*Finding of No Significant Impact*
*Summary of Environmental Impacts and Mitigation Commitments*

# Whittier Bridge I-95 Improvement Project

## Newburyport, Amesbury, Salisbury

## Massachusetts







**January 2012**

U.S. Department of Transportation Federal Highway Administration

massDOT Massachusetts Department of Transportation Highway Division

Accelerated Bridge Program

FEDERAL HIGHWAY ADMINISTRATION
FINDING OF NO SIGNIFICANT IMPACT
FOR
WHITTIER BRIDGE/I-95 IMPROVEMENT PROJECT
NEWBURYPORT, AMESBURY, AND SALISBURY, MASSACHUSETTS

The FHWA has determined that the replacement of the Whittier Bridge and improvements to Interstate 95 will have no significant impact on the environment. This Finding of No Significant Impact (FONSI) is based on the Environmental Assessment prepared for this project, which was made available for public review on November 23, 2011. This document has been independently evaluated by the FHWA and has been determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and include appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The FHWA takes full responsibility for the accuracy, scope and content of the Environmental Assessment.

Jan 20, 2012
DATE

Pamela S. Stephenson
Division Administrator
Massachusetts Division
Federal Highway Administration

**WHITTIER BRIDGE/INTERSTATE 95 (I-95) IMPROVEMENT PROJECT**
**NEWBURYPORT, AMESBURY, AND SALISBURY, MASSACHUSETTS**
**SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION COMMITMENTS**

An Environmental Assessment (EA) for the Whittier Bridge/Interstate 95 (I-95) Improvement Project Newburyport, Amesbury, and Salisbury, Massachusetts, was released by FHWA for public review on November 23, 2011. During the 30-day public comment period on the Environmental Assessment which ended on December 23, 2011, a public hearing was held on December 7, 2011 to present the project and its impacts. Notice of this meeting was published in local newspapers and sent to state, federal and local agencies and officials. A total of 27 agencies, organizations or individuals commented on the Environmental Assessment during the public comment period, including 13 public agencies, 4 elected or local officials, three community organizations and 20 private citizens. Responses to Comments on the Environmental Assessment were prepared, and a Final Environmental Impact Report is being prepared under the Massachusetts Environmental Policy Act to clarify issues related to state permitting and approvals.

The Whittier Bridge/I-95 Improvement Project is being advanced by the Massachusetts Department of Transportation – Highway Division (MassDOT) under the Accelerated Bridge Program to replace the existing I-95 six-lane John Greenleaf Whittier Memorial Bridge (Whittier Bridge) over the Merrimack River with a pair of new bridges to remedy the structural deficiencies and functional obsolescence of the existing bridge. In addition, MassDOT will widen the existing three-lane cross section of I-95 within the existing highway median to a consistent four-lane cross section from immediately north of the I-95/Route 113 Interchange (Exit 57) in Newburyport, through Amesbury, to just north of the I-495 northbound entrance ramp to I-95 in Salisbury (Exit 59)—a distance of approximately 4.25 miles. The project is proposed for the Design-Build method of project delivery.

In addition, the construction of a "shared-use path," which will parallel the I-95 alignment will be included. The path will originate at the existing Exit 57 Park-and-Ride Lot in Newburyport, cross the Merrimack River on the proposed I-95 northbound bridge, and continue north in Amesbury, paralleling I-95 to a point south of Exit 58 in Amesbury where the path will split into two legs. One leg will turn to the east and terminate at a parking area to be provided at the end of Old Merrill Street. The other leg will continue north within the I-95 right-of-way (ROW), paralleling I-95 northbound, and then turn to follow the I-95 northbound off-ramp to Route 110 eastbound at Exit 58. The path will continue to the east, paralleling Route 110, and terminate at the southwest corner of the Merrill Street and Rabbit Road intersection in Salisbury.

Six additional bridges along the I-95 alignment will be widened, rehabilitated, or replaced as necessary to accommodate the widened I-95 roadway and to improve the conditions of the following structures:

- Pine Hill/Ferry Road Bridge over I-95 in Newburyport: Realignment and widening of I-95 northbound will require reconstructing the bridge to accommodate the new roadway alignment. The bridge will be reconstructed slightly to the south of the current alignment (within the existing ROW) and will include sidewalks and 5-foot shoulders to accommodate bicycles.
- I-95 over Evans Place in Amesbury: This bridge will be reconstructed and widened to accommodate eight lanes of traffic on I-95.
- I-95 northbound and southbound over Route 110 (Elm Street) in Amesbury: Each bridge will be rehabilitated and widened to accommodate eight lanes of traffic on I-95.
- Three railroad bridges just north of Route 110 (Elm Street) in Amesbury: These I-95 bridges will be widened to accommodate eight lanes of traffic. The I-95 northbound on-ramp bridge will be widened because of the widening of I-95 northbound.

