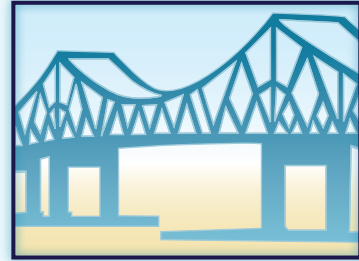


TAPPAN ZEE HUDSON RIVER CROSSING PROJECT

Joint Record of Decision and
State Environmental Quality Review Act Findings Statement



Rockland and Westchester Counties, New York



Federal Lead Agency: Federal Highway Administration

Joint Lead Agencies: New York State Department of Transportation
and New York State Thruway Authority

September 2012

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Project Identification Number (PIN): 8TZ1.00
Tappan Zee Hudson River Crossing Project
Rockland and Westchester Counties, New York

This Joint Record of Decision and State Environmental Quality Review Act (SEQRA) Findings Statement (Joint ROD and Findings Statement) documents the Federal Highway Administration's (FHWA), the New York State Department of Transportation's (NYSDOT), and New York State Thruway Authority's (NYSTA) findings and decision to proceed with the proposed action as described in the Final Environmental Impact Statement (FEIS) (#FHWA-NY-EIS-12-01-F) for the Tappan Zee Hudson River Crossing Project.

This Joint ROD and Findings Statement is prepared in accordance with the National Environmental Policy Act (NEPA; 42 USC § 4321 et seq.), the Council on Environmental Quality (CEQ) regulations implementing NEPA 40 CFR Parts 1500 to 1508, and FHWA's regulations implementing NEPA 23 CFR Part 771.

This Joint ROD and Findings Statement is also prepared in accordance with SEQRA (ECL Article 8, 6 NYCRR Part 617) and NYSDOT's Procedures for the Implementation of SEQRA (17 NYCRR Part 15. NYSDOT and NYSTA have given consideration to the facts and conclusions relied upon in the Federal FEIS and determined that the requirements of Article 8, Section 8-0109 of the Environmental Conservation Law and implementing regulations have been met.

FHWA, NYSDOT, and NYSTA have selected the Replacement Bridge Alternative for the Tappan Zee Hudson River Crossing Project (the "Selected Alternative"). This alternative is fully described in Chapter 2, "Project Alternatives," of the FEIS. The FEIS was signed by the FHWA on July 25, 2012 and a Notice of Availability (NOA) was published in the Federal Register on August 3, 2012.

The FEIS was made available via the following web addresses: www.thenewtzb.com and www.newNYBridge.com as well as at repositories in Rockland and Westchester Counties.

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1 PROJECT LOCATION

The Tappan Zee Bridge is located in the State of New York, and crosses the Hudson River between the Village of South Nyack in Rockland County on the west and the Village of Tarrytown in Westchester County on the east. The bridge carries Interstate 87 (New York State Thruway) and Interstate 287.

The Tappan Zee Bridge provides the only interstate highway crossing of the Hudson River for the 48-mile stretch between the George Washington Bridge (Interstate 95) and the Newburgh-Beacon Bridge (Interstate 84). It is a vital link between the population and employment centers of Rockland and Westchester Counties, is a major route for freight movement, and is an emergency evacuation route.

2 PROJECT HISTORY AND BACKGROUND

In April 2000, a Long Term Needs Assessment and Alternatives Analysis was completed by the New York State Governor's I-287 Task Force. The report concluded that while there was no single preferred solution for addressing the transportation needs in the Tappan Zee Bridge/I-287 Corridor, both short-term and longer-term improvements were needed. All of the long-term alternatives evaluated by the Task Force called for replacement of the existing Tappan Zee Bridge because it was concluded that rehabilitation of the existing bridge would be highly disruptive, as costly, and not nearly as beneficial in mobility enhancement or congestion relief as a replacement bridge.

Since 2000, a number of alternatives have been considered for the replacement of the Tappan Zee Bridge and the enhancement of capacity through the Interstate 87/287 corridor. These alternatives included bridge and highway improvements as well as new and enhanced transit services. Throughout the project development, FHWA, the Federal Transit Administration (FTA), NYSDOT, NYSTA, and Metro North Commuter Railroad (MNR) engaged in a robust public outreach effort. Public involvement entailed multiple forums and formats, including one-on-one meetings and large group settings. Two community offices, one in Nyack and one in Tarrytown, were established to provide information to those interested in the project. A website and newsletters provided written updates to the interested public, and there was a robust media campaign. The project sponsors solicited input from stakeholders through five Stakeholders' Advisory Working Groups that met regularly to guide project development efforts, meetings with elected officials and community groups, and individual meetings as requested. Large public forums such as meetings and workshops were held a number of times at various locations to continue to inform the public. In total, there were hundreds of public and stakeholder meetings. The project sponsors compiled a mailing list of more than 5,000 interested individuals and organizations.

In 2011, while advancing financial analysis, it was determined that funding for a 30-mile corridor project (bridge replacement, highway improvements, and new transit service) was not financially feasible at this time. The financing of the crossing alone, however, was considered affordable. Therefore, it was determined that the scope of the project should be limited, and efforts to replace the Hudson River crossing independent of the transit and highway elements should be advanced.

The new Tappan Zee Hudson River Crossing Project does not preclude the planning, design, construction or consideration of future transit modes in the project area. Furthermore, a goal of the Tappan Zee Hudson River Crossing Project is to maximize the public investment in the new crossing. Given that the lifespan of a new crossing will extend over a century, it is prudent to design the new bridge to optimize the flexibility for future transportation modes that may not be practicable now, but may be over the lifespan of the new crossing. Certain design features will be included in this project to maximize the public investment. These design features include added width, a gap between structures, providing certain grades, and increased design loadings. Any future transit improvement project would require its own environmental review, studies, and permits.

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On October 12, 2011, FHWA and FTA published a Notice of Intent (NOI) to rescind the Tappan Zee Bridge/I-287 Corridor Project, thereby concluding the environmental review process for the combined study of bridge, highway, and transit elements. On that same date, FHWA published a NOI for the Tappan Zee Hudson River Crossing Project to examine alternatives for an improved Hudson River crossing between Rockland and Westchester Counties. As described in the NOI for the Tappan Zee Hudson River Crossing Project, its environmental review would rely on previous relevant documents prepared for the Tappan Zee Bridge/I-287 Corridor Project, but its EIS would be an independent undertaking from the previous project.

The NOI also included a notice of scoping, which initiated the public comment period on the scope of the project. A Scoping Information Packet was prepared and made publicly available. The Scoping Information Packet included a description of the purpose and need, goals and objectives, alternatives to be considered in the Draft EIS (DEIS), and the framework of analysis for the EIS. The public was invited to comment on the alternatives under consideration and the scope of analysis for the EIS. The public was also provided the opportunity to submit oral or written comments at the public scoping briefings, which were held on October 25, 2011 and October 27, 2011. The comment period for project scoping ended on November 15, 2011. A Scoping Summary Report, which summarized the comments received and provided responses as appropriate, was prepared and made available on the project website and at project repositories.

Following scoping, the DEIS was prepared to assess the environmental impacts of the project consistent with NEPA and other applicable regulations and requirements. FHWA, NYSDOT and NYSTA approved the DEIS for public circulation on January 18, 2012, and an NOA was published in the Federal Register on January 27, 2012.

The public review of the DEIS included distribution of the document to government agencies, elected officials, civic and interested groups, and the public. During that time, public hearings were held on February 28, 2012 and March 1, 2012 at which members of the public could offer oral testimony on the findings of the DEIS. FHWA, NYSDOT and NYSTA initially established a 45-day public comment period for the DEIS, but the comment period was later extended to 60 days and ended on March 30, 2012. Comments received after March 30, 2012 were also responded to in the FEIS.

During the comment period on the DEIS, FHWA, NYSDOT, and NYSTA received 1,010 written comment submissions (letters and e-mails) from elected officials, public agencies, advocacy groups, and individuals. A total of 1,151 people attended the two public hearings. All comment letters, e-mails, and comment forms as well as the transcripts of the public hearings are provided in Volume III of the FEIS.

The combined means of comments resulted in more than 3,000 individual comments on the DEIS. As appropriate, individual comments of similar views were consolidated, and comments were summarized. These summaries conveyed the substance of comments made, but did not necessarily quote the comment verbatim. In total, the FEIS includes nearly 600 summarized comments with responses to each.

Subsequent to the publication of the DEIS, design refinements were made and other new information related to the project became available. Consistent with 23 CFR Part 771.130, 6 NYCRR Part 617 and 17 NYCRR Part 15, a re-evaluation statement was prepared to determine whether a Supplemental DEIS (SDEIS) should be prepared for the project prior to the issuance of the FEIS. FHWA, NYSDOT and NYSTA concluded that the design refinements and new information considered in the re-evaluation did not have the potential to significantly impact the environment in a way not previously considered in the DEIS, and that it was not necessary to prepare an SDEIS.

After the public comment period on the DEIS closed and the re-evaluation was accepted, the FEIS was prepared. The FEIS includes the design refinements and new information from the re-evaluation, the comments and responses on the DEIS, and certain revisions to the DEIS to address the comments.

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Following FHWA, NYSDOT, and NYSTA's approval of the FEIS, it was made publicly available, and an NOA was published in the Federal Register on August 3, 2012.

The public review of the FEIS included distribution of the document to government agencies, elected officials, civic and interested groups, and the public. FHWA NYSDOT and NYSTA established a 30-day review period for the FEIS. Written comments were accepted through September 4, 2012, and responses to new or substantive comments are included in this Joint ROD and Findings Statement.

