

BUREAU OF ENVIRONMENT CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: February 19, 2020

LOCATION OF CONFERENCE: John O. Morton Building

ATTENDED BY:

NHDOT

Matt Urban
Sarah Large
Ron Crickard
Andrew O’Sullivan
Kerry Ryan
Meli Dube
Chris Carucci
Maggie Baldwin
Jason Abdulla
Arin Mills
Tobey Reynolds
Phil Brogan
Loretta Doughty
Bill Saffian
John Butler
Mike Mozer

ACOE

Rick Kristoff

EPA

Jeannie Brochi

**Federal Highway
Administration**

Jaimie Sikora

NHDES

Lori Sommer
Karl Benedict
Liz Sibson (intern)

NH Fish & Game

Carol Henderson

The Nature Conservancy

Pete Steckler

Consultants/Public

Participants

Kimberly Peace
Josif Bicja
Joanne Theriault
Matt Lundsted
Steve Halloran
Ben Lundsted
Taylor Vasquez
Nick Sceggell
Jennifer Doyle-Breen
Todd Dwyer
Pankaj Saharia
John Wilson
Vicki Chase
Kim Smith

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NOTES ON CONFERENCE:**Meeting Minutes**

Finalized the December 18, 2019 meeting minutes and the January 15, 2020 meeting minutes.

Ashland-Bridgewater, #24904 (X-A003(003))

K. Peace and J. Bicja gave an overview of the proposed bridge rehabilitation project. The bridge was constructed in 1937, rehabilitated in 1987, and currently has an overall National Bridge Inspection Standard Condition Rating of 5 (fair). The proposed rehabilitation will include bridge rail replacement, trestle span partial deck replacement, truss span deck replacement, expansion joint replacement, abutment and pier repairs, and possibly deck drainage modification. A conceptual plan depicting potential impact areas for construction access was shown and discussed. It is expected that the contractor will construct a trestle on the upstream (north) side of the bridge from the west riverbank. The trestle will be accessed from the John Jenness Road and previously disturbed areas where the prior bridge was located. The trestle is needed to gain access to the river pier to repair it.

K. Peace summarized the natural resource concerns:

- Wetlands delineated, permit will be required for bank access impacts and installation of temporary trestle to access pier for above-water repair.
- Shoreland permit may be required.
- Federally Listed Species: Northern Long-Eared Bat (NLEB), Small-Whorled Pogonia (SWP)
 - NLEB – Assess bridge per NHDOT standard practices for larger sized structures
 - SWP – Evaluate site for potential habitat, coordinate with USFWS on the need for surveys
- Contamination – asbestos, lead paint potential, proximity to remediation sites and LRS
- Essential Fish Habitat- Hoyle Tanner will contact Mike Johnson at NOAA Fisheries to determine if an assessment is needed

To begin project discussion, C. Henderson asked how the project would be planned to minimize contamination from lead or asbestos in the water? J. Bicja responded that potential for contamination to the river is minimal based on the current scope of work, but the contractor will provide methods to prevent any localized minimal construction debris from impacting the river, including netting as needed. B. Saffian noted that he doesn't think there will be ACM concerns.

L. Sommer asked if the road would be shut down during construction. J. Bicja stated that the project will be phased, with one lane closed at a time while traffic uses the other lane for travel, and B. Saffian added that there will be temporary traffic signals placed on each end of the bridge. A detour will not be required.

L. Sommer requested additional information about proposed fill on the riverbank. K. Peace described the existing steeply dropping bank. Temporary fill would be required for construction equipment to gain access to the trestle. L. Sommer requested confirmation that the fill areas on the bank would not be left as rip-rap armored slopes. K. Benedict stated that the fill and any temporary bank armoring will be considered temporary impacts if a Restoration Plan is submitted with the project's wetland permit application, showing how the bank will be restored to its pre-construction condition. M. Dube clarified that the requested Restoration Plan could also include a plan for returning riverbed impacts from the temporary trestle to their original condition; she then asked for confirmation that as currently proposed, these impacts could all be considered temporary for the purposes of the wetland permit application. K. Benedict asked if a cofferdam would be used, and J. Bicja stated that all proposed pier repairs would be above water, eliminating the need for a cofferdam. K. Benedict then confirmed M. Dube's statement that the project impacts, as currently described, could all be considered temporary.

L. Sommer and K. Benedict added details about the required Restoration Plan. The plan should include monitoring for 3 years post-construction, detail restoration methods for all shoreland areas, and also include a description of all proposed plantings.

K. Peace asked if it would be acceptable to leave steel piles from the proposed temporary trestle in the riverbed and cutting them off below the mudline. K. Benedict warned against this, saying that the substrate of the Pemigewasset River is quite sandy in this location and could easily erode away and expose remaining steel piles. K. Benedict stated that if steel piles need to remain, their buried depth should be carefully considered. B. Saffian stated that the only reason DOT would want to leave them in place and cut off at the streambed is if the vibration during removal may negatively impact the piers and that this will be evaluated during design.

K. Benedict suggested the use of previously cleared lands in the vicinity of the project to minimize vegetation clearing necessary in the shoreland area.

K. Peace asked if reconfiguration of scuppers on the bridge deck would affect water quality. K. Benedict confirmed that there will be no new impervious surface, then stated that scupper reconfiguration would not be considered a change from the existing condition and would not be considered to have water quality impacts.

M. Dube discussed the current DOT operating procedure of allowing contractors to detail their own access plans. When the wetland permit application is submitted, these details for the proposed trestle will not yet be available. K. Benedict confirmed that showing conservative stream/bank impact boundaries for the access structure will be sufficient for wetland permitting.

R. Kristoff asked if the Coast Guard has been contacted about this work. K. Peace responded that a determination of navigability will be necessary.

J. Brochi asked how nearby remediation sites will be addressed. K. Peace stated that the known sites are within 1,000' but not immediately adjacent to the proposed project. Although no impacts are expected, any potential issues will be addressed during the NEPA process.