Construction of the project will require no permanent takings of any residential, commercial, or industrial property located outside of the existing I-95 ROW. All permanent roadway, bridge, and retaining wall structures would be constructed within the limits of the existing ROW.

A temporary construction easement will be required for the construction of a retaining wall along the eastern edge of the I-95 ROW adjacent to the Whittier Point Condominium property in Amesbury. A permanent easement on property owned by the Newburyport Water Department will be required to construct a stormwater basin to the east of the realigned I-95 northbound lanes. Other minor temporary easements will be required for construction activities along the corridor.

**Project Setting**

The Whittier Bridge is a fixed span steel truss bridge with four (4) tapered granite faced reinforced masonry wall piers within the waterway and five spans. There are two navigation channels under the bridge, namely the Federal or north (primary) and Steamboat or south (secondary) channels, which maintain vertical clearances of 55 feet and 32 feet, respectively. The primary channel depth is approximately 24 feet, while the depth of the secondary channel is lower at 20 feet Mean Lower Low Water.

When constructed in the early 1950s, the Whittier Bridge was designed to carry two travel lanes in each direction with full breakdown lanes along the shoulders, matching the original configuration of the I-95 roadway. Between 1967 and 1969, however, I-95 was widened north of the bridge to provide three travel lanes in each direction to I-495 in Salisbury, and four travel lanes in each direction from I-495 north to the New Hampshire state line. Between 1973 and 1977, I-95 was widened south of the bridge to provide four travel lanes in each direction from Route 113 in Newburyport to US Route 1 in Danvers. In 1977, the cast-in-place reinforced concrete deck on the bridge was completely replaced and the roadway on the bridge was reconfigured to create three 12-foot travel lanes in each direction between the limits of the existing trusses. Breakdown lanes on the bridge were eliminated at that time, except for 2 foot offsets, and concrete barriers were installed along the outer shoulders and the center median to protect the trusses and suspender cables from collisions.

**Alternatives Evaluated**

The EA assessed numerous alternatives to the Preferred Alternative design for engineering, environmental, and cost factors. Alternatives analyzed included highway widening and Merrimack River crossing alignment alternatives, alternative designs for the proposed replacement Merrimack River bridges, and alternative alignments and routes for the proposed shared-use path.

**Merrimack River Crossing and Highway Widening Alternatives**

**No Build:** This alternative would involve limited maintenance without additional travel lanes or breakdown shoulders rather than replacing or rehabilitating the Whittier Bridge.

**River Crossing Alternatives:**

- ***Progressive Alternative****:* This alternative would replace the existing Whittier Bridge with a new eight-lane bridge to be constructed in several stages of construction.
- ***Rehabilitation Alternative****:* This alternative would involve extensive rehabilitation of the existing Whittier Bridge without widening the bridge for additional travel lanes.
- ***Retrofit with Adjacent Structure Alternative****:* This alternative would be similar to the Rehabilitation Alternative with the addition of a temporary bridge to carry traffic during construction. No additional travel lanes would be constructed.
- ***New 6-Lane Bridge Alternative****:* This alternative would provide two new bridges, which would carry three lanes of traffic northbound and three lanes of traffic southbound.
- ***New 8-Lane East West Bridge Alternative:*** Under this alternative, two new four-lane bridges would be constructed to the east and west of the existing bridge. Traffic would then be transferred to the new bridges, and the existing bridge would be demolished.
- ***New 8-Lane East Bridge Alternative****:* This alternative would provide a new bridge to the east of the existing bridge, to which all traffic would be temporarily relocated. The existing Whittier Bridge would then be demolished, and a second new bridge would be constructed in its place. When construction is completed, the two new bridges would be configured to carry four lanes of traffic northbound and four lanes of traffic southbound.

- ***New 8-Lane West Bridge Alternative****:* This alternative is similar to the previous alternative, except a new bridge would be constructed to the west of the existing bridge.

**Highway Widening Alternatives:**

- ***Inside Widening Highway Alternative (Northern Terminus at Route 286):*** This alternative would begin at the Route 110 interchange and end at the Route 286 interchange. The alternative would widen the northbound and southbound barrels within the existing median.
- ***Outside Widening Highway Alternative (Northern Terminus at Route 286):*** This alternative would begin at the Route 110 interchange and end at the Route 286 interchange. This alternative would widen the northbound and southbound barrels to the outside of the existing highway.
- ***Inside Northbound/Outside Southbound Widening Highway Alternative (Northern Terminus at Route 286)****:* This alternative would begin at the Route 110 interchange and end at the Route 286 interchange. This alternative would widen the northbound barrel into the existing median and widen the southbound barrel to the outside of the existing highway.
- ***Outside Northbound/Inside Southbound Widening Highway Alternative (Northern Terminus at Route 286):*** This alternative would also begin at the Route 110 interchange and end at the Route 286 interchange. This alternative would widen the northbound barrel to the outside of the existing highway and widen the southbound barrel into the existing median.
- ***Northern Terminus at Route 110 Widening Highway Alternative****:* This alternative would involve widening both the northbound and southbound barrels with a fourth lane to the outside of the existing highway between Route 110 and I-95.

