

Federal Highway Administration
Record of Decision
FHWA-NH-EIS-07-01-F
Derry-Londonderry
IM-0931(201)
13065
I-93 Exit 4A
Rockingham County, New Hampshire

1.0 DECISION

1.1 Summary

This Record of Decision (ROD) is for the proposed Interstate 93 (I-93) Exit 4A Project (Project). The Project, located in the Towns of Derry and Londonderry (the Towns), includes construction of a new interchange with I-93 (known as Exit 4A) and other transportation improvements to reduce congestion and improve safety along State Route 102 (NH 102), from I-93 easterly through downtown Derry, and to promote economic vitality in the Derry/Londonderry area.

Based on the information presented in the 2007 Draft Environmental Impact Statement (DEIS); 2018 Supplemental Draft Environmental Impact Statement/Section 4(f) Evaluation (SDEIS); the 2020 Final Environmental Impact Statement (FEIS); all technical reports and supporting documentation incorporated by reference in the DEIS, SDEIS, and FEIS; and consideration of input received from other agencies and the public, the Federal Highway Administration (FHWA) has selected Alternative A for implementation. Alternative A is the environmentally preferred alternative because it best balances the need for the Project with social, economic, and natural environmental concerns. In addition, the Selected Alternative is in the best overall public interest, in accordance with 23 U.S.C. 109(h).

Initially enacted in 2012, the Moving Ahead for Progress in the 21st Century (MAP-21) regulations include several provisions designed to accelerate decision-making in project delivery, such as encouraging concurrent issuance of an FEIS and ROD. Consistent with the MAP-21 provisions and 23 CFR 771, the FHWA has determined that a combined FEIS and ROD is appropriate for the Project (see Section 1.5 of the FEIS, Volume I, for a discussion of the factors considered in the decision to issue a combined FEIS/ROD).

This ROD describes the Selected Alternative, summarizes the rationale for the selection, describes measures to minimize harm, and discusses monitoring of such measures.

1.2 Description of the Selected Alternative

The Selected Alternative (Alternative A) includes a corridor that is approximately 3.2 miles in length between the new, proposed I-93 Exit 4A interchange and eastern Derry. There would be approximately 1 mile of roadway construction on a new alignment and 2.2 miles of existing roadway reconstruction. It would originate from the southern I-93 Exit 4A interchange location, situated approximately 1 mile north of the existing Exit 4, and travel east along new alignment through a wooded area to Folsom Road, near its intersection with North High Street and Madden Road. This alternative would continue to follow Folsom Road to Ross' Corner (Manchester

Road/Crystal Avenue [NH 28]) and continue on Tsienneto Road across the NH 28 Bypass to its intersection with NH 102 (Chester Road), adjacent to Beaver Lake.

Alternative A is described in detail in Section 3.6.2 of the FEIS, Volume I, and illustrated in Figures 3.6-1 and 3.6-2 of the FEIS, Volume II, and includes the following features:

- Construction of a new diamond interchange located approximately 1 mile north of existing Exit 4 that would receive and direct traffic to the east side of I-93.
- Construction of approximately 1 mile of new roadway. This roadway would travel across currently undeveloped land to Folsom Road near its intersection with North High Street. This new roadway would be 72 feet wide from side to side and would include four travel lanes that would be 11 feet wide, with an 18-foot median to accommodate turn lanes with raised islands, and 5-foot shoulders.
- Reconstruction and improvements to approximately 2.2 miles of existing roadway, including sections of North High Street, Folsom Road, and Tsienneto Road, as well as sections of Franklin Street Extension, NH 28, Pinkerton Street, NH 28 Bypass, and NH 102. Specific improvements for each roadway segment are described in Section 3.6.2 of the FEIS, Volume I, but would generally include the addition of turning lanes, through-traffic lanes, traffic signals, and minor changes in roadway geometry.

2.0 ALTERNATIVES CONSIDERED AND BASIS OF DECISION

2.1 Description of Alternatives Considered

As outlined in the SDEIS and summarized in the FEIS, five Build Alternatives were developed from conceptual corridors through an iterative process, which included substantive public involvement. The five Build Alternatives (A, B, C, D, and F) and the No Build Alternative are summarized below and described in detail in Chapter 3 of the FEIS, Volume I. In addition, transportation system management and transportation demand management alternatives were considered and dismissed from further evaluation.

The No Build Alternative assumes that no major new construction would occur except for projects that are already planned and programmed. The planned and programmed transportation projects included in the traffic model for the No Build Alternative were identified from the fiscal year (FY) 2017–2020 Transportation Improvement Program, FY 2017–2026 Ten-Year Transportation Improvement Plan, and 2017–2040 SNHPC Regional Transportation Plan. In addition, as noted in the *Land Use Scenarios Technical Report* (Appendix B to the FEIS), known developments and background population and employment growth projected through 2040 are included in the No Build Alternative.

In addition to Alternative A, described in Section 1.2, Build Alternatives B, C, D, and F were considered.

Alternative B is approximately 3.4 miles in length between I-93 and eastern Derry (see Figures 3.6-3 and 3.6-4, FEIS, Volume II). With the exception of an 800-foot-long section of Ashleigh Drive that would be reconstructed, the remaining 3.2-mile corridor would consist of roadway construction on new alignment. It would originate from a new southern I-93 Exit 4A interchange, approximately 1 mile north of Exit 4, and travel northeast along a new alignment through a

wooded area to the intersection of Ashleigh Drive and NH 28. From this intersection, this alternative would extend northeast towards the intersection of London Road and the NH 28 Bypass and then continue on new alignment to the intersection of Tsienneto Road and NH 102.

Alternative C is approximately 3.7 miles in length between I-93 and eastern Derry (see Figures 3.6-5 through 3.6.7, FEIS, Volume II). Approximately 2.9 miles of corridor would be on new alignment, while approximately 0.8 mile would reconstruct existing roadways. The alternative would start from a new northern I-93 Exit 4A interchange, approximately 1 mile south of Exit 5, and travel east approximately 0.7 mile along a powerline right-of-way (ROW) to NH 28. Following NH 28 south to the intersection of Ashleigh Drive, it would follow the same alignment as Alternative B to the intersection of Tsienneto Road and NH 102.

