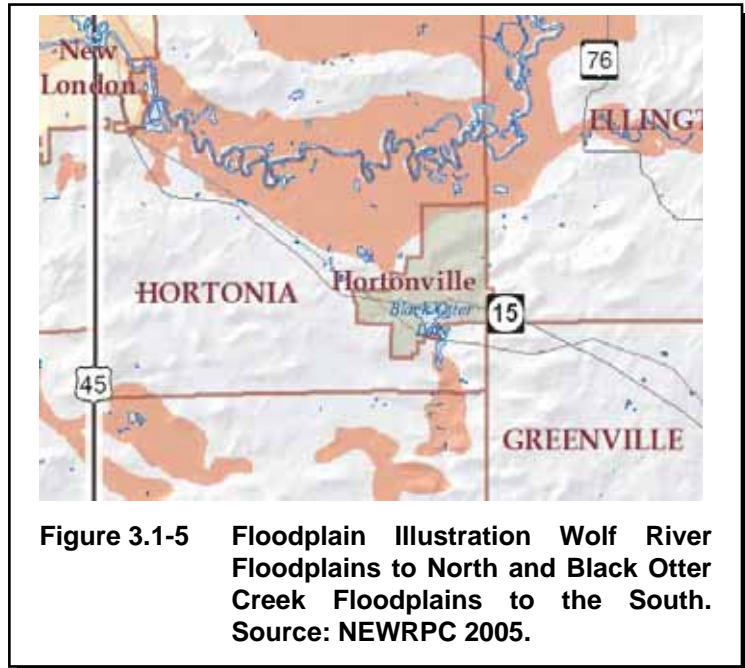


D. Floodplains

The Federal Emergency Management Agency (FEMA) maintains Flood Insurance Rate Maps (FIRMs) and other hydrological studies. FIRM maps indicate Zone A floodplains exist north of US 45 and the Chicago & Northwestern Railroad northwest of Hortonville. This is the floodplain associated with the Wolf River and the natural communities of the Lower Wolf River Bottomlands Natural Resource Area (LWRBNRA). The floodplain extends north and east of Hortonville including the narrow floodplain of Black Otter Creek as it flows through the west side of the City and North to its confluence with the Wolf River (see Figure 3.1-5). Floodplain elevations here are given as 763 to 764 near Bear Creek at Stephenville, which is distant to the project.



**Figure 3.1-5 Floodplain Illustration Wolf River Floodplains to North and Black Otter Creek Floodplains to the South. Source: NEWRPC 2005.**

Additional floodplains exist in unincorporated Outagamie County on Community Panel No. 550302-0150B (Revised October 15, 1984). These are Zone A wetlands associated with the headwaters of Black Otter Creek to the south of Hortonville. They roughly border the 800 MSL contour and end north of Spring Road. Separate isolated floodways or ditched/drainage areas appear to border the 820 MSL boundary to the west and farthest removed from Black Otter Creek/Lake area. A separate isolated Zone A floodplain exists between Lonely and School Roads (north/south) and County T and the railroad (west/east) to the southwest. This is just near the southern limits of the current study.

E. Groundwater and Water Supply

Groundwater comes from natural underground reservoirs or aquifers. There are two main aquifer types in this area: One is located within sand and gravel glacial drifts (shallow) and the other is in the St. Peter Sandstone aquifer (deep artesian system). In Outagamie County and the Hortonville area, water in aquifers is released to the surface through wells and springs, or by seepage into lakes, rivers, and wetlands. The movement is mainly controlled by bedrock and surface topography with water moving and recharging in streams and bedrock valleys. The west side of Black Otter Lake and Hortonville contains shallow bedrock that influenced the local discharge into nearby areas (see Figure 3.1-6). The Hydrologic Atlas (HA-321) detailing the water resources of the Wisconsin Fox-Wolf River basin indicates the piezometric water surface is 780 to 820 with discharge into the wetland and stream valleys of the Wolf and Rat Rivers. Groundwater is vital for drinking, irrigation, industrial use, and as a resource. But groundwater and annual rainfall that totals 28 inches/year on average is also vital in monitoring surface water levels during low levels of precipitation.