K. Benedict asked how long the proposed trestle access structure would be in place, and J. Bicja replied that it would most likely be needed for two construction seasons. K. Benedict indicated that it may be necessary to request a waiver if the current limit for temporary impacts is one calendar year. The waiver request should include a statement that impacts to jurisdictional resources would be greater if the temporary trestle were removed between the construction seasons.

K. Benedict suggested assessing the feasibility of substituting a barge for the proposed trestle.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Bedford, #42268 (X-A004(797))

Chris Carucci described the project, a proposed culvert rehabilitation on the pipe carrying Bowman Brook under NH Route 101 and Boynton Street. The project is a federally funded culvert rehabilitation project. The proposed advertising date is August 18, 2020, with construction anticipated in summer of 2021. The culvert carries Bowman Brook under NH Route 101 and Boynton Street just east of the intersection of the two roads with NH Route 114. The crossing is a Tier 3 and has a drainage area of 3.94 square miles.

The existing culvert is a 90" diameter corrugated metal pipe and is 632' long with mitered ends. The slope of the culverts is about 1%. There is around 31' of fill over the pipe at Boynton Street and about 41' at NH Route 101. The depth of the fill and the heavy traffic are constraints for the project.

The pipe was originally constructed in 1961 at 540' long and was extended about 100' on the outlet end in 1996. The 1961 portion of the pipe is in very poor condition, with perforations along the sides and leaking joints. The 1996 portion of the pipe is not as deteriorated, but is heavily rusted along the bottom and lower sides. As of the last field review, the shape of the pipe was still round enough to allow rehabilitation.

The 1996 project included heavy stone armoring on the bed and banks of the stream at the outlet extending around 100' downstream. Some vegetation has grown through the stone and some sediment deposition has occurred as a result of erosion that is entering the culvert from a failed connection of an 18" pipe that is connected to the subject culvert and was constructed in 1961. The 18" pipe carries about 26 acres of overland and closed drainage flow from Boynton Street and several slope drains from NH Route 101 into Bowman Brook. The deterioration of the connection of the 18" pipe is significant, there is now a large hole where the two pipes previously connected.

The only listed endangered or threatened species is the northern long eared bat.

Bowman Brook is shown on the Wildlife Action Plan aquatic habitat layers, but no statewide or regionally highest ranked terrestrial habitats are shown in the area. It is tributary to the Merrimack River, so the project area will need to be evaluated for impacts to Essential Fish Habitat for Atlantic Salmon.

There are regulated 100 year floodplains (Zone AE) upstream and downstream of the crossing.

NHDOT coordinated with NH Fish & Game regarding fish passage. They had surveys at two sites downstream, finding numerous fish species, including brook trout. Avoiding work in September and October was recommended. Based on the length of the culvert and predicted velocity, the existing culvert is not passable in the upstream direction for most fish species.

There is no perch at the inlet or outlet of the pipe. Base flow within the structure is typically 8" to 18" deep.

A stream assessment was performed for Bowman Brook, resulting in a bank full width of 12.8' at the outlet. The upstream area is impounded scrub-shrub wetland, bank full width was not determined. The floodplain is about 150' wide and 2000' long with a shallow sinuous channel. Regional curves predict a bank full width of 24.4' for this crossing based on drainage area, resulting in a compliant structure span of about 32'. Due to the deep fill and high traffic counts, replacement with a compliant structure is not feasible or within the scope of the project. Other than tunneling, which is very expensive, the only practical way to construct a compliant structure would be an open cut of both roadways with phased construction.

Construction could be expected to take at least 2 years, with significant impacts to traffic and utilities. The 90" culvert has no history of flooding and there is no bypass other than overtopping Boynton Street. Hydraulic analysis is based on a 2009 FEMA Flood Insurance Study and associated backup information provided by FEMA. The FEMA Q100 of 710 cubic feet per second (cfs) was used for analysis (vs Streamstats Q100 of 578 cfs). The existing culvert passes the FEMA Q100 with headwater depth of about 15.5 feet.

The storage upstream of the structure is significant at approximately 71 acre feet (over 23 million gallons), reducing the flow through the culvert from 710 cfs to about 440 cfs.

The preferred alternative is a slipline treatment. The proposed design is slip lining with an 84" corrugated metal liner. The inlet end of the culvert would be shortened by about 12', replacing the mitered end with a more hydraulically efficient concrete headwall. The liner will also have a lower roughness coefficient than the existing culvert. The combined increase in efficiency will prevent any significant increase in headwater elevation that could result from the smaller diameter of the slipline. No effect on FEMA maps or downstream structures is anticipated.

The smaller diameter and smoother barrel will cause an increase in velocity at all flows through the pipe. For example, at a low flow of 10 cfs (9" deep) existing velocity is 4.2 feet per second (ft/s), increasing to 6 ft/s. At Q100, existing is 12.6 ft/s and proposed is 16.5 ft/s.

In the middle section (between NH Route 101 and Boynton Street), the failed 18" pipe connection is proposed to be replaced with a 24" pipe connection, and the eroded areas would be restored to the condition prior to the erosion. The existing stone lined channel from the Boynton Street closed drainage system is proposed to be extended to the bottom of the slope.

No permanent impact to the outlet channel is expected. The existing stone armor is adequate for scour prevention.

Temporary access roads will be required at the inlet, in the middle section and at the outlet. Any vegetation that is cut will be allowed to re-establish naturally. Water diversion will be through the existing 90" pipe unless otherwise approved as part of the Contractor's stormwater plan.

