

CITY OF DAYTON
2040 COMPREHENSIVE PLAN
Chapter 3: Natural Resources

Introduction

Dayton's natural resources are among the defining features of the city. Balancing preservation of these resources with future growth is a corner stone of this plan, and was articulated as a priority by residents during the comprehensive planning process.

Goals and Policies

Goal 1: Preserve natural areas for multiple uses including wildlife habitat, lake and wetland restoration, fishing, parks and other recreational uses.

Goal 2: Maintain Dayton as a “dark-sky” community (public and private property), minimizing unnecessary outdoor lighting through educational efforts and effective exterior lighting ordinances.

Goal 3: Conserve rural vistas, viewsheds, open spaces, wetlands and other environmental features and reduce the impacts of future growth and development activities.

Policy 1: Preserve, as undeveloped open space the following environmental sensitive areas to the extent consistent with the reasonable utilization of land and in accordance with applicable federal, state and local regulations:

- Unique and/or fragile areas in Section 404 of the Clean Water Act, as amended, and as delineated on National Wetland Inventory maps, prepared by the US Fish and Wildlife Service, field verified on on-site inspection.
- Groundwater and aquifer recharge areas.
- Lands in the floodplain.
- Drainage ditches and their adjacent lands.
- State and federal threatened and endangered plants and animals and well as their habitats as identified on federal and/or state lists.
- Significant trees or stands of trees or species of clumps of trees that are of particular horticultural or landscape value.
- High quality natural areas defined in sites mapped as A, B or C quality in the 2003 Natural Resource Inventory

Policy 2: Encourage development to be designed so as to preserve and be compatible with the important natural features of the site and minimize or avoid impact to high quality resources.

Policy 3: Create incentives for developers to preserve or dedicate prime natural areas within developments for parks, trails and open space.

Policy 4: Establish conservation requirements for new development including enforced buffer requirements for areas near water, low-impact development, rain gardens and swale stormwater run-off programs.

Policy 5: Promote the use of plant species native to Hennepin County and/or central Minnesota in landscape plans to help enhance habitat value. This is especially relevant

for properties within greenway corridors or adjacent to high quality natural areas.

Goal 4: Continue to conserve greenways that link unique or ecologically significant natural areas.

Policy 1: Review and amend our greenway corridor plan and subdivision ordinance to ensure that the ordinances purposefully protect resources that are otherwise unprotected from federal or state rules.

Policy 2: Continue to follow the Greenway Corridor Plan that identifies key links and establish greenways that residents can utilize and enjoy as property is developed.

Goal 5: Utilize waterfront areas to make the best use of the land with the least impact to the natural state of the lakeshore, river and stream banks, and critical areas to keep the land beautiful and natural for generations to come.

Policy 1: Acquire any available lands (if financially practical) in the Mississippi River corridor or near lakes for preservation. Investigate the availability of grant funds to help with acquisition.

Land and Water Resource Inventory

Dayton's landscape has gone through many changes due to human activity. Before European settlement, the area was part of the "Big Woods" ecoregion where oak woodland and maple-basswood forests were the dominant vegetation types. The notes of the Public Land Survey conducted in 1856 describe the Dayton area as being 'extremely timbered,' generally level, and with many lakes and marshes. During settlement, much of the landscape was converted to agricultural land. Since then, a portion of the landscape has remained in agricultural use while some has been developed primarily for residential use.

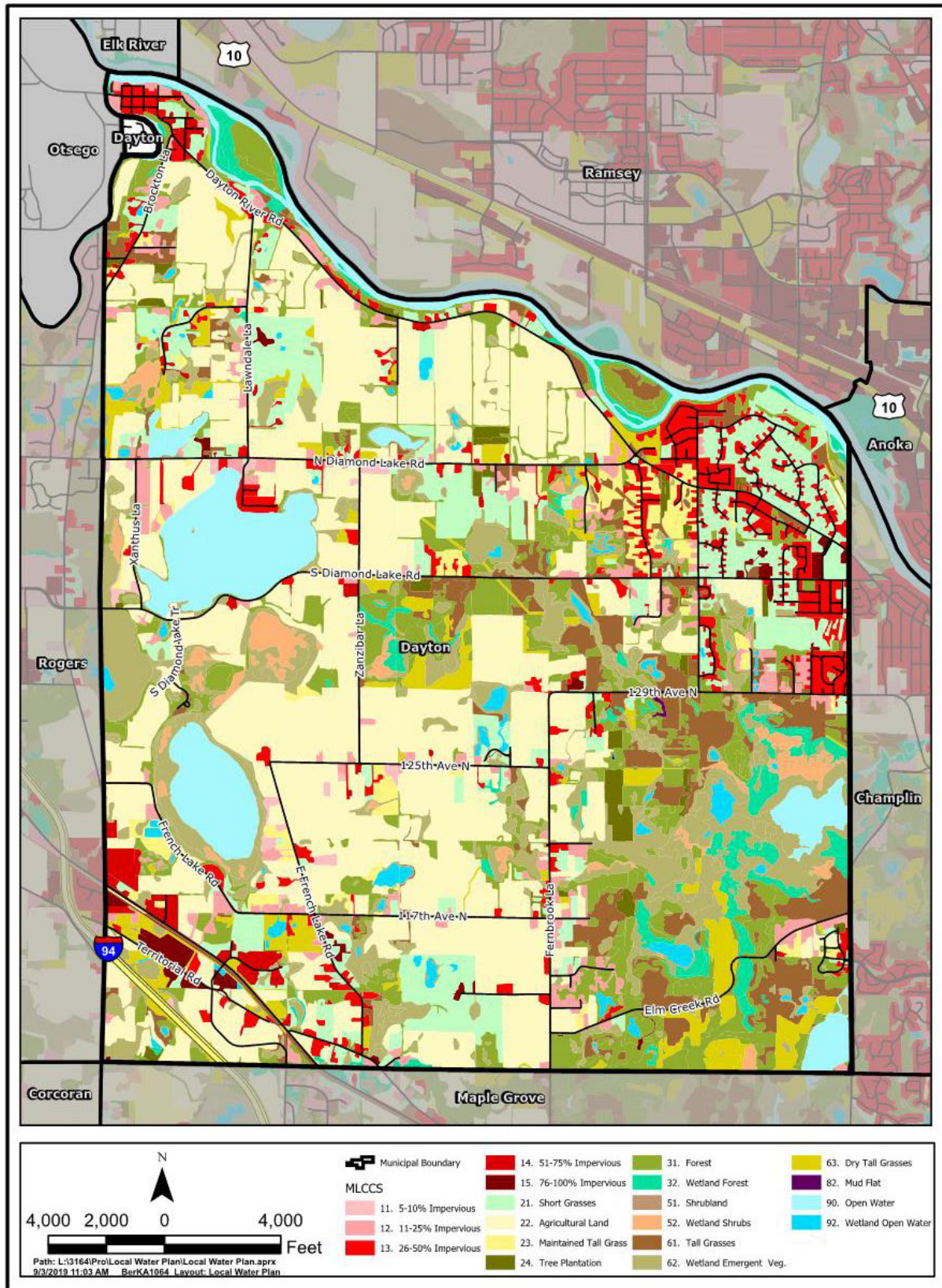
Elm Creek Park Reserve, the Mississippi River, and the French and Diamond Lakes and its tributaries are among the most dominate natural features of the city. Elm Creek Park Reserve, managed by Three Rivers Parks District, occupies the southeast corner of the city, and extends south into Maple Grove and east into Champlin. Elm Creek Park Reserve covering 4,900 acres across the cities of Dayton, Champlin and Maple Grove, and features picnic grounds, a large creative play area, a swimming pond, a winter sports area, and an extensive bicycle/pedestrian trail system that allows users to view the park's lakes, wetlands, and Elm and Rush Creeks. The Eastman Nature Center in far southern Dayton features quiet reading and observation rooms, large classrooms, a professional exhibit area with wildlife watching, and outdoor learning facilities such as display gardens, a floating boardwalk, pond observation blind, amphitheater, orienteering courses, and demonstrative plantings for wildlife.

