



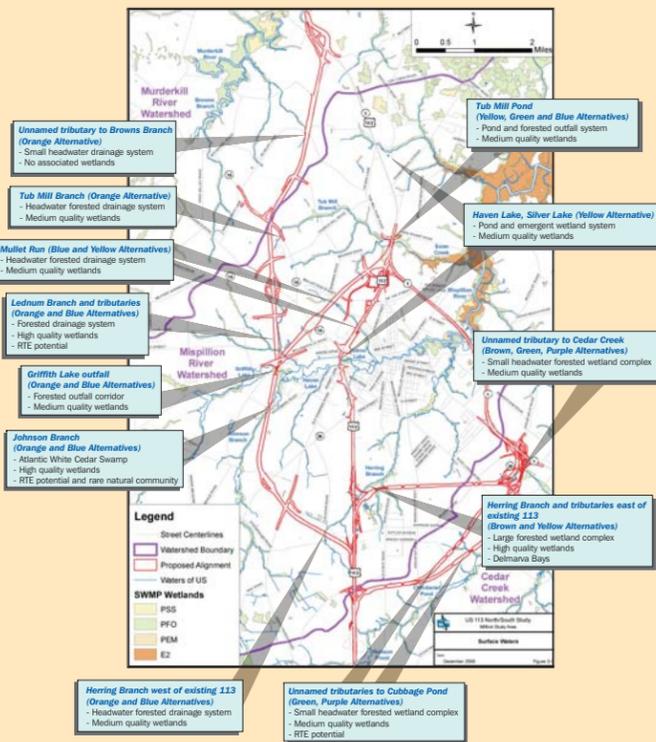
# NATURAL RESOURCES



## 113 US 113 North / South Study

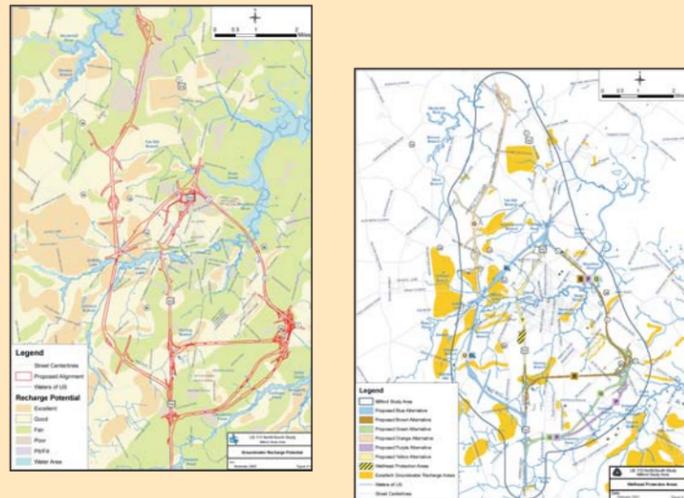
### Wetlands and Streams

Federally jurisdictional Waters of the US, including wetlands, streams and open water, exist throughout the project area. In this portion of the Delaware River Basin, wetlands are primarily found associated with streams and waterways. The map below identifies alignment impact locations along wetlands and streams in the project area.



### Groundwater

Groundwater is an important natural resource and commodity which is used to supply drinking water and for crop irrigation. In Milford, 100 percent of the public drinking water is supplied by groundwater. Delaware averages around 42 inches of local rainfall a year, of which only around 12 inches is available to "recharge" the groundwater supply through infiltration (the rest is lost to evaporation, surface runoff, and transpiration by plants). The recharge potential of surface soils has been modeled by Delaware Geologic Survey as shown below. Areas with excellent recharge potential allow three to four times more water through the soil than areas with fair to poor recharge and allow introduced contaminants to enter the groundwater supply quickly. New impervious surfaces limit rainfall infiltration and new roadways have the potential to introduce contaminants into the water supply. Milford's public drinking water wells are protected by a 150 foot buffer shown as The Wellhead Protection area below.