Construction is estimated to take 3 months. The estimated total disturbed area is approximately 38,500 square feet (sf) (0.88 acres). The proposed permanent wetland impacts are around 2,000 sf to regrade the middle area and there are no permanent channel impacts proposed. Temporary Wetland Impacts are estimated at 3,100 sf, temporary channel impacts are estimated at 1,725 SF (105 linear feet (LF)) and temporary bank impacts of 1,950 SF (145 LF). *[Numbers are proposed impacts at the time of the meeting. Final impacts pending final wetland impact plans and application submitted to NHDES.]*

Karl Benedict agreed that the alternative design seemed appropriate and commented that C. Carucci had laid it out well. He commented that it would be important to provide a narrative of how the existing pipe doesn't pass AOP. C. Carucci explained that the flow through the proposed slipline would be faster because the corrugation is less significant than the corrugation in the existing pipe.

Carol Henderson commented that the proposed corrugated metal slipline should provide some roughness within the new pipe. She said that Kim Tuttle would not be happy about the sliplining treatment, but that there is probably limited turtle passage here anyway. C. Carucci shared that the inlet areas is typically ponded.

K. Benedict asked if all of the impacts would be within NHDOT right of way (ROW) and C. Carucci responded that the project would be within the NHDOT and possibly the power line easement.

Rick Kristoff asked if there would be any loss of floodplain storage and C. Carucci responded that there would not be.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Stratford, #42555

Arin Mills, BOE Environmental Manager, described the project location as along Hog Back Rd in the town of Stratford. Hog Back Rd is a state maintained local road near US Route 3, and the slope failure is along the upper terrace along the Connecticut River. The project was described to include drainage improvements as well as slope repair to restore road connection with US Route 3. Drainage improvements were included in the project as the adjacent landowner identified drainage as a possible contributing element to the failure. It is speculated a natural groundwater seep is the primary contributing element to the failure. Arin described the Department was first made aware of the failure in 2013, and in 2016 the barrier was installed. A proposal was made to the landowner to repair the failure at that time and it was found to be unacceptable at that time. Additional attempts for a proposed repair were made in 2019, and they again were not found acceptable to the landowner. {In meeting Arin stated road was closed in 2016, it has been verified the road was closed in 2019} The Department has now scheduled a public hearing in April 2020 to condemn the land in order to make the repair and re-open the road. Construction is anticipated in 2021.

Arin reported the seep is overlaid by 'Adams Sandy loam', identified by NRCS as having a high erosion potential. Photographs taken in fall of 2019 were shown, as well as a short video to help the audience gain perspective of the site and surrounding landscape.

Jason Abdulla, NHDOT Project Designer, presented the project plans. It was explained that the project was designed to limit disturbance and areas shown include both the project area as well site access. Drainage improvements include installation of a closed drainage system to convey stormwater runoff along Hog Back Rd which outlets at the bottom of the slope. An alternative design plan was shown for relocation of the roadway away from the failure with a connection to US Route 3 further south. Jason described that the road relocation alternative was ruled out for a variety of reason, which includes additional impacts to wetlands, ROW land acquisition, impacts and cost for stabilization and re-connection, utility impacts and additional drainage concerns.

Jason described a basic construction sequence which includes mobilization, installation of perimeter sediment controls, tree removal and access road construction. Work will be done from the bottom of the slope up, with installation of stone at bottom of slope as well as underdrain and gravel blanket on the slope. Detail of the drainage was provided which also included an outlet stone apron dissipater where stormwater enters the floodplain.

Arin reviewed the anticipated temporary and permanent wetlands impacts and floodplain. She noted the floodplain drawn on the plans is drawn to the FEMA Base Flood Elevation based on contour elevation. Permanent impacts will be 555 sq. ft., temporary impacts of 1,532 sq. ft., with 322 sq.ft. of temporary impacts to floodplains. Permanent impacts are for the drainage outlet and keying in the gravel blanket at the bottom of slope. Temporary impacts are needed for site access and will be limited as much as possible during construction. Arin described the slope above the gravel blanket will be seeded with a standard slope seed mix. Jason said the impact areas shown is a 'worst case' scenario, and impacts may be able to be pulled back based on the site conditions.

Arin then reviewed the remainder of the findings from the Environmental review. Two wildlife, Wood turtle and Marsh wren, were identified via a NHB database search. Carol Henderson. stated standard BMP's for turtles, to include no plastic welded erosion control matting, would be appropriate. Arin said Amy Lamb of NHB had confirmed via email there were no concerns to plant species, Great St. John's wort, based on habitat conditions in the project area. No impact to federal species, 4(d) consistency letter obtained for Northern long eared bat and no habitat within project area for Canada lynx. No Priority Resource Areas (PRA) were identified within the project area using the Wetland Permit Planning Tool

(WPPT), however through NWI+ data review impacts to Forested Floodplain were expected. Cultural review determined ‘No Potential to Cause Effect’. No Alternation of Terrain required due to size, Construction General Permit and Stormwater Pollution Prevention Plan will be required.

Karl Benedict noted the impact to the Floodplain Forest at the toe of slope, which the floodplain of the Connecticut River is considered a PRA, and noted there is allowances within the rules for the temporary impacts proposed within the PRA. NHDOT Wetlands Program, Sarah Large and Andrew O’Sullivan, had previously met with Karl to discuss this topic and received confirmation at that time that DES would allow for classification and kick out allowances pertaining to temporary impacts to the PRA. Karl verified with the project team there is no increase in impervious surface and that stormwater shed and flows overland within the same footprint and direction as it currently does today, however the closed drainage will better manage the flow underground rather than contributing to surface flow and possibly contribution to the erosion and destabilization. Sarah further stated the current drainage will be perpetuated and there will be no redirection of surface water flow. Sarah clarified a standard application will be pursued at this time, although an EXP permit has not been ruled out if circumstances warrant. Lori Sommer confirmed no mitigation is required for the proposed work. Rick Kristoff, ACOE, recommended the permit application highlight there will be ‘no net loss’ to Floodplains as the Corp will need to have that as a finding.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Barrington, #16402 (X-A002(738))

