

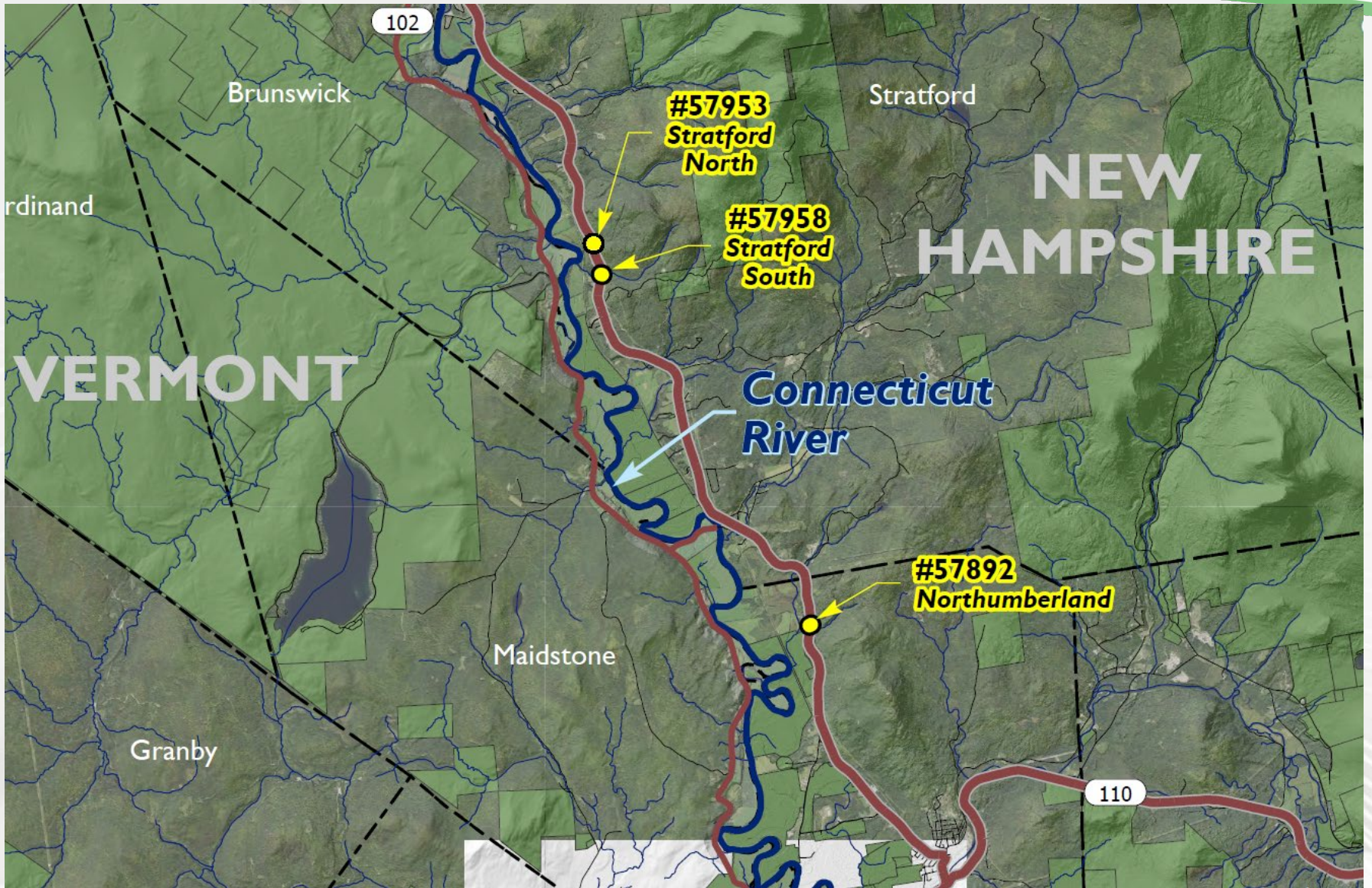
Building Under-Road Wildlife Crossings for Critical Habitat Connectivity and Reduced Collisions

**PROPOSAL TO THE FEDERAL HIGHWAY ADMINISTRATION'S
2022-2023 WILDLIFE CROSSINGS PILOT PROGRAM
SUBMITTED IN PARTNERSHIP BY:**



Our Grant:

