

Figure 10-1

Figure 10-2

at the southwest corner of the lake near Larch Lane. Dominant fish species include bluegill, black bullhead, black crappie and northern pike.

Pomerleau Lake is located in the west-central part of the project corridor, just west of Fernbrook Lane. It has a surface area of 29.5 acres with a maximum depth of 26 feet. The area around Pomerleau Lake is privately owned. Dominant fish species include green sunfish, black crappie and largemouth bass.

10.2.2 Rivers and Creeks

The project corridor does not contain any rivers; however, some small flowages and creeks are present (Figure 10-2). The largest are Elm Creek and Plymouth Creek. Elm Creek crosses the corridor from west to east near County Highway 81. It flows from Rice Lake northeast through the Elm Creek Park Reserve to Hayden Lake and eventually to the Mississippi River. Plymouth Creek bisects the project corridor just north of Highway 55 and flows into Medicine Lake. The other creeks and flowages that are present in the project corridor are small and unnamed.

10.2.3 Riparian Areas

Riparian areas are defined as ecosystems that occur along watercourses or at the fringe of water bodies (NRCS, April 1999). For purposes of this report, the riparian area is defined as the land within 300 feet of streams and within 1,000 feet of lakes. These distances were selected because they are consistent with the definition of shoreland in the Minnesota Department of Natural Resources (MnDNR) Statewide Standards. These statewide standards set guidelines for the use and development of shoreland (riparian) property around all lakes greater than 25 acres (10 acres in municipalities) and rivers with a drainage area of two square miles or greater. There are 2,202 acres of riparian areas in the project corridor (Figure 10-3). Table 10-1 indicates the primary land use categories for the riparian areas are residential (48.4%) and parks and open spaces (40.6%).

10.2.4 Ground Water

The ground water aquifers in Hennepin County are part of the Minnesota Metro Ground Water Province. These aquifers yield useable quantities of water in Minnesota and surrounding states. The aquifer systems utilized for water in the project area are the Glacial Drift and the Cambrian-Ordovician. The Cambrian-Ordovician aquifer system includes the Prairie du Chien-Jordan and Mount Simon aquifer units. The City of Maple Grove provides water drawn from wells that are drilled 157 to 715 feet deep into the Glacial Drift and Mount Simon aquifers. The City of Plymouth provides water drawn from wells that are drilled 302 to 473 feet deep into the Prairie du Chien and Jordan aquifers.

Figure 10-3

Table 10-1 Land Use in the Riparian Areas

Land Use Category¹	Total Riparian Area (acres)	Percentage of Total Riparian Area
Residential	1,066	48.4%
• Single Family	572	
• Multi-Family	12	
• Mixed Low-Medium Density	392	
• Medium Density	74	
• High Density	16	
Parks and Open Spaces	895	40.6%
Undeveloped	112	5.1%
Commercial	23	1.0%
Industrial	37	1.7%
Public or Institutional	24	1.1%
Mixed Use	24	1.1%
Railroad or Utility	16	0.7%
Right of Way	5	0.2%
Total	2,202	

The Glacial Drift aquifer system is composed of stratified sand and gravel, ice-contact deposits and alluvium of glacial origin. These surficial glacial deposits range from 50 to 400 feet in thickness. Wells draw considerable water from this aquifer system for public supply, agricultural, and industrial uses. Because this aquifer system is present at the land surface and highly permeable, it is vulnerable to contamination. This uppermost aquifer system is hydraulically connected to the underlying bedrock aquifers as water percolates down to recharge the lower aquifers. The chemical quality of the ground water is dominated by calcium, magnesium and bicarbonate ions.

The Cambrian-Ordovician aquifer system is composed of sandstone and dolomite aquifer units separated by less permeable confining units. Low permeability crystalline rocks underlie this deep aquifer system. After the Glacial Drift aquifer, this is the second largest source of ground water for public supply, agricultural, and industrial uses in the region. This aquifer system includes the

Prairie du Chien-Jordan and Mount Simon aquifer units. The Prairie du Chien aquifer consists of an upper and lower dolomite unit with an intervening sandstone unit with a maximum thickness of 500 feet. The Jordan aquifer is a sandstone unit ranging in thickness from 60 to 140 feet. The Mount Simon aquifer is also a sandstone unit ranging from 100 to 250 feet in thickness. Major cations in the Prairie du Chien-Jordan aquifer are calcium, magnesium and sodium; major anions are bicarbonate, sulfate and chloride. The ground water also contains concentrations of iron and manganese.

10.2.5 Floodplain Encroachment

The 100-year and 500-year floodplains in the project corridor are identified in Figure 10-2. The floodplains are found along Plymouth Creek, Elm Creek and around the lakes and large wetland areas. Plymouth Creek is located in the south end of the project corridor and flows into Medicine Lake. Elm Creek is located in the north end of the project corridor and flows from Rice Lake into Mud Lake. Other areas designated as 100-year or 500-year floodplains are located just north of Medicine Lake; north, east and south of Pomerleau Lake; and southwest of Bass Lake.

The cities of Plymouth and Maple Grove have adopted floodplain regulations limiting project development within the 100-year floodplain. The purpose of these floodplain regulations is to protect public safety and to decrease the chances of private property losses due to flooding. Projects that result in a loss of floodplain area are required to replace a similar acreage at another location. These floodplain replacement sites may be created in conjunction with wetland mitigation sites and therefore function as wetland replacement and floodplain replacement sites.

10.2.6 Wetlands

Wetlands were identified using the National Wetland Inventory (NWI) data in conjunction with 2000 and 2001 aerial photography. Using the NWI data, and allowing for recent development, there are approximately 400 wetland areas in the project corridor (Figure 10-2). Approximately 75% of the wetlands in the project corridor are deep and shallow marshes. The remaining wetland types include wooded swamps, shrub swamps, and open water wetlands. The wetland types, number of basins, and percentage within the project corridor are provided in Table 10-2.

Comparison of the 2000 and 2001 aerial photography with the 1990 NWI data showed that many of the 1990 wetland polygons are now buildings, parking lots, and roadways. These wetland losses are estimated to be approximately 10 to 20 percent of the original wetlands as identified on the NWI maps.

