitted uses shall be those uses of land or structures listed as permitted uses in the underlying zoning use districts. If no preexisting underlying zoning use districts exist, then any residential or nonresidential structure or use of a structure or land shall be a permitted use in the flood fringe district, provided such use does not constitute a public nuisance. All permitted uses shall comply with the standards for flood fringe permitted uses listed in subsection (e)(2) of this section and the standards for all flood fringe uses listed in subsection (e)(5) of this section.

(2) *Standards for flood fringe permitted uses.*

a. All structures, including accessory structures, must be elevated on fill so that the lowest floor, including the basement floor, is at or above the regulatory flood protection elevation. The finished fill elevation for structures shall be no lower than one foot below the regulatory flood protection elevation, and the fill shall extend at such elevation at least 15 feet beyond the outside limits of the structure erected thereon.

b.

As an alternative to elevation on fill, accessory structures that constitute a minimal investment and that do not exceed 500 square feet for the outside dimension at ground level may be internally floodproofed in accordance with subsection (d)(4)e of this section.

c. The cumulative placement of fill where, at any one time, in excess of 1,000 cubic yards of fill is located on the parcel shall be allowable only as a conditional use, unless said fill is specifically intended to elevate a structure in accordance with subsection (e)(2)a of this section.

d. The storage of any materials or equipment shall be elevated on fill to the regulatory flood protection elevation.

e. The provisions of subsection (e)(5) of this section shall apply.

(3) *Conditional uses.* Any structure that is not elevated on fill or floodproofed in accordance with subsections (e)(2)a and (e)(2)b of this section or any use of land that does not comply with the standards in subsections (e)(2)c and (e)(2)d of this section shall only be allowable as a conditional use. An application for a conditional use shall be subject to the standards and criteria and evaluation procedures specified in subsections (e)(4), (e)(5), and (i)(4) of this section.

(4) *Standards for flood fringe conditional uses.*

a. Alternative elevation methods other than the use of fill may be utilized to elevate a structure's lowest floor above the regulatory flood protection elevation. These alternative methods may include the use of stilts, pilings, parallel walls, etc., or abovegrade enclosed areas such as crawl spaces or tuck under garages. The base or floor of an enclosed area shall be considered abovegrade and not a structure's basement or lowest floor if:

1. The enclosed area is abovegrade on at least one side of the structure;

2. It is designed to internally flood and is constructed with flood resistant materials; and

3. It is used solely for parking of vehicles, building access or storage. The alternative elevation methods of this subsection (e)(4)a of this section are subject to the following additional standards:

(i) Design and certification. The structure's design and as-built condition must be certified by a registered professional engineer or architect as being in compliance with the general design standards of the state building code and, specifically, that all electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities must be at or above the regulatory flood protection elevation or be designed to prevent floodwater from entering or accumulating within these components during times of flooding.

(ii) Specific standards for abovegrade enclosed areas. Above grade fully enclosed areas such as crawl spaces or tuck under garages must be designed to internally flood and the design plans must stipulate as specified in subsections (e)(4)a.3.(iii) and (e)(4)a.3.(iv) of this section.

(iii) Floodproofing. The minimum area of openings in the walls where internal flooding shall be used as a floodproofing technique as provided herein. When openings are placed in a structure's walls to provide for entry of floodwaters to equalize pressures, the bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices, provided that they permit the automatic entry and exit of floodwaters.

(iv) Materials to be used. The enclosed area will be designed of flood resistant materials in accordance with the FP-3 or FP-4 classifications in the state building code and shall be used solely for building access, parking of vehicles, or storage.

b. Basements, as defined by subsection (b)(8) of this section, shall be subject to the following:

1. Residential basement construction shall not be allowed below the regulatory flood protection elevation.

2. Nonresidential basements may be allowed below the regulatory flood protection elevation, provided the basement is structurally dry floodproofed in accordance with subsection (e)(4)c of this section.

c. All areas of nonresidential structures, including basements to be placed below the regulatory flood protection elevation, shall be floodproofed in accordance with the structurally dry floodproofing classifications in the state building code. Structurally dry floodproofing must meet the FP-1 or FP-2 floodproofing classification in the state building code, and this shall require making the structure watertight with the walls substantially impermeable to the passage of water and with structural components having the capability

of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. Structures floodproofed to the FP-3 or FP-4 classification shall not be permitted.

d. When, at any one time, more than 1,000 cubic yards of fill or other similar material is located on a parcel for such activities as on-site storage, landscaping, sand and gravel operations, landfills, roads, dredge spoil disposal or construction of flood control works, an erosion/sedimentation control plan must be submitted unless the community is enforcing a state-approved shoreland management ordinance. In the absence of a state-approved shoreland ordinance, the plan must clearly specify methods to be used to stabilize the fill on site for a flood event at a minimum of the 100-year or regional flood event. The plan must be prepared and certified by a registered professional engineer or other qualified individual acceptable to the city council. The plan may incorporate alternative procedures for removal of the material from the floodplain if adequate flood warning time exists.

e. Storage of materials and equipment shall comply with the following:

1. The storage or processing of materials that are, in times of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.

2. Storage of other materials or equipment may be allowed if readily removable from the area within the time available after a flood warning and in accordance with a plan approved by the city council.

f. The provisions of subsection (e)(5) of this section shall also apply.

(5) *Standards for all flood fringe uses.*

a. All new principal structures must have vehicular access at or above an elevation not more than two feet below the regulatory flood protection elevation. If a variance to this requirement is granted, the board of adjustment must specify limitations on the period of use or occupancy of the structure for times of flooding and only after determining that adequate flood warning time and local flood emergency response procedures exist.

b. Commercial accessory land uses such as yards 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 greater than two feet or be subject to flood velocities greater than four feet per second upon occurrence of the regional flood.

c. Measures shall be taken to minimize interference with normal manufacturing and industrial plant operations, especially along streams having protracted flood durations. Certain accessory land uses, such as yards and parking lots, may be at lower elevations, subject to requirements set out in subsection (e)(5)b of this section. In considering permit applications, due consideration shall be given to the needs of an industry whose business requires that it be located in floodplain areas.

d. Fill shall be properly compacted, and the slopes shall be properly protected by the use of riprap, vegetative cover, or another 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 multistructure or multilot 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.

e. Floodplain developments shall not adversely affect the hydraulic capacity of the channel and adjoining floodplain of any tributary watercourse or drainage system where a floodway or other encroachment limit has not been specified on the official zoning map.

f. Standards for travel trailers and travel vehicles are contained in subsection (h)(4) of this section.

g. 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.

(f) *Subdivisions.*

(1) *Review criteria.* No land shall be subdivided which is unsuitable for the reason of flooding, inadequate drainage, water supply or sewage treatment facilities. All lots within the floodplain districts shall contain a building site at or above the regulatory flood protection elevation. All subdivisions shall have water and sewage treatment facilities that comply with the provisions of this section and have road access both to the subdivision and to the individual building sites no lower than two feet below the regulatory flood protection elevation. 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.

(2) *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 multistructure or multilot 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.

(g) *Public utilities; roads and bridges.*

(1) *Public utilities.* All public utilities and facilities such as gas, electrical, sewer, and water supply systems to be located in the floodplain shall be floodproofed in accordance with the state building code or elevated to above the regulatory flood protection elevation.

(2) *Public transportation facilities.* Roads and bridges to be located within the floodplain shall comply with subsections (d) and (e) of this section. Elevation to the regulatory flood protection elevation shall be provided where failure or interruption of these transportation facilities would result in danger to the public health or safety or where such facilities are essential to the orderly functioning of the area. Minor or auxiliary roads may be constructed at a lower elevation where failure or interruption of transportation services would not endanger the public health or safety.

(3) *On-site sewage treatment and water supply systems.* Where public utilities are not provided, on-site water supply systems must be designed to minimize or eliminate infiltration of floodwaters into the systems, and new or replacement on-site sewage treatment systems must be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters, and they shall not be subject to impairment or contamination during times of flooding. Any sewage treatment system designed in accordance with the state's current statewide standards for on-site sewage treatment systems shall be determined to be in compliance with this section.

(h) *Manufactured homes and manufactured home parks; placement of travel trailers and travel vehicles.*

(1) New manufactured home parks and expansions to existing mobile manufactured home parks shall be subject to the provisions placed on subdivisions by subsection (f) of this section.

(2) The placement of new or replacement manufactured homes in existing manufactured home parks or on individual lots of record that are located in floodplain districts will be treated as a new structure and may be placed only if elevated in compliance with subsection (e) of this section. If vehicular road access for preexisting manufactured home parks is not provided in accordance with subsection (e)(5)a of this section, then replacement manufactured homes will not be allowed until the property owner develops a flood warning emergency plan acceptable to the city council.

(3) 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.

(4) Travel trailers and travel vehicles that do not meet the exemption criteria specified in subsection (h)(4)a of this section shall be subject to the provisions of this section and as specified in subsections (h)(4)c and (h)(4)d of this section.

a. *Exemption.* Travel trailers and travel vehicles are exempt from the provisions of this section if they are placed in any of the areas listed in subsection (h)(4)b of this section and, further, if they meet the following criteria:

1. Have current licenses required for highway use.
2. Are highway-ready; meaning on its wheels or internal jacking system, is attached to the site only by quick disconnect type utilities commonly used in campgrounds and trailer parks, and the travel trailer or travel vehicle has no permanent structural type additions attached to it.
3. The travel trailer or travel vehicle and associated use must be permissible in any preexisting, underlying zoning use district.

b. *Areas exempted for placement of travel/recreational vehicles.*

1. Individual lots or parcels of record.
2. Existing commercial recreational vehicle parks or campgrounds.
3. Existing condominium-type associations.

c. *Loss of exemption.* Travel trailers and travel vehicles exempted in subsection (h)(4)a of this section lose this exemption when development occurs on the parcel exceeding $500.00 for a structural addition to the travel trailer/travel vehicle or an accessory structure such as a garage or storage building. The travel trailer/travel vehicle and all additions and accessory structures will then be treated as a new structure and shall be subject to the elevation and floodproofing requirements and the use of land restrictions specified in subsections (d) and (e) of this section.

d. *New or replacement travel trailer or travel vehicle.* New commercial travel trailer or travel vehicle parks or campgrounds and new residential-type subdivisions and condominium

associations and the expansion of any existing similar use exceeding five units or dwelling sites shall be subject to the following:

1. Any new or replacement travel trailer or travel vehicle will be allowed in the floodway or flood fringe districts, provided said trailer or vehicle and its contents are placed on fill above the regulatory flood protection elevation elevated road access to the site in accordance with subsection (e)(5)a of this section. Any fill placed in a floodway for the elevating of a travel trailer shall be subject to the requirements of subsection (d) of this section.
2. All new or replacement travel trailers or travel vehicles not meeting the criteria of this subsection may, as an alternative, be allowed as a conditional use if in accordance with the following provisions and the provisions of subsection (i)(4) of this section. The applicant must submit an emergency plan for the safe evacuation of all vehicles and people during the 100-year flood. Said plan shall be prepared by a registered engineer or other qualified individual and shall demonstrate that adequate time and personnel exist to carry out the evacuation. All attendant sewage and water facilities for new or replacement travel trailers or other recreational vehicles must be protected or constructed so as to not be impaired or contaminated during times of flooding, in accordance with subsection (g)(3) of this section.