The section of the Mississippi River bordering Dayton is included in the Mississippi River National River and Recreation Area, a 72-mile stretch of the river protected and managed by the United States National Park Service. Dayton's section of the Mississippi River is additionally protected by the MPCA as an Outstanding Resource Value Water, which can limit discharges to the river.

French and Diamond Lakes and the wetland complex to the west define the west-central portion of the City. Diamond Lake, at over 400 acres, provides a popular shallow lake fishery. The following map illustrates the Minnesota Land Cover Classification System (MLCCS). The MLCCS is the main source of field verified land cover information available. As illustrated,

agricultural land is still the predominate land cover classification throughout much of western and northern Dayton. The bulk of Elm Creek Park Reserve is a mixture of grasses, wetlands and forest cover.

Figure 3.1. Land Cover Map



Some notable natural areas within the Elm Creek Park Reserve, and the French and Diamond Lake complexes, include some high-quality wetland areas within and adjacent to the Elm Creek Park Reserve and around French and Diamond Lakes. Two wetland areas are of special interest. One is a very high-quality tamarack swamp in the Elm Creek Park Reserve; tamarack swamps approach the southern limit of their range here and are uncommon in Hennepin County. The second is a high-quality wetland that is partially within Elm Creek Park Reserve and partially privately owned.

Between 2003 and 2005, the Hennepin County Department of Environmental Services contracted with consulting experts to conduct a land cover classification mapping and a natural areas assessment in Dayton. The purpose of the project was to classify land cover within the city and to assess the relative ecological quality of the city's remaining natural areas by performing in field surveys.

The details of the Natural Resources Inventory and MLCCS Mapping project go beyond the scope of the Comprehensive Plan; however, some areas of interest are referenced as follows:

- Three Black Ash Swamps (Sections 20 to 21, Sections 26, 27, and 34)
- One Cattail Marsh (Section 26)
- One Mixed Emergent Marsh (Section 34)
- One Floodplain Forest (Section 10)
- One Hardwood Swamp (Section 26)
- Three Lowland Hardwood Forests (Sections 20, 21, 34, and 35)
- Seven Maple-Basswood Forests (Sections 16, 17, 20, 21, 27, and 34)
- One Tamarack Swamp (Section 34)
- Two Wet Meadows (Section 16 and 17)

The following graphic is from the Natural Resources Inventory and MLCCS Mapping project, noting some of the references above.

