

Physical Profile & Natural Resources

PURPOSE

Natural and physical features of the City of Lonsdale are bountiful resources which provide a healthy environment and high quality of life for citizens. The rolling hills, wetlands and ponds were identified as icons which identify the community, by 111 of the 374 survey participants. In order to plan for sustainable growth, these natural resources should be considered as the city continues to develop. This Chapter provides information on:

1. The City's Physical Profile including the area, soils, topography, waterbodies and watersheds, groundwater, leak sites, wildlife, endangered species and potential development constraints.
2. Natural Resource Objectives and Policies.

I. PHYSICAL PROFILE.

A. Area.

The City of Lonsdale is 2.6 square miles in size or 1,667.87 acres. (Source: GIS records February 2015).

B. Soils.

The characteristics of the soils in the Lonsdale area should be examined in order to make proper decisions on the use of the land and to protect the natural environment. Map 3-1 identifies the various soil types which are within the City of Lonsdale and its growth area. Map 3-1 includes a legend identifying the Soil Series.

The Soils Survey of Rice County, Minnesota, prepared by the US Department of Agriculture and Natural Resources Conservation Service, in cooperation with the Minnesota Agricultural Experiment Station, includes a wealth of information relating to the various soil types. As development occurs the City may utilize the soil survey data to determine the best use of land. Data available in the Soil Survey includes:

- **Agronomy** or the suitability of each soil type for growing crops, for pasture land, planting windbreaks and environmental planting. Tables which identify the land's capability and projected yields per acre of crops as well as prime farmland soil series are noted.
- **Recreational Development.** The various soil types are rated on their suitability for recreation. "The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, the ability of the soil to support vegetation, access to water, potential water impoundment sites, and either access to public sewer lines or the capacity of the soil to absorb septic tank effluent. Soils subject to flooding are limited, in varying

degrees, for recreational uses by the duration of flooding and the season when it occurs. Onsite assessment of the height, duration, intensity, and frequency of flooding is essential in planning recreational facilities.”¹

- **Wildlife Habitat.** Soils are rated based on their ability to support wildlife habitat. Factors which are included are the soils ability to provide a habitat which includes food and cover.
- **Engineering.** Soil properties are rated for their ability to support building site development, sanitary facilities, construction materials and water management. The various tables including information to assist with planning for site development.
- **Soil Properties** include the “Engineering Index Properties”, “Physical and Chemical Properties of Soils”, “Water features” and “Soil Features”.

The various types of soils present different opportunities as well as requirements for correction for urban development. It is recommended the City require soil borings prior to granting building permits in areas where soils have been rated as severe to moderate.

C. Topography.

Map 3-2 illustrates topography within the City of Lonsdale. The area features mild fluctuations in elevation from about 1022 to 1178 feet above sea level. A majority of the City is relatively flat with slopes typically under 12%; however, some areas with slopes over 18%. These areas are included on Map 3-5 as potential Development Constraints. These include the following soils and slopes:

Hawick sandy loam, 12 to 25 percent slopes
Kilkenny clay loam, 18 to 25 percent slopes
Kilkenny clay loam, 25 to 35 percent slopes
Lester loam, 18 to 25 percent slopes
Lester-Kilkenny complex, 18 to 25% slopes
Lester-Kilkenny complex, 25 to 35% slopes

The City’s Subdivision Ordinance defines a “Steep Slope” as “an 18% or greater deviation of a surface from the horizontal.” The Subdivision Ordinance includes provisions to require diversions to be installed to divert surface water runoff from slopes of 10% or steeper. The Subdivision Ordinance; however, does not include restrictions relating to development of “steep slopes”. The City may wish to consider requiring the identification of steep slopes on Preliminary Plats, including language which allows the City to evaluate land suitability for subdivision based on steep slopes, as well as other

¹ Soil Survey of Rice County, Minnesota. USDA, Natural Resources Conservation Service in cooperation with the MN Agricultural Experiment Station.

items and the requirement for replacement trees to be installed on any disturbed steep slopes.