(i) *Administration.*

(1) *Zoning administrator.* A zoning administrator or other official designated by the city council shall administer and enforce this section. If the zoning administrator finds a violation of the provisions of this section, the zoning administrator shall notify the person responsible for such violation in accordance with the procedures stated in subsection (k) of this section.

(2) *Permit requirements.*

a. *Permit required.* A permit issued by the zoning administrator in conformity with the provisions of this section shall be secured prior to the erection, addition, or alteration of any building, structure, or portion thereof; prior to the use or change of use of a building, structure, or land; prior to the change or extension of a nonconforming use; and prior to the placement of fill, excavation of materials, or the storage of materials or equipment within the floodplain.

b. *Application for permit.* Application for a permit shall be made in duplicate to the zoning administrator on forms furnished by the zoning administrator and shall include the following, where applicable:

1. Plans in duplicate drawn to scale, showing the nature, location, dimensions, and elevations of the lot;
2. Existing or proposed structures, fill, or storage of materials; and
3. The location of the foregoing in relation to the stream channel.

c. *State and federal permits.* Prior to granting a permit or processing an application for a conditional use permit or variance, the zoning administrator shall determine that the applicant has obtained all necessary state and federal permits.

d. *Certificate of zoning compliance for a new, altered, or nonconforming use.* It shall be unlawful to use, occupy, or permit the use or occupancy of any building or premises or part thereof hereafter created, erected, changed, converted, altered, or enlarged in its use or structure until a certificate of zoning compliance shall have been issued by the zoning administrator stating that the use of the building or land conforms to the requirements of this section.

e. *Construction and use to be as provided on applications, plans, permits, variances and certificates of zoning compliance.* Permits, conditional use permits, or certificates of zoning compliance issued on the basis of approved plans and applications authorize only the use, arrangement, and construction set forth in such approved plans and applications, and no other use, arrangement, or construction. Any use, arrangement, or construction at variance with that authorized shall be deemed a violation of this section, and punishable as provided by subsection (k) of this section.

f. *Certification.* 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 section. Floodproofing measures shall be certified by a registered professional engineer or registered architect.

g. *Record of first floor elevation.* The zoning administrator shall maintain a record of the elevation of the lowest floor (including basement) of all new structures and alterations or additions to existing structures in the floodplain. The zoning administrator shall also maintain a record of the elevation to which structures and alterations or additions to structures are floodproofed.

(3) *Board of adjustment.* In this subsection, the term "board of adjustment" means the city council.

a. *Rules.* The board of adjustment shall adopt rules for the conduct of business and may exercise all of the powers conferred on such board by state law.

b. *Administrative review.* The board shall hear and decide appeals where it is alleged there is error in any order, requirement, decision, or determination made by an administrative official in the enforcement or administration of this section.

c. *Variances.* The board may authorize upon appeal in specific cases such relief or variance from the terms of this section as will not be contrary to the public interest and only for those circumstances such as hardship, practical difficulties or circumstances unique to the property under consideration, as provided for in the respective enabling legislation for planning and zoning for cities or counties, as appropriate. In the granting of such variance, the board of adjustment shall clearly identify in writing the specific conditions that existed consistent with the criteria specified in the respective enabling legislation that justified the granting of the variance. No variance shall have the effect of allowing in any district uses prohibited in that district, permit a lower degree of flood protection than the regulatory flood protection elevation for the particular area, or permit standards lower than those required by state law.

d. *Hearings.* Upon filing with the board of adjustment of an appeal from a decision of the zoning administrator, or an application for a variance, the board shall fix a reasonable time for a hearing and give due notice to the parties in interest, as specified by law. The board shall submit by mail to the commissioner of natural resources a copy of the application for proposed variances sufficiently in advance so that the commissioner will receive at least ten days' notice of the hearing.

e. *Decisions.* The board shall arrive at a decision on such appeal or variance within 60 days. In passing upon an appeal, the board may, so long as such action is in conformity with the provisions of this section, reverse or affirm, wholly or in part, or modify the order, requirement, decision or determination of the zoning administrator or other public official. It shall make its decision in writing, setting forth the findings of fact and the reasons for its decisions. In granting a variance the board may prescribe appropriate conditions and safeguards such as those specified in subsection (i)(4)f of this section, which are in conformity with the purposes of this section. Violations of such conditions and safeguards, when made a part of the terms under which the variance is granted, shall be deemed a violation of this section punishable under subsection (k) of this section. A copy of all decisions granting variances shall be forwarded by mail to the commissioner of natural resources within ten days of such action.

f. *Appeals.* Appeals from any decision of the board may be made, and as specified in this community's official controls and also in state statutes.

g. *Flood insurance notice and recordkeeping.* The zoning administrator shall notify the applicant for a variance that:

1. The issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25.00 for $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.

(4) *Conditional uses.* The city council and the planning commission shall hear and decide applications for conditional uses permissible under this section. Applications shall be submitted to the zoning administrator, who shall forward the application to the planning commission for recommendation. The planning commission will then forward to the city council for consideration.

a. *Hearings.* Upon filing with the planning commission an application for a conditional use permit, the planning commission shall submit by mail to the commissioner of natural resources a copy of the application for proposed conditional use sufficiently in advance so that the commissioner will receive at least ten days' notice of the hearing.

b. *Decisions.* The planning commission shall arrive at a recommendation on a conditional use within 60 days. The city council shall arrive at a decision on a conditional use within 60 days of the planning commission's recommendation. In granting a conditional use permit, the city council shall prescribe appropriate conditions and safeguards, in addition to those specified in subsection (i)(4)f of this section, which are in conformity with the purposes of this section. Violations of such conditions and safeguards, when made a part of the terms under which the conditional use permit is granted, shall be deemed a violation of this section, punishable under subsection (k) of this section. A copy of all decisions granting conditional use permits shall be forwarded by mail to the commissioner of natural resources within ten days of such action.

c. *Procedures to be followed by the city council and planning commission in passing on conditional use permit applications within all floodplain districts.*

1. The applicant shall be required to furnish such of the following information and additional information as deemed necessary by the planning commission and the city council for determining the suitability of the particular site for the proposed use:
   - (i) Plans in triplicate drawn to scale showing the nature, location, dimensions, and elevation of the lot, existing or proposed structures, fill, storage of materials, floodproofing measures, and the relationship of the above to the location of the stream channel; and
   - (ii) Specifications for building construction and materials, floodproofing, filling, dredging, grading, channel improvement, storage of materials, water supply and sanitary facilities.
2. One copy of the information described above shall be transmitted to a designated engineer or other expert person or agency for technical assistance, where necessary, in evaluating the proposed project in relation to flood heights and velocities, the seriousness of flood damage to the use, the adequacy of the plans for protection, and other technical matters.
3. Based upon the technical evaluation of the designated engineer or expert, the planning commission and the city council shall determine the specific flood hazard at the site and evaluate the suitability of the proposed use in relation to the flood hazard.

d. *Factors upon which the decision of the planning commission and the city council shall be based.* In passing upon conditional use applications, the planning commission and the city council shall consider all relevant factors specified in other subsections of this section, and:

1. The danger to life and property due to increased flood heights or velocities caused by encroachments;
2. The danger that materials may be swept onto other lands or downstream to the injury of others or they may block bridges, culverts or other hydraulic structures;
3. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions;
4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
5. The importance of the services provided by the proposed facility to the community;
6. The requirements of the facility for a waterfront location;
7. The availability of alternative locations not subject to flooding for the proposed use;
8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future;
9. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area;
10. The safety of access to the property in times of flood for ordinary and emergency vehicles;
11. The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters expected at the site; and
12. Such other factors which are relevant to the purposes of this section.

e. *Time for acting on application.* The planning commission shall make a recommendation on an application in the manner described above within 60 days from receiving the application, except that where additional information is required pursuant to subsection (i)(4)f of this section. The planning commission shall render a written recommendation within 30 days from the receipt of such additional information. The city council shall then make a decision within 60 days of the receipt of the planning commission's recommendation.

f. *Conditions attached to conditional use permits.* Upon consideration of the factors listed above and the purpose of this section, the planning commission and the city council shall attach such conditions to the granting of conditional use permits as it deems necessary to fulfill the purposes of this section. Such conditions may include, but are not limited to, the following:

1. Modification of waste treatment and water supply facilities;
2. Limitations on period of use, occupancy, and operation;
3. Imposition of operational controls, sureties, and deed restrictions;
4. Requirements for construction of channel modifications, compensatory storage, dikes, levees, and other protective measures; and
5. Floodproofing measures, in accordance with the state building code and this section. The applicant shall submit a plan or document certified by a registered

professional engineer or architect that the floodproofing measures are consistent with the regulatory flood protection elevation and associated flood factors for the particular area.

(j) *Nonconforming uses.* A structure or the use of a structure or premises which was lawful before the passage or amendment of this section but which is not in conformity with the provisions of this section may be continued subject to the following conditions:

(1) No such use shall be expanded, changed, enlarged, or altered in a way that increases its nonconformity.