Table 10-2 Wetlands in the Project Corridor Using NWI and Aerial Photography

Cowardin Type ¹	Circular 39 Type (approx. Equivalent)	Circular 39 Description	Approximate Number of Basins in the Project Corridor	Approximate Percentage of the Total Basins
PEMC	3	Shallow Marsh	157	40.3
PEMF	3	Shallow Marsh	88	22.5
PUBF	4	Deep Marsh	57	14.6
PFO1C	7	Wooded Swamp	25	6.4
PSS1C	6	Shrub Swamp	24	6.2
PUBG	5	Open Fresh Water	18	4.6
PUB/EMF	–	Shallow Marsh/ Deep Marsh	9	2.3
PFO1B	7	Wooded Swamp	6	1.5
Other types	NA	NA	6	1.5
Total			S	100

¹Cowardin et. al. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. US Department of the Interior, USFWS, Washington D.C. The wetland type was classified using the Cowardin system that defines the habitat system, vegetative and sediment class and water regime. The types include: palustrine with emergent vegetation that is seasonally flooded (PEMC); palustrine with emergent vegetation that is semipermanently flooded (PEMF); palustrine with an unconsolidated bottom that is semipermanently flooded (PUBF); palustrine broad-leaved deciduous forested that is seasonally flooded (PFO1C); palustrine broad-leaved deciduous scrub-shrub that is seasonally flooded (PSS1C); palustrine with an unconsolidated bottom that is intermittently exposed (PUBG); palustrine with an unconsolidated bottom/emergent vegetation that is semi-permanently flooded (PUB/EMF); and palustrine broad-leaved deciduous forested that is saturated (PFO1B) .

10.2.7 Potential Impacts

Potential impacts to the hydrologic features identified in the project corridor will be limited to ground disturbances due to pole placement in the riparian, floodplain and wetland areas. The impacts to these areas will be temporary and limited to the specific pole location and the area directly adjacent to the pole. Due to the relatively small areas that would be disturbed and the flexibility to avoid placing poles in sensitive areas, the anticipated impacts to the hydrologic features in the project corridor are minimal.

10.3 Natural Vegetation and Associated Wildlife

10.3.1 Vegetation

Native vegetation found in the project corridor (Figure 10-4) includes upland deciduous forests, oak openings and barrens, wet prairies, marshes and sloughs (MnDNR, 1998). Deciduous forest species include oaks, ashes, elms, basswoods, maples, hornbeams, aspens and birches. The oak openings and barrens are open areas with scrubby vegetation dominated by species of oaks, shrubs and forbs. These species include pin oak, northern bur oak, prairie willow, leadplant and prairie rose. Marsh grasses, rushes, wild rice, flags and willows dominate the wet prairies, marshes and sloughs. These species are typically found in wet sites that are depressional or seepage areas.

Currently, most of the corridor has been converted to urban development. This development process has limited native plant communities on the urban landscape. Many of the wetland areas are regulated so that a development project must replace any converted (filled) wetland acres. However, the diversity of the native species formerly comprising the wetlands has been converted to nonnative species or a mix of native and nonnative species lacking species richness (diversity). Consequently, reed canary grass and broad-leaved cattail dominate most of the wetlands within the project corridor.

Prior to European settlement, much of the project corridor was dominated by deciduous forest. Forest types included oak forests, maple-basswood forests, lowland hardwood forests, and black ash swamps. Most of these forested areas have been converted to residential and commercial developments. The locations of the remaining forestlands in the project corridor are limited to the existing parks and public recreational areas.

In addition, there are remnants of native vegetation in some areas of the project corridor according to the Minnesota Biological Survey (MnDNR, 1998). Two sites have been identified that contain natural native vegetative communities (Table 10-3). These sites, listed as Maple-Basswood Forests, are dominated by sugar maple, basswood and red oak. Other tree species found at the sites include slippery elm, green ash and black ash.

The City of Plymouth has identified five Significant Natural Resource Sites within the project corridor based on their ecological quality. Natural communities at the sites include oak forests, lowland hardwoods, willow swamps, cattail marshes and maple basswood forests (Table 10-3). Each natural community, or ecosystem type within a site was evaluated for possible impact by the alternatives based on resource quality and availability.

Figure 10-4

Table 10-3 Significant Natural Resource Sites within the Project Corridor for the City of Plymouth

Site Location	Priority in the City of Plymouth Parks Comprehensive Plan	Natural Communities	Size
Township 118 North Range 22 West Section 4	Higher Priority	Oak Forest, Lowland Hardwood, Willow Swamp, Cattail Marsh	48.9 acres
Township 118 North Range 22 West Northwest _ Section 35	Higher Priority	Oak Forest, Emergent Marsh	30.1 acres
Township 118 North Range 22 West Southeast _ Section 4	Lower Priority	Oak Forest, Emergent Marsh	12.0 acres
Township 118 North Range 22 West North _ Section 4	Lower Priority	Maple Basswood Forest	57.9 acres
Township 118 North Range 22 West Northwest _ Section 22	Lower Priority	Maple Basswood Forest	NA

10.3.2 Wildlife

Federal and State Protected and Rare Species

The MnDNR identifies Federal and State protected and rare species within the project corridor in their Natural Heritage database. The database contains 25 records documenting the occurrence of rare plants, animals or other significant natural features within one mile of the project corridor. These records include one federally listed and eight state-listed species (Table 10-4).

Table 10-4 Rare Plants and Animals within One Mile of the Project Corridor

Common Name	Scientific Name	Number of Occurrences	Federal Status	State (MN) Status
Blanding's turtle	<i>Emydoidea blandingii</i>	4		Threatened
Bald eagle	<i>Haliaeetus leucocephalus</i>	3	Threatened	Special Concern
Henslow's sparrow	<i>Ammodramus henslowii</i>	1		Endangered
Trumpeter swan	<i>Cygnus buccinator</i>	1		Threatened
Acadian flycatcher	<i>Empidonax vireescens</i>	3		Special Concern
American ginseng	<i>Panax quinquefolius</i>	2		Special Concern
Pugnose shiner	<i>Notropis anogenus</i>	1		Special Concern
American bittern	<i>Botaurus lentiginosus</i>	1		No legal status

Significant natural features are inventoried and ranked by the MnDNR for research and conservation planning. The MnDNR ranks the natural community type using a state rank to reflect the known extent and condition of that community type in Minnesota. The community rankings range from a score of 1 (in the greatest need for conservation action) to a score of 5 (secure under present conditions). These MnDNR rankings have no legal status. There were nine occurrences of significant natural features within one mile of the project corridor (Table 10-5).