Alternative D is approximately 3.9 miles in length between I-93 and eastern Derry (see Figures 3.6-8 through 3.6-10, FEIS, Volume II). Within this corridor, approximately 0.8 mile would be on new alignment, and 3.1 miles of existing roadways would be reconstructed. The alternative would commence from a new northern I-93 Exit 4A interchange, approximately 1 mile south of Exit 5, and travel east approximately 0.7 mile along a powerline ROW to NH 28. Following NH 28 south to Ross' Corner, the corridor would then follow the same path as Alternative A to the intersection of Tsienneto Road and NH 102.

Alternative F focuses all improvements along the existing NH 102 corridor between Exit 4 at I-93 and downtown Derry (see Figures 3.6-11 and 3.6-12, FEIS, Volume II). A two-way center left-turn lane would be constructed from Londonderry Road to Crystal Avenue/Birch Street (NH 28). The majority of existing on-street parking spaces would be lost to accommodate the center-turn lane.

Using a consistent cost estimating method for purposes of comparing among alternatives, the construction and transmission line relocation cost of Alternatives A, B, C, D, and F is \$39.65 million, \$41.33 million, \$42.26 million, \$40.33 million, and \$4.3 million, respectively.

2.2 Basis of Decision

FHWA identified Alternative A as the Selected Alternative based on the results of engineering, environmental, and socioeconomic studies. Alternative A represents a balance of traffic performance, economic development potential, and environmental impact considerations.

The No Build Alternative and Alternative F do not meet the purpose and need of the Project. Even with the upgrades to the existing roadway under Alternative F, traffic in downtown Derry would increase 16 percent compared to the No Build Alternative (see Appendix C: Traffic Technical Report, Table 7). Additionally, Alternative F would not contribute to economic development. Alternatives C and D would reduce traffic in downtown Derry but would not have the same potential for encouraging economic development as Alternative A and B because of the lack of developable land near the northerly interchange location (see FEIS Section 5.2.5 and Appendix B: Land Use Scenarios Technical Report).

Alternative A and B would both address the transportation and economic development aspects of the purpose and need. However, Alternative A's performance is superior to Alternative B with respect to total cost (including utilities), number of lane miles requiring deicing salt application (7.6 new lane miles with Alternative A compared to 11.1 with Alternative B), fewer residential full acquisitions (14 with Alternative A compared to 19 with Alternative B), and less impact to Derry's Rider Fields (a Section 4(f) parkland resource). Alternative A would have greater

impacts to commercial properties (3 total acquisitions compared to 2 under Alternative B), and business displacements (26 compared to 11 under Alternative B). See FEIS Table 3.7-1.

Overall, Alternative A also has the least natural resource impacts out of the alternatives that address the purpose and need for the Project. Specifically, Alternative A has substantially fewer total vegetated wetland impacts (4.85 acres compared to 10 acres for Alternative B), fewer floodplain impacts (0.45 acre of 100-year floodplain encroachment compared to 0.90 acre with Alternative B), and fewer habitat impacts (15.37 acres of Wildlife Action Plan Supporting landscapes compared to 22.49 acres with Alternative B). Alternative A would have greater impacts than Alternative B in terms of stream channel impacts and acreage of vernal pools impacted; however, Alternative B would affect one more vernal pool than Alternative A.

The Selected Alternative is included in Amendment #1 to the Southern New Hampshire Planning Commission (SNHPC) FY 2019-2022 Transportation Improvement Program (TIP) and the FY 2019-2040 Metropolitan Transportation Plan. Amendment #1 was approved by SNHPC on July 23, 2019, and the project cost included in the fiscally constrained TIP and Plan was \$53.6 million. As a result of additional design development and inclusion of additional project costs, the cost estimate for the Project has increased. The current (2019) cost estimate for the Selected Alternative is approximately \$92 million, including preliminary engineering, final design, ROW/relocations, utilities, construction, and wetland mitigation (in-lieu fee payment). The Project is included at a commitment of up to \$95.7 million in the New Hampshire Department of Transportation's (NHDOT's) 2021–2030 Draft Ten-Year Plan submitted to the Governor's Advisory Commission on Intermodal Transportation. Once the updated 10-year plan is approved by the Governor and Legislature (anticipated in June 2020), it will be incorporated in SNHPC's next TIP update.

3.0 SECTION 4(F)

3.1 Section 4(f) Resources

As detailed below, Section 4(f) compliance for the Selected Alternative has been completed and involves a Programmatic Net Benefit Section 4(f) Evaluation, which applies to the M&L Railroad Historic District, and *de minimis* impact findings for the E.F. Adams House, the Knapp Brothers Shoe Manufacturing, and the Rider Fields properties in Derry. A Section 4(f) determination is not required for the Palmer Homestead because it meets the conditions of temporary occupancy. The potential late discovery of Section 4(f) resources during construction or potential final design changes affecting Section 4(f) resource impacts will be processed according to the Section 4(f) late discovery requirements (23 CFR 774.9(c) and Memorandum of Agreement (MOA) Section V: Post-Review Discoveries (Appendix K: Cultural Resources).

3.1.1 Historic Resources

Three districts and 23 individual properties were determined eligible for the National Register of Historic Places (NHRP) (see Table 7.3-1 in the FEIS, Volume I). Through the Section 106 process (National Historic Preservation Act), the Project's effect upon them was determined, and mitigation was proposed. This effort was conducted by the FHWA, NHDOT, Town of Derry, and State Historic Preservation Officer (SHPO). The result was a Section 106 MOA (see Appendix K), which documented the Selected Alternative's effects on and mitigation for the following properties that were determined eligible for the NHRP, that was endorsed by the FHWA, NHDOT, Town of Derry, and SHPO.