### Rare, Threatened and Endangered Species

#### What Are RTEs?

- Rare, threatened, and endangered (RTE) species are wildlife species that are in danger of extinction. Federal and State RTE species likely exist in the US 113 project area.

- RTE species are a critical part of the project natural resources analysis. Potential effects to species and their habitat must be considered in project decision making.

#### Important Regulations

##### Endangered Species Act

- The Endangered Species Act regulates actions that may result in an incidental "take" of a listed species or adverse affects to its habitat, but does not prohibit such actions unless they result in jeopardy to the continued existence of a listed species, or result in the destruction or adverse modification of designated critical habitat.
- Currently, 632 endangered species and 190 threatened species are protected and include birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees.
- The law provides regulations for the conservation of threatened and endangered plants and animals and the habitats in which they are found.

##### Delaware Regulations

- Title 7 of the Annotated Code of Delaware prohibits the importation, transportation, possession, or sale of any part of an endangered species of fish or wildlife.
- In addition to federal species, DNREC maintains a list of state rare, threatened and endangered species and adverse impacts to these species are discouraged.

##### National Environmental Policy Act (NEPA)

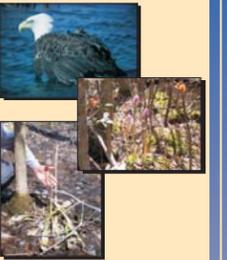
- NEPA requires a fair and thorough evaluation of all project alternatives and their associated impacts during the planning process. Impacts to rare, threatened and endangered species and their habitats are part of this process.

#### Identification and Evaluations

- DeIDOT has performed extensive field studies to identify whether RTE species or their potential habitat exist in the project area.
- DeIDOT is working closely with DNREC and the US Fish and Wildlife Service and has identified RTE species that likely exist within the project area.

### Rare, Threatened and Endangered Species

#### Bald Eagle (*Haliaeetus leucocephalus*, threatened bird)



The federal protection strategy for the bald eagle protects active bald eagle nests from disturbance. DNREC conducts annual bald eagle nesting surveys and monitors the location of most nests. DNREC information indicates there is one nest in the Milford study area located near both western alternatives (Orange and Blue).

#### Swamp Pink (*Helonias bullata*, threatened flowering plant)

Swamp pink is a showy flowering plant that blooms in early spring. Swamp pink is threatened by wetland habitat loss and degradation. The plant exhibits low seedling establishment which limits its recovery potential. DNREC has identified swamp pink populations along stream valleys in the Milford study area. The western alternatives (Orange and Blue) have the highest potential to impact swamp pink.

#### State Species

DNREC has identified the potential presence of several Delaware state listed species in the Milford Study area, as listed in the table below.

Common Name	Scientific Name	Taxon	State Rank
Alewife Floater	<i>Anodonta implicata</i>	Invertebrate Animal	Extremely Rare
Big Floating-heart	<i>Nymphoides aquatica</i>	Vascular Plant	Extremely Rare
Blackbanded Sunfish	<i>Enneacanthus chaetodon</i>	Vertebrate Animal	Very Rare
Bronze Copper	<i>Lycaena hylus</i>	Invertebrate Animal	Very Rare
Brown-fruited Rush	<i>Juncus pelocarpus</i>	Vascular Plant	Very Rare
Horse-tail Spike-rush	<i>Eleocharis equisetoides</i>	Vascular Plant	Very Rare
Mitchell's Sedge	<i>Carex mitchelliana</i>	Vascular Plant	Very Rare
Red-shouldered Hawk	<i>Buteo lineatus</i>	Vertebrate Animal	Very Rare Breeding, Rare to Uncommon Nonbreeding
Tidewater Mucket	<i>Leptodea ochracea</i>	Invertebrate Animal	Extremely Rare
Yellow-throated Warbler	<i>Dendroica dominica</i>	Vertebrate Animal	Very Rare Breeding
White Beak-rush	<i>Rhynchospora alba</i>	Vascular Plant	Very Rare