(2) Any alteration or addition to a nonconforming structure or nonconforming use which would result in increasing the flood damage potential of that structure or use shall be protected to the regulatory flood protection elevation in accordance with any of the elevation or fill or floodproofing techniques (i.e., FP-1 through FP-4 floodproofing classifications) allowable in the state building code, except as further restricted in subsection (j)(3) of this section.

(3) The cost of any structural alterations or additions to any nonconforming structure over the life of the structure shall not exceed 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 community'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 subsections (d) or (e) of this section for new structures, depending upon whether the structure is in the floodway or flood fringe district, respectively.

(4) If any nonconforming use is discontinued for 12 consecutive months, any future use of the building premises shall conform to this section. The assessor shall notify the zoning administrator in writing of instances of nonconforming uses that have been discontinued for a period of 12 months.

(5) If any nonconforming use or structure is destroyed 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 section. The applicable provisions for establishing new uses or new structures in subsections (d) or (e) of this section will apply, depending upon whether the use or structure is in the floodway or flood fringe district, respectively.

(k) *Penalties for violation.*

(1) Violation of the provisions of this section or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variances or conditional uses) shall constitute a misdemeanor and shall be punishable as defined by law.

(2) Nothing herein contained shall prevent the city from taking such other lawful action as is necessary to prevent or remedy any violation. Such actions may include, but are not limited to, the following:

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

b. When a violation is either discovered by or brought to the attention of the zoning administrator, the zoning administrator shall immediately investigate the situation and document the nature and extent of the violation of the official control. As soon as is reasonably possible, this information will be submitted to the appropriate regional offices of the department of natural resources and the Federal Emergency Management Agency along with the community's 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 section 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 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 notify the responsible party to apply for an after-the-fact permit/development approval within a specified period of time not to exceed 30 days.

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 section and shall be prosecuted accordingly. The zoning administrator

shall also, upon the lapse of the specified response period, notify the landowner to restore the land to the condition that existed prior to the violation of this section.

(l) *Amendment.*

(1) The floodplain designation on the official zoning map shall not be removed from floodplain areas unless it can be shown that the designation is in error or that the area has been filled to or above the elevation of the regional flood and is contiguous to lands outside the floodplain. Special exceptions to this rule may be permitted by the commissioner of natural resources if the commissioner determines that, through other measures, lands are adequately protected for the intended use.

(2) All amendments to this section, including amendments to the official zoning map, must be submitted to and approved by the commissioner of natural resources prior to adoption. Changes in the official zoning map must meet FEMA's technical conditions and criteria and must receive prior FEMA approval before adoption. The commissioner of natural resources must be given ten days' written notice of all hearings to consider an amendment to this section, and said notice shall include a draft of the amendment or technical study under consideration.

(m) *Appendix.* The appendix to the ordinance from which this section is derived is adopted by reference by action of the city council and shall be kept on file with the city engineer.

(Code 1992, § 1500.33, subds. 13—25, 31)

State law reference— Floodplain Management Law, Minn. Stat. § 103F.101 et seq.; local floodplain management ordinances, Minn. Stat. § 103F.121.

Sec. 118-169. - Shorelands zoning.

(a) *Declaration of intent and purpose.* The city finds that it is in the interest of the public health, safety and welfare to provide guidance for wise development of shorelands of public waters and thus to preserve and enhance the quality of surface waters, preserve the economic and natural environmental values of shorelands, and provide for the wise utilization of water and related land resources of the state.

(b) *Establishment of the shorelands overlay zoning district.*

(1) The official zoning map of the city, which is on file in the office of the city clerk and which is incorporated by reference in this Code, is hereby amended to include a map overlay district and incorporated by reference setting forth the boundaries of a shorelands overlay district, as established and defined herein.

(2) The shorelands overlay zoning district shall be that area which is within 300 feet of the Mississippi River bank, as measured from the ordinary highwater mark, or the landward extent of the floodplain districts, as defined herein, whichever is greater.

(3) The shorelands overlay zoning district may be referred to by the abbreviation SL.

(c) *General provisions.* The shorelands regulations shall apply to all lands within the jurisdiction of the city shown on the official zoning map as being located within the boundaries of the shorelands overlay zoning district.

(d) *Standards for development within the shorelands districts.*

(1) Any application for a building permit, conditional use permit, zoning approval, or subdivision approval for any development in the shorelands district shall be subject to the river corridor site plan review requirements as contained herein.

(2) In addition to the criteria and standards for site plan approval, site plans for development in the shorelands district are also subject to the following standards. No site plan that fails to satisfy these additional standards shall be approved by the city council.

a. *Lot size.* All lots intended as residential building sites platted or created by metes and bounds after the date of enactment of shorelands regulations shall conform to the following dimensions:

1. Lots not served by a public sewer shall be at least 20,000 square feet (approximately one-half acre) in area and at least 100 feet in width at the building line and at the ordinary highwater mark (for lots abutting a public water). Lots served by public sewer and which abut public water shall be at least 15,000 square feet in area and at least 75 feet in width at the building line and at the ordinary highwater mark. All other lots served by a public sewer shall be at least 10,000 square feet in area and at least 75 feet in width at the building line.

2. Lots of record in the office of the county register of deeds on the date of enactment of these regulations which do not meet the requirements herein may be allowed as building sites, provided that such use is permitted in the underlying zoning district and that the lot is in separate ownership from abutting lands and is served by public sewer and water.

b. *Placement of structures on lots.*

1.

No structure shall be placed nearer than 50 feet from the right-of-way line of any federal, state, or county trunk highway or 20 feet from the right-of-way line of any public street.

2. No structure shall exceed 35 feet in height, unless such structures are approved as part of a planned unit development.
3. The total area of all impervious surfaces on a lot shall not exceed 30 percent of the total lot area.
4. Subsections (d)(2)b.1 and (d)(2)b.2 of this section shall not apply to the following:
   (i) Boathouses may be located landward of the ordinary highwater mark as a conditional use, provided they are not used for habitation and they do not contain sanitary facilities.
   (ii) Locations of piers and docks shall be controlled by applicable state and local regulations.
   (iii) Where development exists on both sides of a proposed building site, structural setbacks may be altered to take setbacks of existing structures into account.
   (iv) Commercial, industrial, or permitted open space uses requiring locations on public waters may be allowed as conditional uses closer to such waters than the setbacks described above.

c. *Placement of roads and parking areas.* The placement of roads and parking areas shall be controlled in order to retard the runoff of surface waters and excess nutrients. The placement of roads and parking areas shall be according to the following criteria:
   1. No impervious surface shall be placed within 50 feet of the ordinary highwater mark. Where practical and feasible, no impervious surface shall be placed within 100 feet of the normal highwater mark.
   2. Natural vegetation or other natural materials shall be used in order to screen parking areas when viewed from the water.

d. *Sewage disposal.* Public sewage disposal and commercial, agricultural, solid waste, and industrial disposal shall be subject to the standards, criteria, rules, and regulations of the state pollution control agency and department of health.

(e) *Nonconforming sanitary facilities.* Sanitary facilities that are not consistent with the provisions of these regulations and of referenced state regulations shall be eliminated within five years of enactment of these regulations.

(Code 1992, § 1500.33, subds. 26—30)

State law reference— Shoreland management, Minn. Stat. § 103F.201 et seq.; municipal shoreland management, Minn. Stat. § 103F.221.

Sec. 118-170. - EB, existing business overlay district.

(a) *General.* The EB district is designated as an overlay district to recognize and permit certain existing commercial and industrial land uses which may technically not be in conformance with the comprehensive municipal plan. Such uses shall be conforming uses within the EB district and are subject to the conditions and regulations in this section. The boundaries of the EB district are established as indicated on the map entitled "Existing Business Overlay district" which is made a part of this chapter by reference.

(b) *Permitted uses.* Permitted uses shall be all commercial and industrial uses of structures and land that existed within the C-1, GB, and I zoning districts prior to the adoption of the South St. Paul City Code of 1992 for which either a conditional permit had been issued or a certificate of occupancy had been issued or which existed on February 1, 1969, in the area designated industrial (I) district under the zoning regulations in effect as of that date. EB district uses and structures may be continued, expanded, and intensified on the site and may be replaced by a use that is a permitted use in the underlying zoning district. The word "site," as used in this section, means the land occupied by and used in conjunction with the EB district use and that is described in any existing business statement issued pursuant to this section. To be considered a permitted use, each existing EB use shall furnish to the city a statement in writing of its existing business status within one year of the adoption of the ordinance from which this section is derived. Such statement shall include a description of the land use and the date that the EB status became effective, which shall be the effective date of the ordinance adopting this chapter. The city shall work with all existing users to assist them in furnishing the required items within the required time limit.

(c) *Conditional uses.* The following uses shall be allowed only upon issuance of a conditional use permit:
   (1) New or moved signs, new or changed off-street parking, new exterior lights, or other similar changes or alterations.
   (2)

Expansion of an EB district onto adjacent land owned or controlled by the owner of the existing commercial or industrial land use located within the EB district; provided, however, that such expansion is prohibited if the adjacent land is in an underlying R-1, R-2, R-3 or R-4 zoning district.

(d) *Exceptions and additions.*

(1) Prior to the issuance of a certificate of occupancy, the city council may require reasonable improvements and conditions in the public interest, such as removal of junk and debris, installation of screening, building and yard maintenance, and conformity to certain performance standards of this Code.

(2) Nothing in this Code shall prevent the strengthening or restoring to a safe condition any portion of a building or structure declared unsafe by the city.

(3) Use of a building or premises in the EB district that has been abandoned for a period of at least one year shall not thereafter be resumed if the use is not a permitted or conditional use in the surrounding zone. A building or use shall not be considered abandoned if the use is interrupted due to acts of God, such as fire, flood, storms or explosion, or strike, sale of business, or circumstances beyond the control of the owner, and the owner restores the use to the building as soon as practicable after the event is over.

(e) *Landscaping.* Landscaping requirements for additions in excess of 5,000 square feet to existing structures in the EB district shall be the same as those required in the industrial zone section 118-129

(Code 1992, § 1500.20)

Secs. 118-171—118-193. - Reserved.

