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Section 4(f) Evaluation

5.1 Introduction

Under Section 4(f) of the Department of Transportation Act as amended by the Federal-Aid Highway Act of 1968 (Public Law 90-495, 49 USC 1653), 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 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.”

This combined Environmental Impact Statement (EIS) and Section 4(f) Evaluation provides the required documentation to demonstrate that there is no prudent and feasible alternative to affecting 4(f) resources in the form of historic resources. This evaluation also outlines the coordination that has occurred and the measures proposed to minimize harm to these resources.

5.2 Description of Selected Alternative

NHDOT, in planning this project, examined a large number of multimodal and highway improvement alternatives. After an initial screening, seven alternatives or combinations thereof were selected as a “reasonable range of alternatives.” For more detailed evaluations, see Section 2.5. These included the No-Build Alternative; TSM measures, primarily ramp lengthening and lane widenings; widening I-93 in each direction to Four-Lanes, Three-Lanes, or a Four-Lane/Three-Lane Combination with the reduction of lanes after Exit 3; and TDM measures, including ITS technology, park-and-ride lots with bus terminal facilities, expanded bus service in the corridor, enhanced ride-sharing opportunities and commuter incentive programs, as well as employer-based measures to encourage people to not drive alone. Additional details on all of these alternatives can be found in Section 2.3.

The NHDOT's Selected Alternative involves a combination of transportation infrastructure improvements and strategies for the 19.8-mile study corridor. The Selected Four-Lane Alternative begins in the Town of Salem, NH at the Massachusetts/New Hampshire State line and extends northerly through Salem, Windham, Derry and Londonderry, and into Manchester, ending at the I-93/I-293 Interchange. See Section 2.7 and Figures 2.7-1 through 2.7-22 for details. In concert with the mainline widening to four lanes in each direction, the following infrastructure improvements were selected for the five interchanges and local roads within the project corridor:

- In the Exit 1 Interchange area, the existing Cross Street Bridge will be replaced with a new bridge located just to the north. This new bridge will be of sufficient length to accommodate a potential rail corridor west of I-93. The existing interchange at Exit 1 will be reconstructed to improve the substandard ramp geometry. (Figure 2.7-2)
- At Exit 2, the existing interchange is reconstructed to a diamond-type interchange configuration with new longer span bridges carrying I-93 over Pelham Road. Pelham Road will be widened and reconstructed from Policy Road to Stiles Road (Figure 2.7-4). Approximately 0.7 mile north of Exit 2, the Brookdale Road Bridge will be replaced on-line. (Figure 2.7-5)
- At Exit 3, both the northbound and southbound roadways of I-93 are relocated (referred to as the Tight Shift Option) into the existing median area. New longer span bridges will carry I-93 over NH 111 and NH 111A. The interchange ramps will be reconfigured with a diamond interchange design. NH 111A will be relocated on new alignment about 600 feet to the west of existing NH 111A. (Figures 2.7-7). NH 111 will be reconstructed and widened with the work beginning just west of the existing NH 111/NH 111A intersection and extending westerly through the Exit 3 Interchange to a point just west of the southbound ramps where NH 111 is relocated (Relocation Option) north of its existing location before tying into existing NH 111 near the Village Green Plaza intersection. (Figures 2.7-7 through 2.7-8)
- In the Exit 4 Interchange area, I-93 will be widened to the east, retaining the existing layout for the southbound ramps. The existing northbound ramps configuration will be retained and reconstructed. NH 102 will be reconstructed and widened from Londonderry Road to its intersection with the southbound on-ramp. The NH 102 bridge over I-93 will be replaced with a new, longer span bridge constructed directly south of the existing bridge. The Ash Street/Pillsbury Road Bridge (Prowse Memorial Bridge) will be replaced with a new structure on-line. (Figures 2.7-14 through 2.7-15)
- At Exit 5, NH 28 will be widened and reconstructed on-line from west of Symmes Drive to just south of Liberty Drive including the reconstruction of the Perkins Road and Symmes Drive approaches, as well as the reconstruction of a portion of both Liberty and Independence Drives and a segment of the Auburn Road approach. The existing diamond interchange will be reconstructed and modernized. (Figures 2.7-17 through 2.7-18)

Three new park-and-ride lots are proposed with facilities planned at Exits 2, 3 and 5. The existing park-and-ride facility at Exit 4 will be retained and minor modifications would be made to the current parking layout to accommodate a new terminal building. Early construction of the park-and-ride facilities and the implementation of expanded bus service are proposed in advance of the highway widening to facilitate the maintenance of traffic.

