

## **Chapter 10: Local Surface Water Management Plan**

### **BACKGROUND**

The City completed its Local Surface Water Management Plan (LSWMP) in December of 2007. The plan serves as a comprehensive planning document to guide the City in conserving, protecting, and managing its surface water resources. The plan has been developed to meet the requirements of Minnesota Statutes 103B and Minnesota Rules 8410, to be consistent with the goals and policies of the Metropolitan Council's Water Resources Management Policy Plan, and the goals and policies of the watershed management organization that has jurisdiction within the City: the Elm Creek Watershed Management Commission.

The plan will be adopted by the City as an element of this Comprehensive Plan.

The LSWMP includes a detailed description of the City's natural resources, including water resources, past studies and inventories, and current surface water management. An assessment of the existing and potential water resource and stormwater related concerns within the City and associated corrective actions are provided. The LSWMP also includes goals and policies to address the long-term surface water management needs in the City, and outlines the regulations, standards, practices, projects and funding that will be needed to implement the goals and policies. The LSWMP also includes an inventory and classification of the City's wetlands, and a plan for management of those resources.

The Dayton Local Surface Water Management Plan has a dual purpose: it will serve as a guide for the construction of storm drainage facilities and provide a basis for a consistent approach to water resource protection. The following themes have been incorporated into the LSWMP:

1. Division of the City into drainage districts and catchments
2. Determination of storm water runoff under 2020 land use conditions
3. General layout and sizing of trunk storm sewers and open channels
4. Tributary areas, storage volumes, and high water levels of all required ponding areas
5. Development of wetland management policies to ensure compliance with local, state, and federal wetland regulations
6. Estimated construction and implementation costs of the Local Surface Water Management Plan
7. Trunk storm water system financing
8. Recommendations for education of City residents, staff, and development community
9. Operation and maintenance of the storm water system
10. Regulatory responsibilities.

## **LAND AND WATER RESOURCES INVENTORY**

The LSWMP provides an inventory of land and water resources within the City. This includes a description of the City's topography and watersheds, soils, land use, and key water resources consisting of numerous wetlands, creeks, lakes and rivers.

## **GOALS AND POLICIES**

The LSWMP provides a comprehensive list of the City's goals and policies for Surface Water Management. The goals and policies are consistent with Minnesota Rules 8410 and local watershed requirements and reflect a commitment by the City to protect its natural resources and sustain a high quality of life for its residents. The City of Dayton has maintained its natural drainage patterns throughout most of its development thus far. The City's goal is to foster continued optimum use of that system while enhancing the overall water quality entering wetlands, streams, and lakes. The intent is to prevent flooding while using identified best management practices (BMPs) to enhance surface water quality with minimal capital expenditures by the City. The City's goals and policies are organized using the following surface water management issues:

1. Water quantity
2. Water quality
3. Recreation and Fish and Wildlife
4. Enhancement of Public Participation
5. Public Ditch Systems
6. Groundwater
7. Wetlands
8. Erosion and Sediment Control
9. Dayton's NPDES Permit
10. Mississippi River
11. Financial Management

## **WETLAND MAPPING AND MANAGMENT**

The LSWMP provides a GIS-based wetland map to use as a planning tool for future projects that may affect wetlands. Once the 2030 land use plan and phasing is complete, the current mapping will guide the City in conducting a function and values assessment for areas of near term development. The LSWMP also outlines strategies the City will use to protect wetlands as future development proceeds. These strategies include buffers and setbacks and a wetland classification based on stormwater susceptibility, water quality, and water quantity. Wetland stewardship techniques are also addressed which include enhancement with vegetation, control of invasive exotic species, habitat construction and public education.

## **SYSTEM ASSESSMENT, ANALYSIS, AND DESIGN**

The LSWMP outlines recent assessments and of surface waters and how these affect Dayton and provides a background to guide hydrologic analysis of Dayton's surface water system. The LSWMP also provides mapping, description and detailed modeling of the City's existing and future surface water system of ponds, pipe and overland connections.

## IMPLEMENTATION PLAN

The LSWMP provides a plan for expanding and management the City's surface water system, and protecting key water resources in the City. The real measure of success of the LSWMP will be in its implementation. Implementation of the LSWMP covers a number of aspects, including:

1. Administering regulations and programs
2. Managing surface water as redevelopment and new development occur
3. Implementing a public education program regarding storm water management
4. Operating and maintaining the surface water system
5. Constructing prioritized capital improvements
6. Financing projects and programs
7. Providing a process for future amendments to the LSWMP

The summary of costs for the Capital Improvement Program based on estimated trunk sanitary sewer construction phasing is presented in the table below. This table includes three time frames: present to 2010, 2010 to 2020, and beyond 2020. Sanitary sewer construction phasing was used as the basis for trunk storm water system construction phasing because trunk storm sewer would likely occur as land develops as driven by availability of sanitary sewer service. The trunk sanitary sewer construction phasing was based on the sanitary sewer phasing plan in Dayton's December 2005 Comprehensive Sanitary Sewer Plan.

<b>Capital Improvement Summary</b>				
<b>Watershed</b>	<b>2007-2010</b>	<b>2010-2020</b>	<b>2020+</b>	<b>Total</b>
Diamond Creek	\$3,533,600	\$0	\$0	<b>\$3,533,600</b>
Rush Creek	\$6,438,800	\$1,305,200	\$0	<b>\$7,744,000</b>
Elm Creek	\$1,188,600	\$8,059,600	\$0	<b>\$9,248,200</b>
Crow River	\$1,504,300	\$800,900	\$0	<b>\$2,305,200</b>
Mississippi River	\$4,218,400	\$1,590,800	\$2,859,900	<b>\$8,669,100</b>
<b>Total</b>	<b>\$16,883,700</b>	<b>\$11,756,500</b>	<b>\$2,859,900</b>	<b>\$31,500,100</b>

## RECOMMENDATIONS

The LSWMP summarizes the following recommendations that were developed as part of the plan:

1. The LSWMP is to be adopted by the City of Dayton.
2. Establish future ponding areas
3. Establish standard review procedures to ensure all new development or redevelopment within the City is in compliance with the grading and storm water management controls determined by this Plan.
4. Require detailed hydrologic analyses for all development and redevelopment activities.
5. Establish final high water levels governing building elevations adjacent to ponding areas and floodplains as development occurs or when drainage facilities are constructed.

6. Establish and maintain overflow routes to provide relief during extreme storm conditions, which exceed design conditions.
7. Perform a functions and values assessment on wetlands prior to development.
8. Develop a Wetland Management Plan for the City.
9. Develop an assessment for the Outstanding Resource Value Water (ORVV) Mississippi River per requirements of the NPDES MS4 permit, and for inclusion into the City's SWPPP.
10. Develop an electronic map of the City's storm water management system.
11. Establish a surface water system maintenance program to ensure the successful operation of the system.
12. Continue operating and maintaining the City's surface water system in accordance with this LSWMP.
13. Enforce the erosion and sedimentation control criteria for new developments.
14. Implement an education program for City residents, staff, and development community.
15. Adopt and implement amendments to the plan as warranted by future standards or regulations.