

2.0 Introduction

2.1 Plan Purposes

This plan provides the City of Edina with an overall comprehensive water resource management plan. The plan was developed to address current and future stormwater issues, especially those related to future development and redevelopment. The plan addresses stormwater runoff management and flood control, water quality management, and wetlands protection through establishment of stormwater planning policies and recommendations.

The first goal of this *Comprehensive Water Resource Management Plan* is to provide stormwater runoff management and flood control. Design criteria have been adopted to ensure that a proper level of service for stormwater management and level of protection from flooding, per the 1969 Floodplain Management Act, is provided to residents of the City. The established design criteria are discussed in [Section 3.1](#). The current storm sewer system throughout the city has been analyzed using computer models and recommendations to improve runoff management and flood control have been made. Discussion on the stormwater analyses and the resulting implementation recommendations is included in [Sections 4 through 14](#).

The second goal of the *Comprehensive Water Resource Management Plan* is to provide water quality management for the water bodies throughout the city. Water quality management policies and design standards have been established to protect the water quality of the waterbodies within the city. These policies and design criteria are discussed in [Section 3.2](#). A water quality model was used to simulate the generation and transport of pollutants through the waterbodies within the city. The model results were used to make recommendations for upgrades to water quality basins throughout the city to maintain and improve the pollutant removal efficiency from these basins. This analysis and the resulting implementation recommendations are discussed in [Sections 4 through 14](#).

The third goal of the *Comprehensive Water Resource Management Plan* is to provide wetland protection throughout the city. The City of Edina's goal is to achieve no net loss of wetlands, including acreage, functions, and values. To achieve this goal, policies have been established to protect the wetlands within the city. These policies are included in [Section 3.4](#). To provide a basis for wetland protection efforts, an inventory and assessment of all the wetlands within the city was completed. The wetland inventory and assessment identified wetland location, size, type, wetland classification, dominant wetland vegetation, function, and value for each wetland. General management recommendations are included based on the wetland sensitivity to stormwater degradation. The inventory and assessment is discussed in [Section 16](#).

This plan will assist the City of Edina in defining and implementing a comprehensive and environmentally sound system of surface water management. It is intended to be used as a tool to:

1. Plan for projects and other water management activities so as to correct existing problems and prevent foreseeable future problems from occurring.
2. Assist the City in considering water resource impacts resulting from variances to the City's long-range land use plan.
3. Enable the City to grow/redevelop in a systematic and orderly manner while protecting its vital water resources.

In order to accomplish these objectives, the plan considers a specific array of land uses within the city limits. If and when land uses change, this plan provides the means to (1) address the proposed changes; (2) determine the impact of the changes on the City's infrastructure, flooding, and natural resources; and (3) determine the actions needed within the proposed areas of land use change to prevent undesirable impacts.

2.2 Study Area General Description

2.2.1 Drainage Patterns

The City of Edina covers an area of approximately 16 square miles. There are two stream systems that flow through the city: Nine Mile Creek and Minnehaha Creek. The northeast corner of the city drains to Minnehaha Creek, which enters the city limits northwest of West 44th Street and T.H. 100 and flows in a southeasterly direction through the city, exiting near West 54th Street and York Avenue. The southwest corner of the city drains to the South Fork of Nine Mile Creek through a series of storm sewer networks, ditches, and stormwater detention basins. The remainder of the city drains to the North Fork of Nine Mile Creek, which enters the Edina city limits in the northwest corner of the city near the intersection of T.H. 169 and Londonderry Road and meanders in a southeasterly direction through the city and exits the city limits near the intersection of T.H. 100 and Interstate 494.

For the purposes of this study, the city was divided into several major drainage areas based on drainage patterns. These drainage areas are depicted in [Figure 2.1](#) and listed below:

- Nine Mile Creek- North
- Nine Mile Creek- Central
- Lake Cornelia/Lake Edina/Adam's Hill Pond
- Nine Mile Creek- South
- Nine Mile South Fork
- Southwest Ponds

- T.H. 169 North
- Northeast Minnehaha Creek
- Southeast Minnehaha Creek
- Northwest Minnehaha Creek

Sections 5 through 14 discuss the drainage patterns within each of these drainage areas and describe the recommended stormwater system improvements for each area. In some cases, the drainage areas may include portions of adjoining cities, including Hopkins, Minnetonka, Eden Prairie, Bloomington, Richfield, and Minneapolis. The ten drainage basins listed above were subdivided into major watersheds and subwatersheds. Watershed divides were determined using air-flown 2-foot topographic data and, in some cases, field verified.

