

**BUREAU OF ENVIRONMENT
CONFERENCE REPORT**

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: March 20, 2024

LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT

Andrew O’Sullivan
Joshua Brown
Matt Urban
Jon Evans
Rebecca Martin
Meli Dube
Julius Nemeth
Kirk Mudgett
Ron Kleiner
Chris Carucci

ACOE

Mike Hicks

USCG

Absent

EPA

Jean Brochi

NHDES

Emily Nichols
Mary Ann Tilton
Judy Houston

NHB

Absent

NH Fish & Game

Mike Dionne
Kevin Newton
Jared Lamy

Federal Highway

Absent

US Fish & Wildlife

Absent

The Nature Conservancy

Absent

**NH Transportation &
Wildlife Workgroup**

Absent

**Consultants/ Public
Participants**

Christine Perron
Steve Langevin
Linda Greer
Lee Carbonneau
Elizabeth Olliver
Kristen Clarke
Rebecca Balke

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

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Finalize Meeting Minutes

Finalized and approved the February 21, 2024 meeting minutes.

Barrington #41415 and 16402 (X-A004(625) and X-A002(738)):

Steve Langevin provided an overview of the projects. The two projects are located on US Route 4 and will replace two adjacent stream crossings located just west of the Lee Roundabout. Project 16402 will replace the existing 54-inch diameter corrugated metal pipe that carries Caldwell Brook. Project 41415 will replace a 10'-3" wide by 6'-9" high pipe arch (Bridge 181/047) that carries the Oyster River. Caldwell Brook flows north under US Route 4 and enters the Oyster River approximately 400 feet north of the culvert. The Oyster River flows southeast under US Route 4, passing under Topaz Drive, US Route 4, then a private driveway. The purpose of Project 16402 is to address hydraulic deficiencies of the culvert that have been demonstrated by past flooding. The purpose of Project 41415 is to address structural deficiencies of the bridge as demonstrated by its inclusion on the NHDOT Red List. The projects are currently in the alternatives analysis phase. Although the Topaz Drive and private driveway crossings of Oyster River will not be addressed as part of the project, these crossings need to be taken into account in the analysis of design alternatives for the bridge.

The culvert that carries Caldwell Brook is a 54-inch diameter, 100-foot-long corrugated metal pipe installed in 1974. The 16402 project was originally initiated after the 2006 Mother's Day flood event, which led to the overtopping of US Route 4 and the flooding of adjacent properties. The Topaz Drive crossing of the Oyster River is located between the culvert and the bridge. This is a privately owned 31.5-foot span that was constructed in 2023. Bridge 181/047 is a 10'-3" wide by 6'-9" high by 92'-4" long pipe arch installed in 1980. The bridge was added to the Red List in 2016 due to its condition. The private driveway crossing of the Oyster River is located just downstream of Bridge 181/047. The structure consists of a concrete slab on stone abutments.

Within the project area, US Route 4 consists of two 12-foot travel lanes, an 8-foot shoulder on the north side, and a 10-foot shoulder on the south side. The Average Annual Daily Traffic in 2021 was 12,030 vehicles. The right-of-way is 66 feet wide, and there are businesses and residences on both sides of the roadway within the project limits. Overhead utilities are located along the south side of US Route 4 and intersections with Topaz Drive, Hickory Lane, and Meadowbrook Road are located in the project area. Design and traffic control challenges include traffic volume, proximity to the Lee Roundabout, the single access to Topaz Drive and Hickory Lane, proximity to parking for residences and businesses north of US Route 4, proximity to utilities south of US Route 4, and the narrow right-of-way. US Route 4 is also a designated 53-foot tractor trailer route and an evacuation route for the Seabrook Station.

Span alternatives for the two crossings will be more fully developed once the hydraulics analysis is completed. At this time, the design alternatives for the Caldwell Brook culvert entail a 3-sided precast concrete rigid frame supported on precast concrete pedestal walls and spread footings and a 4-sided precast concrete box. The span would be approximately 20' +/- with a wildlife shelf on at least one side.