Table 10-5 Significant Natural Features within One Mile of the Project Corridor

Natural Feature	Number of Occurrences	State Rank ¹
Colonial waterbird nesting sites	2	None
Oak forests (Big Woods) mesic subtype	2	S2
Maple-Basswood forests (Big Woods)	4	S2
Tamarack swamp minerotrophic subtype	1	S4

¹The state rank (S) ranges from 1 (in greatest need of conservation action in the state) to 5 (secure under present conditions).

10.3.3 Potential Impacts

Potential impacts to the natural vegetation and associated wildlife in the project corridor will be limited to ground disturbances associated with the transmission pole placement. Most of the area within the project corridor has been converted to urban development, and in addition, a significant portion of the proposed transmission line will follow existing transmission corridors. Therefore,

anticipated impacts to the natural vegetation and associated wildlife in the project corridor are minimal.

10.4 Physiographic Features

10.4.1 Topography

The topography of Hennepin County is the result of glacial deposition. The area is characterized by nearly level to steep topography. The elevation ranges from approximately 918 to 984 feet mean sea level (msl). The area is generally characterized by gentle to moderate topography. There are small areas located in the central portion of Plymouth that have slopes steeper than 12 percent.

10.4.2 Geology

The majority of the corridor soils were formed on the Grantsburg sublobe of the Late Wisconsinan glaciation. This most recent glaciation period began approximately 70,000 years ago and ended 10,000 years ago. The Grantsburg Loamy Till Plain varies in thickness but is generally over forty feet in thickness. The northeast area of the project corridor consists of fluvial sediment, or outwash, deposited by water running out of a glacier.

10.4.3 Soils

Soils were formed primarily in glacial till except for the northeast area of the corridor where soils formed in outwash sediments. The dominant association is Hayden-Cordova-Peaty muck, which consists of deep, well drained to very poorly drained soils. The Hayden and Cordova were formed in glacial till, whereas the peaty muck is an organic soil formed in lake basins and wet depressional areas. The Hayden and Cordova soils are generally medium-textured to moderately fine-textured and include loam, clay loam and silty clay loam. The peaty muck is usually associated with nearby loamy or clayey soils and includes peaty muck, peaty muck over sand, and peaty muck over loam.

Soil series in the project corridor were identified using the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey of Hennepin County. There are 83 soil series located in the project corridor (Figure 10-5). Seven soil series are identified as meeting the qualifications for prime farmland, two meet the standards for farmland of statewide importance, and 26 are identified as highly erodible soils.

The NRCS uses the universal soil loss and wind erosion equations to determine a soil's erodibility based on the potential erosion from a particular soil. These equations do not account for the benefits of vegetative cover or conservation practice. For each unit, there is an estimate of the erosion that would occur if the land were left completely without protection, including residue and cover from a crop, or from structures such as terraces.

Figure 10-5

The NRCS office in Hennepin County provided a list of the identified highly erodible soil (HEL) units. There are 47 HEL soil units identified for Hennepin County and 18 HEL soil units found in the corridor comprising approximately 115.5 acres (Table 10-6). These soils are susceptible to water erosion.

Table 10-6 Highly Erodible Land

Mapping Symbol	Map Unit Name	Acres (approx.)
BuC	Burnsville sandy loam, 6-12% slopes	0.5
EtC	Estherville sandy loam, 6-12% slopes	0.3
HbC	Hayden loam, 6-12% slopes	12.2
HbD	Hayden loam, 12-18% slopes	2.5
HbE	Hayden loam, 18-24% slopes	4.8
HcC2	Hayden clay loam, 6-12% slopes, eroded	62
HcD2	Hayden clay loam, 12-18% slopes, eroded	1.7
HcE2	Hayden clay loam, 18-24% slopes, eroded	4.4
HdF	Hayden and Lester loams, 24-35% slopes	2.1
HeC	Heyder sandy loam, 6-12% slopes	1.5
HeD	Heyder sandy loam, 12-18% slopes	1.3
HIC	Heyder complex, 6-12% slopes	3.1
HID	Heyder complex, 12-18% slopes	0.5
HIE	Heyder complex, 18-35% slopes	2.0
KnC	Kingsley complex, 6-12% slopes	0.8
SaC	Salida coarse sandy loam, 6-12% slopes	0.3
SaD	Salida coarse sandy loam, 12-18% slopes	2.0
SaE	Salida coarse sandy loam, 18-35% slopes	0.5
Total		115.5

10.4.4 Prime Farmland and Additional Lands of Statewide Importance

Prime farmlands are listed by soil mapping unit for Hennepin County (Figure 10-6). Some soils have limitations such as high water table or flooding, and may qualify as prime farmland if these limitations are overcome by management methods. Some soil associations are mapped as a complex of two or three soil types and only part of the complex may be listed as prime farmland. Acreage of prime farmland was estimated using the NRCS Soil Survey of Hennepin County. Prime farmland was only identified in the portion of the corridor within existing agricultural land (approximately 555 acres) located in portions of Sections 33 and 34 (Township 119 North, Range 22 West) and Sections 3, 4, 9 and 10 (Township 118 North, Range 22 West).

Figure 10-6

Seven soil series are identified as prime farmland within the agricultural portion of the project corridor (Table 10-7). Four of the soil series are designated as prime farmland only if the area is drained. Prime farmland comprises approximately 111 acres of the agricultural portion of the project corridor.

Table 10-7 Prime Farmland

Mapping Symbol	Map Unit Name	Limitation	Acres (approx.)
Co	Cordova silty clay loam	Only drained areas	5
Du	Dundas silt loam	Only drained areas	7
Gc	Glencoe silty clay loam	Only drained areas	12
Ha	Hamel loam	Only drained areas	37
HbB	Hayden loam, 2-6% slopes	None	24
HcB2	Hayden clay loam, 2-6% slopes, eroded	None	15
Neb	Nessel loam, 1-4% slopes	None	11
Total			111

There are approximately 74 acres of land in the project corridor that meet the criteria for Additional Lands of Statewide Importance. These are considered to be nearly prime farmland and may produce high yields of crops under favorable conditions. Two soil series meet the criteria within the agricultural portion of the corridor (Table 10-8).