Throughout its environmental review, the Tappan Zee Hudson River Crossing Project team solicited feedback from the public and from agencies; encouraged open discussion of project details and issues; and provided both formal and informal opportunities for comments and questions. Public meetings (i.e., scoping meetings and the DEIS public hearings) were held in both Rockland and Westchester Counties to maximize public participation. Individual and group meetings were also held with elected officials from County and local government, advocacy groups, and stakeholders along the Interstate 87/287 right-of-way. The meetings will continue as project development advances. A project website was maintained throughout the preparation of the EIS with contact information (phone and email) for the project team. This website will continue to be maintained and updated regularly as the project advances.

Consistent with Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU), FHWA identified and invited federal agencies and NYSDOT and NYSTA identified and invited New York State agencies to participate in coordinated review of the EIS. These agencies were responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental impacts that could substantially delay or prevent an agency from granting a permit or other approval. The following agencies participated as cooperating agencies for the Tappan Zee Hudson River Crossing Project:

- Advisory Council on Historic Preservation (ACHP);
- National Marine Fisheries Service (NMFS);
- U.S. Army Corps of Engineers (USACE);
- U.S. Coast Guard (USCG);
- U.S. Environmental Protection Agency (USEPA);
- U.S. Fish and Wildlife Service (USFWS);
- New York State Department of Environmental Conservation (NYSDEC);
- New York State Department of State (NYSDOS);
- New York State Office of General Services (NYSOGS); and
- State Historic Preservation Officer (SHPO) of the New York State Office of Parks, Recreation and Historic Preservation (OPRHP).

Group and individual meetings were held with the agencies throughout the environmental review process to update them on the status of the project and discuss other topics as appropriate. An agency summit took place on October 24, 2011 to inform the agencies of the project and to outline the environmental review process. In December 2011, cooperating agencies were provided an opportunity to provide early comment on the preliminary DEIS, and in January 2012, FHWA hosted a Design-Build Process Workshop for the cooperating agencies. Multiple cooperating agency conference calls and individual meetings with cooperating agencies occurred throughout the preparation of the DEIS, the public review period for the DEIS, and the preparation of the FEIS.

NYSTA is using a Design-Build contracting process that will enable the selected Design-Build team to use innovation to further avoid, minimize, or otherwise mitigate environmental impacts and promote efficiency in cost and construction duration. The Instructions to Proposers (ITP) in the Request for

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Proposal (RFP) required all proposers to provide an initial Environmental Compliance Plan that described how the proposer plans to comply with the environmental commitments identified in the DEIS. The final Design-Build Contract Documents will reflect all of the environmental commitments of the DEIS, FEIS, and this Joint ROD and Findings Statement. The selection of the Design-Build team will occur following approval of this Joint ROD and Findings Statement.

3 PURPOSE AND NEED

The purpose of the project is to maintain a vital link in the regional and national transportation network by providing an improved Hudson River crossing between Rockland and Westchester Counties. The existing Tappan Zee Bridge was built in 1955 and now serves more than 134,000 vehicles per day. The bridge also serves as a major truck route between points east and west of the Hudson River. While safe to the traveling public, the bridge does not meet current standards for its design or traffic operations. The Tappan Zee Hudson River Crossing Project will address the structural, operational, mobility, safety, and security limitations and deficiencies of the existing Tappan Zee Bridge.

In the mid-1980s, notable deterioration of the Tappan Zee Bridge was recorded, prompting the beginning of an extensive repair program by NYSTA. The overall condition of the Tappan Zee Bridge continues to decline, with extensive, iterative repairs required to keep the bridge safe for the near-term. Between 2000 and 2010, NYSTA spent over \$500 million to maintain the bridge, and NYSTA estimates that an additional \$1.3 billion would be spent over the next decade to keep the bridge in a state of good repair.

3.1 STRUCTURAL DEFICIENCIES

Based on criteria provided in the NYSDOT Load and Resistance Factor Design (LRFD) Bridge Design Specifications, the Tappan Zee Bridge is classified as a “critical bridge.” A critical bridge is required to be open to all traffic once inspected after a major event, and it must be useable by emergency vehicles and for security, defense, economic or secondary life safety purposes immediately after the major event. The structure lacks the structural and service redundancies necessary to withstand extreme natural events such as hurricanes and earthquakes, man-made events such as fires or vessel collisions, or security related events.

Structural redundancy is defined as the ability of a structure to sustain an extreme event, and service redundancy is defined as the ability of a structure to remain in operation or have available alternative traffic accommodations. Lacking these redundancies, the bridge is vulnerable to damage from such events, and as a consequence, traffic disruption or full closure could result while repairs are undertaken.

3.2 OPERATIONAL AND SAFETY DEFICIENCIES

The Tappan Zee Bridge does not meet current NYSDOT and NYSTA bridge and highway standards with respect to such essential characteristics as lane and shoulder widths. It currently operates with seven lanes that range in width from 11 feet, 2 inches to 12 feet. Thus, some of its lanes are narrower than the standard 12-foot lane. The bridge has no shoulders or emergency access, and emergency vehicles must use general traffic lanes to attend to accidents or other incidents on the bridge. The bridge has a median consisting of a movable barrier with one foot of clearance on either side. This falls short of the NYSTA Design Reference Manual standard for bridges, which consists of a 10-foot left shoulder and a 10-foot right shoulder (see Appendix A-4 of the FEIS).

From 2001 to 2009, more than 2,700 accidents occurred between Interchange 9 (Route 9) in Tarrytown and Interchange 10 (Route 9W) in Nyack, the segment that includes the Tappan Zee Bridge, its approaches, and its toll plaza. Accident rates are a function of the number of accidents over a period of time, length of highway, and the traffic volume at that location. From 2001 to 2009, the accident rate on this 3.89-mile roadway segment was 2.15 accidents per million miles of vehicle travel (acc/MVM), which

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is more than twice NYSTA's system wide average. The rate is also considerably higher than the statewide mean for a 7-lane, limited-access highway, which ranged between 1.12 and 1.28 acc/MVM from 2008 to 2010.

Responding to accidents on the bridge is also difficult. Since damaged or disabled vehicles cannot be moved to a shoulder, they block the general traffic lanes until they can be removed from the bridge, resulting in lengthy traffic delays and, in some cases, the full closure of the bridge in one or both directions. Heavy congestion on the bridge and the lack of emergency access and shoulders also adversely affect emergency calls and response times between Rockland and Westchester Counties. Congestion and closures can also compromise the crossing's effectiveness as an important evacuation route.

3.3 SECURITY DEFICIENCIES

The Tappan Zee Bridge is a critical infrastructure element within the corridor and region. In view of the region's limited river crossings, the Tappan Zee Bridge is a vital link to communities east and west, as well as north and south, of the bridge. In addition, substantial truck traffic crosses the Tappan Zee Bridge. If the Tappan Zee Bridge were to become inoperable, the consequences to the regional and national transportation networks and economies would be severe.

The existing bridge lacks structural and service redundancies to withstand extreme events and lacks safety measures to aid in the response to such events. These deficiencies, in combination with the prominence of this crossing as a critical roadway link, highlight the need to incorporate both structural and service redundancies and modern security infrastructure at this Hudson River crossing.

3.4 MOBILITY DEFICIENCIES

Traffic patterns during a typical weekday peak period (6 AM to 10 AM and 4 PM to 8 PM) demonstrate the predominant nature of travel in the corridor. The volumes are higher eastbound during the morning commute period toward the larger employment centers in Westchester County and New York City. Westbound traffic volumes are higher in the evening commute period as workers return home. In response to the corridor's peak travel pattern and to better handle growing volumes, NYSTA added a seventh (median) lane to the previously six-lane bridge in 1992. NYSTA uses a movable barrier system to assign this median lane to the peak traffic direction, providing four eastbound lanes in the morning and four westbound lanes in the evening. Despite the addition of a travel lane in the peak direction, the bridge remains highly congested with frequent travel delays and a poor level of service, particularly during the evening commuter period.

The Tappan Zee Bridge collects tolls in one (eastbound) direction. Under peak travel demand periods in the morning weekday peak hour, the toll plaza generally handles the flow of traffic with minimum delay, given that almost 90 percent of the drivers have E-ZPass. The greater challenge is on weekends. Although traffic volumes are lower, E-ZPass usage is less than 60 percent. As such, queues of cash-paying drivers eventually block access to the E-ZPass lanes, spilling back onto the bridge and creating traffic delays that reach into Rockland County.

The existing Tappan Zee Bridge does not allow for multi-modal travel. While buses do operate across the bridge, they use general traffic lanes and are subject to the same difficulties as private vehicles and trucks. Despite the presence of well-connected trail systems on either side of the Tappan Zee Bridge, cyclists and pedestrians are prohibited from crossing the bridge itself. The nearest Hudson River crossings for cyclists and pedestrians are the George Washington Bridge, 15 miles to the south, and the Bear Mountain Bridge, 18 miles to the north.

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4 DECISION

FHWA, NYSDOT, and NYSTA have selected the Replacement Bridge Alternative for the Tappan Zee Hudson River Crossing Project. The Selected Alternative would consist of two new bridge structures across the Hudson River between the Village of South Nyack, Rockland County, New York and the Village of Tarrytown, Westchester County, New York. The two new bridge structures would be located northward of the existing Tappan Zee Bridge and would meet the existing Interstate 87/287 right-of-way east of South Broadway in South Nyack and west of South Broadway (Interchange 9) in Tarrytown.

5 ALTERNATIVES CONSIDERED

After a robust scoping process, the EIS considered two alternatives for the Tappan Zee Hudson River Crossing, the No Build Alternative and the Replacement Bridge Alternative. A full description of the two alternatives is located in the FEIS Chapter 2, “Project Alternatives.”