ARTICLE VI. - STORMWATER ILLICIT DISCHARGE AND ILLICIT CONNECTION

Sec. 110-120. - Findings.
Sec. 110-121. - Purpose.
Sec. 110-122. - Definitions.
Sec. 110-123. - Administration.
Sec. 110-124. - Illegal disposal and dumping.
Sec. 110-125. - Illicit discharges.
Sec. 110-126. - Illicit connections.
Sec. 110-127. - General provisions.
Sec. 110-128. - Industrial activity discharges.
Sec. 110-129. - Notification of spills.
Sec. 110-130. - Access.
Sec. 110-131. - Suspension of storm sewer system access.
Sec. 110-132. - Notice of violation.

Sec. 110-120. - Findings.

The city council hereby finds that nonstormwater discharges to the city's municipal separated storm sewer system are subject to higher levels of pollutants that enter into receiving water bodies adversely affecting the public health, safety and general welfare by impacting water quality, creating nuisances, impairing other beneficial uses of environmental resources and hindering the ability of the city to provide adequate water, sewage, flood control and other community services.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-121. - Purpose.

The purpose of the ordinance is to promote, preserve and enhance the natural resources within the city and protect them from adverse effects occasioned by nonstormwater discharges by regulating discharges that would have an adverse and potentially irreversible impact on water quality and environmentally sensitive land.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-122. - Definitions.

The following words, terms and phrases, when used in this article shall have the meanings ascribed to them in this section, except when the context clearly indicates a different meaning:

Best management practice or BMP. Defined under section 110-72.

Discharge. Adding, introducing, releasing, leaking, spilling, casting, throwing, or emitting any pollutant, or placing any pollutant in a location where it is likely to pollute public waters.

Erosion. The process by which ground surface is worn away by action of wind, water, ice, or gravity.

Groundwater. Water contained below the surface of the earth in the saturated zone including, without limitation, all waters whether under confined, unconfined, or perched conditions, in near surface unconsolidated sediment or in rock formations deeper underground.

Illicit connection. Either of the following:

(1)

Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system (including any nonstormwater discharge) including sewage, process wastewater, and wash water and any connections to the storm drain system from indoor drains and sinks, regardless of whether the drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency; or

(2) Any drain or conveyance connected from a residential, 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.

Illicit discharge. Any direct or indirect nonstormwater discharge to the storm sewer system, except as exempted in subsection 110-125(b) of this article.

MPCA. The Minnesota Pollution Control Agency.

Municipal separate storm sewer system or *MS4.* The system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catchbasins, curbs, gutters, ditches, manmade channels, or storm drains) owned and operated by the city and designed or used for collecting or conveying stormwater, and which is not used for collecting or conveying sewage.

NPDES. The National Pollutant Discharge Elimination System, which is the program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits under the Clean Water Act (Section 301, 318, 402, and 405) and United States Code of Federal Regulations Title 33, Section 1317, 1328, 1342, and 1345 authorizing the discharge of pollutants to water of the United States.

Person. Defined under section 110-72.

Pollutant. Any substance which, when discharged has potential to or does any of the following:

(1) Interferes with state designated water uses;

(2) Obstructs or causes damage to public waters;

(3) Changes water color, odor, or usability as a drinking water source through causes not attributable to natural stream processes affecting surface water or subsurface processes affecting groundwater;

(4) Adds an unnatural surface film on the water;

(5) Adversely changes other chemical, biological, thermal, or physical condition, in any surface water or stream channel;

(6) Degrades the quality of ground water; or

(7) Harms human life, aquatic life, or terrestrial plant and wildlife.

Pollutant includes but is not limited to dredged soil, solid waste, incinerator residue, garbage, wastewater sludge, chemical waste, biological materials, radioactive materials, rock, sand, dust, industrial waste, sediment, nutrients, toxic substance, pesticide, herbicide, trace metal, automotive fluid, petroleum-based substance, and oxygen-demanding material.

Pollute. To discharge pollutants into public waters.

Pollution. The direct or indirect distribution of pollutants into public waters.

Public waters. Defined under section 110-72.

State designated water uses. Uses specified in state water quality standards.

Storm sewer system. A conveyance or system of conveyances that is owned and operated by the city or other entity and designed or used for collecting or conveying stormwater.

Stormwater. Defined under Minnesota Rule 7077.0105, subpart 41(b), and means precipitation runoff, stormwater runoff, snow melt runoff and any other surface runoff and drainage.

Surface waters. All public waters other than ground waters, which include ponds, lakes, rivers, streams, tidal and nontidal wetlands, public ditches, tax ditches, and public drainage systems except those designed and used to collect, convey, or dispose of sanitary sewage.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-123. - Administration.

The city and its authorized representatives are authorized to administer, implement, and enforce the provisions of this article.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-124. - Illegal disposal and dumping.

(a) No person shall throw, deposit, place, leave, maintain, or keep any substance upon any street, alley, sidewalk, storm drain, inlet, catchbasin conduit or drainage structure, business, or upon any public or private land, so that the same might be or become a pollutant, unless the substance is in containers, recycling bags, or any other lawfully established waste disposal device.

(b) No person shall intentionally dispose of grass, leaves, dirt, or landscape material into a water resource, buffer, street, road, alley, catchbasin, culvert, curb, gutter, inlet, ditch, natural watercourse, flood control channel, canal, storm drain or any fabricated natural conveyance.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-125. - Illicit discharges.

(a) *[Provisions.]* No person shall cause any illicit discharge to enter the storm sewer system or any surface water.

(b) *Exemptions.* The following discharges are exempt from this section:

- **(1)** Nonstormwater that is authorized by an NPDES point source permit obtain from the MPCA;
- **(2)** Fire fighting activities or other activities necessary to protect public health and safety;
- **(3)** Dye testing for which the city has provided a verbal notification prior to the time of the test;
- **(4)** Water line flushing or other potable water sources;
- **(5)** Landscape irrigation or lawn watering;
- **(6)** Diverted stream flows;
- **(7)** Rising ground water;
- **(8)** Ground water infiltration to storm drains;
- **(9)** Uncontaminated pumped ground water;
- **(10)** Foundation or footing drains (not including active groundwater dewatering systems);
- **(11)** Crawl space pumps;
- **(12)** Air conditioning condensation;
- **(13)** Springs;
- **(14)** Noncommercial washing of vehicles;
- **(15)** Natural riparian habitat or wetland flows;
- **(16)** Dechlorinated swimming pools (for pools to be considered "dechlorinated," water must be allowed to sit seven (7) days without the addition of chlorine to allow for chlorine to evaporate before discharging in an area where drainage to streets or storm sewer systems may occur); or
- **(17)** Any other water source not containing a pollutant.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-126. - Illicit connections.

No person shall construct, use, or maintain any illicit connection to intentionally convey nonstormwater to the city's storm sewer system. 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. A person is considered to be in violation of this article if the person connects a line conveying sewage to the storm sewer system, or allows such a connection to continue.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-127. - General provisions.

All owners or occupants of property shall comply with the following general requirements:

(a) *Septic systems.* No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste in an area where discharge to streets or storm sewer system may occur. This section shall apply to both actual and potential discharges.

- **(1)** Individual septic systems must be maintained to prevent failure, which has the potential to pollute surface water.
- **(2)** No part of any individual septic system requiring on-land or in-ground disposal of waste shall be located closer than 150 feet from the ordinary high water level in the case of DNR protected waters, or the wetland boundary in the case of all other water bodies, unless it is

proven by the applicant that no effluent will immediately or gradually reach the water bodies because of existing physical characteristics of the site or the system.

(3) Recreational vehicle sewage shall be disposed to a proper sanitary waste facility. Waste shall not be discharged in an area where drainage to streets or storm sewer systems may occur.

(b) *Water runoff.* Runoff of water from residential property shall be minimized to the maximum extent practicable. Runoff of water from the washing down of paved areas in commercial or industrial property is prohibited unless necessary for health or safety purposes and not in violation of any other provisions of the city code.

(c) *Mobile washing businesses.* Business that use significant amounts of water at various locations in the city, such as, but not limited to mobile vehicle washing and carpet cleaning, shall dispose of wastewater into the sanitary sewer at a location permitted by the city. Wastewater must not be discharged where drainage to streets or storm sewer system may occur.

(d) *Motor vehicle repair and maintenance.* Storage of materials, machinery and equipment for motor vehicle repair and maintenance must comply with the following requirements:

(1) Motor vehicle parts containing grease, oil or other hazardous substances and unsealed receptacles containing hazardous materials shall not be stored in areas susceptible to runoff.

(2) Any machinery or equipment that is to be repaired or maintained in areas susceptible to runoff shall be placed in a confined area to contain leaks, spills, or discharges.

(e) *Parking lots and private streets.* Debris from parking lots and private streets should be swept at least once a year in the spring to remove debris. Such debris shall be collected and properly disposed.

(f) *Other.* Fuel and chemical residue or other types of potentially harmful material, such as animal waste, garbage or batteries shall be removed as soon as possible and disposed of properly. Household hazardous waste may be disposed of through the county collection program or at any other appropriate disposal site and shall not be placed in a trash container.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-128. - Industrial activity discharges.

Any person subject to an industrial activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with the permit may be required in a form acceptable to the city prior to the allowing of discharges to the storm sewer system. Any person responsible for a facility that has stormwater discharges associated with industrial activity, who is or may be the source of an illicit discharge, may be required to implement, at the person's expense, additional structural and nonstructural BMPs to prevent the further discharge of pollutants to the storm sewer system. These BMPs shall be part of a stormwater pollution prevention plan as necessary for compliance with requirements of the NPDES permit.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-129. - Notification of spills.

Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into the storm sewer system, or public water the person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials, the person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of nonhazardous materials, the person shall notify the city no later than the next business day.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-130. - Access.

If the city has been refused access to any part of the premises from which stormwater is discharged, and is able to demonstrate probable cause to believe that there may be a violation of this section or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this article or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the city may seek an administrative search warrant from any court of competent jurisdiction.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-131. - Suspension of storm sewer system access.

