PHYSICAL PROFILE

The presence of natural features will be reviewed in this chapter so as to provide background reference information for City leaders which they may consult and employ when making decisions regarding future urban development. Several of the natural features identified in this chapter, including but not limited to wetlands, flood plain areas, areas of steep slopes, and regionally significant ecological areas, will present constraints to future development. Several of these significant natural features/areas exist in the proposed growth area of the City.

Natural and physical features/attributes of the City of Belle Plaine are simultaneously a bountiful resource and a factor limiting development/redevelopment. This Chapter provides background information on the City of Belle Plaine's physical profile that is intended to assist in guiding growth and preserving natural resources. This chapter includes:

1. Natural Resource Objectives.

2. Natural Resource Policies/Recommendations.

3. A Physical Profile including information on:
    A. Size
    B. Climate

4. Land Resources including information on:
    A. Ecologic Framework
    B. Topography
    C. Soils
    D. Significant Terrestrial and Wetland Ecological Areas
    E. Metro Wildlife Corridor Focus Areas
    F. Minnesota County Biological Survey

5. Surface Water Resources including information on:
    A. Watershed
    B. Lakes, Rivers and Streams
    C. Wetlands
    D. Floodplains
    E. Water Control Structures
    F. Local Hydrologic Cycle, Development and Surface Water

6. Ground Water Resources including information on:
    A. Geologic Framework

7. Development Constraints including Map 2-7 identifying the national wetland inventory and areas with steep slopes.

I. Natural Resources Objectives

1. 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.

2. Promote conservation of key natural resources and open space areas.

3. Promote environmental stewardship including reducing, recovering and recycling waste materials.

4. Preserve the environment as a sustainable resource to help promote both present and future generations' quality of life.

5. 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.

II. Policies and Recommendations

1. Encourage efforts to preserve wildlife species including preservation of natural habitat areas and pre-settlement (native) vegetative communities where feasible.

2. Encourage the use of natural resource data/studies for planning and review of development and redevelopment such as soils, topography, groundwater etc. The City should review and update its Planned Unit Development standards to encourage cluster developments to protect natural resource areas. The creation of a conservation district and the development of various conservation ordinances (e.g. landscape, water, trees or vegetation) should be researched, and if deemed appropriate, adopted as a part of the Zoning and Subdivision Ordinances.

3. Continue to require compliance with approved subdivision grading/drainage plans. Compliance checks/certifications upon site grading completion, at the time of building permit issuance and immediately prior to issuance of a certificate of occupancy should be considered. Require appropriate erosion controls during construction and enforce through a developer's agreement and onsite inspections.

4. Carefully regulate development in areas adjacent to shorelands, wetlands and flood prone areas to preserve these as attractive amenities.

5. Encourage development to conform to the natural limitations presented by topography, soils or other natural conditions.

6. Identify sensitive natural resources (e.g. habitats, unique natural features, etc.) using existing ecological information including MN DNR County Biological Survey, Regionally Significant Ecological Area Map, Metro Wildlife Corridor Map, aerial photography, etc.

7. Integrate locations of identified sensitive natural resource information into a park and open space plan and/or other tools to guide development.

8. Identify historic or archaeological sites. Emphasize proper management of open space areas in order to preserve trees, wildlife, pre-settlement (native) landscape communities, floodplain, water quality and similar environmentally sensitive features.

9. Encourage and promote land use practices to protect and improve surface water resources.

10. Enforce existing regulations and develop programs and new regulations where necessary to protect surface water.

11. Encourage land use practices that enhance high quality groundwater recharge.

12. Review performance standards within the Zoning Ordinance to ensure that they adequately control dust and wind erosion related to land use and development activities.

13. Consider updating streamlined city permitting procedures including but not limited to applications, checklists, fees, and inspections.

14. Coordinate plans and work with all agencies responsible for the protection and restoration of the environment.

15. Continue to administer and support the state environmental review program (EAW, EIS).

16. Examine specific requirements for environmental protection that may be incorporated into the city's Subdivision regulations such as identification of subdivision landscaping standards and identification of existing trees of a substantial size as part of the preliminary plat required data.

17. Continue to participate in the National Flood Insurance Program.

18. Maintain a current list of persons to contact at various local, state and federal agencies which are responsible for protecting the environment.