- Palmer Homestead
- E.F. Adams House
- Knapp Brothers Shoe Manufacturing
- M&L Railroad Historic District

The temporary effects to the Palmer Homestead meet the conditions of temporary occupancy exemption from Section 4(f) as listed in 23 CFR 774.13(d). A finding of *de minimis* 4(f) impact applies to the E.F. Adams House and Knapp Brothers Shoe Manufacturing because proposed easements and ROW acquisition would result in no adverse effects under Section 106. Finally, FHWA's Programmatic Net Benefit Section 4(f) Evaluation applies to the M&L Railroad Historic District because the project includes all appropriate measures to minimize harm and enhance the railroad corridor's historic features and qualities, and these measures have been agreed on with FHWA, NHDOT, and the New Hampshire Division of Historical Resources (NHDHR) (specifically interpretive signage and rail trail underpass aesthetic treatment). NHDHR and NHDOT concur with FHWA's finding that this undertaking is a Net Benefit to the M&L Railroad Historic District under Section 4(f) due to its measures to minimize harm to the historic district by allowing the continuity of the M&L Railroad, even if off-alignment (see the signed Effects Memo and MOA located in Appendix K).

No known archaeological resources eligible for the NRHP would be disturbed by the Selected Alternative. To mitigate for potential impacts to three areas of archaeological sensitivity (two pre-contact Native American sensitive areas and one historic-era sensitive area), Phase IB archaeological testing will be conducted during final design. Additionally, any further investigations determined necessary based on the Phase IB (e.g., Phase II, Phase III) will be conducted. FHWA and NHDHR will be consulting throughout all necessary phases of archaeology. All final mitigation stipulations are formalized in the MOA (Appendix K). Impacts to NRHP-eligible archaeological sites are exempt from Section 4(f) requirements if the site is determined to be valuable for the information that can be gained through data recovery as opposed to preservation in-place (23 CFR 774.13(b)). Assuming any resources encountered would be valuable primarily for data recovery, no further Section 4(f) compliance steps would be necessary. If a resource requiring preservation in-place is unexpectedly encountered during the subsurface testing or during construction, Section 4(f) analysis of feasible and prudent avoidance options would be conducted at that time and coordinated with FHWA and NHDHR in accordance with 23 CFR 774.9(e).

3.1.2 Recreational Resources

Thirty-five of the 49 recreational properties identified within the study area are potentially subject to the provisions of Section 4(f) of the USDOT Act of 1966 (see Table 7.3-2 in the FEIS, Volume I, and Figure 4.19-1, in the FEIS, Volume II).

The Selected Alternative would permanently impact 0.02 acre of the Rider Fields property (Site #8 on Figure 4.19-1), a 21-acre Section 4(f) resource owned by the Town of Derry that includes athletic fields, parking facilities, and undeveloped land. A finding of *de minimis* impact applies because none of the protected activities, features, and attributes of Rider Fields would be adversely impacted on a permanent or temporary basis. The impacted area is located adjacent to Tsienneto Road in an area of the property not used for recreation and 300 feet from the sports fields to the north that constitute the primary recreational area of the park. The Town of Derry

acting as the official with jurisdiction has concurred in writing with the *de minimis* impact finding (see Section 7.6 of the FEIS, Volume I, and Appendix A of the FEIS, Volume III). NHDOT will coordinate with the Town of Derry to move the mailbox and sign for the Upper Room Family Resource Center and to replace the stone walls and vegetation that would be impacted by the Project.

3.2 Measures to Minimize Harm

Mitigation measures for the M&L Railroad Historic District are as follows:

- Encourage preservation of the rail corridor by constructing an underpass and 900-foot path (Figure 7.5-1 in the FEIS). This will enable trail construction to the north as part of a separate future project by others, which in turn will help protect more of the historic district from other development.
- Interpretive Signage – NHDOT will work with the Town and the Derry Heritage Commission, to develop an interpretive panel that will focus on the history of the Manchester-Lawrence Railroad, and its association to the Town of Derry. The panel’s content and material will be prepared by a 36 CFR 61-qualified architectural historian. The SHPO will be provided an opportunity to review one draft of the panel’s content with a review period of 30 days. Upon approval of the panel, it will be fabricated and installed at a location to be determined in consultation with the Town of Derry, preferably along the rail trail near the new crossing. Digital copies of the panel will be provided to NHDOT and the Town of Derry.
- Rail Trail Underpass Aesthetic Treatment – NHDOT, and its consultant, will work with the Town of Derry on the aesthetic treatment of the newly constructed underpass headwalls. The concrete will be stamped with a faux-stone design that will be chosen in consultation with the Town. The style of lighting will be chosen in consultation with the Town.

3.3 Section 4(f) Coordination

The Project development process has included numerous opportunities for public input on Section 4(f) resources and impacts, including three public information meetings preceding the 2018 SDEIS and the SDEIS Public Hearing and comment period. Engagement with NHDHR and other consulting parties regarding historic resources has occurred through adherence to the Section 106 process, including NHDHR concurrence on the effect determinations and measures to minimize harm through the preparation of an MOA. For more information on Section 4(f) coordination, see Section 7.6 of the FEIS, Volume I.

3.4 Prudent and Feasible Avoidance Alternatives

The Section 4(f) Evaluation in Chapter 7 of the FEIS, Volume I, documents that there are no prudent and feasible alternatives to the use of land from Section 4(f) properties, and the Selected Alternative includes all planning to minimize harm to these properties resulting from such use.

4.0 ENVIRONMENTAL COMMITMENTS

The following subsections provide a summary of the environmental commitments that would be implemented by the lease agencies based on Chapter 4 of the FEIS.

4.1 Noise

Based on the studies completed to date (FEIS Section 4.5 and Appendix E: Noise Technical Report), NHDOT is committed to the construction of feasible and reasonable noise abatement measures at the two general locations. The anticipated abatement measures for each location are described below.

- Trolley Car Lane (North and South) – two discontinuous barriers with a combined length of approximately 2,700 feet and an average height of approximately 13.5 feet along southbound I-93 in the proposed Exit 4A interchange area (Figures 4.5-4 and 4.5-5, FEIS, Volume II).
- Seasons Lane – a single barrier approximately 3,000 feet in length with an average height of approximately 18.1 feet along northbound I-93 in the proposed Exit 4A interchange area (Figure 4.5-6, FEIS, Volume II).