Table 10-8 Additional Lands of Statewide Importance

Mapping Symbol	Map Unit Name	Acres (approx.)
HbC	Hayden loam, 6-12% slopes	12
HcC2	Hayden clay loam, 6-12% slopes, eroded	62
Total		74

10.4.5 Mineable Resources

Gravel mining areas comprise approximately 12 percent of the project corridor (Figure 10-7). There is an active gravel pit located in the City of Plymouth in the central area of the corridor. The gravel mining operation is located in Township 118 North, Range 22 West, West _ of Section 10. In addition, a large gravel pit is located in the northern portion of the corridor in the City of Maple Grove. This gravel mining area is located in Township 119 North, Range 22 West, Sections 13, 14, 22, 23, 24, 25 and 26.

Figure 10-7

The City of Maple Grove's Comprehensive Land Use Plan (revised January 24, 2000) includes the development of the gravel mining area. The "Gravel Mining Area Special Area Plan" was developed by the City of Maple Grove in 1996. The plan outlined the long-term development of the gravel mining area. The long-term plan called for a dense, mixed-use development combining industrial, commercial, residential, and public recreational use.

10.4.6 Potential Impacts

Potential impacts to the physiographic features in the project corridor will be limited to the ground disturbances associated with the transmission pole placement. Highly erodible lands, prime farmland and other lands of statewide significance that occur in the project corridor represent approximately two percent of the corridor. Because the proposed transmission lines will follow existing transmission corridors and these corridors exist in urban developed areas, anticipated impacts to the physiographic features in the project corridor are minimal.

10.5 Land Use

Land use within the project corridor consists of single family residential, multi-family residential, commercial, industrial, railroad and utility property, public and institutional property, parks and open spaces, agricultural lands, and lakes (Figure 10-8). The project corridor encompasses approximately 14,455 acres (Table 10-9). The land use includes residential (31.0%), undeveloped/agricultural land (13.2%), industrial (20.1%), parks and open space (15.0%), commercial (3.9%), mixed-use development (4.6%) and lakes, roads and right of way (12.2%).

10.5.1 Undeveloped/Agricultural Land

Undeveloped land and agricultural land occur in the west central portion of the project corridor. These areas consist of pastureland and agricultural land that is not in production. Development is beginning in some of these areas, as evidenced by survey staking and earthmoving operations.

Agricultural production does occur in limited areas located in Sections 33 and 34 of Township 119 North, Range 22 West; and Sections 3 and 4 of Township 118 North, Range 22 West. The agricultural sites are tilled for row crop production and are currently planted in soybean and corn. Residential development is occurring adjacent to these agricultural production areas. Most of the land that is currently in agricultural production is zoned for "Mixed Low-Medium Density Residential", "Mixed Medium Density Residential", and "Single-Family Residential".

Figure 10-8

Table 10-9 Land Use in the Project Corridor

Land Use Category	Land Use (total acres)	Percentage by Land Use Category
Residential	4484.2	31.0%
• Single Family	1765.1	
• Multi-Family	195.0	
• Mixed Low-Medium Density	2051.1	
• Mixed Medium Density	392.7	
• Mixed High Density	80.3	
Undeveloped Land/Ag Land	1913.5	13.2%
Parks and Open Spaces	2163.8	15.0%
Industrial	2911.9	20.1%
Commercial	563.1	3.9%
Public or Institutional	325.6	2.3%
Mixed Use	281.9	2.0%
Railroad or Utility	51.2	0.3%
Lakes, Roads and Right of Way	1759.8	12.2%
Total	14,455.0	

10.5.2 Recreation

Regional Parks

There are four regional parks located in the project corridor that are managed by the Suburban Hennepin Regional Park District (Hennepin Parks) (Figure 10-9). The parks include Eagle Lake Regional Park, Fish Lake Regional Park, Clifton E. French Regional Park and Elm Creek Park Reserve. These recreational and natural areas are managed for public use with an environmental focus. Hennepin Parks has a policy that no more than 20 percent of a park reserve may be developed for active use and at least 80 percent of a park reserve is to be restored to and retained in a natural state.

Hennepin Parks offers public opportunities for nature education and recreation at these facilities. Educational opportunities include programs about maple syruping, ospreys, beaver lodges, nature centers and interpretive trails. Recreational facilities include boat launching, fishing piers, campsites, picnic areas, swimming ponds, archery ranges, sledding hills, and visitor centers. Different types of trails are also maintained within the parks, including biking and hiking trails, pet trails, cross-country ski trails, horse trails, snowmobile trails and snowshoe trails.

Figure 10-9

Other Park and Recreational Areas

Numerous city parks, neighborhood parks, playgrounds and school playfields are present in the project corridor. Sixteen are listed on the City of Maple Grove's website and fourteen are listed in the City of Plymouth's comprehensive plan. Municipal trails such as city sidewalks connect these recreational sites, allowing for walking and bicycle access between most of the sites.

Regional Trails

Recreational trails in the project corridor are primarily within the regional parks (Figure 10-9). These trails are managed and maintained by Hennepin Parks. A new regional trail is currently being proposed to connect Fish Lake Regional Park and Clifton E. French Regional Park. This new trail would cross the project corridor from southeast to northwest; however, the specific alignment and width of the new trail has not been determined. The new trail would be a paved multi-use facility with vegetated buffers established on either side of the facility. A regional trail currently connects Fish Lake Regional Park and Elm Creek Park Reserve.

Municipal Trails

The City of Maple Grove has completed over 50 percent of a planned citywide loop of their Park Trail System. Maple Grove has developed over 32 miles of trails and continues to make steady progress on the development of the planned trails. Several miles of trails are constructed annually that connect neighborhoods to the city parks, natural areas and commercial areas.

The City of Plymouth has developed over 40 miles of trails that connect Plymouth's neighborhoods to parks, open space, schools and commercial areas. The trails are used for walking, jogging or bicycling. In addition, the trail system supplements Plymouth's transportation system by promoting non-motorized transportation from the neighborhoods to the parks and natural areas. The City Trail and Sidewalk Plan provides for the continued development of trails and sidewalks, which will meet the future transportation and recreational needs for the community.

10.5.3 Zoning

Figure 10-10 identifies the respective zoning districts for both the City of Plymouth and the City of Maple Grove.

A conditional use permit is required for transmission lines in excess of 33 kV from the City of Maple Grove in accordance with Section 379:39, Subdivision 3, Essential Services. Prior to issuance of a conditional use permit, the Zoning Administrator and Planning Commission will review the maps and pertinent information submitted for the proposed project.

Figure 10-10

Construction of an electric transmission line is covered in Section 21160 of the Plymouth Zoning Ordinance, Chapter 21 of the City Code 21, which requires a permit prior to the installation of the essential service. Prior to issuance of the permit, the City Engineer will determine if the proposed project is in compliance with the Comprehensive Plan and City Code provisions.