(a) *Suspension due to illicit discharges in emergency situation.* The city may, without prior notice, suspend storm sewer system discharge access to a person when such suspension is necessary to stop an actual or threatened discharge that presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the storm sewer or public waters. If the violator fails to comply with a suspension order issued in an emergency, the city may take such steps as deemed necessary to prevent or minimize damage to the storm sewer system or public waters, or to minimize danger to persons.

(b) *Suspension due to the detection of illicit discharge.* All persons discharging to the storm sewer system in violation of this article may have their storm sewer system access terminated if such termination serves to abate or reduce an illicit discharge. It is a violation of this section to reinstate storm sewer system access to premises that have been terminated pursuant to this section without the prior approval of the city.

(Ord. No. 1210, § 1, 8-4-2008)

Sec. 110-132. - Notice of violation.

A violation of this article is a public nuisance. When the city finds that a person has violated a prohibition or failed to meet a requirement of this section, the person is deemed to have created a public nuisance subject to abatement and assessment, as provided in sections 34-19 through 34-26. In addition to any order issued pursuant to section 34-21, the city may require the following:

(1) The performance of monitoring, analysis, and reporting;

(2) The implementation of source control or treatment BMPs;

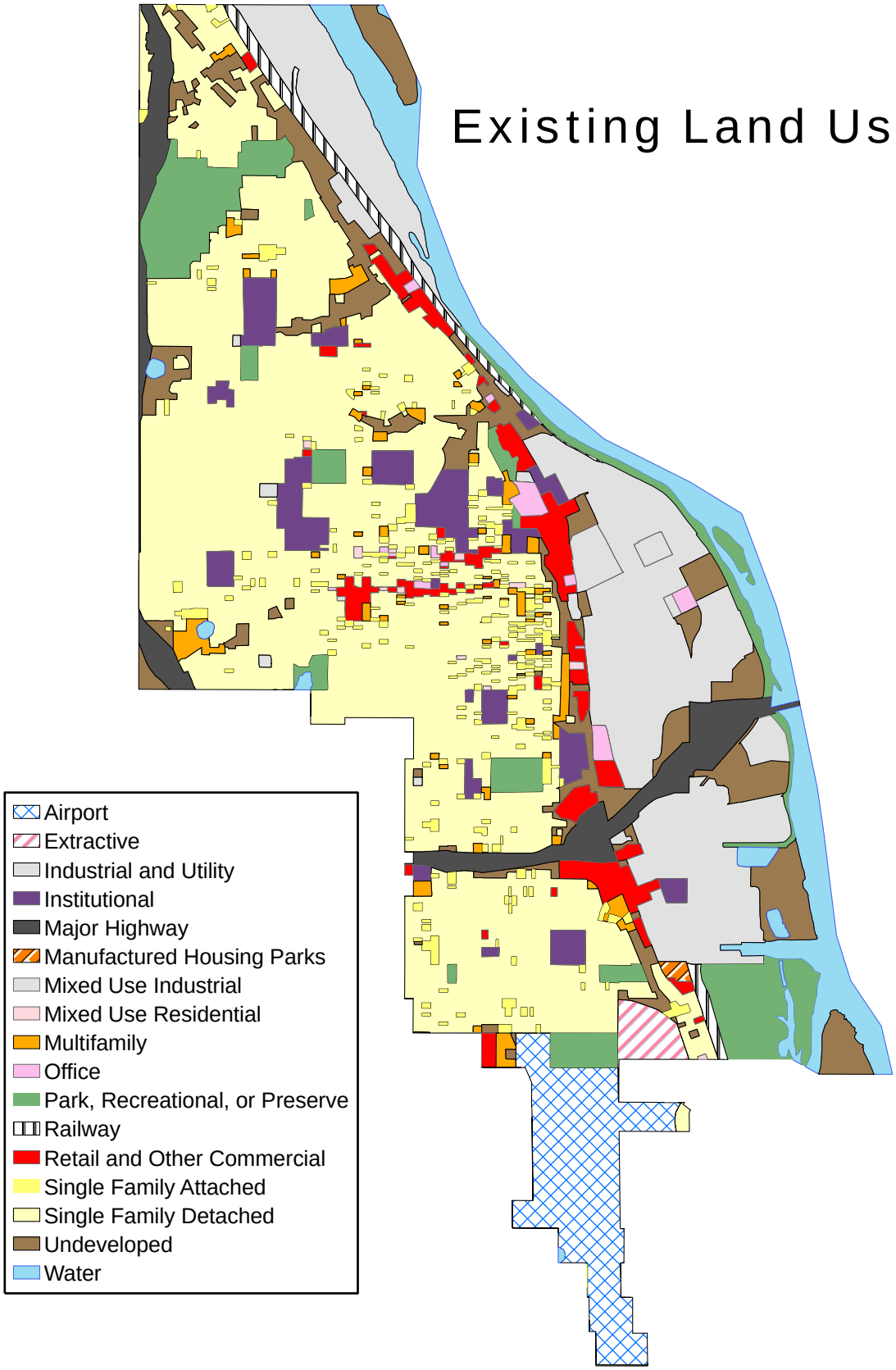
(3) Any other requirement deemed necessary.

(Ord. No. 1210, § 1, 8-4-2008)

Appendix E

Existing Land Use, Future Land Use, and Zoning Map
(City Comprehensive Plan)

Existing Land Use



South St. Paul

Comprehensive Municipal Plan

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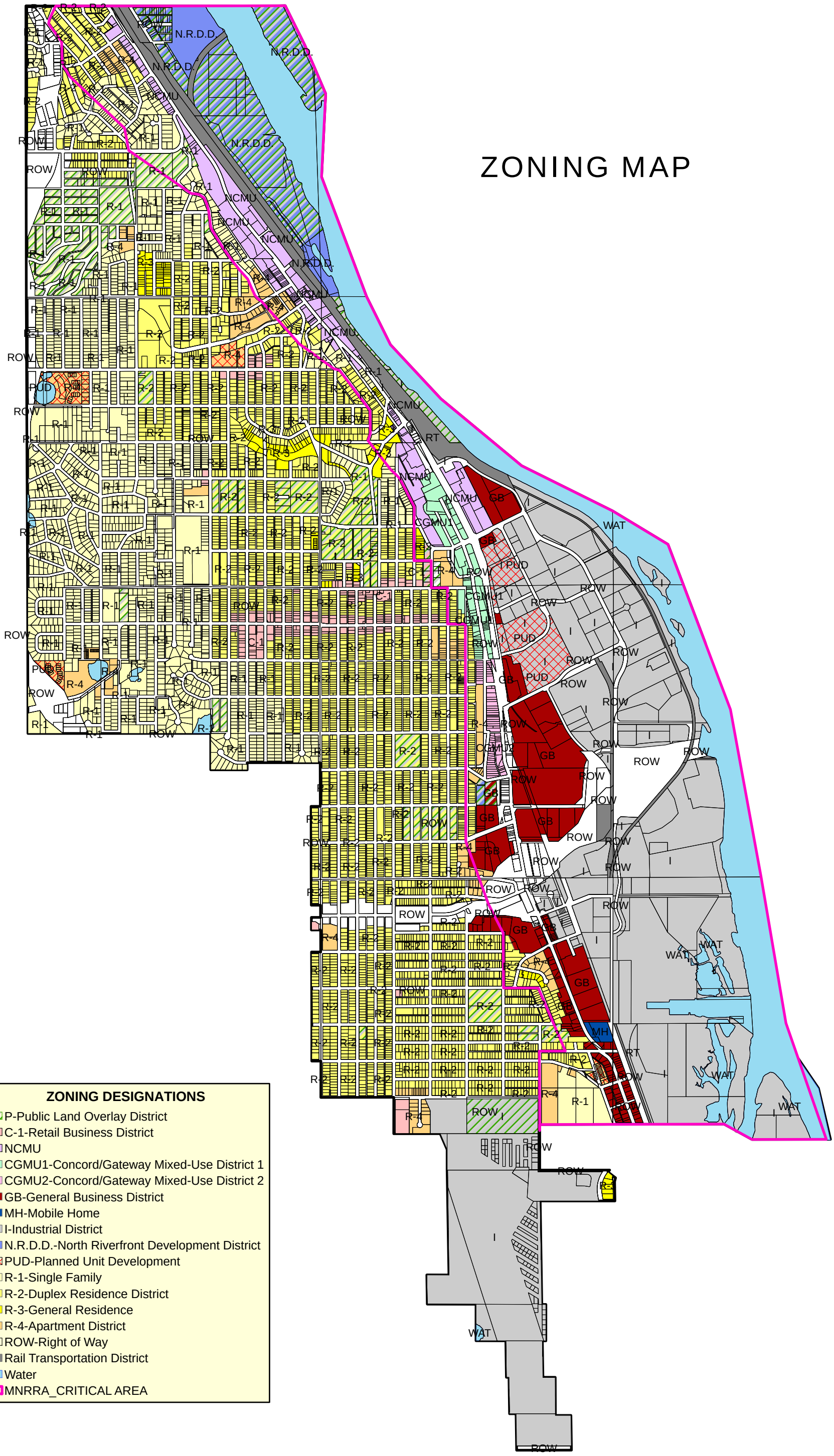
ZONING MAP



ZONING DESIGNATIONS

- P-Public Land Overlay District
- C-1-Retail Business District
- NCMU
- CGMU1-Concord/Gateway Mixed-Use District 1
- CGMU2-Concord/Gateway Mixed-Use District 2
- GB-General Business District
- MH-Mobile Home
- I-Industrial District
- N.R.D.D.-North Riverfront Development District
- PUD-Planned Unit Development
- R-1-Single Family
- R-2-Duplex Residence District
- R-3-General Residence
- R-4-Apartment District
- ROW-Right of Way
- Rail Transportation District
- Water
- MNRRA_CRITICAL AREA

