

Section 2: Background

Introduction

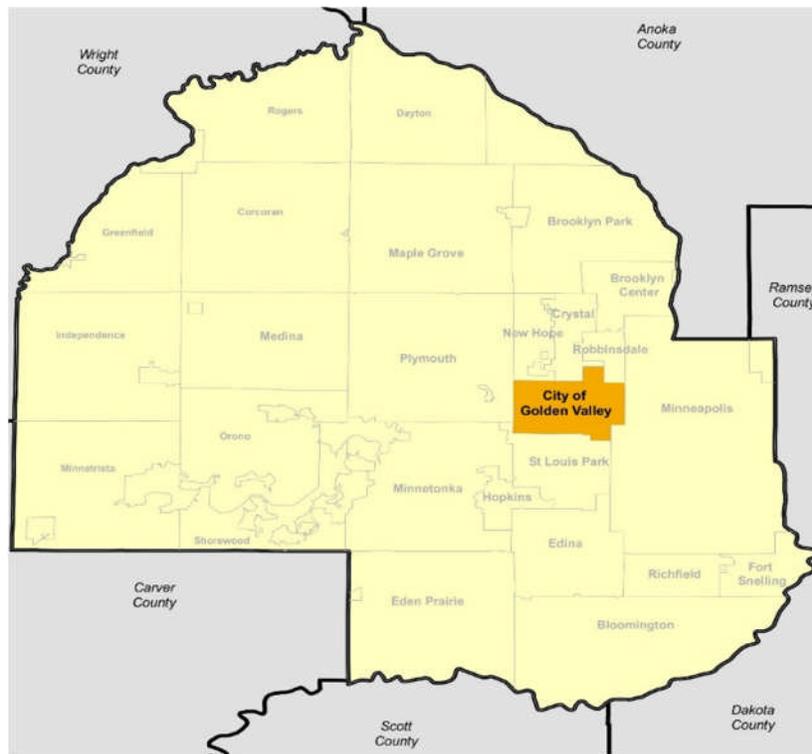
This section provides a background information related to Golden Valley’s location within the Twin Cities Metro Area. It also provides a brief discussion of the natural conditions found below, within, and at the surface of the city’s landscape. This includes topics on geology, hydrology, soils, pre-European settlement vegetation, wildlife and existing land use.

Since the plan is intended to guide natural resource management practices including public outreach and education programs and funding procurement, this section also includes a discussion of existing management efforts.

Location

The City of Golden Valley is a well-established first ring suburb located in Hennepin County (Figure 2.1). It is bordered by the cities of New Hope, Crystal, and Robbinsdale to the north, Minneapolis to the east, St. Louis Park to the south and west and Plymouth to the west.

Figure 2.1: Location Map



Natural Resources

The City of Golden Valley contains a rich stock of natural resources that contribute to the community's character, health and quality of life. Preservation, conservation and enhancement of these resources are critical to the community.

The City's natural resources include air, water, and land, and a range of soil types including those that are suitable for woodland, forest and native prairie management and enhancement, native plant communities, diverse wildlife, and a number of lakes, streams, and wetlands.

To gain a better understanding of Golden Valley's natural resources, a brief discussion of resources that lie below the ground (geological features), in the ground (soil characteristic) and on the ground (water bodies, streams and wetlands, and vegetation) are included in this section.

Bedrock Geology

Below everything that is visible at the surface of the earth is a continuous, complex layer of solid rock known as "bedrock". Typically, bedrock is covered by water, ice, snow, soil, loose sediments, vegetation and man-made structures. Bedrock is seen at the surface of the landscape as "outcrops," and occasionally observed as road cuts or through excavation. It is the bedrock materials that provide insight into the history of the earth. It also helps to define the structural character of the landscape and provides the beautiful scenic views when exposed as can be seen driving along the Mississippi and Minnesota Rivers.