Design alternatives for the Oyster River bridge entail a 3-sided precast concrete rigid frame supported on precast concrete pedestal walls and spread footings and a 4-sided precast concrete box. The span would be approximately 30' +/- with a wildlife shelf on at least one side.

Christine Perron described the resources that are present in the project area. Caldwell Brook and Oyster River are both perennial streams with associated wetlands in the vicinity of each crossing. A Zone A 100-year Floodplain is mapped downstream of the bridge but does not extend up to US Route 4. There are no Priority Resource Areas at either crossing. The Oyster River is a NH Designated River but is 3rd order at the project area and not subject to Shoreland Protection.

Both stream crossings are Tier 3 based on watershed size. A stream assessment has been completed and will be used to help inform selection of the preferred alternative and permitting requirements. To achieve full geomorphic compatibility, the culvert would need to become a 23' span and the bridge would need to be a 44' span. Due to site constraints, it is unlikely that the project can accommodate spans of this size; however, the alternatives under consideration will definitely be an improvement over existing conditions. The bridge does not have a history of flooding and will likely fit under Env-Wt 904.09, replacement of an existing Tier 3 crossing. The culvert has a history of flooding and would require approval as an alternative design if all of the Tier 3 criteria cannot be met.

A number of wildlife species of concern are known to occur in the area, as listed in NHB review memos NHB23-1803 and NHB23-1813: American brook lamprey, American eel, Blanding's turtle, spotted turtle, wood turtle, Eastern hognose snake, smooth green snake, and New England cottontail. Project details will be submitted to NH Fish & Game within the next month or so for consultation under Fis 1004. The Wetland Permit Planning Tool shows both streams as cold-water fisheries, so discussion will be necessary to determine appropriate time of year restrictions for in water work given that there is also a potential concern with lamprey and eel. Both stream crossings are located within mapped wildlife corridors, which will be taken into consideration in the alternatives analysis. The federally listed northern long-eared bat will be addressed with the USFWS with FHWA as the lead federal agency.

The purpose of today's meeting is to get initial input on the crossings and concerns that should be considered in selection of a preferred alternative. Next steps for the project include a Public Informational Meeting (Spring 2024), a second Natural Resource Agency Coordination Meeting to discuss preliminary impacts of the preferred alternative (Summer 2024), a Right-of-Way Public Hearing (Fall 2024), and completion of NEPA (Fall 2024). The two projects are scheduled to advertise together in 2028.

The following is a summary of questions and comments from attendees:

Mary Ann Tilton asked if the functional assessment for wetlands is being used to inform the alternatives analysis, and if NH Fish & Game input will be taken into consideration during design. C. Perron responded that a functional assessment has been completed and is being taken into consideration to the extent possible. The locations of proposed infrastructure and proposed impacts for these types of projects are always limited by the location of existing infrastructure. NH Fish & Game input will be taken into consideration as the project progresses.

Emily Nichols had no comments at this time.

Mike Dionne noted that NH Fish & Game is excited about this project given that the Oyster River is one of the only remaining places that American brook lamprey are known to exist, and the Department views this project as a restoration opportunity. Fish & Game is in favor of a 3-sided structure with simulated stream material, stream width, and stream depth. The crossings are located at the downstream extent of brook trout and there is not a lot of concern with that species in regard to time of year for in-water work. Fish & Game may look into electroshocking lamprey and moving them prior to construction to avoid impacts, which would eliminate the need for a time of year restriction for lamprey. This can be discussed further as the project progresses.

Jared Lamy echoed Mike Dionne's comments.

Kevin Newton also supported Mike Dionne's comments and noted that he looked forward to seeing the project details for Fis 1004 review.

Mike Hicks and Jean Brochi had no comments.

Bath, #44094 (X-A005(313)):

Julius Nemeth, NHDOT Bureau of Highway Design, introduced the project and provided a description of the project location, existing conditions, traffic control options and prices, project purpose and need and proposed alternatives. The project is federally funded and is scheduled to advertise in September 2024 with anticipated construction in summer of 2025. The purpose of the project is to address the poor structural condition of an existing 4' wide x 4' high x 110' long concrete box culvert carrying an unnamed stream under NH 135 approximately 150 north of Locke Rd. The crossing is a Tier 2 based on drainage area of 452 AC or .71 square miles based on LIDAR contours.