- At Exit 2, the park-and-ride lot will be located adjacent to the interchange in the SE quadrant. (Figure 2.7-4)
- At Exit 3, the park-and-ride lot will be located easterly of, and adjacent to, the SE quadrant adjacent to the relocated northbound barrel. (Figure 2.7-7)
- At Exit 4, the existing facility will be retained and a new terminal building constructed. (Figure 2.7-14)
- At Exit 5, the park-and-ride lot will be located west of the interchange along the north side of NH 28 predominantly utilizing the Cycle World parcel and two other vacant parcels, with partial property impacts to the Waste Management, Exxon gas station, and Senior Care Center parcels. (Figure 2.7-18)

The NHDOT proposes to implement ITS technologies, as well as Incident Management strategies, for the I-93 corridor. Measures such as variable message boards, highway advisory radio broadcasts, web site information, emergency reference markers are under consideration, as well as greater coordination among NHDOT, State Police, and local emergency officials.

To further expand multimodal opportunities in the corridor, the NHDOT recently completed a separate Bikeway Feasibility Study to identify alternative transportation corridors for pedestrian and bicycle travel between Salem and Concord, NH. The study recommended the development of a rail trail facility located along the abandoned Manchester-Lawrence railroad corridor, located east of I-93. The Selected Alternative will also accommodate space within the highway corridor for a potential future rail line between the Exit 5 interchange and the MA/NH state line. The rail corridor could provide future rail service between Lawrence, MA or Woburn, MA (and ultimately Boston, MA) to the south and the Manchester Airport and/or the City of Manchester, NH to the north.

5.3 Description of Section 4(f) Resources

Full descriptions of National Register Eligible properties in the project area are included in Section 3.10.5.3. Depending on options chosen, Section 4(f) impacts could occur to the Kinzler House (SAL0204), Robert Armstrong House (WND0086), George Armstrong House (WND0085), George Dinsmore House (WND0033), Robert J. Prowse Bridge (LON0116), Woodmont Orchards Historic District (LON-D1), Reed Paige Clark Homestead (LON0114) and the Gearty House (LON0105).

5.4 Impacts on Section 4(f) Properties

All Section 4(f) impacts are historic, as no public parks, recreation areas or waterfowl and wildlife refuges will be affected.

The Selected Alternative, which is the Four-Lane Alternative with options as noted in Section 2.7.1, will result in Section 4(f) impacts to 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 4.10.2.2 for information on Section 106 impacts. Figures 2.3-24 through 2.3-36 show the configuration of, and the impacts with, the Options described below.

Segment A

The Three-Lane and Four-Lane Alternatives and Combination Alternative will have a similar Section 4(f) impact on the 5.8-acre Kinzler House property (SAL0204), located on Cross Street (**Figure 5.4-1**). Some 2,200 square feet would be acquired for right-of-way. Approximately 1,200 square feet for slope work will be necessary, which will be contained within the proposed right-of-way.

Segment B


This segment would have no Section 4(f) impacts on historic resources.

Segment C

This segment would have no Section 4(f) impacts on historic resources.

Segment D

The tight-shift options (Options 7 through 9) with the Three-Lane, Four-Lane, and Combination Alternatives in Segment D will involve Section 4(f) impacts to two historic properties: the Robert Armstrong House (WND0086) and the George Armstrong House (WND0085), both located along the north side of NH 111A (Range Road) in Windham (**Figure 5.4-2**). Both properties will need to be acquired and the historic structures relocated or demolished.

Only Options 1, 2 and 7 in Segment D would have a Section 4(f) impact on the George Dinsmore House (WND0033) through slope work that would affect 1,500 square feet of the 1.1-acre eligible parcel .