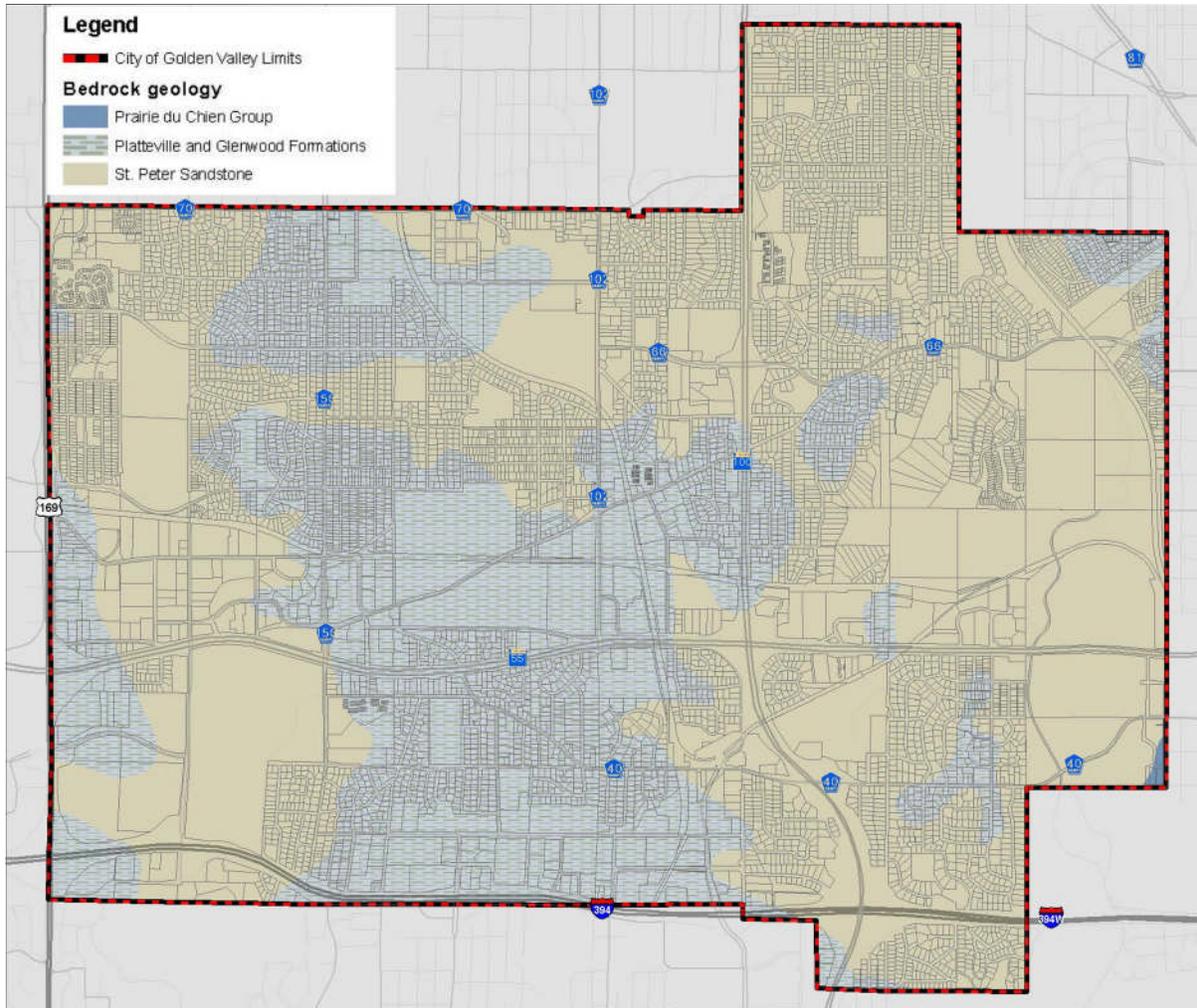
Figure 2.2 shows the bedrock underlying the majority of Golden Valley to consist of St. Peter Sandstone, a soft pure quartz sand layer sandwiched between the Prairie du Chien group, (hard limestone/dolomite) and Platteville & Glenwood formations (finer grained and softer limestone).

Figure 2.2: Geologic Profile

MIDDLE PROTEROZOIC, UNDIVIDED	EARLY PALEOZOIC							ERA	
	UPPER CAMBRIAN				LOWER ORDOVICIAN	MIDDLE ORDOVICIAN		SYSTEM AND SERIES	FORMATION OR GROUP NAME
	MT. SIMON SANDSTONE	EAU CLAIRE FORMATION	IRONTON & GALESVILLE SANDSTONES	FRANCONIA FORMATION	ST. LAWRENCE FORMATION	JORDAN SANDSTONE	PRAIRIE DU CHIEN GROUP	ST. PETER SANDSTONE	DECORAH SHALE PLATTEVILLE & GLERWOOD FMS.
NOT SHOWN	Cm	Ec	Cig	Cif	El	Opc	Osp	Ods	Ods
	180	80	55	140	45	95	ABOUT 120	ABOUT 180	up to 25 2.5 30 3
									THICKNESS (IN FEET)

Source: Geologic Atlas of Hennepin County, Minnesota

Figure 2.3: Bedrock Geology



Platteville and Glenwood Formations

The Platteville bedrock formation is composed of fine-grained limestone containing thin partings of shale and underlain by a thin layer of green, sandy shale of the Glenwood Formation. These formations range in thickness between 5 and 30 feet.

St. Peter Sandstone

St. Peter Sandstone is composed of fine- to medium-grained quartz sandstone towards the upper half of the layer and multi-colored beds of mudstone, siltstone, and shale with very coarse sandstone embedded within. This layer's average thickness is about 150 feet.