Meli Dube, NHDOT Bureau of Environment, introduced the proposed project which is located at the crossing of US Route 4 over Caldwell Brook in the Town of Barrington approximately 0.3 miles west of the Lee traffic circle. The existing crossing is a 100’ long by 54” diameter corrugated metal pipe that has a history of overtopping the roadway and flooding adjacent areas including several private homes and driveways. The flooding concerns are the driving factor for DOT justification for the project, as the current structural integrity of the pipe is ranked as “fair.” Further evidence of the existing pipe being undersized include a perched condition and downstream scour pool, bank erosion and upstream sediment deposits. Aquatic organism passage at the existing culvert is ranked as “reduced” and geomorphic compatibility with the stream geomorphology is ranked as “mostly compatible.” Caldwell brook at the project area has a 2.1 square mile drainage area and is considered a Tier 3 stream crossing. The average bankful width is 14’, with reference reach bankful widths of 13’, 16’ and 13’. The floodprone width is 60’ which results in an entrenchment ratio of 4.6. According to Rosgen stream classifications, Caldwell Brook is considered “slightly entrenched” and an entrenchment ratio of 2.2 should be used as the multiplier when calculating a compliant structure size.

M. Dube showed photos of the inlet and outlet of the existing Caldwell Brook crossing. Carol Henderson, NHFG, noted that a metal grate was shown off to the side of the inlet and asked if this is typically placed in front of the pipe, which would be a barrier to AOP. Tobey Reynolds, NHDOT Bureau of Highway Design, stated that it’s not known how frequently or for how long of a duration the grate is in place but it’s possible that NHDOT Division of Highway Maintenance uses it during certain times of year. M. Dube noted that none of the pictures from various site visits over the course of several years show the grate in place blocking the structure, but that it is frequently blocked by woody debris deposited during flooding events and must be cleaned out. M. Dube described the known natural resources in the area. The most recent DataCheck performed by the NH Natural Heritage Bureau indicated that known records of American brook lamprey, American eel, banded sunfish, Blanding’s turtle and spotted turtle are located in the project area. NHFG has always previously identified Caldwell Brook as a cold water fishery for wild eastern brook trout and spring fed wild brook trout. Caldwell Brook is also included in the 2015 Wildlife Action Plan as a

“highest ranked habitat.” The project area is also located in the ranges of the northern long-eared bat and the small whorled pogonia, and appropriate consultation with the USFWS will occur as the project moves forward. Finally, the project area is within the protected buffer of the designated Oyster River.

M. Dube stated that the proposed project had previously been discussed at the March 20, 2013 Natural Resource Agency Coordination Meeting and gave a summary of the project development since that time. The alternatives previously presented included an 18' 3-sided continuous span structure, a 16' concrete box and a double pipe option, which was the preferred option. The 18' conspan and 16' box would adequately improve hydraulic capacity, AOP and geomorphic compatibility, however, they were not considered the preferred alternative at the time due to high cost associated with right-of-way, utility and traffic control impacts. The double pipe option included an 8' primary flow pipe embedded 3' to simulate natural stream bottom and a 5' concrete surge pipe to pass large storm events. This pipe was considered the preferred alternative because it adequately improved hydraulic capacity to pass a 100-year storm event and was more cost effective due to fewer impacts to ROW, utilities and traffic control. NHDES and NHFG expressed concern for AOP and geomorphic compatibility of the double pipe option given the valuable location for habitat connectivity at the project area. Project development was then put on hold from 2013 to 2018 due to funding constraints in the culvert program, alternative methods of funding were evaluated during this time. The Department prepared an ARM Fund Pre-Proposal Form during the Spring of 2018 with a proposed 19' span structure, which was considered compliant with the NHDES stream crossing rules at the time. The project was then combined with NHDOT Project #41475 to replace Bridge #181/047 carrying US Route 4 over the Oyster River just east of the Caldwell Brook crossing. This allows the Department to streamline design efforts, consolidate and minimize construction disruption and impacts and cohesively analyze the hydraulics for multiple crossings.

At this time, the Department is in the scoping phase and seeking feedback on the proposed 19' span structure in order to refine the scope of work moving forward. According to the new rules which dictate the use of the 2.2 entrenchment ratio, a fully compliant structure would be 32.8' in length, while the 19' structure was previously considered fully compatible. M. Dube stated that both a 19' 3-sided or 4-sided embedded structure would fully improve AOP, habitat connectivity, geomorphic compatibility, and hydraulic capacity to reduce the severity, duration and frequency of flooding events. Graphics showing improvements in the flood patterns in the project area from the existing structure at a 50-year storm to a 16' embedded box or 18' conspan with 1' freeboard at a 100-year storm reinforced that a 19' structure would result in even more dramatic improvements. The estimated cost of the 19' structure would be \$1.5 million due to increased costs associated with temporary widening, ROW impacts, traffic control and increased environmental impacts. Karl Benedict, NHDES Wetlands Bureau, acknowledged that a 19' structure is an improvement that would adequately address the concerns at the crossing and that proposing a larger crossing would be cost prohibitive. Either a 3-sided or 4-sided 19' span would likely be acceptable, however, it would require permitting as an alternative design and all considerations would need to be adequately addressed. Further study will determine whether the substrate in the area is better suited for a 3-sided or 4-sided structure and what kind of material would be required for stream simulation in the case of a 4-sided structure. L. Sommer requested that terrestrial wildlife crossing also be considered in the design of the culvert. **Recommendation for the wildlife crossing design were to design a bench or dry area through the structure during low flows and not a separate or secondary structure.*

