15.0 **FINAL SECTION 4(f) EVALUATION**

15.1 Introduction

Under Section 4(f) of the Department of Transportation Act of 1966, 49 U.S.C. 303(c), and Section 18(a) of the Federal-Aid Highway Act of 1968, 23 U.S.C. 138 (as amended by the Federal-Aid Highway Act of 1983) the Secretary of Transportation shall not approve any program or project which “requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as so determined by federal, state, or local officials having jurisdiction thereof, or any land from a historic site of national, state or local significance as so determined by such officials unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use.”

The 2004 Final Section 4(f) Evaluation, which may be found in Chapter 5 of the 2004 FEIS, described impacts to the following Section 4(f) resources: the Kinzler House property (SAL0204), Robert Armstrong House (WND0086), George Armstrong House (WND0085), Robert J. Prowse Memorial Bridge (LON0116), Reed Paige Clark Homestead (LON0114) and the Gearty House property (LON0105). Refer to section 3.10.5.3 of the 2004 FEIS for a full description of these resources and to sections 5.5 and 5.6 for a description of avoidance alternatives and measures to minimize harm. The 2004 Final Section 4(f) Evaluation concluded that there are no feasible and prudent alternatives to the use of land from these Section 4(f) properties, and that the proposed action includes all planning to minimize harm resulting from such use.

The Section 4(f) Evaluation in the 2004 FEIS did not identify impacts to a property located at 2 Brady Avenue in Salem, NH, as this property was designated in April 2006 as a contributing resource to the Armenian Settlement Historic District resulting from the expansion of the Historic District boundaries. Coordination with NH Division of Historical Resources (NHDHR) and FHWA determined that this newly-designated resource would be considered a “post-review discovery” in accordance with 36 CFR 800.13(b) but was not subject to consideration under Section 4(f) due to the Late Designation of this historic resource as outlined under 23 CFR 774.13(c). Here, the Brady Avenue property was acquired for transportation purposes prior its designation as a contributing element to the Historic District. Moreover, adequate efforts were made to identify all properties protected by Section 4(f) prior to acquisition. Therefore, the Brady Avenue property is not subject to consideration under Section 4(f). See Section 11.5.2 for further discussion of the resource.

Additionally, the Section 4(f) Evaluation in the 2004 FEIS Section 5 did not identify impacts to a stone box culvert (identified in the 1963 B & M Railroad Right-of-Way and Track Map as # 19.23 – Figure 15-1) located on the Manchester & Lawrence Railroad Corridor (M & L Corridor) east of the proposed intersection of Auburn Road and Independence Drive in Londonderry, NH (Figure 15-2). During the engineering of the final design, unanticipated impacts to the stone box culvert were found to be necessary, therefore this Final Section 4(f) Evaluation has been included in this FSEIS. This evaluation also outlines the coordination that has occurred and the measures proposed to mitigate the unavoidable impacts to this resource.
Based on a review pursuant to 36 CFR 800.4 of the historical and architectural significance of identified resources, it was agreed by the NH State Historic Preservation Officer (NHSHPO), FHWA and NHDOT on May 8, 2008 that a brick-top stone box culvert located west of I-93 under the Manchester and Lawrence Railroad corridor is individually eligible for the National Register of Historic Places. It was subsequently agreed on November 13, 2008, that the stone box culvert under the same line but east of Auburn Road and abutting Independence Drive would be treated as if it is individually eligible for the National Register. Applying the criteria of effect at 36 CFR 800.5, it was determined that the project results in a no adverse effect on the brick-top culvert located west of I-93. However, because of the impacts of the design, the project will have an adverse effect on the Independence Drive stone box culvert. At this culvert, an 18” pipe will be placed within the existing stone box culvert, flowable fill will occupy the voids, and a new headwall will be placed at the end of the pipe since it will be extended to the south of the existing headwall. It may be necessary to remove the lintels to insert the pipe. The existing stone box culvert will then be buried under the relocated Independence Drive.

This culvert is to be impacted as part of the construction associated with the approved ±19.8 mile widening project of I-93 from Salem to Manchester in New Hampshire. The widening project will improve transportation efficiency and reduce safety problems along this principal north-south arterial Interstate highway within the State of New Hampshire. Information on the project is documented in this FSEIS.