Segment E

Impacts to three historic properties could occur in Segment E. The widening of the northbound and southbound lanes of I-93 will necessitate the replacement of the Robert J. Prowse Bridge (LON0116), which has been determined eligible for the

National Register (**Figures 5.4-3**). Its loss would constitute a Section 4(f) impact through physical destruction of the historic structure.

The 196-acre Woodmont Orchards Historic District (LON-D1) will not be impacted by the Selected Alternative or its Easterly Option components. However, this parcel would be impacted by the Westerly Option by right-of-way acquisition of 5.4 acres along the west side of I-93, which includes slope impacts to 3.6 acres in the same area.

The 114.4-acre Reed Paige Clark Homestead (LON0114) on Stonehenge Road will be impacted by the loss (ROW acquisition) of approximately 2 acres of land within the eligible parcel along its boundary with I-93 due to right-of-way acquisition with the Three-Lane, Four-Lane, or Combination Alternative. The impact does not create an adverse effect, because the work will not affect any National Register eligible characteristics of the property. The eligible boundary was created by the initial construction of I-93 and is not the historic boundary of the property. Of the 2 acre impact, 0.2 acres of land will be physically affected by slope work with the Three-Lane and Combination Alternatives, while 0.4 acres of land will be affected by slope work with the Four-Lane Alternative (**Figure 5.4-4**). However, the work will not affect any National-Register eligible characteristics of the property because this area has been previously disturbed by construction and was not traditionally part of the agricultural operations because of its topography.

Segment F

The Three-Lane, Four-Lane and Combination Alternatives will have a similar Section 4(f) impact on the Gearty House property (LON0105), which contains 1.5 acres and is eligible for the National Register (**Figure 5.4-5**). This property will be affected by right-of-way acquisition of 100 square feet plus slope work on 365 square feet of the property.

5.5 Avoidance

Consideration was given in the planning process to shifts in the alignments to avoid 4(f) impacts. All alternatives avoid 4(f) impacts to the Armenian Settlement Historic District (SAL-D1), Indian Rock (WND0206), the Moody House (LON0117), the Shepard House (LON0103), and the Manchester Low-Service Pumping Station (MAN-D1). Only the No-Build Alternative avoids any 4(f) impacts to all historic properties. In Segment D, Options 1, 2, and 7 would have 4(f) impact on the George Dinsmore House (WND0033), while all remaining options for Segment D would avoid these impacts.

Specific avoidance alternatives for the impacted properties follow:

Kinzler House (SAL0204)

The impacts to the Kinzler House cannot be avoided because of the need to replace the existing Cross Street Bridge and its approaches. The new bridge and approach alignment was shifted northerly, away from the Kinzler House as much as practicable before transitioning and matching into existing Cross Street. Shifting Cross Street to avoid any impacts to the property would require the total realignment of Cross Street. This would result in additional impacts to adjacent properties, possibly resulting in some total acquisitions, and would introduce an angle point on Cross Street. The Three-Lane, Four-Lane, and the Combination Alternatives have identical 4(f) impacts to this property in this area. However, the impact is minor, consisting of repaving an existing paved area and will not change the National Register Eligible characteristics of the property.

George F. Armstrong House (WND0085)

For the Three-Lane, Four-Lane, and Combination Alternatives, only the Northbound Shift Option, which includes Options 1-6 in Segment D, avoids the loss of this historic property. There is no way to avoid the removal of the buildings under the Tight Shift Option, which includes Options 7-9 for the Three-Lane and Four-Lane Alternatives. The Tight Shift Option is a component of the Selected Alternative. Options 7-9 include the realignment of the northbound and southbound barrels of I-93 into the median area. The layout was developed at the Town of Windham's request to look at ways to reduce the Exit 3 Interchange footprint, similar to other interchanges along the corridor. With the Tight Shift Option, the mainline grade for the southbound roadway would be raised nearly 25 feet through the Exit 3 Interchange area to flatten and improve the existing steep downgrade from five-percent to approximately three-percent. The grade raise would improve the current undesirable geometric combination of a steep downgrade with relatively sharp horizontal curvature along the southbound roadway. The shift also moves the mainline away from both Cobbetts Pond and Canobie Lake (important recreational resources and in the case of Canobie Lake, the Salem drinking water supply), while allowing for the reconnection of previously bisected wetlands in the interchange area.