4.2 Socioeconomics

The Selected Alternative is expected to require approximately 9 full residential and 4 full commercial/ industrial property acquisitions, potentially resulting in 14 residential relocations and 25 business displacements (see FEIS Section 4.7.2). NHDOT will complete the private property acquisitions in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (24 CFR 49) and NHDOT's ROW Manual (NHDOT, 2011). Relocations and displacements associated with the Selected Alternative would not be disproportionately borne by minority or low-income populations (see the environmental justice evaluation in FEIS Section 4.8). The minority population of block groups affected by relocations is 1.18 to 4.05 percent, and the Hispanic population is 0.92 to 3.99 percent. These percentages are similar to the overall study area statistics (4.1 percent minority and 3.1 percent Hispanic). None of the block groups that would experience relocations or displacements under the Build Alternatives has a median household income that would be classified as "low income"; however, the percentage of the population living below poverty ranges from 1.1 to 7.5 percent, compared to an average of 3.4 percent living below poverty in the block groups comprising the study area.

4.3 Geology, Minerals, and Soils

The Selected Alternative would disturb 75.16 acres of soil (see FEIS Section 4.9.2). The contractor will be required to prepare and implement a Stormwater Pollution Prevention Plan that will utilize best management practices (BMPs) to prevent soil erosion and associated effects on stormwater during construction.

4.4 Contaminated Properties and Hazardous Materials

There are 23 known and 27 potential hazardous material or contaminated sites within 1,000 feet of the Selected Alternative (see FEIS Section 4.10 and Appendix F: Known and Potential Petroleum and Hazardous Materials Sites). Mitigation for hazardous material or petroleum-contaminated involvement would follow standard New Hampshire Department of Environmental Services (NHDES) procedures, consistent with NHDES contaminated site management rules (Env-Or 600), including the following.

4.4.1 Building Demolition

Before building structures are removed, a professional hazardous material specialist would complete a building audit to identify and quantify all pertinent building materials and waste materials. Materials that may be identified in the audit include:

- Asbestos;
- Lead-based paint;
- Polychlorinated biphenyls;
- Electrical transformers that may contain polychlorinated biphenyl dielectric oil;
- Mercury-containing fluorescent light bulbs;
- Mercury thermostats;
- Miscellaneous containers of oil or hazardous materials;
- Refrigerants (commonly found in air conditioners, refrigerators, etc.);
- Hydraulic lifts;
- aboveground storage tanks; and
- underground storage tanks (USTs).

The level of audit for each location would vary based on building type, age, and current use. Residential buildings would typically be limited to asbestos and lead paint reviews. Commercial buildings would include a more intensive review for all pertinent materials.

Any miscellaneous containers of oil and hazardous materials would be removed before each relevant building is demolished. In addition, tank closure assessments would be completed after each UST is removed. If contaminants are found with the tank closure assessments, remediation may be required.

4.4.2 Limited Reuse Soils

Limited reuse soils (LRS) excavated from within the operational ROW will be addressed in accordance with applicable NHDES rules (including Env-Or 600), general or site-specific NHDES waivers, and/or soils management plans. Additionally, LRS along state roadways will be managed in accordance with NHDOT's guidance and directives on LRS.

4.4.3 Per- and Polyfluoroalkyl Substances

NHDES identified per- and polyfluoroalkyl substances (PFAS) as emerging contaminants and has developed Ambient Groundwater Quality Standards (AGQSs) for two PFAS compounds: perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Contaminated groundwater sites with PFAS levels above AGQSs may be subject to mitigating actions including adherence to a groundwater management plan.

In April 2019, an NHDOT geotechnical crew encountered a faint, petroleum-like odor during a subsurface materials investigation (NHDOT test boring i.d. B142 at 3- to 5-foot sample depth) in front of a car wash on Folsom Road in Derry and within the Selected Alternative impact area. The test boring was terminated at a depth of 5 feet, and there have been no further explorations in that area. The area of the test borehole is within 500 feet of at least 12 sites identified in the

environmental databases reviewed for the FEIS. Further investigations of the site will be evaluated during the final design of the Project, including soils testing, to determine whether the site is subject to NHDES rules for contaminated soils (Env-Or 611).

4.4.4 Discharges from Contaminated Sites

Any Project-related surface water or groundwater discharges from contaminated sites would be subject to water quality standards, National Pollutant Discharge Elimination System (NPDES) permitting requirements, and/or state permitting requirements, including the Remediation General Permit and/or the NHDES Groundwater Discharge Permitting and Registration Program. The NPDES program requires discharges in New Hampshire from certain remediation activities to obtain authorization under the Remediation General Permit (EPA, 2017d).

Discharges of any non-domestic wastewater to groundwater in New Hampshire are required to be registered with the NHDES Groundwater Discharge Permitting and Registration Program and, in some cases, may require permitting, as determined by NHDES.

Any remediation activities on contaminated sites would be required to comply with water quality standards and to obtain the necessary permitting coverage for any discharges from the contaminated sites. These requirements would be in addition to the requirements for discharges covered under other NPDES permits including the construction general permit or Municipal Separate Storm Sewer System (MS4) general permit. The Project would be constructed and operated in conformance with all regulatory and permitting requirements.

4.5 Surface Waters and Water Quality

4.5.1 Total Suspended Solids and Total Phosphorus

Final design plans will show the location, type, and specifications of stormwater treatment BMPs for the Project. Stormwater treatment will be designed to meet all regulatory criteria, including the requirements of the 2017 NH Small MS4 general permit, as discussed in Section 4.11 of the FEIS.

Project roadway segments that are new development are expected to be fully treated for stormwater and will meet either the Water Quality Volume retention criteria or the specified total suspended solids (TSS) and total phosphorus (TP) removal efficiencies detailed in Part 2.3.6 of the MS4 permit. Roadway redevelopment areas are also expected to be fully treated and will meet either the Water Quality Volume retention or BMP treatment criteria or the specified TSS and TP removal efficiencies detailed in Part 2.3.6 of the MS4 permit.