10.5.4 Potential Impacts

Potential land use impacts in the project corridor due to the new transmission line will be very limited. The proposed route for the 115 kV transmission line will be approximately 14 miles long and will parallel existing transmission lines. Of the 14 miles, approximately 4.25 miles of new right of way will be required. The new 115 kV transmission line does not represent an incompatible land use with the existing transmission line. Therefore, anticipated impacts of the proposed transmission line in the project corridor are minimal.

10.6 Socioeconomics

10.6.1 Demographics

The population of the City of Plymouth in 2000 was 65,894 with a 29.5 percent increase in population from 1990 through 2000. During this ten year time period, the number of persons per square mile (density) increased by 29.6 percent and the number of housing units increased by 28.8 percent. The housing occupancy rate in 2000 included 76.5 percent owner-occupied units and 23.5 percent renter-occupied units.

The population of the City of Maple Grove in 2000 was 50,365 with a 30 percent increase in population from 1990 through 2000. During this time period, the number of persons per square mile (density) increased by 29.9 percent and the number of housing units increased by 36.8 percent. The housing occupancy rate in 2000 was 92.7 percent owner-occupied units and 7.3 percent renter-occupied units.

The minority population includes individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic (Presidential Executive Order 12898, 1997).

The City of Plymouth had a 91.4 percent White population group in 2000. The primary minority group was Asian (3.8%). The 2000 population was almost evenly split between males and females (49.3% and 50.7%, respectively). The age group composition was 65.3 percent for the 18-64 age group and 27.1 percent for the under-18 age group.

The City of Maple Grove had a 94.7 percent White population group in 2000. The primary minority group was Asian (2.5%). The 2000 population was almost evenly split between males and females (49.5% and 50.5%, respectively). The age group composition was 65.1 percent for the 18-64 age group and 30.8 percent for the under-18 age group.

10.6.2 Economy

Business patterns for the City of Plymouth, based upon the most recent information available (US Bureau of the Census, 1997), indicated a work force of approximately 40,674 employees with a total annual payroll in excess of \$1,399 million. Industries identified included: manufacturing; wholesale trade; retail trade; real estate and rental and leasing; professional, scientific and technical services; administrative, support, waste management and remediation services; educational services; health care and social assistance; arts, entertainment and recreation; accommodation and food service; and other services (except public administration).

The 1999 median household income for the City of Plymouth (City of Plymouth Citizen Survey Executive Summary, 1999) was \$79,000. The U.S. Census Bureau poverty threshold for a four-person family in 1999 was \$17,029.

The business patterns for the City of Maple Grove, based upon the most recent information available (US Bureau of the Census, 1997), indicated a work force of approximately 12,452 employees with a total annual payroll in excess of \$399 million. Industries identified included: manufacturing; wholesale trade; retail trade; real estate and rental and leasing; professional, scientific and technical services; administrative, support, waste management and remediation services; educational services; health care and social assistance; arts, entertainment and recreation; accommodation and food service; and other services (except public administration).

The 1997 median household income for the City of Maple Grove (City of Maple Grove, 1999) was \$58,650. The U.S. Census Bureau poverty threshold for a four-person family in 1997 was \$16,400.

10.6.3 Potential Impacts

Potential socioeconomic impacts of the proposed project will be limited to the direct and indirect impacts to the commercial, industrial and residential customers of WHCEA. Because this project will parallel existing transmission lines and provide the WHCEA customers with a reliable and efficient future energy supply, the anticipated socioeconomic impacts are positive.

10.7 Cultural Resources

10.7.1 Historic Properties

The project corridor has been reviewed pursuant to the responsibilities given the Minnesota State Historic Preservation Office by the National Historic Preservation Act of 1966 and the Procedures of the Advisory Council on Historic Preservation (36CFR800). Based on their records search and literature review, there is one unevaluated historic property in the project corridor (the Plymouth Town Hall built in 1885).

A Class I records search and literature review will be conducted for the alternative routes identified for the 115 kV transmission line by an archeologist during the routing process. The Plymouth Town Hall will be evaluated at that time.

10.7.2 Archaeological Resources

The project corridor has been reviewed pursuant to the responsibilities given the Minnesota State Historic Preservation Office by the National Historic Preservation Act of 1966 and the Procedures of the Advisory Council on Historic Preservation (36CFR800). Based on their records search and literature review, there is one unevaluated archeological site in the project corridor. This archeological site is designated as site 21HE68.

A Class I records search and literature review will be conducted for the alternative routes identified for the 115 kV transmission line by an archeologist during the routing process. The archeological site designated as site 21HE68 will be evaluated at that time.

10.7.3 Potential Impacts

Potential impacts to the cultural resources that exist in the project corridor are minimal. There is one unevaluated historic property and one unevaluated archeological site in the project corridor. These areas will be avoided when routing the transmission line and identifying specific pole locations. As such, the anticipated impacts to the unevaluated cultural resources sites are minimal.

10.8 Buffer Areas

The substation buffer area is defined as the area outside of the project corridor but within three miles of the Parkers Lake and Elm Creek substations. Minn. Rules pt. 7849.0330, paragraph G, requires a description of the major features for the areas within three miles of the endpoints of the transmission facility.

10.8.1 Parkers Lake Substation Buffer Area

General Description

The south buffer area extends three miles from Xcel Energy's Parkers Lake Substation located near the intersection of County Road 6 and Interstate 494 (I-494) in Plymouth (Figure 10-11). The buffer area does not include the project corridor, which was discussed in detail in Sections 10.1 to 10.7. The buffer area encompasses approximately 21,759 acres and includes a mix of industrial, commercial, residential, parks and open space, and agricultural lands (Figures 10-12 and 10-13).

Lakes

There are 16 lakes located within three miles of the Parkers Lake Substation (Figure 10-14). Four lakes, including Minnetonka, Medicine, Rice and Weaver Lakes, provide recreational fishing via a public access. The public access may be maintained as part of the regional and municipal park systems. The remaining 12 lakes in the three-mile area are not managed for fisheries. They include DuBay, French, Goose, Hadley, Hannan, Hayden, Libbs, Lost, Mooney, Powers, Snyder and Turtle Lakes.

Lake Minnetonka is located in the southwest part of the buffer area and is the largest lake in the buffer area. It has a surface area of 5,849 acres with a maximum depth of 113 feet. The lake is managed as a walleye and muskellunge fishery.