***Evaluation Criteria***

The following engineering and environmental criteria were developed to screen the Merrimack River crossing and highway widening alternatives:

- **Purpose and Need**: How each alternative met the Purpose and Need of the Project;
- **Highway Configuration :** Including horizontal alignment, vertical alignment and impacts to existing infrastructure;
- **Bridge Configuration:** Including design standards/complexities, structural safety, constructability, context sensitive structures, maintenance and inspection and life cycle/cost;
- **Traffic**: Including travel time, level of service, and capacity;
- **Right-of-Way**: Including fee taking, permanent easement and temporary/construction easement;
- **Cost**: The relative cost differences of each alternative considering constructability, site access, construction staging ease/restraints, traffic management, ease of demolition, and schedule impact because of extended construction;
- **Construction**: Including utility relocation, constructability/demolition of existing structures, and maintenance of traffic during construction;
- **Schedule**: The relative difference between alternatives for the estimated construction schedule duration of each alternative; and
- **Environmental:** Including stormwater management [ability of each alternative to meet MassDEP stormwater performance standards, drinking water quality [the degree of impact on local drinking water supply protection areas], wetland resource areas [total estimated impact to wetland resource areas within the project area], visual/viewpoints [the level of visual impact], historic properties [potential impact on the historic Whittier Bridge] and navigation [potential impacts to navigation on the Merrimack River].

After a thorough evaluation of the river crossing and highway widening alternatives, the New 8-Lane East Bridge Alternative and the Inside Widening Highway Alternative (Northern Terminus to Route 286) were combined into the Preferred Alternative.

This alternative best met the Purpose and Need, as well as Highway Configuration, Traffic, Bridge Configuration, Construction, Right-of-Way, and Environmental criteria.

**Bridge Design Alternatives**

Four bridge types were evaluated as potential replacement structures for the existing Whittier Bridge. The design types included structural options for the network tied-arch (steel plate or steel box girder approach spans), box girder (steel plate, concrete box or segmental concrete box girders), and cable-stayed (concrete or steel box girders). The following list includes a general description of the four overall bridge designs:

- **Network Tied-Arch**: a modern version of an arch-style bridge reminiscent of the existing Whittier Bridge;
- **Box Girder**: a bridge in which the main beams comprise girders in the shape of a hollow box, using either steel, concrete, or a combination;
- **Cable-stayed**: a bridge that consists of one or more columns (towers or pylons) with cables supporting the bridge deck. There are two major types: a harp design with cables nearly parallel, and a fan design where all cables connect to or pass over the top of the towers (similar to the I-93 Leonard P. Zakim Bunker Hill Bridge in Boston and Cambridge); and
- **Extradosed:** a type of cable-stayed bridge with a stiffer and stronger bridge deck that allows the cables to be omitted close to the towers and allows the towers to be lower in proportion to the span.

The bridge design alternatives were comparatively evaluated for numerous engineering and environmental factors, including:

- **Structural/Redundancy:** difficulty of design and redundancy of structure;
- **Highway/Profile Impact:** profile impact of the structure;
- **Inspection and Maintenance:** accessibility and frequency;
- **Schedule Impacts:** suitability for Accelerated Bridge Construction and number of months to complete.
- **Constructability:** complexity of construction and logistical constraints;
- **Environmental:** shading [salt marsh], loss of river bottom [square feet], noise, fisheries, wildlife, floodplains, historic and visual impacts;
- **Cost:** preventative maintenance, life cycle and construction costs;
- **Aesthetics:** the visual impact of structure, articulation of channel location, and driver's view; and
- **Section 106 Criteria:** use of granite in piers [all alternatives], graceful lines, iconic structure, elegant arch [arch alternative], and reuse of artifacts [arch alternative].

The evaluation concluded that the steel network tied-arch bridge with steel box girder approaches was rated highest of all the bridge types evaluated, with the steel network arch bridge with steel plate girder approaches ranking second. Consequently, MassDOT selected the network tied-arch as the preferred bridge design for the project.