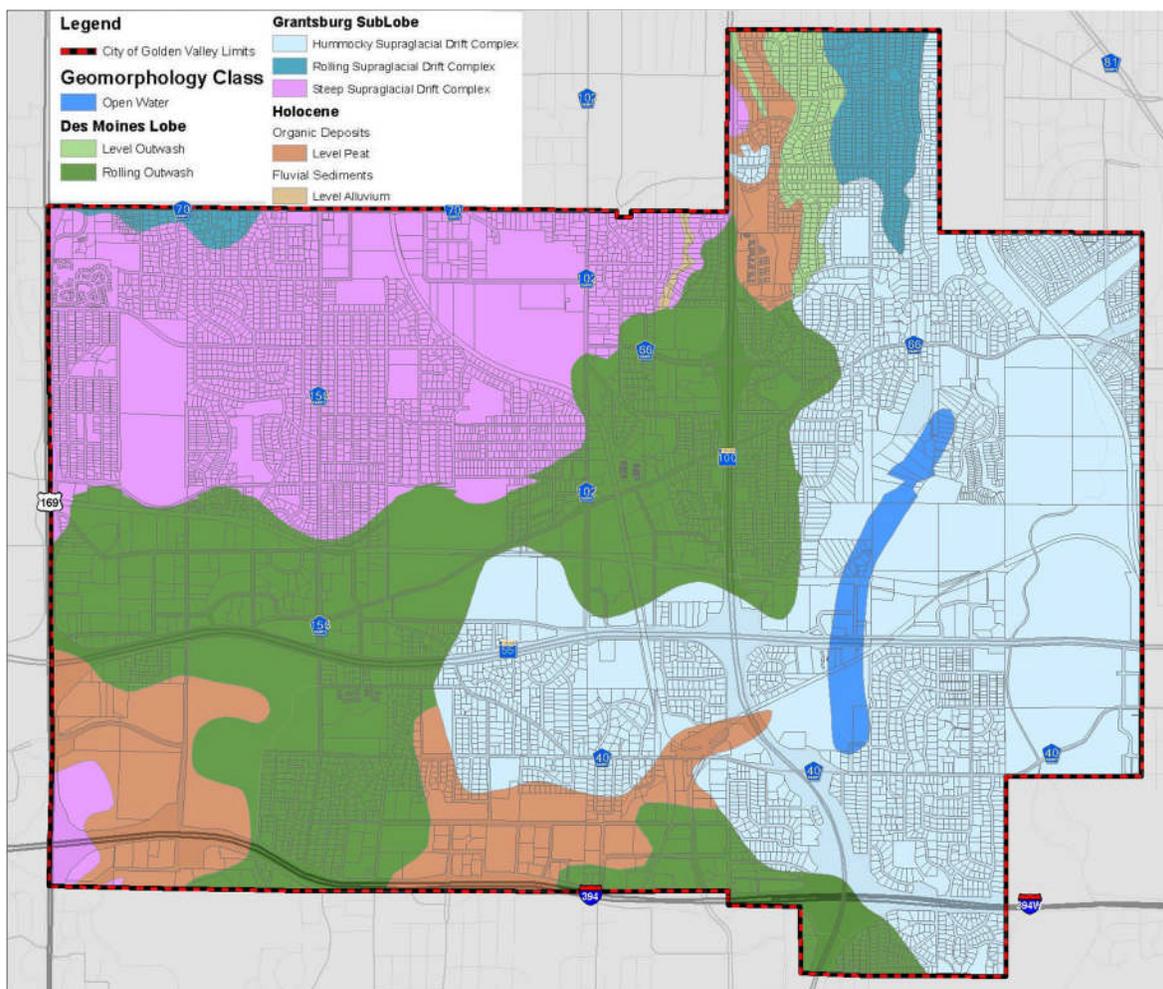
Prairie du Chien Group

This bedrock unit is a dolomite that tends to vary a great deal in thickness because its top layer is highly erodible. However, its average thickness is about 120 feet.

Surficial Geology

As with most of Minnesota, the Golden Valley landscape was formed by continental glaciers that covered large portions of Minnesota through multiple advances and retreats. . The movement of the advancing glaciers, followed by periods of melting, create a topography of gently rolling to steep hills, wetlands, and lakes. The glaciers are named by the various lobes, and the extent that they advanced. Golden Valley includes material left behind from the Des Moines and Grantsburg advances. Holocene deposits are those that formed after the glaciers had retreated, and include accumulation of organic material in extensive wetlands, and material placed by flowing water. The surficial deposits associated with the most recent glacial and post glacial periods are identified in Figure 2.4.

