

# Local Surface Water Management Plan

City of Lauderdale

August 2008



August 13, 2008



Ms. Heather Butkowski  
City of Lauderdale  
1891 Walnut Street  
Lauderdale, MN 55113

Re: Local Surface Water Management Plan  
City of Lauderdale  
Bonestroo File No.: 532-07-001

Dear Heather:

Transmitted herewith is the City of Lauderdale's final Local Surface Water Management Plan (LSWMP). The LSWMP identifies improvements to address water quantity, water quality, and erosion issues and priorities within the City.

This LSWMP addresses comments received from City staff, the Rice Creek Watershed District, Mississippi Watershed Management Organization, and Metropolitan Council. Consequently, the LSWMP represents a consensus among different levels of government on Lauderdale's approach to managing its local water resources as well as how Lauderdale's efforts fit with broader regional water resource management objectives. Equally important, the Plan meets the requirements listed under Minnesota Statute 103B, Minnesota Rules 8410, and applicable Watershed Management Organization rules.

Thank you for the opportunity to serve the City of Lauderdale. If you have any questions regarding the Local Surface Water Management Plan, please contact me at (651) 604-4801.

Sincerely,

BONESTROO

Bradley P. Schleeter

I hereby certify that this 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.

Bradley P. Schleeter, P.E.

Date: August 13, 2008 Reg. No. 45013

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## Executive Summary

This Local Surface Water Management Plan has been developed to serve as a comprehensive planning document to guide the City of Lauderdale in conserving, protecting, and managing its surface water resources and comply with the Metropolitan Surface Water Management Act, Minnesota Rules 8410, and the requirements of the local watershed management organizations. This document provides an inventory of water resource related information including the results of assessments conducted by other governmental units, both local and state. From this inventory and assessment, Lauderdale sets forth its goals and policies and implementation program.

The plan is organized as follows:

- Section 1 offers an introduction to and purpose of the Plan, including a location map of Lauderdale, a map showing the watershed management organizations having jurisdiction in Lauderdale, and a list of the organizations responsible for implementing the plan.
- Section 2 of this Plan provides an inventory of land and water resources within the City including a description of the physical setting, available and pertinent water resources data, and land use maps.
- Section 3 includes a comprehensive documentation of the regulatory agencies influencing the management of surface water resources in Lauderdale.
- Section 4 describes past studies and plans related to surface water management in Lauderdale.
- Section 5 identifies the stormwater management agreements between Lauderdale and other entities.
- Section 6 provides a current assessment of surface water management in Lauderdale, including stormwater modeling, NPDES permitting process, comparison of regulatory standards, and identification of issues and corrective actions.
- Section 7 lists the goals and policies identified to address surface water management needs in the City.
- Section 8 summarizes capital projects currently planned with known funding sources to implement the goals and policies listed in Section 6, as well as potential activities and funding mechanisms.
- Section 9 outlines the continued administration of this plan with respect to plan updates and amendments.

## Section 1 – Purpose and Scope

### 1.1 PURPOSE

This Local Surface Water Management Plan will serve as a comprehensive planning document to guide the City of Lauderdale in conserving, protecting, and managing its surface water resources. This plan has been created to meet the requirements detailed in Minnesota Statutes 103B and Minnesota Rules 8410, administered by the Minnesota Board of Water and Soil Resources. This plan is also consistent with the goals and policies of the Metropolitan Council's *Water Resources Management Policy Plan*, and the three watershed management organizations having jurisdiction within the City: Mississippi Watershed Management Organization (MWMO), Capital Region Watershed District (CRWD), and Rice Creek Watershed District (RCWD). This plan may be periodically amended to remain current with local practices and policies.

### 1.2 SCOPE

This plan is organized as follows:

Section 2 describes the physical setting; the history, natural resources and land uses within the City.

Sections 3 through 5 describe the regulatory agencies having jurisdiction in Lauderdale, and past studies and agreements related to surface water resources.

Section 6 summarizes the inventories and modeling completed for this plan, and provides a current assessment of surface water management in Lauderdale.

Section 7 lists the goals and policies identified to address surface water management needs in the City.

Section 8 summarizes current ordinances and capital projects planned to implement the goals and policies listed in Section 7.

Section 9 outlines the continued administration of this plan.

## Section 2 – Land and Water Resources Inventory

### 2.1 LOCATION AND HISTORY

The City of Lauderdale is a fully developed city located in Ramsey County, with a residential population of about 2,400, and a total land area of 275 acres. Bordering communities include Minneapolis, St. Paul, Falcon Heights, and Roseville, as shown in Figure 2.1. Its close proximity to Minneapolis, St. Paul and the University of Minnesota campuses makes Lauderdale a convenient residential location. Residents and businesses have easy access to State Highway 280, Interstate 35W and Interstate 94. Location and access will continue to keep Lauderdale's business and residential population stable. Population projections are shown in Table 2.1.

**TABLE 2.1 – LAUDERDALE POPULATION**

Year	Population	Households
1990	2,700	1,166
2000	2,364	1,150
2010	2,400	1,160
2020	2,600	1,250
2030	2,600	1,250

Source: Metropolitan Council 2030 Regional Development Framework

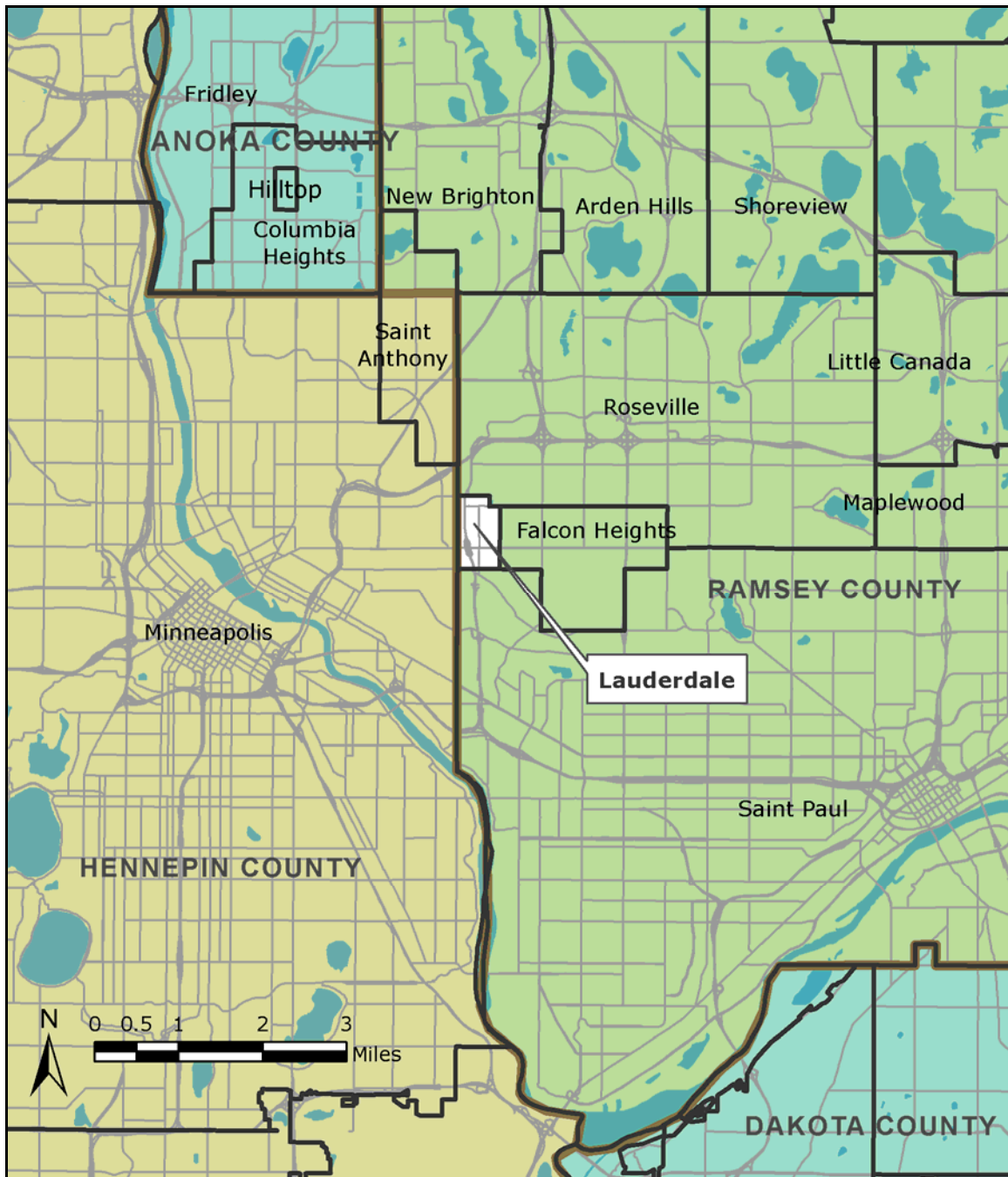
Measuring slightly less than one-half square mile in area, Lauderdale has retained its independent character, despite its close proximity to larger cities. Most of the City's infrastructure was developed in the 1950's. The City completed a group of major reconstruction projects in 2003, to replace and update most of the streets, sewers and waterlines.

### 2.2 TOPOGRAPHY

Lauderdale's topography is highest in the center of the city. Approximately 100 acres of Falcon Heights drains into Lauderdale via two ravines. Runoff within the City drains to Walsh Lake in the northeast corner, or via storm sewer to the south end of the City. As a result, the City is located within the jurisdictional boundaries of three watersheds: The Mississippi Watershed Management Organization (MWMO), the Rice Creek Watershed District (RCWD), and the Capitol Region Watershed District (CRWD.) See Figure 2.2 for the boundaries of these watersheds.

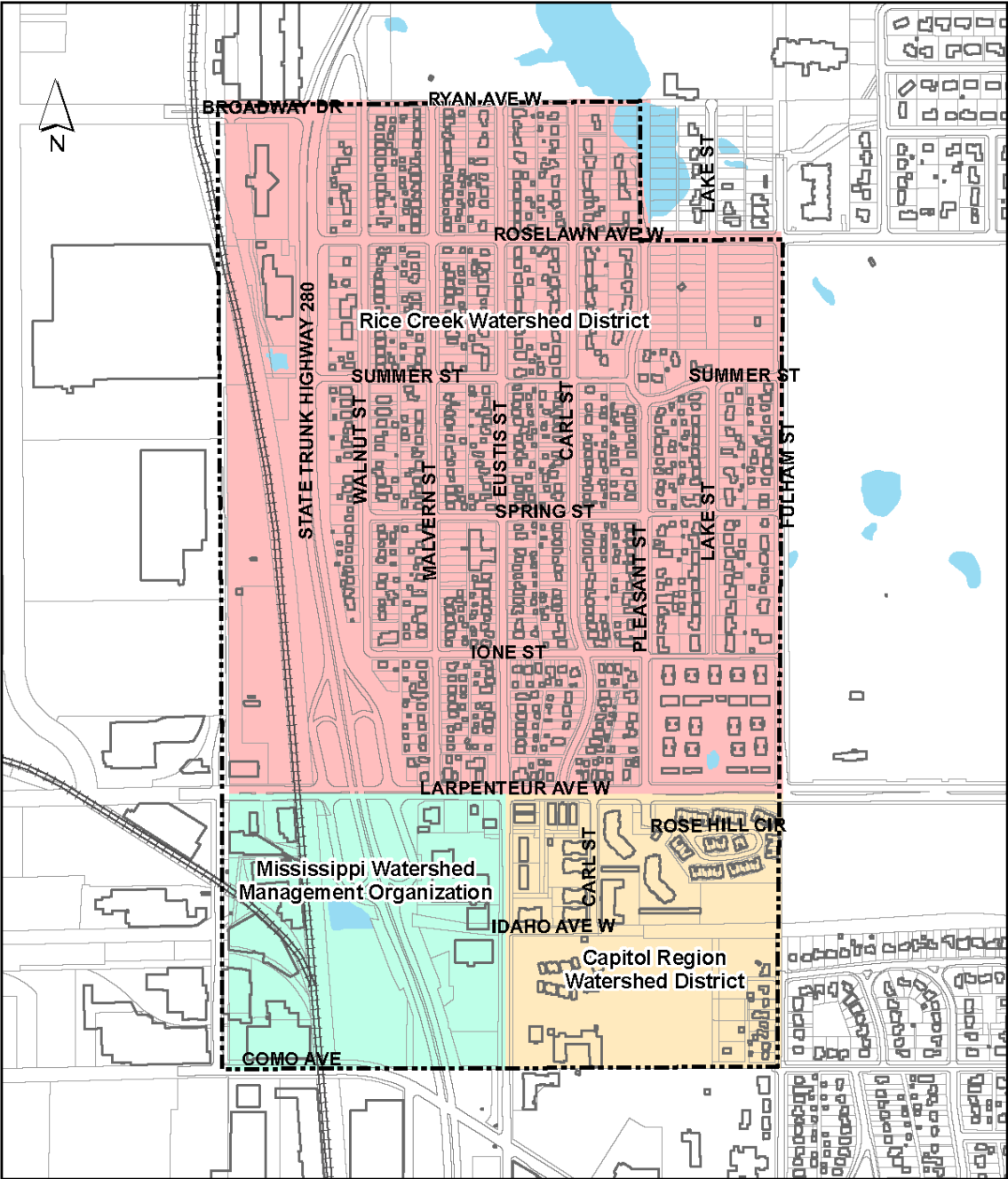
Rice Creek watershed receives stormwater from Lauderdale only when a pump on the north end of Walsh Lake is operating. When the pump is not running, runoff from the northern part of Lauderdale flows west to the Highway 280 drainage system, which flows south to the southwest corner of the City and the Bridal Veil tunnel system in the City of Minneapolis.

**FIGURE 2.1 – LOCATION MAP**





**FIGURE 2.2 – JURISDICTIONAL BOUNDARIES OF THE WATERSHED MANAGEMENT ORGANIZATIONS IN LAUDERDALE**



Runoff from the southeast portion of Lauderdale, including additional acreage from Falcon Heights draining into Lauderdale, discharges via storm sewer connected to the St. Anthony tunnel. This system flows south, before discharging into the Mississippi River. This portion of Lauderdale is located within the Capitol Region Watershed District.

## 2.3 SOILS

The Soil Conservation Service (SCS) published the *Soil Survey of Washington and Ramsey Counties Minnesota* in 1980. The *Soil Survey* provides mapping and physical properties for soil types found in the area. The *Soil Survey* was added to the Soil Survey Geographic (SSURGO) Database in 2005, providing digital access to the information.

The *Soil Survey* assigns each soil type to a hydrologic soil group, according to the soil's ability to infiltrate water during long-duration storms. The four hydrologic soil groups are: Group A - high infiltration, Group B - moderate infiltration, Group C - slow infiltration, and Group D – very slow infiltration. Most of the soil types in Lauderdale are classified in Hydrologic Soil Group B.

## 2.4 GROUNDWATER

Drinking water in Lauderdale is supplied by St. Paul Regional Water Services. Most of this water is obtained from the Mississippi River, while a small percentage is obtained from deep groundwater wells. The Ramsey Conservation District leads efforts to protect this groundwater supply. The District monitors groundwater elevations and maintains an inventory of contamination sites.

## 2.5 CLIMATE

Climate data for the Twin Cities are published by the National Weather Service (NWS) station at Chanhassen, MN. The NWS is a branch of the National Oceanic and Atmospheric Administration (NOAA). Table 2.2 provides a summary of average precipitation data for the Twin Cities area.

**TABLE 2.2 – AVERAGE MONTHLY PRECIPITATION, 1971-2000**

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
inches	1.04	0.79	1.86	2.31	3.24	4.34	4.04	4.05	2.69	2.11	1.94	1.00	29.41

Rainfall frequency estimates are used as design tools in water resource projects. Rainfall frequencies are summarized in Technical Paper No. 40, Rainfall Frequency Atlas of The United States, published by the U.S. Weather Bureau in 1961. The U.S. Weather Bureau was combined with other agencies in 1970 to form the National Oceanic and Atmospheric Administration (NOAA). Table 2.3 lists rainfall frequencies for the Twin Cities area, applicable to the City of Lauderdale.

**TABLE 2.3 – 24-HOUR RAINFALL DEPTHS AND FREQUENCY**

Recurrence Interval (yrs)	24-hr Rainfall Depth (in)
1	2.4
2	2.8
5	3.5
10	4.2
25	4.7
50	5.3
100	5.9

## **2.6 WATER RESOURCES**

### **2.6.1 WALSH LAKE**

Walsh Lake is located on the north boundary of Lauderdale, and is identified on the USFWS National Wetland Inventory (NWI) and the DNR Public Waters Inventory (PWI).

The NWI Cowardin system lists Walsh Lake as PUBGx. This is an aquatic system defined as a palustrine waterbody with an unconsolidated bottom that is intermittently exposed. The small “x” indicates it has been artificially excavated. This is considered a Type 5 wetland by FWS Circular 39. Type 5 or PUBG wetlands are characterized by water depths less than 10 feet and are fringed by a border of emergent vegetation. Vegetation (mainly at depths of less than 6 feet) includes pondweeds, naiads, wild celery, watermilfoils, muskgrasses, water lilies, and coontail. This particular system supports stands of cattail and a dense layer of duckweed.

This basin is identified on the PWI as 214W. This identification does not reveal the nature of the system but is used for record keeping. The Minnesota Department of Natural Resources has regulatory jurisdiction over the lakes, wetlands, and watercourses defined as public waters within the State.

Walsh Lake was identified in the RCWD Southwest Urban Lake Study Phase I report as a lake that currently has insufficient water quality monitoring data. The RCWD report recommends that Walsh Lake be added to the RCWD monitoring program in 2008. The City will look to coordinate with the RCWD as it moves to create a Management Action Plan (MAP) for Walsh Lake.

### **2.6.2 SEMINARY POND**

Seminary Pond is located in the southeast corner of the City. This pond is listed on the NWI, Cowardin system as PEMC. This is a seasonally flooded palustrine system supporting emergent vegetation. FWS Circular 39 characterizes the system as a Type 3. A Type 3 or PEMC wetland is characterized by saturated soil that is often covered with only a few inches of water. Common vegetation for these systems includes cattail, sedges, rushes, arrowhead, bur-reed and smartweed. However, this wetland does not support any of these species. The dominant plant species for the system is reed canary grass. Purple loosestrife was also found in the system. Both of these plants are invasive species that will dominate a natural system and choke out native species. Management strategies such as a controlled burn, herbicide treatment, or mowing the area would help suppress the invasive species and give native plants a chance to reclaim the site.

### **2.6.3 GASPERRE POND**

Gasperre Pond is located in the southeast corner of the City. This pond is not listed on the NWI or PWI, but does support hydrophytic vegetation (vegetation adapted for wetland conditions) and if delineated would likely be classified as a wetland.

### **2.6.4 IMPAIRED WATERS**

None of the water bodies within Lauderdale are listed on the Minnesota Pollution Control Agency’s list of impaired waters; lakes and streams in the state that do not meet federal water quality standards. However, drainage from Lauderdale ultimately discharges into a number of impaired waters: Pike Lake, Long Lake, Rice Creek, and the Mississippi River. Table 2.4 includes information about these impaired waters and Section 3.7 includes discussion on impaired waters and the TMDL process.

**TABLE 2.4 – IMPAIRED WATERS RECEIVING DISCHARGE FROM LAUDERDALE**

Impaired Water	Waterbody ID	Year Listed	Affected Use	Pollutant or Stressor	TMDL Target	TMDL Target
Long Lake	62-0067-00	2002	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	2010	2014
		2002	Aquatic consumption	Mercury in fish tissue <sup>1</sup>	2010	2014
Pike Lake	62-0069-00	2002	Aquatic recreation	Nutrient/Eutrophication Biological Indicators	2010	2014
Mississippi River – Coon Creek to Upper St. Anthony Falls	07010206-509	1998	Aquatic consumption	Mercury in fish tissue <sup>1</sup>	1998	2011
		1998	Aquatic consumption	PCB in fish tissue	1998	2011
		2006	Aquatic recreation	Fecal coliform	2008	2011
Mississippi River – Lower St. Anthony Falls to Lock & Dam #1	07010206-503	2002	Aquatic recreation	Mercury in fish tissue <sup>1</sup>	2008	2011
		2002	Aquatic consumption	Fecal coliform	2008	2011
Rice Creek – Between Long Lake and Locke Lake	07010206-584	2006	Aquatic life	Aquatic macroinvertebrate bioassessments	2013	2016

<sup>1</sup>Statewide mercury TMDL was completed and approved in March 2007

## 2.7 NATURAL RESOURCES

The City of Lauderdale is a fully developed city. Two areas within the City have been identified as having natural resources significance: Community Park located south of Roselawn Avenue, west of Fulham Street, and the Lauderdale Nature Area located south of Larpentour Avenue along the east city boundary.

The Minnesota Department of Natural Resources, Minnesota County Biological Survey did not have on record any rare, threatened or endangered species within the City.

### 2.7.1 COMMUNITY PARK

Community Park contains areas being used for passive and active recreational activities. The park contains a diverse population of Minnesota trees. Much like the state of Minnesota, this park contains evergreens on the north portion and leaved deciduous trees in the south portion. The mature trees provide nesting and food sources for many bird species.

The coniferous trees found in the north portion are approximately 60 years of age and were most likely planted. Native species represented in this stand include, white spruce, white pine and the Minnesota state tree the red or Norway pine. Scotch pine, a popular nonnative evergreen, is also located within the stand. The dominant tree in the stand is the red pine. The understory of the dense coniferous stand is comprised of

a sparse cover of dandelion, wood sorrel, creeping charlie, Kentucky blue-grass and plantain. The sparseness of understory coverage is typical of a northern coniferous forest but because of the manicured nature of the park, many native ground story species are not found here.

The south portion of the park includes a diverse population of deciduous trees. Species found include green ash, basswood, hackberry, American elm, black locust and sugar maple. All of these species are native to Minnesota except for the black locust. Black locust is commonly found in the state but originally was brought to the area from the eastern U.S. by Native Americans who used the wood for bows. The dominant tree in this stand is green ash. The average diameter is 15" with an approximate age of 75 years. Red cedar, which is found across the southern portions of the state, is also found in the south portion of this park. Ground cover species found within this portion of the park are the same as the north.