Robert Armstrong House (WND0086)

For the Three- and Four-Lane Alternatives, only the Northbound Shift Option, which includes Options 1-6 in Segment D, avoids the loss of this historic property. There is no way to avoid the removal of the buildings under the Tight Shift Option, which includes Options 7-9 for the Three-Lane, Four-Lane and Combination Alternatives. The Tight Shift Option is a component of the Selected Alternative. Options 7-9 include the realignment of the northbound and southbound roadways of I-93 into the median area. The layout was developed at the Town of Windham's request to look at ways to reduce the Exit 3 Interchange footprint to a smaller footprint similar to other interchanges along the corridor. With the Tight Shift Option, the mainline grade for the southbound roadway would be raised nearly 25 feet through the Exit 3

Interchange area to flatten and improve the existing steep downgrade from five-percent to approximately three-percent. The grade raise would improve the current undesirable geometric combination of a steep downgrade with relatively sharp horizontal curvature along the southbound roadway. The shift also moves the mainline away from both Cobbetts Pond and Canobie Lake (important recreational resources and in the case of Canobie Lake, the Salem drinking water supply), while allowing for the reconnection of previously bisected wetlands in the Exit 3 Interchange area. ■■■

George Dinsmore House (WND0033)

The widening of I-93 for the Three-Lane, Four-Lane, and Combination Alternatives avoids the Section 4(f) impact on this property. For any alternative, the only options along NH 111 that have slope impacts to the property are Options 1, 2, and 7 of Segment D. Selection of Options 3-6, 9, or the Selected Alternative, Option 8, would avoid these impacts.

Woodmont Orchards Historic District (LON-D1)

The Segment E, Easterly option avoids any slope and right-of-way impacts on the Woodmont Orchard property for the Three-Lane, Four-Lane, and Combination Alternatives. Segment E, Westerly option would have both slope and right-of-way impacts to this property under all alternatives. The Easterly and Westerly options refer to widening the I-93 mainline either all to east or to the west. These alternatives were developed to test the relative impacts of one option against the other, while trying to stay away from Wheeler Pond and the adjacent wetlands on the east and the Section 4(f) Woodmont Orchard property on the west. In addition, the Westerly option would require reconstruction of a portion of the existing Exit 4 park-and-ride lot as well as additional costs associated with reconstruction of the southbound ramps and ledge removal. The Selected Alternative incorporates the Easterly Option and therefore does not have any 4(f) impacts to the property (Figure 5.4-3).

Reed Paige Clark Homestead (LON0114)

All alternatives result in impact to this property (Figure 5.4-4). Considering the 114.4-acre size of this property, this effect is considered minimal. The land acquired is already disturbed and was not traditionally part of the agricultural operations of the property due to its topography.

Gearty House (LON0105)

All alternatives impact this property (Figures 5.4-5). Measures to minimize harm include minimizing acquisition and slope work, which limit impacts to the property.

Robert J. Prowse Memorial Bridge (LON0116)

There is no feasible way to avoid the necessity of replacing this bridge under the Three-Lane, Four-Lane, and Combination Alternatives. The existing span of the Prowse Bridge is not suitable to accommodate the proposed mainline widening for any of the Alternatives.

Several different considerations for the reuse and/or extension of the structure were evaluated and substantial design concerns resulted. These concepts include:

1. Extending the bridge by splicing new girders onto the eastern end of the bridge, thereby developing an additional span to cross over the proposed northbound lanes. This creates welding issues, as the existing steel is considerably different as compared to the type of steel presently specified for new bridge structures. Splicing and extension of the existing bridge would also alter the appearance of the overall structure and would compromise the historical integrity of the bridge.
2. Retaining and reusing the bridge at its present location to accommodate either the proposed north- or southbound barrel of I-93, by shifting the proposed alignment to either the east or the west (Figure 5.5-1). Both shifts would result in poor alignments and in substantial additional right-of-way acquisitions. The width of the proposed rail corridor would need to be reduced and elevation lowered, requiring retaining walls to protect the bridge's pier foundation. Furthermore, the west shift would entail additional wetland impacts, require realignment of Trolley Car Lane and would result in impacts to the Woodmont Historic District.
3. Removal and reuse at a different location along the I-93 corridor is problematic, since the field-welded splices and connections of the steel rigid frame structure would be difficult to dismantle in a manner that would allow effective and appropriate reassembly.

