



Barrington – U.S. Route 4
16402 Caldwell Brook Culvert
41415 Oyster River Bridge (181/047)

Barrington Public Officials Meeting

January 22, 2024



Introductions

- **Tim Dunn, PE, CPM**
 - NHDOT Bureau of Highway Design
 - Project Manager
- **Ron Kleiner, PE**
 - NHDOT Bureau of Bridge Design
 - Lead Designer
- **Steve Langevin, PE**
 - GPI
 - Project Consultant



Project Location Map



Project Location Map



Project Purpose and Need

Purpose and Need

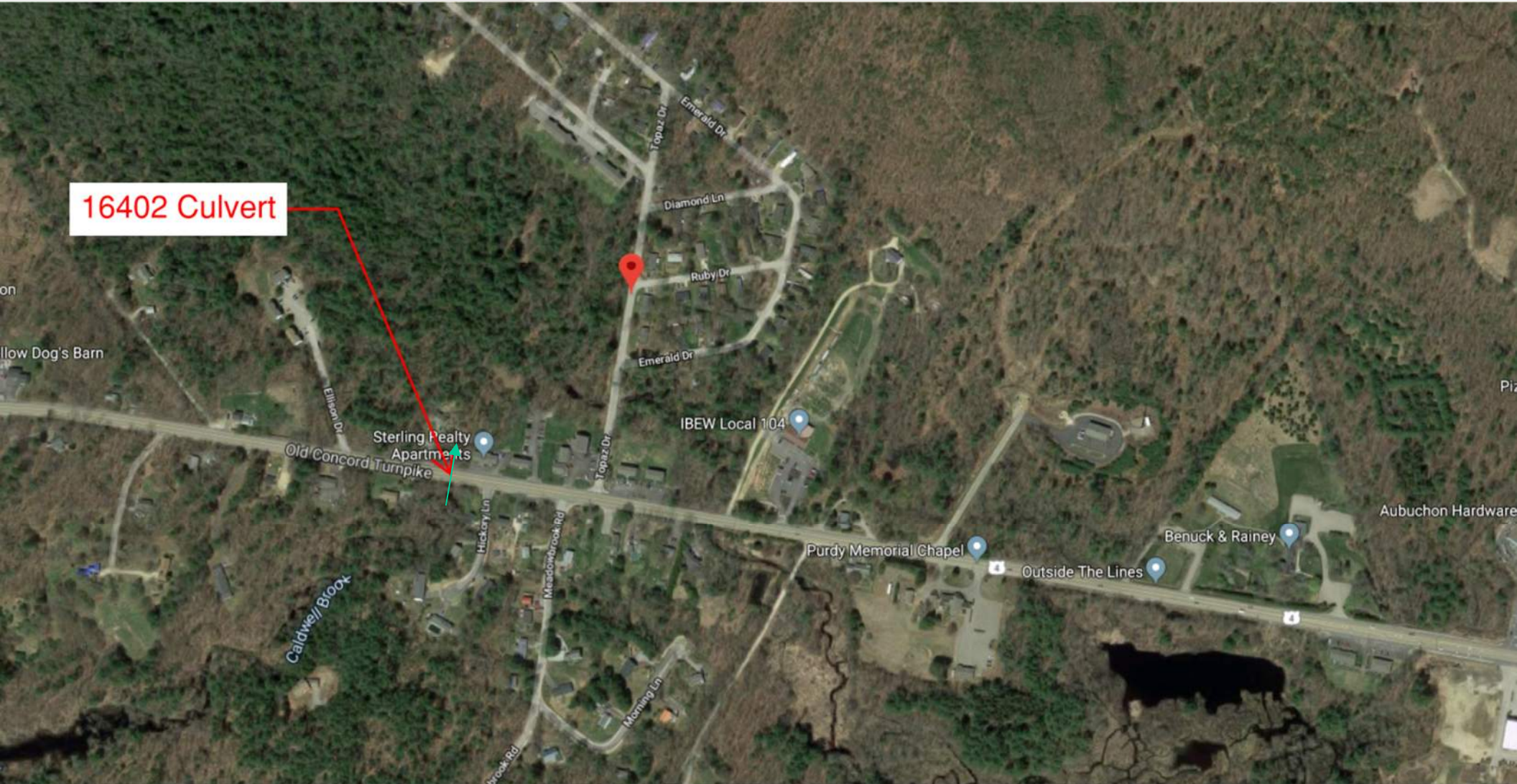
- Caldwell Brook Culvert (16402)
 - Address hydraulic deficiencies of the culvert as demonstrated by previous flooding
- Oyster River Bridge (41415)
 - Address the structural deficiencies of the bridge as demonstrated by its inclusion on the state Red List

Alternatives Analysis Phase

Currently in the alternatives phase. All alternatives and impacts are being considered and evaluated prior to picking the preferred alternative. Public input is a key component of the evaluation process.