This culvert was selected for the Program based on structural condition, risk of failure, and lack of suitable detour routes. Fill height is approximately 20', and NH 135 average daily traffic volume is 742. NH 135 is the major route connecting Bath and Monroe to Littleton and the I-93 Corridor. The original construction date is unknown. The original culvert was extended 33' to the inlet and 35'-10.25" to the outlet under project F.A.S 5-A(1) Connecticut River Road in 1938. NHDOT District 2 Maintenance repaired some erosion inside the culvert in 2015 and more recently placed concrete bags to prevent the erosion at the bottom of the walls from getting any worse. A 12' center section has settled 5" creating a 43" clear height for the 12'. There is no history of flooding related to this culvert. The project area is not within a FEMA mapped floodplain.

The project will not have any disturbance within the 250' buffer from the Connecticut River. There were no contamination records found within the project area. The conservation areas near the project will not be impacted. No aquatic was found for the crossing and not project area is not within a ¼ mile of designated river. No NHB records were found for the project. Project is in the range of the northern long-eared bat (NLEB) and Canada Lynx. The proposed project intersects an area where Northern Long-Eared Bats are not likely to occur, so no impacts are anticipated. Proposed project limits do not overlap with critical habitat of the Canada Lynx and

no impacts are anticipated. Tree clearing has the potential to impact tricolored bats; however, clearing will be done in the inactive season between November 1st and April 14th. . Section 106 coordination has been completed and the project activities are consistent with those covered under Appendix B of the Programmatic Agreement. DHR concurred with a Section 106 determination of “No Historic Properties Affected”. Wetland impacts to the unnamed stream are anticipated and will be kept to the least practical amount. The project does not propose any increase in the impervious area resulting in no water quality concerns. Japanese Knotweed was delineated and will be handled as a Type II invasive species per current guidelines. LRS will be stockpiled and reused on embankment slopes.

A stream assessment and wetland delineation was performed by NHDOT on 8/28/2023. The stream flows through a deep valley with a shallow channel with very narrow overbank areas. The average bankfull width was found to be 12.7’, average bankfull depth was .9’, average floodprone width was 33’, average slope was 1%, sinuosity was 1.006 to 1.112, and the entrenchment ratio for the Rosgen Stream Type “F” was 2.79. Based on the reference reach’s Rosgen Stream Type and using the maximum multiplier of 1.4, the compliant span would be 17.78’ rounded to 18’.

Streamstats boundary agreed favorably with LIDAR contours but had slightly lower area of 0.65 sq mi (415 acres). The DES permit planning tool showed the same stream network as Streamstats and returned an equal area of 0.65 sq mi.

Based on Lidar the watershed boundary was determined to be 452 acres. The Stream Stats boundary was updated using the Lidar boundary and predicted Q100 at 130 cfs. Confidence limits were not provided.

The FHWA Regression Equations predict Q100 between 248 and 323 cfs.

The SCS Method (24 hour rainfall / runoff model) predicted significantly higher flows, Q100 = 416 cfs.

Design flows for alternatives analysis are based on the high end of the FHWA Regression Method.

Q10 = 169 cfs Q50 = 278 cfs Q100 = 323 cfs

Analysis is based on the original 4’ x 4’ box culvert. The existing culvert will have less capacity with the 12’ settled section. Capacity at overtopping is 296 cfs at an elevation of 495 (crown EL). Overtopping flow would immediately return to the downstream channel (no bypass). There is no significant storage upstream of the culvert, increasing the size of the culvert would not cause an increase to the downstream flows.

The intent is to replace the culvert in the same location, and as close as practical to existing invert elevations, matching existing conditions. Repair of the existing culvert is not considered to be a practicable long-term solution given the age of the existing culvert and the extensions.

The new culvert will be embedded 12” with natural bottom material – sand, gravel, and round cobbles and grade controls to hold bottom material in place. Length will be 110 LF, about the same as existing, with precast headwalls and wingwalls.

Culvert sizing will meet current design standards – pass Q50 and check Q100.