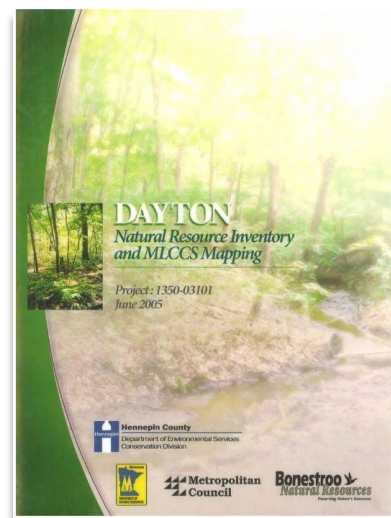
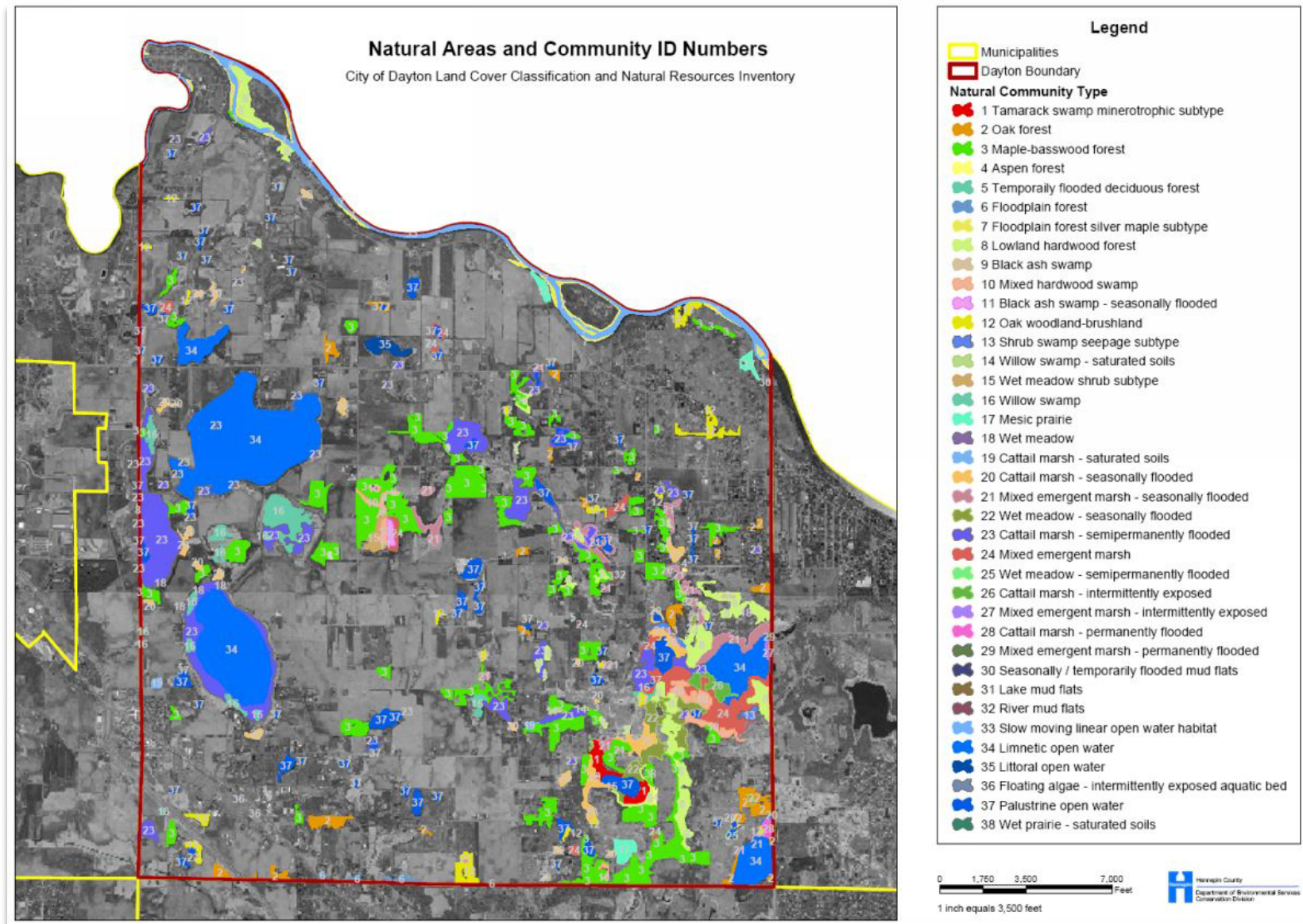


Figure 3.2. Natural Resources Inventory

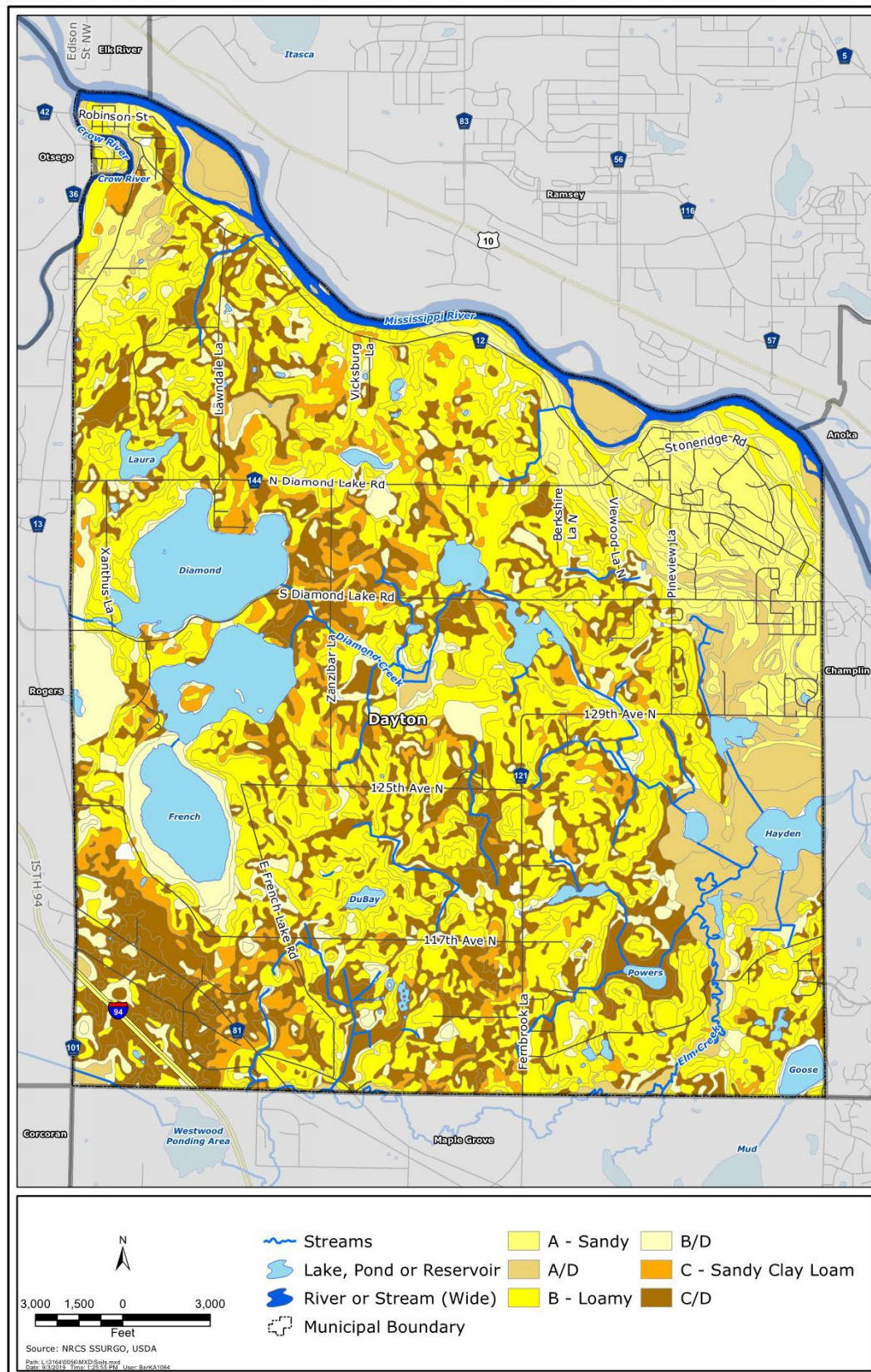


Geology and Soils

The bedrock underlying Dayton is part of the St. Lawrence and Franconia formations consisting of dolomitic siltstone and shale. The surficial geology is predominantly loamy till with scattered sandy till and lacustrine deposits. The Hennepin County Geologic Atlas has more information regarding the geology and hydrogeology in Dayton, and can be found online at purl.umn.edu/58491.