Due to population growth, development, and recreational opportunities in New Hampshire, the travel demands for I-93 between Salem and Manchester have exceeded the capacity of this existing four-lane facility for a number of years. During weekday peak hours, motorists traveling along the I-93 corridor currently experience traffic congestion and substantial delay. The congestion not only results in increased travel times, but also contributes to safety problems, as the limited spacing between vehicles does not afford the motorists sufficient movement to deal with frequent and abrupt lane change maneuvers and sudden stops. Decreases in the level of service are evident in reduced traveling speeds, increased density of traffic flow, as well as in the traffic backups at some interchanges during commuting hours.

Population and traffic projections for the next twenty years support the conclusion that the existing facility will be increasingly less able to function at the levels of service and safety for which it was originally designed. Without substantial improvements, or dramatically reduced demand, traffic operations along this section of I-93 are expected to continue to deteriorate under future conditions as traffic volumes increase.

The M & L Corridor was constructed from 1847 to 1849 and connected two rapidly growing manufacturing centers, the Cities of Manchester, NH and Lawrence, MA. Presently in New Hampshire, the M & L Corridor consists of approximately 20 miles of the abandoned rail corridor. The State of NH purchased a majority of the corridor (approximately 15 miles) over several years in 1988, 2003 and 2005. The section through Derry, NH, was purchased by the Town of Derry in the early 1980’s for use as a pedestrian/bicycle trail. Several smaller, scattered sections are in private ownership, such as the portion through the Manchester-Boston Regional Airport in Manchester. Presently the NH Division of Resource and Economic Development (NH DRED) has oversight on the state-owned portions of the corridor. These portions are included in a cooperative agreement of
the Towns with NH DRED that allows public use of the corridor for recreational purposes.

### 15.2 Proposed Action

The I-93 widening project involves a combination of transportation infrastructure improvements and strategies for the 19.8-mile corridor. The project includes widening I-93 from the existing limited access two-lane highway in each direction to a limited access four-lane highway in each direction. Several design modifications and infrastructure improvements for the five interchanges and local roads within the project corridor will occur. Further details of the 2005 Selected Alternative are documented in Section 3.2.2 of this FSEIS.

At the Exit 5 interchange, NH 28 will be widened and reconstructed on-line from Symmes Drive to Liberty Drive including the reconstruction of the approaches to Liberty Drive, Auburn Road, Perkins Road, Vista Ridge and Symmes Drive, as well as the reconstruction of portions of Auburn Road, and Independence Drive. The existing diamond interchange will be reconstructed and brought up to current NHDOT standards.

The proposed action at Exit 5 involves modifications to a stone box culvert located along the M & L Corridor that has been determined eligible for listing in the National Register of Historic Places. This culvert is located east of Auburn Road and south of Independence Drive. The existing 2.5 foot wide by 3 foot high stone box culvert currently conveys flows from an unnamed intermittent stream northerly under the M & L Corridor to a drainage manhole (Figure 15-3). The existing culvert is connected to the manhole via a 36 inch diameter concrete pipe. A 24 inch concrete pipe under Independence Drive connects the manhole to a wetland located north of Independence Drive. This wetland drains to the west and is associated with a tributary to Little Cohas Brook.

A ±550 foot portion of Independence Drive is to be shifted southerly onto the M & L Corridor to align opposite the existing Verani Way intersection with Auburn Road (Figure 15-4). As adequate cover cannot be placed over the stone culvert to provide a suitable road bed that would meet Town of Londonderry roadway standards, the proposed improvements will place a new 18 inch concrete pipe within and along the bottom of the existing stone box culvert, and will fill in the resulting voids around the new pipe with flowable fill. The new pipe will extend approximately 7 feet beyond the existing stone box culvert, requiring construction of a new headwall at the pipe’s southern inlet. The new pipe will connect to the existing drainage manhole at the north end of the stone culvert. The relocated Independence Drive will be constructed over the new pipe and the stone culvert remnants. Relocation of an existing underground AT&T fiber-optic communications line, which runs in a 20 foot easement along the south side of the M & L Corridor, will be required due to the placement of the new pipe and construction of the new headwall. This relocation is anticipated to require shifting the AT&T conduit northerly and the lowering it at least 18 inches so that is situated under the new 18 inch concrete pipe. Approximately 20 feet of a split steel sleeve will be installed to provide protection to the conduit. This relocation effort will not require any splicing or new facilities along the line; other than the 20 feet of steel sleevng.
15.3 Description of Historic Section 4(f) Resources

The proposed project has been reviewed by the NH SHPO and FHWA pursuant to the National Historic Preservation Act and the Advisory Council on Historic Preservation (ACHP) procedures for the “Protection of Historic and Cultural Properties” (36 CFR 800). Following the completion of this review it was determined that the stone box culvert located on the M & L Corridor is potentially eligible for listing in the National Register of Historic Places under Criterion C (See DSEIS Appendix I: Historic Resources Effects Memo Update).