The Subdivision Ordinance requires that, "Lots shall be placed to preserve and protect natural amenities, such as tree growth, watercourses, bluffs, historic spots or similar conditions, which if preserved, will add attractiveness and stability to the proposed development."²

As the City plans its future land uses, it is important to take the topography of the city into consideration. Flat areas are typically more conducive for industrial development with rolling hills or areas with steeper slopes preserved for residential or natural resource protection.

D. Water bodies.

There are several waterbodies on the south and east side of the City and its growth boundary (See Map 3-5). Stangler Pond, a 13 acre open water pond, is located on the northeast side of the City.



Harvest Pond, a 7.8 acre open water pond, is located south of Ash St. NE and north of Central Street E. Novak Pond, is a 3 acre open water pond, located along 15th Avenue SE. In addition, Heath Creek meanders through the southeast corner of the City. Hidden Willow Pond is 18 acres in size with 9 acres of open water. This is located within Rezac Nature Preserve. In addition, two ponds are located south of the City limits; Trondhjem

² City of Lonsdale Subdivision Ordinance

Ponds (27 acres), and Union Lake Pond (7 acres). Heath Creek meanders through the City.

National Wetland Inventory. Map 3-3 illustrates the locations of wetlands within the city and its growth boundary. Seasonally flooded basis or flat wetlands, Deep Marsh wetlands and Shallow Marsh wetlands are located within the City. In rural areas, wetlands larger than 10 acres are designated as DNR protected. In urban or developed areas, including the City of Lonsdale City limits, this threshold falls to 2.5 acres.

FEMA Floodplain. Map 3-4 illustrates areas identified by the Federal Emergency Management Agency as Floodplain. Currently there are no floodplains in the city limits, however, there is a floodplain south of the City, along Heath Creek.

In 2012, the City amended the Floodplain Management Chapter of the City Code and created a Floodplain Overlay District.

E. Watersheds.

Watersheds are drainage networks or areas of land which drain water under or off it to lakes and rivers and eventually to larger water bodies. Topography dictates where water or drainage flows. It is important to protect the quality of watersheds as run-off may affect water quality causing a negative impact on wildlife and humans.

Rice County has three primary watersheds: According to the Soil Survey of Rice County, Minnesota, "About 82 percent of the county drains into the Cannon River. The northwestern part of the county drains into the Minnesota River, and the southeastern part drains into the Zumbro River."

Green techniques, which may be employed by a community and its citizens to assist in maintaining the water quality of its watersheds, include such activities as repairing leaky faucets, repairing septic tanks, using pavers in lieu of asphalt driveway allowing for drainage and planting of trees and plants native to the area to reduce the use of fertilizers and pesticides.

F. Groundwater.

Lonsdale is in the South-Central Ground Water Province. This is characterized by thick clayey glacial drift with limited extent sand aquifers overlying Paleozoic sandstone, limestone, and dolostone aquifers.³

The Minnesota Pollution Control Agency reports six confirmed instances of leaking underground storage tanks within the City. Three included groundwater contamination. All files on the sites have been closed as of the drafting of this Plan. The sites are identified in the following table.

³ Minnesota Geological Survey Map & Data Base, MNDNR

**TABLE 3-1
LEAKING UNDERGROUND STORAGE TANK SITES
CITY OF LONSDALE**

Site	Status
ID# 2493 15 Central St. E-Canedy Auto Service Kenneth Morrell Property – 19 Central Street East Product released: gasoline, unleaded; waste oil	Discovered 04/25/1990. Site closed 09/08/1995
ID #16770 215 Central St E Casey's General Store Property Product released: gasoline, unleaded Groundwater contamination	Discovered 03/26/2007 Site closed 10/28/2007
ID# 15542 714 Central St NW Home Oil Donald Smisek Property – 710 Central Street W. Product released: Fuel Oil 1 & 2	Discovered 11/17/2003 Site closed 03/23/2004
ID #14520 212 E Central St. Home Oil Co. Jesse Food Mart Property Product released: Diesel, Fuel Oil 4 & 6; Gasoline, type unknown Groundwater contamination	Discovered 10.17/2001 Site closed 12/22/2005
ID #11500 110 5 th Ave SW Lonsdale Facility Rice County Highway Department Shop Property Product released: Diesel	Discovered 07/07/1998 Site closed 04/09/1999
ID # 16291 104 Railway St. Ann Pint Property Product released: Fuel Oil 1 & 2; Gasoline, Type unknown Groundwater contamination	Discovered 12/06/2005 Site closed 12/14/2007