### **2.7.2 LAUDERDALE NATURE AREA**

The area identified as the Lauderdale Nature Area encompasses about 9 acres of Lauderdale and Falcon Heights. The area is located south of Larpentour Avenue west of the south portion of the University golf course and east of the Luther Seminary. Many types of trees are represented within the plot along with different types of habitat. Floodplain forest is found along the bottoms of the ravines and adjacent to the Gasperre pond. Small areas of Mesic oak forest and wetland are also found. The topography of the area consists of two ravines separated by an abandoned railway embankment. Steep slopes and eroding intermittent creek beds can be found within the plot.

The tree species found within the Floodplain Forest community are as follows; green ash, black willow, cottonwood, silver maple and boxelder. Most of the boxelders were less than 10" DBH. The largest representative species found were the cottonwoods with some measuring over 30" DBH. Green ash was found to be the dominant species within the plot with the average DBH of 18" and an average age of 65 years. The shrub layer of the plot consisted of buckthorn, boxelder, elderberry and dogwoods. Buckthorn, an invasive species, is well established within the plot. The ground cover found within the area consists of the following species; Jack-in-the-pulpit, wild geranium, Virginia creeper and wild violet. These plant species are typical of this type of forest community.

The ridge tops are dominated by Mesic Oak Forest. Trees within these areas consist of red oak, burr oak and black locust. The oaks are native to Minnesota but the black locust, originally from the east coast, has established itself in forests such as this across the eastern part of the state. The ground cover species found within this community did not vary much from the one found in the previous community.

Animal life found within the area included a host of bird species such as warblers, black-capped chickadee, American crow and blue jays. Very little sign of mammalian life was found within the area except for grey squirrels, raccoon and woodchucks. Because of the small size and isolated nature of the area, larger mammals are not likely to be found here.

## **2.8 DRAINAGE SYSTEMS**

Lauderdale is divided among three watershed management organizations, although most of the City's runoff discharges southerly into two separate storm sewer tunnel systems: Bridal Veil Tunnel (through the Mississippi Watershed Management Organization) and St. Anthony Tunnel (through Capital Region Watershed District). It is only when a lift station is operating in Walsh Lake that runoff from Lauderdale discharges north to the Rice Creek Watershed District; otherwise the water discharges westerly to Trunk Highway 280 right-of-way through two pipes (12-inch and 18-inch diameter) with invert elevations of 925.5. The lift station does not operate until water reaches an elevation of 926.0. The lift station is operated and maintained by the City of Roseville and information regarding the pumping frequency can be requested through the City of Roseville Public Works Department. See Figure 2.2 for a map of these jurisdictional boundaries.

Many sections of Lauderdale's drainage system were rebuilt between 2001 and 2004. Map 1 included in Appendix A shows the layout of the drainage system, including storm sewers, open channels, and ponding areas. A few ponds have been constructed in the south portion of the City to help improve water quality and control runoff rates.

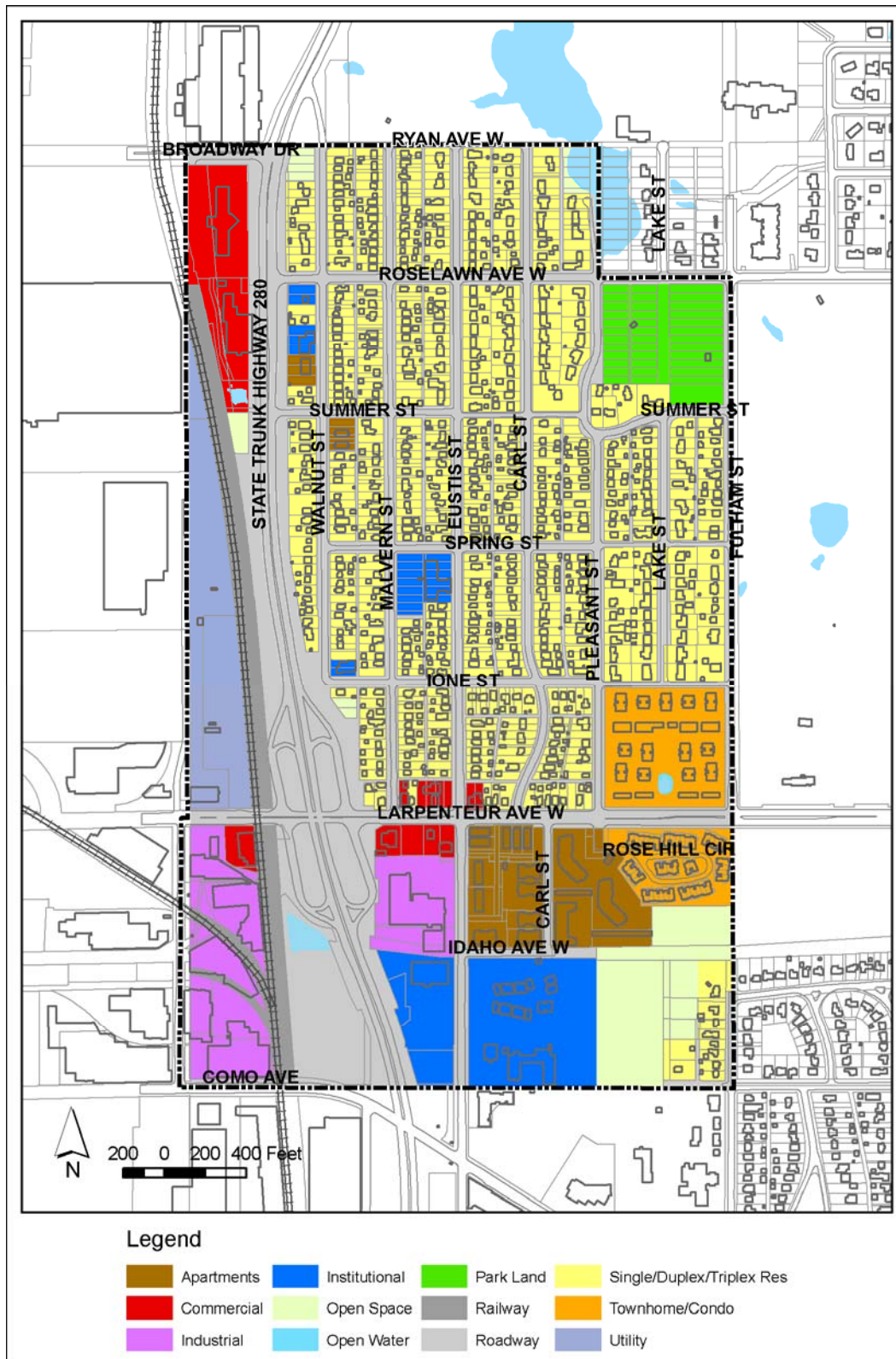
A storm drainage report prepared in 1979 recommended developing storm water holding basins to control storm water in the southerly portions of the City. These improvements were implemented in conjunction with development of this area. One of these improvements included a storm water pond located in what is currently the Lauderdale Nature area. This was developed in 1984. Another area that was identified was the Luther Seminary land south of the Lauderdale Nature Area. This pond was completed in 1994 as a part of the Rose Condominium Development. Storm water pond improvements near the U of M golf course were completed in conjunction with the Larpenteur Avenue reconstruction in 1997.

The Minnesota Department of Transportation has initiated improvements to the drainage system within the right-of-way of Highway 280. A stormwater detention basin was completed in 2006 on land previously occupied by the Goodwill facility. Additional improvements are proposed in the future to increase drainage capacity along the highway.

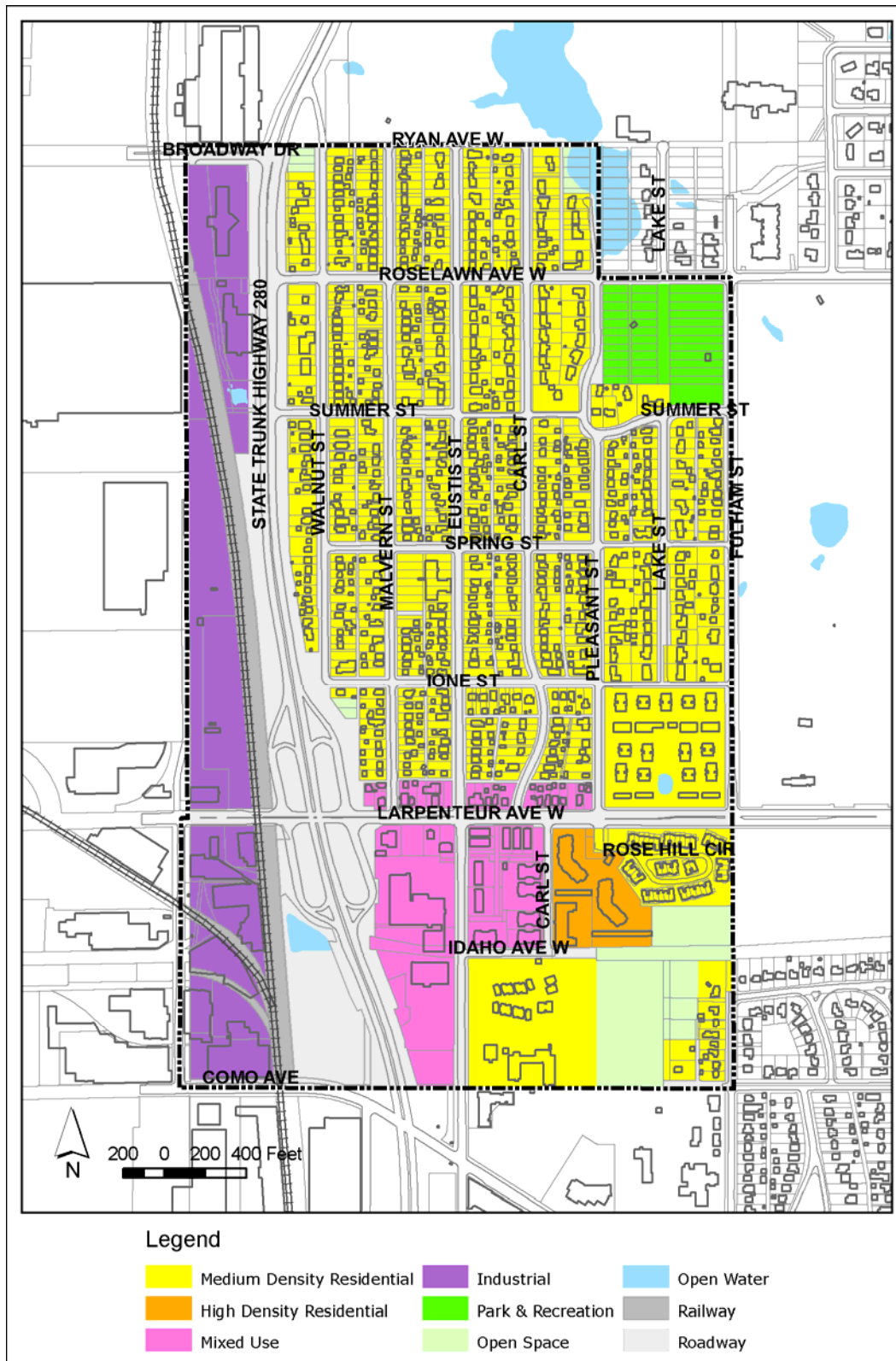
## **2.9 PLANNING AND LAND USE**

Lauderdale's last comprehensive plan was adopted in 1997. The City's next comprehensive plan (due in 2008) will update the goals and policies related to water and natural resources, using information from this LSWMP. The total area of Lauderdale is approximately 275 acres. Current land uses within the City are shown in Figure 2.2. Land uses proposed for the 2030 Comprehensive Plan are shown in Figure 2.3.

FIGURE 2.3 – EXISTING LAND USE



**FIGURE 2.4 – LAND USE PER THE 2030 COMPREHENSIVE PLAN**





## Section 3 – Regulatory Setting

### 3.1 OVERVIEW

This section describes the City's current surface water resources management programs and practices and the agencies and organizations having roles in the City's management of these resources. Table 3.1 summarizes the City's and other agencies' respective regulatory controls related to water resources management and protection.

**TABLE 3.1 – REGULATORY CONTROLS**

Official Control	Responsibility	Mechanism
Erosion and Sediment Control	City, CRWD, RCWD, RCD	<ul style="list-style-type: none"> <li>City Code 8-4-6 B.2 – Site construction plan requirements</li> <li>City Code 8-4-8 – Project approval standards</li> <li>NPDES General Permit – SWPPP BMPs: 2-4, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 5-10</li> <li>CRWD – Rule F</li> <li>RCWD – Rule D</li> <li>Ramsey Conservation District – site inspections</li> </ul>
Shoreland	City	<ul style="list-style-type: none"> <li>City Code 8-4-6 I.4 – Redevelopment around Walsh Lake shall be done following Minnesota DNR standards for "Management of Shorelines"</li> </ul>
Floodplain	City, CRWD, RCWD	<ul style="list-style-type: none"> <li>Lauderdale is currently within an unmapped area</li> <li>CRWD – Rule D</li> <li>RCWD – Rule E</li> </ul>
Wetlands	City, DNR, USACE, CRWD, RCWD	<ul style="list-style-type: none"> <li>City Code 8-4-8 I – Wetland protection standards</li> <li>NPDES General Permit – SWPPP BMPs: 5-6</li> <li>DNR – Public Waters Work Permit</li> <li>USACE – Section 404 of the Clean Water Act</li> <li>CRWD – Rule E</li> <li>RCWD – Rule F</li> </ul>
Illicit Discharge	City, CRWD	<ul style="list-style-type: none"> <li>City Code 8-2-2-9 – Discharge of surface water prohibited</li> <li>NPDES General Permit – SWPPP BMPs: 2-4, 3-2, 3-4, 3-5, 3-6, 3-9</li> <li>CRWD – Rule G</li> </ul>
Groundwater	City, MDH	<ul style="list-style-type: none"> <li>NPDES General Permit – SWPPP BMPs: 7-1</li> </ul>
Water Quality	City, CRWD, RCWD	<ul style="list-style-type: none"> <li>City Code 8-4-8 – Project approval standards</li> <li>City Code 8-4-9 – Lawn fertilizer regulations</li> <li>NPDES General Permit – SWPPP BMPs: 1-8, 3-3, 5-1, 5-2, 5-3, 5-4, 5-7, 5-8, 5-10, 5-11, 6-2, 6-3, 6-4, 6-10, 7-3</li> <li>CRWD – Rule C</li> <li>RCWD – Rule C</li> </ul>
Water Quantity	City, CRWD, RCWD	<ul style="list-style-type: none"> <li>City Code 8-4-6 B.3 – Final site condition requirements</li> <li>City Code 8-4-8 – Project approval standards</li> <li>NPDES General Permit – SWPPP BMPs: 3-1, 5-1, 5-2, 5-8, 6-5, 7-3</li> <li>CRWD – Rule C</li> <li>RCWD – Rule C and I</li> </ul>
*Acronyms are defined in Sections 3.2 – 3.16 of this Plan		

### **3.2 CITY SERVICES**

Residential streets, sanitary and storm sewers, waterlines, stormwater facilities, and park lands within Lauderdale are maintained by the City. Drinking water within the City of Lauderdale is supplied by the St. Paul Regional Water Services utility. Wastewater is collected in the City sewer system and discharged to collection systems in St. Paul and Minneapolis. The City adopted the Storm Water drainage Utility (see City Code 8-3) in 1994 to pay for the maintenance, operation, and improvement of the City's stormwater management system.

City staff coordinates with watershed management organizations and other outside agencies in water resource management and conservation. A collection of City residents and council members manage comprehensive planning for Lauderdale. The City's current regulations are available on the City's website at <http://www.ci.lauderdale.mn.us/>.

### **3.3 RAMSEY COUNTY**

Ramsey County was created in 1849, and is one of Minnesota's original nine counties. The County provides many services to Lauderdale residents, including health services and property records. County government also includes the Ramsey Conservation District (RCD), which encourages the protection of natural resources.

Ramsey County adopted the *Ramsey County Groundwater Quality and Protection Plan* in May 1996. Information about this plan can be found in Section 4.6.

### **3.4 WATERSHED MANAGEMENT ORGANIZATIONS (WMO)**

In 1955, the Minnesota State Legislature established the Watershed Act. This act provided the means to create watershed districts, special purpose units of local government with broad authority to regulate land use planning, flood control and conservation issues. There are currently 46 watershed districts in the state, and 14 in the seven county metropolitan area.

In 1982, the legislature approved the Metropolitan Surface Water Management Act, Chapter 103B of Minnesota Statutes. This act requires all local governments within the seven county metropolitan area to address surface water management through participation in a Watershed Management Organization (WMO). A WMO can be organized as a watershed district, as a Joint Powers Agreement (JPA) among municipalities, or as a function of county government. There are 23 Watershed Management Organizations within the seven county metropolitan area.

The City of Lauderdale is located within the jurisdictional boundaries of three watersheds: The Mississippi Water Management Organization (MWMO), the Rice Creek Watershed District (RCWD), and the Capitol Region Watershed District (CRWD). See Figure 2.2 for the boundaries of these three watershed districts. These agencies each have authority for review and approval of this local surface water management plan.

#### **3.4.1 RICE CREEK WATERSHED DISTRICT (RCWD)**

The Rice Creek Watershed District encompasses approximately 201 square miles of Anoka, Hennepin, Ramsey and Washington counties in Minnesota. Portions of the district can be found in the following municipalities: Arden Hills, Birchwood Village, Blaine, Centerville, Circle Pines, Columbia Heights, Columbus Township, Dellwood, Falcon Heights, Forest Lake, Fridley, Grant Township, Hugo, Lauderdale, Lexington,

Lino Lakes, Mahtomedi, May Township, Mounds View, New Brighton, New Scandia Township, Roseville, Shoreview, Spring Lake Park, St. Anthony, White Bear Lake, White Bear Township, Willernie.

The current RCWD Watershed Management Plan was amended in 2000. The current watershed rules were adopted in February 2008.

The City defers to the current RCWD stormwater management permitting program for all areas that are within the jurisdiction of the RCWD. The City requires applicants to provide documentation that they have obtained the necessary permits from the watershed. Figure 2.2 identifies the jurisdictional boundaries of RCWD within the City of Lauderdale.

#### **3.4.2 MISSISSIPPI WATERSHED MANAGEMENT ORGANIZATION (MWMO)**

The Mississippi Watershed Management Organization's boundaries include the Mississippi River as it runs through Minneapolis, as well as adjacent areas that drains to the river. The MWMO contains 31.5 square miles, including portions of the cities of Lauderdale, Minneapolis, St. Anthony, and St. Paul. The final member of the MWMO is the Minneapolis Park and Recreation Board.

The current Joint and Cooperative Agreement for the MWMO was executed by member communities in 2002. The current MWMO Watershed Plan was amended in 2006, and includes stormwater management standards to be implemented by member communities.

#### **3.4.3 CAPITOL REGION WATERSHED DISTRICT (CRWD)**

Established in 1998, the Capitol Region Watershed District covers 40 square miles and includes portions of Falcon Heights, Lauderdale, Maplewood, Roseville, and St. Paul. The District is located within Ramsey County and has a population of 245,000 people. The Mississippi River is the predominant water resource to which the entire district drains. Como Lake, Crosby Lake, Loeb Lake, and Lake McCarrons are also located within the District.

The current CRWD Watershed Management Plan was completed in April 2000. The current watershed rules were adopted in September 2006.

### **3.5 METROPOLITAN COUNCIL**

Established by the Minnesota Legislature in 1967, the Metropolitan Council is the regional planning organization for the Twin Cities, seven-county area. The Council manages public transit, housing programs, wastewater collection and treatment, regional parks and regional water resources. Council members are appointed by the Minnesota Governor.

The Metropolitan Council reviews municipal comprehensive plans, including this local surface water management plan. The Council adopted the *Water Resources Management Policy Plan* in 2005, establishing the expectations to be met in local plans. The Council's goals focus on water quality standards and pollution control, "to reduce the effects of nonpoint source pollution on the region's wetlands, lakes, streams and rivers."

### **3.6 STATE BOARD OF WATER AND SOIL RESOURCES (BWSR)**

The Minnesota Board of Water and Soil Resources works through local government agencies to implement Minnesota's water and soil conservation policies. The BWSR is the administrative agency for soil and water conservation districts, watershed districts, watershed management organizations and county water managers. The BWSR is responsible for implementation of the Metropolitan Surface Water Management Act and the Wetland Conservation Act. Staff members are located in eight field offices throughout the state.

First established in 1937 as the State Soil Conservation Committee, the agency became part of the University of Minnesota in the 1950's, transferred to the Department of Natural Resources in 1971, then transferred to the Department of Agriculture in 1982. In 1987 the State Legislature established the current Board of Water and Soil Resources. The Board consists of 17 members, appointed by the governor to four-year terms. Multiple state and local agencies are represented on the Board. In 1992, the BWSR adopted rules (8410), establishing the required content for local surface water management plans.

### **3.7 MINNESOTA POLLUTION CONTROL AGENCY (MPCA)**

The MPCA is the state's lead environmental protection agency. Created by the State Legislature in 1967, the MPCA is responsible for monitoring environmental quality and enforcing environmental regulations to protect the land, air and water. The MPCA regulates the City's management of wastewater, stormwater and solid waste.

The MPCA is the permitting authority in Minnesota for the National Pollutant Discharge Elimination System (NPDES), the federal program administered by the Environmental Protection Agency to address polluted stormwater runoff. The City of Lauderdale was included on the list of cities required to obtain NPDES permit coverage in 2003. The NPDES program requires the City to develop a stormwater pollution prevention program (SWPPP) to address six minimum control measures:

- |  |   |
|--|---|
| 1) Public education                            | 4) Construction site runoff control             |
| 2) Public involvement                          | 5) Post-construction runoff control             |
| 3) Illicit discharge detection and elimination | 6) Pollution prevention in municipal operations |

As the SWPPP is reviewed and updated as necessary on an annual basis, a copy of the SWPPP is not included in this LSWMP as it would eventually become outdated. Rather the most current SWPPP is posted on the City's website: [www.ci.lauderdale.mn.us](http://www.ci.lauderdale.mn.us).