The approximately 35 foot long stone box culvert is a 2.5 foot wide by 3 foot high structure composed of dry-lain ashlar granite blocks. Approximately half of the top of the culvert consists of lintels composed of angled iron beams, with the remainder lintels composed of granite. The differences in the lintel types is the result of past lengthening of the culvert that accommodated a widened M & L Corridor. The culvert conveys an intermittent stream northerly under the M & L Corridor. When Independence Drive was constructed, the northern outlet was modified to flow directly into a concrete catch basin, which directs the stream under Independence Drive through a 24 inch concrete pipe. This concrete pipe outlets to a wetland area that drains to the west to a tributary of Little Cohas Brook.

15.4 Impacts to Section 4(f) Properties

The proposed reconstruction of the Exit 5 interchange includes the southerly relocation of the Independence Drive intersection with Auburn Road and will align Independence Drive directly opposite Verani Way. This requires shifting to the south approximately 550 feet of Independence Drive onto the M & L rail corridor and impacts the existing 2.5-foot wide M & L Corridor stone box culvert #19.23 (Figure 15-4). The existing stone box culvert will be impacted by the placement of a new 18 inch concrete pipe along the bottom and within the culvert. Flowable fill is proposed to be used to fill in the voids around the new pipe within the culvert. The top of the stone culvert, which consists of iron and granite lintels, may be required to be removed to facilitate the placement of the new concrete pipe within the existing culvert.

A headwall for the new pipe will be constructed approximately 7 feet to the south of the stone culvert’s existing inlet, requiring the removal of the existing headwall. The 36 inch concrete pipe connection to the drainage manhole on the northerly end of the stone culvert will be removed and replaced, requiring additional impacts to the northern portion of the culvert. The stone culvert remnants will be backfilled with flowable fill and will remain under the relocated Independence Drive. Due to these impacts to the stone culvert the NH SHPO and FHWA have determined that the proposed action will have a Section 106 Adverse Effect on the resource.

15.5 Alternatives Which Avoid Section 4(f) Property Impacts

The following alternatives, which would avoid and/or minimize impacts to the Section 4(f) property, have been reviewed during the final design process and were not recommended because of engineering or financial constraints, environmental impacts, property impacts, and/or failure of the alternatives to adequately address the area’s transportation needs and/or safety problems. No feasible or prudent alternatives exist that would meet the purpose and need of the project.
15.5.1 No Build Alternative

The No-Build alternative, which does not reconstruct the Exit 5 Interchange, is not considered prudent since it would do nothing to correct the structural and functional deficiencies associated with the existing I-93 Exit 5 Interchange. The poor operational conditions would remain, as would the dangerous, inconvenient, and highly undesirable queuing of the southbound off-ramp extending into the mainline during peak commuting hours. If nothing is done, the red-listed bridges within the Exit 5 interchange will continue to deteriorate. With the further deterioration of the bridge, the heavy traffic volumes on I-93 would continue to compromise the safety of the traveling public. This alternative ignores the purpose and need for the project and does not address the safety deficiencies of the roadway. Over time, this alternative would lead to increased safety hazards, risk of injury and possibly loss of life. This would not be prudent given the importance of this major north-south Interstate Highway. For these reasons this alternative is not considered prudent or feasible.

An alternative, which retains the existing Auburn Road intersections with Independence Drive, would perpetuate an existing safety concern associated with the conflicts occurring due to the offset of this intersection with the nearby Verani Way intersection with Auburn Road, which is located only ±20 foot to the south (Figure 15-2). Additionally, as Verani Way is located only 150 feet from the NH 28 intersection with Auburn Road, this safety concern would increase due to the projected increases in traffic volumes and the new Exit 5 interchange configuration. As such, this alternative is not considered prudent.

15.5.2 Retention of Existing Culvert

Relocation of Independence Drive with the retention of the existing culvert would result in the relocated road having inadequate cover (about one foot) over the existing culvert. This would result in an unacceptable design that does not meet Town of Londonderry roadway standards and would create concerns with the life of the roadway, such as the formation of frost heaves on the relocated Independence Drive, and would lead to long-term maintenance concerns.