Route 4 over Caldwell Brook



Route 4 over Caldwell Brook

16402 Culvert

- Culvert at Caldwell Brook
 - Original project initiated after 2006 Mother's Day storm flooding
 - Storm led to U.S. Route 4 overtopping and flooding of adjacent properties
 - Built in 1974
 - 54-inch diameter 100 feet long corrugated metal pipe

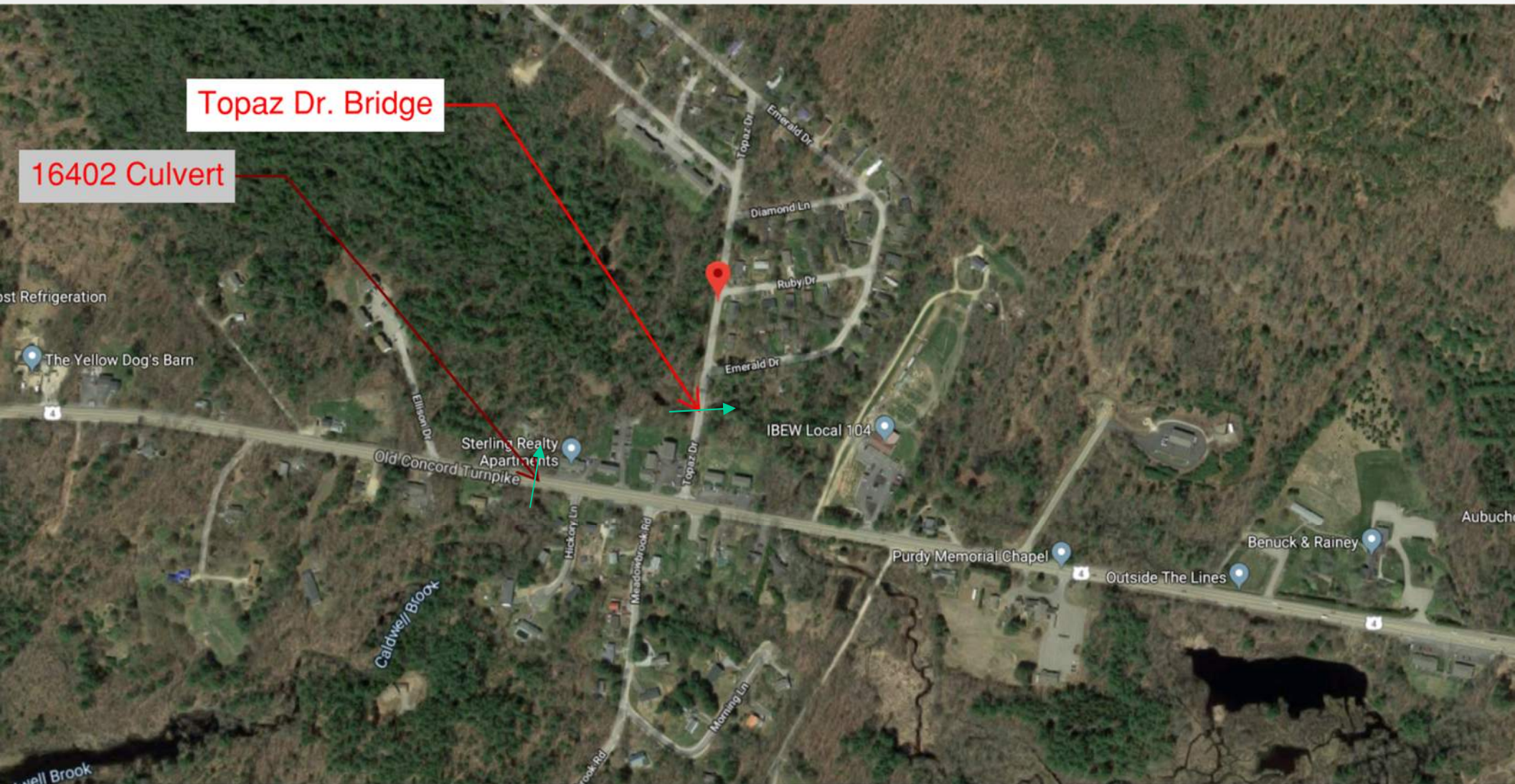


Inlet (South)