5.1 NO BUILD ALTERNATIVE

The No Build Alternative would involve the continued operation of the existing seven-lane bridge with ongoing maintenance and measures necessary to keep it in a state of good repair.

5.2 REPLACEMENT BRIDGE ALTERNATIVE

The Replacement Bridge Alternative would replace the existing Tappan Zee Bridge with two new structures (one each for eastbound and westbound traffic) to the north of its existing location. The location and general characteristics of the Replacement Bridge Alternative are identified and are the basis of the impacts assessment in the FEIS. The key elements of the Replacement Bridge Alternative (Selected Alternative) are as follows:

- Construction of two new bridge structures—a 96-foot-wide north structure and an 87-foot-wide south structure to the north of the existing Tappan Zee Bridge;
- Provision of four, 12-foot traffic lanes, an extra-wide inside shoulder for emergency access, and an outside shoulder on each new bridge structure;
- Provision of a 12-foot-wide shared use (bicycle and pedestrian) path on the north structure;
- Provisions within the design that maximize the public investment while preserving the State of New York’s options for the potential future introduction of mass transit. These include various design elements such as greater deck width, a gap between structures, and foundations and other structural elements that are able to support potential future loads. The flexible configuration of the Replacement Bridge Alternative offers the opportunity to study and implement potential future short-term and long-term transportation improvements that may become practicable over the lifespan of the new structure (e.g., commuter rail or bus rapid transit). For example, the Replacement Bridge Alternative’s configuration could support the ability for bus services to use the extra deck width as a dedicated bus lane during peak hours;
- Reconstruction of the Rockland County and Westchester County landings to meet the new bridge alignment;
- Reconstruction of the Westchester County toll plaza to include three, highway speed E-ZPass lanes and seven E-ZPass/cash lanes;
- Construction of a permanent waterfront platform and access ramps for the inspection and maintenance of the new bridge structures;

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- Implementation of permanent stormwater controls to be designed and constructed in accordance with the NYSDEC Stormwater Design Manual, NYSDOT Highway Design Manual and The Environmental Manual (TEM), and NYSTA engineering guidance;
- Relocation of the NYSTA maintenance facility and the New York State Police barracks on the north side of Interstate 87/287 at Interchange 9 (Route 9) during construction to use this space for a contractor staging area, and upon completion of the Replacement Bridge Alternative, construction of a new maintenance facility and New York State Police barracks at approximately the same location within NYSTA right-of-way; and
- Demolition of the existing Tappan Zee Bridge.

Funding for the project is reasonably available through toll revenue bonds and other potential sources. NYSTA has demonstrated the commitment and capability to reasonably obtain adequate funding. As such the project is on the constrained portion of the New York Metropolitan Transportation Council's (NYMTC's) Long Range Plan and Transportation Improvement Program (TIP).

To provide for flexibility in the final design of the Replacement Bridge Alternative, the FEIS considered options for the approach spans and main spans of the bridge.

- Approach Spans: There are two options for the approach spans—Short Span and Long Span. These options differ in terms of the type of structure as well as the number of and distance between bridge piers. The Design-Builder may consider designs that are within the parameters of the Short and Long Span Options. The Short Span Option would consist of two parallel bridge structures that would have a typical highway design with a road deck supported by girders and piers. The Short Span Option would have 43 sections on the Rockland County approach and 16 sections on the Westchester County approach. The average distance between piers would be 230 feet. The Long Span Option would have two parallel bridges structures with each supported by a truss and piers. The Rockland County approach would consist of 25 sections, and the Westchester County approach would consist of 10 sections. The average distance between piers would be 430 feet. The north structure of each approach span option would include a shared-use path.
- Main Spans: The FEIS considers two options for the bridge's main spans over the navigable channel—Cable-stayed and Arch. These main span options represent potential designs for spanning the main span navigational channel. However, the Design-Builder may consider design options that are within the parameters of these designs. Both options would result in a horizontal clearance of at least 1,042 feet and a vertical clearance of 139 feet over the navigable channel at mean high water. Both main span options would include eight travel lanes (four eastbound and four westbound) with inside and outside shoulders on both structures. The north structure of each main span option would include a shared-use path.

5.3 ALTERNATIVES CONSIDERED AND ELIMINATED

Three build alternatives were considered and were eliminated due to engineering, cost, and environmental considerations. The Tunnel Alternative and Rehabilitation Alternative were presented in the Scoping Information Packet and were not recommended to carry forward to the DEIS based on analyses of these alternatives undertaken during planning for the Tappan Zee Bridge/I-287 Corridor Project. The Single Structure Alternative was proposed during scoping and was described, evaluated, and eliminated from consideration in the DEIS.

- Rehabilitation Alternative: The Alternatives Analysis for Rehabilitation and Replacement of the Tappan Zee Bridge Report (March 2009) was part of the Scoping Summary Report for the Tappan Zee Bridge/I-287 Corridor Project. The report was widely distributed and the subject of intensive public and agency review and comment. The report concluded that the Rehabilitation Alternative

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would not be prudent and should be eliminated from further consideration. The Rehabilitation Alternative would replace much of the existing structure—up to 80 percent of it in certain cases, and therefore, would cost nearly the same and have many of the same environmental impacts as an entirely new bridge. While the Rehabilitation Alternative would meet most current design standards, it would not achieve the same engineering performance as a replacement bridge nor would it meet all of the project goals.

- **Tunnel Alternative:** A bored or immersed tunnel between Rockland and Westchester Counties was previously studied (Alternatives Analysis for Hudson River Highway Crossing, July 2007). The analysis of the river crossing for the previous corridor study was re-examined in the context of the current project. Compared to the Replacement Bridge Alternatives, the Tunnel Alternative would take longer to construct at a higher cost. The Tunnel Alternative would require acquisition of substantial right-of-way for its approach structures, portals, and ventilation structures. The tunnel’s construction would impact the Talleyrand Swamp and the Rockland and Westchester County shoreline of the Hudson River where its ventilation structures would be sited. Interchanges 9 (Route 9), 10 (Route 9W), and 11 (Route 9W/NY 59) would be removed and connectivity in eastern Rockland County and western Westchester County would be considerably impaired. For these reasons, among others, the Tunnel Alternative was dismissed.
- **Single Structure Alternative:** Comments received during the scoping process for the Tappan Zee Bridge Hudson River Crossing Project called for examination of a Single Structure Alternative. The Single Structure Alternative would not provide service redundancy. The Single Structure Alternative would require temporary property acquisition at the Rockland and Westchester County landings, requiring the permanent displacement of residents and demolition of residential structures. Compared to the Replacement Bridge Alternative, it would be more difficult to construct and would require a longer construction duration. For these reasons, the Single Structure Alternative was deemed not to be a reasonable alternative and was not analyzed in the DEIS.

5.4 ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Council on Environmental Quality (CEQ) regulations state that the agency in issuing its ROD shall specify the alternative or alternatives which are considered environmentally preferable. The guidance issued by CEQ indicates that the environmentally preferred alternative is the one which causes the least harm to the natural and physical environment. In this case, the No Build Alternative avoids the temporary impacts to the natural environment caused by the construction of the Replacement Bridge Alternative. However, the No Build Alternative does not correct the structural, operational and safety, security, and mobility deficiencies of the existing Tappan Zee Bridge, and by definition does not meet the purpose and need. A no build action is studied to serve as a baseline and means of comparison to the build alternatives. In this case based on a thorough scoping and EIS process and thorough consideration of alternatives (Replacement Bridge Alternative, Rehabilitation Alternative, Tunnel Alternative, and Single Structure Alternative) as discussed herein and in the environmental documents, the Replacement Bridge Alternative is deemed the environmentally preferred alternative. As discussed in the following sections, the decision to select the Replacement Bridge Alternative is based on a thorough and careful consideration of all the impacts, mitigation of those impacts, and accomplishing the important public interest of satisfying the purpose and need of the project.

6 IMPORTANT FACTORS IN THE DECISION MAKING PROCESS

The environmental impacts of the Selected Alternative were carefully evaluated and weighed along with social and economic factors and other considerations, such as the ability of the Selected Alternative to correct the deficiencies of the existing Tappan Zee Bridge. The Selected Alternative meets the purpose

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and need of the Tappan Zee Hudson River Crossing Project and includes the following benefits as compared to the No Build Alternative.

- **Structural Deficiencies:** The Selected Alternative will provide for two new, modern structures that meet current engineering standards for seismic events and interstate highway operations as well as provide for a robust structure with a useful life of 100 years before major maintenance is required.
- **Operational and Safety Deficiencies:** The Selected Alternative will correct the non-standard features of the existing bridge by providing for standard lane widths, shoulders, and improved grades. By providing for eight traffic lanes, the Selected Alternative will eliminate the need for a movable barrier system.
- **Security Deficiencies:** The Selected Alternative has structural redundancy by providing for two bridge structures. By providing shoulders, the Selected Alternative improves the ability to respond to extreme events. The proposed structures will include structural hardening to withstand natural events and intentional acts in accord with the criticality of this crossing.
- **Mobility Deficiencies:** By correcting non-standard features, the Selected Alternative will improve the safety of the crossing, and thereby, reduce the delays associated with traffic accidents. New shoulders will improve the ability to respond to accidents and return the roadway to regular operation. The Selected Alternative will replace the two, existing higher-speed, 35 MPH E-ZPass lanes with three, highway speed E-ZPass lanes (55 MPH). The Selected Alternative will include a shared-use path, which improves trans-Hudson mobility for non-motorized travel. The Selected Alternative would also include provisions for a potential future load.

The economic, social and environmental benefits of the Selected Alternative were weighed against its impacts in the analyses set forth in this section.