19. Distribute new information relating to environmental regulations to all policy makers and elected officials as it becomes available.

20. Promote environmental stewardship including reducing, recovering and recycling waste materials.

21. Provide developers and owners with technical assistance in applying Best Management Practices for stormwater management on road and land development projects.

22. Seek opportunities, such as conferences and publications to learn about emerging issues regarding the environment and provide training for elected and appointed officials to assist them in dealing with the complexities of environmental issues.

23. Ensure protection of solar access where appropriate by examining the Subdivision and Zoning Ordinance to ensure that solar energy access is available where appropriate and that the ordinance is in accordance with State Statute.

III. Physical Setting

A. Size

The 2000 Census identifies 4.25 square miles of area with Belle Plaine of which 4.06 is square miles of land and .19 square miles is water. Since the 2000 Census the city has added land area through annexation.

B. Climate

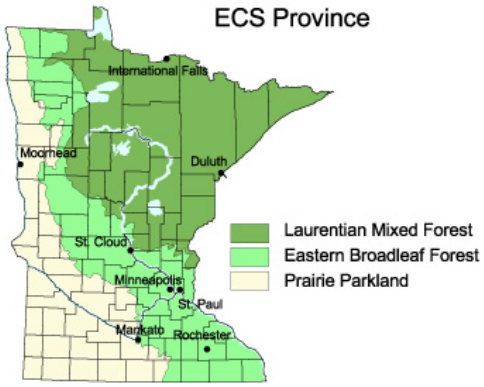
The climate of Belle Plaine and surrounding Twin Cites Minnesota region is characterized by warm, humid summers with severe local storms and occasional tornadoes. The winter seasons are generally cold and relatively dry. The average 30 year annual precipitation for the years 1971 to 2000 was 29.41 inches of water based on data from the State Climatology Office, Division of Waters, Minnesota Department of Natural Resources. Nearly two thirds of Minnesota's annual precipitation falls during the growing season of May through September. During late December, January, and early February, temperatures frequently remain below freezing. Frost in Minnesota

takes place as early as September and ends as late as May. Soil freeze occurs in Minnesota during the late fall and early winter months.

IV. Land Resources

A. Ecologic Framework

The Ecological Classification System (ECS) is a hierarchical system developed to manage natural resources on a sustainable basis. The Minnesota Department of Natural Resources has developed a comprehensive analysis of the ECS throughout the State. The following ECS information is from the Minnesota DNR. Globally the ecological classification system is divided into four 'domains' which are the highest level identified in the ECS. Minnesota lies within the Humid Temperate Domain which includes the middle latitudes and is governed by both tropical and polar air masses. The Humid Temperate Domain is characterized by season fluctuations and cycles of precipitation and temperature which create a distinct winter season. The combination of climate, latitude and precipitation in the Humid Temperate Domain results in vegetation such as prairie, broadleaf deciduous forests and evergreen conifer forests.



Global ECS Domains are next divided into 'Divisions' which are regional classifications which share similar climate, precipitation, vegetation and winter temperature characteristics. There are ten ECS Divisions within the contiguous United States, three of which converge in Minnesota: the Warm Continental, the Hot Continental and the Prairie Divisions. Divisions are often useful in regional planning efforts.

ECS Divisions, in general, are subdivided into 'Provinces'. In Minnesota the Province and Division levels happen to be the same. Provinces are subdivided based on climatic subzones of moisture and temperature along with broad topographic features.

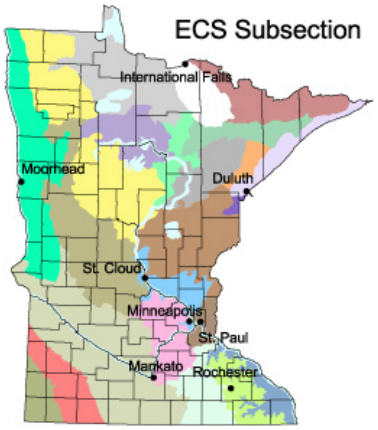
The three ECS Provinces that converge in Minnesota are the prairie parkland, deciduous forest and coniferous forest. Belle Plaine is located within the Eastern Broadleaf Forest which bridges the transition between prairie to the west and true forest to the east. Major landforms within the Easter Broadleaf Forest include lake plains, outwash plains, end moraines, ground moraines, and drumlin fields. Soils are in the Alfisol, Entisol, Histosol or Mollisol orders.