Medicine Lake is located in the southeast part of the buffer area. It has a surface area of 886 acres with a maximum depth of 49 feet. The lake is managed as a northern pike and walleye fishery. Other game fish species include black crappie, largemouth bass and yellow perch.

Rice Lake is located north of I-94 in the City of Maple Grove. It has a surface area of 306 acres with a maximum depth of 10 feet. There is a carry-in public access on the lake. Dominant fish species include bluegill, black crappie and northern pike.

Weaver Lake is located south of I-94 in the City of Maple Grove. It has a surface area of 152 acres with a maximum depth of 57 feet. There is a public access on

Figure 10-11

Figure 10-12

Figure 10-13

Figure 10-14

the north side of the lake on Minnesota Highway 101. Dominant fish species include northern pike and muskellunge.

Rivers and Creeks

The buffer area around the Parkers Lake Substation does not contain any rivers; however, creeks and small flowages are present (Figure 10-14). In the southern portion of the buffer area, Minnehaha Creek flows out of Lake Minnetonka east to the Mississippi River. In the eastern portion of the buffer area, Bassett Creek flows south and east out of Medicine Lake to the Mississippi River. Plymouth Creek is located south and west of Turtle Lake and flows southeast to Medicine Lake. Two other unnamed flowages are present in the buffer area. One is located north of Gleason Lake and the other is south of Medicine Lake.

Riparian Areas

There are approximately 4,891 acres of riparian areas in the buffer area (Figure 10-15). There are 4,033 acres adjacent to lakes and 858 acres adjacent to rivers, streams and creeks. The primary land use categories for the riparian areas are residential, parks and open spaces.

Floodplains

Floodplains in the buffer area are identified on Figure 10-14. Floodplains are found along Minnehaha Creek, unnamed creeks flowing out of Medicine Lake, and the unnamed creeks south of Turtle Lake. Other designated floodplain areas include north, east and south of Lake Minnetonka; an unnamed lake south of Medicine Lake; areas around Medicine Lake; and the areas around Turtle, Gleason, Hadley and Hannan Lakes.

Wetlands

The buffer area has approximately 4,784 acres of NWI identified wetlands (Figure 10-14).

Vegetation and Wildlife

There are no identified areas of native vegetation found in the buffer area (Figure 10-16). Prior to European settlement, much of the buffer area was dominated by deciduous forest. Forest types included oak forest, maple-basswood forest, lowland hardwood forest, and black ash swamps. Most of the forested areas have now been converted to residential or commercial developments. Remaining forestlands are now limited mostly to parks and public recreation areas. Silviculture activities would be in accordance with resource management plans for these areas.

Figure10-15

Figure10-16

Some remnants of native forested vegetation are identified in the buffer area according to the Minnesota Biological Survey (MnDNR, 1998). These include two areas of Maple Basswood Forest. One is located on the north edge of the buffer area on the west side of Interstate 94 and the other is located just west of Medicine Lake along Highway 61. The site west of Medicine Lake is located within the Clifton E. French Regional Park.

There are two occurrences of rare animals (either federally or state listed) in this area south of Medicine Lake.

Demographics

The cities of Plymouth and Minnetonka account for 80% of the acreage in the Parkers Lake Buffer Area (Table 10-10). Other cities with acreage in the buffer area include Wayzata, St. Louis Park, Golden Valley, New Hope, Woodland, Medicine Lake and Hopkins.

Table 10-10 Cities in the Parkers Lake Buffer Area

City	Acreage in Buffer Area	% of City in Buffer Area	City Population (2000 census)
Plymouth	11,526	53.0%	65,894
Minnetonka	5,944	27.3%	51,301
Wayzata	1,662	7.6%	4,113
St. Louis Park	665	3.1%	44,126
Golden Valley	657	3.0%	20,281
New Hope	517	2.4%	20,873
Woodland	485	2.2%	480
Medicine Lake	238	1.1%	368
Hopkins	65	0.3%	17,145

The cities in the buffer area had a 92.5% (mean) White population group in 2000 (Table 10-11). The primary minority groups were African American and Asian. The 2000 population was evenly split between males and females. The age group composition was 63.3 percent for the 18-64 age group and 29.8 percent for the under-18 age group.

Table 10-11 2000 Population by Race in the Parkers Lake Buffer Area

City	Primary Racial Group (% of population)	Other Racial Groups (% of population)
Maple Grove	White (94.7%)	Asian (2.5%)
Dayton	White (95.3%)	Asian (0.8%)
Champlin	White (95.0%)	Asian (1.7%)
Corcoran	White (96.7%)	Asian (1.8%)
Hassan Township	White (98.4%)	African American (0.3%)
Brooklyn Park	White (71.4%)	African American (14.3%) Asian (9.2%)
Osseo	White (95.9%)	African American (1.2%) Asian (1.1%)

Parks and Trails

French Regional Park, along with other smaller parks, is located in the Parkers Lake Substation buffer area. Recreational facilities include boat launching, fishing piers, campsites, picnic areas, swimming ponds, archery ranges, sledding hills and visitor centers. Different types of trails are also maintained within the parks including biking and hiking trails, pet trails, cross-country ski trails, horse trails, snowmobile trails and snowshoe trails (Figure 10-17).

Figure 10-17

Soils

There are 94 soil series located in the Parkers Lake buffer area (Figure 10-18). Seven soil series meet the qualifications for prime farmland, two meet the standards for farmland of statewide importance, and 13 are identified as highly erodible soils. The HEL soil units comprise approximately 61 acres (Table 10-12).