Figure 2.4: Surficial Geology

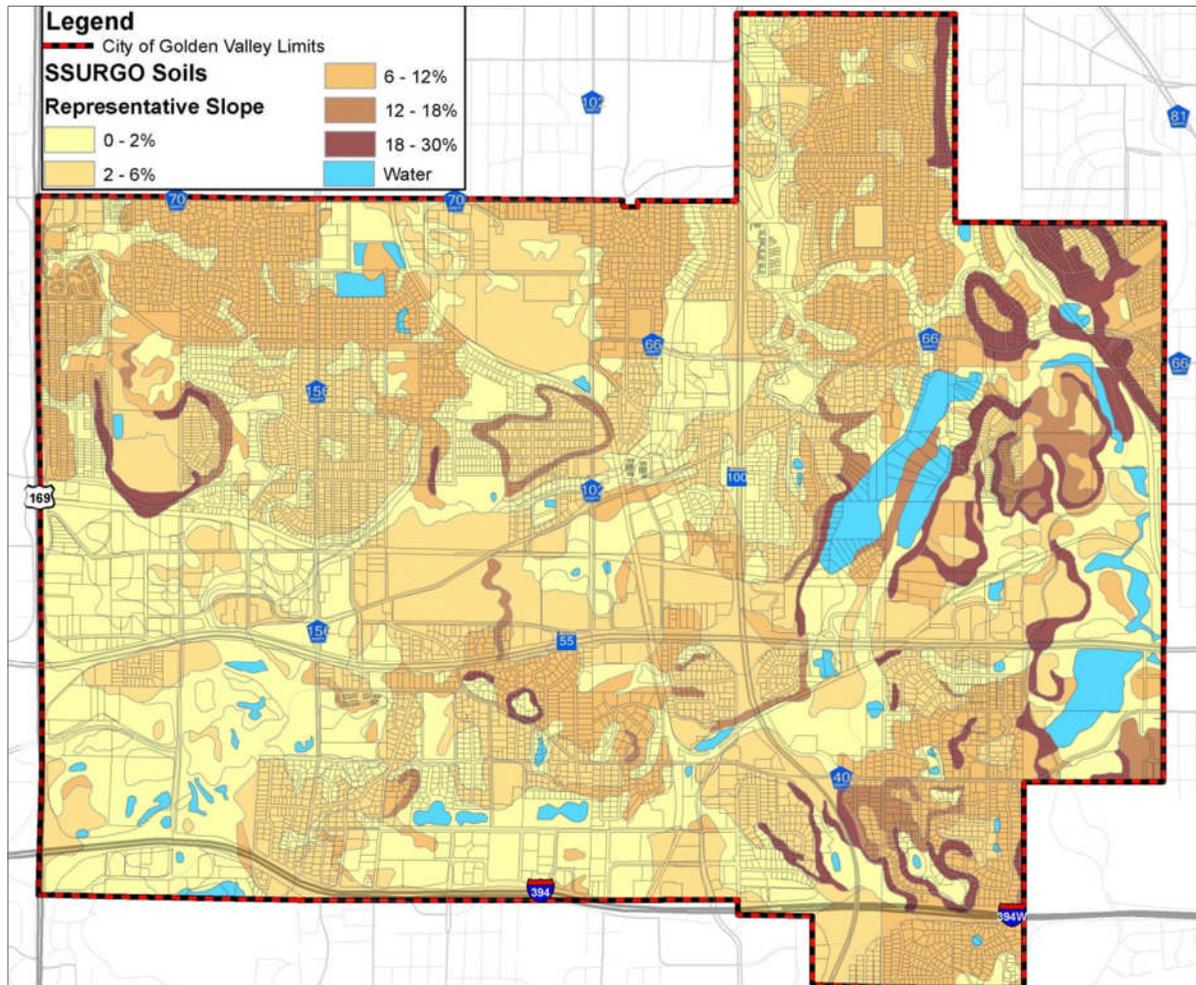


Slopes

Identifying steep slopes within the city are important because they typically limit the amount, type, and location of development. However, they also provide opportunities for open space conservation and wildlife habitat enhancement, as this may be the most suitable land use for areas that are too steep to be developed.

Golden Valley is predominantly characterized by slopes ranging between 2 to 12% (Figure 2.5). The steepest slopes (18-30%) occur primarily on the eastern edge of the city with a larger area concentration near the northeast corner just north and east of Mary Hills Nature Area. The only area on the west side of the city with steep slopes is located just south of General Mills Research Nature Area.