2.2.2 Land Use

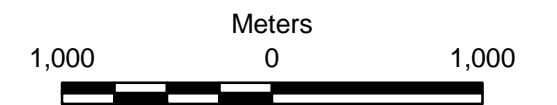
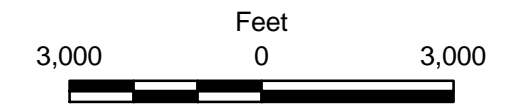
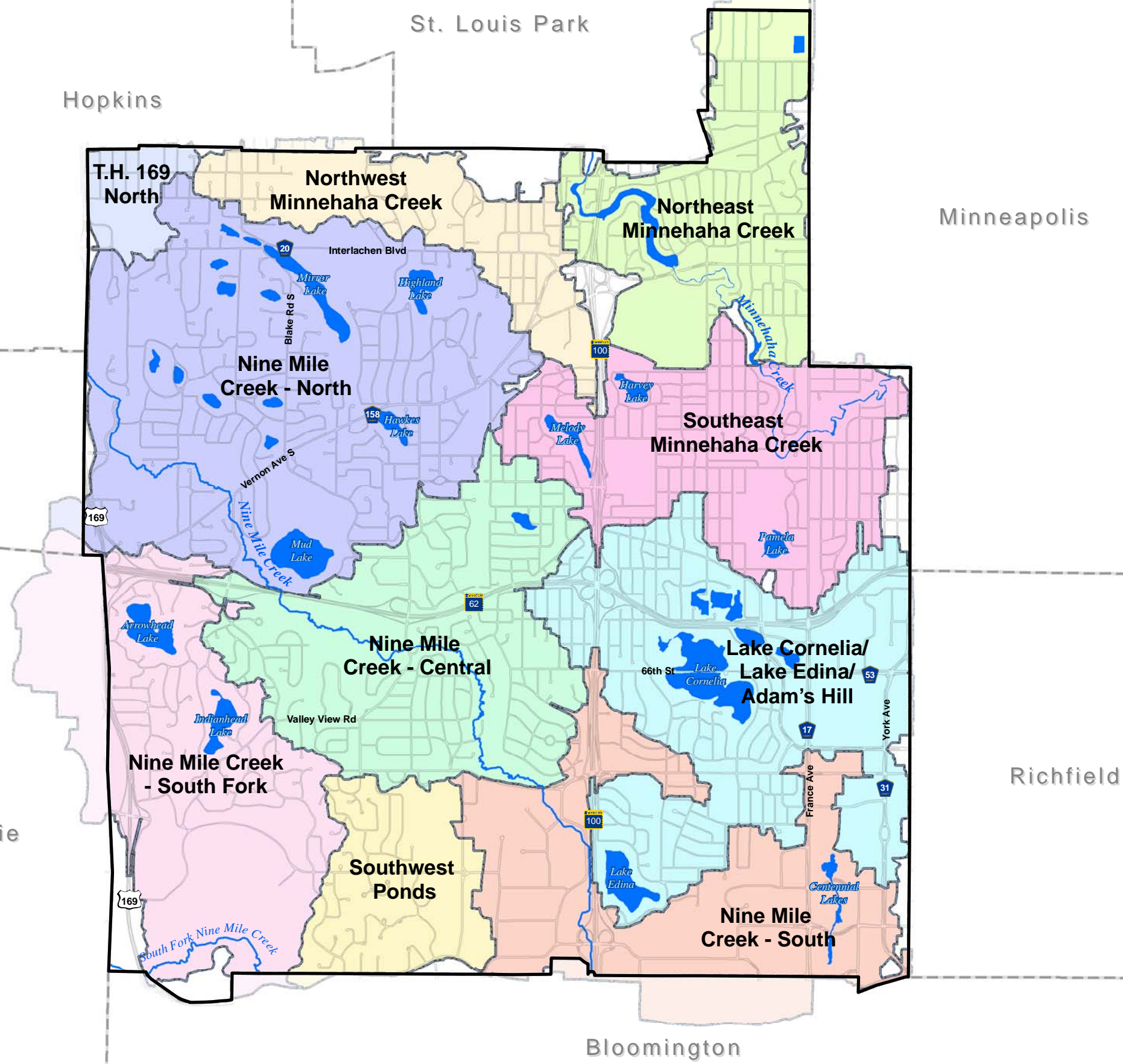
The City of Edina is fully urbanized. Less than one percent of the developable area within the city, not including wetland, floodplain, or park land uses, remains available for development. The *Edina Comprehensive Plan* (Edina, 2009) provides additional information about the existing and projected land uses in the city.

2.2.3 Soils

The infiltration capacity of soils affects the amount of direct runoff resulting from rainfall. Soils with a higher infiltration rate have a lower runoff potential. Conversely, soils with low infiltration rates produce high runoff volumes and high peak runoff rates. According to the Hennepin County soil survey, the underlying soils in the City of Edina are predominantly classified as hydrologic soil group B, with moderate infiltration rates. The underlying soils in the south-central and southeast portions of the city are classified as hydrologic soil group A, characterized by high infiltration rates. The underlying soils surrounding the floodplain of Nine Mile Creek and Minnehaha Creek and around many of the natural wetlands within the city are classified as hydrologic soil group D, with very slow infiltration rates. [Figure 2.2](#) depicts the hydrologic soils group classification for soils within the City of Edina.