**Shared-Use Path Alignment Alternatives**

During early coordination, the three communities hosting the project strongly expressed the need for alternate means of transportation in the area connecting various destinations. After considerable evaluation, the project now includes a shared-use path from the Exit 57 Park-and-Ride Lot in Newburyport, across the Merrimack River on the new I-95 northbound bridge to Amesbury, paralleling I-95 to a point south of Exit 58 in Amesbury where the path would split into two legs. One leg would turn to the east and terminate at a parking area to be provided at the end of Old Merrill Street. The other leg would continue north within the I-95 ROW, paralleling I-95 northbound, and then turn to follow the I-95 northbound off-ramp to Route 110 eastbound at Exit 58. The path would continue to the east, paralleling Route 110, and terminate at the southwest corner of the Merrill Street and Rabbit Road intersection in Salisbury.

The shared-use path will provide access and interconnections for alternative modes of transportation between various destinations (nodes) within the existing bicycle transportation network in the project area. Six nodes were identified, including the Exit 57 Park-and-Ride Lot in Newburyport, Maudslay State Park in Newburyport, Moseley Woods Park in Newburyport, the Amesbury Visitors Center at the intersection of Main Street/Evans Place and Merrill Street, the western

terminus of the Ghost Trail in Salisbury, and the eastern terminus of the Powwow Riverwalk, at the Carriagetown Marketplace on Route 110 west of I-95 in Amesbury.

A feasibility study for the shared-use path included various alignment alternatives for the path, with variations on the origination and destination points of the path, alternative east-west connections between Maudslay State Park and Moseley Woods, and four alternative Merrimack River crossing alternatives.

At the southern project limits, two southerly path origination points were identified - the Exit 57 Park-and-Ride Lot and Pine Hill/Ferry Road in Newburyport. Ferry Road (east of I-95) and Pine Hill Road (west of I-95) provide access to Maudslay State Park and Moseley Woods.

The existing river crossing options are limited to existing bridges in the project area, such as:

- U.S. Route 1 between Newburyport and Salisbury;
- The Eastern Route Rail Bridge between Newburyport and Salisbury (west of the U.S. Route 1 crossing);
- The Hines and Chain Bridges between Newburyport and Amesbury, located immediately downstream (east) of the Whittier Bridge; and
- The Rock Bridge (East Main Street/Groveland Street) between West Newbury and Haverhill, located several miles upstream of the Whittier Bridge.

Two potential east-west connections between Moseley Woods and Maudslay State Park in Newburyport were examined:

1) an on-road connection along Pine Hill Road and Ferry Road across the new Pine Hill/Ferry Road bridge; and

2) a connection under the new I-95 bridges along the Merrimack River shoreline through the Newburyport Water Department land.

The Merrimack River shoreline option was dismissed because of potential wetland impacts, the presence of Bartlett Springs Pond, an active drinking water reservoir to the west of I-95, and the need for extensive grading to the west of I-95 to ensure that the path would meet accessibility standards. East-west connectivity for alternative transportation modes will be provided along the new Pine Hill/Ferry Road Bridge.

After considering all the shared-use path alternatives, MassDOT is proposing the path alignment that originates at the Exit 57 Park-and-Ride Lot in Newburyport and extends north parallel to I-95, crosses the Merrimack River on the I-95 northbound bridge, and extends to the intersection of Route 110 and Merrill Street and Rabbit Road in Salisbury.

**PROJECT IMPACTS AND MITIGATION**

MassDOT will obtain all necessary permits and will comply with all permit conditions and mitigation commitments. This document, all final permit applications, and all permits with their conditions will be included in the Design-Build contract documents.

**Wetland and Water Resources**

The stormwater management system to be constructed for the project will improve water quality associated with stormwater discharges to the Merrimack River and other project areas receiving waters compared to existing conditions. Stormwater detention, recharge, and improved water quality will be provided through use of the following BMPs: infiltration basins; wet basins; extended detention basins; sediment forebays (for pretreatment prior to discharge to an infiltration basin or wet basin); outlet control structure; water quality swales (in the median where space is available); infiltration trenches; and deep sump catch basins project wide.

The proposed project has been designed to be consistent with the requirements of the ACOE Section 404(b)(1) Guidelines (and Executive Order 11990) to avoid, minimize, and mitigate for unavoidable wetland impacts. Despite the implementation of the design measures to avoid and minimize wetland impacts, unavoidable impacts will occur.

The project will result in temporary and permanent, direct and indirect unavoidable impacts to approximately 1.2 acres of federal wetlands. The wetland impacts will occur within the Merrimack River (1.05 acres) and three (3) wetlands (0.15 acres) located north of the river. There will also be moderate shading but not direct impacts to vegetated wetlands along the banks of the Merrimack River.

Unavoidable permanent fill to wetlands will be mitigated by constructing a vegetated wetland creation area adjacent to I-95 northbound in Amesbury. Wetlands which are temporarily impacted due to construction activities will be restored on site in per-construction locations in Amesbury and Salisbury. An existing eroded section of salt marsh along the south bank of the Merrimack River will be enhanced by the relocation of an existing stormwater outfall which currently erodes the salt marsh. In addition, although it is not a regulatory requirement, salt marsh plantings are proposed to promote natural reestablishment of salt marsh vegetation.