ECS Provinces are further subdivided into 'Sections' which have similar characteristics including bedrock features, land forming processes, types of glacial sediment and distribution of plant communities. Sections are defined by the origin of glacial deposits, regional elevation, distribution of plants and regional climate. Minnesota has ten Sections, Belle Plaine lies within the Minnesota and Northeast Iowa Morainal Section.

ECS Sections are further subdivided into 'Subsections' which are defined by the same characteristics as Sections but in greater detail. There are 24 Subsections in Minnesota. Belle Plaine lies within the 'Big Woods' Subsection.

The Big Woods Subsection is defined by two main criteria: essentially one definable landform and a singular uniform and dominant pre-settlement vegetation community (i.e. Maple and Basswood forest). West of the Big Woods, tall grass prairie was the primary vegetative community (suggesting differences in climate, topography, and natural disturbance). East of the Big Woods, savanna and tall grass prairie were the primary vegetative communities reflecting differences in topography and fire regimes. To the north, the Mississippi River and a fairly extensive outwash plain/lake plain defines the boundary.

Topography is characteristically gently to moderately rolling across the Big Woods Subsection. Soils were formed in thick deposits of gray limy glacial till left by the retreat of the Des Moines lobe. Red oak, sugar maple, basswood, and American elm were most common in this dominantly forested region. Presently, most of the region is farmed.



The Minnesota River dissects the center of the Big Woods Subsection. There are two major conservation concerns within the Big Woods as defined by the Minnesota Department of Natural Resources (MN DNR). The first is water quality in the Minnesota River drainage area. The MN DNR reports there is a "major pollution problem throughout the Subsection." A second concern is how to control development (agricultural and urban) so wetlands and other natural landscapes are preserved.

ECS Subsections are further subdivided into Land Type Associations (LTA's), Land Types and Land Type Phases. Information at these levels can be very useful for natural resource inventorying at a City level.

B. Topography

Map 2-1 at the close of this chapter illustrates area typography at two foot intervals. Originally the City of Belle Plaine was established on a relatively flat terrace land adjacent to the Minnesota River floodplain. As development expands the corporate limits, steep bluff areas that rise above the terrace land into the rolling terrain of southwest Scott County are encountered. Elevations range from 725 near the Minnesota River floodplain to over 1000 feet above sea level within Blakeley and Belle Plaine Townships, just south of the corporate limits. Areas within Blakely and Belle Plaine Townships directly south of the existing Belle Plaine corporate limits (including areas subject to joint annexation agreements) are areas of significant topographic fluctuation. Thorough review and analysis of development on slopes between 12% and 18% will be necessary as requests for subdivision are received. Areas of steep slopes exceeding 18% in grade are generally of unique value to the community and function best if allowed to exist in a natural state or exist with limitation on development such that they will not be urbanized or irrevocably altered.

C. Soils

Many of the environmental decisions about using a resource are based on the kind of soil and the ability of the soil to support that resource use. The characteristics of the soils in the Belle Plaine area are examined in general as a means to making decisions on the use of the land and to protect the natural environment. Existing soils in the city have been principally responsible for the area's overall development pattern and may impose limitations or increased sensitivity to future urban development/redevelopment.

Map 2-2 at the close of this chapter illustrates soils within the City of Belle Plaine and is reflective of USGS datum. Soil surveys provided by USGS provide information about erosion rates, depth to groundwater, surface and subsurface (to 5 feet) soil texture, engineering interpretations and suitability for activities such as private sewage treatment, building limitations, and nonmetallic mining sites to name few. This information is valuable in making water and land resource management decisions.

Soils with identical or near identical profiles are grouped into a soil series, normally named for a geographical feature where it was first described. Each series has the same characteristics, regardless of where it is subsequently found. Soil associations, which are described on a general county soils map, are a distinct pattern of soil series in defined proportions. Soil association maps provide an overview of the soils at a county level. These maps can help identify where high runoff or erosion could be expected, or where areas of high or low agricultural potential are likely to be located.