L. Sommer inquired about the ARM grant application and the possibility of coordinating repairs with replacement of the downstream privately owned Topaz Drive over Oyster River crossing. Sarah Large, NHDOT Bureau of Environment, stated that due to the extra cost burden caused by the 19' structure which improves the crossing beyond what is hydraulically necessary, the Department would request that this size structure be accepted as eligible for ARM funds in the future. M. Dube explained that should additional mitigation be required for other components of the project, such as at the Route 4 over Oyster River

crossing, that the Department is willing to work with any necessary organization to determine if aiding the Topaz Drive work effort is feasible though there are significant challenges due to regulatory limitations for allocating federal money. M. Dube stated that several ideas have been discussed internally and offered examples of potential solutions including donating money directly to The Nature Conservancy to be used for the Topaz Drive crossing instead of the ARM fund. Rick Kristoff, USACOE, stated that the USACOE would likely challenge this approach as it does not follow the standard protocol which dictates the use of the ARM fund. Peter Steckler, The Nature Conservancy, stated that the project area is an important connection for terrestrial wildlife crossing as part of the Connect the Coast initiative. He stated that if any State funds are included in the funding for this project that it may be possible to leverage them for additional federal funds through a National Fish and Wildlife Foundation Grant and that projects addressing multiple high value crossings are more likely to receive those funds. M. Dube also discussed that the Department considers undue harm to downstream crossings during the design of projects. Jamie Sikora, FHWA, stated that federal funds may be able to be used to improve the privately owned crossing at Crummer Hill Road over Oyster River if the project were to make flooding at this location worse.

This project has been previously discussed at the 3/20/2013 Monthly Natural Resource Agency Coordination Meeting.

Woodstock, #27713 (X-A003(579))

NHDOT plans to rehabilitate the Bridge No. 177/148 carrying NH Route 175 over the Pemigewasset River in Woodstock. Vicki Chase from TRC Environmental introduced the project. The bridge connects US Route 3 with NH 175 in a predominantly rural / residential area, with a sewage treatment plant directly north and east of the bridge. Annual traffic count from 2013 was 600 vehicles/day.

Kim Smith from Hardesty and Hanover provided information about the bridge structure and condition. The bridge was built in 1939 and is a steel tied arch bridge with an open grid deck. The bridge has a 24-foot wide travel way with one lane each direction. The bridge is on NHDOT's red list and was recently posted with a 20-ton limit. The deck and substructure are listed as poor, substructure is satisfactory. The deck, stringers and floorbeams are deficient. Jamie Sikora asked about damage to the substructure depicted in a photo of the bridge, K. Smith said that NHDOT has been told the damage occurred during Tropical Storm Irene.

V. Chase provided a summary of resources at the site. The Pemigewasset River is greater than 4th Order, Tier 3 Stream with a 181 square mile watershed. There is a small intermittent tributary upstream of the bridge that will probably not be involved in the project. Wetland resources were delineated July 2019. The Pemigewasset River is designated under NH RSA 483, however this is a non-designated segment of the river. The bridge approaches and likely staging area lie within Protected Shoreland, and the assessment unit that includes the bridge is listed in the most recent 303(d) list as impaired for aquatic life by pH and aluminum. Because of the open grate deck, there is currently no treatment of stormwater on the bridge. NH Fish and Game fisheries had not yet commented on the bridge. [Carol Henderson provided feedback later in the meeting that there were no time of year restrictions that needed to be considered as long as the only in-water work was for scaffolding.]

NHNHB has reported that there is a high-gradient Rocky Riverbank System upstream of the bridge and a rare grass, *Calamagrostis stricta* spp. *expansa* in the vicinity of the bridge. The project lies within a FEMA mapped zone AE with base flood elevations. There is no mapped floodway at the bridge. The Pemigewasset is listed by NMFS as Essential Fish Habitat for Atlantic Salmon.

S. Large asked what alternatives are being considered. K. Smith said that NHDOT would like to close the deck to limit deterioration of all the steel members below. The open grid deck is lighter weight, and the effect of a heavier deck is being studied. They are still studying options for rehabilitation or replacement of the floor system. V. Chase commented that the project is in Phase 1, Preliminary Design and NEPA.

Matt Urban stated that he had been on site with the director and Administrator of bridge maintenance and commented that the open grate deck is anecdotally one of the worst he had seen. He also commented that there is a large bird nest on the bridge arch that is currently utilized by pigeons. V. Chase commented that ornithologists had thought it might be a raven's nest, but as Matt had noted was not currently in use.

M. Urban commented that permitting might fit under the new routine roadway notification process for bridge repair. Karl Benedict provided further guidance on the new rules.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Troy, #40371 (X-A004(371))

Steve Halloran presented an introduction and project overview for this bridge site. The project site involves the rehabilitation or replacement of a NH Red List bridge that carries NH 12 over the abandoned NH Railroad corridor, which is currently the Cheshire Rail Trail, in Troy, NH just north of the town common. The project purpose is improved public safety and removal of the bridge from the State Bridge Red List. The need for this project was explained to be the continuing advancement of deterioration of the bridge structure. The project is in the study phase exploring options and alternatives for either rehabilitation or replacement.

The current bridge is a two-span structure with a concrete deck supported by steel beams on stone masonry abutments and a concrete pier. The bridge crosses the Cheshire Rail Trail on a severe skew with a main span of 38'-6" and a second span of 24'-0". The bridge supports a northbound and southbound traffic lane for NH12 and a sidewalk on each side.

Rehabilitation and Replacement alternatives being considered were presented, supported by concept drawings and site photos as follows:

Rehabilitation: The rehabilitation option consists of a full concrete deck replacement, widening of the sidewalks, updating bridge rails, and cleaning and painting the steel stringers. This alternative would be achieved through staged construction.

Replacement: Two options for replacement are being studied. The first option includes removal of the existing concrete deck and steel beam superstructure and replacement with a new concrete deck supported by new steel beams. The span length would be a 62'-6" single span on top of rehabilitated abutments or a reduced span length of 30'-0" with new abutments constructed in front of existing abutment and pier.