**CONSTRUCTION**

Best management practices to minimize potential impacts associated with construction activities will be implemented through the Stormwater Pollution Prevention Plan (SWPPP) as required by the EPA's National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Construction Activities. Coverage under the General Permit is required for this project since it will result in the disturbance of more than one acre of land and result in discharges to waters of the U.S. Key elements of the SWPPP will include:

- Development of Soil Erosion and Sediment Control Plans for each major project phase
- Provisions for temporary and permanent stabilization of disturbed areas
- Use of compost filter tubes, silt fence, sediment traps, check dams, level spreaders to reduce storm water flow velocity and control sediment
- Use of storm water basins and swales to manage runoff during construction
- Use of outfall velocity dissipation devices
- Designation of control areas for equipment maintenance and repair
- Waste handling procedures
- Protective storage areas for potential pollutants

The SWPPP will establish the project's approach to controlling stormwater pollution during construction and will list structural and non-structural BMPs that may be employed to control stormwater pollution. The SWPPP will also identify stormwater control measures that are anticipated to remain after the construction is complete.

**Wildlife, Fisheries, and Aquatic Habitats**

In the project area, the shortnose sturgeon is the only endangered species. Therefore, a Section 7 consultation under the federal Endangered Species Act (ESA) regarding potential impacts and impact avoidance measures has been conducted with the National Marine Fisheries Service (NMFS). In a letter dated June 8, 2011, NMFS stated: "[b]ased on the analysis that any effects to shortnose sturgeon from the proposed action will be insignificant or discountable, NMFS is able to concur with the determination that the proposed reconstruction of the Whittier Bridge in Amesbury, Massachusetts is not likely to adversely affect any listed species under NMFS jurisdiction. Therefore, no further consultation pursuant to section 7 of the ESA is required." NMFS also concluded, with regards to the Atlantic sturgeon, that: "… all effects of the proposed action are likely to be insignificant and discountable and the proposed action is not likely to result in the injury or mortality of any Atlantic sturgeon, the action is not likely to appreciably reduce the survival and recovery of any [distinct population segment] DPS of Atlantic sturgeon and therefore it is not reasonable to anticipate that this action would be likely to jeopardize the continued existence of any DPS of Atlantic sturgeon. As such, no conference is necessary for Atlantic sturgeon."

In compliance with the Magnuson-Stevens Fisheries Conservation and Management Act and the Fish and Wildlife Coordination Act, MassDOT has coordinated with NMFS and the Massachusetts Division of Marine Fisheries (DMF) in their review of the effects of the proposed demolition, construction and dredging activities on Essential Fish Habitat (EFH). NMFS, in a letter dated June 8, 2011, concurred with the determination "…that the proposed reconstruction of the Whittier Bridge … is not likely to adversely affect any listed species under NMFS jurisdiction." DMF has determined, in a letter dated September 8, 2011, that "since the proposed in-water work will include cofferdams to contain siltation, a time of year (TOY) restriction is not recommended for in-water work." DMF further clarified in correspondence dated December 9, 2011 that the installation or removal of cofferdams in the Merrimack River will be limited to one cofferdam at a time and that with this restriction no TOY restrictions will be required.

The NMFS has reviewed MassDOT's Essential Fish Habitat (EFH) Assessment under the Magnuson-Stevens Fishery Conservation and Management Act, and has provided the following conservation recommendations in a letter dated November, 29, 2011:

> 1) All in-water work should take place within cofferdams as shown on the project plans. The installation of the cofferdams should only be conducted one at a time, to minimize noise and/or turbidity impacts.
>
> 2) From April I through June 30 of any year, at least one of the channels should remain unobstructed at all times to minimize impacts to Atlantic salmon migration.
>
> 3) From April I through June 30 of any year, an observer should be present on-site at the time of the installation of the cofferdams. If Atlantic salmon or other anadromous species are observed in the work area, the in-water work should be delayed until they have passed through. Prior to cofferdam installation, MassDOT should submit an observer plan to us for approval.

FHWA and MassDOT have agreed to NMFS EFH conservation recommendations in a December 1, 2011 letter from FHWA to NMFS.

**Air Quality**

The Project has been included in the Merrimack Valley Metropolitan Planning Organization (MPO) FY 2012-2015 Transportation Improvement Program (TIP). On November 30, 2011, FHWA determined that the Regional Transportation Plans and TIPs contained in the Massachusetts State Implementation Plan (SIP), including the Merrimack Valley MPO TIP, are currently in conformity with the goals of the SIP and are consistent with the Clean Air Act and the EPA conformity regulations, in accordance with 40 CFR parts 51 and 93.

