

Chapter Three: Natural Resources

The relationship between the Village of Cottage Grove and its natural features provides a valuable point of reference. It sets up a framework for analysis, suggests possible locational advantages that the Village may possess for certain land uses, and hints at the relationship between the Village and the rest of the region. The natural resource base, especially environmentally sensitive areas with respect to soils, steep slopes, wetlands, and floodplains, are critical factors in local planning decision making. These are typically arranged in and along environmental corridors. Maintenance of these, and other environmentally sensitive natural features, is important for both the visual attractiveness of the community, as well as for the prevention of severe developmental or environmental problems that may be difficult and costly for the Village to correct in the future.



A. Natural Resources Inventory – Land Resources

Environmental Corridors

Environmental corridors are, in effect, a composite of the most important individual elements of the natural resource base and have immeasurable environmental, ecological, and recreational value. These environmental corridors contain almost all of the best remaining woodlands, wetlands, and wildlife habitat. Protection of environmental corridors from additional intrusion by incompatible land uses, and thereby from degradation and destruction, is an essential planning objective for the preservation of open natural spaces, that the Village continues to prove it is “ahead of the curve” on achieving.

In the Village, the features that define environmental corridors include:

- Floodplains—as designated by the Wisconsin Department of Natural Resources (WisDNR) and the Federal Emergency Management Agency (FEMA).
- Wetlands—as designated by the WisDNR.
- Shoreland—all areas within 1,000 feet of the ordinary high water mark of navigable lakes, ponds, flowages and within 300 feet of the ordinary high water mark of navigable rivers or streams.
- Drainageways—areas within 75 feet of the ordinary high water mark of a perennial stream and all areas within 50 feet of an intermittent stream or open channel drainageway.
- Woodlands—areas where the combined canopy area of trees cover a minimum of 80 percent of an area of one acre or more.
- Steep slopes—areas that contain a gradient of 12 percent or greater.
- Ridgetops—areas located within 100 feet of, and at higher elevation than, areas designated as steep slopes.
- Other areas of permanently protected open space.

Within the Village of Cottage Grove, environmental corridors are scattered throughout the planning area. These corridors are shown on most of the maps in this *Plan*, and have been a primary determinant of the recommended land use and transportation patterns.

Hilltops and Ridges

An important natural feature that is often overlooked in comprehensive planning efforts is hilltops and ridgetops. Hilltops are particularly noticeable west of the Village in the form of a drumlin field. Hilltops and ridgetops serve to define the horizon—and perhaps provide a “natural edge” for a community. Large structures constructed on top of them (including homes) tend to be visually prominent—especially if not blending with the area’s rural-agricultural character in terms of color, material, or style. These highpoints also serve to define cost-effective urban service expansion areas or sequences. Each drumlin within the planning area is a prominent hilltop, with several located within the Village proper. A prominent ridge is located along Interstate 94 between CTH N and Buss Road. A second prominent ridge is located parallel to and east of Buss Road, and forms the divide between portions of the Door Creek watershed.

Landforms and Topography

Landforms in the area in and around the Village of Cottage Grove are basically glacial drift features. The most notable feature is the collection of drumlins and related hills that are scattered throughout the planning area, generally running in a northeasterly-southwesterly direction. The Village is located on the drainage divide between the Door Creek/Yahara River Basin and Koshkonong Creek Basin. The highest point in the planning area is about 1,015 feet above sea level in the northeast part of the Village and the lowest point is about 850 feet above sea level near the tributary to Koshkonong Creek at the southeast corner of the planning area.

Metallic and Non-Metallic Resources

There are no metallic mining operations in the State of Wisconsin. There are no active mining facilities within the Village; however, there are active mining facilities in the Village’s extraterritorial jurisdiction within the Town of Sun Prairie and the Town of Cottage Grove. These areas contain sandy deposits that are ideal for extraction sites. One is located just south of Gaston Road, immediately west of CTH N.

Soils

Soil suitability is a key factor in determining the best and most cost-effective locations for new development. According to the Dane County Soil Surveys, most of the planning area is covered by soils rated as generally unsuited, or poorly suited, for development utilizing septic systems.