Table 10-12 Highly Erodible Land in the Parkers Lake Buffer Area

Mapping Symbol	Mapping Unit Name	Acres (approx.)
BuC	Burnsville sandy loam, 6-12% slopes	0.0
BuD	Burnsville sandy loam, 12-18% slopes	0.4
BuE	Burnsville sandy loam, 18-35% slopes	0.0
DIB	Dalbo silt loam, 2-6% slopes	0.0
EnE	Erin loam, 18-24% slopes	0.0
EtC	Estherville sandy loam, 6-12% slopes	0.1
HbC	Hayden loam, 6-12% slopes	19.1
HbD	Hayden loam, 12-18% slopes	13.3
HbE	Hayden loam, 18-24% slopes	7.3
HcC2	Hayden clay loam, 6-12% slopes, eroded	9.5
HcD2	Hayden clay loam, 12-18% slopes, eroded	0.8
HcE2	Hayden clay loam, 18-24% slopes, eroded	4.8
HdF	Hayden and Lester loams, 24-35% slopes	3.4
HeC	Heyder sandy loam, 6-12% slopes	1.6
HeD	Heyder sandy loam, 12-18% slopes	0.0
HeE	Heyder sandy loam, 18-24% slopes	0.0
HIC	Heyder complex, 6-12% slopes	0.5
HID	Heyder complex, 12-18% slopes	0.1
HIE	Heyder complex, 18-35% slopes	0.1
KnC	Kingsley complex, 6-12% slopes	0.0
KnD	Kingsley complex, 12-18% slopes	0.0
KnE	Kingsley complex, 18-24% slopes	0.0
KnF	Kingsley complex, 24-35% slopes	0.0
SaC	Salida coarse sandy loam, 6-12% slopes	0.0
SaD	Salida coarse sandy loam, 12-18% slopes	0.0
SaE	Salida coarse sandy loam, 18-35% slopes	0.0
Total		61.1

Figure 10-18

Seven soil series are identified as prime farmland within the agricultural portion of the buffer area (Table 10-13). Four of the soil series are designated as prime farmland only if the area is drained. Prime farmland comprises approximately 121 acres of the agricultural portion of the south buffer area (Figure 10-19).

Table 10-13 Prime Farmland in the Parkers Lake Buffer Area

Mapping Symbol	Map Unit Name	Limitation	Acres (approx.)
Co	Cordova silty clay loam	only drained areas	8
Du	Dundas silt loam	only drained areas	12
Gc	Glencoe silty clay loam	only drained areas	12
Ha	Hamel loam	only drained areas	33
HbB	Hayden loam, 2-6% slopes	none	47
HcB2	Hayden clay loam, 2-6% slopes, eroded	none	2
Neb	Nessel loam, 1-4% slopes	none	8
Total			121

There are approximately 29 acres of land in the buffer area that meet the criteria for Additional Lands of Statewide Importance. Two soil series meet the criteria within the agricultural portion of the south buffer area (Table 10-14).

Table 10-14 Additional Lands of Statewide Importance

Mapping Symbol	Map Unit Name	Acres (approx.)
HbC	Hayden loam, 6-12% slopes	19
HcC2	Hayden clay loam, 6-12% slopes, eroded	10
Total		29

Undeveloped/Agricultural Lands

According to the current city land use data, no undeveloped or agricultural lands are present in the Parkers Lake Buffer Area.

10.8.2 Elm Creek Substation Buffer Area

General Location

The north buffer area extends three miles from Xcel Energy's Elm Creek Substation located near the intersection of County Highway 81 and Fernbrook Lane in Maple Grove (Figure 10-20). The buffer area does not include the project corridor, which was discussed in detail in Sections 10.1 to 10.7. The buffer area encompasses approximately 19,649 acres and includes a mix of

industrial, commercial, residential, parks and open space, and agricultural lands (Figures 10-21 and 10-22).

Figure 10-19

Figure 10-20

Figure 10-21

Figure 10-22

Lakes

There are ten lakes located within three miles of the Elm Creek Substation (Figure 10-23). Three lakes, including Fish, Parkers and Hidden Lakes, provide recreational fishing via a public access. The public access may be maintained as part of the regional and municipal park systems. The remaining seven lakes in the three-mile area are not managed for fisheries. They include Crane, Gleasons, Kreatz, Lemons, Mud, Westwood and Windsor Lakes.

Fish Lake is located in the southern part of the buffer area just west of the junction of I-494 and I-94. It has a surface area of 223 acres with a maximum depth of 48 feet. The lake is managed as a northern pike and walleye fishery. Other game fish species include black crappie, bluegill and yellow perch.

Parkers Lake is located north of I-94 in the City of Maple Grove. It has a surface area of 92 acres with a maximum depth of 37 feet. There is a public access on the north end of the lake and 0.75 miles west of I-94 on County Rd 6. Dominant fish species include largemouth bass, bluegill and northern pike.

Hidden Lake is located south of I-94 in the City of Maple Grove. It has a surface area of 9 acres with a maximum depth of 28 feet. There is a concrete public access on the east side of the lake along Medicine Lake Drive. The dominant fish species is bluegill.

Rivers and Creeks

The buffer area around the Elm Creek Substation does not contain any rivers; however, creeks and small flowages are present (Figure 10-23). Elm Creek bisects the buffer area from south to north flowing through Rice Lake, continuing into Hayden Lake, and then to the Mississippi River. Mud Lake also outlets to Elm Creek. In the western portion of the buffer area, Rush Creek flows northeast crossing Interstate 94 and Highway 81 before flowing into Elm Creek just west of Goose Lake. Other unnamed flowages are present but they are mostly tributaries to Elm Creek and Rush Creek.

Riparian Areas

There are approximately 4,371 acres of riparian areas in the buffer area (Figure 10-24). There are 2,874 acres adjacent to lakes and 1,497 acres adjacent to rivers, streams and creeks. The primary land use categories for the riparian areas are residential, parks and open spaces.

Floodplains

Floodplains in the buffer area are identified in Figure 10-23. Floodplains are found along Rush Creek, the South Fork of Rush Creek, and Elm Creek. Other designated floodplain areas include areas around Rice Lake, French Lake, an unnamed lake in the City of Dayton, Hayden Lake and Lemons Lake.

Figure 10-23

Figure 10-24

Wetlands

The buffer area has approximately 5,052 acres of NWI identified wetlands (Figure 10-23).

Vegetation and Wildlife

Prior to European settlement, much of the buffer area was dominated by deciduous forest. Forest types included oak forest, maple-basswood forest, lowland hardwood forest, and black ash swamps. Most of the forested areas have now been converted to residential or commercial developments. Remaining forestlands are now limited mostly to parks and public recreation areas. Silviculture activities would be in accordance with resource management plans for these areas.

Some remnants of native forested vegetation are identified in the buffer area according to the Minnesota Biological Survey (MnDNR, 1998). These include one area of Black Ash Swamp, three stands of Maple Basswood Forest, two areas of Oak Forest and one Tamarack Swamp. All of these forested resources except one are located within or adjacent to the Elm Creek Park Reserve. The exception is an area of Maple Basswood Forest located approximately one mile west of Fish Lake.