In addition to the NPDES program, the MPCA is required to publish a list of impaired waters; lakes and streams in the state that are not meeting federal water quality standards. For each water body on the list, the MPCA is required to conduct a study to determine the allowable Total Maximum Daily Load (TMDL) for each pollutant that exceeds the standards. The 2006 MPCA list of impaired waters identifies 2,250 TMDL reports needed for 1,297 lakes, rivers and streams in the state. Local governments will be required to incorporate completed TMDL studies into their surface water management plans and review their SWPPPs to determine if additional BMPs are needed to comply with the TMDL waste load allocation. At this time there are no listed waters within the City of Lauderdale. Table 2.4 identifies impaired waters that ultimately received discharge from the City of Lauderdale.

In response to these multiple regulatory activities, the MPCA published the *Minnesota Stormwater Manual* (Version 1.1, 2006), providing stormwater management tools and guidance. The Manual presents a unified statewide approach to stormwater practices.

### **3.8 MINNESOTA DEPARTMENT OF NATURAL RESOURCES (DNR)**

Originally created in 1931 as the Department of Conservation, the DNR has regulatory authority over the natural resources of the state. DNR divisions specialize in waters, forestry, fish and wildlife, parks and recreation, land and minerals, and related services. The Division of Waters administers programs in lake management, shoreland management, dam safety, floodplain management, wild and scenic rivers, the Public Waters Inventory (PWI), and permitting of development activity within public waters.

### **3.9 MINNESOTA DEPARTMENT OF HEALTH (MDH)**

The MDH manages programs to protect the public health, including implementation of the Safe Drinking Water Act. The MDH has regulatory authority for monitoring water supply facilities such as water wells, surface water intakes, water treatment, and water distribution systems. The MDH also is responsible for the development and implementation of the wellhead protection program.

It should be noted that the City does not have jurisdictional areas within the source water protection area for surface water intakes identified in the source water assessments conducted by the Minnesota Department of Health.

### **3.10 MINNESOTA ENVIRONMENTAL QUALITY BOARD (EQB)**

The EQB is comprised of five citizen members and the heads of ten state agencies that play an important role in Minnesota's environment and development. The EQB develops policy, creates long-range plans and reviews proposed projects that may significantly influence Minnesota's environment.

### **3.11 MINNESOTA DEPARTMENT OF TRANSPORTATION (MN/DOT)**

Within the City, Mn/DOT administers several state highway systems. Mn/DOT approval is required for any construction activity within state right-of-ways. Mn/DOT also administers a substantial amount of funding for transportation projects completed in the City. Anticipated activities of Mn/DOT are periodically published in their State Transportation Improvement Plan (STIP).

### **3.12 U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)**

The EPA develops and enforces the regulations that implement environmental laws enacted by Congress; however the MPCA bears responsibility for implementing many of the resulting programs within Minnesota. The NPDES program and the Impaired Waters List are both the result of the Clean Water Act, administered by the EPA.

### **3.13 U.S. ARMY CORP OF ENGINEERS (USACE)**

Under Section 404 of the Clean Water Act, including subsequent modifications, the EPA and the USACE regulate the placement of fill into all wetlands of the U.S. In 1993, there was a modification of the definition of "discharge of dredged material" to include incidental discharges associated with excavation. This modification meant that any excavation done within a wetland required the applicant to go through

Section 404 permitting procedures. In 1998, however, this decision was modified so that excavation in wetlands is now regulated by the USACE only when it is associated with a fill action.

### **3.14 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)**

FEMA manages federal disaster mitigation and relief programs, including the National Flood Insurance Program (NFIP). This program includes floodplain management and flood hazard mapping. Lauderdale is within an unmapped area and does not contain any designated regulatory flood plains.

### **3.15 NATURAL RESOURCES CONSERVATION SERVICE (NRCS)**

The Natural Resources Conservation Service (NRCS) is a division of the U.S. Department of Agriculture. Formerly named the Soil Conservation Service (SCS), the NRCS provides technical advice and engineering design services to local conservation districts across the nation. The *Soil Survey of Washington and Ramsey Counties Minnesota* was published by the Soil Conservation Service in 1977. The SCS also developed hydrologic calculation methods that are widely used in water resources design.

### **3.16 U.S. GEOLOGICAL SURVEY (USGS)**

The USGS provides mapping and scientific study of the nation's landscape and natural resources. USGS maps provide the basis for many local resource management efforts.

### **3.17 U.S. FISH AND WILDLIFE SERVICE (USFWS)**

The USFWS works to conserve and protect the nation's fish, wildlife, plants and habitat. The USFWS developed the National Wetlands Inventory (NWI) beginning in 1974, to support federal, state and local wetland management work.

## Section 4 – Related Studies, Plans and Reports

### 4.1 CITY OF LAUDERDALE – 1997 SURFACE WATER MANAGEMENT PLAN

The Lauderdale 1997 Surface Water Management Plan (SWMP) serves as a guide for the repair and upgrade of the City's existing storm drainage system. The SWMP includes an extensive Capital Improvement Plan (CIP) for the stormwater management system upgrades identified in the plan, as well as descriptions and costs for the City's four phase street and utility reconstructions project.

The SWMP is a compilation of information from a number of sources including: Lauderdale's 1979 Drainage Report, various utility plans, Ramsey County, past consulting engineers work, Mn/DOT, and City staff field inspections, surveys and recommendations. A comprehensive stormwater modeling analysis including stormwater quantity, stormsewer capacity, and water quality calculations is also presented in the plan.

### 4.2 RCWD 1997 WATERSHED MANAGEMENT PLAN – AMENDED 2000

The 1997 Rice Creek Watershed District (RCWD) Watershed Management Plan (WMP) "utilizes information and data from past District actions to provide updated management strategies for addressing a wide variety of issues which continue to be or have more recently become significant. The WMP provides a basic inventory of the District and an outline of the Board of Managers' objectives and policies. Of primary importance, however, is the Management Plan (Chapter V) which details the methods by which the District's objectives and policies will be implemented." The 1997 WMP was amended in June 2000 to update and extend the implementation programs identified in the 1997 plan.

The RCWD currently operates a District-wide permitting program regulating the following activities:

- Your plans include a parcel greater than five acres for a single-family residential development
- Your plans include a parcel greater than 2.5 acres for industrial, commercial, or multi-family residential land development
- The proposed activity (of any size) is located within a 100-year floodplain
- The proposed activity (of any size) is located within 1,000 feet of a DNR protected public water or wetland
- The proposed activity (of any size) is located within 300 feet of a creek, county or judicial ditch, or a tributary to Rice Creek
- The site contains wetlands or seasonally wet areas
- The project may affect a wetland (filling, excavation, drainage)
- The proposed activity involves altering or manipulating an existing public or private drainage system (open or tiled)
- The project involves constructing or installing a new drainage system
- The project involves installing or repairing a bridge or culvert involving creeks, ditches, wetlands, or lakes

- The project involves constructing or altering land in a designated shoreland zone
- The project involves utilizing water (appropriation) from a public water basin, public wetland, or protected watercourse (see Rule J for specific thresholds).<sup>1</sup>

The City currently defers to the current RCWD stormwater management permitting program for all areas that are within the jurisdiction of the RCWD. The City requires applicants to provide documentation that they have obtained the necessary permits from the watershed. Figure 2.2 identifies the jurisdictional boundaries of RCWD within the City of Lauderdale.

#### **4.3 MWMO WATERSHED MANAGEMENT PLAN – AMENDED 2006**

The Mississippi Watershed Management Organization (MWMO) Watershed Management Plan (WMP) “expands the water resource management issues [presented in the 1986 WMP] to include groundwater quality protections and improvement, in addition to the goals of surface water protection and water quality improvement. The [MWMO WMP] uses information and data from past studies and actions to address a variety of issues determined as significant by the MWMO’s Task Force, Citizens Advisory Committee (CAC), Technical Advisory Committee (TAC), and the Board of Commissioners.

The MWMO WMP directs its member organizations to implement the MWMO ordinances, regulatory controls, design standards, and programs. In addition, local governments are responsible for:

- Maintaining existing and proposed storm drain conveyance systems, including stormwater detention ponds, sewers, inlet and outlet drainage structures;
- Issuing building and grading permits;
- And, performing inspections to ensure compliance during construction.

The MWMO does not issue permits or provide approval letters for construction projects but relies on the existing permitting and enforcement bodies of its member communities. However, if the MWMO determines that a member organization is not carrying out its enforcement and permitting responsibilities, the MWMO may at its discretion assume the permitting and enforcement responsibilities and hold the member organization accountable for costs associated with activities they failed to perform.”<sup>2</sup>

#### **4.4 CRWD WATERSHED MANAGEMENT PLAN – 2000**

The Capital Region Watershed District (CRWD) Watershed Management Plan (WMP) was completed in 2000. “The CRWD’s approach in preparing this plan was to focus on the issues which led to the formation of the District. To identify additional issues, six issue forums were held by the District. The outcome of these forums was a list of watershed issues to form the backbone of this management plan, as follows:

- Management of Como Lake
- Management of Crosby Lake/Hidden Falls Regional Park
- Groundwater Quality Protection within the CRWD
- Management of Lake McCarrons

<sup>1</sup> Excerpts from the Rice Creek Watershed District Watershed Management Plan – Amended in 2000 and the Districts website <http://ricecreek.org/permits>

<sup>2</sup> Excerpts from the Mississippi Watershed Management Organization Watershed Management Plan – Amended in 2006



- Water quality impacts to the Mississippi River and associated regulatory responsibilities
- Continuity and ecological integrity of the natural corridor along the Mississippi River Valley
- Operation and maintenance of the Trout Brook System
- Management of water resources management during urban redevelopment
- Utilizing urban Best Management Practices (BMPs) and retrofitting
- Wetland restoration and protection

In 2006 as part of its ongoing effort to improve water quality, CRWD adopted watershed rules to address both short and long term stormwater management needs. The watershed rules identify an active watershed program to permit the following activities: Stormwater Management, Erosion Control, Flooding, Trout Brook, and Wetland Impacts. The District intends to be active in the regulatory process to ensure that water resources are managed in accordance with District goals and policies.”<sup>3</sup>

#### **4.5 THE BRIDAL VEIL CREEK SUBWATERSHED DESK STUDY**

This study was funded by a grant from the MWMO to the St. Anthony Park Community Council to conduct a comprehensive review of information available on the Bridal Veil Creek (BVC) watershed. The purpose of the study was to undertake a desk review and analysis of all known, prior hydrologic and drainage studies; environmental and biological inventories, histories, pollution and ecosystem studies and reports; and other relevant materials and information in the BVC watershed to be summarized in a narrative report.

One dominant theme in the watershed is the interest by local community groups to clean up the watershed, establish greenways, reduce water pollution, restore natural areas and improve quality of life by enhancing recreational opportunities. In order to achieve this goal, watershed management, landscape-level planning and ecological restoration at ecosystem and site scales will be necessary. This study recommends a multi-scale approach to ecological restoration and management, including actions at the following levels:

- Landscape scale – involves land use planning to improve connectivity of natural areas and enhance recreational opportunities.
- Community scale – involves active management of selected natural areas.
- Site scale – involves individual yards and roadsides, native landscaping and exotic species control as well as site specific stormwater management techniques.<sup>4</sup>

Recommendations included in this study involving the City of Lauderdale are identified in the Assessment (Section 6) and Implementation (Section 8) sections of this LSWMP.

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<sup>3</sup> Summarized excerpts from the 2000 Capital Region Watershed District Watershed Management Plan and District website <http://www.capitolregionwd.org/Programs.htm>

<sup>4</sup> Summarized excerpts from the Bridal Veil Creek Subwatershed Desk Study, 2006

#### **4.6 RAMSEY COUNTY GROUNDWATER QUALITY AND PROTECTION PLAN**

Ramsey County adopted the *Ramsey County Groundwater Quality and Protection Plan* in May 1996. This plan outlines the roles and responsibilities of county and local governments in groundwater management in the County. There are several recommendations outlined in the county plan that include:

- participation in wellhead protection programs,
- sensitive geologic area programs,
- well sealing programs, and
- aquifer protection programs<sup>5</sup>.

The City will coordinate the implementation of recommendation in this plan with Ramsey County and the local WMOs.

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<sup>5</sup> Excerpts from the Ramsey County Groundwater Quality and Protection Plan

## Section 5 – Water Resources Related Agreements

### 5.1 CONVEYANCE

Multiple inter-agency agreements have been made by the City of Lauderdale with respect to its stormwater conveyance. In March of 1954, Lauderdale entered into an agreement with Roseville and the Minnesota Highway Department authorizing the discharge of storm water through the Highway 280 system (Minnesota Highway Department Agreement No. C-1245). In March of 1973, the City entered into an agreement with Roseville to share the cost of operating improvement 72-15, consisting of an additional gravity outlet and pump station in Walsh Lake. Copies of these conveyance agreements are included in Appendix B for reference.

### 5.2 WATERSHED MANAGEMENT

The *Joint and Cooperative Agreement for the Mississippi Watershed Management Organization* was executed by the Minneapolis Park and Recreation Board and the cities of Minneapolis, St. Paul, St. Anthony and Lauderdale in January 2002. This agreement established the authority and responsibilities of the MWMO Board. A copy of the agreement is included in Appendix B for reference.

## Section 6 – Current Assessment

### 6.1 OFFICIAL CONTROLS

Codes and ordinances (official controls) are necessary tools supporting implementation of this surface water management plan. Many of the stated goals and policies specifically reference City codes that exist or need to be created. The City’s MS4 permit includes a summary of ordinances required to comply with NPDES requirements.

After adoption of this Local Surface Water Management Plan, all applicable portions of City Code will need to be updated to achieve consistency with local watershed plans. Per State statute, this implementation step must be completed within 180 days after adoption of this plan. In addition, over time codes must be updated to remain consistent with City goals, policies and practices. Table 6.1 assesses the status of City codes related to surface water management.

**TABLE 6.1 – SURFACE WATER MANAGEMENT RELATED CODES**

Code Section	Description	Status
7-4-2	Permit Requirement	Update as needed to comply with RCWD and CRWD permit process
8-2-2-9	Discharge of Surface Water Prohibited	Update as needed as required by MS4 permit
8-2-2-10	Prohibited Discharge Inspection	Update as needed as required by MS4 permit
8-3	Storm Water Utility	No update is necessary
8-4-6	Storm Water Management Plan Approval Procedures	Update as needed to comply with local WMO plan approval procedures
8-4-7	Plan Review Procedure	Update as needed to comply with local WMO plan review procedural requirements
8-4-8	Approval Standards	Update as needed to comply with local WMO plan approval standards
8-4-8 F	Site Erosion Control	Update as needed as required by MS4 permit
8-4-8 G	Storm Water Management Criteria for Permanent Facilities	Update as needed as required by MS4 permit and to comply with local WMO Rules.
8-4-8 H	Design Standards	Update as needed to comply with local WMO design standards
8-4-8 I	Wetlands	Update as needed to comply with local WMO wetland management standards

### 6.2 HYDROLOGIC AND HYDRAULIC MODEL

The City is divided into three major drainage districts as shown in Map 1 in Appendix A, namely Walsh Lake, Highway 280, and St. Anthony major drainage districts. The Walsh Lake and St. Anthony major drainage districts are further divided into numbered subdistricts, to account for specific watershed features that impact the functionality of the stormwater system, such as: stormwater basins, low points, or ditches.

The 1997 Lauderdale Surface Water Management Plan (SWMP) included a summary of results from a city-wide hydrologic and hydraulic model, using HydroCAD. This model focused mainly on subdistrict flows being routed into five stormwater basin locations within the St. Anthony major drainage district. Appendices A and D in this SWMP provided the tributary areas, high water levels, storage volumes, and stormwater pond discharge rates out of these basins. The hydrologic and hydraulic characteristics within the St. Anthony major drainage district have changed very little since 1997, therefore the stormwater modeling results presented in Appendix A of this LSWMP are very similar to those in the 1997 SWMP.

As part of the City's 4 phase street and utility reconstruction project completed between 2000-2004, a detailed hydrologic and hydraulic model of the Walsh Lake major drainage district was completed. To accurately represent the hydraulic characteristics of the complex storm sewer pipe network tributary to Walsh Lake, the City used the XPSWMM modeling program, which has the capability to model complex pipe systems. This model estimated high water level elevations in Walsh Lake prior to the street and utility project, through various phases of the project, and at the completion of the project. The results of the Walsh Lake major drainage district XPSWMM model are summarized in Appendix A.

For purposes of this LSWMP, the Highway 280 major drainage district is not modeled in detail as the City is not responsible for the design, maintenance, and daily operations of the Mn/DOT Highway 280 stormwater system. The City has a long standing agreement with Mn/DOT (a copy of this agreement is included in Appendix B) to allow flow from Lauderdale to discharge to Mn/DOT right-of-way, pending Mn/DOT review and approval. The Mn/DOT Water Resources Engineering Department maintains a detailed stormwater model of the Highway 280 stormwater system and should be contacted directly for questions regarding the operation of this system. Hydrologic characteristics of the Highway 280 major drainage district are included in Appendix A.

### **6.3 WETLAND MANAGEMENT**

From the 2030 Water Resources Management Policy Plan, the Met Council requires the City to include the following in the LWMP Update:

*All communities need to include a wetland management plan or a process and timeline to prepare a plan. At a minimum, the wetland management plan should incorporate a function and value assessment for wetlands. Other items to address in the plan include the pretreatment of stormwater prior to discharge into all wetland types, and the use of native vegetation as buffers for high quality wetlands. Buffers should be consistent with the functions and values identified in the plan.*

In 1999, all wetlands within the Capital Region Watershed District were inventoried and their functions and values were assessed. This inventory included two wetlands in Lauderdale, namely Gasperre Pond (N202923-1-A) and Seminary Pond (N202923-2-A). The assessment information can be found in Appendix C of the Capital Region Watershed District 2006 Watershed Management Plan. Wetland functions evaluated included Vegetative Diversity/Integrity, Maintenance of Hydrologic Regime, Flood and Stormwater Storage/Attenuation, Water Quality/Shoreline Protection, Groundwater Interaction, Wildlife Habitat, Fisheries Habitat, and Aesthetics/Recreation.

To fully comply with this Met Council requirement, the City will include the completion of a wetland inventory and assessment for the remaining wetlands in Lauderdale, namely Walsh Lake, in the City's implantation item discussed in Section 8. An estimated cost for the completion of the wetland inventory and assessment is included in Section 8. Some level of financial assistance from the local WMOs could also be requested.

The City is identified as the Local Government Unit (LGU) responsible for the administration and enforcement of the Wetland Conservation Act (WCA). WCA requires anyone proposing to drain, fill, or excavate a wetland first to try to avoid disturbing the wetland; second, to try to minimize any impact on the wetland; and, finally, to replace any lost wetland acres, functions, and values. Certain wetland activities are exempt from the act, allowing projects with minimal impact or projects located on land where certain pre-established land uses are present to proceed without regulation.

### **6.3 IMPAIRED WATERS AND TMDLS**

There are no waterbodies within the City of Lauderdale currently identified on the state list of Impaired Waters. However, four other waterbodies in adjacent communities receiving discharge from Lauderdale are currently identified on the state list of Impaired Waters: Long Lake, Pike Lake, Mississippi River, and Rice Creek. The list of Impaired Waters is known as the 303(d) list from the applicable section of the Federal Clean Water Act, these waters are ones that do not currently meet their designated use due to the impact of a particular pollutant or stressor. If monitoring and assessment indicate that a waterbody is impaired by one or more pollutants, it is placed on the list.

Information for impaired waters identified adjacent communities receiving flows from Lauderdale are identified in Table 2.4 in Section 2.6.4. The absence of a waterbody from the 303(d) list does not necessarily mean the waterbody is meeting its designated uses. It may be that it has either not been sampled or there is not enough data to make an impairment determination.

As a part of the NPDES program the City of Lauderdale is required to review all discharges from their MS4 system to impaired waters, as defined by the current USEPA approved 303(d) list. As a part of this review they are required to do the following:

1. Review the Impaired Waters List to determine whether there are any impaired waters located within five miles of the City's boundaries that receive discharge from the City's MS4. For waters that are impaired only for mercury, the review process stops here.
2. Identify the location(s) of discharge(s) from the City's MS4 to the impaired waters. Discharges may include pipes, outlets, ditches, swales, street gutters, or other discrete conveyances for stormwater runoff.
3. Delineate the watershed area within the City's jurisdiction that discharges to each impaired water.
4. Prepare an impaired water evaluation addressing the hydrology, land use, and other characteristics of each watershed area delineated.
5. Prepare an impaired waters report. This report will address the results of the impaired waters evaluation along with a determination of whether changes to the City's SWPPP are warranted to reduce the impact from the City's MS4 stormwater discharge to each impaired water.

6. The City will incorporate the changes identified in the impaired waters report into the City's SWPPP and be reported through the annual reporting process.

At some point a strategy would be developed that would lead to attainment of the applicable water quality standard for these impaired waters. The process of developing this strategy is commonly known as the Total Maximum Daily Load (TMDL) process and involves the following phases:

1. Assessment and listing
2. TMDL study
3. Implementation plan development and implementation
4. Monitoring of the effectiveness of implementation efforts

Responsibility for implementing the requirements of the Federal Clean Water Act falls to the U.S. Environmental Protection Agency. In Minnesota, the EPA delegates much of the program responsibility to the Minnesota Pollution Control Agency (MPCA). Information on the MPCA program can be obtained at the following web address: <http://www.pca.state.mn.us/water/tmdl/index.html>.

The following is an excerpt from the MPCA website describing the program and its need:

*The Clean Water Act requires states to publish, every two years, an updated list of streams and lakes that are not meeting their designated uses because of excess pollutants. The list, known as the 303(d) list, is based on violations of water quality standards and is organized by river basin. Environmental organizations and citizen groups have sued the EPA because states have not made adequate progress to meet Section 303(d) requirements. The EPA has been sued for various reasons. Over the past 10 years, lawsuits have been filed in 42 states and the District of Columbia. Of those, 22 have been successful. There is currently no such lawsuit in Minnesota. However, beyond the federal requirements, there are many reasons for us to move forward with the development of TMDLs. Foremost is the need to clean up our rivers, streams and lakes to maximize their contributions to the state's economy and quality of life and to protect them as a resource for future generations.*

*For each pollutant that causes a water body to fail to meet state water quality standards, the federal Clean Water Act requires the MPCA to conduct a TMDL study. A TMDL study identifies both point and nonpoint sources of each pollutant that fails to meet water quality standards. Water quality sampling and computer modeling determine how much each pollutant source must reduce its contribution to assure the water quality standard is met. Rivers and streams may have several TMDLs, each one determining the limit for a different pollutant.*

Discussion regarding the directives for impaired waters and ultimately TMDL studies addressing the impairments for the waterbodies listed in Table 2.4 is presented in the implementation section (Section 8) of the LSWMP. This section will identify how the City intends to be involved in these directives and the City's strategy for implementing these directives.