The Village contains primarily silt loams and loam soils, including the Batavia, Boyer, Dodge, Griswold, Kidder, Plano, Ringwood and Wacousta soil series. This association is characterized by very poorly drained, poorly drained, somewhat poorly drained, and well drained soils with a silty or loamy subsoil and are underlain by silt loam, sandy loam, or gravelly sandy loam. Most of these soils are suitable for development and have 2 to 12 percent slopes. Kidder soils are found in steep areas (over 20 percent slope), which are often drumlins.

Soils within wetland areas and the floodplain at the southeast edge of the Village consist of Houghton mucks, Orion silt loam and Sable silty clay loam. These soil types have severe to very severe limitations to development due to high compressibility, very low bearing capacity, seasonal high water table and occasional flooding. Development should be prohibited in these areas.

Steep Slopes

Generally, the planning area is predominated by gently rolling or flat areas. Steep slopes (exceeding 12 percent) occur very infrequently and only for very short runs. These areas are scattered throughout the planning area and are generally associated with either directly adjacent waterways or drumlin systems. In general, within the planning area, the northern or northeastern ends of drumlins have the steepest slopes—often 20 percent or greater.

Woodlands

The planning area contains scattered wooded areas. Most of these are located on the steepest slopes of the drumlins, and in lowland woodlands in inter-drumlin wetlands and along river and stream corridors. The most common species are oak, elm, and maple. The sparsely wooded condition of the remainder of the planning area is due to a combination of rich soils, few steep slopes, and residential development activity which tends to place high value on wooded sites. As such, the remaining woodlands in and around the Village are valuable contributors to the area's character and beauty; particularly, the relatively uncommon upland oak savannah groves.

B. Natural Resources Inventory – Water Resources

Drainage Basins

The northwest parts of the Village lie within the Door Creek drainage basin, which drains southerly into Lake Kegonsa and the Yahara River. The southern and eastern part of the Village is in the Koshkonong Creek drainage basin, which drains southeasterly into Lake Koshkonong and the Rock River.

Floodplains

Flood hazard areas within the planning area are located along the Koshkonong Creek and Door Creek. These have been identified and mapped by the FEMA for risk management purposes. The 100-year flood plain—where the flooding probability is greater than 1% in any given year—is generally restricted to no development by State Statute-authorized local zoning. Floodplains are included within environmental corridor areas as depicted on the maps in this *Plan*. However, refer to the National Flood Insurance Rate Maps (FIRM) produced by FEMA for official delineation and elevation of floodplain boundaries.

Groundwater

Groundwater resources are plentiful in the planning area at both shallow and deep levels. The shallow dolomite aquifers are likely to be linked to certain surface water features. In areas of granular soils, these aquifers are susceptible to contamination from both surface and subterranean sources. Most private wells draw from this shallow aquifer. The deep sandstone and limestone aquifers in the planning area are generally of higher quality and considered substantially less susceptible to contamination. In this regard, a few deep common wells are preferred over numerous shallow private wells.

The Village has a Wellhead Protection Plan and accompanying wellhead protection ordinance. As the Village expands, there will be a need to update this *Plan* and the overlay zoning district pattern.

Rivers and Streams

The primary surface water bodies in the planning area are Koshkonong Creek to the east and Door Creek to the west. The Village does not discharge its municipal wastewater into these water bodies because it is served by the Madison Metropolitan Sewerage District (MMSD) via a force main generally located along the Wisconsin and Southern railroad line from Vilas Road into the City of Madison. The ultimate outfall of MMSD is Badfish Creek located south of the City of Madison.

Wetlands

Wetland areas are located along streams and drainageways and in isolated low spots. Most of the significant wetlands in the Cottage Grove area are immediately west and southeast of the Village, associated with tributaries of Door Creek and Koshkonong Creek. There are also two isolated wetland areas within the Village, west of Forreston Drive and north of Cottage Grove Road. These wetlands have been identified and mapped by WisDNR. These areas are important for aquifer recharge, groundwater and surface water quality improvement, and wildlife habitat. Generally, these areas are restricted to no development by State Statute-authorized local zoning.