Figure 2.5: Slopes



Soils and Soil Textures

Approximately half of the soils within the City are mapped as Urban Land, which indicates that it has been disturbed through cut and fill activities, or has been replaced with other material and is not the soil that originally formed in that location. Where native soils remain, they tend to be composed of loam (an equal mixture of sands, silts, and clays) or coarser material (sandy loam, loamy sand, and loamy fine sand). This reflects the glacial origination of the soils, and the subsequent deposition of materials following glacial retreat. Muck soils are present along historic waterways and older wetland complexes.

Figure 2.6: Soil Texture

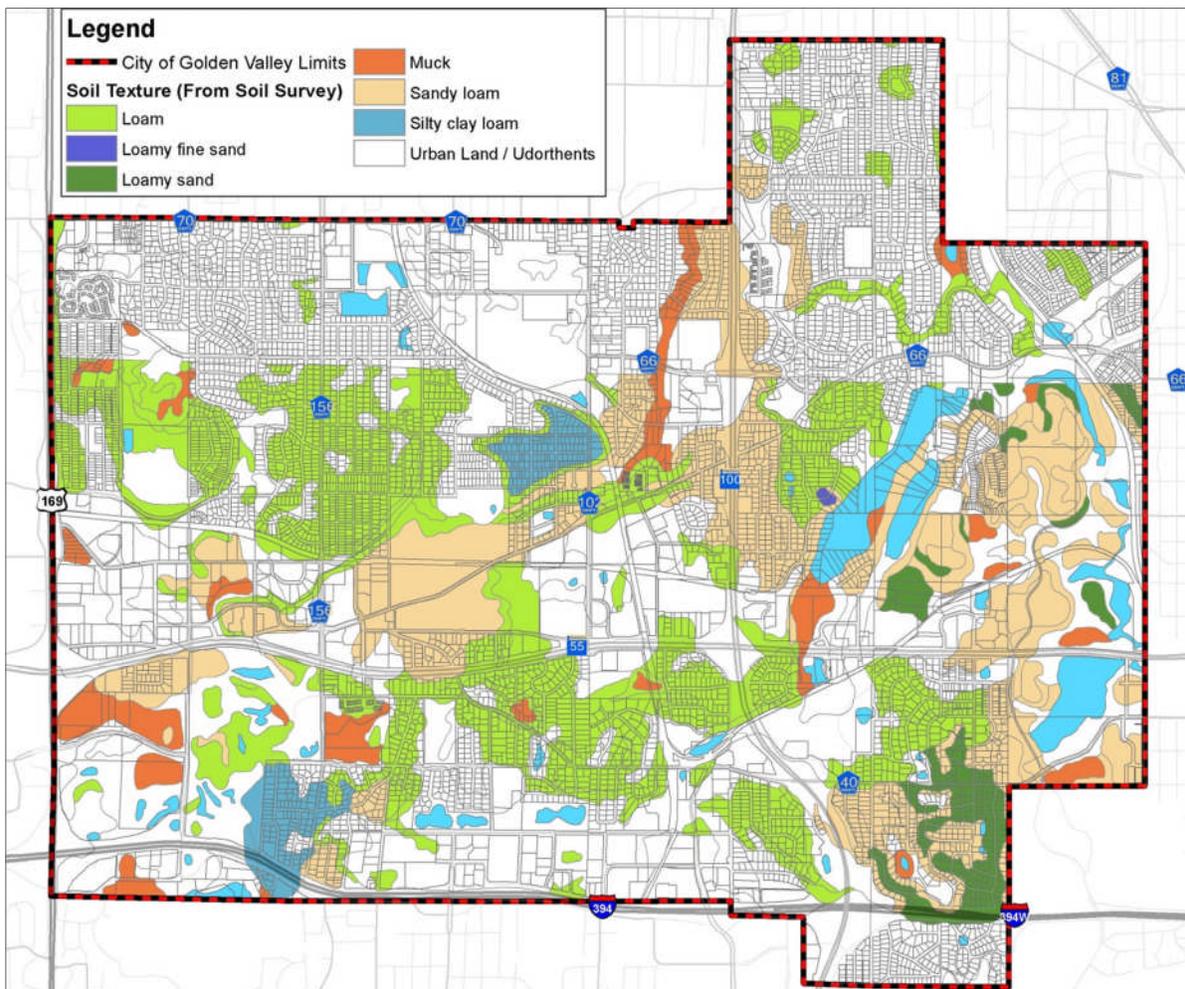
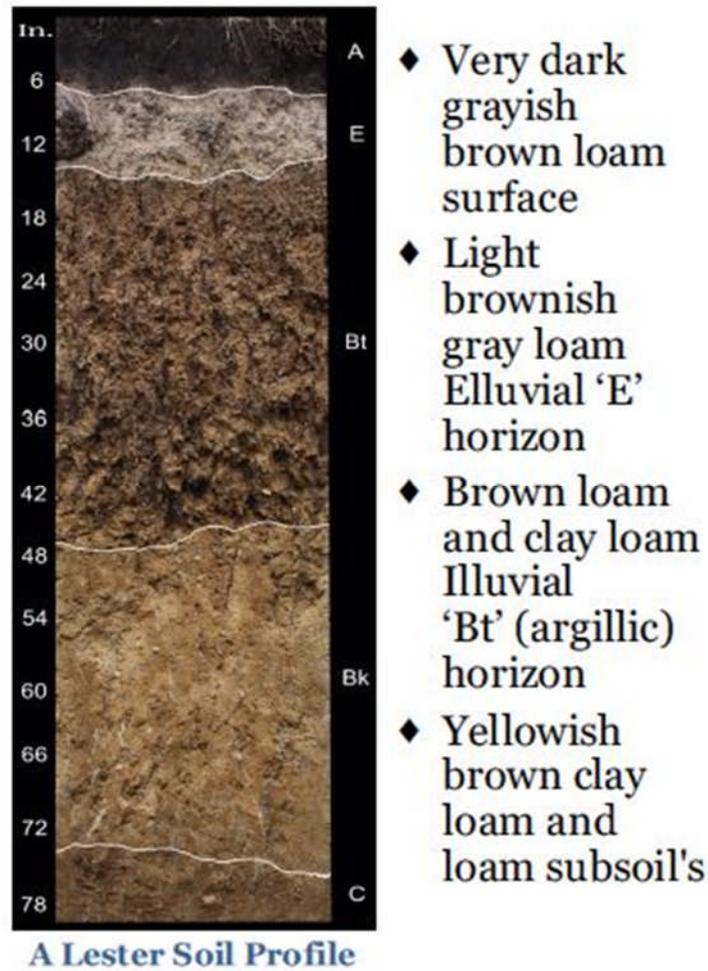