NHDOT District 2 Maintenance reports some ponding in the low areas of the road until it fills to an elevation where it can flow down the roadside embankments creating localized bank erosion. Proposed slopes 2:1 or steeper will have geotextile fabric and stone placed alleviating any localized erosion within the project limits. 350' of full road construction will create a consistent pavement surface without any ponding.

No changes to the NH Route 135 pavement width are proposed. Existing guardrail will be replaced at similar location and length. Existing cable guardrail will be replaced with beam guardrail and steel posts with terminal units. Guardrail runs will meet current design standards resulting in longer runs of rail. Disturbed pavement and roadway embankments will be restored as close as practicable to existing conditions. Impacts to the existing roadside ditch and removing and construction the box culvert makes up the permanent wetland impact. The proposed ditch will have stones placed on geotextile fabric to eliminate erosion caused from the steep slope of the ditch.

Alternatives considered included replace in kind with a 4' span structure, a 7.0' span structure, and a stream crossing rule compliant 18' span structure. Span structures in the 6' – 7.5' range would not be classified as bridges, whereas a span over 7.5' would be a bridge because of the large skew angle of the culvert. All alternatives will be precast box culverts embedded 12" with simulated streambed material.

Replacing the culvert with a 18' wide x 7' high bridge would require more impacts to wetlands and require a much longer construction time frame impacting the school bus routes - 7 month total construction duration, 5 months with one lane alternating two-way traffic. The cost for this option is \$2,500,000. This alternative is not recommended due to significantly higher costs and impacts.

Replacement in kind is not a viable option since the existing box culvert does not meet current design standards. Cost for this alternative would be \$1,300,000 for the road open option and \$970,000 for the road closed option. Construction duration for the road open option would be 5 months with 3 months with one lane alternating two-way traffic. For the road closed option, the construction duration would be 3 months with a 1-month road closure.

Replacement with a hydraulically sized 7' wide x 7-8' high embedded precast box culvert would have a construction duration of 5 months with 3 months of one lane alternating two-way traffic making it very hard to complete within the summer school vacation. Cost for this option would be \$1,490,000. The duration for the road closed option would be 3 months total with one month of closure. Cost for this option is \$1,100,000. Impacts such as total disturbed area, tree clearing, and permanent and temporary wetland impacts would be about the same for road open and road closed. Cost and construction duration are significantly larger for the road open method. We will seek concurrence from the Town of Bath for the road closed method.

Both the 7 and 8' clear height culverts meet hydraulic design standards and will be determined after a full review of the design is performed. Existing and proposed flows area as follows

existing Q50 outlet velocity = 17.38 ft/s, downstream velocity = 10.88 ft/s, preferred alternative Q50 outlet velocity = 12.77 ft/s, downstream velocity = 10.88 ft/s

Proposed construction season for the project is the summer of 2025 with the preferred alternative being replacement with 7' wide x 7-8' high precast box culvert embedded with stream simulation. 7' versus 8' clear height would not change impacts or outlet velocity. All 904.01 general rules and tier 2, 3, and 4 design requirements have been satisfied except for a wildlife shelf and vegetated banks. During low flow a dry area is provided by grade controls for a wildlife passage. Road open and road closed have similar wetland and tree clearing impacts.

Impacts for the preferred alternative are as follows: the total disturbed area is equal to 36,750 SF (.8 ac), clearing is 10,500 SF ±, permanent stream is 51 SF and 10 LF at the inlet and 92 SF and 10 LF at the outlet, permanent bank is 229 SF and 43 LF at the inlet and 371 SF and 62 LF at the outlet, permanent wetland is 1,171 SF with 683 SF ± necessary for excavation and installation of culvert, temporary stream – 316 SF and 35 LF at the inlet and 267 SF and 21 LF at the outlet, and temporary bank is 381 SF and 58 LF at the inlet. The total SF impact is 2,900 and the total LF is 240. A wetland seed mix will be used to restore jurisdictional areas and any vegetation that is cut in temporary impact areas will be allowed to re-establish naturally. NHDOT requests that no mitigation be required as the total SF and LF impacts are under the thresholds.