The Selected Alternative would result in development and/or redevelopment in the Beaver Lake watershed, which is shown on the latest 303(d) list (NHDES, 2017b) as impaired for aquatic life due to TP, chlorophyll a, DO saturation, and pH. When stormwater plans are finalized, they must be consistent with the requirement in Part 2.3.6 of the MS4 permit that either no new or increased stormwater discharges will be introduced to Beaver Lake.

The Selected Alternative would have development and/or redevelopment road segments with potential stormwater impacts to tributaries of Hoods Pond, which is subject to the Hoods Pond phosphorus total maximum daily load (TMDL). The Project would be required to develop and/or adopt a lake phosphorus control plan or other approved management plan consistent with the requirements of the MS4 permit to demonstrate conformance with the water quality goals of the Hoods Pond phosphorus TMDL, including TP load reductions in Shields Brook watershed.

4.5.2 Chloride

Chloride mitigation in the Upper Beaver Brook watershed is addressed in the 2017 NH MS4 permit (EPA, 2017c), which became effective on July 1, 2018, and is discussed in Section 4.11.1 of the FEIS, Volume I. The Towns, as well as NHDOT, will be required to obtain coverage under the MS4 permit and, consequently, the Exit 4A Project would be subject to all permit conditions, including specific conditions for permittees that discharge into waterbodies subject to an approved TMDL for chlorides. A requirement of the 2017 MS4 permit is for permittees that discharge into a waterbody subject to an approved chloride TMDL to develop a chloride reduction plan by July 2019, as detailed in Appendix F of the MS4 permit.

The Beaver Brook chloride TMDL specifies a daily maximum waste load allocation (WLA) for chloride as discussed in Section 4.11.1 of the FEIS, Volume I. The alternative expression of the TMDL sets an annual salt load allocation for the Upper Beaver Brook watershed at 9,069 tons/year and is a not-to-exceed quantity for all salt imports in the watershed determined by NHDES as the means to achieve the TMDL WLA (NHDES, 2008a). The Exit 4A Project would be operated under the MS4 permit and therefore would be subject to the conditions in Appendix F of the MS4 permit including the requirement to “*reduce chloride discharges to support achievement of the WLA included in the applicable approved TMDL.*” Because the Beaver Brook chloride TMDL has a fixed annual salt load allocation distributed among current sectors, and because the MS4 permit requires permittees to support achievement of the applicable TMDL WLA, any new development in the watershed would require load reductions elsewhere in the watershed to be consistent with the TMDL and MS4 permit conditions. Development projects such as Exit 4A can occur in the Upper Beaver Brook watershed as long as the 9,069 tons/year salt load allocation is not exceeded as a result of the development.

The means of reducing chlorides and supporting achievement of the WLA for permitted stormwater discharges, including new or increased discharges, from an MS4 to a waterbody subject to a chloride TMDL is specified in Parts 2.1.2 through 2.3.6 and Appendix F of the MS4 permit (EPA, 2017c), as discussed in Section 4.11.1 of the FEIS. The MS4 permit has been granted Water Quality Certification (WQC) by NHDES (NHDES, 2017f) and, therefore, any discharges authorized under the MS4 permit are also certified to meet state water quality standards, including discharges to waterbodies subject to an approved TMDL such as Beaver Brook. Through adherence to the conditions of the MS4 permit and the associated WQC, new or increased discharges can be authorized while ensuring that such discharges do not cause or contribute to an exceedance of water quality standards.

NHDOT and the Towns have submitted notices of intent to obtain coverage under the MS4 permit, plan to discharge stormwater from the Project as authorized in the MS4 permit and will ensure that all conditions of the MS4 permit are met in operating the Project. The Project will also require an individual Clean Water Act (CWA) Section 404 permit from the United States Army Corps of Engineers (USACE) and will therefore require a Section 401(c) WQC from NHDES to ensure that construction and operation of the Project will be in conformance with state water quality standards. During this permitting process, NHDOT and NHDES will coordinate on compliance with CWA anti-degradation provisions as agreed in the October 24, 2019, interagency conference call (notes provided in Appendix A: Agency Correspondence in Volume III of the FEIS).

Salt-reducing BMPs have been implemented in the Upper Beaver Brook watershed by NHDOT and the Towns consistent with the NHDOT Salt Management Plan, as noted in the memos from the Towns and summarized in Table 4.11-3 of the FEIS, Volume I. The Exit 4A Project will contribute an additional salt load to Beaver Brook, estimated to be 99.4 tons/year (see Appendix G: Chloride Technical Report in Volume III of the FEIS). This load represents 1 percent of the 9,069 tons/year Upper Beaver Brook watershed salt load allocation, which is a minor increase. This additional salt load is expected to be offset by NHDOT and the Towns through the execution of chloride reduction plans, as required in the 2017 NH MS4 permit.

NHDOT, Derry, and Londonderry have committed to providing funds for NHDES to continue the in-stream chloride TMDL monitoring program in the Upper Beaver Brook watershed as proposed in an NHDES memo dated November 30, 2018, titled “Revised I93 TMDL Implementation Monitoring Plan.” As part of the Beaver Brook chloride TMDL implementation plan (NHDES, 2008) two monitoring locations were identified by NHDES on Beaver Brook for determining achievement of the TMDL—Stations 09-BVR (located on Beaver Brook at the outlet of Kendall Pond) and 10A-BVR (located on Beaver Brook at Fordway Ext. Bridge). Although continuous water quality data have been collected at Station 10A-BVR since July 2006, consistent with the TMDL implementation plan, continuous water quality data have not been collected at Station 09-BVR since June 2009. Station 09-BVR is located downstream of the Selected Alternative and is an ideal monitoring location to assess TMDL compliance. However, a new Station 08Z-BVR located just upstream of Station 09-BVR on Beaver Brook (in a comparable but logistically better deployment location compared to 09-BVR) is proposed for compliance monitoring. Chloride monitoring will be funded for a period of 5 years. If water quality standards exceedances are indicated by the chloride monitoring program, NHDOT and the Towns will work with NHDES and EPA on appropriate next steps to achieve the Beaver Brook chloride TMDL.