- 3 existing culverts
- All under Route 3
- 2 in Stratford, one in Northumberland
- All have some level of poor condition due to age
- All have limited to no aquatic and terrestrial passage
- Serves to connect wildlife corridor of VT Northeast Kingdom to Northeast NH across Connecticut River Valley.
- Total Application Request = \$4,835,266 (total project \$6,044,083 with 20% match)
 - Engineering – \$1,225,942
 - ROW – \$28,800
 - Construction – \$4,575,459
 - Site Monitoring & Training - \$213,882
- Assumed 2027 construction, in two contracts

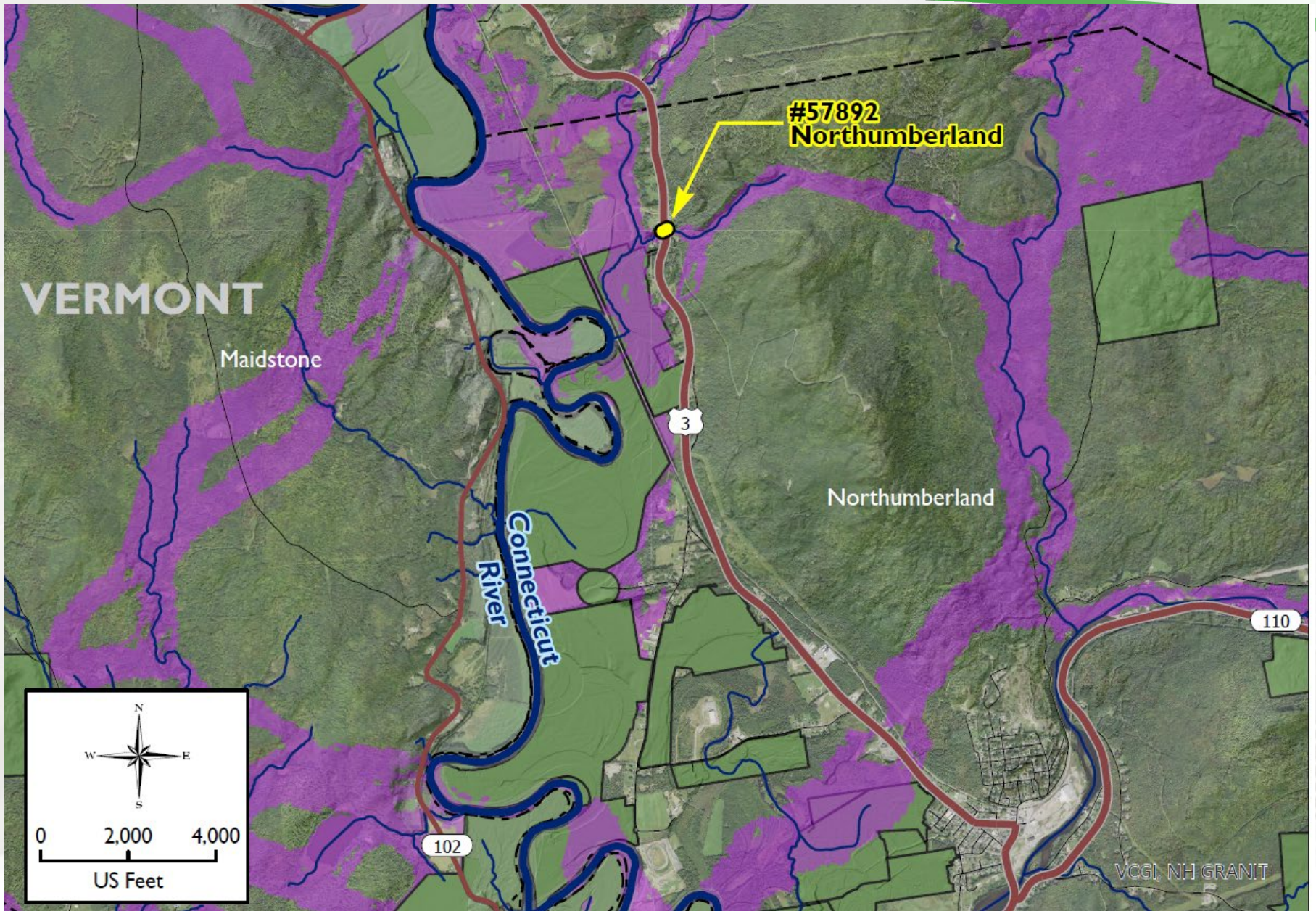



FHWA WCPP Proposal Site Location Map

Legend

- WCPP Crossing Site
- Connecticut River
- Other Streams/Rivers
- NH State Road

- VT State Road
- Local/Other Road
- Conservation/Public Lands
- Municipal Boundary