- Source: MN Pollution Control Agency, 2016 & City of Lonsdale

G. Wildlife Management Areas.

The Rice County's "Parks, Recreation and Open Space Plan, 2011-2021 identifies the following Wildlife Management Area, "Robert J. Lick Marsh/Low Ground Forest is 194 acres, located 3.2 miles south on County Road 4 (from Lonsdale). Robert J. Lick is primarily marsh with upland and low ground forest, and grass fields. Management emphasis includes wetland restoration, waterfowl habitat, and pheasant wintering area."

H. Endangered Species

The U.S. Fish and Wildlife Service has identified federally-listed Threatened, Endangered, Proposed and Candidate Species. The following have been identified within Rice County.

**TABLE 3-2
THREATENED & ENDANGERED SPECIES RICE COUNTY**

Species	Status	Description
Northern long-eared bat MYOTIS SEPTENTRIONALIS	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
Dwarf trout lily (<i>Erythronium propullans</i>)	Endangered	North facing slopes and floodplains in deciduous forest
Prairie bush clover (<i>Lespedeza leptostachya</i>)	Threatened	Native prairie on well-drained soils

Source: U.S. Fish and Wildlife Service (revised April 2015)

I. Development Constraints

Map 3.6 illustrates potential constraints to future development. The boundaries on the map are a compilation of floodplain areas, National Wetland Inventory data areas, areas of steep slope, soils survey data and DNR Public Waters Inventory data. Field verification was not done to determine wetland existence. It should be noted that further review of these and sites identified is required prior to development. This map is intended to provide a general overview. The City should require that areas proposed within these areas be shown in detail as necessary to determine development suitability and protection when submitted with development proposals.

J. **City Ordinances.** The City's Subdivision Ordinance includes requirements for tree planting, tree replacement, and lot design to ensure compliance with Floodplain, Shoreland and Surface Water Management. Identification of floodplains and national wetland inventory data are also required on Preliminary plats.

II. NATURAL RESOURCE OBJECTIVES.

- A. Promote conservation of key natural resources and open space areas.
- B. To the extent possible establish a balance between promoting, protecting, enhancing and preserving natural and physical features (including, but not limited to, woodlands,

wetlands, soils, steep slopes, surface waters, groundwater) while managing requests for development and redevelopment.

- C. Protect the quality and use of surface water through support and coordination with the Watershed Management Organization and state and federal agencies.
- D. Protect and preserve groundwater supply and quality through support and coordination with the Watershed Management Organization and state and federal agencies.
- E. Educate the community about its natural resource assets and encourage them to think about their use and impact on the natural resources of the community and greater areas.

III. NATURAL RESOURCE POLICIES.

- A. Examine specific requirements for environmental protection that may be incorporated into the City's Subdivision Regulations relating to "steep slopes".
- B. Encourage "Green techniques" which may be employed by a community and its citizens to assist in maintaining the water quality of its watersheds.
- C. Integrate locations of identified sensitive natural resource information into a park and open space plan and/or other tools to guide development to allow for observation and interaction with natural resources. Support the construction of soft, permeable, low impact trail systems in natural areas when feasible, encourage the construction of trail connections linking residents to parkland and natural resources.
- D. Promote good stewardship of the land and support a sustainable environment through community efforts such as recycling and collection of household hazardous wastes. Continue to encourage composting by providing a municipal compost and yard waste site. Protect the urban forest by implementing best management practices for forest management, tree preservation, and disease management and prevention.