4.6 Wetlands and Vernal Pools

A comprehensive assessment of the existing conditions of wetlands and vernal pools in the Project area was completed as documented in FEIS Section 4.12.1, Appendix H: 2014-2015 Vernal Pool Assessment Report, and Appendix F: Wetland Functions and Values, and Wetland Photographs. Mitigation is required for direct impacts to wetlands, streams, and vernal pools and indirect impacts to wetlands and vernal pools. Mitigation for wetland impacts has not yet been finalized, but it would likely involve an in-lieu-fee payment to the Aquatic Resource Mitigation (ARM) fund at NHDES and potentially preservation of land for conservation and/or culvert upgrades through the Stream Passage Improvement Program (SPIP). Mitigation options are described in detail in Section 4.12.3 of the FEIS, Volume I.

The in-lieu fee amount and conserved land, if any, would be determined in accordance with NH RSA 482-A:28 and NHDES Wetland Rules and with federal Section 404 guidelines in 40 CFR (b)(1)J, and with the USACE’s 2016 New England District Compensatory Mitigation Guidance. The ARM fund payment was estimated based on the impacts associated with the advanced conceptual plans for the Selected Alternative following the guidance documents and input from NHDES, USACE, and EPA (see Table 14.12-7 in the FEIS, Volume I). For direct impacts to wetlands and streams, area of wetland impact (see Table 4.12-2, in the FEIS, Volume I) was added to the ARM fund calculator, which calculates the cost to create a wetland of similar type within the impacted municipality at the required mitigation ratios.

The ARM fund payment that would result from the construction of the Selected Alternative was calculated based on the conceptual level design plans to be \$3,662,871.22 (see Table 4.12-7 in the FEIS, Volume I). Other potential avenues for wetland mitigation include land preservation and the SPIP. The SPIP is a partnership with NHDOT and NHDES that would use mitigation funds to address culverts within the Project watershed that have inadequate aquatic organism passage or structural condition. NHDOT is evaluating several stream crossings for applicability under this program. Preservation of a suitable property or participation in the SPIP would be expected to lower the ARM fund payment accordingly.

4.7 Groundwater

During final design, private water supply wells will be inventoried using the latest available water well data from NHDES and field verified to the extent possible to determine potential Project encroachment on setback distances specified in NHDES rules (Env-Wq 1008.08; We 100 through We 1000). Private water supply wells have the requirement to maintain a sanitary protective area of at least 75 feet for wells producing up to 750 gallons per day (Env-Wq 1008.08). The NH Water Well Board rules (We 100 through We 1000) also include setback criteria of 75 feet for private wells to property boundaries and roadways and 50 feet from state highway ROW (We 602.05(e)), as discussed in Section 4.13.3 of the FEIS, Volume I.

Public water system (PWS) wellhead protection areas (WHPAs) will be reviewed during final design with respect to NHDES recommendations (NHDES, 1995), and Project proximity to PWS sanitary protective areas will be determined (Env-Dw 302.10; Env-Dw 303.09; Env-Dw 305.10; Env-Wq 1500). A PWS sanitary protective radius is defined as a 75- to 400-foot radius (depending on production volume) around the well that under current law must be controlled by the water supplier through ownership or easements. Within the sanitary protective area there are restrictions for certain uses and activities as specified in NHDES rules and discussed in Section 4.13.3 of the FEIS, Volume I; e.g., discharges are not allowed from roadways, parking lots, stormwater structures, or areas with fertilizer or pesticide application (Env-Dw 302.10; Env-Dw 303.09; Env-Dw 305.10; Env-Wq 1500).

Several PWSs have WHPAs located within the Project area (discussed in Section 4.13.1 of the FEIS, Volume I) including the following: Barkland Acres Association in Derry (Wells No. 1 and 2), Morningside Drive in Derry (Wells No. 7 and 8), PEU/Springwood Hills in Londonderry (Wells Nos. 16 and 17), and Rand Shephard Hill (Well Nos. 12, 13, and 14). The operators of the Barkland Acres Association, Morningside Drive, and PEU/Springwood Hills public water supplies will be contacted by NHDOT during the final design process.

The locations of roadway alignments, ROW, and stormwater structures will be considered during final design to ensure the Project is in conformance with all NH rules requiring protection of groundwater resources. This process will ensure the Project adheres to the latest NHDES guidance document *Recommendations for Groundwater Protection Measures When Siting or Improving Roadways* (NHDES, 1995), discussed in Section 4.13.3 of the FEIS, Volume I, including restrictions within WHPAs, sanitary protective areas, and setback distances.

If setbacks or other groundwater protection criteria are not met as a result of construction or operation of the Project, it may be appropriate to consider further actions. If the Project falls within the sanitary protective area of drinking water wells, the municipality with jurisdiction will contact the public drinking water systems to coordinate easements as necessary. Other mitigating actions may include changes to the stormwater system design consistent with NHDES'

recommendations (NHDES, 1995), water quality testing to establish baseline and post-construction water quality, and/or well replacement or compensation for well replacement costs under the NHDOT well replacement program. The NHDOT well replacement program was developed to replace, repair, or pay damages for water supplies that have been affected by construction or maintenance operations on the state highway system, primarily as a result of contamination from road salt. While the program is primarily intended to mitigate road salt contamination of private drinking water supplies, it has also been used to mitigate other adverse effects to private water supplies due to NHDOT actions. NHDOT intends to mitigate any Project-related construction or operations damages to private water supplies along state highways through the well replacement program. For private wells along town-maintained roadways, any Project-related effects to water supplies will require consideration of well replacement by the town of jurisdiction.