Figure 2.7: Lester Series Soil Profile



Source: The Minnesota Association of Professional Soil Scientists

Hydrology

Watersheds and Surficial Hydrology

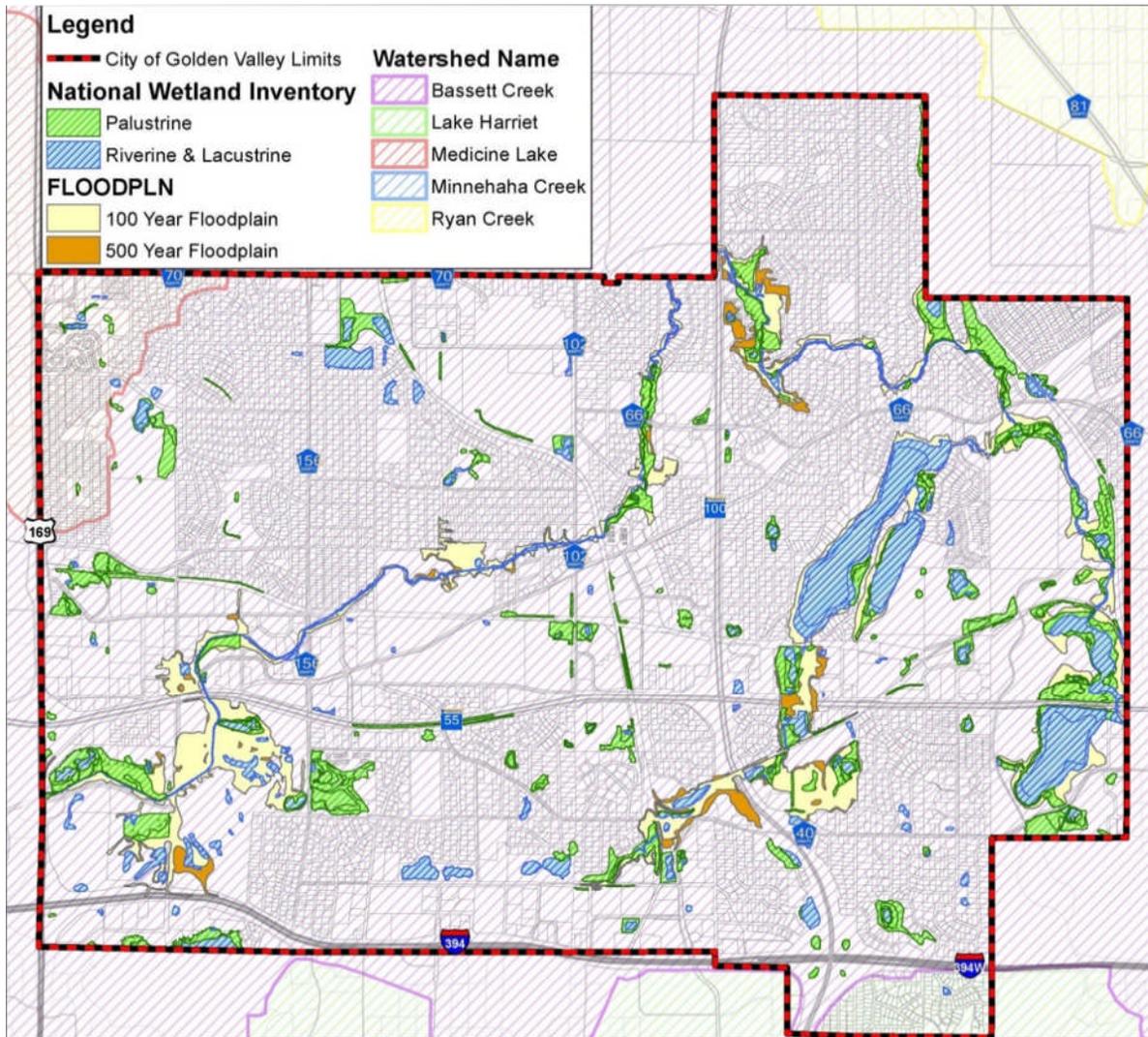
The primary waterway within Golden Valley is Bassett Creek, which has a large watershed encompassing more than 40 square miles within the cities of Crystal, Golden Valley, Medicine Lake, Minneapolis, Minnetonka, New Hope, Plymouth, Robbinsdale and St. Louis Park. The Bassett Creek watershed includes the main branch of Bassett Creek, which originates at the outlet of Medicine Lake, and the Sweeney Lake branch of Bassett Creek, which flows through Sweeney Lake, and joins the main stem within Theodore Wirth Park (Figure 2.8).