## **6.4 NPDES PERMITTING PROCESS**

The MPCA has designated the City of Lauderdale as an NPDES Phase II MS4 community (MN Rules 7090). Lauderdale received permit coverage in 2003, however due to a court hearing the MPCA was required to revise the MS4 permit and cities were required to update their SWPPP to comply with the new permit requirements by June 1st, 2006. The City submitted a revised SWPPP and obtained extension of coverage of their permit in March 2008, which will be effective until 2011 when the current MS4 permit expires. The permit application outlined Lauderdale's Stormwater Pollution Prevention Plan (SWPPP), updated in December 2007, to address six minimum control measures:

1. Public education
2. Public involvement
3. Illicit discharge detection and elimination
4. Construction site runoff control
5. Post-construction runoff control
6. Pollution prevention in municipal operations

The City's SWPPP contains several best management practices within each of the listed control measures. These were identified using a self-evaluation and input process with City staff.

Many of the goals and policies discussed in this Local Water Management Plan are directly related to requirements listed in the NPDES program. As a result, the Goals and Policies section of this plan repeatedly references items listed in the City's SWPPP. Per the requirements of the MS4 Permit, the City will review their SWPPP and update as necessary on an annual basis.

The City will coordinate water resource education effort with outside agencies to complete the City's goals as outlined in their MS4 SWPPP, which may include fulfilling their public education requirements by obtaining educational information and assistance from local WMO's.

## **6.5 SUMMARY OF STORMWATER MANAGEMENT GOALS AND POLICIES**

A summary of the stormwater management policies, including those policies identified in the RCWD, CRWD, and MWMO Watershed Management Plans being applicable to Lauderdale, is included in Appendix D, at the back of this report. Where a specific watershed policy directly impacts the City of Lauderdale, the policy will be incorporated into the City's stormwater management policies in Section 7 of this LSWMP.

## **6.6 COMPARISON OF REGULATORY STANDARDS**

The City is responsible for implementation and enforcement of watershed management standards within the MWMO jurisdictional boundary. The City is also committed to coordinating project review efforts to facilitate RCWD and CRWD permit process. See Figure 2.2 for the location of the jurisdictional boundaries for these WMOs.

Each WMO has established standards governing stormwater management and protection of natural resources. The governing document for these standards for each WMO is identified as follows:



- Rice Creek Watershed District Rules – adopted February 13, 2008
- Capital Region Watershed District Rules – adopted March 5, 2008
- Mississippi Watershed Management Organization WMP Section 6 – Plan adopted 2006

A comparison of current WMO standards, per the governing documents identified above, and the current City stormwater management standards is included in Appendix E. Where the City's standards are not consistent with WMO standards, recommended actions to bring the City's standards into alignment with the WMOs are provided. These actions may require modifications to current City code and therefore, the process to review and update City code will be included as an implementation item in Section 8.

## 6.7 WATER RESOURCE RELATED PROBLEMS AND POSSIBLE CORRECTIVE ACTIONS

An assessment of specific existing and potential water resource-related problems is summarized below. These problems have been identified based on current information available to the City and includes problems identified in any of the documents listed in Section 4 (related studies, plans, and reports). Possible corrective actions have been listed for each problem and those to which the City commits itself are incorporated into an implementation program (Section 8).

In addition to these specific problems, the WMPs for the three WMOs having jurisdiction in Lauderdale also identify general stormwater management issues that apply across the jurisdiction or to a smaller sub-area of their jurisdiction. The City will be incorporating corrective actions to address the applicable general issues into the LSWMP goals and policies (Section 7) and/or stormwater management standards (Section 8), which conform to the goals and policies and stormwater management standards of the WMOs.

**TABLE 6.2 – FLOODING AND STORMWATER RATE CONTROL PROBLEMS**

	Problem, Issue, or Concern	Possible Corrective Action
6.7.2.1	Existing conveyance system on Eustis Street between Larpenteur Avenue and Pond 1	<ul style="list-style-type: none"> <li>• With the reconstruction of Eustis Street, the existing system should be replaced by a continuous storm sewer system tying into the existing storm sewer south of Pond 1.</li> </ul>
6.7.2.2	Risk of flooding homes along Pleasant Street, adjacent to Walsh Lake	<ul style="list-style-type: none"> <li>• Work with the City of Roseville to rehabilitate or replace existing lift station – to be financed by Roseville.</li> <li>• Coordinate additional pipe capacity availability with MnDOT for improvements to the Hwy 280 storm sewer system.</li> <li>• Analyze the possibility of grading an overland EOF to the west.</li> </ul>

**TABLE 6.3 – NATURAL RESOURCES AND WATER QUALITY PROBLEMS**

	Problem, Issue, or Concern	Possible Corrective Action
6.7.1.1	Degraded water quality within Walsh Lake	<ul style="list-style-type: none"> <li>• Harvesting aquatic weeds as necessary.</li> <li>• Cooperate with the efforts of the Rice Creek Watershed District to implement water quality treatment measures to improve the water quality of Walsh Lake.</li> </ul>
6.7.1.2	Disconnection of historic Bridal Veil Creek natural corridor	<ul style="list-style-type: none"> <li>• Cooperate with the efforts of organizations such as the MWMO, Southeast Como Improvement Association (SECIA), St. Anthony Park Community Council (SAPCC), and MnDNR to re-establish a natural corridor between Bridal Veil Pond and the Seminary Pond area.</li> </ul>
6.7.1.3	Lack of native upland and wetland plant diversity in the Seminary Pond area	<ul style="list-style-type: none"> <li>• Cooperate with the efforts of organizations such as the MWMO, SECIA, SAPCC and MnDNR to initiate a native plant restoration project in the Seminary Pond area to control exotic plant species and improve native plant diversity.</li> </ul>
6.7.1.4	Absence of natural stream section downstream of Seminary Pond	<ul style="list-style-type: none"> <li>• Cooperate with the efforts of organizations such as the MWMO, SECIA, SAPCC and MnDNR to replace the existing concrete channel with a natural channel design.</li> </ul>
6.7.1.5	Loss of natural infiltration characteristics within the Bridal Veil Creek system	<ul style="list-style-type: none"> <li>• Cooperate with the efforts of organizations such as the MWMO, SECIA, SAPCC and MnDNR to locate and construct infiltration BMPs in the vicinity of Seminary Pond.</li> </ul>
6.7.1.6	Erosion issues in the ravine draining into Seminary Pond from Fulham Street	<ul style="list-style-type: none"> <li>• Coordinate funding with the City of Falcon Heights to stabilize the existing ravine section using bioengineering techniques.</li> </ul>

## Section 7 – Goals and Policies

### 7.1 SUMMARY

Surface water management issues within the City are primarily defined by the requirements of current or pending programs. The goals and policies outlined in this plan are grouped by their relationship to the key issues listed below:

- Section 7.2 Land Development and Redevelopment – Goals and policies to prevent flooding and adverse impacts to water resources from land disturbance and impervious surfaces.
- Section 7.3 Resource Management – Goals and policies for managing Lauderdale’s wetlands, lakes, and groundwater, to preserve the functions and values of these resources.
- Section 7.4 Citywide Program Elements – Goals and policies for managing water resources and drainage systems on a citywide scale, to effectively achieve surface water management goals.
- Section 7.5 Support of Other Agencies – Goals and policies to coordinate local surface water management with the work of watershed management organizations and state agencies.

### 7.2 LAND DEVELOPMENT AND REDEVELOPMENT

*Overall Goal: Manage land disturbance from new development, redevelopment, street reconstruction projects, or any other public or private land disturbing activity that creates new impervious surface to prevent flooding and adverse impacts to water resources through the cooperation with the stormwater management standards identified by the WMOs with jurisdiction in Lauderdale. To make this process effective, the City will strive through an up-front stormwater assessment and planning process to incorporate best management practices that focus on treating runoff at the source and not in typical end of pipe treatments. The incorporation of these Best Management Practices will coincide with the guidance provided in the Minnesota Stormwater Manual.*

*The upfront stormwater assessment and planning processes implemented at the project submittal stage will include guidance and recommendations for projects to include volume management features at the most ideal locations throughout a projects corridor. At a minimum the City will look to provide pretreatment of stormwater before it enters the existing stormwater system.*

#### 7.2.1 RUNOFF RATE

*Goal: Control the rate of stormwater runoff from development to reduce downstream flooding and erosion.*

Policy: The City will enforce their stormwater management ordinance (see Section 8-4-8) to ensure that the peak rate of runoff from regulated land development or redevelopment does not exceed existing rates for the 2-year, 10-year, and 100-year rainfall events. Rate control below existing rates may be necessary where downstream capacity issues are identified, which will require coordination with the local WMOs.

Policy: The City will require that the maximum duration for rainfall critical event analysis shall be 24 hours. The City will require the use of the hydrograph method of analysis and the SCS Type II storm distribution.

### **7.2.2 FLOOD PREVENTION AND FLOODPLAIN MANAGEMENT**

*Goal: Provide adequate storage and conveyance of runoff and control development in flood prone areas to protect the public safety and minimize property damage.*

Policy: The City will require that the low floor elevation of new structures provide a minimum of 2-feet of freeboard above the 100-year High Water Level (HWL) or 1-foot of freeboard above the emergency overflow of an adjacent pond.

Policy: While no designated floodplains exist in Lauderdale, consistent with the policy on page 65 in the MWMO WMP, the City requires that encroachment into floodways that reduces conveyance capacities or expedites flood flows not be allowed.

### **7.2.3 RUNOFF VOLUME**

*Goal: Reduce pollutant loads and impacts to water bodies and encourage groundwater recharge, by reducing the volume of stormwater runoff from development and redevelopment areas*

Policy: The City will defer the enforcement of volume control requirements to those of either RCWD or CRWD for new and redevelopment activities within these jurisdictions. For new or redevelopment areas within the jurisdiction of the MWMO, the City will require infiltration of 0.5-inches of runoff from new impervious surface, taking into consideration site limitations such as soil conditions, depth to groundwater, safety, snow removal, and maintenance issues.

Policy: The City will review and update City code as necessary to ensure that volume control standards are consistent with current engineering practices and current regulations of local and state agencies having jurisdiction within the City.

*Goal: Reduce the volume of stormwater runoff from existing developed areas.*

Policy: The City will coordinate efforts with the local WMO to minimize impervious surfaces where feasible when reconstructing streets and other paved surfaces and provide volume control mitigation per WMO requirements.

Policy: Where practical, the City will encourage the use of infiltration systems that promote water conservation and reuse to reduce discharge volumes and conserve groundwater in existing developed areas, taking into consideration site limitations such as soil conditions, depth to groundwater, safety, snow removal, and maintenance issues.

### **7.2.4 NUTRIENT AND SEDIMENT LOADING**

*Goal: Reduce the nutrient and sediment loads discharged from land development or redevelopment.*

Policy: The City will strive for the nondegradation of receiving waters within the City by enforcing current stormwater management standards, in cooperation with the local WMOs stormwater management standards.

Policy: The City will defer the enforcement of nutrient and sediment load requirements to those of either RCWD or CRWD for construction activities within these jurisdictions. For construction activities within the jurisdiction of the MWMO, the City will require nutrient and sediment load reductions consistent with the Nationwide Urban Runoff Program (NURP) or Minnesota Pollution Control Agency Best Management Practices in the design and construction of new or modifications to existing stormwater conveyance systems. Under no circumstances shall overall treatment of a development or redevelopment site fall below 50% post-development removal for phosphorous and 80% post-development removal for total suspended solids. This policy is consistent with BMP 5-1 in the City's SWPPP.

Policy: The City will review and update the stormwater management ordinance (see City Code Section 8-4-8) as necessary to ensure that water quality treatment standards are consistent with current engineering practices and current regulations of local and state agencies having jurisdiction within the City.

Policy: The City will enforce their stormwater management ordinance (see City Code Section 8-4-8) requiring outlet skimming up to the 1-year storm event HWL in all new stormwater ponds.

#### **7.2.5 EROSION AND SEDIMENT CONTROL**

*Goal: Prevent sediment from construction sites from entering the City's surface water resources.*

Policy: The City will implement, update and enforce the Erosion and Sediment Control Ordinance as outlined in the NPDES, MS4 permit. This policy is consistent with BMP 4-3 in the City's SWPPP.

Policy: The City will require that erosion and sediment control practices are consistent with the standards identified in the current MPCA Construction General Permit and the Minnesota Stormwater Manual. This policy is consistent with BMP 4-3 in the City's SWPPP.

### **7.3 RESOURCE MANAGEMENT**

*Overall Goal: Protect the City's wetlands, lakes, streams, groundwater, and natural areas to preserve the functions and values of these resources for future generations through the Wetland Conservation Act, buffer standards, groundwater protection rules and coordination with outside agencies.*

#### **7.3.1 WETLAND MANAGEMENT**

*Goal: Protect and preserve wetlands to maintain or improve their function and value.*

Policy: The City will continue to administer WCA responsibilities within the City to ensure no net loss of wetland functions and values and will coordinate wetland restoration activities with the local WMOs.

Policy: The City will require that runoff from development and redevelopment projects be pre-treated prior to discharge to wetlands. This policy is consistent with BMPs 4-1 and 5-2 in the City's SWPPP.

Policy: The City will require that, prior to development activities or public projects, a wetland delineation must be completed, including a field delineation and report detailing the findings of the delineation.

Policy: The City will require that a wetland assessment be prepared for any project that includes a wetland not already assessed. Minnesota Routine Assessment Methodology (current version) is the required method of assessment for evaluating wetland functions and values.

Policy: The City will require that new or re-development activities provide a minimum 25-foot non-impacted wetland buffer to existing wetlands.

### **7.3.2 LAKE MANAGEMENT**

*Goal: Improve water quality and protect resource values of lakes.*

Policy: The City will cooperate with RCWD to identify possible activities to improve water quality in Walsh Lake.

### **7.3.3 STREAM MANAGEMENT**

*Goal: Improve water quality, provide wildlife habitat and protect the resource value of streams.*

Policy: The City will support the efforts of the MWMO to restore the historic natural stream section within the Bridal Veil Creek system in the vicinity of Seminary Pond.

### **7.3.4 GROUNDWATER RECHARGE AND PROTECTION**

*Goal: Protect groundwater resources and groundwater-dependent surface water and natural resources.*

Policy: The City will cooperate with Ramsey County, the Minnesota Department of Health, and the local WMOs to identify and protect critical groundwater resources areas.

Policy: The City will cooperate with other agencies to implement the recommendation identified in the Ramsey County Groundwater Quality and Protection Plan.

Policy: The City will support the efforts of the MWMO to restore lost infiltration features within the Bridal Veil Creek system.

### **7.3.5 NATURAL AREA MANAGEMENT**

*Goal: Protect and enhance natural areas within the City to provide wildlife habitat and water resource benefits.*

Policy: The City will support programs to maintain and restore the resource value of natural areas and enhance water based recreational opportunities.

Policy: The City will support the efforts of the MWMO to re-establish a natural corridor between Bridal Veil Pond and the Seminary Pond area.

## **7.4 CITYWIDE PROGRAM ELEMENTS**

*Overall Goal: Manage water resources and drainage systems on a citywide scale, including monitoring and maintenance of drainage systems, targeted pollution prevention, public education, system reconstruction projects, and equitable collection of supporting funds.*

### **7.4.1 POLLUTION PREVENTION**

*Goal: Detect and address urban pollutants discharged to storm sewers.*

Policy: The City will actively implement the NPDES Stormwater Pollution Prevention Plan as stated in the most current version of the MS4 permit.

Policy: The City will maintain an effective spill response plan. This policy is consistent with BMP 3-6 in the City's SWPPP.

Policy: The City will complete employee training in the operation, maintenance and inspection of stormwater facilities, as included in the SWPPP. This policy is consistent with BMP 6-8 in the City's SWPPP.

Policy: The City will monitor stormwater system facilities for pollutants as outlined in the City's SWPPP. This policy is consistent with BMPs 6-3, 6-4, and 6-5 in the City's SWPPP.

### **7.4.2 MONITORING AND MAINTENANCE**

*Goal: Maintain the function and effectiveness of stormwater management structures through monitoring and maintenance.*

Policy: The City will continue to conduct annual street sweeping. This policy is consistent with BMP 6-2 in the City's SWPPP.

Policy: The City will continue inspection and maintenance of the city's stormwater conveyance and ponding system as outlined in the City's SWPPP. This policy is consistent with BMP 6-3, 6-4, and 6-5 in the City's SWPPP.

Policy: The City will inspect and monitor the construction and installation of all new stormwater facilities and require that such facilities be surveyed to create as-built drawings.

### **7.4.3 PUBLIC EDUCATION**

*Goal: Inform and educate residents about stormwater pollution, the effects of urban runoff and the need to protect natural resources.*

Policy: The City will implement a public education and outreach program as identified in the City's NPDES permit. This policy is consistent with BMPs 1-1 to 1-7 in the City's SWPPP.

Policy: The City will coordinate public education work with the Ramsey Conservation District and local WMOs. This policy is consistent with BMP 1-10 in the City's SWPPP.

Policy: The City will promote citizen and volunteer efforts to protect, restore and enhance local water and natural resources. This policy is consistent with BMP 2-1 in the City's SWPPP.

Policy: The City will use available opportunities through its newsletter, public meetings, website, Comprehensive Plan, or interpretive elements at parks and open space sites to inform its residents about the value of local water resources, the effects of stormwater runoff, and opportunities for stewardship of water and natural resources. This policy is consistent with BMPs 1-1 to 1-7 in the City's SWPPP.

#### **7.4.4 FUNDING**

*Goal: Secure adequate funding to support implementation of the Surface Water Management Plan.*

Policy: The City will fund implementation of the plan with revenue from the stormwater utility. The City will periodically review utility rates to ensure that funding is adequate and fees are equitably distributed.

Policy: The City will seek grant funds or other resources to assist with special projects or implementation of plan goals.

#### **7.5 SUPPORT OF OTHER AGENCIES**

*Overall Goal: Cooperate and coordinate local surface water management with the work of local WMOs and state agencies.*

*Goal: Facilitate WMO review of development projects and enforcement of watershed standards.*

Policy: The City will coordinate development review activities with the appropriate local WMO. The City will defer to the CRWD and RCWD for review and enforcement of stormwater management standards for construction projects in accordance with the permit programs of these organizations. The City will notify and include the applicable WMO in development concept reviews. This policy is consistent with BMPs 4-1 and 5-2 in the City's SWPPP.

*Goal: Cooperate with other organizations to complete management plans and studies for water resources in Lauderdale.*

Policy: The City will work with local WMOs, Ramsey County, and others when appropriate and as resources are available to participate in resource management plans or studies that benefit water and natural resources in Lauderdale.

*Goal: Cooperate with other organizations working to protect groundwater resources.*

Policy: The City will cooperate with the County and WMOs to implement the recommendations of the Ramsey County Groundwater Quality and Protection Plan, to protect groundwater quality by reducing the potential for transport of stormwater pollutants into the groundwater, and maintaining the functions of groundwater recharge areas.

*Goal: Cooperate with the Mississippi Watershed Management Organization in addressing existing TMDL's and new TMDL as they are identified for the Mississippi River.*



Policy: The City will cooperate with the Mississippi Watershed Management Organization in an assessment of current and future demands on the stormwater infrastructure and how it might affect future Capitol Improvement Projects (CIP). These evaluations could include:

- Analyzing the affect of a proposed project on the downstream conveyance system and drainage area.
- Identify any future problems that may arise from additional project related stormwater demands on the system.
- An analysis on potential stormwater Best Management Practices they may be included with CIP projects that will reduce volume demands on the stormwater conveyance system and drainage areas and pretreat water entering into the system.

## Section 8 – Implementation

### 8.1 OVERVIEW

The City has developed an implementation program based on the information developed in earlier sections of this Local Surface Water Management Plan. This program reflects the needs and concerns of many stakeholders including the City Council, City Staff, citizens, watershed management organizations, and funding capabilities.

This Section summarizes the implementation items identified in Sections 6 and 7 of this LSWMP, prioritizes these items, and presents a preliminary cost estimate to complete the items based on the best available information. It should be noted that estimated costs presented in the section are preliminary only and are presented for long-term budget planning purposes.

### 8.2 IMPLEMENTATION ACTIVITIES

The City's current, overall Capital Improvement Plan includes several projects that address issues identified in Section 5 and goals and policies identified in Section 6. A summary of those projects is provided in Table 8.1, showing proposed start year, priority level, and budgeted cost. The City will use the implementation project information presented in Table 8.1 to update their current CIP, as necessary. The City updates the Capital Improvement Plan on an annual basis.