6.1 ENVIRONMENTAL IMPACT STATEMENT

The environmental record for the Tappan Zee Hudson River Crossing Project includes the DEIS and Draft Section 4(f) Evaluation, Re-evaluation Statement, and the FEIS and Final Section 4(f) Evaluation, issued on January 18, 2012, July 18, 2012, and July 25, 2012, respectively, as well as comments on the FEIS, which are identified in Section 9 of this ROD, and the responses annexed hereto. These documents, incorporated here by reference, constitute the statements required by NEPA (42 USC 4321 et seq) and 23 CFR Part 771, SEQRA (6 NYCRR Part 617), and NYSDOT's Procedures for the Implementation of SEQRA (17 NYCRR Part 15). Consistent with NEPA and SEQRA, the FEIS fully and thoroughly addresses:

- The social, economic, and environmental impacts of the project;
- Measures to mitigate the environmental impacts of the project;
- The adverse environmental impacts that cannot be avoided;
- Alternatives to the proposed project; and
- Irreversible and irretrievable impacts on the environment that may be involved with the project should it be implemented.

The FEIS fully assessed the potential social, economic, and environmental impacts from construction and operation of the Selected Alternative. FHWA and other federal agencies have promulgated specific methodologies and criteria to assess potential environmental impacts under NEPA, which were followed in completion of the technical analyses in the EIS. Where specific criteria are not provided by federal agencies, the FEIS relied on NYSDOT's TEM and NYSTA's policies and guidance.

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Operational (Long-term) Impacts of the Selected Alternative

Table 1 identifies the potential environmental impacts of the Selected Alternative once it is operational (i.e., long term impacts). The FEIS identifies that operation of the Selected Alternative would result in potential adverse impacts to visual and aesthetic resources, historic and cultural resources, noise, and ecological resources. Measures to mitigate these adverse environmental impacts from operation of the Selected Alternative were identified in the FEIS and are summarized in **Section 7** below.

Table 1
Summary of Environmental Impacts—Operational Period

Environmental Resource Area	Environmental Impact
Transportation	Overall, the Selected Alternative, including potential vehicle diversions from potential toll adjustments, would not adversely impact transportation. Future traffic volumes on the bridge would be the same in the future with or without the Selected Alternative. The Selected Alternative would have a beneficial direct impact by enhancing operational efficiency, improving safety and emergency access, and providing for pedestrian/cycling access. The Selected Alternative would provide for left and right shoulders, 12-foot travel lanes, reductions in grade, and highway speed E-ZPass lanes. These measures, along with pavement, signage, and lighting improvements, would reduce the accident rates, as well as the time to respond to and address accidents and incidents. In turn, these improvements would reduce delays experienced by motorists. The Selected Alternative's configuration could support the ability for express bus services to use the extra width on the bridge during peak hours. This use would have to be appropriately assessed and considered before being implemented. The Selected Alternative would not alter the horizontal and vertical clearances of the navigable channel, and therefore, would not impact marine transport. The Selected Alternative's shared-use (bicycle and pedestrian) path would increase the public's access to trail systems and bicycle routes on both sides of the Hudson River and would substantially enhance mobility of cyclists and pedestrians.
Community Character	The project would be expected to preserve and enhance the quality of life and character of the communities and neighborhoods in the study area as a result of the improvements to access, mobility, and safety, as well as fewer instances of travel delays because of the addition of shoulder and emergency access. The project was found to have no adverse impacts on land use patterns, zoning, and other planning policies, community facilities, or overall community character in the affected communities.
Land Acquisition, Displacement, and Relocation	The project would result in a small partial acquisition and permanent easement on two multi-family residential properties; one in the Village of South Nyack, Town of Orangetown, Rockland County and one in the Village of Tarrytown, Town of Greenburgh, Westchester County. No property owners or residents would be displaced. Up to 20 parking spaces at the Rockland County property may be displaced, based on preliminary estimates, but would be expected to be relocated on-site. The property acquisitions would be undertaken pursuant to the federal <i>Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970</i> and the <i>New York State Eminent Domain Procedures Law</i> . The analysis of potential reduction in property tax revenues associated with the partial acquisitions indicates no measurable changes in the current total tax levies for the affected jurisdictions. Therefore, there would be no adverse impacts from land acquisition, displacement, and relocation.
Parklands and Recreational Resources	The project's shared-use path would be a benefit to parklands and recreational resources by providing a pedestrian and bicycle crossing over the Hudson River and linking established bicycle routes and potential future connections to trail systems in Rockland and Westchester Counties. The Selected Alternative would not temporarily or permanently use or acquire any parkland or green space. Therefore, no existing parks or recreational resources would be adversely affected by the project. By reducing the number of piers in the river the project would have a positive impact on recreational use of the waterway. In summary, there would be no adverse impacts on parklands and recreational resources.
Socioeconomic Conditions	There would be no adverse impacts on socioeconomic conditions. The Selected Alternative would ensure the long-term viability of the Hudson River crossing between Rockland and Westchester Counties, and would provide benefits to local and regional populations and workforce in terms of improved operational mobility and safety. There is no anticipated project-related impact on long-term population or workforce characteristics in Rockland or Westchester County and the long-term forecasts by NYMTC for all the counties in the region would remain unchanged. Thus, the Selected Alternative would not alter the demographic profile in the study area and would not result in adverse impacts on socioeconomic conditions. In addition, it is not expected that the increase in tolls would result in regional shifts in employment and on housing in Rockland or Westchester County.

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Table 1 (Cont'd)
Summary of Environmental Impacts—Operational Period

Environmental Resource Area	Environmental Impact
Visual and Aesthetic Resources	<p>The greater height and depth of the Short and Long Span Option western approach superstructure would result in adverse visual impacts in locations where certain residents located south of Interstate 87/287 on River Road in Rockland County would have views of the Hudson River and opposite Westchester shoreline obstructed.</p> <p>A new noise barrier under the Short Span and Long Span Options along the south side of Interstate 87/287 in Rockland County would obstruct views to the Hudson River and Westchester land mass from a limited number of residences on Ferris Lane and Bight Lane (at River Road) where views are available and not obstructed by vegetation, resulting in adverse visual impacts.</p>
Historic and Cultural Resources	<p>The Selected Alternative would have direct impacts on one historic resource in the Area of Potential Effect (APE), the Tappan Zee Bridge. There is also a possibility for direct impacts on archaeological resources in the Hudson River portion of the APE, including deeply buried, in situ marsh deposits that may contain evidence of prehistoric activity dating to the Early Archaic Period or the Paleo-Indian Period; and potential submerged shipwrecks and other historic resources such as remains of docks and piers.</p> <p>While the Selected Alternative would alter view corridors in the APE by replacing the existing Tappan Zee Bridge with two new structures, it would not result in indirect adverse impacts on historic resources.</p>
Air Quality	<p>No notable changes in overall traffic patterns, volume, or speed would occur, so no adverse impact on regional air quality would occur. The analysis of limited right-of-way changes shows no adverse impact on microscale air quality, including for analysis locations on the Selected Alternative's shared-use path and other locations in the vicinity. If the proposed toll rate adjustments occur, this would result in some reduction in regional emissions. In general, air quality would be similar to the No Build Alternative, with some improvement associated with some avoided local congestion on the bridge and at the toll plaza. Thus, the Selected Alternative would not result in adverse impacts on air quality.</p>
Noise and Vibration	<p>While the predicted noise levels for the Selected Alternative would not exceed the FHWA/NYS DOT substantial increase criterion, they would exceed FHWA's Noise Abatement Criteria resulting in adverse noise impacts at receptors in Rockland and Westchester Counties.</p>
Energy and Climate Change	<p>Operational fuel consumption and greenhouse gas emissions would be largely unaffected by the Selected Alternative. Some benefit may accrue from improved operations (less local congestion). Furthermore, some energy conservation measures would be included to reduce operational emissions associated with energy consumption at the toll plaza facility and for bridge lighting, and additional measures such as renewable power generation are under consideration. The toll rate adjustments under consideration would result in some reduction in greenhouse gas. Thus, the Selected Alternative would not result in adverse impacts on energy or climate change.</p>
Topography, Geology, and Soils	<p>The Selected Alternative would not adversely impact topography, geology, or soils. Retaining walls would be used to support and stabilize any regraded areas, as needed. Disturbed areas would be revegetated following construction to limit any potential erosion. The Selected Alternative would meet current seismic design standards, providing a substantial improvement over the existing Tappan Zee Bridge which pre-dates these standards and is more vulnerable to earthquakes.</p>
Water Resources	<p>The Selected Alternative would not result in adverse impacts on water quality. With the proposed stormwater management to treat stormwater quality for the landing areas, the discharge of stormwater from the Selected Alternative would not produce a net increase in pollutant loading to the Hudson River for total suspended solids. It would increase pollutant loading for total phosphorus, but the increase would not be substantial and would not result in long-term, adverse changes to the river's water quality.</p> <p>Small incremental incursions into the 100- and 500-year floodplain in Rockland County, the 500-year floodplain of the Hudson River within Westchester County, and the 100-year floodplain of the Hudson River would not result in adverse impacts to floodplain resources or result in increased flooding of adjacent areas.</p> <p>The reduction in the number of piers and subsequent increase in the area between piers would result in lower water velocities at the Selected Alternative compared to the existing bridge. It would also result in less scour (from 62 acres currently to 26 to 41 acres with the Selected Alternative) and subsequently less sediment resuspension and movement and habitat disturbance.</p>

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Table 1 (Cont'd)
Summary of Environmental Impacts—Operational Period

Environmental Resource Area	Environmental Impact
Ecology	Project operation would have minimal impacts on aquatic biota and their habitat, and in some cases, may benefit these resources by reducing pier areas, diminishing scouring, and reducing pollutant loadings. The bridge's operation would not increase noise or other disturbances to wildlife above levels that are attributable to the existing bridge, and thus, any species currently inhabiting the area, including the state-endangered peregrine falcon, would continue to occur with the same likelihood. With appropriate lighting schemes, collisions of night-migrating birds would likely be a rare occurrence and have no substantial impact on their populations. Under the Long Span Option there would be a small net gain in benthic habitat while the Short Span Option would result in a small (0.92 acre) loss. Because of the more gradual grade across the river, shading of aquatic habitat by the bridge structure would be improved under the proposed project. The Selected Alternative would result in an adverse impact from the loss of up to 13 acres of oyster habitat (see Table 2 below).
Hazardous Materials	With adherence to applicable laws, regulations, and construction-related mitigation measures as outlined in a site specific Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP), there would be no adverse impacts related to hazardous materials. Similar to the No Build Alternative, should continued use of the NYSTA maintenance facility and state police barracks in Westchester County be intended during the bridge replacement project, a vapor intrusion investigation may be required by NYSDEC to evaluate potential impacts of chlorinated VOCs detected in groundwater on the indoor air quality of these buildings, as well as to determine if mitigation is required for the proposed replacement buildings in this area.