-  NHFG Wildlife Corridor
-  Conservation/
Public Land

VCGI, NH GRANT

Northumberland Site Details:

- 36” x 120’ rcp
- 18 ft of cover
- Outlet perched 15”
- Outlet headwall spalled – poor condition
- Installed 1935
- Upstream and downstream suitable for Brook Trout
- Conserved floodplain habitat to the west – large conserved forest block to east
- Deep location allows for increased height to accommodate large mammals.
- Prioritized as a NHFG wildlife corridor



Photo 1: View of existing 36" concrete pipe's outlet with an approximately 15" perch, resulting in a complete barrier for aquatic organism passage. US Route 3 is at the top of the photo. Larger wildlife use a game trail on the right side of the photo to cross US Route 3.



Photo 2: View looking at intact downstream habitat from atop the existing culvert. Adjacent downstream habitat provides landscape connectivity to the Connecticut River valley, including lands protected by The Nature Conservancy.

NORTHUMBERLAND SITE PHOTOGRAPHS



Photo 3: View of existing 36" concrete pipe's upstream inlet. Some clogging of the culvert is present because of its small size. Wildlife camera monitoring for the proposal was completed to understand existing wildlife utilization of the structure from the camera at the bottom of the photo.



Photo 7: Wildlife camera monitoring to support this proposal observed repeated occurrences of black bear on the game trail approaching US Route 3. The replacement structure will be designed to accommodate under-road black bear passage.