Soils within Belle Plaine are predominantly loamy, with textures ranging from loam to clay loam. There are four general soil associations in the Belle Plaine area as depicted in Table 2-1 below.

TABLE 2-1
GENERAL SOIL ASSOCIATIONS – CITY OF BELLE PLAINE

Soil Association	Affect on Development
Cordova(Webster)-Lester-Clarion	Very deep, poorly to well drained soils that formed in loamy glacial till on till plains, moraines and uplands. These soils have moderate permeability. Slopes range from 5 to 40 percent. The main concerns are erosion control and drainage.
Copaston-Faxon	Shallow to moderately deep, poorly to somewhat excessively drained soils. Slopes range from 0 – 6. Moderate to rapid permeability. Soils can be shallow depth, water table high.
Lester-Cordova(Webster)-Hayden	Consists of very deep, poorly to well drained soils that formed in loamy glacial till on till plains and moraines. These soils have moderate permeability. Slopes range from 5 to 40 percent. The main concerns are erosion control and drainage.
Hayden-Lester-Terril	Deep to very deep, moderately well to well drained soils that formed in calcareous loamy glacial till on glacial moraines and till plains and slopes, swales and stream terraces. These soils have moderate permeability. Their slopes range from 2 to 40 percent. Erosion control is major concern.

D. Significant Terrestrial and Wetland Ecological Areas.

The DNR has prepared a map of Regionally Significant Terrestrial and Wetland Ecological Areas which is included at the close of this Chapter as Map 2-3. Significant terrestrial and wetland ecological areas occur within and near to the corporate limits/annexation areas primarily corresponding with the Minnesota River corridor and adjacent to tributary streams/creeks.

E. Metro Wildlife Corridor Focus Areas.

Metro Wildlife Corridor Focus Areas have been identified by the DNR and partner organizations/entities as reflected in Map 2-4 at the close of this chapter. The Metro Wildlife Corridor Project is a partnership of several entities which will establish priorities, coordinate work by the partner organizations and focus on areas with greatest regional importance for habitat. Using natural resource assessments and regional prioritization, the Metro Wildlife Corridor program will: work protect and restore priority natural lands in core habitat areas; establish habitat

corridors; create buffers for existing protected land; and, increase public access to nature-related recreation.
The focus areas shown on the map identify regionally significant upland and/or wetland habitat area and wildlife corridors that the DNR, along with public and private partners, are committed to preserving. Metro Wildlife Corridor focus areas in/around the City of Belle Plaine encompass communities of significant biodiversity and correspond primarily to the Minnesota River corridor.

F. Minnesota County Biological Survey

The areas of significant native plant communities and rare species within the vicinity of Belle Plaine are represented on the Minnesota County Biologic Survey for Scott County. A representation of the map is included at the close of this chapter (Map 2-5). Significant areas of floodplain forest (Silver Maple subtype), mixed emergent marsh and dry prairies occur within and near to the corporate limits/annexation areas. Areas of floodplain forest and mixed emergent marsh primarily correspond with the Minnesota River corridor. Native dry prairie communities are located in the northwest quadrant of the City and near Robert Creek. In addition, areas of federally or state listed rare plants (i.e. Hill's Thistle; *Cirsium Hillii*) are also noted mostly corresponding to dry prairie communities.