Temporary emissions would be generated during the construction phase of the proposed project. Emissions from diesel-fuel burning equipment and dust generated by earth-moving operations would be the primary sources of these emissions that could temporarily affect air quality levels at nearby sensitive land uses. To mitigate the potential impacts of these emissions, control measures will be employed during the project's construction phase. Emission reduction measures will include:

- Using low-emitting diesel-fueled equipment or retrofitting of heavy duty diesel-fueled construction equipment with diesel oxidation catalysts or diesel particulate filters;
- Using electric compressors, welders, and pumps; and locating operations of large emission sources, such as excavators and earth-moving equipment, as far from sensitive land uses as possible;
- Wetting exposed soil, covering trucks, and other dust sources;
- Requiring all diesel-powered non-road construction equipment and vehicles greater than 50 brake horsepower will have engines that meet the U.S. Environmental Protection Agency (EPA) particulate matter emission standards in effect for non-road diesel engines for the applicable engine power group; or emission control technology verified by the EPA or the California Air Resources Board (CARB) for use with "non-road engines;" or emission control

technology verified by EPA or CARB for use with “on-road engines” provided that such equipment is operated with diesel fuel that has not more that 15 parts per million sulfur content; or emission control technology certified by manufacturers to meet or exceed emission reductions provided by either ”on-road” or “non-road” emission control technology verified by EPA or CARB; and

- Limiting truck idling to 5 minutes maximum in compliance with Massachusetts General Law (MGL) Chapter 90, Section 16A and the Massachusetts Department of Environmental Protection (MassDEP) idling reduction regulation (310 CMR 7.11(1)(b)).

MGL Chapter 111 Part 7.01B regulates dust emissions under construction activities. In order to comply with the $PM_{10}$ and $PM_{2.5}$ standards, and to reduce nuisance dust, the contractors will be required to keep dust down at all times including non-working hours, weekends, and holidays.

Dust control measures are described in the MassDOT – Highway Department *Standard Specifications for Highways and Bridges Manual*. The contractor will be required to comply with these requirements, intended to control excessive nuisance dust. Their use on this project will include one or more of the following measures:

- Using wet dust suppression, alone or with approved binding agents;
- Using calcium chloride instead of wet suppression when freezing conditions exist;
- Using wind-screen fabric or solid-wood barriers around the perimeter of construction site;
- Using wheel-wash stations or crushed stone at construction ingress/egress areas;
- Covering active stockpiles with plastic tarps, and seeding or using approved soil stabilizers on inactive stockpiles; and
- Covering dump trucks during material transport on public roadways.

In addition, a specification on air quality will be incorporated into contract documents to ensure compliance with the provisions of MGL Chapter 111 Section 142A, “Pollution or Contamination of Atmosphere: Prevention; Regulations; Violations; Enforcement,” and the MassDEP Code of Massachusetts Regulations (CMR) 310 CMR 7.09, “Dust, Odor, Construction and Demolition.”

Implementation of these emission-control measures will serve to reduce construction-related emissions to avoid potentially adverse public health impacts.

**Noise**

An analysis of the highway noise impacts of the Project in compliance with the procedures of the MassDOT 2011 *Type I [Traffic] Noise Abatement Guidelines.* There are 34 noise-impacted residential receptors anticipated to be impacted by traffic noise in the AM peak noise hour and 39 noise-impacted residential receptors in the PM peak noise hour. The Project would result in an increase in the total number of receptors along the I-95 corridor compared to the No Build Alternative, although increases in highway noise at all receptors would be less than 3 dBA; therefore, the increase in noise will not be discernible. However, 27 receptors in the AM peak noise hour and 41 receptors in the PM peak noise hour exceed the FHWA and MassDOT absolute noise criteria limit under existing conditions; therefore, an analysis of noise mitigation measures was completed.

Noise mitigation measures analyzed included the construction of noise barriers at locations with future noise levels approaching or exceeding the noise impact criteria limit along the project corridor. In all instances, the noise barrier analysis concluded that the barriers were not reasonable and feasible under the requirements of the MassDOT noise policy; therefore, noise barriers would not be constructed for the Project.

FHWA’s *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, Title 23 CFR Part 772, which recommends with use of the Regional Construction Noise Model (RCNM) model to evaluate construction noise. The default noise criteria in the RCNM model focuses on the $L_{10}$ noise metric, or the noise level exceeded 10 percent of the time, evaluated at the exterior of the receptor. The criteria allow for a relative increase or 3 or 5 decibels above existing (or

baseline) $L_{10}$ noise levels in A-weighted decibels (dBA). An analysis of potential construction noise impacts indicate that construction noise levels are expected to comply with criteria guidelines during limited nighttime activities, but may exceed criteria guidelines during the daytime for receptors at the Whittier Point Condominiums and the Hawkswood Estates condominiums in Amesbury due to the expected use of pile drivers to set new bridge piers in the Merrimack River. This impact is anticipated to be short term in duration and would only be completed during daylight hours. MassDOT will implement noise mitigation measures during construction, including both general and task-specific control measures. General "best practice" noise control measures would be employed whenever possible to reduce noise at its source, along the pathway, or at the receptor location directly.