The soils in Dayton are predominantly fine textured silt loams and clay loams (Figure 3.2), which tend to support mesic native plant communities in the uplands (such as mesic oak forest, maple basswood forest, and mesic prairie). The Hennepin County Soil Survey has more information regarding soil units within Dayton, which can be viewed online at the Natural Resources Conservation Service's Web Soil Survey at websoilsurvey.nrcs.usda.gov/app/HomePage.htm.

Figure 3.3. Soils Inventory Map

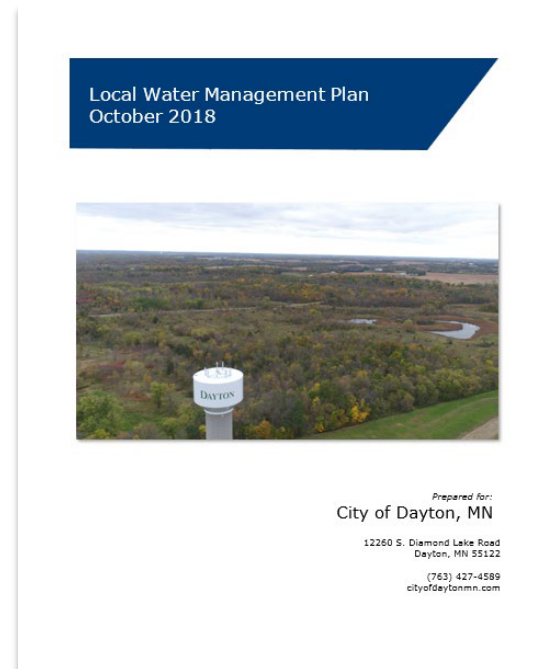


Surface Water

The Metropolitan Council's Water Resources Management Policy Plan is a framework to integrate water resources management and protection with planning for the Metro region's growth. In 1995, the Metropolitan Land Planning Act was amended to require that each city and township's comprehensive plan include a local water management plan. These local plans need to be consistent with Minnesota Statutes 103B and Metropolitan Land Planning Act requirements. Local water management plans are reviewed by the Metropolitan Council as part of the local comprehensive planning process prior to approval by the watershed management organization and adoption by the city or township.

In addition to the local stormwater plan elements required in statute and administrative rule, the Policy Plan expects communities to show that they are committed to the Metropolitan Council's goal of no adverse impact (nondegradation) for area water resources. Local plans should include actions such as writing ordinances that runoff water quality treatment, limiting the rates and volumes of runoff, adopting BMPs for development and redevelopment, and planning for wetland management.

The City of Dayton completed a Local Water Management Plan in 2018. The Local Water Management Plan describes how the City of Dayton will fulfill the requirements of Minnesota Statutes 103B.235 and Minnesota Rules 8410 in the management of the water resources within the City. It is a summary of the City's management goals and policies, and strategies, including a capital improvement program and review of local policies and ordinances.