In a small portion of the city, generally located southeast of I394 and Highway 100, is a 93 acre area that is part of the Minnehaha Creek watershed. Both Bassett Creek and Minnehaha Creek drain into the Mississippi River.

Golden Valley's water resources include Bassett Creek, smaller streams and tributaries to Bassett Creek, Sweeney, Twin, and Wirth Lakes, and wetlands (Figure 2.8).

Floodplains are important ecological features, as they are the primary interface between the aquatic and terrestrial habitats. Floodplains tend to be seasonal wetlands, and areas that are protected from development and encroachment, as they allow a safe place for seasonal flooding, which protects homes, businesses, and infrastructure. Floodplains are based on the elevation of water that is expected to occur within a defined frequency of occurrence. From a regulatory standpoint, floodplains are defined as the elevation of water for precipitation events to occur on a frequency of every 100 and 500 years. These two designated floodplains have been identified on Figure 2.8.

Figure 2.8: Watersheds, Water Resources, and Floodplains



Pre-European settlement Vegetative

Prior to European settlement, native prairie, oak woodlands and savannas, marshes, floodplain forests, and woodlands were the dominant plant communities in Golden Valley. After settlement, and prior to the establishment of the City Charter, the majority of the landscape was cultivated farmland and open fields, with remnant wetland and wet prairies (Figure 2.9). At the scale these maps were made, smaller lakes were generally not included, although Sweeney, Twin, and Wirth lakes were certainly present historically.