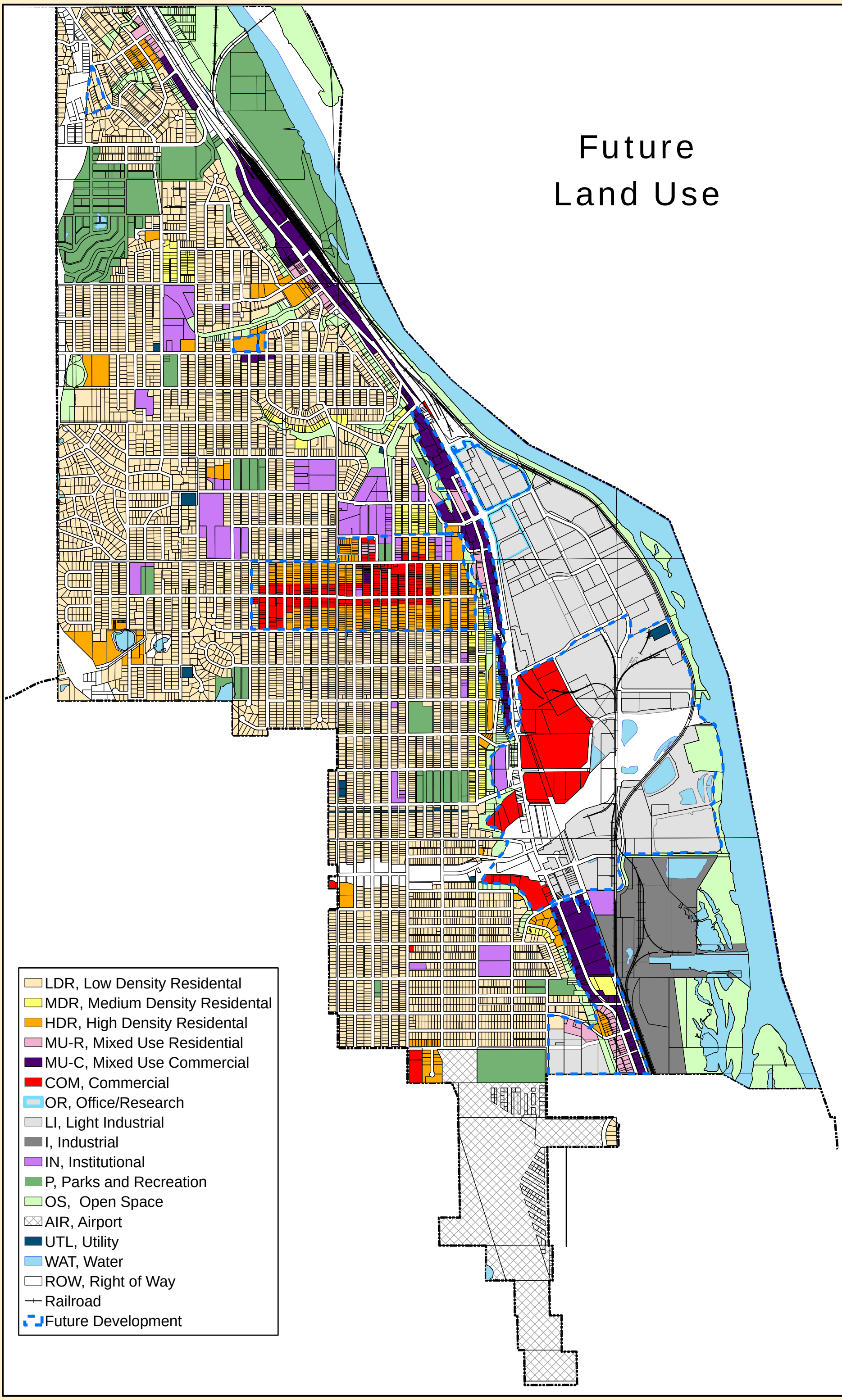
South St. Paul

Comprehensive Municipal Plan

N W E S

0 0.25 0.5 1 Miles

Future Land Use



Appendix F

MnDNR Natural Heritage Database Information

2011 National Heritage Database Information

TWP	RNG	SCT	Scientific Name	Common Name	Type	Category	Mn Status	County
T028N	R22W	26	*Quadrula nodulata*	Wartyback	Zoological	Invertebrate Animal	ENDANGERED	Dakota,Washington
T028N	R22W	22	*Quadrula metanevra*	Monkeyface	Zoological	Invertebrate Animal	THREATENED	Dakota,Ramsey,Washington
T028N	R22W	16	Native Plant Community, Undetermined Class	Native Plant Community, Undetermined Class	Ecological	Terrestrial Community - Other Classification		Dakota
T028N	R22W	35	*Actinonaias ligamentina*	Mucket	Zoological	Invertebrate Animal	THREATENED	Dakota
T028N	R22W	23	*Haliaeetus leucocephalus*	Bald Eagle	Zoological	Vertebrate Animal	SPECIAL CONCERN	Dakota,Ramsey
T028N	R22W	23	*Haliaeetus leucocephalus*	Bald Eagle	Zoological	Vertebrate Animal	SPECIAL CONCERN	Dakota,Ramsey
T028N	R22W	22	*Pleurobema coccineum*	Round Pigtoe	Zoological	Invertebrate Animal	THREATENED	Dakota
T028N	R22W	26	*Falco peregrinus*	Peregrine Falcon	Zoological	Vertebrate Animal	THREATENED	Dakota,Washington
T028N	R22W	35	*Haliaeetus leucocephalus*	Bald Eagle	Zoological	Vertebrate Animal	SPECIAL CONCERN	Dakota,Washington
T028N	R22W	26	*Haliaeetus leucocephalus*	Bald Eagle	Zoological	Vertebrate Animal	SPECIAL CONCERN	Dakota

Appendix G

Storm Water Pollution Prevention Plan (SWPPP)

STORM WATER POLLUTION PREVENTION PROGRAM FOR THE MANAGEMENT OF MUNICIPAL SEPARATE STORM SEWER SYSTEMS WITHIN THE CITY OF SOUTH ST. PAUL

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.

Todd Hubmer, P.E.

Date: May 17, 2006 Lic. No. 24043

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IV. Best Management Practices Implementation Plan

V. Annual Report

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2. DNR Public Waters Map
3. National Wetland Inventory Map

List of Tables
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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 (see SWMP Figure III-3)

Figure 2
DNR Public Waters Map (see SWMP Figure III-5)

Figure 3
National Wetlands Inventory Map (see SWMP Figure III-6)

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 South St. Paul 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 South St. Paul 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 South St. Paul 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) Distributing 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, televised public service announcements, 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

4) Begin working collaboratively with the Dakota County Soil & Water Conservation District (Dakota County SWCD) and Lower Mississippi Watershed Management Organization (Lower Mississippi WMO) in distributing educational materials and promoting/supporting outreach programs. Programs will consist of public presentations, website development, and storm water educational materials, etc.

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 all City ordinances related to illicit and non-stormwater discharges.

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

3) Distribute educational materials to residents and provide illicit discharge educational activities to City staff a minimum of one time annually.

4) Develop and implement the Met Council infiltration/inflow report and schedule. Document illicit discharge inspections.

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) Continue to implement the erosion control ordinance and add additional or revised NPDES requirements in 2008.

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 for review and approval.

3) Construction site operators must conform to NPDES Phase II and City ordinances pertaining to erosion and sediment controls and waste controls.

4) Annually record the number of calls and e-mails received related to SWPPP issues and remedial actions and/or SWPPP changes.

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) Evaluating all structural and non-structural BMP's during the plan review process for the potential of new and/or revised BMP's.

2) Actively look for non-structural opportunities where prudent and feasible.

3) Implementing the requirements of the Comprehensive Storm Water Management plan and applicable City ordinances.

4) Inspecting post-construction BMP's then evaluate inspection records for determining the corrective maintenance actions (if necessary) for the long-term operation of all storm water management facilities.

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 continue with the current street sweeping program, identify improvements, and implement changes to reduce storm water pollutants.

5) The City will annually evaluate its Municipal 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.

6) The City will annually review its Municipal practices 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.

BMP SS 7.0 SECTION 303(d) IMPAIRED WATERS LISTINGS AND TOTAL MAXIMUM DAILY LOAD (TMDL)

1) The City will work cooperatively with the Minnesota Pollution Control Agency and other outside organizations to develop and implement future TMDL implementation plan(s) and Part IV.D of this MS4 permit.

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	Distribute a minimum of 4 educational publications via City mailings, workshops, presentations, website postings, newsletters or televised public service announcements. Begin working collaboratively with the Dakota County SWCD in distributing educational materials and promoting/supporting outreach programs.	Begin May 1, 2007. Implement activities in 2008. Review and revise educational activities schedule and funding January 1, 2008 through 2011.
1b-1 Implement an Education Program	Implement educational activities and coordinate educational efforts with the Dakota County SWCD and Lower Mississippi WMO. Record attendance, web site visits, keep minutes, record statements/requests, and written comments.	Begin May 1, 2007. Implement activities in 2008. Review and revise educational activities schedule and funding January 1, 2008 through 2011.
1c-l Education Program: Public Education and Outreach Program	Distribute 2 water resource related articles in the City newsletter. Continue to post this information on the City's website. Provide printed brochures at City Hall.	Begin distributing articles in the City newsletter in 2008. Continue all other activities through May 31, 2011.
1c-2 Education Program: Public Participation	Encourage public participation to public presentations and the City's website.	Begin distributing articles in the City newsletter in 2008. Continue all other activities through May 31, 2011.
1c-3 Education Program: Illicit Discharge Detection and Elimination	Distribute a minimum of one illicit discharge related publication to residents per year. Provide illicit discharge education to City staff a minimum of once per year. Continue to install storm drain signs in the curb next to new catch basins.	Begin distributing educational material to residents in 2008 through May 31, 2011. Provide staff education and continue to install storm drain signs through May 31, 2011.
1c-4 Education Program: Construction Site Run-off Control	Meet with contractors and residents prior to the start of construction to discuss implementing project specific BMP's. Provide erosion control education to City staff.	Continue the plan review process/pre-construction meetings. Provide staff education in 2007 through May 31, 2011.
1c-5 Education Program: Post-Construction Stormwater Management in New Development and Redevelopment	Distribute a minimum of one post-construction stormwater management related publication to residents per year.	Begin distributing educational material to residents through May 31, 2011.
1c-6 Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations	Provide a minimum of one pollution prevention related training opportunity to City staff per year.	Begin in 2007 through the expiration of this permit, May 31, 2011.
1d-1 Coordination of Educational Programming	Coordinate educational components, programming, and schedule with the Dakota County SWCD and Lower Mississippi WMO.	2007 or as specified in each BMP of MCM 1.