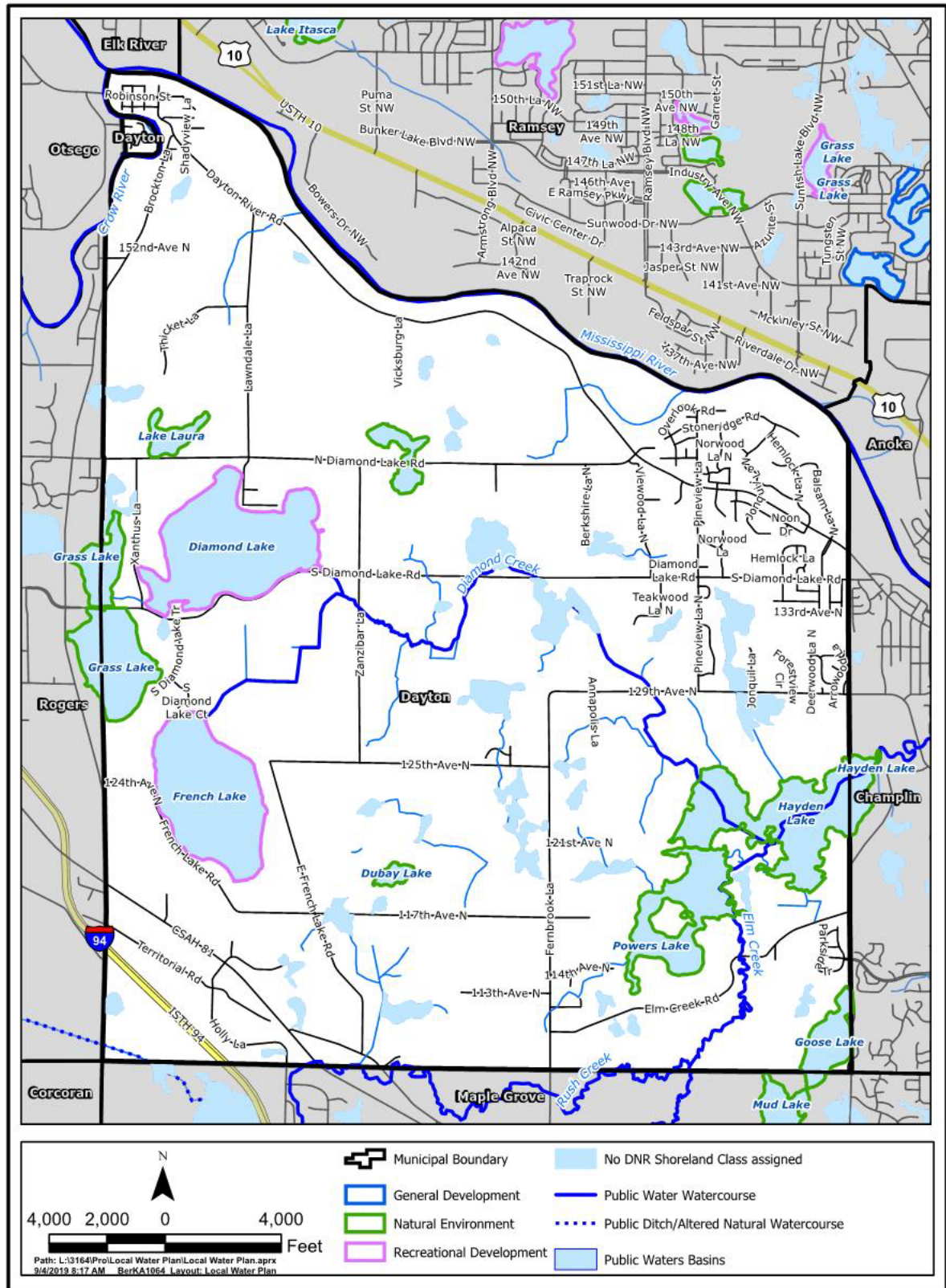


Lakes

There are seven lakes in Dayton. Diamond and French Lakes are the largest lakes and the only two lakes with public access ramps. Diamond Lake is listed as impaired on the MPCA's draft 2016 303(d) list for excess nutrients due to elevated total phosphorus levels.

The map below is a public waters layer with the associated shoreland classification. The map illustrates the lakes and streams within Dayton and includes the corresponding shoreland classification for each waterbody. Shoreland rules are the associated land use restrictions are outlined in City code, based on the DNR model shoreland ordinance.

Figure 3.4. Public Waters Map



Water Quality Standards for Lakes

Minnesota's standards for lake water quality vary depending on the depth classification of the lake. Shallow lakes are defined by having a maximum depth of 15 feet deep or less or having 80 percent or more of lake area 15 feet or less (i.e., shallow enough to support rooted aquatic plants). All of Dayton's lakes are defined as shallow. The following table is an excerpt from the October 2018 Local Water Management Plan and provides a summary of information regarding the lakes in Dayton.

Characteristics of Dayton Lakes

Lake	DNR ID#	Surface Area (ac)	Max Depth (ft.)	Public Access	DNR Class ¹	10-year Summer Average			Depth Class
						TP (µg/L)	Chl-a (µg/L)	SD (m)	
Diamond Lake	27-0125-00	406	8	Ramp	RD	170	68	0.8	Shallow
DuBay Lake	27-0129-00	15	n/a	No	NE	n/a	n/a	n/a	Shallow
French Lake	27-0127-00	217	6	Ramp	RD	214	152	0.5	Shallow
Goose Lake	27-0122-00	59	6	No	NE	175	111	0.3	Shallow
Hayden Lake	27-0128-00	93	n/a	No	NE	n/a	n/a	n/a	Shallow
Lake Laura	27-0123-00	35	n/a	No	NE	n/a	n/a	n/a	Shallow
Powers Lake	27-0130-00	15	n/a	No	NE	n/a	n/a	n/a	Shallow

Source: DNR LakeFinder, MPCA Environmental Quality Information System (EQIIS). Note: TP= total phosphorus; Chl-a= chlorophyll-a, a measure of algal density; SD= Secchi depth or clarity; RD = Recreational Development; NE = Natural Environment, n/a = Not Applicable.

Streams

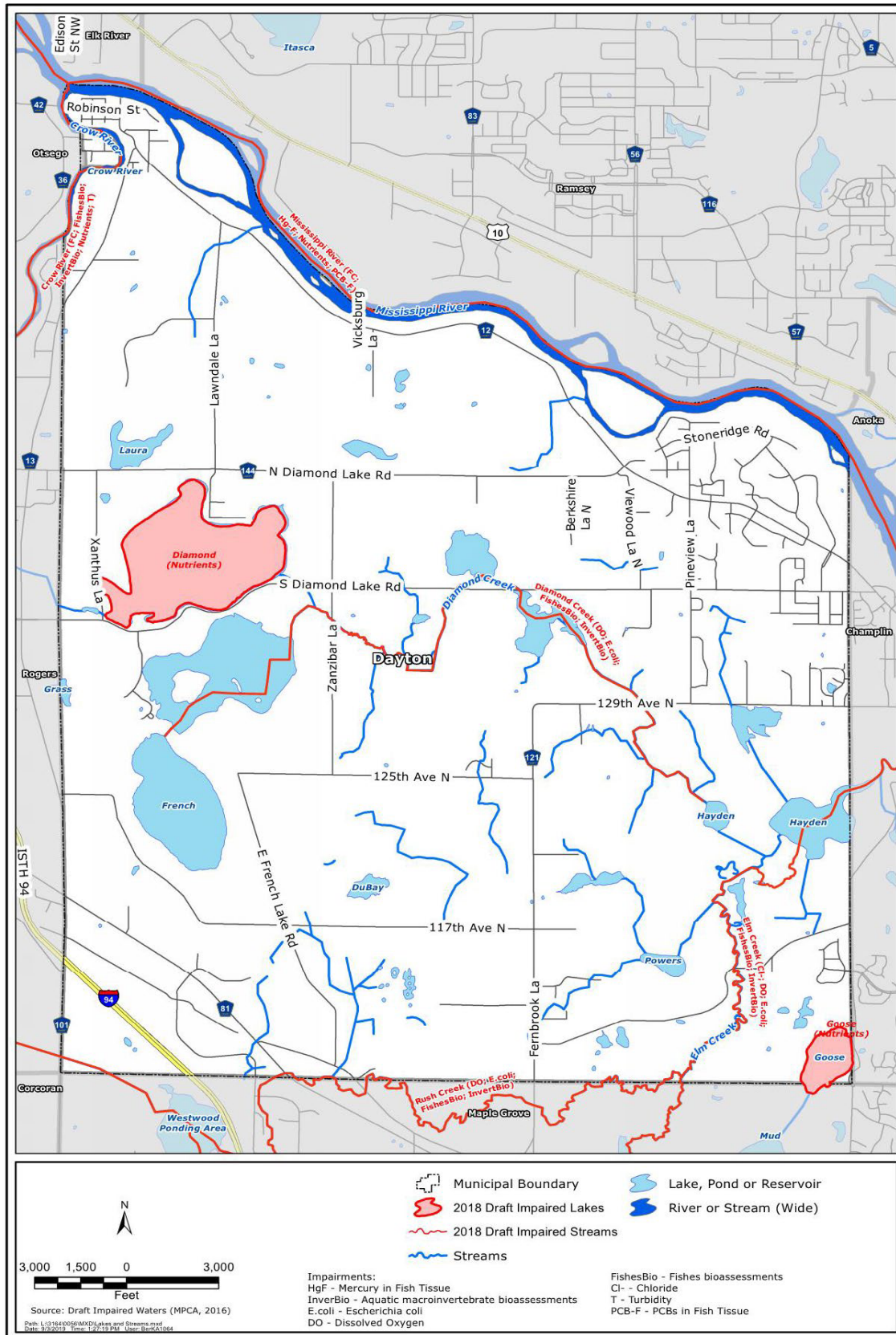
Diamond Creek, Elm Creek and Rush Creek and their tributaries drain the majority of Dayton. Small portions of Dayton also drain directly to the Mississippi River (north) and to the Crow River (northwest). Diamond Creek, Elm Creek, Rush Creek, the Crow River and the Mississippi River are all listed as impaired on the MPCA's draft 2016 303(d) list for various pollutants including excess nutrients, excess *Escherichia coli*, low fish integrated biotic integrity, low macroinvertebrate integrated biotic integrity, high turbidity, low dissolved oxygen, excess chloride, mercury in fish tissue and PCBs in fish tissue.