### 8.3 OTHER FUTURE IMPLEMENTATION ACTIVITIES

This section includes other future implementation activities not identified in Table 8.1 above. These activities generally include coordination efforts with other agencies or potential future activities that have yet to be finalized. These future implementation activities identified below are relevant to overall stormwater management within the City and should be considered in future Capital Improvement Plan discussions. Specific information regarding the most current local WMO cost share programs can be found on their websites, as follows:

- Rice Creek Watershed District: [www.ricecreek.org/grants](http://www.ricecreek.org/grants)
- Capitol Region Watershed District: [www.capitolregionwd.org/Programs.htm](http://www.capitolregionwd.org/Programs.htm)
- Mississippi Watershed Management Organization: [www.mwmo.org/stewardshipfund.html](http://www.mwmo.org/stewardshipfund.html)

#### 8.3.1 COORDINATE WITH RCWD TO ADDRESS DEGRADED WATER QUALITY IN WALSH LAKE

As part of the 2002 Utility and Street Improvement Project, the City removed approximately 500 cubic yards of sediment that had deposited near pond inlets. The City is interested in partnering with the RCWD to complete both in-lake vegetation management and water quality retrofit projects aimed at improving the water quality of Walsh Lake. The RCWD identifies specific programs on their website ([www.ricecreek.org](http://www.ricecreek.org)) that could be applied toward partnering with Lauderdale, including:

- RCWD – Urban Stormwater Remediation Cost-Share Program
- RCWD – BMP Cost-Share Program

**TABLE 8.1 – IMPLEMENTATION PROGRAM**

Activity #	Activity	Activity Description	Proposed Start	Priority Level	Budgeted Cost
1	Wetland Inventory and Assessment	Complete a Wetland Inventory and Assessment of wetlands in Lauderdale – cost will depend on level of detail, deliverables, and cost participation from the local WMOs	2010	Medium	\$2,000
2	Impaired Waters Report	Conduct an impaired waters evaluation and prepare an impaired waters report, per BMP 7-3 – Assume 2 separate reports will be necessary	2010	Medium	\$8,000
3	Seminary Pond Ravine Stabilization	Stabilize the eroding ravine section upstream of Seminary Pond toward Fulham Street using bioengineering techniques – outside funding from various organizations should be sought	2012	Low	\$80,000
4	Eustis Street Storm Sewer Improvements	Replace the existing overland conveyance system on Eustis Street between Larpenteur Avenue and Pond 1 with a continuous storm sewer system	2011	Medium	To be negotiated with the county.
5	Reduce Walsh Lake Flood Risk	Reduce the flood risk to homes along Pleasant Street, adjacent to Walsh Lake – rehabilitation or replacement of the existing lift station (at the City of Roseville's cost) should be done prior to other improvements	2011	Medium	\$20,000
6	Review and Update City Code	Review city code and update as necessary to comply with local WMO and state stormwater management standards and rules	2010	Medium	\$3,000
7	Complete Staff Training	Complete city staff training in the operation, maintenance and inspection of stormwater facilities	2009	Medium	\$1,000
8	General Inspection and Maintenance Program	General inspection and maintenance of the City's stormwater management system, including: <ul style="list-style-type: none"> <li>• Annual street sweeping<sup>1</sup></li> <li>• Inspection and maintenance of ditches, ravines, and storm sewer</li> <li>• Inspection and maintenance of stormwater basins and outfalls</li> <li>• Inspection and maintenance of structural pollution devices</li> </ul>	Ongoing	High	\$50,000
9	Public Education and Outreach Program	Develop and maintain a public education and outreach program to provide stormwater management education opportunities for City residents	Ongoing	High	\$5,000 annually
10	Illicit Discharge Detection and Elimination Ordinance	Review city code and update as necessary to address the NPDES illicit discharge detection and elimination ordinance requirements	2008	High	\$2,000
11	Site Erosion Control Ordinance	Review city code and update as necessary to address the NPDES construction site erosion control ordinance requirements	2008	High	\$3,000
12	Stormwater Management Ordinance	Review city code and update as necessary to address the NPDES stormwater management ordinance requirements	2008	High	\$3,000
13	Sanitary Infiltration/ Inflow Program	Develop a program to detect and address infiltration or inflow connections into the sanitary sewer system	Ongoing	Medium	\$21,000

<sup>1</sup>Within the context of the City's annual MS4 SWPPP review and in light of future TMDL studies, the City will consider increasing their street sweeping frequency.

### **8.3.2 FUTURE TOTAL MAXIMUM DAILY LOAD (TMDL) STUDIES**

As discussed in Section 2.6.4, at this time there are no water bodies within Lauderdale that are listed on the Minnesota Pollution Control Agency's list of impaired waters; lakes and streams in the state that do not meet federal water quality standards. However, drainage from Lauderdale ultimately discharges into a number of impaired waters: Pike Lake, Long Lake, Rice Creek, and the Mississippi River.

The City recognizes that the responsibility for completion and implementation of the TMDL studies lies with the primary stakeholders contributing to the impairment. The City intends to cooperate with the watersheds in the development of the TMDL studies, acknowledging that the watersheds will take the lead on these studies. It is the intention of the City to fully implement the items/actions identified in future TMDL Implementation Plans, funding the implementation items/actions as necessary.

### **8.3.3 NATIVE PLANT RESTORATION PROJECTS**

Native plant restoration in the Seminary Pond area to control exotic plant species and improve native plant diversity is identified as an implementation item in the *Bridal Veil Creek Subwatershed Desk Study* published by the MWMO. The City will likely look for the MWMO and other organizations to initiate a native plant restoration project in the Seminary Pond area, but is willing to provide assistance to these organizations as necessary once specific projects are identified.

### **8.3.4 REESTABLISHMENT OF NATURAL CORRIDOR**

Reestablish a natural corridor between Bridal Veil Pond and the Seminary Pond area is identified as an implementation item in the *Bridal Veil Creek Subwatershed Desk Study* published by the MWMO. The City will look for the MWMO and other organizations to initiate a project to reestablish the natural corridor between Bridal Veil Pond and the Seminary Pond area, as this action is regional in nature and will require substantial funding for land acquisition and site modifications. The City is willing to provide assistance to these organizations as necessary once specific projects are identified.

### **8.3.5 REDEVELOPMENT WATER QUALITY STANDARDS**

Develop redevelopment water quality standards that seek to improve the existing water quality treatment capabilities of the site being redeveloped beyond current City redevelopment standards. A number of programs are identified in the local WMOs implementation plans that could provide partnering funds to address redevelopment water quality standards. A few of the available programs are as follows:

- MWMO – Watershed Assessment Program
- CRWD – Urban Redevelopment

### **8.3.6 URBAN WATER QUALITY RETROFIT PROJECTS**

The City will look for opportunities in developed areas to install retrofit water quality improvement BMPs to improve the overall water quality in the City. A number of programs are identified in the local WMOs implementation plans that could provide partnering funds to locate, design, and install retrofit BMPs. A few of the available programs are as follows:

- MWMO – Greening for Water Quality Program
- MWMO – Stewardship Fund Program
- MWMO – Water Reuse and Conservation Program

- RCWD – Urban Stormwater Remediation Cost-Share Program
- RCWD – BMP Cost-Share Program
- CRWD – Utilizing Urban BMP's and Retrofitting

#### **8.4 POTENTIAL FUNDING**

Implementation of the proposed studies, programs, and improvements identified in this plan will affect City finances. To quantify this effect, a review of the ability of the City to fund these studies, programs, and improvements is required.

Below is a listing of various sources of revenue that the City will attempt to utilize:

- Existing storm water utility
- Grant and partnership monies possibly secured from various agencies for projects
- General fund
- Project funds could be obtained from watershed district levies as provided for in Minnesota Statutes Chapter 103D.905 for those projects being completed by or in cooperation with the RCWD or CRWD.
- Special assessments for local improvements performed under authority of Minnesota Statutes Chapter 429.
- Revenue generated by Watershed Management Special Tax Districts provided for under Minnesota Statutes Chapter 473.882.
- Other sources potentially including tax increment financing, tax abatement, state aid, and others.

The City's storm water utility is the primary source for the studies, programs, and improvements identified in this Plan.

## Section 9 – Administration

### 9.1 REVIEW AND ADOPTION PROCESS

Review and adoption of this Surface Water Management Plan will follow the procedure outlined in Minnesota Statutes 103B.235:

‘After consideration but before adoption by the governing body, each local government unit shall submit its water management plan to the watershed management organization[s] for review for consistency with the watershed plan. The organization[s] shall have 60 days to complete its review.’

‘Concurrently with its submission of its local water management plan to the watershed management organization, each local government unit shall submit its water management plan to the Metropolitan Council for review and comment. The council shall have 45 days to review and comment upon the local plan. The council’s 45-day review period shall run concurrently with the 60-day review period by the watershed management organization. The Metropolitan Council shall submit its comments to the watershed management organization and shall send a copy of its comments to the local government unit.’

‘After approval of the local plan by the watershed management organization[s], the local government unit shall adopt and implement its plan within 120 days, and shall amend its official controls accordingly within 180 days.’

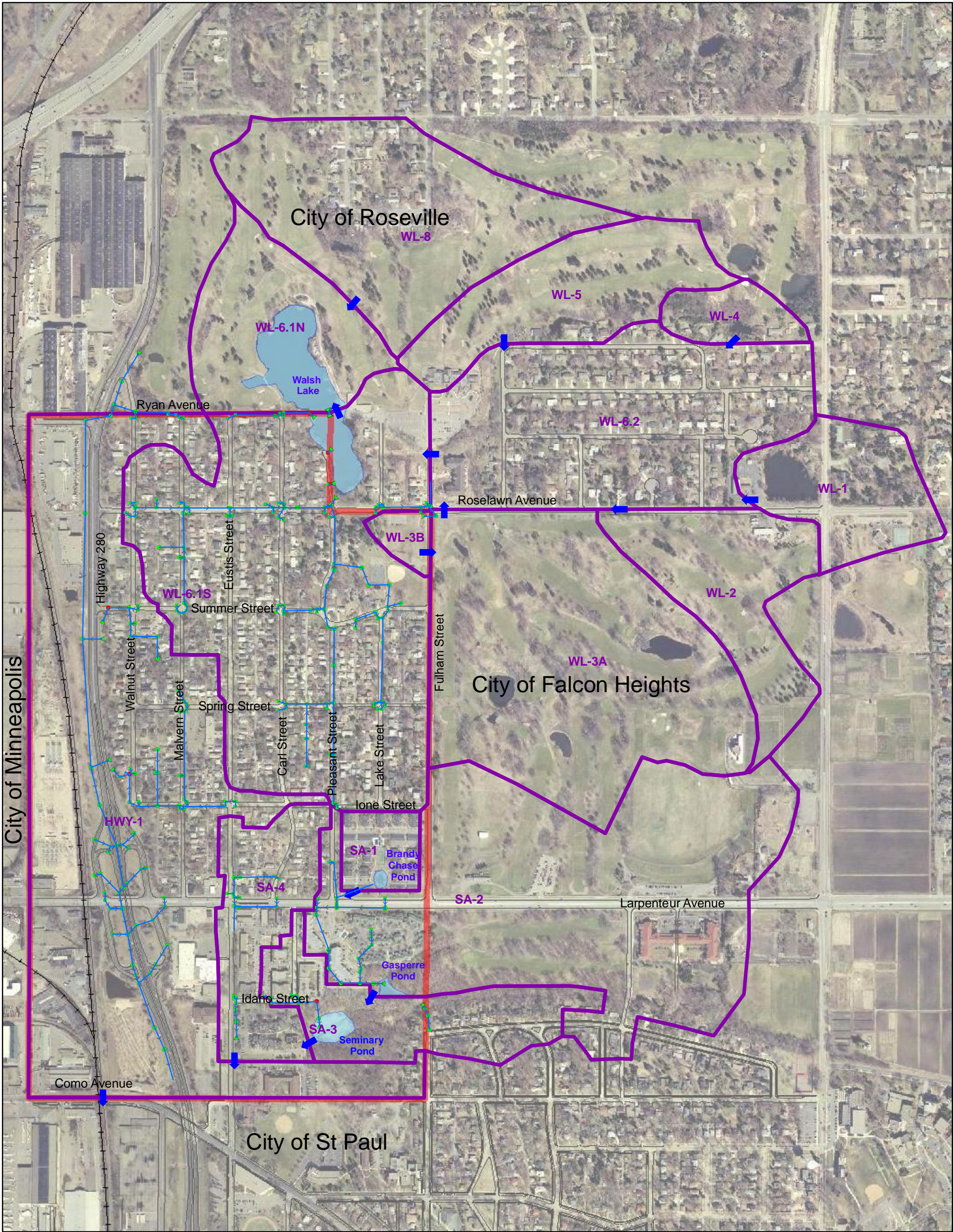
### 9.2 AMENDMENTS TO PLAN AND FUTURE UPDATES

This Local Surface Water Management Plan will be incorporated into the City’s 2008 Comprehensive Plan update and will be applicable until 2018, at which time an updated plan will be required. Periodic amendments may be required to incorporate changes in local practices. In particular, changes in the three applicable Watershed Management Plans may require revisions to this plan. Plan amendments will be incorporated by following the review and adoption steps outlined above.

# Appendix A

## Stormwater Management System Information





- Catch Basin
- Catch Basin Sump
- ▲ Flared End Section
- Manhole
- Manhole Sump
- ➔ Drainage Direction
- Stormsewer
- ▭ Drainage Areas
- ▭ City Stormwater Basin
- ▭ Lauderdale City Boundary
- ▭ Parcels

City of Lauderdale

Local Surface Water Management Plan  
Map 1  
Stormwater System Map



600 0 600 Feet

August 2008



**Appendix A - Stormwater Pond System Information**

Drainage Area ID	Tributary Area			Basin NWL (feet)	100-year Storm Event				Pond Area		Outlet Size	Comments
	Direct	Indirect from Upstream	Total		Total Runoff Volume	HWL	Storage Volume	Peak Outflow	At NWL	At 100yr HWL		
	(acres)	(acres)	(acres)		(ac-ft)	(feet)	(ac-ft)	(cfs)	(acres)	(acres)		
HWY-1	128.7	0.0	128.7	--	42.5	--	--	--	--	--	--	Drainage area to Highway 280 ROW - Estimated 100-year storm event runoff volume based on 57% impervious cover
SA-1	6.4	0.0	6.4	967.2	1.7	969.9	0.5	8.8	0.1	0.2	15" pipe	Brandy Chase pond
SA-2	94.3	6.4	100.6	934.0	24.2	942.6	5.3	75.9	0.3	1.1	18" pipe	Gasperre pond - pond emergency overflow at 941.6 is utilized during the 100-year event
SA-3	22.9	100.6	123.5	905.5	29.8	912.7	5.1	45.8	0.1	1.5	24" pipe	Luther Seminary pond
SA-4	20.4	123.5	143.9	894.2	36.3	898.6	1.0	94.7	0.0	0.5	24"/36" pipe	Luther Seminary parking lot - discharges to St Anthony tunnel system
WL-1	20.6	0.0	20.6	977.5	5.2	978.5	2.4	5.5	2.5	2.6	12" pipe	Drainage area split between Falcon Heights and Roseville
WL-2	26.2	0.0	26.2	--	4.2	--	--	--	--	--	To WL-3A	Drainage area in Falcon Heights, no pond information provided
WL-3A	76.3	29.3	105.6	--	16.8	--	--	13.4	--	--	18" pipe	Drainage area in Falcon Heights, no pond information provided
WL-3B	3.0	0.0	3.0	928.2	0.3	933.6	0.2	4.0	0.0	0.1	21" pipe	Community Park area
WL-4	7.2	0.0	7.2	961.1	1.2	961.7	0.4	2.8	0.5	0.8	12" pipe	Drainage area in Roseville
WL-5	27.4	0.0	27.4	938.5	4.5	940.8	2.0	3.7	0.6	1.0	12" pipe	Drainage area in Roseville
WL-6.1N	28.0	370.2	398.2	925.5	83.0	930.3	53.1	16.2	5.7	9.7	12"/18" pipe and LS	Drainage area in Roseville - north lobe of Walsh Lake, 12" and 18" outlets to Hwy 280 ROW and LS pumped north into Roseville
WL-6.1S	99.6	220.6	320.2	925.5	69.3	930.3	21.3	388.3	2.5	3.3	3-18" pipes	South lobe of Walsh Lake - drains into north lobe via 3-18" equilizer pipes and overflow at 927.57
WL-6.2	59.8	55.2	115.0	--	26.4	--	--	138.9	--	--	18"/36" pipe	Drainage area in Roseville - manhole location, no pond information provided
WL-8	49.9	0.0	49.9	927.2	8.9	930.6	2.9	15.6	0.8	0.9	24" pipe	Drainage area in Roseville

## Appendix B

### Water Resources Related Agreements

1. Agreement Between Lauderdale and MnDOT – Highway 280
2. Agreement Between Lauderdale and the City of Roseville
3. Joint and Cooperative Agreement for the Mississippi Watershed Management Organization

AGREEMENT

This is an agreement by and between the Village of Roseville, a municipal corporation of the State of Minnesota, hereinafter referred to as "Roseville" and the Village of Lauderdale, a municipal corporation of the State of Minnesota, hereinafter referred to as "Lauderdale".

RECITAL

Roseville has ordered plans and specifications prepared for a storm sewer project known as Improvement 72-15.

Roseville has been advised by the State of Minnesota Department of Highways, hereinafter called the "State", that it is the opinion of the State that some discharge of water may as a result of the above improvement flow into a storm sewer on Trunk Highway 280 between Ione Street and Sather Street in Lauderdale, hereinafter called the "State Storm Sewer".

Lauderdale and the State have previously entered into an agreement dated March 22, 1954, and designated the Minnesota Highway Department agreement No. C-1248 (Department of Administration Contract No. I-879). This agreement was modified by an agreement dated December 12, 1956 being agreement Minnesota Highway Department agreement No. C-1245 (Department of Administration Contract No. I-879). The agreement referred to above between Lauderdale and the State provided that Lauderdale would make a payment to the State for the right to discharge certain waters into the State Storm Sewer.

The purpose of this agreement is to provide the basis upon which Lauderdale will give its consent to the sharing of its right by Roseville to discharge water into the State Storm Sewer as permitted by the above-mentioned two agreements.

Storm water from Lauderdale flows to Walches Lake as do the storm waters from Roseville and other areas. Lauderdale will be benefited by the Improvement 72-15 as contemplated by Roseville because some storm water originating in Lauderdale will be disposed of through the proposed Roseville system.

Lauderdale desires to avoid any claims against it by Roseville for the disposal of storm water originating in Lauderdale through the contemplated Roseville storm water system. Through the use of Lauderdale's existing capacity in the State Storm Sewer and the use of Roseville's contemplated Improvement 72-15, the two communities, acting cooperatively, can discharge of the anticipated storm water coming into Walches Lake from both communities.

The State Storm Sewer now discharges into the area of Minneapolis and St. Paul. It is the intention of the parties that any claim by either Minneapolis or St. Paul or by any other party, by reason of water coming from the geographical area of Roseville through the State Storm Sewer, will be the responsibility of Roseville and that Roseville will hold Lauderdale harmless against any such claim.

NOW THEREFORE, it is hereby agreed by and between the parties:

1. Lauderdale hereby consents and agrees to share with Roseville in the exercise of Lauderdale's right to discharge water into the State Storm Sewer, as provided by the agreements referred to in the recital. Such consent and agreement is for the discharge of the storm water of Lauderdale and Roseville into the State Storm Sewer through facilities comprising a part of Roseville's Improvement 72-15.

2. Roseville consents and agrees to the disposition of storm water originating in Lauderdale through facilities constructed by Roseville and Roseville waives any claim against

Lauderdale for the incidental use of Roseville's said storm sewer facilities for the disposition of storm water originating in Lauderdale, as shown by drawing no. 1, Storm Draining Study for Improvement 72-15 dated March 1973 attached hereto and marked Exhibit "A" and made a part hereof.

3. Lauderdale will forward to the State of Minnesota a resolution, letter or other appropriate document informing the state that Lauderdale's right to discharge water into the State Storm Sewer is being shared with Roseville and may be exercised by the discharge of water coming from Roseville into the State Storm Sewer by reason of Roseville's Improvement 72-15.

4. Roseville agrees that it will hold Lauderdale harmless from all claims and causes of action arising out of water discharged from the geographical area of Roseville into said State Storm Sewer from any persons or corporations, public or private, including the State of Minnesota and including any persons who may suffer any damage as a result of such water, whose land eventually receives water from the State Storm Sewer. This hold harmless agreement does not apply to any water coming from the geographical area of Lauderdale.

5. Roseville agrees that it will let the contract for Improvement 72-15. Lauderdale will not make any cash contribution to Improvement 72-15.

VILLAGE OF LAUDERDALE

By

*Robert C. Wiser*  
Its Mayor

By

*Laurel P. Peters*  
Its Clerk

VILLAGE OF ROSEVILLE

By

*G. Dale Lumbarger*  
Its Mayor

*John G. Kymor*  
Its Manager

RESOLUTION

BE IT RESOLVED that the (Village) ~~(City)~~ enter into an agreement with the State of Minnesota, Department of Highways for the following purposes, to-wit:

to provide for modification and extension of planned storm sewer construction by the State along Trunk Highway No. 280, permission by the State to the Village to connect a proposed storm sewer to drain the natural lake reservoir easterly of said trunk highway at Sather Street, and for payment by the Village to the State of part of the cost of said revision to said Trunk Highway storm sewer to not to exceed \$32,000.00 payable in six annual installments.

BE IT FURTHER RESOLVED that the (President) ~~(Mayor)~~ and Clerk be and they hereby are authorized to execute such agreement.

CERTIFICATION

State of Minnesota

County of Ramsey

Village of

~~Land~~ Landordale

I hereby certify that the foregoing Resolution is a true and correct copy of the resolution presented to and adopted by the Council of the (Village) ~~(City)~~ of Landordale at a duly authorized meeting thereof held on the 18<sup>th</sup> day of March 1954, as shown by the minutes of said meeting in my possession.

Notary

Helma G. Gundersen  
(Village) ~~(City)~~ Clerk

WHEREAS, this Council has heretofore given only conditional approval to the plans and specifications for the construction of T. H. 280 through the Village of Lauderdale, conditioned upon satisfactory provision for the drainage of surface water from the Village, and

WHEREAS, it appears in the best interests of this Village to enter into an agreement for the construction of such storm water facilities in the proposed highway right-of-way, by the Minnesota Department of Highways, as part of the highway construction project, with the Village sharing in the cost of construction of such storm water facilities.

NOW THEREFORE BE IT RESOLVED, that the Council of the Village of Lauderdale, Ramsey County, Minnesota, as follows:

1. That this Council herewith declares its approval of an agreement with the Commission of Highways which would provide for the following:
  - A. The construction by the Department of Highways of a storm sewer and appurtenances on the said right-of-way, of a size and depth adequate for the purpose intended, extending as far north as Sather Street.
  - B. A permanent right in the Village to use said storm sewer during off-peak-load periods as an outlet for a Village storm sewer, draining from the ponding area in the vicinity of Sather and Carl Streets, such Village storm sewer to join the highway storm sewer at or near the intersection of T. H. 280 and Sather Street.
  - C. The payment by the Village of the amount of cost of such extension along the said right-of-way from Ione Street extended to Sather Street, the cost of five manholes located on such extension, approximately \$1,820.00 for the lowering of the presently designed storm sewer south of Ione Street, and for engineering and contingencies, the sum of which cost is estimated at \$32,000.00; provided that such payment shall not exceed \$32,000.00; and provided also that such payment shall be made in six equal annual installments, the first of which shall be made upon execution of the contract for construction of such extension.
2. That the plans and specifications for storm sewer construction shall be modified to the extent necessary to make provision for such extension, lowering, etc.; and that upon approval of such an agreement by the Commissioner of Highways and upon execution of

an agreement embodying the aforementioned provisions, the approval by this Council of the aforementioned plans and specifications as so modified shall be automatic and unconditional.