**Figure 3.1-6 East View of Black Otter Creek South of WIS 15 at Equalizer Pipes. Floodplain Area is Reportedly Groundwater Discharge Area**

Groundwater recharge protection and quality, is becoming a major topic of study in Outagamie County. Because of stratigraphy and runoff, only approximately 3 inches per year percolates down through unsaturated soil and rock into the groundwater. High private and municipal uses of water are also increasing with the usage exceeding 4 billion gallons annually. Arsenic is also a problem showing up in certain wells in the eastern portion of the county. (Source: Outagamie County 2002)

In general, the quality and quantity of regionally available groundwater is good with a separation distance of 60 to 100 feet from the ground surface in most areas. Some shallower glacial drift deposits, ground moraine, and/or bedrock is present on the western limits. Evaluation of the project's potential impact on rural/private water systems is discussed in the affected environment.

#### F. Wetlands

Wetlands are unique community systems that can vary from wet-mesic prairie to sphagnum moss dominated forested bogs and open water lakes. In general, wetlands are those areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic (water loving) vegetation and which also have soils indicative of hydric (wet) conditions. Wetlands have various functions that make them valuable resources, especially in regard to protecting the many streams and waterways in the County and area. Wetlands improve water quality by creating natural buffer areas; filtering upland erosion and pollution; maintaining and stabilizing water quality by storing recharging or releasing water; and providing important fish and wildlife habitat.

Approximately 18 percent of Outagamie County or about 74,000 acres, were documented as wetlands in the WDNR's wetland mapping completed around 1980. Since then, some previously cropped hydric soils have been taken out of crop production and reverted to wetlands and others have been filled. The intense study used for the LWRBNRA has documented the various extensive and rare wetland communities such as Open Bog, Hardwood Swamp, Southern Hardwood Swamp, Northern Sedge Meadow, and others that exist in this part of the state and that should be protected in areas north of WIS 15. High quality wetland habitats of the Black Otter Creek/Lake area south of Hortonville are physically separated from the extensive wetlands of the Wolf River and have not been reviewed as extensively. They are designated as environmentally sensitive areas based on regional planning commission and sewer service area nomenclature.

The largest aggregations of wetlands, separate from the Wolf River (LWRBNRA) are (1) the Lower Wolf River wetlands of New London and the wetlands mentioned above; (2) the alder/willow swamp, wooded wide-floodplain areas of Allendale/Carbondale soils between the railroad and the existing alignment on the west end; and (3) shrub-scrub forested and wet emergent wetland types associated with Black Otter Creek/Lake (see Figure 3.1-7). Also associated are the quality floodplains south of Hortonville. Because of their size, quality, and functional values within the watersheds of the project, most all of the off-alignment areas would impact high quality wetlands.



**Figure 3.1-7 Marsh and Natural Shorelines on Southeast Side of Black Otter Lake Benefit an Abundance of Wildlife**

G. Uplands

Outagamie County and much of the Hortonville area is comprised of central hardwood forest and white/red pine plantations on lands within the Central Wisconsin Sand Plain. These are scattered amidst the wet areas and waterways and areas cleared for agriculture. However, few active dairy, livestock, or grain farms are active in this area. The scattered woodlots and pine plantations have developed and expanded since the most recent forest clearing efforts and the rural residential population boom. Figure 3.1-8 illustrates a typical upland setting for this area.

In pre-settlement times, almost the entire county was forested either with upland or lowland trees. Presently about 112,541

acres, or 26 percent of Outagamie County, is occupied by forested uplands. Although the woodland acreage of the County is relatively small, it provides a considerable source of timber and related products for private use. The woodlands are also very important in terms of providing habitat for a variety of wildlife species. More importantly, from an agricultural perspective, are the soil conservation benefits from wind and water erosion reduction. Improved woodland management will be necessary to maintain these benefits. programs that promote tree planting and sustained management of woodland resources help landowners accomplish this objective. These include the federal Conservation Reserve program and the Wisconsin Managed Forest Law Program.