Outlet (North)

Topaz Drive over Oyster River



Topaz Drive over Oyster River

Privately owned existing structure within the project area, not to be worked on:

- Topaz Drive bridge
 - Topaz Drive is between the two structures
 - Topaz Drive is located roughly $\frac{3}{4}$ of a mile west of the Lee roundabout
 - Built in 2023
 - 31.5 foot clear span
 - Prefabricated steel bridge supported by concrete blocks



Looking South

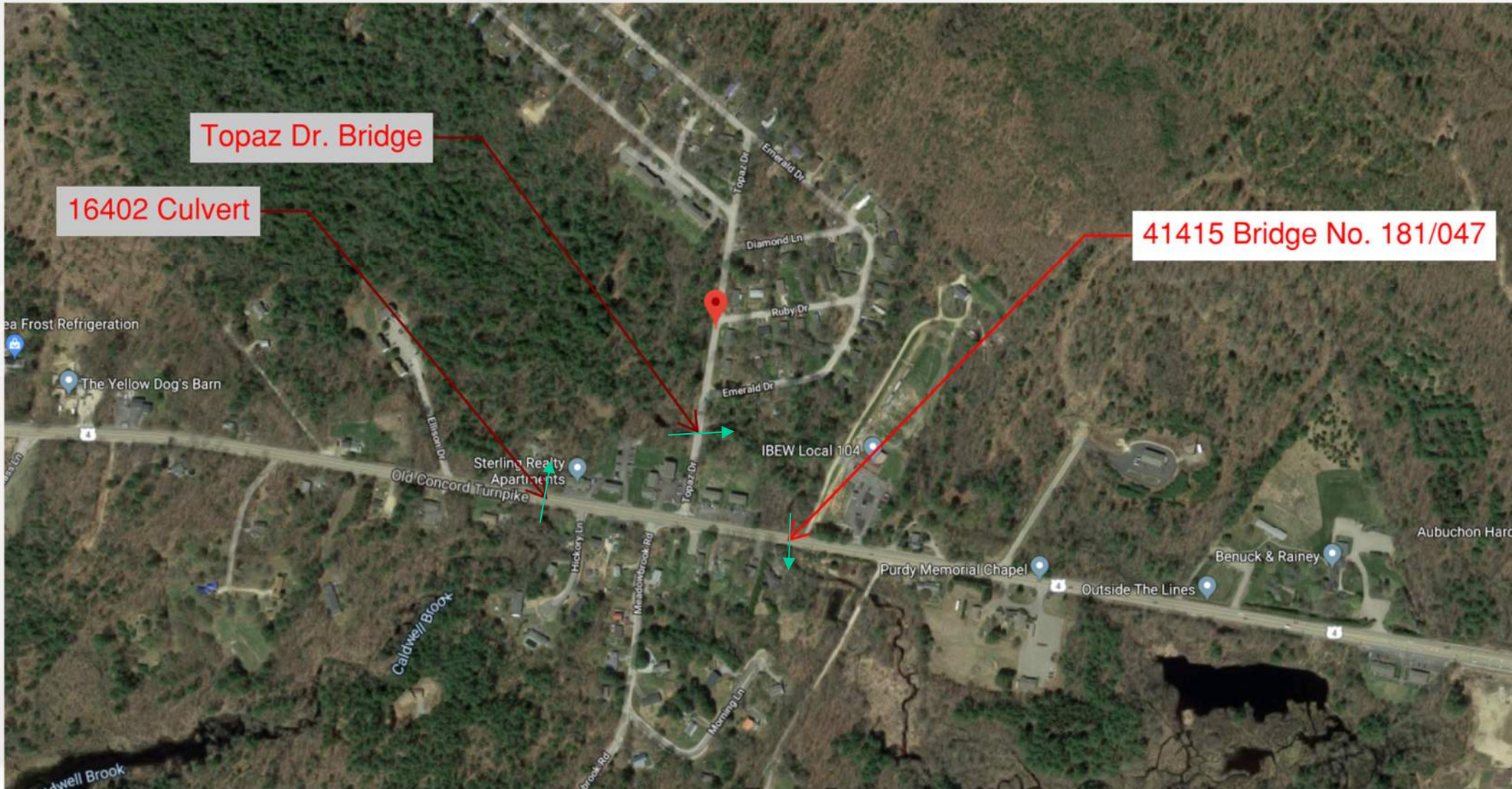


New Structure (2023)



Previous Structure (2022)