NORTHUMBERLAND SITE PHOTOGRAPHS

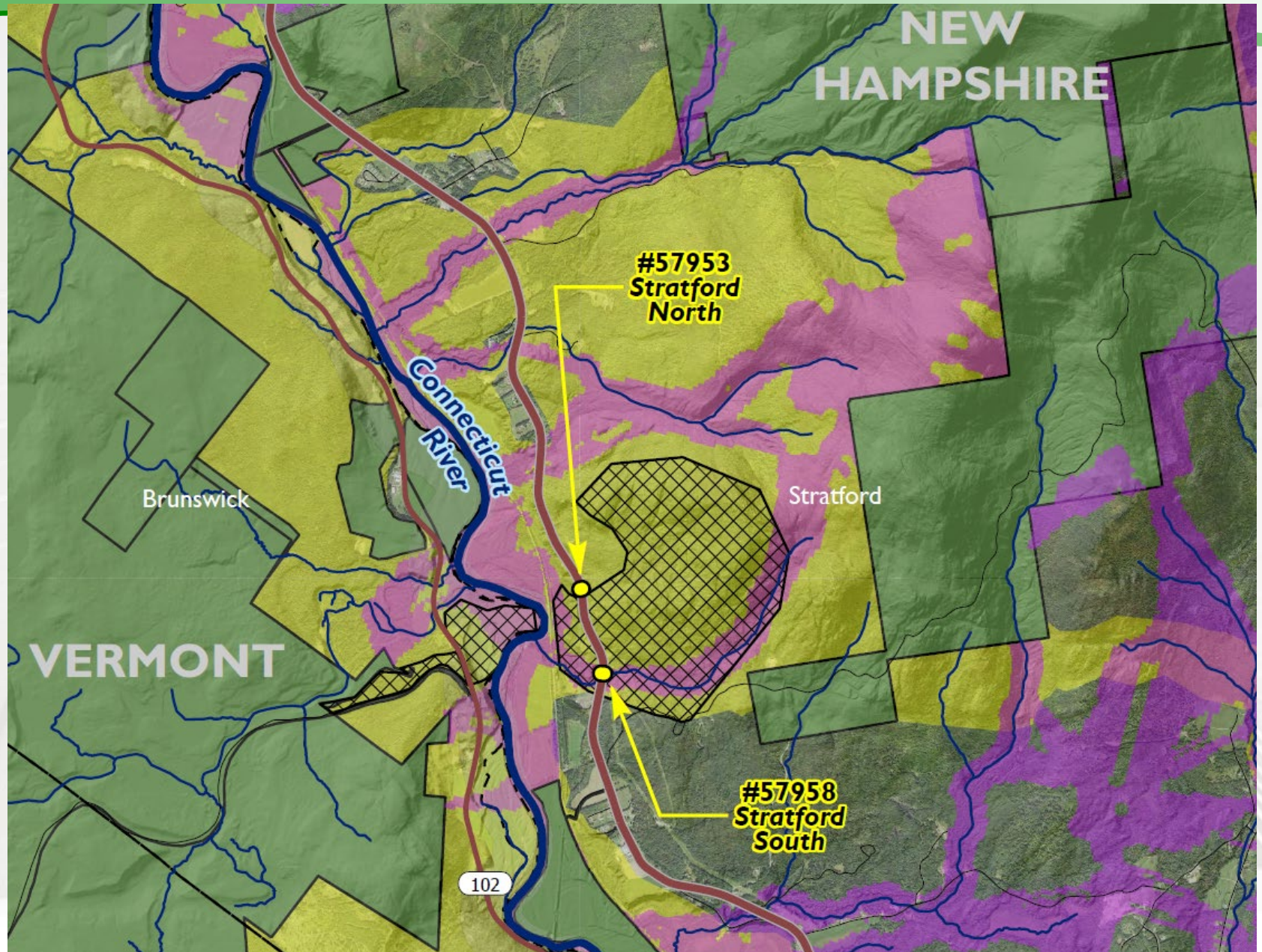


Photo 6: Wildlife camera monitoring to support this proposal observed only raccoons utilizing the existing structure for under-road passage. Based on wildlife camera monitoring at other similarly sized and situated structures, we also expect that mink, otter, and long-tailed weasel are likely to use the existing structure for passage.



Photo 8: Wildlife camera monitoring to support this proposal observed repeated occurrences of whitetail deer on the game trail approaching US Route 3. The replacement structure will be designed to accommodate under-road whitetail deer passage.

NORTHUMBERLAND SITE PHOTOGRAPHS



- NHFG Priority Bear Habitat
- Staying Connected Structural Pathway (wildlife corridor)
- Conservation/ Public Land
- NHFG Wildlife Corridor

Stratford-South Site Details:

- 4' x 4' x 82' long concrete box
- 7 ft of cover
- Outlet perched 18"
- Many condition issues – overall poor
- Installed 1937
- High density of Brook trout observed in outlet pool, no sightings upstream
- Conserved floodplain habitat to the west – large conserved forest block to east
- Depth allows for increased height to accommodate large mammals.
- Long monitored history of large mammal observations
- SCI long standing priority, as well as NHFG wildlife corridor



Photo 9: View of the existing 4' by 4' concrete box culvert's outlet with an approximately 18" perch, resulting in a complete barrier for aquatic organism passage. Brook trout have been observed in high densities in the scour pool. The existing structure is in poor condition with severe concrete spalling and erosion both above and below the structure's outlet.



Photo 10: View looking at intact downstream habitat from just downstream of the culvert's outlet. Adjacent downstream habitat provides landscape connectivity to the Connecticut River valley.



Photo 14: The Nature Conservancy monitored the existing structure for under-road wildlife passage for years. Black bear were observed at the site but never successfully crossing through the existing structure. Under-road passage is limited to small mammals such as mink, otter, and long-tailed weasel.



Photo 15: Whitetail deer utilize the habitat corridor associated with the riparian area, but are unable use the existing structure for under-road passage given its small size. The replacement structure will be designed to accommodate both whitetail deer and black bear.



Photo 16: Eastern coyote also utilize the habitat corridor associated with the riparian area, but do not use the existing structure for under-road passage likely because of its small size and the difficult navigation associated with the downstream perch.

STRATFORD SOUTH SITE PHOTOGRAPHS

Stratford-North Site Details:

- 30” x 44 ft long rcp
- 4 ft of cover
- Outlet slope drops off steeply
- Invert is worn, exposed rebar showing
- Depth allows for some increased height to accommodate bear and some deer.
- Black bear drawn from Vt to northern red oak forest to the east.
- Prioritized as a wildlife movement zone by the SCI NEK-NNH Linkage.



Photo 17: View of the existing 30" concrete pipe's outlet. Erosion at the crossing is problematic due to the steep topography.



Photo 18: View looking at intact downstream habitat from just downstream of the culvert's outlet. Adjacent downstream habitat provides landscape connectivity to the Connecticut River valley.



Photo 19: View of the existing 30" concrete pipe's inlet with deteriorating headwall.



Photo 22: Wildlife camera monitoring to support this proposal observed only raccoons utilizing the existing structure for under-road passage. Based on wildlife camera monitoring at other similarly sized and situated structures, we also expect that mink, otter, and long-tailed weasel are likely to use the existing structure for passage.

STRATFORD NORTH SITE PHOTOGRAPHS