Construction (Short-term) Impacts of the Selected Alternative

The FEIS included a detailed assessment of construction activities associated with the Selected Alternative based on the current level of engineering design, discussions with contractors, and past experience on other similar large-scale projects. While the techniques ultimately utilized for the project may vary to some degree, the FEIS presented the most likely, worst-case scenario for construction of the project. The potential construction impacts of the Selected Alternative are described in **Table 2**.

The FEIS did not include an analysis of those elements of construction that would be at the contractor's discretion and subject to further planning and environmental review upon selection of the Design-Builder. Those elements include construction staging, in lieu of, or in addition to the representative sites discussed in the FEIS; disposal and borrow sites; sites used for the pre-fabrication of bridge components outside the immediate vicinity of the project and the production of concrete at existing permitted batch plants. In accordance with FHWA policy, independent decisions by the contractor, unless effectively dictated by the project sponsor, are beyond the scope of the federal action. Furthermore, NYSDOT and NYSTA Standard Specifications for all construction contracts require the contractor to comply with all applicable environmental regulations and obtain all necessary approvals and permits for the course of construction.

The FEIS documents the environmental impacts of both the Long and Short Span Options to identify an envelope for the possible design of the replacement bridge. The purpose of this was to identify the potential worst-case conditions and on that basis to identify and commit to mitigation measures. However, in most respects, the environmental impacts of the Short and Long Span Options do not meaningfully differ.

In an effort to avoid and/or minimize potential adverse impacts during construction of the project, Environmental Performance Commitments (EPCs; i.e., measures to avoid or minimize potential environmental impacts) were identified. The EPCs are included as part of the Design-Build Contract Documents and are described in **Section 7** below. Many of these EPCs are also expected to become permit conditions. The EPCs are part of the project, and therefore, were assumed as part of the quantified analysis of construction impacts of the Selected Alternative. Where adverse impacts would result even with the implementation of the EPCs, additional mitigation measures were identified in the EIS.

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Table 2
Summary of Environmental Impacts—Construction Period

Environmental Resource Area	Environmental Impact
Transportation	<p>Construction activities would require temporary localized changes in traffic operations with detours and potential road closures. Primary truck movements to and from potential off-site staging areas near Exit 12 would be on the highway with new or enhanced entrance/exit ramps in Nyack and Tarrytown. Traffic and transportation issues would be managed by a comprehensive and detailed Work Zone Traffic Control plan. The contract specifications would require road closures and detours to be strictly coordinated so that traffic can take safe, practical and short detour routes. This coordination would serve to avoid or minimize, to the extent feasible, traffic diversions through residential neighborhoods. Further, the construction would be staged to maintain through traffic, perhaps with only one direction being detoured at a time.</p> <p>While much of the material needed for construction is anticipated to arrive by barge, the project sponsors would also coordinate with local agencies regarding the hauling of any construction materials to identify acceptable routes and times of operation, and roadways to be used. The contractor, in coordination with NYSDOT and NYSTA, would coordinate with potentially affected public services in planning traffic control measures. Construction activities that might substantially disrupt traffic would not be performed during peak travel periods to the maximum extent practicable. Access to all businesses and residences would be maintained.</p> <p>The ability for boats to travel along the Hudson River would be maintained throughout the construction period. Signage and channel markers would be utilized to advise recreational boaters of preferred routes and potential dangers within the construction zone. Some boaters, due to water craft size or power source, may experience difficulty navigating through the construction zone during this time period. Waterborne supply deliveries could increase the use of navigation channel while barge/pile driving and demolition of the existing bridge could temporarily restrict use of the river for navigation. Any restricted navigation during construction would be coordinated with the USCG with ample prior notice to marine traffic.</p>
Community Character	<p>The project has the potential to result in temporary changes in traffic, access to residences and businesses, on-street parking, dust, noise, vibrations, and visual quality. Areas surrounding the construction staging area in the vicinity of the Rockland landing would have the greatest visual quality change; residents near the river to the north would have direct views of the platform construction to facilitate in-water construction. At staging areas near Interchange 12, proposed temporary uses are compatible with the existing industrial character.</p>
Land Acquisition, Displacement, and Relocation	<p>The permanent easements described in Table 1 would be required to construct the project. The parking spaces within the permanent easement area at Bradford Mews Apartments would be lost temporarily while maintenance activities are underway. The owner would be compensated for the easement and could provide for replacement parking, as needed.</p>
Parklands and Recreational Resources	<p>Recreational boating on the Hudson may be restricted in an area around the construction sites or by limited uses (i.e., “no sails up” zones).</p>
Socioeconomic Conditions	<p>The project will have a direct benefit to the local and regional economy. Over the five-year construction period, it is expected to generate the direct demand for about 2,800 workers per year, with wages and salaries of \$228 million. In addition to the direct employment, construction would also result in an estimated 2,150 indirect and induced workers in New York State, with employee compensation of \$168 million.</p>
Visual and Aesthetic	<p>The character and quality of views of the Hudson River during construction of the project would be impaired for residents and visitors who have views of this visual resource. Therefore, the construction of the Selected Alternative would result in adverse impacts to visual and aesthetic resources.</p>
Historic and Cultural	<p>Two classes of potential archaeological resources have been identified within the river portion of the APE that could potentially be affected by the project: a submerged landform that may have been occupied during the Early Archaic Period or the Paleo-Indian Period; and possible submerged historic resources including potential shipwrecks lying on the river bottom. Further analysis is on-going to determine whether submerged State- and National-Register eligible resources are present in the river portion of the APE for direct impacts. As stipulated in the project’s Section 106 Memorandum of Agreement (MOA), if submerged resources are identified and determined to be S/NR eligible, the project would have an adverse effect on those resources as a result of dredging and construction of the Selected Alternative. Consultation with SHPO and any appropriate tribal nations and consulting parties would be undertaken to identify measures to avoid, minimize or mitigate any potential S/NR-eligible resources that may be adversely affected by the project.</p> <p>To avoid inadvertent damage to architectural resources within the APE during construction, a Construction Protection Plan would be implemented as specified in the executed MOA. In addition, the project would include mitigation for the removal of the Tappan Zee Bridge as part of project construction (see Table 3).</p>

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Table 2 (Cont'd)
Summary of Environmental Impacts—Construction Period