Major Streams and Rivers in Dayton

Stream Name	Reach #	Length (mi)
Crow River	07010204-502	1.1
Diamond Creek	07010206-525	5.1
Elm Creek	07010206-508	3.1
Mississippi River	07010206-805	5.8
Rush Creek	07010206-528	1.2

Lakes and streams that do not meet state water quality standards are listed as “Impaired” by the State of Minnesota. These lakes, streams and rivers require additional analysis in the form of a Total Maximum Daily Load (TMDL) study. A TMDL is the maximum amount of a pollutant a waterbody can receive and still meet water quality standards. The TMDL study identifies the sources and magnitude of pollutant loading and establishes a numeric load reduction that must be made for each source. The following map illustrates the impaired waterbodies in Dayton.

Figure 3.5. Impaired Water Bodies Map



Wetlands

Wetlands provide a number of valuable services to the community including natural flood control, filtering, cleaning and supplying water for both downstream waterbodies and groundwater sources, while also providing valuable habitat for fish, amphibians, waterfowl, birds and other wildlife. They are an economic amenity in many developments and can provide visual and special buffers between homes. The State of Minnesota and the Federal Government recognize the values that wetlands provide and have created a series of rules that protect wetlands. In the state of Minnesota, nearly all wetlands are protected by the Wetland Conservation Act.

Wetlands are common throughout the City with higher concentrations in Elm Creek Park Reserve, near French Lake, and along the creek corridors. There are several sources of information that can help in a preliminary determination of whether wetlands are present on a site, as described below. In all cases a review by an experienced wetland professional is recommended and, in some cases, required to make a final determination regarding the presence or absence of a wetland and to determine the legal boundaries of any wetlands. Appropriate permits are required prior to any activities which fill, drain, or otherwise impact a wetland.

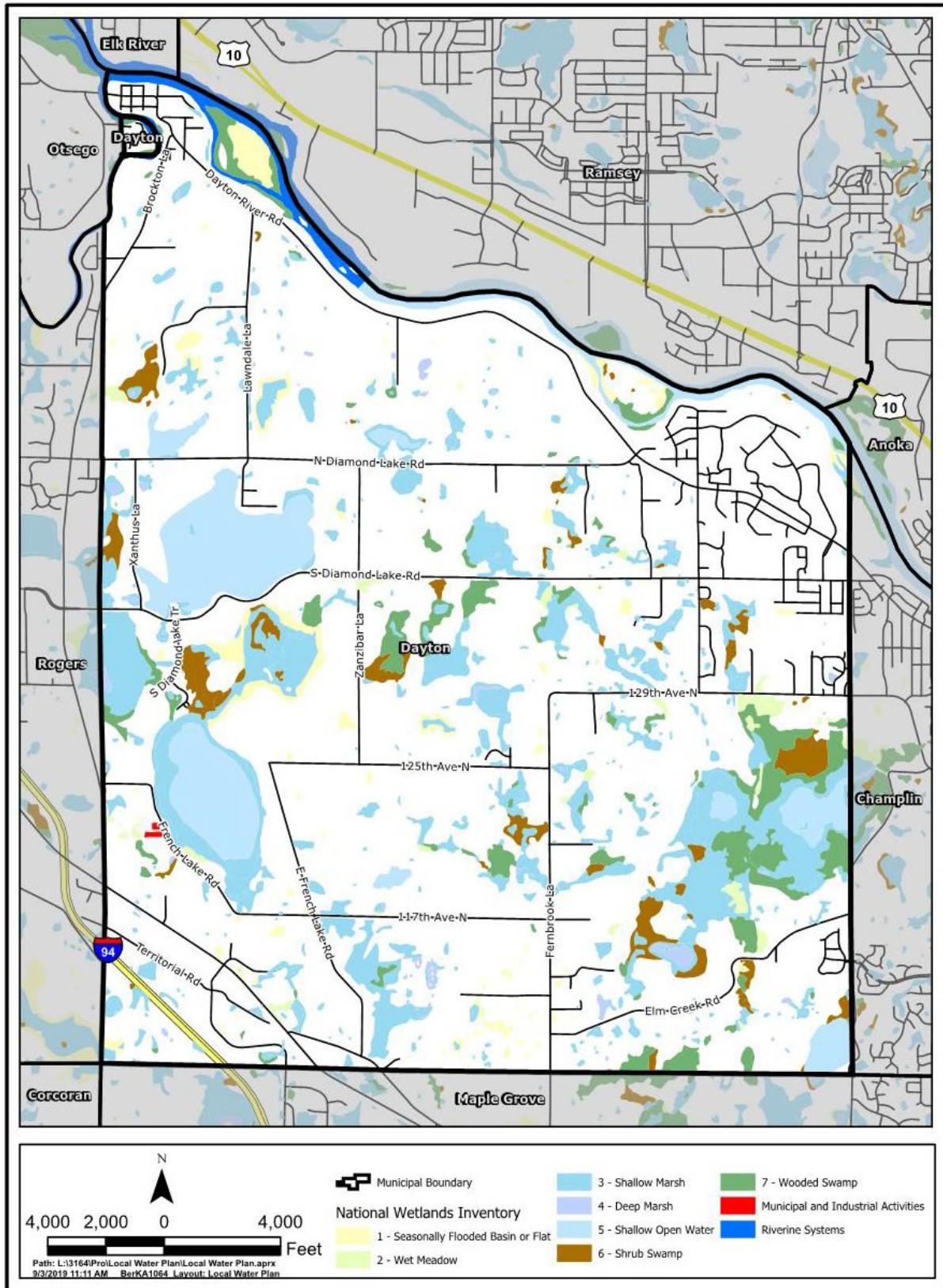
The City of Dayton is the Local Governmental Unit (LGU) for the Wetland Conservation Act of 1991 (WCA) within the City's subdivision authority. Wetland LGU responsibilities include:

- Review and approve wetland delineations and determinations
- Review and approve wetland exemption / no-loss applications
- Review and approve wetland replacement plan applications
- Coordinate Technical Evaluation Panel (TEP) meetings
- Send Notices of Application and Decision to the TEP
- Enforce wetland replacement monitoring requirements, review monitoring reports and certify replacement wetlands
- Work with MDNR and Hennepin County to enforce WCA violations

The National Wetlands Inventory (NWI) is a national assessment of wetland resources, conducted by the United States Fish and Wildlife Service between 1988 and 1992 within the state of Minnesota. The NWI survey was based strictly on aerial photography reconnaissance and interpretation and may be less accurate than some of the other sources. However, the NWI coverage is useful in giving an estimate of the extent (i.e., approximate geographic location) and type (i.e., system, hydrologic regime, and predominant vegetation types) of wetlands within the City. The 2003-2005 MLCCS Mapping and Natural Resource Inventory is the main source of field-verified wetland information on a City-wide scale. Limitations of the data include that wetlands below approximately 1 acre in size are not captured in this system, nor are many temporary wetlands in agricultural fields, pastures, or forests.

There are approximately 12,400 acres of wetland in Dayton. Wetland in Dayton is dominated by shallow open water and shallow marsh. There are also several seasonally flooded basins, especially surrounding Hayden Lake and Elm Creek, and scattered shrub swamp. The following map illustrates wetlands based on the National Wetlands Inventory.