The second replacement option includes construction of a precast concrete arch structure within the main span envelope and below the existing bridge, minimizing impact to NH12 traffic during construction. This option would eliminate the shorter existing span 2, with the current short span backfilled between the existing north abutment and new arch. Variations of this option are being explored relative to vertical clearance beneath the arch and traffic impacts.

Matt Lundsted presented information on resource areas at the site and NHB review. A small (less than 1000 square feet) wetland area exists in the proximity of the bridge/rail-trail corridor. The rail trail is the primary disturbed use of the area for this project and is mostly constructed of gravel. A Natural Heritage Bureau (NHB) Review was conducted and resulted in no species identified.

Concerns/Comments:

- Carol Henderson asked if a federal review was conducted for endangered species.
 - Matt Lundsted replied that the project was reviewed using the IPaC Tool which resulted with a “hit” for Northern Long Eared Bats. Carol mentioned that the NHB review showed no records of the bat at the project location, but would like to see a survey to confirm there are no bats within the project limits.
- Steve Halloran mentioned that one of the primary challenges for this project is traffic coordination during construction.
- Pete Steckler questioned what the pros/cons would be for a concrete arch structure with a single narrow barrel bridge vs. the current multi-span bridge. Are there wildlife passage and cover benefits associated with the heavily vegetated second span located outside the limits of the rail trail? A single span arch may impact or limit those benefits.
 - Steve Halloran replied that a secondary smaller structure would be explored in the area of the current second span for drainage and possibilities of wildlife passage.
- Karl Benedict asked what the hydrology feeding the wetland resource area is?
 - Matt Lundsted answered that stormwater does cross Prospect Street and outlet on the adjacent slope and may partially meander to the north and partially collect in that spot and is likely the source of that wetland.
 - Steve Halloran added that currently the second span of the existing bridge acts as a drainage swale carrying water from this area northeasterly along the rail-trail corridor.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Troy, #40370

Steve Halloran presented an introduction and project overview for this bridge site. The project site involves the rehabilitation or replacement of a NH Red List bridge that carries NH 12 over the South Branch Ashuelot River, in Troy, NH near its northern border. The project purpose is improved public safety and removal of the bridge from the State Bridge Red List. The need for this project was explained to be the continuing advancement of deterioration of the bridge structure. The project is in the study phase exploring options and alternatives for either rehabilitation or replacement.

The current bridge is a single span concrete rigid frame structure. The bridge crosses the South Branch Ashuelot River with a clear span of 32'-0". The bridge supports a northbound and southbound traffic lane for NH12 with no sidewalks.

Rehabilitation and Replacement alternatives being considered were presented supported by concept drawings and site photos as follows:

Rehabilitation: The rehabilitation option consists of a full deck replacement while retaining the existing frame legs and wingwalls. This rehabilitation concept is similar to what was constructed at the NH12 bridge a short distance to the north. This alternative would be achieved through staged construction.

Replacement: Full replacement options would consist of a pre-fabricated superstructure with an increased span length with new abutments constructed behind existing. This option considers retaining the lower

portion of the existing abutments and maintaining current low flow configuration. A replacement structure will consider span length requirements identified in the Stream Crossing Guidelines. Stream work has not been completed yet but will be done to inform the design alternatives and preferred solution. A reference reach still needs to be established and will be used to determine required bankful width and ultimately required span length. It is estimated that a 50ft-60ft span (1.2 X bankful +2') would be needed for compliance.

Matt Lundsted presented information on resource areas at the site and NHB review. The South Branch Ashuelot River is steep, confined within valley walls within this reach and cascading within the project area. Several large stones have been deposited within the project area due to the narrow river channel and high flow velocities. The main resource area identified is the river Ordinary High Water (OHW) with Top of Bank (TOB) and/or adjacent associated delineated wetlands (DW). Tributaries entering are either drainage channels or very small stream (intermittent; likely lower than 4th order). A Natural Heritage Bureau (NHB) Review was conducted and resulted in no species identified. Although there were no NHB "hits", the IPaC identified that the Northern Long Eared Bat is a species of concern.

Concerns/Comments:

- It could be challenging to meet full span crossing requirements due to the proximity of the intersecting road (Lawrence Road) and the steepness of adjacent banks and valley topography.
 - It is likely the crossing will go as an alternative design meeting crossing standards to the maximum extent practical (MEP) but a full stream study will be completed to help determine alternatives.
- It was noted that this site is within the priority areas of the wildlife action plan. It was suggested that some kind of wildlife shelf be included in an alternative design.
 - Carol Henderson suggested that any wildlife shelves proposed for wildlife passage do not have to be concrete.
 - Matt Lundsted responded that we could cut a terrace into the slope as an alternative to a concrete shelf.
- It was requested that bat survey be performed.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Keene, #42515 (X-A004(887))

Nick Sceggell (DuBois & King) provided an overview of the project. The City of Keene has received funding through the TAP grant program. The grant will fund the construction of roadway and street-scape improvements on Marlboro Street to improve service and safety for the community's diverse transportation needs. Nearly all of the work is anticipated to be located within the existing right of way limits. An engineering study has already been completed.

A portion of the project also includes connecting the Cheshire Rail Trail to Marlboro Street. Three alternatives were presented to the City: Alternative 1 - no build, Alternative 2 - use of existing sidewalks and additional roadway crossings, and Alternative 3 - around the perimeter of the parking lot. The city prefers Alternative 3. Two small wetlands are in the vicinity of Alternative 3, wetland "B" is a potential vernal pool (review done in August). The primary function of both wetlands is groundwater recharge. Matt Urban asked if the vernal pool was naturally occurring or man-made, N. Sceggell replied that the city has looked into it, but no documentation was found of it being man-made.

The proposed trail is close to the wetlands, but no wetland impacts are anticipated. The plan is to work with the City for a waiver on their wetland buffer requirements.