Best Management Practices	Description of BMP & Goal	Schedule
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 2007 – May 31, 2011
3b-1 Regulatory Control Program	Review city ordinances related to illicit and non-stormwater discharges	Review existing ordinances in 2007-May 31, 2011.
3c-1 Illicit Discharge Detection and Elimination Plan	Develop and implement the Met Council infiltration/inflow report and schedule. Document illicit discharge inspections.	2007 through May 31, 2011.
3d-1 Public and Employee Illicit Discharge Information Program	Distribute educational materials to residents and provide illicit discharge educational activities to City staff a minimum of one time annually.	2007 through May 31, 20011.
3e-1 Identification of Non Stormwater Discharges and Flows	The City has identified and evaluated all non-storm water discharges (as defined in Part V.G.3.e) to be insignificant pollutant contributors.	Completed
MCM 4 Construction Site Storm Water Runoff Control		
4a-1 Ordinance or other Regulatory Mechanism	Continue to implement construction site inspection program. Review erosion control and revise if necessary. Add new NPDES requirements if necessary.	Review ordinance in 2008. Add new NPDES requirements (if necessary) through May 31, 2011.
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 and City ordinances pertaining to erosion and sediment controls and waste controls.	Continue to implement through May 31, 2011. Add new NPDES requirements (if necessary) through May 31, 2011.
4d-1 Procedure for Site Plan Review	No City permit to allow land disturbing activities shall be issued until approval of storm water management plan (if applicable) and/or erosion control plan or waiver has been obtained.	Continue to implement through may 31, 2011.

Best Management Practices	Description of BMP & Goal	Schedule
4e-1 Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance	Annually record the number of calls and e-mails received related to SWPPP issues and remedial actions and/or SWPPP changes.	2007 through May 31, 2011.
4f-1 Establishment of Procedures for Site Inspections and Enforcement	Continue erosion control site inspections and enforcement procedures. Train all applicable City staff within three years.	Refer to BMP Summary sheets 4a-1 through 4e-1.
MCM 5 Post Construction Storm Water Management Measures		
5a-1 Development and Implementation of Structural and/or Non-Structural BMP's	The City will evaluate all structural and non-structural BMP's during the plan review process for the potential of new and/or revised BMP's. The City will also actively look for non-structural opportunities where prudent and feasible.	Begin evaluation January 1, 2008, recordkeeping 2008 through May 31, 2011.
5b-1 Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment	The City will implement the requirements of the Comprehensive Storm Water Management Plan and applicable City ordinances.	Continue to implement through May 31, 2011
5c-1 Long-term Operation and Maintenance of BMP's	The City will continue to annually inspect a minimum of 20% of all its MS4 outfalls, sediment basins, and ponds, then evaluate and record the number of proposed maintenance projects and successful funding of each project (if applicable). Success of this BMP is defined as acheving the measurable goals of minimum control measure 6.	Continue to implement through May 31, 2011
MCM 6 Pollution Prevention/Good Housekeeping Measures		
6a-1 Municipal Operations and Maintenance Program	City staff will continue to implement the Comprehensive Storm Water Management Plan; conform to all BMP's within MCM #6.	Review and revise in 2008 through May 31, 2011.
6a-2 Street Sweeping Program	Street sweep twice 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 twice per year; record annually 2007- 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.	The City will inspect all mapped outfalls, sediment basins, and ponds a minimum of 20% each year (on a rotating schedule during permit coverage) and record the number inspected, and rate the condition of each outfall.	Inspect a minimum of 20% per year. Continue through May 31, 2011 or until 100% complete prior to May 31, 2011.

Best Management Practices	Description of BMP & Goal	Schedule
6b-4 Annual Inspection of All Exposed Stockpile, Storage, and Material Handling Areas.	Locate and inspect all exposed stockpile, storage and material handling areas located on City-owned properties, record inspections, correct and document all remedial actions a minimum of once per year.	Begin in 2007 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.	Determinations of repair, replacement, or maintenance measures will be directed by the City Engineer. All corrective maintenance, repair, and/or replacement measures will be recorded in the City's SWPPP.	Continue to implement through May 31, 2011. Begin recording in the SWPPP, January 1, 2008.
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.	Continue to implement through May 31, 2011.
6b-7 Evaluation of Inspection Frequency	Record all inspections completed annually	Continue annually through May 31, 2011.
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.
Additional BMPS		
7 Section 303(d) Impaired Waters Listings and Total Maximum Daily Load (TMDL**)**	The City will work cooperatively with the Minnesota Pollution Control Agency and other outside organizations to develop and implement future TMDL implementation plan(s) and Part IV.D of this MS4 permit.	To Be Determined

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.

Appendix H

Stormwater Management Ordinances

ARTICLE IV. - STORMWATER MANAGEMENT

Sec. 110-70. - Findings.
Sec. 110-71. - Purpose.
Sec. 110-72. - Definitions.
Sec. 110-73. - Stormwater management plan.
Sec. 110-74. - Permanent stormwater pollution controls.
Sec. 110-75. - Minimum design standards for stormwater detention facilities.
Sec. 110-76. - Delineation and minimum protection for natural wetlands.
Sec. 110-77. - Steep slopes.
Sec. 110-78. - Stormwater management plans.
Sec. 110-79. - Lawn fertilizer regulations.
Sec. 110-80. - Other controls.
Secs. 110-81—110-103. - Reserved.

Sec. 110-70. - Findings.

The city 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 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 that may be affected by unplanned land usage.

(Code 1992, § 520.02)

Sec. 110-71. - Purpose.

The purpose of this article is to promote, preserve and enhance the natural resources within the city and to protect them from adverse effects occasioned by poorly sited development or incompatible activities. This shall be done by regulating land disturbing or land development activities that would have an adverse and potentially irreversible impact on water quality and unique and fragile environmentally sensitive areas.

(Code 1992, § 520.03)

Sec. 110-72. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Applicant. Any person or entity that applies for a building permit, subdivision approval, or a permit to allow land disturbing activities. Applicant also means that person's agents, employees, and others acting under that person's direction.

Best management practices (BMPs). Erosion and sediment control and water quality management practices that are the most effective and practicable means of controlling, preventing, and minimizing degradation of surface water, including construction-phasing, minimizing the length of time soil areas are exposed, prohibitions, and other management practices published by state or designated area-wide planning agencies.

Control measure. A practice or combination of practices to control erosion and attendant pollution.

Detention facility. A permanent natural or manmade structure, including wetlands, for the temporary storage of runoff that contains a permanent pool of water.

Flood fringe. The portion of the floodplain outside of the floodway.

Floodway. The channel of the watercourse, the bed of water basins, and those portions of the adjoining floodplains that are reasonably required to carry and discharge floodwater and provide water storage during a regional flood.

Hydric soils. Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part.

Hydrophytic vegetation. Macrophytic plant life growing in water, soil, or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

Land disturbing activity. Any change of the land surface, including removing vegetative cover, excavating, filling, grading, and construction of any structures.

Person. Any individual, firm, corporation, partnership, franchise, association, or government entity.

Public waters. Waters of the state, as defined in Minn. Stat. § 103G.055(15).

Regional flood. A flood that is representative of large floods known to have occurred generally in the state and reasonably characteristic of what can be expected in a 100-year flood occurrence.

Retention facility. A permanent natural or manmade structure that provides for the storage of stormwater runoff by means of a permanent pool of water.

Sediment. Solid matter carried by water, sewage, or other liquids.

Steep slope. A slope with an average grade of 33 percent or greater and a slope vertical height of at least 25 feet. Within the Mississippi River Critical Corridor, a slope with an average grade of 12 percent and a slope vertical height of at least 25 feet.

Structure. Anything manufactured, constructed, or erected which is normally attached to or positioned on land, including portable structures, earthen structures, roads, parking lots, and paved storage areas.

Wetlands. Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands must have the following attributes:

(1) A predominance of hydric soils;

(2) Inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in a saturated soil condition; and

(3) Under normal circumstances support a prevalence of such vegetation.

(Code 1992, § 520.04)

Sec. 110-73. - Stormwater management plan.

Every applicant for a building permit, subdivision approval, or a permit to allow land disturbing activities must submit a stormwater management plan to the city engineer. No building permit, subdivision approval, or permit to allow land disturbing activities shall be issued until the city engineer has approved this plan.

(1) *Minimum requirements of the stormwater management plan.*

a. Name and address of the applicant and the location of the activity.

b. Project description.

c. Phasing of construction: timeframes and schedules for the project.

d. A map of the existing site conditions including the following: topography, property information, steep slopes, existing drainage systems/patterns, waterways, wetlands, vegetative cover, floodplain boundaries, buffer strips.

e. A site construction plan that includes the location of the proposed land disturbing activities, stockpile locations, erosion and sediment control plan, construction schedule, and the plan for the maintenance and inspections of the stormwater pollution control measures.

f.

Adjacent areas: streams, lakes, residential areas, roads, etc., which might be affected by the land disturbing activity.

g. Designate the site areas that have the potential for an erosion problem.

h. Erosion and sediment control measures, both during and after construction.

i. Permanent stabilization: How the site will be stabilized, timeframe, and schedules.

j. For all new homes, commercial, and industrial buildings and development, stormwater calculations must be used for the design of sediment basins, wet detention basins, diversions, waterways, infiltration zones, and other applicable practices, subject to the review and approval of the city engineer.