A graphic from the 1970 *Outagamie County Comprehensive Water and Sewer Planning Report*, shows about 13 forest land cover areas south of WIS 15 and about 3 north of Hortonville. Because of the age of this document and the recent increase in small to medium sized recreational parcels, these areas can be representative of woods that are greater than 50 to 60 years old. Only about 4 are within the project alignment areas and one is a somewhat narrow section of a pine plantation. Recent expansion or enlargement of the 1970 mapped areas are evident on current GIS mapping. Newer or expanded areas are likely to contain only recent pioneer species. The largest of the 1970 mapped and current GIS woodlands are those associated with the Wolf River (north). The large forest tracts south of Hortonville. These show the expansion of the forested areas of the Black Otter Creek. It should be noted that some woodlot expansion has occurred since 1970 with the explosion of rural residences and woodlot homes. Still, fragmentation of the larger woodland and resources in the area and county has resulted from these intense development pressures. A visualization of the fragmenting nature of the development are the prevalence of the 2-, 5-, to 10-acre parcels evident on county plat books. Based on the review of ownership of the larger forested blocks, these parcels are typically owned among 2-3 different owners as separate parcels.



**Figure 3.1-8 Plantation Pines and Shagbark Hickory Typical of Planted and Native Central Hardwoods Forest Type in Area**

### H. Wildlife

Wildlife provides a valuable recreational and economic resource to the County amidst an expanding human population as noted in the recent Outagamie County Land and Water Resource Management Plan. That plan describes three groupings of wildlife according to habitat. Open-land wildlife includes birds and mammals that use cropland, pasture, and meadows. These areas attract ground nesting birds, pheasant, meadow lark, field sparrow, rabbit, and red fox. Woodland wildlife include animals that use areas of hardwoods and conifers, and associated grasses and shrubs. Wildlife attracted to these areas include ruffed grouse, thrushes, squirrels, gray fox, raccoon, deer, and potentially bear. Some larger extensive tracts of unfragmented habitat provide necessary habitat or home ranges for less common species such as aquatic species within the Black Otter Creek and Wiouwash Corridor. The last group is wetland wildlife, which includes birds and mammals that use open, marshy, shallow water areas. Examples of wildlife found in these areas are ducks, geese, various shorebirds, heron, muskrat, mink, otter, and beaver.

The Wolf River and the County's and Hortonville's area rivers, streams, and seasonally-flooded waters attract substantial numbers of ducks and geese. Large tracts of public hunting land are associated with the Wolf River and other floodplains within the corridors. Mallard, wood duck, and teal are fairly common as are Canada Geese. Muskrats are the most common aquatic fur bearers, followed in abundance by mink, beaver, and otter. Common upland game species found in the project area and Outagamie County include white-tailed deer, cottontail rabbit, squirrels, pheasants, and ruffed grouse. Hunting is popular in this area; however, residential encroachment is causing a general decrease in available land.

Bass, pike, and panfish account for the majority of the game fish targeted by local anglers. The Wolf River and its tributaries (a typical Wolf River tributary is shown in Figure 3.1-9) are classified as small-mouth bass streams and also contain a variety of fish species. The Wolf River is most noted for the walleye, white bass, and sturgeon runs that it supports each spring. All of the County's streams are warm water fisheries with no trout streams. See Figures ES-1, ES-2, and ES-3 for a map showing waterways.



**Figure 3.1-9 Tributary to the Wolf River in West Section**

Open space recreation planning within Outagamie County is working to identify large tracts of land that support wildlife. The County also supports and encourages the efforts of citizens and organizations that manage and preserve wildlife areas. One such large residential parcel is located east of the intersection of TT/T near the recently established Hortonville Business Park.

### I. Endangered or Threatened Species

The US Fish and Wildlife Service (USF&WS) identified two important species during project correspondence: the bald eagle (*Haliaeetus leucocephalus*) [threatened] and the Karner blue butterfly (*Lycaeides Melissa samuelis*) [endangered]. The bald eagle is not known to occur in the project area. The Karner blue butterfly has been documented near the east section of the project area. In May 2006, the project team reviewed the alternative corridors for Lupine, the habitat for this endangered species. This review did not find any lupine or other appropriate habitat for the Karner blue butterfly so the species is not believed to exist in this area. Coordination with the resource agencies will continue to ensure all requirements are met.