Mary Ann Tilton, NHDES appreciated the information presented and had no comments.

Emily Nichols, NHDES asked for clarification on the total permanent LF of stream impact. Julius confirmed permanent impacts are roughly 107 LF. Emily responded that the proposed project is below the threshold for mitigation and will not require mitigation as long as the design meets applicable rule.

Kevin Newton, NHF&G had no comment.

Jared Lamy, NHF&G mentioned that there are Brook trout in the stream but the proposed project is a net improvement for the stream and showed support for the project.

Mike Hicks, USACOE had no comment.

Jean Brochi, USEPA had no comment.

Manchester RAISE Project, #43826 (#R21HC054):

Linda Greer from Fuss & O'Neill introduced herself for the RAISE Manchester, Connecting Communities Project for the City of Manchester and briefly presented the project, which has been before the agencies previously (on September 21, 2022 and March 15, 2023). Also present were Lee Carbonneau and Elizabeth Olliver of Normandeau Associates; and Kristen Clarke and Rebecca Balke, City of Manchester. Linda introduced the overall project location within Manchester Downtown and Millyard area and described the four project components:

Component A – The South Commercial Street Extension, bridge over the CSX railroad and connection to Gas Street.

Component B –The South Willow and Queen City Ave. existing ramp style intersection is replaced with a peanut shaped roundabout.

Component C –The Active Transportation Corridor (multi-use trail or bike/pedestrian path) in the abandoned rail corridor.

Component D – The pedestrian bridge over Granite Street at Commercial Street.

The environmental updates were presented by Lee Carbonneau.

- NEPA CE has been approved with a Categorical Exclusion (CE) Addendum when Gas St. Extension was removed from the project. The Project was re-evaluated by FHWA and the CE addendum was approved.
- Section 4(f): Gateway Park was determined a de minimis Section 4(f) impact and is not a 6(f) property. The project was found to have No Adverse Effect on seven Historical Properties in the vicinity of the project by NHDHR.
- An RTE plant species (Virginia Stickseed) was found on edge of Wetland 2 (Multiuse Trail) that will be impacted by project. Consultation with NH NHB is complete, and no further action by the project is required. NHNHB will do a seed collection prior to construction.
- IPaC returned a “no effect” result for the Northern Long-eared Bat and there is no Monarch habitat in project area currently. However, the City is coordinating with NH Audubon to provide project locations for pocket pollinator plantings.
- The main focus of project discussion currently is the impacts to 2 man-made/disturbed wetlands and 1 stream. Temporary and permanent impacts meet the threshold for requiring mitigation.

Ms. Carbonneau walked through the slides showing the locations of Wetlands 1 and 2 relative to the project area, as well as the stormwater drainage paths and the issue of the blocked culvert that creates damaging stormflow elsewhere in the City. Ms. Greer elaborated on the path and damage created by the blocked culvert, the emergency authorization used to investigate the cause of the blockage, and the solution proposed by the RAISE project (a new culvert bypassing the problem area). She explained that the granite stone box culvert at one end of Wetland 1 was likely blocked and as of 2005 is no longer functioning as designed. This blocked culvert is likely the source of much of the hydrology for Wetland 1.

Ms. Carbonneau presented the size, classification, and functions of both wetlands, as well as the temporary and permanent impacts. The disturbed nature of both wetlands was described, including the underground and overhead utilities and Phragmites stand in Wetland 1, and the surface runoff that gets directed to Wetland 2.

The project elements impacting Wetlands 1 and 2 were described and shown on plans, along with the proposed stormwater elements including the surface and subsurface biofiltration ponds. Wetland 1 is temporarily impacted (10,999 sf) by access for bridge and stormwater construction, with a small permanent impact (418 sf) from the new bridge abutment. Construction of the multi-use trail will permanently impact 34,882 sf of Wetland 2 and 316 lf of Stream 1. The Active Transportation Corridor is an important project element and provides the missing link to

the regional trail system, shown on a map in the presentation. The basin containing the trail (the abandoned rail corridor) will be filled to raise the trail up out of the basin for safety purposes (it is currently used by people that do not want to be seen) with drainage swales on either side. Drainage from this area will enter the new drainage system that will go to the aboveground biofiltration pond near the S. Commercial St. Extension.