Providing adequate cover over the existing culvert would require raising the proposed roadbed on Verani Way, Independence Drive, Auburn Road, and most likely extending to the NH 28 intersection with Auburn Road. This would result in greater right-of-way impacts to the adjacent properties located along Auburn Road, and possibly require acquisition of commercial properties. For these reasons, this alternative is not considered prudent or feasible.

15.5.3 New Pipe East of Existing Culvert

For an alternative that would construct a new 18 inch pipe easterly of the existing stone box culvert, the existing stone box would need to be filled in and the intermittent stream would need to be directed to the new pipe, requiring additional wetland impacts. Constraints are also introduced due to the presence of the existing buried AT&T fiber-optic telephone cable located along the south side of the M & L Corridor. Directing drainage to a new pipe east of the stone culvert would necessitate impacting the AT&T conduit over a greater distance increasing the cost of the project and adding...
delays to the construction schedule. Due to insufficient slack in the existing conduit, to relocate the cable without incurring an impact to the historic box culvert would not be possible with a simple lowering or shifting of the cable. The AT&T fiber optic line relocation would require a 200 foot long directional drill, the installation of two manholes and the replacement of wire between splice points; estimated at 10,000 feet. The cost for replacement of the AT&T conduit is estimated at approximately $120,000. Additionally, there is the potential for additional conflicts of the new pipe with existing water and sewer lines that are located along Independence Drive resulting in greater engineering and constructions costs. For these reasons, this alternative is not considered prudent or feasible.

15.5.4 Realignment of Verani Way

Shifting Verani Way to the north to align opposite the existing Independence Drive would entail greater impacts to wetland areas and additional right-of-way impacts to adjacent properties most likely requiring the acquisition of a commercial building (Figure 15-2). This realignment of Verani Drive would also be problematic if the M & L Corridor were to be reactivated for railroad use, as driveway accesses to two commercial properties located south of Verani Way would need to cross the rail alignment. For these reasons, this alternative is not considered prudent or feasible.

15.5.5 Stone Culvert Relocation

Due to its unique construction the relocation of the culvert is problematic without compromising its integrity. Furthermore the presence of the fiber-optic telephone cable along the M & L Corridor precludes its relocation in the same general area. Relocating elsewhere along the corridor is not feasible or prudent.

15.6 Measures to Minimize Harm/Mitigation

Minimization has been incorporated in the design with the placement of an 18 inch pipe along the bottom of the existing stone box culvert. This will provide for the remnants of the stone culvert to be retained by being buried under the relocated Independence Drive.

It was determined at the February 12, 2009, Cultural Resource Agency Coordination Meeting that the following mitigation measures are to be included as part of the project:

- Documentation of the features that make stone culvert eligible for the National Register of Historic Places will occur through the completion of a NH Historic Property Documentation Form. This form will include large format photographs, a sketch plan of the elevation of the culvert, a design plan, a narrative description, and statements of historical background, context, and significance.
- If, during construction, the removal of the lintels is required to accommodate the installation of the new pipe and excavation reaches the top or sides of the culvert so they are exposed, the NHDOT will monitor the excavation to ascertain whether there is any evidence of historic quarry marks on any of these exposed stone blocks faces. These quarry marks will be documented as they become accessible to view, and;
15.7 Coordination

Coordination meetings among the NHSHPO (NHDHR), FHWA, and NHDOT were held on November 13, 2008 and February 12, 2009 to discuss alternatives and measures to minimize harm to the stone box culvert. The measures, which were considered reasonable were evaluated and incorporated into the design of this project. An Effect memo was prepared and agreed to by the NHSHPO and FHWA, with concurrence by NHDOT, which addresses unavoidable impacts to this historic property (See DSEIS Appendix I: Historic Resources Effects Memo Update).

Letters requesting input on the impacts to the stone box culvert were sent to various local organization and/or officials along the M & L Corridor as noted below:

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The DSEIS/Draft Section 4(f) Evaluation was circulated to the U.S. Department of Interior, the Advisory Council on Historic Preservation, and the New Hampshire Division of Historic Resources for review and comment. As documented in FSEIS Appendix A: Comment Response Document, comments were received from the U.S. Department of Interior indicating concurrence with the finding that there are no feasible and prudent alternatives to the 2005 Selected Alternative.

15.8 Summary Statement

Based upon the above considerations, there are no feasible and prudent alternatives to the use of land from Section 4(f) properties, and the proposed action includes all planning to minimize harm to these properties resulting from such use.