Passed this 11th day of March, 1954.

\_\_\_\_\_  
Clerk

*Wm. J. Mikala*  
\_\_\_\_\_  
Mayor

STATE OF MINNESOTA       )  
COUNTY OF RAMSEY        ) ss  
VILLAGE OF LAUDERDALE   )

I, Helma Gunderson, being the duly qualified and acting Clerk of the Village of Lauderdale, do hereby certify that I have examined the attached and foregoing copy of a Resolution Relating to Approval of Highway Plans and Construction of Storm Sewer and have compared the same with the original on file and of record in my office.

I further certify that the same is a true and correct copy of a resolution so entitled duly passed by the Village Council of the Village of Lauderdale at a special meeting held in said Village on the 11th day of March, 1954.

\_\_\_\_\_  
Helma Gunderson, Village Clerk  
Village of Lauderdale  
Ramsey County, Minnesota

(Village Seal)



RESOLUTION

BE IT RESOLVED that the (Village) (~~City~~) enter into an agreement with the State of Minnesota Department of Highways for the following purposes, to-wit:

to supplement the Agreement between the State and the City dated March 22, 1954, relative to construction on Trunk Highway No 280, to provide for pumping storm waters into the trunk highway storm sewer at Roselawn Avenue until such time as the Village constructs the sewer contemplated in said Agreement of March 22, 1954.

BE IT FURTHER RESOLVED that the (President) (~~Mayor~~) and Clerk be and they heroby are authorized to execute such agreement.

State of Minnesota

County of Sanborn

(Village) ~~or~~

(~~City~~) Lauderdale

I hereby certify that the foregoing resolution is a true and correct copy of resolution passed and adopted by the Council of the (Village) (~~City~~) of Lauderdale at a regular meeting thereof held on the 1st day of June, 1954, as shown by the minutes of said meeting.

(Seal)

Helma Lunderson  
(Village) (~~City~~) Clerk



# **Joint and Cooperative Agreement for the Mississippi Watershed Management Organization**

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City of Minneapolis



City of St. Paul



City of St. Anthony



City of Lauderdale



Minneapolis Park and Recreation Board

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January 2002

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## Membership

This Agreement entered into as of the date of execution by and among the following:

Cities of

Lauderdale  
Minneapolis  
St. Anthony  
Saint Paul

and the Minneapolis Park and Recreation Board for the establishment of a Watershed Management Organization. The aforementioned cities and the Minneapolis Park and Recreation Board shall hereinafter be referred to as Members.

WHEREAS, the Members have authority pursuant to Minnesota Statutes, Section 471.59 to jointly and cooperatively by agreement exercise powers common to the contracting bodies pursuant to Minnesota Statutes, Section 103B.201 to 103B.251 and

WHEREAS, the Members desire to plan a comprehensive water management program in accordance with Minnesota Statutes, Sections 103B.201 to 103B.251;

NOW THEREFORE, the parties to this Agreement do mutually agree as follows:

# **Article I**

## **Legal Purpose**

The purpose of this Joint and Cooperative Agreement for the Mississippi Watershed Management Organization is to replace the Joint Powers Agreement for the Middle Mississippi River Watershed Management Organization executed in 1985 and the Joint and Cooperative Agreement for the Middle Mississippi River Watershed Management Organization of January 1997.

The purpose of the Mississippi Watershed Management Organization, as provided for in this Agreement, is to provide for the wise, long-term management of water and associated land resources within the watershed through implementation measures that realize multiple objectives, respect ecosystem principles, and cultural and historical community values. The Mississippi Watershed Management Organization seeks to: (a) protect, enhance, and restore the quality and quantity of surface and ground water resources within the Mississippi Watershed Management Organization jurisdiction; (b) protect, preserve, and use natural surface and ground water storage and retention systems; (c) efficiently utilize public capital expenditures needed to correct and control flooding and water quality problems; (d) identify and plan for means to use protect and improve surface and ground water quality; (e) establish more uniform local policies and official controls for surface and ground water management; (f) promote ground water recharge; (g) protect and enhance fish and wildlife habitat and water recreation facilities; (h) secure the other benefits associated with the proper management of surface and ground water; and (i) promote and encourage cooperation among Members and among other organizations in coordinating local comprehensive water management programs.

A legal description and map of the boundaries of the Mississippi Watershed Management Organization are included pursuant to Minnesota Rules 84010.0030, Subpart 1.B in Appendix A and B respectively of this Agreement.

## **Article II**

### **Definitions**

For the purpose of this Agreement, the terms used herein shall have the meanings defined in this article.

Subdivision 1: “Organization” is the Mississippi Watershed Management Organization.

Subdivision 2: “Commission” shall mean the governing body of the Organization and shall consist of a Commissioner or Alternate from each of its Members.

Subdivision 3: “Commissioner” shall mean any person appointed to the Commission by each Members governing body, or in the Commissioner’s absence, the Alternate.

Subdivision 4: "Alternate" shall mean any person appointed to the Commission by each Member's governing body to represent the Member in the absence of the Commissioner.

Subdivision 5: “Council” shall mean the governing body of a Member. In the case of municipalities, this shall be the elected officials responsible for governing the city and for Minneapolis Park & Recreation Board, its Board of Commissioners.

Subdivision 6: “Member” or 'Member Community' shall mean any city, county, or special purpose government entity within the watershed that enters into this Agreement.

Subdivision 7: "Agreement" shall mean the "Joint and Cooperative Agreement adopted by the member councils creating and the establishing the Mississippi Watershed Management Organization.

Subdivision 8: "Plan" shall mean the Watershed Management Plan adopted by the Mississippi Watershed Management Organization.

Subdivision 9: “Watershed” means the area contained within a line drawn around the extremities of all terrain whose surface drainage is tributary to the Mississippi River and within the mapped areas reasonably demonstrated on the map identified as Appendix B, as defined within the legal description identified in Appendix A.

Subdivision 10: “Act” is defined as the Metropolitan Surface Water Management Act as found in Minnesota Statutes, Sections 103B.201 to 103B.251.

Subdivision 11: “Operating Budget” refers to the administrative expenses incurred by the Organization.

Subdivision 12: “Capital Improvement Project” shall mean a physical improvement project other than routine maintenance within the Watershed Management Organization boundaries.

Subdivision 13: “Majority” shall be defined as greater than half of the quorum.

Subdivision 14: “Subwatershed” a smaller geographic section of a larger watershed unit with a drainage area whose boundaries include all the land area draining to a point.

Subdivision 15: "Year" shall mean from January 1 to December 31.

Subdivision 16: “Quorum” shall mean the number of Commissioners or Alternates required to be present for business to be legally transacted. This number shall be any number which is greater than half of the Members. Any number less than a quorum may adjourn a scheduled meeting.

## **Article III**

### **Board of Commissioners**

Subdivision 1: The governing body of the Organization shall be its Commission which shall consist of five (5) voting Commissioners. Each Commissioner shall have one vote. All appointments to the Commission shall be in accordance with Minnesota Statutes 103B.227. The Board of Water and Soil Resources shall be notified of all appointments and vacancies of the Commission within 30 days. All vacancies shall be filled within ninety (90) days after they occur. Notices of all vacancies and appointments shall be published in a legal publication of the Members community appointing the Commissioner at least fifteen (15) days prior to the appointment. Vacancies shall be filled for the remainder of the term by the Council who appointed or had the right to appoint the Commissioner. The Council of each Member shall appoint one (1) Commissioner to represent the Member to the Commission. Each Commissioner shall serve until his or her successor is appointed.

Subdivision 2: A Commissioner may not be removed from the Commission except for just cause by the Council that made the appointment.

Subdivision 3: Member Councils may select and appoint alternates to the Commission in the same manner as Commissioners. In the absence of a Member's Commissioner, the designated Alternate may vote and act in the Commissioner's place. The Alternate shall serve a term concurrent with the Member's Commissioner.

Subdivision 4: Each Member's Council shall, within thirty (30) days of appointment, file with the Secretary of the Commission a record of the appointment of its Commissioner and Alternate. The Commission shall notify the Board of Water and Soil Resources of Member appointments and vacancies within thirty (30) days after receiving notice from the Member.

Subdivision 5: The Council of each Member shall determine the eligibility and qualifications of its Commissioner and Alternate. However, the terms of each Commissioner shall be as established by this Agreement.

Subdivision 6: Regular meetings shall be held by the Commission periodically at the time and place determined by the Commission pursuant to open meeting law, Minnesota State Statutes 471.705.



Subdivision 7: At the first meeting of the Commission each year and each calendar year thereafter, staff will confer with Commissioners and recommend officers for the various positions on the Commission. At the first meeting of the Commission and each calendar year thereafter, the Commission shall elect from its Members a chairperson, a vice chairperson, a treasurer, a secretary, and such other officers as it deems necessary to conduct its meetings and affairs.

Subdivision 8: The Commission shall adopt those bylaws and procedures necessary for the conduct of its meetings. Such rules may be amended at either a regular or special meeting of the Commission provided that a ten (10) day prior notice of the proposed amendment has been furnished to each Commissioner and Alternate to whom notice of meetings is required to be sent.

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Subdivision 9: The Commission may create such committees, task forces or working groups as needed to accomplish its mission.

Subdivision 10: Commissioners shall serve without compensation from the Organization, but this shall not prevent a Member's Council from providing compensation for its Commissioner for serving on the Commission, if such compensation is authorized by such governmental unit and by law.

## **Article IV**

### **Powers and Duties of the Board of Commissioners**

Subdivision 1: The Commission shall employ such persons, as it deems necessary to accomplish its duties and powers. The Commission may hire staff on a full time, part time or consulting basis. The Commission may also incur expenses and expenditures necessary and incidental to the effectuation and/or implementation of its purposes and powers.

Subdivision 2: In order for the Commission to conduct business, a quorum must be present. Decisions by the Commission require a majority vote of the quorum present.

Subdivision 3: The Commission shall have an established Citizen Advisory Committee and Technical Advisory Committee to provide input and to serve in an advisory role.

Subdivision 4: The Commission shall review and approve a Local Water Management Plan for each of its Member Communities as established under Minnesota Statutes, Chapter 103B. Approval of the plan shall require no more than a majority vote.

Subdivision 5: The Commission may acquire, operate, construct, and maintain capital improvement projects delineated in the Watershed Management Organization Watershed Management Plan for the protection, enhancement, and improvement of the watershed.

Subdivision 6: The Commission shall make a reasonable attempt to assess the compatibility of proposed capital improvement projects with other existing policies, programs, and projects within the MWMO and across its boundaries. In particular, compatibility with neighborhood association and community council plans in the project area should be considered. An informal review should occur at least two months before the capital improvement project proposal is approved in the MWMO budget.

Subdivision 7: The Commission shall develop a comprehensive Watershed Management Organization Watershed Management Plan to meet the requirements of Minnesota Statutes, Chapter 103B. The plan shall establish comprehensive goals and policies for the protection, enhancement, and improvement of the watershed, and shall establish specific implementation strategies to realize these goals and policies.

Subdivision 8: The Commission shall have the power to contract with any governmental unit, private or nonprofit association to accomplish the purposes for which it is organized.

Subdivision 9: The Commission has the authority to apply for, accept, and use grants, loans, money or other property from the United States, the State of Minnesota, a unit of government or any person or entity for the Organization. The Organization may use and dispose of such money or property for any expenses/fees, policies, goals, capital improvement projects, or any use the Organization deems necessary to pursue its goals and policies.

Subdivision 10: The Commission may establish and maintain devices for acquiring and recording hydrologic and water quality data within the watershed.

Subdivision 11: The Commission may contract for, or purchase such insurance, as they deem necessary for the protection of the Commission.

Subdivision 12: The Commission shall have the authority to invite governmental entities within the area of the watershed to join the Organization. Furthermore, any governmental entities within the area of the watershed may petition for membership in the Organization. The addition of new Members shall require a majority vote of the Commission and appropriate resolution by current Member Councils. The effective date shall be the date of filing by the last Council resolution approving the addition. As Members are added to the Organization, there shall be created one voting Commissioner. Furthermore, as each new Member is added, the cost shares of the operating budget (Article V, Subdivision 3) will be reassessed.

Subdivision 13: The Commission has the authority to contract for the space, equipment, and supplies to carry on its activities either with an individual Member or elsewhere.

Subdivision 14: The Commission may investigate on its own initiative or upon petition of any Member, complaints relating to the pollution of surface or ground water in the watershed. Upon a finding that the watershed is being polluted, the Commission may take appropriate action to alleviate the pollution including recommending enforcement and other regulatory actions to the appropriate jurisdiction.

Subdivision 15: Commissioners and staff may enter upon lands within or without the watershed to make surveys and investigations to accomplish the purposes, goals and policies of the Organization. Such entrance shall occur after obtaining a duly executed search warrant, with permission of the property owner, or when a search warrant for access to the property is not required. The Commission shall be liable for actual damages resulting therefrom, subject to the limitations of Minnesota Statutes Section 466.01, et. seq. Every person who claims damages shall serve the Chair or Secretary of the Commission with a notice of claim as required by Minnesota Statutes, Chapter 466.05.

Subdivision 16: The Commission may vote to 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 or agency relating to the planning or construction of capital improvement projects approved by the Organization.

Subdivision 17: The Commission shall at least every 2 years solicit interest proposals for professional or technical consultant services before retaining the services of a consultant or extending annual service agreements.

Subdivision 18: The Commission may designate one or more national or state bank or trust companies authorized by Chapters 118 or 427 of Minnesota Statutes to receive deposits of public moneys to act as depositories for the Organization's funds. No funds may be disbursed without the signature of the Chair and the Treasurer. The Treasurer shall be required to file with the Secretary of the Commission a bond in the sum of at least \$10,000 or such higher amount as shall be determined by the Commission. The Commission shall pay the premium on said bond.

Subdivision 19: The Commission may exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth herein.

## **Article V**

### **Operating Budget**

Subdivision 1: The Commission shall adopt an operating budget for the ensuing year on or before September 1 of each year. The budget shall then be certified by the Secretary of the Commission on or before October 1 to the clerk of each Members Council together with a statement of the proportion of the budget to be provided by each Member. The Council of each Member agrees to review the budget. The Commission shall upon notice from any Member received prior to November 1, hear objections to the budget. Such notice shall be written to the Commission's Secretary and delivered by certified mail to their principal business address. The Commission, upon notice delivered by US Mail to all Members and after a hearing, may modify or amend the budget. If no objections are submitted to the Commission, each Member agrees to provide the funds required by the budget on or before February 1. Modifications or amendments to the original budget require a majority vote. The operating budget shall not exceed \$20,000 annually.

Subdivision 2: The Commission has the duty to make a full and complete financial accounting report to each Member at least once annually. A certified public accountant shall perform the audit of the Organization. The report shall include the approved budget; a reporting of revenues; a reporting of expenditures; a financial audit report or section that includes a balance sheet; a classification of revenues and expenditures; an analysis of changes in final balances; and any additional statements considered necessary for full financial disclosure; and the status of all Commission projects and work within the watershed; copies of said report shall be transmitted to the clerk, or appropriate staff member of each Member's Council.

Subdivision 3: Member contributions to the operating budget will be determined on a percentage basis of the geographic area of each Member's properties and jurisdictional boundaries within the watershed, excluding properties owned by the Minneapolis Park and Recreation Board. The Minneapolis Park and Recreation Board share shall be determined by that portion of property owned by them. This assessment shall be allocated as follows:

<u>Member</u>	<u>Share</u>
Minneapolis	94.3%
St. Anthony	3.3%
Saint Paul	1.4%
Minneapolis Park and Recreation Board	0.6%
Lauderdale	0.4%

Subdivision 4: Projects or other necessary expenditures which cannot be accomplished through the capital budget and would exceed the cost of the operating budget of Article V, Subdivision 1, shall be addressed by mutual agreement of the affected Members outside of this Agreement.

## **Article VI**

### **Capital Budget**

Subdivision 1: The Members recognize that on-going capital expenditures will be required to solve some of the water resource problems within the watershed. For the purposes of this Agreement, capital improvement projects are those determined necessary to implement the Organization's Capital Improvement Program.

Subdivision 2: Capital Projects will be financed over the entire watershed.

Subdivision 3: In order to finance an approved capital improvement project, the Commission may levy an ad valorem tax against the entire watershed.

Subdivision 4: Approval of capital improvement projects shall require a majority vote of the quorum present and other such bodies as required by law. Capital improvement projects shall be financed in accordance with Minnesota Statutes, 103B and 103D.

Subdivision 5: The Commission shall have the authority to prepare and adopt a Capital Improvement Program as defined in Minnesota Statutes 103B.205 Subdivision 3 as part of the Watershed Management Plan. The Capital Improvement Program shall set forth the schedule of capital projects identified in the Watershed Management Plan as well as designating Members for participation in each project and estimating the total costs for such projects. Projects not identified in the Watershed Management Organization Watershed Management Plan shall not be included in the Capital Improvement Program until and unless the Watershed Management Organization Watershed Management Plan is amended to include such projects. Implementation of the Capital Improvement Program will begin upon adoption of the Watershed Management Organization Watershed Management Plan subject to the availability of funding.

Subdivision 6: All capital improvement projects need to be listed in the Watershed Management Plan.

Subdivision 7: All capital improvement project proposals for the following year must be submitted to staff before May 1 so that the proposed capital budget can be submitted to the Commissioners during the May

Commission meeting. All WMO capital improvement project proposals for subsequent fiscal year(s) must be submitted to WMO staff before May 1<sup>st</sup> of the extant budget year. By the August Commission meeting within this extant budget year, presentation of this proposed capital budget will be submitted to the Commissioners.

Subdivision 8: Funding for any and all capital improvement projects may only occur if the project(s) is in the approved capital budget.

Subdivision 9: Beginning with the year the Watershed Management Plan is adopted, the Commission shall submit, by June 1, a draft capital budget to the clerk of Member's Council for their review. The Council of each Member may review and comment on the budget. The Commission shall upon notice from any Member received prior to August 1, hear objections to the budget. Such notice shall be written to the Commission's Secretary and delivered by certified mail to their principal business address. The Commission, upon notice delivered by US Mail to all Members and after a hearing, may modify or amend the budget. The MMRWMO Commission shall hold a public hearing in accordance with Minnesota Statutes 103B and 103D on the proposed capital budget. On or before September 15 of each year, the Commissioners shall adopt a capital budget for the next year and decide on the total amount to be raised from ad valorem tax levies. By the September 15 of each year the budget shall be certified by the Secretary of the Commission to the County, Counties or the clerk or appropriate staff member of each Member's Council together with a statement of the proportion of the budget to be provided.

Subdivision 10: If the Organization is responsible for the planning, design, acquisition, relocation, or construction of an approved capital project on behalf of a Member, each Member having a financial obligation therefore, shall also provide to the Organization the funds required by the budget from that member on or before February 1.

If the Member is responsible for the completion of the capital project, the Organization's approved share of the project cost coming from its tax levy will be reimbursed to the member from actual tax revenues received in a manner agreed to. The Member being reimbursed for project costs by the Organization shall agree to be responsible for providing any requested documentation of costs requested by the Organization or its auditors.

Subdivision 11: Projects will be funded in the watershed on the basis of potential merit to all the Members and according to the criteria established in the MWMO Watershed Management Plan. Annually a review



shall take place showing how much each Member has contributed to the watershed levy and how much each Member has benefited from projects undertaken in their jurisdiction. Funds generated through the annual levy in the cities of St. Anthony, St. Paul, and Lauderdale, will be made available to that member community if capital improvement projects have been designated in the MWMO Watershed Management Plan and approved in the MWMO capital budget.

Subdivision 12: If a member has a capital improvement project designated for a future year, all generated funds collected as part of an approved capital budget for said project may be held in an account and designated for the project per MN Statute 103B.241 Subd. 1.

Subdivision 13: If a member has no designated capital improvement projects, all generated funds will be placed in a general account for use by those members with designated capital improvement projects.

## **Article VII**

### **Duration**

Each Member agrees to be bound by the terms of this Agreement until January 1, 2010, and it may be continued thereafter upon the agreement of all Members.

## **Article VIII**

### **Dissolution**

Any Member may petition the Commission to dissolve the Organization. Upon thirty days advance written notice to each Member, the Commission shall hold a hearing to consider dissolution of the Organization. If a majority of the Commission votes in favor of dissolution, the Commission shall submit a resolution for dissolution of the Organization for consideration by each Member's Council, the board of each affected County and the Minnesota Board of Water and Soil Resources. Each governmental unit shall have 90 days in which to consider dissolution of the Organization. If, within 90 days of the date the notice was given, a majority of Members' Councils has ratified said resolution; then the Organization shall be dissolved and this Agreement shall be terminated.

Upon dissolution, the Organization shall complete all work in progress and dispose of all personal property. All property of the Organization shall be sold and the proceeds thereof, together with moneys on hand, shall be distributed to the eligible Members of the Commission as follows: assets derived from contributions to the operating budget shall be apportioned and distributed to each Member in the percentage by which the Member contributed to the Organization under the last annual budget; assets derived from the Capital Improvement Budget shall be apportioned and distributed on an asset by asset basis to each Member in the percentage by which the Member contributed to the specific asset.

## **Article IX**

### **Amendments**

Any Member may recommend to the Commission amendments to this Agreement. Upon a majority vote, amendments to this Agreement shall be forwarded by the Commission to its Members' Councils. No amendment shall be effective until the amendment has been ratified by the Council of each Member. The effective date of any amendment shall be the date on which the last Member's Council ratifies the amendment and is filed with the Secretary of the Commission.

## **Article X**

### **Effective Date**

This Agreement shall be adopted upon ratification by the Council of each Member and the execution of the Agreement by each Member. Upon voting to ratify the Agreement, the clerk of the Council of the ratifying Member shall file a certified copy of the resolution of the ratification with the Clerk of the City of Minneapolis. The effective date of the Agreement shall be the later of January 1, 1997; or the date on which the last Member to ratify files its resolution of ratification. Upon adoption of this Agreement, the Minneapolis City Clerk shall supply to each Member and the Board of Water and Soil Resources a copy of the Members' ratification resolutions and a copy of the signed Agreement.