5.6 Measures to Minimize Harm

Kinzler House (SAL0204)

Impacts to this property have been minimized as much as feasible in project design.

The George F. Armstrong House (WND0085)

The only possible measure to minimize harm for the loss of this property under Options 7-9 of the Three-Lane, Four-Lane and Combination Alternatives is to acquire and record the building to HABS (Historic American Buildings Survey) standards. It will then be reconvened to the owner, or marketed to the public if the owner does not elect the reconveyance, with protective covenants for relocation in an appropriate setting. A portion of demolition costs would be allocated as an incentive for relocation. If efforts to market the house are unsuccessful, the building will be demolished.

Robert Armstrong House (WND0086)

The only measure to minimize harm for the loss of this property under Options 7-9 of any alternative is to acquire and record the house to HABS standards. Because of the high architectural quality and integrity of the house, the NHDOT will relocate it, if feasible, to a suitable setting as close to its current location as practicable. The NHDOT will conduct a building relocation study prior to the move. This study will be done at the time of the HABS documentation following the completion of the EIS process. The house will then be reconveyed to the owner, transferred to the Town or marketed to the public if the owner does not elect the reconveyance. The reconveyance will include protective preservation and maintenance covenants. The issue of relocating the house and maintaining its historic integrity will be reviewed with the property owner, the Windham Historical Commission, and the prospective owner of the dwelling in consultation with FHWA and NHDHR.

George Dinsmore House (WND0033)

Minimizing slope work is the only measure to minimize impact to this property under Options 1, 2 and 7.

Woodmont Orchards Historic District (LON-D1)

There is no mitigation for the adverse effect of right-of-way acquisition and slope work under Segment E-Westerly option.

Reed Paige Clark House (LON0114)

Considering the 114.4-acre size of the property and the fact that the characteristics that make the site eligible for the historic registration are not being affected, the impact to this property is considered minimal and mitigation efforts would have little benefit.

Robert J. Prowse Memorial Bridge (LON0116)

The NHDOT will replace the bridge with a steel rigid frame structure of compatible design. The measures to minimize the loss of this structure would be to record the bridge to HAER (Historic American Engineering Record) standards and market it for relocation. The availability of the bridge will be advertised for a period of time agreed to by FHWA, NHDOT and NHDHR. Federal-aid highway funds will be made available for its relocation up the estimated cost of its demolition. If marketing of the bridge is unsuccessful, the NHDOT will demolish the structure. An interpretive exhibit about its design and its fabrication will be developed in consultation with FHWA and NHDHR and displayed at the Salem Rest Area.

The original bridge plaque is to be retained with the bridge unless an adaptive use for the structure cannot be found, in which case it will either be placed in the interpretive exhibit at the Salem Rest Area or exhibited in the NHDOT lobby.

5.7 Coordination

Meetings were held among the State Historic Preservation Office (NHDHR), the Federal Highway Administration (FHWA), and the New Hampshire Department of Transportation (NHDOT) throughout the course of the project. Determinations of National Register Eligibility were made at meetings on February 13 and 27, 2002, and Determinations of Effect were made by consensus on March 14, 2002. An Effect Memo was signed on August 8, 2002. Coordination meetings on the appropriate mitigation were held on September 11, 2003 and December 11, 2003. A Memorandum of Agreement was signed on February 6, 2004 (see Appendix G).

Coordination has been established with the US Department of the Interior (USDO I) regarding Section 4(f) issues. On December 30, 2002, the USDO I commented on the DEIS indicating that they concurred that there are no prudent and feasible alternatives to the Preferred Alternative (which had the same 4(f) impacts as the Selected Alternative) subject to necessary completion of a Memorandum of Agreement with the State Historic Preservation Officer.

5.8 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.