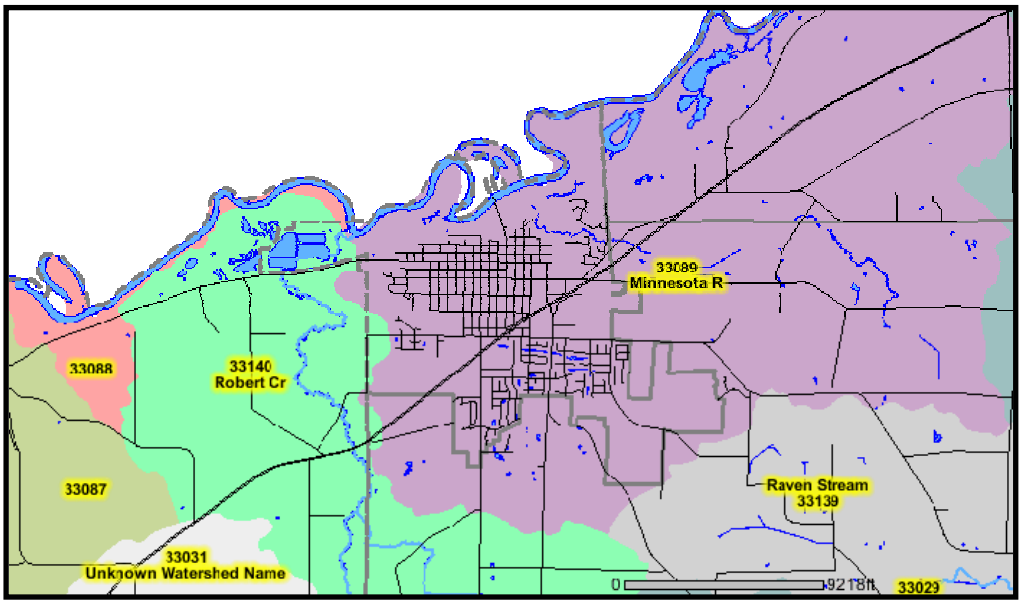
V. Surface Water Resources

A. Watershed

The term 'watershed' refers to the entire physical area or basin drained by a distinct stream or riverine system. Gravity and topography are the two major factors that define a watershed. Watersheds help review authorities to evaluate the quality and quantity of local water resources. The Environmental Protection Agency, individual states and local partners work together on a watershed basis to protect and enhance water resources.

The United States Geological Survey (USGS) and Natural Resources Conservation Service (NRCS) developed the 'Hydrologic Unit' (HU) hierarchical system to divide and subdivide the U.S. into successively smaller watersheds. The HU hierarchy within the continental U.S. is divided into Regions, Subregions, Basins, Subbasins, Watersheds (Major) and finally Subwatersheds (Minor).

The Twin Cities Metropolitan Areas is within the Upper Mississippi Region. Belle Plaine and all of Scott County are within the Minnesota River Basin. Areas within and in close proximity to the Belle Plaine corporate limits are contained within the Minnesota River Shakopee Watershed (Major). There are 5,600 minor (subwatersheds) throughout Minnesota. Minor watersheds can be defined as areas of land above (upstream of) a specific point or feature (the watershed outlet) that includes all of the area that could contribute surface water runoff to the outlet. Minor watersheds are defined numerically. The two minor watersheds within the Belle Plaine vicinity include #33089 (MN River Bevens Creek) and #33140 (MN River Robert Creek). The Bevens Creek minor watershed drains nearly 31 square miles, the Robert Creek minor watershed nearly 14 miles.



Source: Scott County

Water management within the Twin Cities Metropolitan Area (TCMA) is the result of coordinated and concentrated efforts by many entities. Metropolitan Council Environmental Services monitors surface water quality throughout the TCMA. The MCES also reviews and comments on the watershed plans prepared by watershed management organizations as well as water management prepared by local units of government.

Watershed management organizations and watershed districts are special purpose units of local government whose boundaries generally follow those of a natural watershed. Watershed districts are local units of government that work to solve and prevent water-related problems. The functions of a watershed district may include development and implementation of a watershed management plan, review and approval of local water management plans, regulation of the use and development of land, and construction, repair, improvement, and management of drainage systems. In the absence of a functional WMO a local unit of government may intercede and provide watershed management planning as required by state and federal law.

Within the Twin Cities Metropolitan Area local governments (cities, townships and counties) are required to prepare plans to address water quality issues within their borders. These plans are prepared in support of the watershed management plans for the Watershed Management Organizations (WMOs) within which the city or township lies. The Scott WMO covers the majority of Scott County and is comprised of portions of five watersheds: Sand Creek, Southwest, Shakopee Basin, Credit River and Prior Lake Spring Lake watersheds. The remainder of the County is within four other watershed jurisdictions: the Lower Minnesota River Watershed District, the Prior Lake Spring Lake Watershed District, The Black Dog WMO or the Scott County portion of the Vermillion River Joint Powers Organization.

The City of Belle Plaine, in 2006, adopted a Surface Water Management Plan to address water quality issue. This has been approved by the Scott County Water Management Organization. The City currently requires that proposed developments maintain compliance with Minnesota Pollution Control Agency standards and local stormwater/erosion control ordinances/procedures.