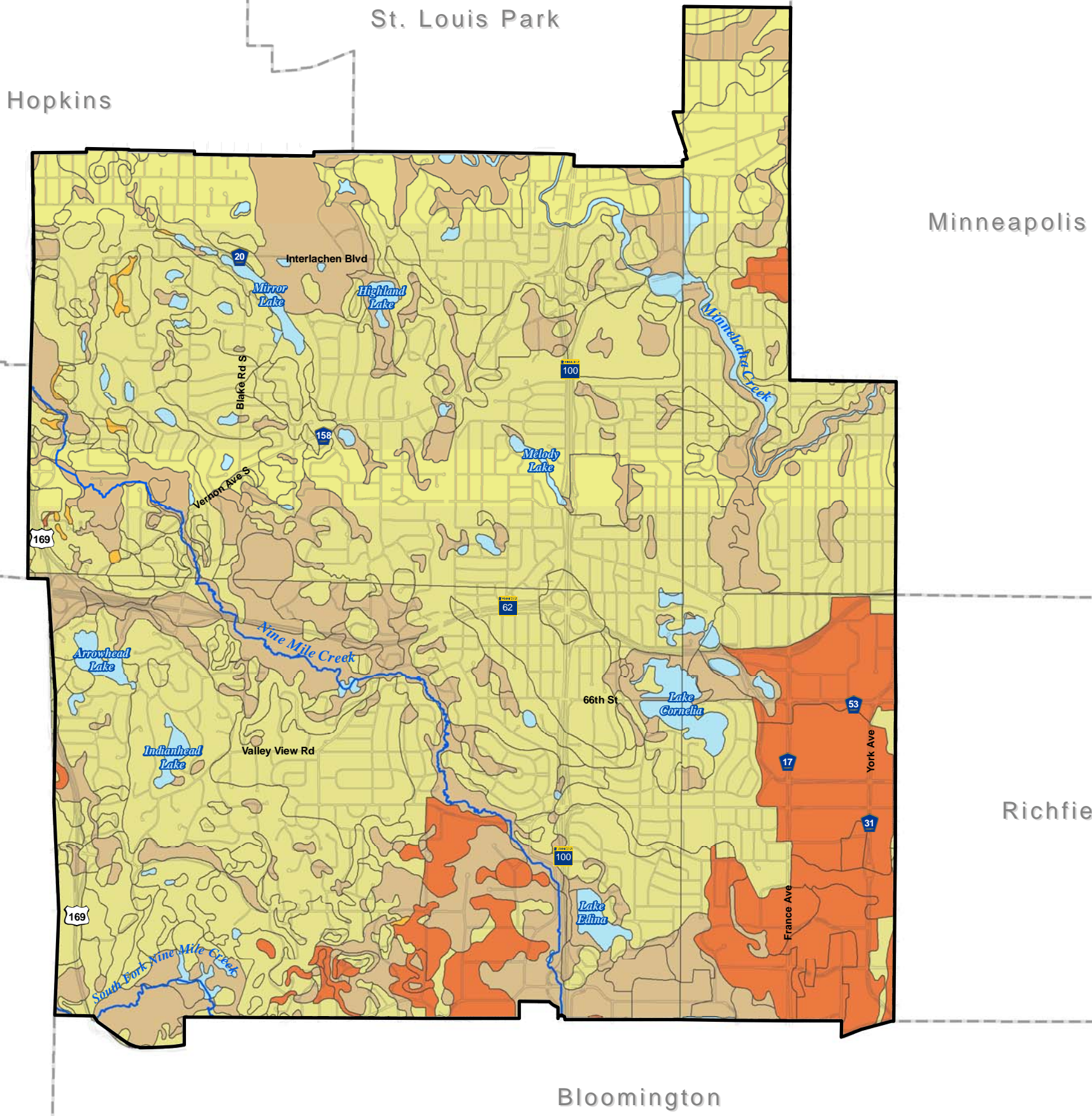
- City of Edina Boundary
- Roads/Highways
- Creek/Stream
- Lake/Pond
- Major Drainage Area



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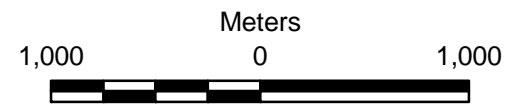
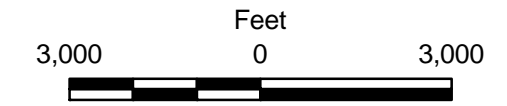
Figure 2.1

MAJOR DRAINAGE AREAS
Comprehensive Water Resource
Management Plan
City of Edina, Minnesota



- City of Edina Boundary
 - Roads/Highways
 - Creek/Stream
- Hydrologic Soil Groups**
- A - High infiltration rates.
Low runoff Potential.
 - B - Moderate infiltration rates.
Low to medium runoff potential.
 - C - Slow infiltration rates.
Medium to high runoff potential.
 - D - Very slow infiltration rates.
High runoff potential.
 - Water

Soils Data Source: Hennepin County Soils GIS Database



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Figure 2.2

EDINA SOILS CLASSIFICATION
Comprehensive Water Resource
Management Plan
City of Edina, Minnesota