To address potential noise issues arising during construction, MassDOT will require the design/build contractor to submit a noise control plan for review and approval. The noise control plan will be implemented to minimize noise during construction. Noise monitoring will be required to document compliance with the noise monitoring plan. Predicted or measured noise levels that exceed or approach the recommended construction noise limits will be addressed.

**Traffic**

The project will improve traffic flow for projected 2030 traffic and result in traffic conditions that are similar to or better than existing operations. In the proposed condition, the level of service (LOS) for Saturday AM northbound traffic between Route 113 (Exit 57) and I-495 would be LOS C, and between I-495 and Route 286 would be LOS D. All segments of the study area would be below capacity and the merge and diverge between I-495 and Route 286 would operate at acceptable levels of service. Speeds on all segments would improve and total travel time would improve to approximately 7 minutes, compared to approximately 9 minutes for the No Build condition. The LOS for Sunday PM southbound traffic between Route 113 and I-495 would be LOS C and between I-495 and Route 286 would be LOS D. All segments of the study area would be below capacity, and the merge and diverge between Route 286 and I-495 would operate at acceptable levels. The overall speeds on each link would improve and the total travel time from the Route 286 overpass to the southern project limits would be approximately 7.5 minutes.

Construction of an additional travel lane in each direction on I-95, as well as the inclusion of a wider 4-foot inside shoulder and a full 10-foot breakdown lane throughout the project corridor, would improve free-flow speed, resulting in improved travel times, speeds, and reduced congestion throughout the project limits.

MassDOT will coordinate with the Merrimack Valley Regional Transit Authority and existing commuter bus providers to maintain existing bus routes throughout the project area during the construction period. Transportation demand management strategies (including the promotion of alternative modes of transportation through the use of variable message signs) and the dissemination of construction-related activities information (including detours, work schedules, and any road closures) will be made through the project website. Six lanes of traffic on I-95 would be maintained throughout construction, with the limited exception of occasional overnight lane closures for activities such as completing traffic crossovers. The project would also significantly improve connectivity for alternative transportation modes in the project area.

The Shared-Use Path will make a significant advancement in the Merrimack Valley region bicycle/trail network with connections to the Exit 57 Park-and-Ride Lot in Newburyport through to the Salisbury Point Ghost Trail (which connects to U.S. Route 1). The Shared-Use Path will also improve access to Moseley Woods and Maudslay State Park and other regional recreational resources by providing connectivity between the Exit 57 Park and Ride lot on the south with connections to on-road bicycle lanes on Ferry Road and Pine Hill Road in Newburyport and a connection to the recently constructed bicycle accommodations at the northern end of the path, connecting along Rabbit Road in Salisbury to the Salisbury Ghost Trail. The incorporation of the Shared-Use Path into the project meets the goals of the USDOT *Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations* (March 15, 2010) to "incorporate safe and convenient walking and bicycling facilities into transportation projects" and "to improve opportunities for walking and bicycling." The project also meets the requirements of the Massachusetts *GreenDOT Initiatives Policy* to include accommodation of pedestrians and bicycles.

**Navigation**
Construction of the project would not result in any adverse impacts to navigation in the Merrimack River. The existing vertical clearances for both the federal navigation channel (under the main span of the existing and proposed new bridges) and the locally-designated secondary (so-called Steamboat) channel would be maintained. The project would widen the existing horizontal clearances in both channels under the new bridges. The proposed vertical clearance of the Federal is 61 feet and the proposed vertical clearance of the Steamboat channel is designed at 48 feet. Both clearances are measured within the navigable span at mean high water. The distance between the proposed piers within the federal channel would provide a wider 449.5 foot opening than the existing 285 foot opening. Similarly, for the Steamboat channel, the opening would increase from approximately 210 feet between the piers to a width of 259.5 feet. Permanent navigational lighting would be installed on the new bridges and navigational aids would be installed in the Merrimack River to mark both navigation channels as required by the US Coast Guard and the Massachusetts Department of Environmental Protection.

Temporary construction impacts to navigation would be minimized through extensive coordination with local mariners, and staging and anchoring of construction equipment in areas of the river located outside of the navigational channels. Any closure of a navigation channel is anticipated to be of short duration and would be of only one channel, ensuring unimpeded navigation for the majority of vessels.