IN WITNESS WHEREOF, the undersigned Members, by action of their Councils, have caused this agreement to be executed in accordance with the authority of Minnesota Statutes Sections 103B.211 and 471.59.

## Appendix C

### CRWD Wetland Inventory Data

In 1999, all wetlands within the District were inventoried and their functions and values were assessed. Figure III-26 shows the location of wetlands in the assessment. Appendix C contains the classification and detailed assessment for each wetland. Wetland functions evaluated included Vegetative Diversity/Integrity, Maintenance of Hydrologic Regime, Flood and Stormwater Storage/Attenuation, Water Quality/Shoreline Protection, Groundwater Interaction, Wildlife Habitat, Fisheries Habitat, and Aesthetics/Recreation.

Key to following table headings:

NAME = Unique Wetland Number

WETLAND = Designated number of each wetland within a "section"

UNIT = If a wetland consists of more than one wetland type, each separate area is referred to as a "unit"

CIRC39 = Circular 39 Classification (e.g. Type 4 Wetland)

COW = Cowardin Classification which includes wetland class (e.g. P = Palustrine), subclass and typical water regime (e.g. F = Semipermanently Flooded; C = Seasonally Flooded; H= Permanently Flooded)

VEGDIVQ = Vegetative Diversity/Integrity

HYDREGQ = Maintenance of Hydrologic Regime

F\_SQ = Flood and Stormwater Storage/Attenuation

WQSHQ = Water Quality/Shoreline Protection

GIQ = Groundwater Interaction

WHQ = Wildlife Habitat

FHQ = Fisheries Habitat

ARQ = Aesthetics/Recreation

COWCLASS = A portion of the Coward Classification System showing wetland subclass (e.g. UB = Unconsolidated Bottom; EM = Emergent; SS = Scrub Shrub; FO = Forested)

PWI = Protected Waters Inventory

Water Resource	DNR Protected Waters Inventory (PWI) Number
McCarrons	P-54
Como	P-55
Loeb	W-231
Burlington	W-224
Crosby	P-47
Little Crosby	W-226
Woodview Marsh	W-222
U. of M (Sarita)	W-223
	W-215

NAME	WET- LAND	UNIT	CIRC	COW	VEG DIVQ	HYD REGQ	F_SQ	WQSHQ	GIQ	WHQ	FHQ	ARQ	COW CLASS	PV
S112923-1-A	1	A	39	PUBF	Medium	High	Medium	High	Low	Medium	Low	Low	UB	
S122923-2-B	2	B	7	PFOIB	Low	Low	High	Medium	Low	High	Low	Medium	FO	
S122923-2-A	2	A	7	PEM/FOB	Low	Low	High	Medium	Low	High	Low	Medium	EM	
S122923-2-C	2	C	7	PEMF	Low	Low	High	Medium	Low	High	Low	Medium	EM	
S122923-1-A	1	A	6	PSSIC	Low	Low	High	Medium	Low	Medium	Low	Medium	SS	
S162923-1-A	1	A	4	PUBF	Medium	High	Medium	Low	Low	High	Low	High	UB	
S162923-1-B	1	B	4	PEMF	Medium	High	Medium	Low	Low	High	Low	High	EM	
S152923-1-A	1	A	4	PUBFx	Low	Medium	High	High	Medium	Low	Low	Low	UB	
N142923-1-A	1	A	4	PUBF	Low	Medium	Medium	Medium	High	Low	Low	Medium	UB	
N142923-2-A	2	A	3	PEMC	Low	Medium	High	Medium	Low	Medium	Low	Low	EM	
N142923-3-A	3	A	4	PUBF	Low	Medium	Medium	Medium	Medium	High	Low	Medium	UB	
N142923-3-B	3	B	4	PEMC	Medium	Medium	Medium	Medium	Medium	High	Low	Medium	EM	
N142923-4-A	4	A	3	PEMC	High	High	High	High	Medium	High	Low	Low	EM	
N142923-4-B	4	B	3	PFOIC	High	High	High	High	Medium	High	Low	Low	FO	
N142923-4-C	4	C	3	PFOIC	High	High	High	High	Medium	High	Low	Low	FO	
N142923-5-B	5	B	7	PFO1C	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	FO	
N142923-5-A	5	A	7	PUBFx	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	UB	
N142923-6-B	6	B	6	PEMC	Medium	High	High	High	Medium	High	Low	Medium	EM	
N142923-6-A	6	A	6	PSSIC	Medium	High	High	High	Medium	High	Low	Medium	SS	W-215
N142923-8-A	8	A	6	PSSIC	High	High	High	High	High	High	Medium	High	SS	
N142923-8-B	8	B	6	PUBF	High	High	High	High	High	High	Medium	High	UB	
N142923-8-C	8	C	6	PEMF	High	High	High	High	High	High	Medium	High	EM	
N142923-7-A	7	A	7	PEMC	Low	Medium	Medium	Low	Low	Low	Low	Low	EM	
N142923-7-B	7	B	7	PFO1C	Low	Medium	Medium	Low	Low	Low	Low	Low	FO	
S142923-3-A	3	A	3	PEMF	Medium	Medium	High	High	Low	High	Low	Medium	EM	
S142923-3-B	3	B	3	PEMC	Medium	Medium	High	High	Low	High	Low	Medium	EM	
S142923-3-C	3	C	3	PEMC	Medium	Medium	High	High	Low	High	Low	Medium	EM	
S142923-4-A	4	A	4	PUBF	Medium	Medium	Medium	Medium	Medium	High	Medium	Medium	UB	
S142923-4-B	4	B	4	PEMF	Medium	Medium	Medium	Medium	Medium	High	Medium	Medium	EM	
S142923-2-A	2	A	7	PFOIC	Low	Low	Low	Low	Low	Medium	Low	Low	FO	
S142923-1-A	1	A	3	PEMC	Medium	High	High	Medium	Low	High	Low	Medium	EM	
N132923-1-A	1	A	7	PFOIC	Medium	High	Low	Low	Low	High	Low	Medium	FO	
N132923-2-E	2	E	7	PUBGx	Medium	Medium	Low	High	High	High	High	High	UB	
N132923-2-F	2	F	7	PFOICd	Medium	Medium	Low	High	High	High	High	High	FO	
N132923-2-D	2	D	7	PFOICd	Medium	Medium	Low	High	High	High	High	High	FO	
N132923-2-C	2	C	7	PSSICd	Medium	Medium	Low	High	High	High	High	High	SS	
N132923-2-B	2	B	7	PEMF	Medium	Medium	Low	High	High	High	High	High	EM	
N132923-2-G	2	G	7	PEMC	Medium	Medium	Low	High	High	High	High	High	EM	
N132923-2-A	2	A	7	PUBGx	Medium	Medium	Low	High	High	High	High	High	UB	
N132923-2-I	2	I	4	PEMF	Medium	Medium	Low	High	High	High	High	High	EM	
N132923-2-H	2	H	4	PSSIC	Medium	Medium	Low	High	High	High	High	High	SS	
N132923-2-J	2	J	4	PUBGx	Medium	Medium	Low	High	High	High	High	High	UB	
N132923-3-A	3	A	3	PEMF	Low	Medium	Medium	Medium	High	Medium	High	High	EM	
N132923-4-A	4	A	4	PUBFx	Low	Medium	Medium	High	High	Low	High	Medium	UB	
N132923-5-A	5	A	4	PUBF	Low	Medium	High	High	Medium	Medium	Low	Low	UB	



NAME	WET- LAND	UNIT	CIRC 39	COW	VEG DIVQ	HYD REGQ	F_SQ	WQSHQ	GIQ	WHQ	FHQ	ARQ	COW CLASS	PWI
N132923-6-A	6	A	4	PUBF	High	High	Medium	Medium	Medium	High	Medium	Low	UB	P54-
N132923-7-A	7	A	5	PUBGx	Low	Low	Medium	Medium	Low	Low	Low	Low	UB	
N132923-8-A	8	A	4	PUBGx	Low	Low	Medium	Medium	Low	Low	Low	Low	UB	
N132923-9-A	9	A	5	L1UBH	Medium	High	High	High	High	High	High	High	UB	
N132923-9-B	9	B	5	PEMC	Medium	High	High	High	High	High	High	High	EM	
S132923-2-A	2	A	4	PUBFX	Medium	Medium	Medium	High	High	High	High	High	UB	
S132923-3-A	3	A	4	PUBFx	High	Low	Medium	High	High	High	High	High	UB	
S132923-1-A	1	A	4	PUBFx	Medium	Medium	Medium	High	High	High	High	High	UB	
S132923-4-A	4	A	1	PEMA	Low	Medium	Medium	Low	Low	Medium	Low	Low	EM	
S132923-5-B	5	B	3	PEMCd	Medium	Low	Medium	Medium	Medium	Medium	High	High	EM	
S132923-5-A	5	A	3	PEMAd	Medium	Low	Medium	Medium	Medium	Medium	High	High	EM	W-222
S132923-5-C	5	C	3	PFO1Ad	Medium	Low	Medium	Medium	Medium	Medium	High	High	FO	
S132923-6-A	6	A	4	PUBF	Medium	High	Medium	Medium	Medium	High	Low	High	UB	
N182922-5-A	5	A	4	PEMF	Medium	High	High	Low	High	High	Low	High	EM	
N182922-5-D	5	D	4	PFO1C	Medium	High	High	Low	High	High	Low	High	FO	
N182922-22-A	22	A	7	PFO1A	Low	Medium	High	Medium	Low	Medium	Low	Low	FO	
N182922-5-E	5	E	4	PSS1C	Medium	High	High	Low	High	High	Low	High	SS	
N182922-5-B	5	B	4	PFO1A	Medium	High	High	Low	High	High	Low	High	FO	
N182922-6-A	6		4	UB									UB	
N182922-5-C	5	C	4	PUBG	Medium	High	High	Low	High	High	Low	High	UB	
N182922-19-A	19	A	3	PEMF	Low	Medium	Low	Low	Low	Medium	Low	High	EM	
N182922-18-A	18	A	3	PEMC	Low	Medium	Low	Low	Low	Low	Low	Medium	EM	
N182922-17-A	17	A	3	PEMC		Medium	Low	Low	Low	Low	Low	Medium	EM	
N182922-20-A	20	A	2	PEMB	Medium	High	High	Low	Low	Medium	Low	Low	EM	
N182922-16-B	16	B	3	PEMF	Low	Medium	Low	Low	Low	Low	Low	Low	EM	
N182922-16-A	16	A	3	PEMC	Low	Medium	Low	Low	Low	Low	Low	Low	EM	
N182922-3-A	3	A	5	PUBGx	Low	Medium	High	Low	Medium	Low	Low	Medium	UB	
N182922-15-A	15	A	1	PEMA	Low	High	High	Low	Low	Low	Low	Low	EM	
N182922-4-A	4	A	3	PEMCX	Low	Medium	Low	Low	Low	Low	Low	Medium	EM	
N182922-7-A	7		4	UB									UB	
N182922-21-A	21	A	3	PEMFx	Low	Low	Medium	Medium	Low	Medium	Low	Medium	EM	
N182922-14-A	14	A	3	PEMC	High	Medium	High	Medium	High	High	Medium	Medium	EM	
N182922-13-A	13		4	UB									UB	
N182922-8-A	8		4	UB									UB	
N182922-14-D	14	D	3	PFO1C	High	Medium	High	Medium	High	High	Medium	Medium	FO	
N182922-14-C	14	C	3	PUBG	High	Medium	High	Medium	High	High	Medium	Medium	UB	
N182922-2-A	2	A	5	PUBGx	Low	Medium	High	Low	Medium	Low	Low	Medium	UB	
N182922-14-B	14	B	3	PEMF	Medium	Medium	High	Medium	High	High	Medium	Medium	EM	
N182922-9-A	9		4	UB									UB	
N182922-14-E	14	E	3	PSS1C	High	Medium	High	Medium	High	High	Medium	Medium	SS	
N182922-12-A	12		4	UB									UB	
N182922-10-A	10		4	UB									UB	
N182922-14-G	14	G	3	PEMC	High	Medium	High	Medium	High	High	Medium	Medium	EM	
N182922-14-F	14	F	3	PFO1C	High	Medium	High	Medium	High	High	Medium	Medium	FO	
N182922-11-A	11		4	UB									UB	

NAME	WET- LAND	UNIT	CIRC 39	COW	VEG DIVQ	HYD REGQ	F_SQ	WQSHQ	GIQ	WHQ	FHQ	ARQ	COW CLASS	PWI
N182922-1-A	1	A	3	PEMF	Low	Medium	Medium	Medium	Low	Low	Low	Medium	EM	
N182922-1-B	1	B	3	PFO1C	Low	Medium	Medium	Medium	Low	Low	Low	Medium	FO	
S182922-5-B	5	B	7	PUBG	High	Medium	High	Medium	Low	High	Low	Medium	UB	
S182922-5-D	5	D	7	PFO1A	High	Medium	High	Medium	Low	High	Low	Medium	FO	
S182922-5-A	5	A	7	PFO1C	High	Medium	High	Medium	Low	High	Low	Medium	FO	
S182922-5-C	5	C	7	PSS1C	High	Medium	High	Medium	Low	High	Low	Medium	SS	
S182922-5-E	5	E	7	PSS1C	High	Medium	High	Medium	Low	High	Low	Medium	SS	
S182922-2-A	2	A	5	PUBG	Low	Medium	Medium	Low	Medium	Low	Medium	Low	UB	
S182922-6-A	6	A	6	PEMC	Medium	Medium	High	High	Low	Medium	Low	Medium	EM	
S182922-6-B	6	B	6	PSS1C	Medium	Medium	High	High	Low	Medium	Low	Medium	SS	
S182922-4-A	4	A	5	PUBG	Low	Low	High	Medium	Low	Low	High	High	UB	
S182922-7-A	7	A	4	PUBF	Low	Low	High	Low	Medium	Low	Low	Low	UB	
S182922-1-A	1	A	5	PUBG	Low	Medium	Medium	Medium	Medium	Low	Medium	High	UB	
S182922-3-A	3	A	7	PFO1C	High	High	High	High	Medium	High	Low	Medium	FO	
S212923-1-A	1	A	4	PUBG	Low	Low	Low	Low	Low	Low	Low	Medium	UB	W-223
N222923-1-A	1	A	4	PUBF	Low	High	High	Medium	Low	Low	Low	Low	UB	
S222923-1-A	1	A	4	PUBF	Low	Low	Low	Medium	Low	Low	Low	Low	UB	
S232923-3-A	3	A	4	PUBF	Low	Low	Low	Low	Low	Low	Low	Low	UB	
S232923-2-A	2	A	4	PUBF	Low	Low	Low	Low	Low	Low	Low	Low	UB	
S232923-4-A	4	A	4	PUBF	Low	Low	Low	Low	Low	Low	Low	Low	UB	
S232923-6-A	6	A	3	PEMF	Medium	Low	Medium	Low	Low	Medium	Low	Low	EM	
S232923-5-A	5	A	4	PUBF	Low	Low	Medium	Low	Low	Low	Low	Low	UB	
S232923-1-A	1	A	5	L1UBH	Low	Low	Low	Medium	High	Medium	Medium	High	UB	P-55
N242923-1-A	1	A	6	PSS1C	Low	Medium	Medium	Medium	Low	Medium	Low	High	SS	
N242923-2-A	2	A	2	PEMB	Low	Medium	High	Low	High	Medium	Low	Low	EM	
S242923-1-C	1	C	6	PSS1C	High	Medium	High	High	High	High	High	High	SS	
S242923-1-E	1	E	6	PFO1C	High	Medium	High	High	High	High	High	High	FO	
S242923-1-A	1	A	6	PUBF	High	Medium	High	High	High	High	High	High	UB	
S242923-1-B	1	B	6	PFO1C	High	Medium	High	High	High	High	High	High	FO	
S242923-1-D	1	D	6	PEMC	High	Medium	High	High	High	High	High	High	EM	
N192922-1-D	1	D	4	PUBGx	Medium	High	High	High	High	High	High	High	UB	
N192922-1-B	1	B	4	PUBGx	High	High	High	High	High	High	High	High	UB	
N192922-1-C	1	C	4	PSS1C	High	High	High	High	High	High	High	High	SS	
N192922-2-A	2	A	3	PEMF	Low	Low	Medium	Low	Low	Low	Low	Low	EM	
N192922-2-B	2	B	3	PUBF	Low	Low	Medium	Low	Low	Low	Low	Low	UB	
S192922-2-A	2	A	4	PUBFx	Low	Low	High	Low	Low	Low	Low	Medium	UB	
S192922-3-A	3	A	3	PEMC	Low	Low	Low	Low	Low	Low	Low	High	EM	
S192922-4-A	4	A	2	PEMB	Medium	Medium	Low	Low	Low	Medium	Low	Low	EM	
S192922-5-A	5	A	3	PEMC	Low	Medium	Medium	Medium	Low	Low	Low	Medium	EM	
N182922-23-A	23	A	3	PEMF	Low	Medium	High	Medium	Low	Low	Low	Low	EM	
N202922-1-A	1	A	5	PUBG	Low	High	High	Medium	Low	Low	Medium	Medium	UB	
N202922-2-A	2	A	4	PUBF	Low	High	High	Medium	Low	Medium	Low	High	UB	
S202922-1-A	1	A	3	PEMC	Low	High	High	Medium	Low	Low	Low	Low	EM	
N282923-2-A	2	A	5	PUBG	Low	Medium	High	Medium	Medium	Low	High	Medium	UB	W-224
N282923-1-A	1	A	5	PUBG	Low	Medium	Medium	Medium	Medium	Low	Low	Low	UB	

NAME	WET- LAND	UNIT	CIRC 39	COW	VEG DIVQ	HYD REGQ	F_SQ	WQSHQ	GIQ	WHQ	FHQ	ARQ	COW CLASS	PWI
N272923-2-A	2	A	4	PUBFx	Low	Low	High	Medium	Low	Low	Low	Low	UB	
N272923-1-A	1	A	3	PEMCx	Low	Medium	High	Medium	Low	Medium	Low	Medium	EM	
S272923-1-A	1	A	1	PEMAx	Low	Low	Low	Low	Low	Low	Low	Medium	EM	
N252923-2-A	2	A	7	PFO1C	Medium	Medium	Medium	High	Low	Medium	High	High	FO	
N252923-1-A	1	A	5	L1UBH	Medium	Medium	High	High	High	High	High	High	UB	W-231
N252923-1-C	1	C	5	PSS1C	Medium	Medium	High	High	High	High	High	High	SS	
N252923-1-B	1	B	5	PEMC	Medium	Medium	High	High	High	High	High	High	EM	
S252923-1-A	1	A	3	PEMF	Low	Medium	High	Medium	Low	Low	Low	Low	EM	
S302922-2-A	2	A	3	PEMC	Low	Medium	High	Low	Low	Low	Low	Low	EM	
N302922-1-A	1	A	7	PFO1C	Medium	Low	Medium	Low	Low	Low	Low	Medium	FO	
S302922-1-B	1	B	4	PEMF	Low	Medium	High	Medium	Low	Medium	Low	Medium	EM	
S302922-1-A	1	A	4	PUBF	Low	Medium	High	Medium	Low	Medium	Low	Medium	UB	
S302922-3-A	3	A	3	PEMC	Low	Low	Low	Low	Low	Low	Low	Low	EM	
N332923-1-A	1	A	4	PUBFx	Low	Low	Medium	Low	Low	Low	Low	Medium	UB	
N312922-1-A	1	A	6	PSS1C	Low	Low	Medium	Low	Low	Low	Low	Low	SS	
S092823-1-A	1	A	5	PUBGx	Low	Low	Low	Low	Low	Medium	Low	High	UB	
S162923-2-A	2	A	3	PEMC	Medium	Medium	Medium	Medium	Low	Medium	Low	High	EM	
S162923-3-A	3	A	3	PEMF	Low	High	High	High	Low	Medium	Low	High	EM	
N282923-3-A	3	A	3	PEMF	Medium	Medium	Medium	Low	Low	Medium	Low	Low	EM	
N142823-1-A	1	A	7	PFO1C	High	High	Low	Medium	Low	High	Low	Medium	FO	
N222823-1-A	1	A	3	PEMC	Medium	High	High	High	Low	Medium	Low	High	EM	
S212823-3-A	3	A	7	PFO1C	High	High	Low	Low	Low	High	Low	High	FO	
S212823-1-A	1	A	3	PEMC	Low	Medium	Low	Low	Low	Low	Low	Low	EM	
S212823-2-A	2	A	7	PFO1C	Medium	Medium	Medium	Medium	Low	High	Low	Medium	FO	
N222823-2-A	2	A	5	L1UBH	Medium	High	Low	High	High	High	High	High	UB	P-47
N222823-2-B	2	B	5	PUBH	High	High	Low	High	High	High	High	High	UB	W-226
N222823-2-D	2	D	5	PUBF	High	High	Low	High	High	High	High	High	UB	
N222823-2-E	2	E	5	PUBF	High	High	Low	High	High	High	High	High	UB	
S142823-1-A	1	A	4	PEMF	Medium	Low	High	High	Low	Medium	High	High	EM	
S142823-1-B	1	B	4	PUBF	Medium	Low	High	High	Low	Medium	High	High	UB	
S142823-1-C	1	C	4	PFO1C	Medium	Low	High	High	Low	Medium	High	High	FO	
S142823-2-A	2	A	7	PUBF	Medium	High	Low	Medium	Low	High	High	Medium	UB	
N222823-2-F	2	F	5	PFO1C	High	High	Low	High	High	High	High	High	FO	
S142823-2-B	2	B	7	PFO1C	Medium	High	Low	Medium	Low	High	High	Medium	FO	
S142823-2-C	2	C	7	PEMC	Medium	High	Low	Medium	Low	High	High	Medium	EM	
S142823-3-B	3	B	7	PUBF	High	High	Medium	Medium	Low	High	Low	Low	UB	
S142823-3-C	3	C	7	PUBF	High	High	Medium	Medium	Low	High	Low	Low	UB	
S142823-3-D	3	D	7	PUBF	High	High	Medium	Medium	Low	High	Low	Low	UB	
S142823-3-A	3	A	7	PFO1C	High	High	Medium	Medium	Low	High	Low	Low	FO	
N052823-1-A	1		5	R1UBH									UB	
S142823-3-E	3	E	7	PEMC	High	High	Medium	Medium	Low	High	Low	Low	EM	
N322922-1-A	1	A	6	PUBF	High	Medium	Low	Low	High	High	Low	High	UB	
N322922-1-D	1	D	6	PUBF	High	Medium	Low	Low	High	High	Low	High	UB	
N322922-1-C	1	C	6	PEMC	High	Medium	Low	Low	High	High	Low	High	EM	
N322922-1-B	1	B	6	PSS1C	High	Medium	Low	Low	High	High	Low	High	SS	