Route 4 over Oyster River



Route 4 over Oyster River

41415 Bridge

- Bridge at Oyster River
 - Added to the State Red List in 2016 due to its condition
 - More frequent inspections for monitoring
 - Built in 1980
 - 10'-3" wide by 6'-9" height, 92'-4" long pipe arch



Inlet (North)



Outlet (South)

Old Concord Tpk Driveway/Oyster River



Old Concord Tpk Driveway/Oyster River

Privately owned existing structure within the project area, not to be worked on:

- Private Driveway Bridge
 - 19 Old Concord Tpk
 - Concrete slab bridge
 - Downstream of the Oyster River bridge



Looking South



Looking Downstream

US Route 4

- 66 foot Right of Way width
- 2021 Average Annual Daily Traffic (AADT) = 12,030 vehicles
- 2 – 12-foot lanes
- North shoulder is 8 feet wide
- South shoulder is 10 feet wide
- Businesses and residences on both sides of Route 4 in project limits
 - Including apartments
- Overhead utilities on south side of Route 4
- Intersections with
 - Topaz Dr
 - Hickory Ln
 - Meadowbrook Rd



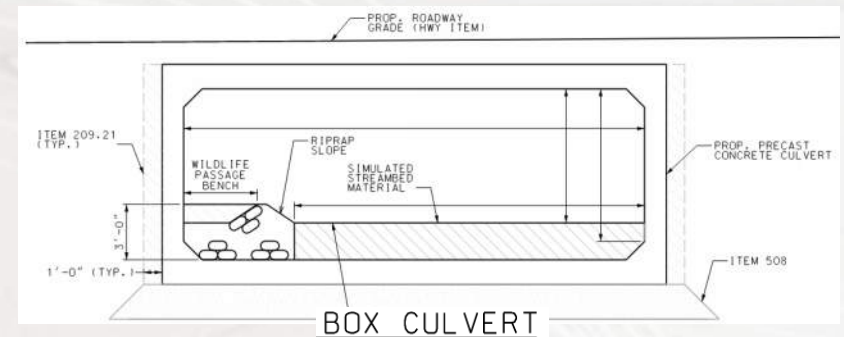
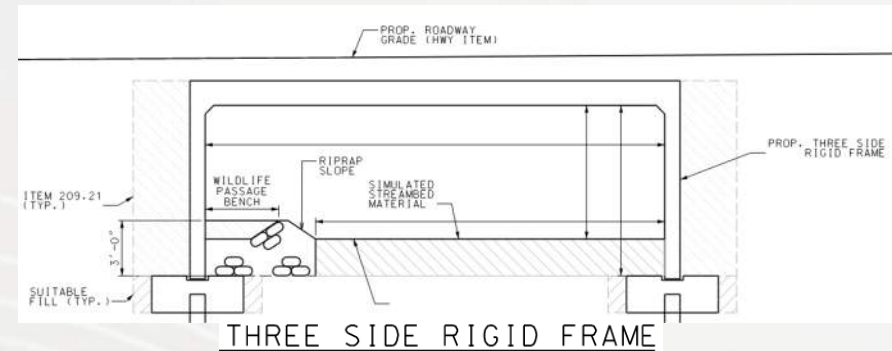
Looking East



Looking West

Potential Replacement Structures

- Proposed Caldwell Brook culvert alternatives
 - 3-sided precast concrete rigid frame supported on precast concrete pedestal walls and spread footings
 - 4-sided precast concrete box
- Proposed Oyster River bridge alternatives
 - 3-sided precast concrete rigid frame supported on precast concrete pedestal walls and spread footings
 - 4-sided precast concrete box
 - Short span bridge
- A wildlife path through the structure is likely required



Design Considerations

- Other Structures within the Project Area
 - Topaz Drive bridge and the driveway bridge at 19 Old Concord Turnpike
 - Accounted for in the design of new structures
- Hydraulic capacity
- Animal crossings
- NHDES Stream crossing rules
- Wetland impacts
- Stormwater treatment
- Traffic control
- Cost



Maintenance of Traffic

Challenges:

- Traffic volume
- Proximity to Lee roundabout
- Single access to Topaz Dr. and Hickory Ln.
- Proximity of parking north of US Route 4
- Proximity to utilities south of US Route 4
- Narrow ROW through the corridor
- 53' Semi Trailer route
- Seabrook Station evacuation route



Looking North



Looking West

Maintenance of Traffic

Alternatives under consideration:

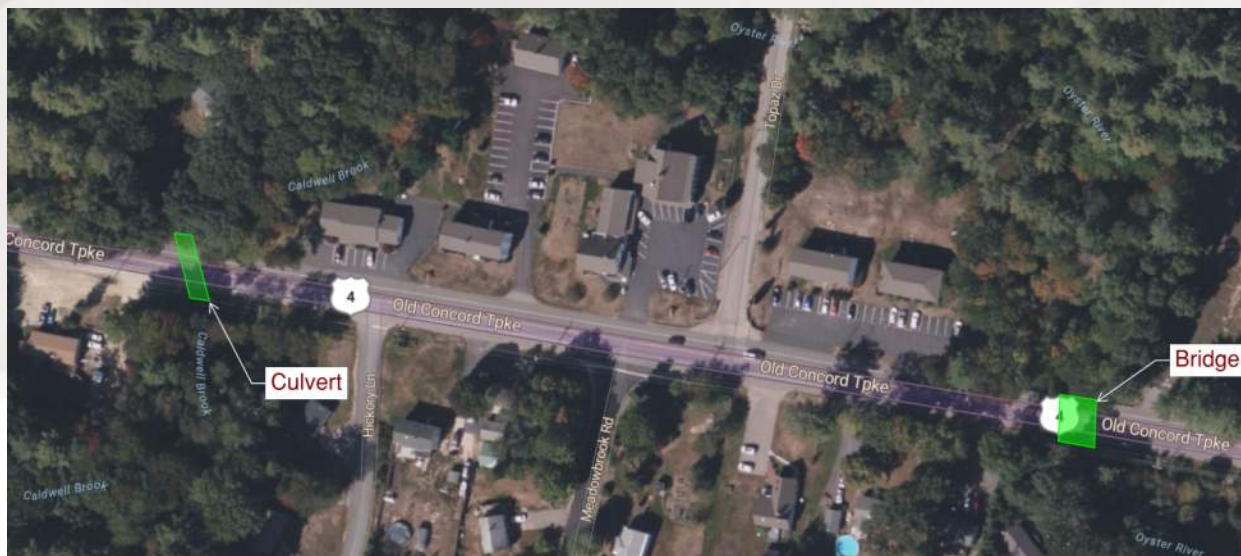
- Phased construction
 - 2 Phase or 3 Phase options
- Ideally two-lane traffic during construction
 - Would likely require temporary ROW impacts for temporary widening
- Alternating one-way traffic
 - Large volume of traffic for temporary signals to handle
 - Traffic queues impact to Lee roundabout



Maintenance of Traffic

Alternatives under consideration:

- Closure with Detour
 - Duration to be determined
 - Accelerated Bridge Construction (ABC) using precast concrete structures
 - Detour options
 - North of US Route 4: NH Route 125, 9 & US Route 202 (Barrington)
 - South of US Route 4: NH Route 125 and NH Route 152 (Nottingham)
 - Note: Isolating the properties between the structures during construction
 - Local access could be maintained by using Stepping Stones Rd and Meadowbrook Rd (local traffic only, not a detour for US Route 4)



Cultural Resources

NHPA - Section 106

- Historic Consulting Parties
[SECTION 106 \(nh.gov\)](http://SECTION%20106%20(nh.gov))
- Adjacent properties >50 yrs old may require architectural survey
- No archaeological survey required



Natural Resources

- Permits required:
 - Wetlands Permit
 - Alteration of Terrain
- Federally listed endangered species: Northern Long Eared Bat (NLEB), Small Whorled Pogonia (SWP)
- State listed species: 2 fish species, 3 turtle species, Hognose Snake, New England Cottontail
- Project area is a wildlife corridor and is part of the Connect the Coast Initiative



Small Whorled Pogonia



New England Cottontail

Cost Estimate

- \$4.6 M in the 2023-2032 Ten Year Plan for construction
 - No anticipated costs to the town
 - Estimates will be revised as the design progresses

Next Steps

- Develop and evaluate alternatives based on the Town's input and engineering results
- Present findings to Cultural and Natural Resource Agencies for their input and comments
- Hold public informational meetings to present alternatives and receive feedback
- Hold public hearing for the selected alternative
- Complete National Environmental Policy Act (NEPA) process for environmental permitting

Currently scheduled for construction in 2028



We want your input

- Traffic control
- Past flooding
- Emergency response
 - Mutual Aid
- School bus routes
- Historic concerns
 - Stone wall at bridge
- Bicycle and pedestrian concerns
- Local events
- Utilities
- Other concerns



Project Website

<https://www.dot.nh.gov/projects-plans-and-programs/project-center/barrington-41415-16402>



Questions/Comments?

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Caldwell Brook



Oyster River