Environmental Resource Area	Environmental Impact
Air Quality	<p>Diesel emissions from construction equipment and tugboats would not result in adverse impacts on particulate matter, carbon monoxide, or annual-average nitrogen dioxide concentrations. This would be ensured by a number of EPCs aimed at diesel emissions reduction (i.e., the use of Tier 3 engines and diesel particle filters (DPF) for all land-based engines with a power output rating of 50 horsepower or greater that would reduce particulate emissions from these sources by 90 percent on average; emission controls for tug boats limiting diesel particulate matter emissions; baghouse filters for the concrete batching plant (which would reduce particulate matter emissions from cement silos by over 99 percent); and a strict dust control program aimed at reducing fugitive dust emissions to the extent practicable). Levels exceeding the 1-hour NO₂ NAAQS cannot be ruled out. Therefore, construction contracts would require that all land-based non-road diesel-powered construction engines (excluding marine propulsion and auxiliary engines) with a power output rating of 50 horsepower or greater be rated Tier 3 or higher where the use of such equipment is practicable.</p>
Noise and Vibration	<p>Nine noise receptor sites were analyzed to identify potential noise impacts from construction of the Selected Alternative. Noise abatement measures identified in Table 4 would reduce project increases in noise levels as compared to conditions without abatement measures. Nevertheless, predicted increases in noise would be perceptible, and further abatement measures to reduce noise are not practicable. Therefore, construction of the Selected Alternative would result in unmitigated noise impacts at some times and locations, and construction activities would be intrusive and noisy.</p> <p>No adverse impacts from vibration due to construction activities are anticipated.</p>
Energy and Climate Change	<p>Construction activities would require energy and materials use resulting in greenhouse gas emissions. Consistent with state policies for greenhouse gas emissions and energy use, the project would implement these measures during construction: the use of supplementary cementitious materials; reduction of concrete waste; and optimization of cement content. In addition, the following measures would be implemented, where practical: the use of biodiesel fuel, the use of recycled steel, and the use of local materials sourcing.</p>
Topography, Geology, and Soils	<p>Soil erosion during construction is primarily a concern when soils are exposed to wind, rain, and other erosive forces. Construction activities would comply with any NYSDEC-approved SWPPP and erosion and sediment control measures to minimize soil erosion. The project would not require substantial regrading of any steep slopes (i.e., greater than 15 percent). Therefore, construction of the project would not adversely affect topography, geology, and soils.</p>
Water Resources	<p>Construction activities for the Selected Alternative have the potential to affect water quality due to sediment resuspension. These activities include dredging and placement of armoring, installation of cofferdams, driving of piles, vessel movement, and the demolition of the existing bridge. The analyses conducted for the project indicate that, with the exception of the portion of the water column within the immediate area of the dredge, increases in sediment suspension would be minimal and within the natural range of variation of expected concentrations. Sediment resuspension from dredging and other construction activities would be expected to meet the Class SB turbidity standard at the edge of the NYSDEC-designated mixing zone for the project.</p>
Ecology	<p>For installation of access roads and temporary work platforms the project would impact approximately 0.26 acres of forested wetlands, 0.11 acres of NYSDEC littoral zone wetlands, and 0.01 acres of tidal wetland adjacent area. After construction is complete, these areas would be restored avoiding any long-term adverse impacts. In addition, the temporary work platforms would result in the shading of approximately 10.4 acres of aquatic habitat for the duration of the construction period.</p> <p>The project would also affect benthic macroinvertebrate habitat, oyster beds, and fish habitat due to dredging and armoring for the construction access channel. The loss of soft bottom habitat would be temporary, and recolonization by benthic invertebrates would begin following completion of in-water activities in a given area. However, the permanent loss of oyster habitat would result in an unavoidable adverse impact. The project sponsors and NYSDEC have come to agreement on implementing a conceptual compensatory mitigation and net conservation benefit plan that will mitigate these impacts as well as the temporary impacts from dredging and armoring the access channel.</p> <p>EPCs would be implemented to reduce the hydroacoustic impacts of pile driving and other in-water construction activities. Sounds from pile driving and other in-water construction activities would be temporary, and would not be expected to represent a barrier to movement of individual fish within the Hudson River.</p> <p>The NMFS Biological Opinion indicated that very few shortnose or Atlantic sturgeon would be impacted or injured by project activities. NMFS determined that 70 shortnose sturgeon and 70 Atlantic sturgeon could be physiologically affected by pile driving activities for the Short Span Option, but that these injuries would be minor and fish would likely recover. For the Long Span Option the number of fish that could be affected would be 43 for either sturgeon species. Moreover, NMFS indicated that only one individual of each species of sturgeon would likely suffer serious injury or mortality due to pile driving activities. NMFS also predicted that up to three individuals of each species would be encountered by dredging operations, but only one individual sturgeon of each species would be expected to suffer mortality over the three years that dredging may occur.</p>

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Table 2 (Cont'd)
Summary of Environmental Impacts—Construction Period

Environmental Resource Area	Environmental Impact
Ecology (continued)	The Essential Fish Habitat (EFH) assessment indicated that the project would not have an adverse impact on EFH or EFH species. NMFS determined that impacts associated with bridge construction and removal may adversely affect aquatic resources and their habitats and provided EFH conservation recommendations to avoid and minimize these impacts.
Hazardous and Contaminated Materials	A Phase II subsurface investigation of the areas to be disturbed has been conducted. Prior to soil disturbance activities of any additional proposed areas not included in the original study, additional Phase II investigations would be conducted. Based on the findings of the subsurface investigations, site-specific Remedial Action Plans and Construction Health and Safety Plans would be prepared and implemented during construction. Any petroleum storage tanks within the project limits that would not be used following the proposed action would be properly closed and removed, along with any contaminated soil, prior to disturbance in accordance with NYSDEC requirements and NYSDOT procedures. Any chemicals requiring disposal would be properly disposed of in accordance with regulatory requirements and standard NYSDOT procedures. Accordingly, there would be no adverse impacts associated with hazardous or contaminated materials.

6.2 CONFORMITY WITH NEW YORK STATE AIR QUALITY PLANS

As the lead federal agency, FHWA determined that the Selected Alternative is a non-exempt project under the conformity regulations. Thus, it must be included in the applicable regional transportation emissions analysis. The Inter-agency Consultation Group (ICG) concurred with FHWA’s proposed non-exempt classification on November 29, 2011. Accordingly, the New York Metropolitan Transportation Council (NYMTC) included the Selected Alternative in the regional emissions analysis of the proposed amendment to the 2011-2015 NYMTC TIP and Long Range Plan. In effect, this means NYMTC performed the required transportation conformity analysis. The analysis revealed that the regional emissions with the Selected Alternative would comply with all respective State Implementation Plan (SIP) emissions budgets as required under the Clean Air Act (CAA; 42 USC § 7401 et seq.).

On May 16, 2012, the ICG concurred that NYMTC’s regional emissions analysis appropriately considered the latest planning assumptions in place at the time NYMTC’s regional emissions analysis began on January 23, 2012. This meets the criteria for the use of the latest planning assumptions in 40 CFR § 93.110(a). FHWA, NYSDOT, and NYSTA continued to coordinate with NYMTC regarding the transportation conformity determination for the amended TIP and Long Range Plan, including the Selected Alternative. NYMTC voted to approve the amended TIP and Long Range Plan, together with the associated Transportation Conformity analysis, on August 20, 2012. FHWA and FTA, in consultation with USEPA, formally concurred with the Transportation Conformity Determination on August 28, 2012 (see **Attachment C**).

6.3 SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

The analysis in the FEIS was prepared in accordance with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as implemented by the federal regulations appearing in 36 CFR § 800, in consultation with SHPO, ACHP, and other Consulting Parties. In addition to FHWA, ACHP, and SHPO, participants in Section 106 consultation for this project included NYSTA, NYSDOT, five federally recognized Native American tribes, preservation organizations, local governments, and individuals granted Consulting Party status by FHWA.

Consulting Party meetings were held on December 16, 2011 and February 16, 2012 to seek and consider views regarding the Selected Alternative’s impacts on historic and cultural resources; to consider proposed measures to avoid, minimize, and mitigate adverse effects on historic properties; and to solicit comments on the Draft Memorandum of Agreement (MOA). The APE, historic properties within the

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APE, and the Selected Alternative's potential impacts on historic properties were presented and discussed at the December meeting. Prior to the February 16, 2012 meeting, a preliminary assessment of effects on historic properties conducted under Section 106 and documented in accordance with 36 CFR § 800.11(e) (the Draft Finding Documentation) and the Draft MOA were distributed to SHPO, ACHP, and the Consulting Parties. Taking into consideration both verbal and written comments from the public and Section 106 Consulting Parties, the Draft Finding Documentation and Draft MOA were revised and distributed to SHPO, ACHP, and other Consulting Parties for a second 30-day review period, beginning April 16, 2012.

Subsequent to publication of the DEIS, the Project Team continued its engineering analysis for the Selected Alternative, exploring design modifications to develop reasonable alternatives that would minimize impacts to Section 106 and Section 4(f) historic properties. As a result, the Replacement Bridge Alternative was refined to incorporate a revised vertical alignment near the Rockland County shoreline, thereby eliminating the need for replacement of the existing South Broadway Bridge in South Nyack. (The DEIS had identified the replacement of the South Broadway Bridge as part of the Replacement Bridge Alternative, which would have resulted in an adverse effect on the South Nyack Historic District.)

A Supplemental Finding of Effects was prepared to re-assess the Selected Alternative's impacts on historic properties, based on the revised design presented in the FEIS. The Supplemental Finding Documentation and revised Draft MOA were distributed to SHPO, ACHP, and Section 106 Consulting Parties on June 12, 2012. The MOA was executed on June 26, 2012.

6.4 SECTION 4(f) OF THE U.S. DEPARTMENT OF TRANSPORTATION ACT

The Final Section 4(f) Evaluation, which was published concurrent with the FEIS, describes the use of the Tappan Zee Bridge, which is eligible for listing on the State and National Register of Historic Places. FHWA has determined that there is no feasible and prudent avoidance alternative to the use of the Tappan Zee Bridge.

The No Build Alternative would avoid the use of Section 4(f) properties but is not prudent because it does not meet the project's purpose and need. The other avoidance options, Build at a New Location Alternative, Rehabilitation Alternative, and Re-use Alternative were not prudent. The Build at a New Location Alternative would result in severe social, economic, or environmental impacts; as it would require a new highway alignment for Interstate 87/287 through developed and undeveloped lands, requiring the displacement of built structures and impacts to the natural environment. The Rehabilitation and Re-use Alternatives would not fully avoid a use of the Tappan Zee Bridge, and therefore, were not considered prudent.

Since a use of the Tappan Zee Bridge cannot be avoided, FHWA, NYSDOT, and NYSTA, in consultation with SHPO and ACHP, explored measures to mitigate the adverse effect on the Tappan Zee Bridge. These measures are identified in the executed MOA.

Review of the project's Draft Section 4(f) Evaluation was conducted by FHWA, NYSDOT, NYSTA, the U.S. Department of Interior (DOI), ACHP and SHPO. In a letter dated March 9, 2012, DOI concurred that there is no prudent and feasible alternative to the proposed use of the Tappan Zee Bridge. DOI stated that continued consultation with SHPO throughout the project is necessary, and that measures to minimize harm and mitigate potential impacts should be executed in a MOA. As described above, FHWA, NYSDOT, and NYSTA engaged in consultation under Section 106 of the NHPA, and an MOA was executed on June 26, 2012.

The FEIS/Final Section 4(f) Evaluation has concluded that there is no feasible and prudent alternative to the use of the Tappan Zee Bridge, and the proposed action includes all possible planning to minimize harm to the Section 4(f) property resulting from such use.