There are five occurrences of rare animals (either federally or state listed) in this area in Fish, Goose and Hayden Lakes, on Elm Creek (in the Elm Creek Park Reserve) and south of French Lake (Figure 10-25). In addition, there is a colonial waterbird nesting site located at French Lake.

Demographics

The Cities of Maple Grove and Dayton account for over 85% of the acreage in the Elm Creek Buffer Area (Table 10-15). Other cities with acreage in the buffer area include Champlin, Corcoran, Hassan Township, Brooklyn Park and Osseo.

Table 10-15 Cities in the Elm Creek Buffer Area

City	Acreage in Buffer Area	% of City in Buffer Area	City Population (2000 census)
Maple Grove	9,774	49.7%	50,365
Dayton	7,005	35.6%	4,699
Champlin	1,619	8.2%	22,193
Corcoran	484	2.5%	5,630
Hassan Township	343	1.7%	2,463
Brooklyn Park	281	1.4%	67,388
Osseo	143	0.7%	2,434

Figure 10-25

The cities in the buffer area had a 92.7% White population group in 2000 (Table 10-16). The primary minority groups were African American and Asian. The 2000 population was almost evenly split between males and females (48.1% and 51.9%, respectively). The age group composition was 63.3 percent for the 18-64 age group and 22.1 percent for the under-18 age group.

Parks and Trails

The Elm Creek Park Reserve is located in the buffer area (Figure 10-26). This recreational and natural area is managed for public use with an environmental focus. Recreational facilities include boat launching, fishing piers, campsites, picnic areas, swimming ponds, archery ranges, sledding hills and visitor centers. Different types of trails are also maintained within the parks including biking and hiking trails, pet trails, cross-country ski trails, horse trails, snowmobile trails and snowshoe trails.

Table 10-16 2000 Population by Race in the Elm Creek Buffer Area

City	Primary Racial Group (% of population)	Other Racial Groups (% of population)
Plymouth	White (91.4%)	African American (2.7%) Asian (3.8%)
Minnetonka	White (94.4%)	African American (1.5%) Asian (2.3%)
Wayzata	White (96.1%)	Asian (1.3%)
St. Louis Park	White (88.9%)	African American (4.4%) Asian (3.2%)
Golden Valley	White (91.1%)	African American (3.6%) Asian (2.9%)
New Hope	White (86.7%)	African American (5.8%) Asian (3.2%)
Woodland	White (97.7%)	Asian (0.4%)
Medicine Lake	White (95.4%)	Asian (2.4%)
Hopkins	White (82.6%)	African American (5.2%) Asian (5.9%)

Soils

There are 73 soil series located in the buffer area (Figure 10-27). Seven soil series meet the qualifications for prime farmland, two meet the standards for farmland of statewide importance, and 14 are identified as highly erodible soils.

There are 14 HEL soil units found in the buffer area. These soil units comprise approximately 1,622 acres (Table 10-17).

Figure 10-26

Figure 10-27

Table 10-17 Highly Erodible Land in the Elm Creek Buffer Area

Mapping Symbol	Map Unit Name	Acres (approx.)
BuC	Burnsville sandy loam, 6-12% slopes	0.0
BuD	Burnsville sandy loam, 12-18% slopes	0.0
BuE	Burnsville sandy loam, 18-35% slopes	0.0
DIB	Dalbo silt loam, 2-6% slopes	10.1
EnE	Erin loam, 18-24% slopes	0.0
EtC	Estherville sandy loam, 6-12% slopes	0.0
HbC	Hayden loam, 6-12% slopes	103.7
HbD	Hayden loam, 12-18% slopes	62.7
HbE	Hayden loam, 18-24% slopes	25.7
HcC2	Hayden clay loam, 6-12% slopes, eroded	964.1
HcD2	Hayden clay loam, 12-18% slopes, eroded	325.6
HcE2	Hayden clay loam, 18-24% slopes, eroded	19.8
HdF	Hayden and Lester loams, 24-35% slopes	78.7
HeC	Heyder sandy loam, 6-12% slopes	7.9
HeD	Heyder sandy loam, 12-18% slopes	0.2
HeE	Heyder sandy loam, 18-24% slopes	0.2
HIC	Heyder complex, 6-12% slopes	10.0
HID	Heyder complex, 12-18% slopes	12.2
HIE	Heyder complex, 18-35% slopes	0.0
KnC	Kingsley complex, 6-12% slopes	0.0
KnD	Kingsley complex, 12-18% slopes	0.0
KnE	Kingsley complex, 18-24% slopes	0.0
KnF	Kingsley complex, 24-35% slopes	0.0
SaC	Salida coarse sandy loam, 6-12% slopes	0.0
SaD	Salida coarse sandy loam, 12-18% slopes	1.5
SaE	Salida coarse sandy loam, 18-35% slopes	0.0
Total		1,622.4

Seven soil series are identified as prime farmland within the agricultural portion of the buffer area (Table 10-18). Four of the soil series are designated as prime farmland only if the area is drained. Prime farmland comprises approximately 3,389 acres of the agricultural portion of the north buffer area (Figure 10-28).

Table 10-18 Prime Farmland in the Elm Creek Buffer Area

Mapping Symbol	Map Unit Name	Limitation	Acres (approx.)
Co	Cordova silty clay loam	Only drained areas	567
Du	Dundas silt loam	Only drained areas	382
Gc	Glencoe silty clay loam	Only drained areas	504
Ha	Hamel loam	Only drained areas	652
HbB	Hayden loam, 2-6% slopes	none	734
HcB2	Hayden clay loam, 2-6% slopes, eroded	none	568
Neb	Nessel loam, 1-4% slopes	none	433
Total			3,389

There are approximately 1,068 acres of land in the buffer area that meet the criteria for Additional Lands of Statewide Importance. Two soil series meet the criteria within the agricultural portion of the north buffer area (Table 10-19).

Table 10-19 Additional Lands of Statewide Importance

Mapping Symbol	Map Unit Name	Acres (approx.)
HbC	Hayden loam, 6-12% slopes	104
HcC2	Hayden clay loam, 6-12% slopes, eroded	964
Total		1,068

Undeveloped/Agricultural Lands

The northwest quarter (west of the Elm Creek Park Reserve) of the buffer area has significant areas of agricultural land. The agricultural lands are primarily composed of corn and soybean production. Other types include forage production of alfalfa, mixed grasses, and pasture lands. Livestock production includes dairy cattle, beef cattle and horses. Other agricultural uses include hobby farms, small berry farms and pumpkins.

Figure 10-28