B. Lakes, Rivers and Streams

Approximately five percent of the city's total land area is comprised of surface waters. The National Wetland Inventory Map (Map 2-6) included at the close of this chapter is reflective of

surface waters and wetland areas within the City of Belle Plaine. Major surface water features within the vicinity of the city/annexation areas include the Minnesota River, Robert Creek and Brewery Creek. There is also an unnamed creek that traverses the City from the northwest (near mechanical wastewater treatment plant) to the southeast. In addition several protected wetlands exist within and in close proximity to the corporate limits. Surface waters classified by the Minnesota Department of Natural Resources are subject to shoreland regulations.

The Minnesota River is listed on the Minnesota Impaired Waters List due to the presence of pollutants and turbidity (a measure of water clarity). "Impaired waters" are those streams, rivers and lakes that currently do not meet their designated use and associated water quality standards as prescribed by federal and state law.

The Minnesota River, minor tributaries and wetlands are important resources to the community. The Minnesota River, open water streams/creeks and wetlands and their associated plant/animal communities support a high quality of life for area residents and provide thousands of people with a range of recreational opportunities.

C. Wetlands

Wetlands have historically been regarded as obstacles to development rather than areas of intrinsic value. However, it is now generally accepted that wetlands are valuable for storing essential surface waters and stabilizing surface waters to minimize the danger of droughts or floods as well as for supporting wildlife habitat. Wetlands are also the primary method of recharging aquifers ensuring a continued water supply. Wetlands cleanse and purify surface water by removing nutrients and other contaminants from storm water runoff.

Wetlands within the vicinity of Belle Plaine are illustrated on the NWI map at the end of this Chapter. The source for these data is the National Wetland Inventory (NWI).

The Army Corps of Engineers and the Department of Natural Resources are ultimately responsible for the overall protection of wetlands, however, Scott County is the local governmental unit responsible for implementing wetland protection measures and administers the Wetland Conservation Act (WCA) on behalf of the city.

D. Floodplains

Areas within the City of Belle Plaine and the immediate vicinity are designated as floodplains by the Federal Emergency Management Agency. The City of Belle Plaine has adopted floodplain management regulations and participates in the National Flood Insurance Program. The City has areas which have encountered flooding and taken corrective actions to alleviate flooding potential, however, flood prone areas still exist within the community especially in the vicinity of the Minnesota River.

E. Water Control Structures

The Minnesota River includes a water control structure near the City of Belle Plaine known as "Ruehlings Pond" (national ID # MN00283). The MN DNR provides dam safety oversight and labels the dams downstream hazard potential as 'low'. In addition to this water control structure and others within the watershed, there are hundreds perhaps thousands of culverts and box channels that control the flow of surface water throughout the watershed. These facilities are maintained by the cities, townships and county governments as well as by the Minnesota Department of Transportation.

The presence of culverts, bridges and other water controls structures has a significant influence on flood control. The city has not undertaken a comprehensive inventory of their respective flow control structures and facilities.

E. Local Hydrologic Cycle, Development and Surface Water

Groundwater and surface water are both part of the "hydrologic cycle". Development has a profound influence on the quality of waters. To start, development dramatically alters the local hydrologic cycle. The hydrology of a site changes during the initial clearing and grading that occur during construction. Trees, meadow grasses, and agricultural crops that intercept and absorb rainfall are removed and natural depressions that temporarily pond water are graded to a uniform slope. Cleared and graded sites erode, are often severely compacted, and can no longer prevent rainfall from being rapidly converted into stormwater runoff.

The situation worsens after construction. Roof tops, roads, parking lots, driveways and other impervious surfaces no longer allow rainfall to soak into the ground. Consequently, most rainfall is converted directly to runoff. The increase in the quantity of stormwater can be too much for the existing natural drainage system to handle. As a result, the natural drainage system is often altered to rapidly collect runoff and quickly convey it away (using curb and gutter, enclosed storm sewers, and lined channels). The stormwater runoff is subsequently discharged to downstream waters.

Water quality is affected by the accumulation of trash, oil and rubber from cars, fertilizers and pesticides applied to lawns, sediment from bare or poorly vegetated ground and other pollutants entering streams, rivers and lakes. Inflow of sediment can cloud water, blocking sunlight from submerged plants. Sediment also settles to the bottom of streams, clogging the gravel beds used by fish for laying their eggs. Nutrients, such as phosphorus and nitrogen, from fertilizers enter the water and promote unusually rapid algae growth. As this algae dies, its decomposition reduces or eliminates oxygen needed by fish, shellfish, and other aquatic life for survival.