4.8 Aquatic Life and Essential Fish Habitat

The National Oceanographic and Atmospheric Administration has reviewed the Project and determined that the Selected Alternative does not impact Essential Fish Habitat. Mitigation for stream impacts would be provided as part of the wetland mitigation package. Some of the stream crossings, such as Crossing 2 (Shields Brook) and Tributary E, will be widened in accordance with requirements in NHDES Administrative Rules Env-Wt 900 et seq., Stream Crossings. Crossing 1 (Wheeler Pond Tributary) would require further relocation of a stream that was permitted for relocation, in part, by the ongoing I-93 widening project. The rules provide that mitigation is not required for any crossing that is “self-mitigating.” Sufficient information has been collected from this stream to restore habitat and stream morphology, and therefore this would be considered a self-mitigating impact. Crossings that provide improved hydraulic capacity and aquatic organism passage may also be considered self-mitigating, if sufficient baseline data are collected. Stream impacts that are not self-mitigating would be mitigated through a payment to the NHDES ARM fund, potentially preservation of land for conservation, or culvert projects associated with the SPIP. The SPIP is a partnership with NHDOT and NHDES that would use mitigation funds to address culverts within the Project watershed that have inadequate aquatic organism passage, structural condition, and/or aquatic organism passage. NHDOT is evaluating several stream crossings for applicability under this program. Participation in the SPIP would be expected to lower the ARM fund payment accordingly.

4.9 Floodplains

The Selected Alternative does not involve a significant encroachment on floodplains as defined under DOT Order 56502 and complies with Executive Order 11988. Detailed hydraulic analyses of the Selected Alternative will be completed during final design to avoid and/or minimize impacts on the floodway, and in particular to avoid a cumulative increase in the base flood elevation of 1 foot or more (consistent with local floodplain regulations).

4.10 Plant Communities and Wildlife

Habitat to be preserved as a result of ARM fund contributions would contribute to mitigation of the Project’s impacts on wildlife habitat. In addition, NHDOT has committed to the purchase of an easement for preservation of an 8.7-acre parcel of land on the eastern side of the Woodmont Commons property south of Coteville Road. This land, to be preserved as a wildlife corridor, borders approximately 1,300 linear feet of Shields Brook, its floodplain, and adjacent 2.5 acres

of forested and emergent/shrub wetlands. The New Hampshire Fish & Game Wildlife Action Plan maps identify part of this area as supporting landscape (see Figure 4.16-2 of the FEIS, Volume II).

4.11 Threatened and Endangered Species

Potential actions include, but are not limited to, conducting surveys within the construction limit of work for listed animals and relocating them to safe, appropriate locations prior to initiating construction activities; fencing work areas to prevent re-entry by listed species during construction; and time of year restrictions on construction activities. It is anticipated all perennial stream crossings would be designed to protect water quality, maintain or improve stream habitat quality, and promote passage by aquatic and terrestrial wildlife. Unavoidable impacts would be mitigated as part of the wetland mitigation for the Project.

To reduce the potential for black racer mortality in the portion of the Project area from I-93 to Folsom Road due to Project construction, searches for reptiles would be conducted in the Project footprint, and all materials storage areas would be fenced to exclude reptiles. All fencing would be in place by September 15 to exclude snakes returning to potential hibernacula within the Project site. The searches would be conducted in the Project footprint prior to initial ground-disturbing activities, because racers have the highest potential to be present when undisturbed habitat is still present. Once the new roadway alignment has been graded and compacted, the potential for racers to shelter in the work zone would be significantly reduced, and the potential to crush a hidden racer would be likewise reduced.

Searches for black racers would occur immediately before any heavy machinery enters the work zone or soil alteration begins. Searches would be supervised by a qualified biologist, during appropriate weather conditions, and the effort would be sufficient to ensure that work area is completely searched. Any reptile species, listed or not, encountered during these searches would be captured and released in appropriate habitat on site, but outside the construction areas. NHFGD would be contacted immediately if any threatened or endangered species are encountered or captured, and species would not be released until after consultation with NHFGD. Depending on the sequence and timing of ground-disturbing activities, some or all of the Project area may require repeated sweeps.

Materials storage areas would be fenced to exclude reptiles, because materials being stored have a high potential to provide suitable shelter for snakes even after natural habitats have been removed from the area. Reptile-proof fencing would be used and maintained for the duration of the Project, and the fencing would be removed when the Project is complete.

In addition to the sweeps and fencing of materials storage areas, all erosion control materials used for slope and winter stabilization would be wildlife-friendly, made from natural woven fibers (no plastic mesh products) without fixed knots and without welded plastic components. Additionally, construction personnel would receive training for recognizing black racers and to take the appropriate actions to protect them. Prior to construction activities, biologists will also search suitable habitat within the Project footprint for the state-endangered Nuttall's reed grass. Suitable habitat includes wet meadows, which may be present in utility ROWs, or other open areas with seasonally saturated soils. All Project personnel would understand and implement the appropriate protective actions and notifications to protect listed species.

4.12 Cultural Resources

To mitigate for potential impacts to the two areas of pre-contact Native American archaeological sensitivity and one area of historic-era archaeological sensitivity, Phase IB archaeological testing will be conducted during final design at the following locations: (1) sensitive area P7 across the eastern extent of Tsienneto Road, in the vicinity of Jeff Lane; (2) sensitive area P6 crossed by improvements to NH 102 at the approach to the intersection with Tsienneto Road, and (3) potential foundation area and stone culvert at 30 Tsienneto Road. Impacts to the stone culvert at 30 Tsienneto Road will be avoided by the design of the Selected Alternative. Additionally, any investigations determined necessary based on the Phase IB (e.g., Phase II, Phase III) will be conducted. FHWA and NHDHR will be consulting throughout all necessary phases of archaeology. An MOA between FHWA, NHDOT, NHDES, and the Town of Derry addressing the Project and subsequent mitigation was executed (see Appendix K: Cultural Resources).