(2) *General stormwater pollution control criteria*. The plan shall address the following:

a. Stabilizing all exposed soils and soil stockpiles and the related timeframe or schedule.

b. Establishing permanent vegetation and the related timeframe or schedule.

c. Preventing sediment damage to adjacent properties and other designated areas such as streams, wetlands, lakes, and unique vegetation.

d. Scheduling for erosion and sediment control practices.

e. Location of permanent and temporary sedimentation control practices.

f. Engineering for the construction and stabilization of steep slopes.

g. Measures that will control the quality and quantity of stormwater leaving a site.

h. Stabilizing all waterways and stormwater system outfalls.

i. Protecting storm sewers from the entrance of sediment.

j. Restabilizing utility construction areas as soon as possible.

k. Protecting paved roads and sediment and mud brought in from access routes.

l. Disposing of temporary erosion and sediment control measures.

m. Maintenance plan for the temporary and permanent erosion and sediment control practices.

(3) *Minimum stormwater pollution control measures and related inspections*. These minimum control measures are required where bare soil is exposed. Due to the diversity of individual construction sites, each site will be individually evaluated. Where additional control measures are needed, they will be specified at the discretion of the city engineer. The city will determine what action is necessary to prevent excessive erosion from occurring on the site.

a. All grading plans and site plans must be reviewed by the city engineer for effectiveness of erosion control measures in the context of the site topography and drainage.

b. Sediment control measures must be properly installed by the builder before construction activity begins. Such structures may be adjusted during dry weather to accommodate short-term activities, such as those requiring large vehicles. A sediment control inspection must be scheduled and passed before any footing inspection.

c. The applicant shall obtain all necessary easements for stormwater management and containment.

d. All exposed disturbed soil areas within 100 feet of any water of the state must be controlled and stabilized.

e. For disturbed areas that create more than one acre of the impervious surface area, the petitioner must construct a permanent sedimentation basin or approved alternative treatment method. Sedimentation basins must be constructed in accordance with accepted design specifications, including access for operations and maintenance. The applicant is required to obtain a National Pollutant Discharge Elimination System/state disposal system (NPDES/SDS) construction stormwater permit from the state pollution control agency (MPCA) for any project that disturbs more than one acre.

f. For disturbed areas of one acre or less, sedimentation basins are encouraged, but not required, unless specifically required by the city engineer.

g. All sand, gravel, or other mining operations taking place on a site shall have a NPDES/SDS permit from the MPCA.

h. Generally, a sufficient silt fence will be required to hold all sheet flow runoff generated at an individual site, until it can either infiltrate or seep through the silt fence's pores.

i. Temporary rock construction entrances may be required wherever vehicles enter and exit a site.

j. Streets must be cleaned and swept whenever tracking of sediments occurs and before sites are left idle for weekends or holidays. Establishment of a regular sweeping schedule is encouraged.

k. Water impacted by the construction activity that is removed from the site by pumping must be treated by temporary sedimentation basins, geotextile filters, grit chambers, sand filters, up-flow chambers, hydrocyclones, swirl concentrators or other appropriate controls.

Such water shall not be discharged in a manner that causes erosion or flooding of the site, receiving channels, adjacent property, or a wetland.

l. All storm drain inlets must be protected during construction until control measures are in place with either a silt fence or an equivalent barrier that meets accepted design criteria and standards and specifications as maintained by the MPCA.

m. All newly installed catchbasins must be provided with a sump area for collecting coarse-grained material unless other stormwater treatment methods are being utilized. Catchbasins must be cleaned when they are half-filled with material.

n. All newly constructed and reconstructed buildings must route roof drain leaders to previous areas where the runoff can infiltrate unless otherwise approved by the city engineer. The discharge rate shall be controlled so that no erosion occurs in the previous areas.

o. Follow-up inspections shall be performed by the city on a regular basis to ensure that erosion and sediment control measures are properly installed and maintained.

p. Removal of more than one acre of topsoil shall not be done unless written permission is given by the city engineer.

q. All stormwater pollution control management facilities must be designed to minimize the need of maintenance, provide easy vehicle and personnel access for maintenance purposes, and be structurally sound. These facilities must have a plan of operation and maintenance that ensures continued effective removal of the pollutants carried in stormwater runoff. It shall be the responsibility of the applicant to obtain any necessary easements or other property interests to allow access to the stormwater management facilities for inspection and maintenance purposes.

(Code 1992, § 520.05)

Sec. 110-74. - Permanent stormwater pollution controls.

(a) The applicant shall install or construct stormwater management facilities to manage increased runoff so that the two-year, ten-year, and 100-year peak storm discharge rates existing before the proposed development must not be increased unless otherwise approved by the city engineer. These predevelopment rates shall be based on the last ten years of how the land was used.

(b) All calculations and information used in determining these peak storm discharge rates shall be submitted along with the stormwater pollution control plan, subject to the review and approval of the city engineer.

(c) The applicant shall consider reducing the need for stormwater management facilities by incorporating the use of natural topography and land cover such as natural swales and depressions as they exist before development to the degree that they can accommodate the additional water without compromising the integrity or quality of the wetland or pond.

(d) The following stormwater management practices must be investigated in developing the stormwater management part of the stormwater pollution control plan in the following descending order of preference:

(1) Protect and preserve natural and vegetated areas.

(2) Flow attenuation by use of open vegetated swales and depressions.

(3) Stormwater wet detention basins.

(4) A combination of successive practices.

(Code 1992, § 520.06)

Sec. 110-75. - Minimum design standards for stormwater detention facilities.

At a minimum, these facilities must conform to the most current standards of the MPCA, as reflected in their current publication, "Protecting Water Quality in Urban Areas."

(Code 1992, § 520.07)

Sec. 110-76. - Delineation and minimum protection for natural wetlands.

(a) Any and all wetlands on the subject site must be delineated by a trained, certified wetland delineator. A plan of said delineations must be submitted to the city for review and approval. Said delineation plan shall be the basis for any exemptions or permits needed as per the Wetlands Conservation Act.

(b) Runoff must not be discharged directly into wetlands without appropriate quality and runoff control, depending on the wetland type.

(c) At a minimum, a 30-foot setback is required for all protected wetlands.

(d)

Wetlands may not be filled or drained, wholly or partially, unless replaced by restoring or creating wetland areas, as determined by the county soil and water conservation district (SWCD). Said wetland replacement plan is subject to the review and approval of the county SWCD.

(Code 1992, § 520.08)

Sec. 110-77. - Steep slopes.

(a) Prior to any land disturbing or development activities on steep slopes, as defined within this Code, within the city, the developer/landowner shall provide to the city a detailed plan that sets forth:

- **(1)** The time period during which the proposed development or disturbance is to take place.
- **(2)** The soil types which are found on the site of the development.
- **(3)** A map showing the topography of the area to be developed.
- **(4)** A map showing any alteration in the topography that would result from the proposed development.
- **(5)** A description of the soil quality in the area to be developed including permeability of the soil, susceptibility of the soil to erosion, drainage of the soil, distance of the soil from underlying bedrock, and susceptibility of the soil to changes in physical volume when moistened and/or during periods of frost.
- **(6)** Information relative to whether the proposed development will cause and/or be affected by any erosion problems.
- **(7)** A description of any disturbance to vegetation and other natural features that will result from the development plus the manner in which the applicant proposes to protect vegetation and other natural features that will not be disturbed.
- **(8)** A copy of all specifications, blueprints, and other detailed plans for the development.
- **(9)** Information relative to the adequacy for the slope conditions and soil type of the foundation and underlying material of any structure, including roads.
- **(10)** Information relative to the adequacy of controls and protection existing uphill from the proposed development which are designed to guard structures or roads from being affected by mud, uprooted trees, or other material.
- **(11)** Information relative to the adequacy of construction of any retaining walls.

(b) No work shall be permitted until reviewed and approved by the city engineer. Neither the issuance of a permit nor compliance with the conditions thereof or with the provisions of this article shall relieve any person from any responsibility otherwise imposed by law for damage to persons or property; nor shall the issuance of any permit hereunder serve to impose liability on the city or its officers or employees for injury or damage to persons or property. An approval of an application issued pursuant to this article shall not relieve the applicant of the responsibility of complying with any other requirement established by law, regulation, or Code provision.

(Code 1992, § 520.09)

Sec. 110-78. - Stormwater management plans.

Stormwater management plans shall be consistent with the Lower Mississippi River Watershed Management Organization's adopted watershed management plans and groundwater management plan prepared in accordance with Minn. Stat. § 103B.231.

(Code 1992, § 520.14)

Sec. 110-79. - Lawn fertilizer regulations.

No person shall apply fertilizer to or deposit grass clippings, leaves, or other vegetative materials on impervious surfaces or within stormwater drainage systems, natural drainageways, or wetland buffer areas. Fertilizer applications shall not be made within one rod (16.5 feet) of any protected wetland or water resource.

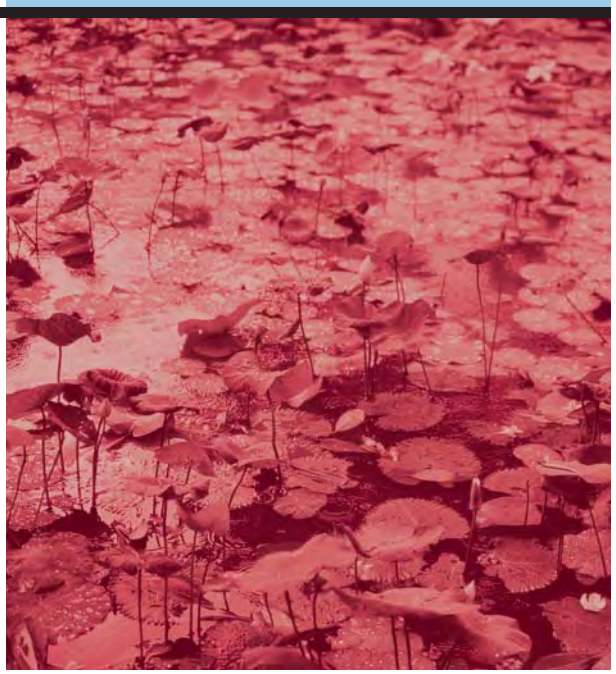
(Code 1992, § 520.15)

Sec. 110-80. - Other controls.

In the event of any conflict between the provisions of this article and the provisions of an erosion control or shore land protection ordinance adopted by the city, the more restrictive standard prevails.

(Code 1992, § 520.17)

Secs. 110-81—110-103. - Reserved.



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& Associates, Inc.