**Visual**
The EA concludes that, overall, constructing the network tied arch bridge design would have a positive visual impact within the project corridor. The network tied arch bridge, the bridge type most closely replicating the look of the existing Whittier Bridge, will result in positive visual impacts at the Merrimack River crossing. An exception to this would be at the Whittier Point Condominium complex in Amesbury, located to the east, closest to the realigned I-95 northbound roadway. The project will require the removal of mature vegetation currently located within the limits of the I-95 ROW adjacent to the condominium complex. The project would relocate the I-95 northbound roadway further to the east, within the I-95 ROW, but closer to the condominiums. Removing the mature vegetation would be a major visual impact to the condominium residents.

To mitigate this impact to the greatest extent practicable, MassDOT will construct a visual barrier that will screen the view of the I-95 roadway north of the Merrimack River from the Whittier Point condominiums. Since snowplows on interstate highways can throw snow and ice a considerable distance, the proximity of the roadway to the condominium building will require construction of a snow fence to be installed on top of a retaining wall along the eastern edge of the I-95 right-of-way to preclude snow and ice from winter road plowing operations hitting the condominium building.

The visual impact of the fence will be mitigated with plantings (e.g., climbing vines) on the side facing the condominium complex to soften wall's appearance.

**Cultural Resources**
Federal Highway Administration (FHWA) and MassDOT have completed their Section 106 review of the Whittier Bridge I-95 Improvement Project and have determined that the proposed removal and replacement of the National Register-eligible Whittier Memorial Bridge would constitute an adverse effect under 36 CFR 800.5(a)(1). MassDOT has examined several bridge rehabilitation or reconstruction alternatives that might "avoid, minimize, or mitigate" the adverse effect, as required by 36 CFR 800.6(a), and FHWA and MassDOT have determined that rehabilitation or reconstruction of the existing Whittier Memorial Bridge is unfeasible. The State Historic Preservation Officer (SHPO), in a letter dated August 27, 2010, concurred with a finding by FHWA and MassDOT that the replacement of the Whittier Memorial Bridge is an unavoidable adverse effect.

MassDOT has proposed to construct a new bridge with a double-barrel network tied-arch superstructure with steel girder approach spans to replace the existing National Register-eligible Whittier Memorial Bridge. The proposed design of the replacement bridge will partially mitigate the adverse effect associated with the removal of the existing National Register-eligible bridge by providing a new context-sensitive monumental gateway structure at this important crossing of the

Merrimack River near the state's northern border. The Section 106 consulting parties and the public have expressed overwhelming support for MassDOT's Preferred Alternative.

FHWA and MassDOT have agreed to other mitigation measures that include photographic and written documentation of the existing bridge, salvage and reuse of certain ornamental artifacts from the existing bridge, preparation and installation of interpretive signage at the proposed overlooks on the new bridge, and continued consultation with local governments and the public regarding other design aspects of the proposed replacement bridge.

FHWA and MassDOT have committed to the above mitigation measures for the Whittier Bridge I-95 Improvement Project in a Section 106 Memorandum of Agreement with the federal Advisory Council on Historic Preservation (Council) and the SHPO that was fully executed on March 23, 2011. The chief executive officers of Amesbury, Newburyport, and Salisbury have signed the MOA as concurring parties.

The SHPO, MassDOT, and FHWA have agreed that the project will not adversely affect any other National Register-listed or –eligible properties, districts, or sites within this project's Area of Potential Effect. MassDOT also has determined that the project is unlikely to affect any potentially significant pre-contact or historic archaeological sites, based on an archaeological survey undertaken for the Project.

**Hazardous Waste**

The Project would potentially affect seven sites along the project corridor in Newburyport and Salisbury which may require soil sampling or remedial activities during construction.

MassDOT would address all hazardous material impacts to the project by including appropriate work specifications in the construction contract to protect worker health and safety, and to ensure proper handling and disposal of contaminated materials such as soil, groundwater, and demolition waste (e.g., asbestos-containing materials, lead-based paint, etc.).
The Project would not affect any sites listed under the federal Comprehensive Environmental Response and Cleanup Liability Act (CERCLA – aka the "Superfund" statute) and would not affect any registered hazardous waste transport, storage and disposal sites under the federal Resource Conservation and Recovery Act.

**Continued Coordination and Public Involvement**

The project team will continue to work closely with the municipalities of Newburyport, Amesbury and Salisbury and all other stakeholders during construction through continued regular meetings of the Whittier Working Group. Public informational meetings and information distribution will continue to be an important part of the project development process and the selected design-build contractor will be required to keep the public informed about construction activities and hours of work. MassDOT will post project design and construction updates on the Whittier Bridge/I-95 Improvement Project web site: http://whittierbridge.mhd.state.ma.us.