Mitigation measures for the M&L Railroad Historic District include the following:

- Encourage preservation of the rail corridor by constructing an underpass and 900-foot path (Figure 7.5-1 of the FEIS, Volume II). This will enable trail construction to the north as part of a separate future project by others, which in turn will help protect more of the historic district from other development.
- Interpretive Signage – NHDOT will work with the Town and the Derry Heritage Commission to develop an interpretive panel that will focus on the history of the Manchester-Lawrence Railroad and its association to the Town of Derry. The panel's content and material will be prepared by a 36 CFR 61-qualified architectural historian. The SHPO will be provided an opportunity to review one draft of the panel's content with a review period of 30 days. Upon approval of the panel, it will be fabricated and installed at a location to be determined in consultation with the Town of Derry, preferably along the rail trail near the new crossing. Digital copies of the panel will be provided to NHDOT and the Town of Derry.
- Rail Trail Underpass Aesthetic Treatment – NHDOT, and its consultant, will work with the Town of Derry on the aesthetic treatment for the newly constructed underpass headwalls. The concrete will be stamped with a faux-stone design that will be chosen in consultation with the Town. The style of lighting will be chosen in consultation with the Town.
- Stonewall assessments, per the NHDOT Stonewall Policy, will be completed on all stonewall segments within the APE that may be impacted. Treatments options per the policy will be coordinated with the Town and any impacted property owners.

4.13 Parks, Recreation, and Conservation Lands

To mitigate for impacts to Rider Fields, NHDOT will coordinate with the Town of Derry to move the mailbox and sign for the Upper Room Family Resource Center and to replace the stone walls and vegetation that would be impacted by the Project (coordination letter from Town of Derry dated October 5, 2018, is provided in Appendix A: Agency Consultation in Volume III of the FEIS).

4.14 Construction Impacts

4.14.1 Air Quality

Construction activities would result in emissions from equipment exhaust and fugitive dust from earthwork/ground disturbance. To minimize the potential impacts of construction on air quality at sensitive receptors, the following mitigation commitments would be incorporated in construction contracts.

- Mitigation measures for controlling fugitive dust emissions during construction would include wetting and stabilization of all work areas, cleaning paved roadways, and scheduling construction to minimize the amount and duration of exposed earth.
- The Towns would require that contractors involved with the construction of the Project include Tier 4 standard engines or best available retrofit technology on heavy diesel construction equipment in accordance with applicable state and federal laws at the time of construction.

4.14.2 Soil Erosion and Water Quality

To mitigate potential sedimentation impacts during construction, a Stormwater Pollution Prevention Plan consistent with the NPDES and the NHDES' Alteration of Terrain permitting requirements and the 2017 Construction General Permit (see Section 4.11 of the FEIS, Volume I) would be developed and implemented. Where appropriate, upslope drainage would be diverted around work areas and dissipated, and temporary erosion and sediment control devices, such as straw mulch, wood chips, erosion control blankets, check dams, and silt fences would be installed as necessary prior to (and during) construction. Proper installation, inspection, and maintenance of erosion controls would be an integral part of the Project to ensure protection of soil and water resources. Areas stripped of vegetation would be stabilized as soon as practicable after exposure to prevent soil loss by wind and water. Inspections would take place at least weekly and after threshold rain events during active construction. BMPs for fertilizer application during construction would also be followed. In addition, mechanisms to avoid and control chemical leaks and spills from the construction equipment would be instituted. With proper implementation and maintenance of a well-planned erosion and sedimentation control plan, impacts during construction should be temporary.

Minor road adjustments to limit stream and wetland crossings would continue to be evaluated for the Project to further minimize impacts. Where practical, efforts would be made to maintain a buffer strip of vegetation near streams. In those areas where vegetation removal is required, revegetation with appropriate seed mixes or plantings would be completed as soon as possible.

4.14.3 Noise

Mitigation measures will be incorporated into the contract documents to lessen potential construction noise impacts. The following mitigation strategies will be employed to the extent practicable to limit the potential impact of noise:

- Source Control
 - All exhaust systems in good working order, also using properly designed engine enclosures, and intake silencers.

- Regular equipment maintenance.
- Site Control
 - Placement of stationary equipment as far away from sensitive receptors as possible (e.g., pumps, compressors, aggregate crushers, AC plants, operators).
 - Choice of disposal sites and haul routes thereto.
 - Employing shielding where possible.
- Time and Activity Constraints
 - Schedule of operations to coincide with periods when people would least likely be affected.
 - Limiting working hours and work days to least noise-sensitive times.
- Community Awareness
 - Public notification of construction operations.
 - Methods to handle complaints.

4.14.4 Traffic

Coordination would occur between local and state emergency response personnel to develop efficient incident management procedures and protocols. Intelligent Transportation System (ITS) technologies would be deployed to more efficiently manage traffic, enhance incident management during construction, and provide real-time traveler information. A detailed Traffic Control Plan, to include incident management procedures, would be instituted to reduce traffic-related, short-term impacts and minimize construction zone delays. Additional temporary delays would be experienced along secondary roads in the Town of Derry during widening activities. Businesses and their customers may experience some inconvenience due primarily to construction activities along their frontage. Construction activities would be coordinated with property owners to ensure that reasonable access to properties is maintained. Temporary signing and other issues related to temporary relocation of access points, caused by construction activities, would be appropriately addressed on an individual basis.

5.0 MONITORING PROGRAM

Construction and environmental commitments for the Project will be implemented by NHDOT and the Towns. FHWA is responsible for ensuring that these commitments are implemented and has a full oversight role for this Project. Strict erosion and sedimentation control provisions will be enforced.

NHDOT will participate with NHDES in water quality chloride monitoring efforts as they relate to the chloride TMDL.

6.0 CONCLUSION

FHWA was thoroughly involved in the development of the 2007 DEIS, 2018 SDEIS, and the 2019 FEIS and participated in the interagency meetings and field reviews on this Project, as well as public information meetings and the public hearing held on December 5, 2018. FHWA evaluated and considered all feedback throughout this process.

This ROD's Selected Alternative was the subject of NHDOT's public hearing on the design layout, SDEIS, and permit applications under Section 404 of the CWA and New Hampshire Wetland Rule, which was conducted jointly with the USACE and NHDES.



Patrick Bauer, Division Administrator

FHWA – NH Division

2-3-20

Date