Two NHB reviews were done, the first was submitted only for the DPW property which had no known species. The second was submitted for the entire roadway project which is when the Common Nighthawk and Wood Turtle were identified. Kim Tuttle has asked to not vegetate the existing gravel trail though the project area because it is a potential nighthawk habitat. The City is willing to consider creating habitat. However, the City believes that the existing trail is made up of compacted asphalt millings and is not a suitable habitat for the nighthawk.

Carol Henderson asked what the City intends on doing with the existing gravel trail, N. Sceggell responded that they are currently unsure and are coming up with ideas specific to where the trail crossed the existing graveled area. The most likely scenario is that the compacted asphalt millings will be removed and used as fill for the proposed trail, and the area will be loamed and vegetated.

M. Urban asked if any of the proposed project was with a floodplain area, N. Sceggell replied yes, but there will be no net change in flood elevations. Work in the floodplain area will be done inside existing curbed areas.

Lori Sommer confirmed there would be no floodplain storage loss, N. Sceggell agreed, the City would also like to enhance the existing stormwater collection system.

L. Sommer continuing on the nighthawk subject, suggested that there are two large buildings nearby, and asked if gravel could be added to the roof of the buildings to enhance the nighthawk habitat. N. Sceggell responded that it was a possibility and he would talk to the city about it, but he was unsure about the structural aspect and how it would affect the building. Also, only one building is owned by the City and the others are privately owned. L. Sommer suggested maybe just a portion of the roof could become gravel. C. Henderson commented that since the Wood Turtle was identified by NHB, wildlife friendly erosion controls should be used.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Woodstock-Lincoln, #42534 (X-A004(896))

Jennifer Doyle-Breen, AECOM, provided an overview of the project site and scope. The project scope is to repair the southern pier of the bridge that carries NH Route 175 over the Pemigewasset River (195/093) in the Town of Woodstock. Sediments have continuously been deposited upstream, resulting in the river veering towards the southwest and scouring the southern pier (Pier 1). Up to 15 feet of scour has occurred since the bridge was built in 1975. The upstream pile cap is undermined, and the steel H-piles are vertically exposed up to 4.5 feet. Calculations indicate that future scour could increase up to 17.5 feet below the existing streambed if no measures are implemented to stabilize the bridge pier.

Todd Dwyer, AECOM, discussed the potential scour repair alternatives. One of the alternatives entails installing sheet piles around the pier where scour has occurred to a depth below the current scour hole, and then backfilling the void inside of the sheet piles with either gravel or concrete. This option can be implemented under either dry or wet conditions. Dry sheet pile installation would involve installing temporary cofferdams upstream and downstream of the work area to direct water from the main channel of the Pemigewasset River into the side channel to the southwest, and thereby create a dewatered, dry area around the southern pier. The other sheetpile alternative involves working under wet conditions while the

river is flowing and accessing the work area via a temporarily installed trestle from the east bank of the river. For either sheetpile alternative, splicing of sheetpiles may be needed due to the depth of the scouring.

The other options involve placing grout bags around the existing pier under wet, low flow river conditions and backfilling the scour hole below the pier with tremie concrete pumped from the bridge deck and grouting the voids. These last two alternatives would entail placing either rip-rap stone or A-Jacks concrete around the pier to restore the previously placed stone fill. Both countermeasure alternatives would be installed under wet conditions and would involve the same access trestle from the eastern bank as the wet sheetpile alternative. There is an existing access road on the eastern bank of the river that would be utilized up to the river edge.

J. Doyle-Breen discussed natural resources that are present in the project site. The watercourse boundaries were delineated in the field by a NH Certified Wetland Scientist (CWS), and this boundary is represented by flags placed in the field and picked up by a surveyor, however, it was not clearly demarcated as to whether this line was intended to be the Ordinary High Water (OHW) or the Top of Bank (TOB) or both (OHW/TOB). In addition, the surveyor identified the water level on the day that fieldwork was completed. These two areas were depicted on a figure in solid blue and blue hatching, and do not match exactly, as the CWS boundary depicts a greater area than the surveyor-identified water level. J. Doyle-Breen said that NH Fish and Game (NHFG) indicated that there are wood turtles in the vicinity of the project site. The project area is also within the habitat range of the northern long-eared bat (NLEB) and the river supports other non-protected aquatic life. The site is located within the 100-year floodplain and floodway of the Pemigewasset River. J. Doyle-Breen stated that the Pemigewasset River is protected as a Designated River but the location of the project site within the river is excluded from the protected corridor. J. Doyle-Breen detailed the estimated areas of permanent and temporary d. No impacts to vegetated wetlands are anticipated but impacts to watercourse and bank are anticipated.

Matt Urban, NHDOT Bureau of Environment, asked if the impact area estimates presented were based off the surveyor water level or CWS-delineated watercourse boundary. J. Doyle-Breen clarified that the preliminary impact estimates assumed that the surveyor water level represents the OHW and the CWS-delineated boundary represents the TOB. M. Urban stated that it should be assumed that the CWS-delineated boundary represents the OHW, or possible the OHW/TOB and should be labeled as such on the plans. The surveyor observed water level lines should be removed from the plans. J. Doyle-Breen will seek clarification from the CWS regarding the previous delineation and appropriately update the plans and impact areas.

Carol Henderson, NH Fish and Game, asked about sheet pile walls in dry conditions and asked if estimates for diverting the river to the smaller channel were accounted for in the impacts. J. Doyle-Breen said yes and then showed the table that shows the estimate but noted that the area of watercourse impact needed to be modified to correctly reflect the CWS flagged edge of watercourse and not bank.