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6.5 EXECUTIVE ORDER 11990, WETLANDS

The project was reviewed for compliance with Executive Order 11990, Protection of Wetlands, and the U.S. Department of Transportation (USDOT) Order 5660.1A. The Selected Alternative involves unavoidable temporary impacts to 0.076 acres of wetlands in Westchester County. The Selected Alternative was designed to minimize impacts. The project is anticipated to only result in temporary impacts to wetlands, and these wetlands will be restored upon completion of the project. Based upon the information contained in the FEIS, FHWA has found that (1) there is no practicable alternative to such construction and (2) the construction of the Selected Alternative includes all practicable measures to minimize the temporary harm to wetlands which may result from such use.

6.6 EXECUTIVE ORDER 11988, FLOODPLAINS

Portions of the Selected Alternative would be located within the 100-year and 500-year floodplain. As concluded in the FEIS, the Selected Alternative would not result in significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or which provides a community's only evacuation route, would not result in a significant risk, and would not result in an adverse impact on natural or beneficial floodplain values.

6.7 EXECUTIVE ORDER 12898, USDOT ORDER 5610.2(A), FHWA ORDER 6640.23A, ENVIRONMENTAL JUSTICE

An analysis of environmental justice is included in Chapter 19 of the FEIS consistent with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," USDOT Order 5610.2(a), "Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," and FHWA Order 6640.23a, "FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The analysis in the FEIS considers potential operational, construction, and toll revenue impacts of the Selected Alternative on environmental justice communities. As stated in the FEIS, the Selected Alternative would not result in any disproportionately high and adverse effects on minority and low-income populations.

6.8 SECTION 7 OF THE ENDANGERED SPECIES ACT

As threatened and endangered wildlife and fish species were identified within the area near the Selected Alternative, FHWA entered into consultation with the USFWS, NMFS, and NYSDEC regarding the potential impacts of the Selected Alternative on these protected species.

In a letter dated May 25, 2012, NYSDOT and NYSTA submitted documentation regarding Endangered Species Act (ESA) consultation to the FHWA with an effects determination for the Indiana bat of "may affect, but not likely to adversely affect." FHWA concurred with this determination in a letter to the USFWS dated May 31, 2012 and entered into informal consultation with the USFWS for the Indiana bat. Pursuant to section 7(a)(2) of the ESA (87 Stat. 884, as amended; 16 U.S.C 1531 et seq.), the USFWS concurred with FHWA, NYSDOT, and NYSTA's determination that the proposed project may affect, but is not likely to adversely affect, the federally-listed endangered Indiana bat.

Analysis provided to initiate consultation for the bog turtle (federally listed) and New England cottontail (species of special concern in New York State, and candidate for federal listing) found that for the purposes of consultation under Section 7(a)(2) of the ESA, the project will have no effect on either species or their habitats. This determination was reached based on the fact that no suitable habitat occurs in the area for these species, and FHWA concurred with this determination. USFWS also concurred with this finding in their letter dated June 20, 2012 and has determined that no further coordination or consultation under the ESA is required at this time.

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A Biological Assessment (BA) was prepared to determine whether the proposed construction and operation of the Selected Alternative would affect endangered and threatened fish species. The BA concluded that while the loss of habitat associated with construction of the project may affect individual shortnose and Atlantic sturgeon, it would not be expected to adversely impact the Hudson River population of either species. The BA also did not identify long-term impacts on aquatic species from operation of the Selected Alternative. A Biological Opinion (BO) was issued by NMFS on June 22, 2012 as part of the formal consultation process under Section 7 of the ESA. In the BO, NMFS determined that construction of the project “may adversely affect but is not likely to jeopardize the continued existence of shortnose sturgeon or any [distinct population segment] DPS of Atlantic sturgeon.” NMFS indicated that it expects mortality from dredging and pile driving activities to be extremely low for both shortnose and Atlantic sturgeon. NMFS also determined that “no critical habitat is designated in the action area; therefore, none will be affected by the proposed action.” In order to minimize and monitor the effects of the proposed action, NMFS has required the implementation of a number of “Reasonable and Prudent Measures” (RPMs). These RPMs which are intended to minimize impacts related to dredging (both loss of benthic habitat and interaction with the dredge) and pile-driving activities will be implemented by the project sponsors through its compliance with a series of “Terms and Conditions” specified in the BO.

6.9 NEW YORK STATE THREATENED OR ENDANGERED SPECIES (6 NYCRR §182.6)

Peregrine falcons, a New York State-endangered species, nest in nest boxes on the Tappan Zee Bridge. The boxes were placed on the existing bridge over 20 years ago by NYSTA and have been adopted by the falcons. The peregrine falcon nest boxes on the existing bridge would be relocated to the replacement bridge to provide an alternative nest site for the resident pair of peregrine falcons. Nest site abandonment in urban peregrine falcons is extremely rare when successful nesting has occurred in prior years (Cade et al. 1996). The nesting season of peregrine falcons in this area is generally from February through August. Every effort will be made to ensure that the nest box is relocated outside of the nesting season. In the event that relocation of the nest box could potentially interfere with the breeding season, erection of an “osprey platform” in the river nearby could potentially represent a suitable and attractive nest site for peregrine falcons. Measures to be implemented under this circumstance where the nest box cannot be relocated outside the nesting season would be developed in consultation with NYSDEC.

Consultation with NYSDEC to ensure protection of the New York State endangered shortnose sturgeon and the Atlantic sturgeon has occurred throughout the project and is ongoing. A draft permit authorizing Incidental Take of sturgeon as defined in 6 NYCRR Part 182.2(j) has been prepared by NYSDEC and is undergoing public review. The project sponsors have agreed to implement specific mitigation measures proposed by NYSDEC with respect to sturgeon (listed below in **Table 5** under “Ecology”). These mitigation measures would achieve a net conservation benefit under 6 NYCRR Part 182 at take levels that assume a worst case scenario in the NYSDEC draft permit of 125 Atlantic sturgeon and 298 shortnose sturgeon that will be affected by elevated noise levels caused by pile driving during construction. Of these, the NYSDEC draft permit finds that as many as 52 Atlantic sturgeon and 89 shortnose sturgeon may suffer fatal injuries. Because these numbers do not account for the increased attenuation resulting from (i) the deployment of construction barges, as noted in the Pile Installation Demonstration Program (PIDP), (ii) the substantial reduction in the use of impact hammers because of the ability to vibrate the piles instead, (iii) the greater attenuation from the use of bubble curtains than was assumed in the FEIS analysis, as was also demonstrated in the PIDP, and (iv) the potential that sturgeon will move away from the underwater noise of pile driving (as determined in the NMFS BO), the actual number of sturgeon that are disturbed, injured, or suffer fatal injuries will be lower than the numbers listed in the NYSDEC draft permit. Thus, the net conservation benefit offered by the mitigation measures listed in **Table 5** will be even greater than is currently indicated. Final allowable take numbers and any additional mitigation measures deemed appropriate will be reflected in the final permit to be issued by NYSDEC.

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6.10 ESSENTIAL FISH HABITAT

The Selected Alternative would be located within a portion of the Hudson River Estuary/Raritan/Sandy Hook Bays, New York/New Jersey Essential Fish Habitat (EFH; NOAA 2012). Sixteen EFH species have been identified by NMFS for the Hudson River estuary. Eleven of these species were collected during fisheries sampling in the Hudson River, the majority of which were found in highest abundance in the lower reaches of the estuary from the Battery to Yonkers. Only three of these species—Atlantic butterfish, bluefish, and summer flounder—were captured during the 2007-2008 sampling program for the project. These marine species were captured in the warmer months of the year when higher water temperatures and salinities are present within the project area. Six additional EFH species were collected in the Utilities Fall Shoals and Long River Monitoring Program between 1998 and 2007, albeit relatively infrequently in the Tappan Zee region (RM 24-33) compared to collections in the lower reaches of the estuary. Among these species were winter flounder, bluefish, Atlantic herring, windowpane flounder, summer flounder, Atlantic butterfish, Atlantic mackerel, Spanish mackerel, and scup.

An EFH assessment was prepared to address the potential impacts to EFH within the study area. Of the 16 EFH species designated for the Hudson River, 10 species were excluded from the analysis due to lack of occurrence in samples collected during the Utilities fish survey upstream of river mile 23 at Yonkers or due to lack of EFH, specifically suitable salinity and water depths, in the project area. Of those six EFH species that could potentially be impacted by dredging, the benthic species (i.e., summer flounder, windowpane, and winter flounder) are more likely to be affected than the pelagic species (i.e., Atlantic butterfish, Atlantic herring, and bluefish). The temporary modification in bottom habitat due to dredging and armoring would affect less than 2 percent of the soft sediments in the Tappan Zee region. Greater than 98 percent of the remaining benthic habitat in the Tappan Zee region would be unaffected by dredging activities related to the construction channel and would continue to provide EFH. Therefore, the temporary change in habitat within the dredged construction channel, followed by recovery of the soft bottom benthic community as sediment becomes deposited at the completion of construction, would not be expected to adversely affect the three EFH species that are directly associated with benthic habitat.

In a letter dated June 22, 2012, NMFS referring to the EFH assessment stated that “impacts associated with bridge construction and removal may adversely affect living aquatic resources and their habitats;” however, specific determination was not made for dredging activities. In its BO, however, NMFS supported the FEIS finding by indicating that “the dredging footprint represents a very small percentage of the soft bottom habitat of the Tappan Zee region (1.2 percent) and the Hudson River Estuary (0.2 percent). Thus, the temporary reduction of benthic fauna within the dredged area would not substantially reduce foraging opportunities for the river's sturgeon populations. As the area returns to soft sediment and is recolonized by benthic invertebrates, sturgeon will regain any lost foraging habitat.” For these same reasons, the temporary loss of habitat due to dredging of the access channel would not substantially reduce foraging opportunities for any EFH species that rely on the bottom habitat.