NAME	WET- LAND	UNIT	CIRC 39	COW	VEG DIVQ	HYD REGQ	F_SQ	WQSHQ	GIQ	WHQ	FHQ	ARQ	COW CLASS	PWI
N222823-2-G	2	G	5	PFO1C	High	High	Low	High	High	High	High	High	FO	
N222823-2-C	2	C	5	PEMF	High	High	Low	High	High	High	High	High	EM	
N212923-1-A	1	A	1	PEMA	Low	High	Low	Low	Low	Low	Low	Medium	EM	
S192922-1-A	1	A	6	PFO1C	Medium	Low	High	Low	Low	Medium	Low	Low	FO	
S192922-1-B	1	B	6	PEMF	Medium	Low	High	Low	Low	Medium	Low	Low	EM	
S192922-1-C	1	C	6	PFO1C	Medium	Low	High	Low	Low	Medium	Low	Low	FO	
N192922-1-A	1	A	4	PEMF	High	High	High	High	High	High	High	High	EM	
N192922-1-E	1	E	4	PFO1C	Medium	High	High	High	High	High	High	High	FO	
N202923-1-A	1	A	3	PEMC	Low	Medium	High	High	Low	Low	Low	Medium +	EM	
N202923-2-A	2	A	4	PFO1C	Low	Medium	High	Low	Low	Medium	Low	Low	FO	

## Appendix D

### Goals and Policies Comparison

Stormwater Management Policies Comparison			
Rice Creek Watershed District	Capital Region Watershed District	Mississippi Watershed Management Organization	Incorporate into City of Lauderdale Stormwater Management Policy
Policies Related to Surface Water Quality			
B.1 Treat and/or control runoff to enhance water quality to reverse upward trends in pollutants, especially nutrient and sediment loads.			
B.2 To preserve wetlands which provide natural treatment for runoff.			
B.3 To promote the local adaptation of the Minnesota Pollution Control Agency individual wastewater treatment system regulations.			
B.4 To improve the water quality monitoring system for identifying potential problems.			
B.5 To protect drainage areas that supply the St. Paul and Minneapolis water system from sources of contamination.			
	WQUAL1a - Establish water quality standards for District lakes and wetlands that will achieve the desired levels of use.		
	WQUAL1b - Establish target pollutant loads on a subwatershed basis to achieve water quality standards.		
	WQUAL1c - Evaluate existing water quality monitoring programs to measure progress toward water quality standards and evaluate BMP effectiveness.		
	WQUAL1f - Establish TMDLs in cooperation with MPCA for Mississippi River, Como Lake and Lake McCarrons.		
	WQUAL1g - Fulfill NPDES permit requirements for District owned storm sewers.		
	WQUAL1h - Study effects of waterfowl droppings on quality of Como and McCarron's lakes, if necessary, establish management plan to minimize impacts.		
	WQUAL2b - Promote use of "Good Housekeeping" BMP's throughout the District including street sweeping, leaf composting, and household hazardous waste collection.		
	WQUAL2c - Implement regional structural or non-structural treatment facilities where subwatershed pollutant loads exceed standards.		
	WQUAL2d - Require on-site detention basins or alternative effective BMPs on all new development and redevelopment sites where water quality goals are not currently being met.		
	WQUAL2e - Require NURP or similar criteria for wet detention ponds.		
	WQUAL2f - Require use of effective nonpoint source pollution reduction BMPs in development projects.		
	WQUAL2g - Research and monitor BMPs to evaluate their effectiveness.		
	WQUAL3a - Facilitate retrofitting opportunities with any public improvement projects.		
	WQUAL3b - Incorporate BMP's into redevelopment initiatives.		
	WQUAL3c - Evaluate and implement beneficial land-use BMP's.		
	WQUAL3d - Inspect and maintain all components of the storm water management system.		
	WQUAN1d - Evaluate retrofitting opportunities for existing stormwater management systems to achieve water quality standards.		
		P64-65. The MWMO will maintain oversight responsibility to monitor local water management plan implementation and enforce its standards and rules.	
		P66. MWMO requires all its member cities to develop stormwater management ordinances.	X
		P66. All development and redevelopment must include treatment of surface water runoff.	
		P66. Developments greater than 5 acres, including redevelopments, are required to implement stormwater controls for quality on site.	
Policies Related to Water Quantity and Flood Control			
A.3 To preserve the capacities of the present drainage system to accommodate future needs.			
C.1 To prohibit encroachment that will reduce the capacity of floodways and to allow only structures in the flood fringe that have been fool proofed or that are not habitable structures.			
C.2 To establish 100-year flood levels based on critical storm events.			
C.3 To promote local adoption of floodplain zoning ordinances conforming to state regulations, as a minimum to regulate floodplain development.			
	WQUAN1a - Inventory and define 100-year flood elevations for all water bodies within the District.		
	WQUAN1b - Restrict construction of structures within the 100-year flood elevation of any water body, excluding the Mississippi River.		
	WQUAN1c - Require water quantity control practices on all new development and re-development to preserve existing 100 year flood elevations.		
	WQUAN2a - Require rate control practices on all new development and redevelopment to preserve runoff rates at a level that will not cause water resource degradation.		
	WQUAN2b - Protect the stability and integrity of Watershed managed conveyance systems.		
	GWQP2a - Incorporate infiltration techniques into District stormwater management projects.		
	GWQP2b - Encourage infiltration on development and redevelopment projects in the District.		
	GWQP2c - Study and research infiltration methods and techniques.		
		P65. The MWMO requires its member cities to have on file an MDNR-approved Floodplain Ordinance. Where no ordinance is applicable, MWMO requires there be no encroachment on floodways that reduces capacities or expedites flood flows.	X
		P65. The MWMO only allows structures in the floodzone that have been protected from high water through flood proofing or other construction techniques recognized and accepted by MWMO board.	
		P66. Developments greater than 5 acres, including redevelopments, are required to implement stormwater controls for quantity on site.	

Stormwater Management Policies Comparison			
Rice Creek Watershed District	Capital Region Watershed District	Mississippi Watershed Management Organization	Incorporate into City of Lauderdale Stormwater Management Policy
Policies Related to Groundwater Quality and Runoff Volume Management			
	GWQP1a - Require cities within Watershed to adopt the Ramsey County Groundwater Quality and Protection Plan in their local water plan.		X
	GWQP1b - Work with local and county agencies to develop policies that encourage groundwater recharge and discourage over-pumping of aquifers.		
	GWQP1c - Adopt the Ramsey County Groundwater Quality Protection Plan and assist in implementing its recommendations.		
	GWQP1d - Participate in groundwater monitoring, wellhead protection efforts, education and abandoned well sealing program in cooperation with Ramsey SWCD.		
		P 65-66. The MWMO urges member communities to regulate activities that may cause contamination of surface or groundwater through restrictive permitting, zoning and licensing.	X
Policies Related to Recreation, Fish and Wildlife Habitat, and Shoreland Management			
E.1 To promote the adoption of local shoreland ordinances based on the Department of Natural Resources regulations.			
E.2 To preserve wetlands that provide habitat for game fish spawning and wildlife.			
E.3 To coordinate with the Department of Natural Resources to enhance fish and wildlife habitats.			
E.4 To coordinate with the Department of Natural Resources to protect rare and endangered species.			
E.5 To coordinate with counties and municipalities to enhance water-based recreation.			X
	WQUAL1d - Set performance standards for shoreline management to protect and enhance the quality of water and other natural resources.		
	WQUAL1e - Set performance standards for aquatic and terrestrial habitats management within and adjacent to water bodies to maximize recreational opportunities as well as fish and wildlife habitat.		
		P65. The MWMO requires its member cities to have on file an MDNR-approved Shoreline Ordinance.	X
Policies Related to Wetland and Lake Management			
F.1 Encourage local units of government to administer water management regulatory functions upon approval of a local water management plan that 1) is in conformance with the objectives, policies, and management strategies outlined herein, 2) outlines functions of both RCWD and local unit of government during the transition period, and 3) provides for accountable implementation of the water resources management plan.			
F.2 The RCWD maintains the right to approve plan amendments and changes in local regulations. The RCWD may withdraw local regulatory authority for just cause.			
	WTMGT1a - Utilize the District wetland inventory and function and value assessment to identify priority wetlands.		
	WTMGT1b - Develop a wetland management plan based on the function and value assessment.		
	WTMGT1c - Prevent the degradation of wetlands by managing the direct and indirect activities which impact their quality.		
	WTMGT1d - Management of wetlands for primary purposes of water quality protection and flood retention should minimize detrimental impacts to other wetland uses, e.g. wildlife habitat.		
	WTMGT2a - Develop a wetland management plan, which identifies and prioritizes degraded wetlands, which have the greatest potential for restoration.		
	WTMGT2b - Enhance wetlands by eliminating exotic and invasive vegetation.		
	WTMGT2c - Seek opportunities to create new wetlands and restore previously impacted wetlands.		
	WTMGT2e - Seek opportunities to infiltrate stormwater runoff.		
	WM2a - Identify high value natural resources, corridors, and buffers associated with water resources and provide a strategy for their management.		
		P63. The MWMO may identify and pursue the development of its wetland management plan that may include establishing function and value assessment criteria and determining priority wetland protection areas within the Watershed.	
Policies Related to Erosion and Sediment Control			
C.4 To minimize runoff velocities and maximize natural cover in order that erosion be reduced.			
C.5 To provide all measures necessary to contain sediment and control erosion within construction sites.			
	WQUAL2a - Apply performance standards within the Ramsey County Soil Erosion and Sediment Control Handbook to all construction sites in the District.		
		P65. MWMO member communities shall adopt and implement erosion and sediment control plans, standards and ordinances to reduce erosion and sedimentation.	X
		P65. MWMO member communities shall follow the best management practices described in the MPCA document , <i>The Minnesota Stormwater Manual</i> , or other such documents created by member cities to achieve no adverse impact to receiving water bodies.	X

Stormwater Management Policies Comparison			
Rice Creek Watershed District	Capital Region Watershed District	Mississippi Watershed Management Organization	Incorporate into City of Lauderdale Stormwater Management Policy
Policies Related to Public Participation, Coordination, and Education			
	WM1a - Organize annual forum of agencies to discuss planned management activities within the watershed and identify cooperative efforts and partnerships.		
	WM1b - Ensure consistently effective stormwater management among cities by creating a committee of city/county representatives who will meet quarterly to discuss stormwater issues.		
	WM1c - Assist cities in the preparation and updating of their local management plans and regulatory programs.		
	WM1d - Transfer the authority and responsibility for certain watershed management activities to the cities where appropriate.		
	WM1e - Coordinate Watershed initiated projects with appropriate groups/individuals.		
	WM1f - Provide data developed by the Watershed District to all requesting.		
	WM1g - Assist other governmental agencies/organizations to achieve their water management goals & objectives with the Watershed.		
	WM1h - Assist cities, other governmental agencies and organizations achieve their water quality and watershed education goals and objectives within the Watershed District.		
	WM2b - Establish an interagency technical team to review all CIPs and consider the interrelation between all natural resources and how to avoid negatively impacting them.		
	WM3a - Utilize appropriate funding mechanisms for the finance of District activities, including those outlined in M.S. 103D and 103B.		
	WM3b - Actively pursue non-tax levy funding sources and seek partnerships to fund District projects.		
	WM3c - Fund public education and outreach projects, activities and programs.		
	WM3d - Implement a Stewardship Fund program to evaluate, prioritize and fund appropriate projects submitted to the District.		
	WQUAL2h - Create and provide education on nutrient reduction, sediment reduction and other sources of nonpoint source pollution.		
	WQUAN2c - Create and provide education on importance of minimizing imperviousness and BMPs for flow reduction.		
	WQUAN2d - Create and provide education to contractors, city/county staff on proper BMP installation.		
	WTMG12d - Create and provide education on relationship between habitat and water quality and the importance of wetlands and riparian areas.		
	GWQP2d -Encourage infiltration on residential and small commercial/business sites in the District through education.		
	STEW1-6a - Maintain an active citizen advisory committee to provide input and assistance on District activities.		
	STEW1-6b - Participate in existing water resource educational outreach programs.		
	STEW1-6c - Provide information to agency staff on the impact of land use decisions & infrastructure management on water resources.		
	STEW1-6d - Develop educational programs targeted to the diverse population of the District.		
	STEW1-6e - Develop and provide education/information pieces on the who, what, where and importance of Watershed.		
	STEW1-6f - Involve citizens in water resource implementation and restoration activities, where feasible.		



# Appendix E

## Stormwater Management Standards Comparison

Stormwater Management Standards Comparison					
Category	Rice Creek Watershed District	Capital Region Watershed District	Mississippi Watershed Management Organization	Existing Lauderdale Design Standards	Recommended Action for LSWMP Update
Project Review Required	New development or redevelopment of industrial, commercial, institutional, or multi-unit residential projects 1 acre in size or greater.	No person or political subdivision shall commence a land disturbing activity or the development of land one acre or greater, without first obtaining a permit from the District that incorporates and approves a stormwater management plan for the activity or development.	It is the policy of the MWMO to require developments greater than five acres, including re-developments, to implement stormwater controls for quantity and quality on site.	The City reviews all development and re-development proposals for compliance with City stormwater management design standards.	Clarify the standard to include cooperation with the RCWD and CRWD permit process and the stormwater management standards associated with these permits (see Policies in Sections 7.2.3, 7.2.4, and 7.5).
	New development or redevelopment of single-family residential projects 5 acres in size or greater.				
	A permit is required for any project, regardless of size meeting any one of the following conditions: within the 100-year floodplain, within 1,000 feet of a public water or protected wetland, or within 300 feet of Rice Creek, Clearwater Creek, Hardwood Creek or a public ditch.				
	Public linear projects except mill and overlay of a public roadway, sidewalk or trail that does not create additional impervious surface.				
Volume Control	Infiltrate the runoff volume generated by a 2-year (2.8 inch) rainfall event within the contributing area, excluding linear reconstruction or new linear construction (< 1.0 acre) projects, where infiltration of 0.8 or 1.0 inches of runoff (depending on roadway classification) from new or reconstructed impervious surface is required.	Stormwater runoff volume retention shall be achieved onsite in the amount equivalent to the runoff generated from one inch rainfall over the impervious surfaces of the development. <sup>1</sup>	No standard identified	No standard identified	Require that projects meet the volume control standards of the jurisdiction WMO through the permitting process (see Policy in Section 7.2.3).
Water Quality	Water quality treatment is incorporated within the volume control requirement.	Developments shall incorporate effective non-point source pollution reduction BMPs to achieve 90% total suspended solids removal from the runoff generated by a NURP water quality storm (2.5" rainfall). <sup>1</sup>	In conjunction with the member cities' public works departments and the Minneapolis Park and Recreation Board, opportunities for installing grit chambers and detention ponds will be sought out for the treatment of stormwater runoff. Local water plans shall address specific water quality improvement goals of natural surface water storage and retention systems. Specific contaminant reductions must be addressed.	Nutrient ponds will be required to improve runoff water quality. Sizing and design of the nutrient pond shall be based on the NURP criteria and shall provide annual average phosphorus nutrient assimilation of about 60%. Average annual phosphorus concentrations of the runoff entering Walsh Lake should be maintained at or below 200 ppb.	No action required
Permanent Pool Volume	A permanent wet pool with dead storage at least equal to the runoff from a 2.5-inch rainfall over the area tributary to the pond.	No standard identified	The permanent pool volume below the principal spillway or the normal outlet shall be greater than or equal to the volume that contains the runoff from a two-inch storm.	An effective wet volume corresponding to the runoff produced by 2.5 inches of rain.	No action required
Skimming	An outlet structure capable of preventing migration of floating debris and oils for at least the one-year storm.	No standard identified	No standard identified	Varies by existing pond, no new pond standard identified.	Require all new ponds provide skimming up to the 1-year storm event HWL (see Policy in Section 7.2.4).
Rate Control	Stormwater runoff rates for the proposed project at the site boundary, in aggregate, must not exceed existing runoff rates for the critical two-year and 100-year frequency events.	Runoff rates for the proposed activity shall not exceed existing runoff rates for the 2-year, 10-year, and 100-year critical storm events, and runoff rates may be restricted to less than the existing rates when the capacity of downstream conveyance systems is limited.	Design standards will be set following an intercommunity flows analysis discussed in Section 3, which includes Lauderdale. Intercommunity Flows Analysis of subwatersheds will utilize a model that can be applied to these intercommunity areas. Any resulting design standards will not be based on storm events, rather, design standards shall be simply to reduce the probability of flooding by addressing those areas that manifested as problem-flooding areas during the wet summers of the 1990's.	Runoff rates from all new or redevelopment activities shall not exceed existing conditions.	Specify that rate control must be met for the 2-year, 10-year, and 100-year storm events, or reduced below existing rates where downstream capacity issues are identified, which will require coordination with the local WMOs (see Policy in Section 7.21).
Freeboard	<b>Regional basins:</b> low floor elevation of adjacent structures must be a minimum of 2-feet above the 100-year HWL and 1-foot above the EOF <b>Local basins:</b> low opening elevation of adjacent structures must be a minimum of 2-feet above the 100-year HWL and 1-foot above the EOF. <b>Landlocked basins:</b> low floor elevation of adjacent structures must be a minimum of 1-foot above the EOF.	New buildings: Low floor must be a minimum of 2 feet above the 100-year flood elevation for basins with outlets. For landlocked basins, low floor must be a minimum of 5 feet above the 100-year flood elevation.	No standard identified	Lowest floor elevations will be a minimum of two feet above the 100-year flood elevation, or one foot over the emergency overflow elevation, whichever is greater.	No action required
Floodplain Alteration	If a 100-year floodway has been defined according to FEMA procedures and floodplain encroachment is subject to a DNR-approved floodplain ordinance, fill in the floodway is prohibited but fill within the flood fringe is permitted. If the floodway has not been defined or a DNR-approved ordinance is not in effect, encroachment into and the placement of fill within the 100-year floodplain are prohibited unless fully compensatory storage at the same elevation is provided. Creation of floodplain storage capacity to offset fill must occur within the floodplain of the same water body, and within the original permit term. If offsetting storage capacity will be provided off site, it shall be created before any floodplain filling by the applicant will be allowed.	Placement of fill within the 100-year floodplain is prohibited unless compensatory storage is provided. Compensatory storage must be provided on the development or immediately adjacent to the development within the affected floodplain.	No encroachment on floodways that reduces capacities or expedites flood flows or allow in the flood zone only those structures that have been protected from high water, either through flood proofing or by other construction techniques recognized and accepted by the MWMO Board.	No encroachment is permitted in the 100-year flood floodway and flood fringe encroachment will only be allowed if compensatory storage is provided and no increase in flood levels or hazards is created.	No action required
Wetland Buffer Widths	To be eligible for New Wetland Credit (NWC), replacement wetland adjacent to upland must include upland buffer of native vegetation at least 25 feet in width adjacent to the entire NWC area except where contiguous with existing wetland or waterbody.	A minimum buffer of 25 feet of permanent District approved non-impacted vegetative ground cover abutting and surrounding a wetland is required.	No standard identified	No standard identified	Require that new or re-development activities provide a minimum 25-foot wetland buffer to existing wetlands (see Policy in Section 7.3.1).
Wetlands	District will regulate wetland alterations that do not require replacement under WCA rules and do not qualify for one of the specific exemptions in Minnesota Rules 8420.0122 according to the rules and procedures of WCA, except as specifically provided in RCWD Rules. Alteration under this paragraph requires replacement at a ratio of 1:1 to ensure no loss of wetland quantity, quality or biological diversity.	Wetlands shall not be drained, filled wholly or in part, excavated, or have sustaining hydrology impacted such that there will be a decrease in the inherent (existing) functions and values of the wetland. Wetland impacts shall be evaluated based on the following principles in descending order of priority: avoid the impact to the wetland, minimize the impact to the wetland, replace the wetland that was impacted. Wetland impacts shall be governed by the WCA, with certain exceptions.	The water resource management goals of the MWMO are to protect the existing wetlands and to encourage the creation or re-establishment of wetlands. Therefore, the MWMO should complete a function and value assessment of any wetlands missed by the National Wetlands Inventory or areas that provide opportunity for wetland establishment, including the identified wet areas and locales within the 100- and 500- year flood plains.	No standard identified	Clarify that the City is the WCA LGU and that wetland management standards will be consistent with WCA rules and will coordinate wetland restoration activities with the jurisdiction WMO (see Policy in Section 7.3.1).
Erosion and Sediment Control	Site erosion and sediment control practices must be consistent with the MPCA document "Protecting Water Quality in Urban Areas" (1994), as amended, and District-specific written design guidance and be sufficient to retain sediment on-site. The District may require additional erosion and sediment control measures on areas with a continuous slope leading to a sensitive, impaired or special water body, stream, ditch or wetland to assure retention of sediment on site.	No person or political subdivision shall commence a land disturbing activity of the development of land one acre or greater, unless specifically exempted by this Rule, without first obtaining a permit from the District that incorporates and approves an erosion and sediment control plan for the activity or development.	The member communities of the MWMO shall adopt and implement erosion and sediment control plans, standards and ordinances to reduce erosion and sedimentation. Member communities shall also follow the best management practices described in the MPCA document, The Minnesota Stormwater Manual, or other such documents created by member cities to achieve no adverse impact to receiving water bodies. Construction activities, including redevelopment, utility, and road construction, are required to obtain a NPDES Construction Permit from the MPCA in addition to local permitting requirements.	Site erosion and sediment control practices must be consistent with the MPCA document "Protecting Water Quality in Urban Areas"	Update standard to reference Lauderdale's current MS4 permit regulations for erosion and sediment control (see Policy in Section 7.5.1).

<sup>1</sup>For linear projects, costs specific to satisfying the volume reduction and water quality standards shall not exceed a cost cap which will be set by the Board annually. The cap shall apply to costs directly associated with the design, testing, land acquisition, and construction of the volume reduction BMPs only.