The wetlands provide some flood storage, and nutrient and sediment filtering, functions that the new stormwater system will also provide. The drainage map and approximate treatment percentages were noted. Areas that are not receiving stormwater treatment currently will be treated.

Ms. Carbonneau suggested that the project is self-mitigating for much of the wetland impacts. ARM payment would be very high. Flood storage capacity will be replaced and/or enhanced with the planned surface and subsurface biofiltration ponds. Planned treatment systems will increase detention time and thus improve nutrient and sediment trapping functions beyond what exists currently. Invasives comprise a significant portion of the vegetation community in both Wetland 1 and 2 currently. The project will replace these species with native wetland vegetation, thereby enhancing habitat for pollinators, birds, and small mammals. The City is working with Audubon to provide Pollinator Planting Locations, development of potential habitat for Monarch. Ms. Carbonneau also noted that the mitigation plan could be discussed further at the NHDES meeting next week.

Questions and Comments from the agencies:

Mary Ann Tilton asked if there is a Stormwater System permit that is approved by Wastewater Engineering for the Wetland 1 area. Ms. Greer explained the meaning behind the blue and red lines on Slide 6 and how basically whenever there is a storm event, the blockage in the culvert results in stormwater back up that flows down the railway corridor, under the tracks, and causes damage to the Riverwalk Trail (red lines). The intended flow path for stormwater (blue arrows) does not occur due to blockage(s). The blocked culvert is owned by CSX and working with them to get it fixed is problematic. Ms. Tilton cited concerns regarding the new culvert/stormwater management plan as she wants to make sure any proposed design recommendations that may come from Wetlands do not conflict with any recommendations from sister Land Resources Management programs within NHDES.

Ms. Tilton asked for a clearer description of what is in place in the proposed multi-use trail work area now. Ms. Carbonneau explained that it is a vegetated corridor with some unofficial footpaths along it and across it, but there is no formal trail there currently. She explained this trail location is part of the regional trail network and is proposed here because of a trail currently being constructed on the other side of Queen City Avenue. This project will also provide a connection to the Riverwalk Trail. Ms. Tilton wanted to know/understand the analysis that was done in terms of avoidance and minimization in this area in accordance with the trail section of the Avoidance and Minimization BMP manual, and she also indicated that NHDES would want

to discuss any mitigation proposals internally before they make their determination to be sure they're being consistent between other projects.

Emily Nichols asked if the wetlands are currently maintained. Ms. Carbonneau confirmed that both wetlands are currently minimally maintained. The City periodically cleans up and mows Wetland 2 which regularly has trash/human source debris in it. Area also has significant organic accumulation/vegetative accumulation. Ms. Nichols commented that the wetland mitigation approach proposed by the project may be in conflict with Env-Wt 805.01 and the mitigation plan must also be coordinated with the federal partners.

Mike Hicks – US Army Corps of Engineers - no comment

Kevin Newton – NH Fis & Game – no comment

Jared Lamey – NH Fish & Game – no comment

Jean Brochi (US Environmental Protection Agency) noted that the Wetland 2 approach seems to be restoring a degraded area and it did not seem to be a substantial function change, but wanted to know how the project would protect the work that has been completed from being damaged by the public. Ms. Greer explained raising the elevation of the trail would provide more exposure and a lot more people being around would discourage inappropriate use by the public.

Ms. Carbonneau asked:

Would Wetland 2 be considered a Priority Resource Area (PRA) due to an upland state-threatened plant adjacent to the wetland? Noting that there will be impacts to that population by the project. Ms. Tilton confirmed Wetland 2 would not be considered a PRA since it is an upland plant, not a wetland plant.

Even though this is not an NHDOT project, do we still need to include the Public Highway Attachment form with the wetland application. Ms. Tilton seemed to think the answer was no but would double check.

Ms. Carbonneau asked for confirmation that we do not need the property owners of all parcels with wetland impacts on them to sign the application form, but a signed agreement authorizing the work would be needed in some form. Ms. Tilton confirmed this to be correct.