The City of Belle Plaine requires developers to create on-site storm water ponds or direct run-off from new development to regional ponds to reduce impacts of development on downstream waters.

VI. Ground Water Resources

A. Geologic Framework

Subsurface geology and groundwater are important considerations for all communities as they are the source of potable (i.e. drinkable) water. Hydrogeology is the study of the interrelation of subsurface geology and water. Because the consequences of human actions and forces at work above ground have a direct impact upon our ground water resources it is important to consider hydrogeologic resources.

Like other communities within Scott County, Belle Plaine and the immediate vicinity have three basic geologic units: glacial deposits (formed by advancing and receding of glaciers); bedrock formed in shall marine sediments deposited between 480 million and 950 million years ago and bedrock of volcanic or metamorphic origin.

The combined characteristics of the water-bearing and confining geologic materials determine the location and flow of groundwater aquifers. There are four major sources of drinking water in Scott County: the Glacial Drift; the Prairie du Chien-Jordan Aquifer, the Franconia-Ironton-Galesville Aquifer and the Mount Simon-Hinckley-Fond du Lac Aquifer. The City of Belle Plaine primarily

draws its water from the Prairie du Chien-Jordan Aquifer. Groundwater flows in a down-gradient as does surface water.

Hydrogeologic conditions/materials also determine how sensitive ground water may be to contamination by chemicals and pollutants introduced at ground level. Sensitivity to pollution is described in terms of the length of time it takes for a drop of water to cycle from absorption into the ground to discharge (removal) from an aquifer. The pollution sensitivity of an aquifer is assumed to be inversely proportional to the time of travel: shorter cycle times may indicate a higher sensitivity, longer cycle times may represent a greater travel time and increased geologic protection. Contaminants are assumed to travel at the same rate as water.

There are four pollution sensitivity categories: Very High, High, Moderate, and Low. The pollution sensitivity of an aquifer is assumed to be inversely proportional to the time of travel. Very High sensitivity indicates that water moving downward from the surface may reach the ground-water system within hours to months leaving little time to respond to and prevent aquifer contamination. Low sensitivity where it takes decades to centuries for the cycle to be complete may allow enough time for a surface contamination source to be investigated and corrected before serious ground-water pollution develops. It is important to note higher pollution sensitivity categories do not mean water quality has been or will be degraded and low sensitivity does not guarantee that ground water is or will remain uncontaminated.

Groundwater sensitivity to contamination varies within the vicinity of Belle Plaine. Areas within the Minnesota River floodplain and surface waters are highly susceptible to groundwater contamination. Areas within the original townsite on the relatively flat terrace land adjacent to the Minnesota River floodplain are moderately sensitive to groundwater contamination. Areas that rise above the terrace land into bluffs and the rolling terrain of southwest Scott County have low sensitivity to groundwater contamination.

The Minnesota Pollution Control Agency reports 14 confirmed instances of leaking underground storage tanks (LUST) within the city over the past 15 years. Files on all but one of the sites have been closed by the MPCA as of the drafting of this Plan. The open file was from a recent report in Blakeley Township. The MPCA reports no incidences of off-site contamination of soils for any of the reported leaks. The MPCA reports contaminated soils remain at the following locations: 913 East Main Street, 400 East Main Street, 521 East South Street and 139 East Main Street. Additional information on the extent of potentially contaminated soils remaining at the subject locations is available from the case managers at the MPCA.

VII. Development Constraints

The presence of natural features has been reviewed in this chapter so as to provide background reference information for City leaders which they may consult/employ when making decisions regarding future urban development. It should be noted that several of the natural features identified in this chapter, including but not limited to wetlands identified on the National Wetland Inventory, flood plain areas, areas of steep slopes (30% or greater), and regionally significant ecological areas, will present constraints to future development. Several of these significant natural features/areas exist in the proposed growth area of the City.

Map 2-7 at the close of this chapter is a representation of areas presenting possible constraints for urban development. The map is a conglomeration of data compiled herein.