J. Doyle-Breen noted that the dry alternative would facilitate equipment access and sheetpile installation and would allow a quicker construction period than the wet alternatives. All the wet alternatives would include the construction of the same trestle access from the eastern bank as the wet sheetpile alternative. There is an existing access road on the eastern bank of the river that would be utilized up to the river edge. Melilotus Dube, NHDOT Bureau of Environment, and Bill Saffian, NHDOT Bureau of Bridge Design, noted that based on previous discussions that day, the permitted impact for the trestle would be required to encompass the entire outline of the trestle, including the battered piles and not just the support piles, since means and methods cannot be dictated to the contractor. The permit application would acknowledge that impact area may be less. The contract documents would require the contractor to remove all component of the trestle at the end of construction.

Regarding the “dry” installation alternative involving installation of cofferdams to divert flow from the Pemigewasset mainstem to the western channel, Karl Benedict, NHDES Wetlands Bureau, expressed concern about the duration of work, maintenance of low flow condition, and impacts to aquatic life in the Pemigewasset River. K. Benedict also asked about the scour impacts to the smaller channel used for the diverted water and requested that impacts to the side channel be evaluated. He also asked about how the water quality in the river would be protected for work during wet conditions and noted that NHDES has not seen a lot of success with use of silt curtains, and it is likely that the work area would need to be isolated with cofferdam sheetpiles for any of the alternatives.

Rick Kristoff, US Army Corps of Engineers, mentioned that the project location is listed as an Essential Fish Habitat for the Atlantic Salmon and to consult with the National Oceanic and Atmospheric Administration.

Regarding the grout bag alternative involving placement of rip-rap stone around the pier, C. Henderson asked what would be done to ensure that the Class A stone would stay in place. T. Dwyer stated that this alternative would involve ongoing maintenance, as compared to the sheetpile alternative that would provide a more permanent solution. B. Saffian also indicated that the size of stone versus rip-rap would be specified to the contractor based on the scour calculations, so that the appropriate size of material would be placed to minimize movement.

Andrew O’Sullivan, NHDOT Bureau of Environment, stated that if grout was going to be added in the A-Jacks that measures would need to be included to make sure that the pH level does not increase.

B. Saffian asked whether the dry sheetpile alternative would be allowable or not. K. Benedict and C. Henderson stated that the cofferdam/dry alternative would have to be reviewed by NHFG and the DES Watershed Assistance Section to see if it is viable. K. Benedict indicated that the dry sheetpile alternative is not prohibited per se but needs to be vetted with NHFG and the NHDES Watershed Program regarding low flow requirements and the duration of how long the river would be dewatered would be a factor. C. Henderson said that the cofferdam idea is harder to sell than doing work in the dry and that in general NHFG would not recommend the cofferdam alternative involving river dewatering, but the decision would be up to NHDES. She indicated that duration of dewatering would be a factor and asked about the difference in project length for the wet versus dry options. T. Dwyer indicated that a construction schedule had not yet been fully developed but based on experience conducting work under wet conditions it might take three to four months, whereas work under the dry, de-watered conditions might take half that time. C. Henderson pointed out that the river dewatering option would require evaluating impacts to side channel, including scour and flooding. She also indicated that the time of year of dewatering would be a factor as NHFG would not want river dewatering to occur during peak spawning season for species such as bass or trout. All of these issues would require evaluation before NHFG could provide a final recommendation. C. Henderson also indicated that if the dry/cofferdam alternative were recommended, then NHFG would request that a survey be completed to identify whether mussels were present in this area of the river, and if so, that they be moved prior to work occurring. B. Saffian suggested that a less impactful dewatering alternative could be to place cofferdams such that water flow is directed to the southwest side of the river, leaving the area on the northeast side dry to create a work area around the pier.

J. Doyle-Breen listed the anticipated permits required. Due to affecting greater than 200-linear feet of a watercourse, a NHDES Major Impact Standard Dredge and Fill Permit will be needed. Discussion was held regarding whether impacts to the protected shoreland could be permitted via Permit-by-Notification (PBN). AECOM will review the impact limitations for PBN; the only portion of the project that would require shoreland permitting would be a relatively small area upslope of the CWS watercourse boundary on the

northeast side of the river and the existing access road that parallels Route 175 perpendicular to the river, which would provide access from the road. The project will require a USACOE Pre-Construction Notification in order to qualify under the NH General Permit 2 regarding repair and maintenance of existing structures and fill. J. Doyle-Breen indicated that during consultation with NH Fish and Game as part of the Natural Heritage Bureau DataCheck follow-up, Kim Tuttle, NH Fish and Game requested that to mitigate impacts to wood turtle, lining of the entire channel width with angular rip-rap be avoided and use of polypropylene erosion control measures be avoided. J. Doyle-Breen indicated that the cofferdam/dry construction option had not been vetted with NHFG and that further consultation would occur if this option were to be advanced. Consultation with the US Fish and Wildlife Service resulted in a “No Effect” determination for NLEB under the 2018 Federal Highway Administration, Federal Rail Administration, and Federal Transit Administration Programmatic Biological Opinion. Consultation with NH Division of Historic Resources is underway.

All temporarily disturbed areas for construction access would be restored and therefore would not require mitigation. Because the project involves replacement of previous fill, the compensatory mitigation exemption for repairing/maintenance of previous fills was assumed to apply and that mitigation for fill around the pier itself would not be required. Lori Sommer, NHDES Wetlands Bureau, was not present and K. Benedict suggested following up with her to confirm whether the compensatory mitigation exemption applies. T. Dwyer mentioned that there may be a potential future need for bank stabilization on the southwestern bank where scouring has also occurred. K. Benedict indicated that if needed, the decision process outlined in the wetland regulations would need to be followed to determine if natural bank stabilization were possible prior to proposing placement of rip-rap on the bank. In the event that mitigation is required, the Town of Woodstock has been contacted to identify whether there were any identified priority mitigation projects, and none had yet been identified based on consultation with the Town to date. It was also mentioned that the Coast Guard should be consulted regarding proposed work on the bridge.*

*Subsequent to the meeting, the Coast Guard confirmed that the Pemigewasset River is considered a navigable waterway and appropriate consultation would be required.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.