Figure 2.9 Pre-European Settlement Land Cover

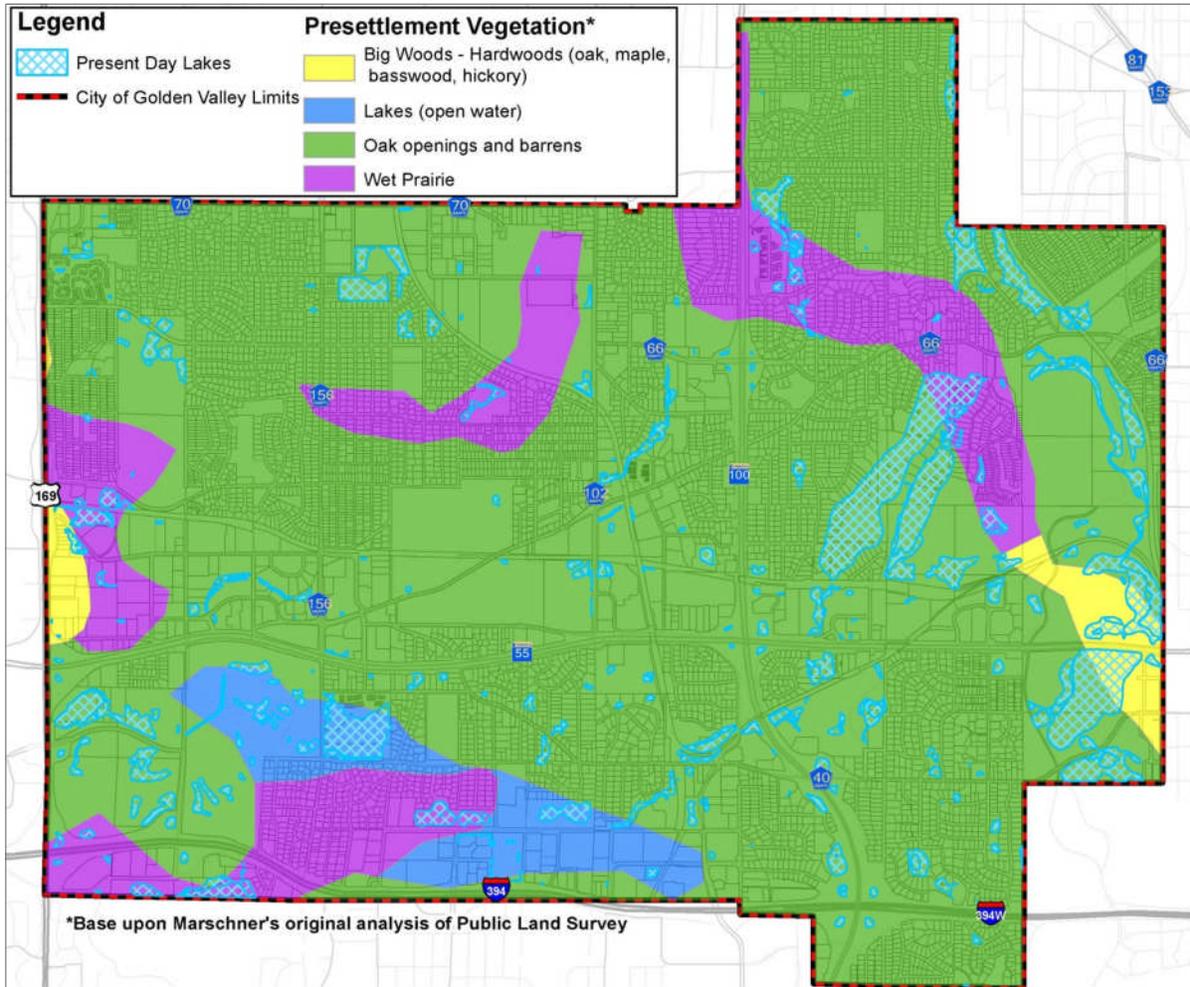


Table 2.1 shows a breakdown of land cover types by total acres and percent. Historically, the land was primarily covered by oak openings and barrens with remnants of Big Woods and Wet Prairie land covers.

Table 2.1 Distribution of Land Cover Acres		
Pre European Vegetation	Acres	Percent of Total
Oak openings and barrens	5,377	80%
Wet Prairie	921	13%
Lakes (open water)	304	5%
Big Woods - Hardwoods (oak, maple, basswood, hickory)	145	2%
TOTAL ACRES	6,747	100%

Wildlife

The City of Golden Valley lies in a region of historic suburban growth and is a mature first ring suburb. The city contains a mixture of primarily single family residential development, in conjunction with concentrations of retail, industrial, and corporate offices. Open spaces and nature areas are present throughout the community, and much like the lots and boulevards, are dominated by mature trees.

The City of Golden Valley provides great opportunity for watching wildlife. Common animals that can be seen in Golden Valley are typical urban species, including numerous songbirds, small mammals, deer, and fish. Species such as deer, Canada geese, waterfowl, squirrels, rabbits, coyote, raccoons, turkey, and skunks have increased in this area since these animals do well around moderate human development. Other species have declined for the same reasons. Management recommendations for wildlife in the city are provided below. In general, appropriate management of the open spaces will help improve populations of desirable native animals and improve citizen relationships with wildlife in general. Wildlife can become nuisance, when they are overpopulated, or degrade the natural areas or property. Education on wildlife, and management is essential for positive results.

The Natural Heritage Information System database is used by the state of Minnesota to track occurrences of rare plants and animals, and unique or critical habitats. Within Golden Valley, a tamarack swamp located in Theodore Wirth Park is identified, for example. Occurrences of rare plants have occurred, but the only recent occurrence is that of dwarf trout lilies which are transplanted individuals located within the Wirth Park. Rare animals have been observed, including trumpeter swans (*Cygnus buccinator*), Blanding's turtle (*Emydoidea blandingii*), and bullfrog (*Lithobates catesbeianus*), which have been observed in the aquatic habitats near Wirth Park. Peregrine falcons (*Falco peregrinus*) have been observed within Golden Valley, although they do not nest within the city limits.

Preservation of high quality natural areas will provide spaces for wildlife, which in turn provides opportunities for residents to observe wildlife. A positive correlation exists between the size and quality of the habitat, and the populations and quality of the associated wildlife.