Figure 3.6. Wetlands Inventory Map



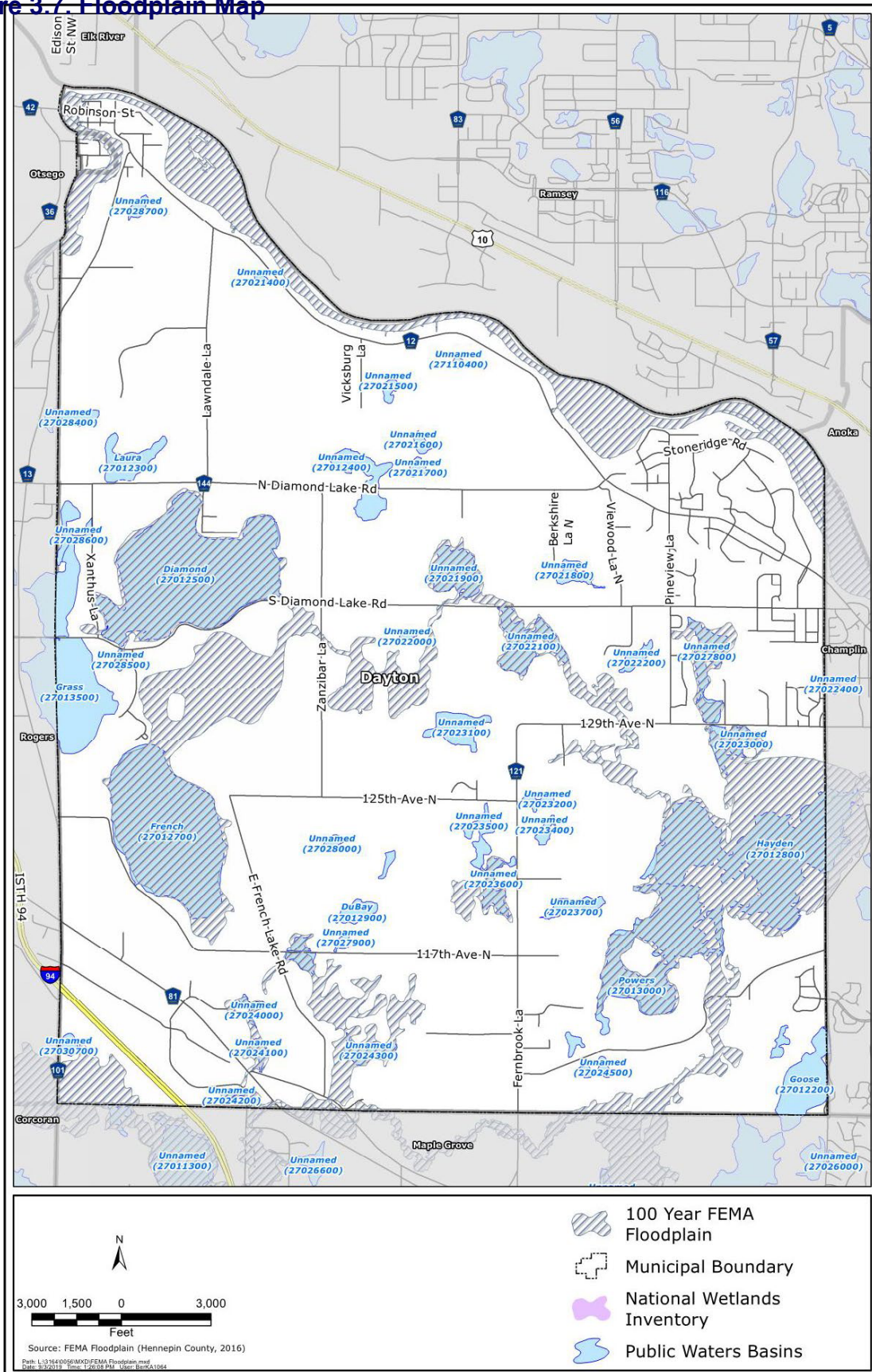
Floodplain

Floodplain allowed to maintain its natural hydrologic and hydraulic functions provides a variety of functions including natural flood and erosion control, surface water quality maintenance, groundwater recharge opportunities, biological productivity, fish and wildlife protection and recreational opportunities. In 1968, Congress created the National Flood Insurance Program (NFIP) to make flood insurance available to property owners at federally subsidized rates. Community participation in the NFIP requires adoption and administration of a local floodplain ordinance based on Flood Insurance Rate Maps (FIRMs) and a corresponding Flood Insurance Study (FIS) that identifies floodplain boundaries and elevations of floodplain depths (where available). Under the Floodplain Management Act, the MnDNR establishes floodplain regulations. From the beginning of the program in 1969, Minnesota has had regulatory standards greater than the minimum federal program requirements. Floodplain regulations throughout Minnesota and the City of Dayton help preserve flood-prone areas as passive public open space.

Land use regulations define the floodplain as the area covered by the flood that has a one percent chance of occurring each year, also known as the 100-year flood. The floodplain is divided into two zoning districts: the floodway and flood fringe. The floodway includes the river channel and nearby land areas which must remain open to discharge the 100-year flood. The flood fringe, while in the floodplain, lies outside the floodway.

Hennepin County recently completed a County-wide Floodplain Restudy and thereby the City of Dayton has updated FIRMs and FIS. The individual map panels and insurance study can be viewed at City Hall, Hennepin County Environmental Services or through FEMA's online Flood Map Service Center. The following figure shows the 100-year floodplain in Dayton, or the parts of Dayton that annually have a 1 percent chance of flooding. Please be apprised that the City of Dayton's floodplain models will be updated again through a FEMA grant administered by the MnDNR. The modeling efforts and the final products will not be completed until 2020-2021.

Figure 3.7. Floodplain Map



Groundwater

Dayton relies on groundwater for municipal water, currently operating two wells drawing from the Franconia-Ironton-Galesville aquifer. Groundwater is managed through the City's Wellhead Protection Plan. Part 2 of the Plan was just completed in 2019. This plan provides comprehensive guidance to protect wellhead areas from contamination while meeting the requirements of the Safe Drinking Water Act and the Minnesota Groundwater Protection Act. The Wellhead Protection Plan details measures to protect the groundwater entering and flowing through the Wellhead Protection Area to protect the drinking water supply from contamination. The following items are included in the Plan:

- A delineation of the Wellhead Protection Area (WHPA) and Drinking Water Supply Management Area (DWSMA) for the public water supply system.
- Identification of potential sources of contamination to the DWSMA, such as unsealed wells, Class V wells and underground storage tanks, and establish strategies and actions to manage risk and to minimize impacts to the DWSMA.
- A spill response plan in coordination with other cities in the DWSMA.
- Information and guidelines and policies for the use of infiltration BMPs for stormwater management.

Further the DNR provided a groundwater technical review of the Water Supply Plan (Permit 2001-6076 City of Dayton) in early 2019. The technical review including a summary of the current impacts, potential future impacts and recommendations on how to manage growth and its influence on groundwater and water supply for Dayton.

Mississippi River Corridor Critical Area (MRCCA)

Dayton is within the MRCCA area, and as such, is required to submit a plan meeting the DNR's requirements for river protection for this federally protected watercourse. Dayton's MRCCA Plan can be found in the [appendix A](#) and per the Metropolitan Council and DNR requirements.

City Code and Zoning Ordinances

Protection of natural resources has been an important consideration throughout the City's development history. Existing water resource and natural resource related policies and local controls (City Code sections) include:

- ▲ Wastewater, Sanitary Sewer System (Chapter 51)
 - Sanitary Sewer Discharges (Chapter 51.01-51.06)
 - Individual Sewage Treatment Systems (Chapter 51.20-51.30)
 - Wastewater Treatment and Collection Facilities (Chapter 51.40-51.99)
- ▲ Water System (Chapter 52)
 - General Provisions (Chapter 52.001-52.015)
 - Water Usage (Chapter 52.050-52.056)
- ▲ Storm Water Management (Chapter 151)
 - Storm Water Pollution Prevention Plan Submittal Procedures (Chapter 151.07)
 - Storm Water Pollution Prevention Plan Review Process (Chapter 151.08)
 - Minimum Construction Site Best Management Practices (Chapter 151.09)

- ▲ Public Property; Improvements and Excavations (Chapter 153)
 - Excavations (Chapter 153.15-153.21)
- ▲ Land Usage (Chapter 1000)
- ▲ Zoning (Chapter 1001)
 - Mississippi River Corridor (Chapter 1001.07)
 - Shoreland Zoning (Chapter 1001.08)
 - Floodplains (Chapter 1001.09)
 - Landscaping and Screening (Chapter 1001.24)
 - Tree Preservation and Replacement (Chapter 1001.25)
 - Steep Slopes (Chapter 1001.26)
 - Wetlands (Chapter 1001.27)
 - Construction Site Runoff Control (Chapter 1001.33)
 - Storm Water Illicit Discharge and Illicit Connection (Chapter 1001.34)
- ▲ Subdivisions (Chapter 1002)
 - Growth Management (Chapter 1002.14)
 - Conservation Subdivision (Chapter 1002.15)

These ordinances and policies have provided the City and the private development sector with the means to protect the City's natural resources through limiting wetland filling, establishing minimum setbacks, requiring steep slope and shoreline buffers, managing floodplain areas, and implementing BMPs to prevent pollution, manage stormwater runoff and protect water resources. After the adoption of the 2040 Comprehensive Plan, the City will update all regulatory codes and adopt necessary changes per requirements of the Metropolitan Council and the State's regulatory agencies.