In its June 22, 2012 letter, NMFS provided conservation recommendations to avoid and minimize impacts to EFH. Specifically, these recommendations included a project schedule and activity plan, inclusion of seasonal dredging windows, limiting the amount of re-suspension and dispersal of fine sediment, monitoring of the dredged areas, and a mitigation and restoration plan. In the response to the June 22, 2012 letter, FHWA provided a detailed discussion for each of the conservation recommendations and will continue consultation with NMFS with respect to implementation (see Appendix F-7 of the FEIS).

Except for the permanent loss of up to 13 acres of oyster habitat and potential impacts of shading associated with the net change between new bridge construction and removal of the existing structure, the FEIS concluded that remaining impacts are largely either temporary or minimal, and not reasonably expected to have a long-term impact on aquatic resources, including EFH and protected species. In its BO, NMFS agreed with the conclusions articulated in the FEIS regarding the temporary or minimal

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extent of impacts due to project activities on shortnose and Atlantic sturgeon survival, movement, and their ability to forage in the Hudson River. The BO identifies additional RPMs to be implemented to further ensure the protection of shortnose and Atlantic sturgeon, as well as the greater fish community. The RPMs, which NMFS considers necessary and appropriate, have been agreed to by FHWA, NYSDOT, and NYSTA. In its response to the EFH assessment, NMFS expressed the view that, “bridge construction and removal may adversely affect living aquatic resources and their habitats,” but offered EFH conservation recommendations to “avoid and minimize impacts to our resources” (see **Tables 4 and 5** below).

NYSDEC did not dispute the general conclusions reached in the DEIS, but is of the opinion that the scale and duration of these temporary impacts warrant mitigation. Despite differences of opinion with NYSDEC regarding the significance of these temporary impacts, the project sponsors have agreed to implement NYSDEC’s proposed compensatory mitigation and net conservation benefit plan. Collectively, the adoption and implementation of the EPCs, the proposed mitigation measures, and the RPMs identified in the NMFS BO will ensure that permanent and temporary impacts to living aquatic resources have been minimized or adequately mitigated and compensated for.

6.11 COASTAL AREA MANAGEMENT

The Selected Alternative would be located in the Coastal Area as designated by the New York State Waterfront Revitalization of Coastal Areas and Inland Waterways Act (Article 42 of the Executive Law, as implemented by 19 NYCRR 600.5). This act implements New York State’s Coastal Management Program (CMP). New York State’s CMP consists of 44 policies. A number of these policies would not apply to the project as it would not involve lands or activities that are stipulated in these policies. For the policies that are applicable to the project, the Selected Alternative would be consistent with the CMP to the extent practicable. The Selected Alternative would result in the removal of an historic resource (the existing Tappan Zee Bridge) and potentially affect submerged archaeological resources, which is inconsistent with Policy 23 of the CMP to promote protection of historic resources. However, the compelling need to maintain a regionally important transportation link necessitates these impacts. The New York State Department of State issued its coastal zone consistency determination for the Tappan Zee Hudson River Crossing Project in a letter dated September 20, 2012 (see **Attachment C**).

6.12 NEW YORK STATE SMART GROWTH PUBLIC INFRASTRUCTURE POLICY ACT

Under the New York State Smart Growth Public Infrastructure Policy Act, no state infrastructure agency shall approve, undertake, support, or finance a public infrastructure project, unless, to the extent practicable, the public infrastructure project is consistent with its ten smart growth infrastructure criteria. The smart growth criteria are intended to limit sprawl, maximize efficiency, and promote environmentally- and socially-conscious development. The Selected Alternative would improve an existing transportation infrastructure facility and minimize impacts on environmental resources to the extent practicable. Therefore, the Selected Alternative would be consistent with each of the applicable smart growth criteria.

7 ENVIRONMENTAL COMMITMENTS

Tables 1 and 2 identify the potential adverse environmental impacts of the Selected Alternative. The EIS identified that the Selected Alternative would result in adverse impacts on visual and aesthetic resources, historical and cultural resources, noise, ecological resources, and from construction activities. As noted in Section 6 above, to avoid or minimize the potential adverse impacts of construction activities, FHWA, NYSDOT, and NYSTA identified EPCs that are included in the Design-Build Contract Documents and were assumed as part of the construction analysis. Even with implementation of the EPCs, the FEIS

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identified potential adverse construction impacts on ecological resources and identified measures to mitigate these impacts.

Table 3 identifies the mitigation measures and environmental commitments for the potential adverse impacts from operation of the Selected Alternative.

Table 3

Summary of Mitigation Measures and Environmental Commitments —Operational Period

Environmental Resource Area	Proposed Mitigation and Environmental Commitments
Visual and Aesthetic Resources	<p>The project would result in adverse visual impacts to a limited number of residences along Bight Lane, River Road, and Ferris Lane in the Village of South Nyack (Rockland County). The greater height and depth of the replacement bridge superstructure, as well as any potential noise barriers, would obstruct existing scenic views from these properties. While loss of these views cannot be mitigated, the project sponsors will work with affected property owners to develop a plan to help offset adverse visual impacts, such as landscaping to screen the bridge structure and any noise barriers.</p> <p>The NYSTA and NYSDOT have prepared a Public Involvement Plan (PIP), with the goal of engaging a diverse group of public and agency participants, including the NYSHPO, seeking and using their views, and providing timely information throughout the design and construction process.</p> <p>Through the development and implementation of a Visual Quality Management Plan approved by the NYSTA, the Design-Build contractor will ensure that all visual quality management is consistent with the principles of context-sensitive solutions using inclusive design approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals.</p>
Historic and Cultural Resources	<p>Measures to mitigate the potential impacts of the Selected Alternative on historic and cultural resources are stipulated in the project's Section 106 MOA, which was executed on June 26, 2012.</p> <p>To mitigate removal of the existing S/NR-eligible Tappan Zee Bridge, the following measures would be taken: preparation of Historic American Engineering Record (HAER) documentation of the bridge; production of educational materials for use by local libraries, historical societies, and educational institutions; and possible inclusion of interpretive signage along the shared-use path.</p> <p>The Design-Build Contract Documents establish that the Project will be designed with particular regard to its surroundings and the process of design will maximize opportunities for community input, including the NYSHPO, Section 106 Consulting Parties and the broader public. Historic values will be integrated in the design approach, to minimize any impacts to historic properties by reason of final design.</p>
Noise and Vibration	To abate potential NAC exceedances at a number of properties, noise barriers are recommended in both Rockland and Westchester Counties.
Ecology	See Tables 4 and 5 .

Table 4 identifies the EPCs that are part of the project and have been incorporated into Design-Build Contract Documents for construction of the Selected Alternative. **Table 5** identifies construction mitigation measures described in the FEIS.

Table 4

Summary of Environmental Performance Commitments (EPCs)

Environmental Resource Area	Environmental Performance Commitment
Transportation	<p>Implement and follow a Work Zone Traffic Control (WZTC) Management Plan, following a strict schedule; minimize detours through residential areas; use Intelligent Transportation System measures, such as variable message signs, and notify the local news of road closures, detours, and other WZTC activities.</p> <p>Project sponsors would coordinate with local agencies regarding the hauling of any construction materials to identify acceptable routes, roadways, and times.</p> <p>The contractor would coordinate with potentially affected public services in planning traffic control measures. Access to all businesses and residences would be maintained.</p> <p>The ability for boats to travel along the Hudson River would be maintained throughout the construction period. Signage and markers would be utilized (in coordination with USCG to advise recreational boaters of preferred routes and/or dangers).</p>
Community Character	A construction contract provision stipulating that the contractor must maintain a clean and orderly worksite, with metrics included for determining compliance, provisions for enforcement, and penalties for non-

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	compliance, would be developed to minimize potential impacts on community character during construction.
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Table 4 (Cont'd)

Summary of Environmental Performance Commitments (EPCs)

Environmental Resource Area	Environmental Performance Commitment
Land Acquisition, Displacement, and Relocation	The site owner would be compensated for the easement. The parking spaces within the permanent easement area at Bradford Mews Apartments may be relocated on-site at the discretion and responsibility of the owner.
Parklands and Recreational Resources	No direct disturbance to parks is proposed. See "Air Quality" and "Noise" below for EPCs which would minimize any potential impacts to nearby parks during construction.
Historic and Cultural Resources	Measures to avoid or minimize impacts to historic and cultural resources during construction are outlined in the executed Memorandum of Agreement (see Appendix C of the FEIS). As stipulated in the executed MOA, a Construction Protection Plan will be implemented by the Project's contractors to avoid inadvertent damage to historic properties as a result of construction activities.
Air Quality	In order to avoid or minimize potential air quality impacts, the following measures, practices, and EPCs would be used or implemented during construction: <ul style="list-style-type: none"> - Clean Fuel: All diesel fuel would be ultra-low sulfur diesel. - Best Available Tailpipe Reduction Technologies: All land-based diesel nonroad engines (excluding marine engines) rated at 50 horsepower or greater would be fitted with diesel particle filters. - Utilization of Newer Equipment: All non-road construction equipment (excluding marine engines) in the project rated at 50 horsepower or more would meet USEPA Tier 3 emissions standards or better (smaller engines would be Tier 2 certified—the cleanest rating for that size engine). - Tug Boat Emissions Reduction: The total combined PM emission rate from all tug boats used for the project would be limited to 3,700 grams per hour at peak power, including auxiliary engine emissions. This limit may be achieved by installing retrofits, using new engines, repowering or engine replacement, or various combinations of these measures, along with limitations on the engine size and number of tug boats on site. - Concrete Batch Plant Controls: If an on-site concrete batch plant is used, the concrete batch plant would vent the cement weigh hopper, gathering hopper, and mix loading operations to a baghouse or filter sock. Storage silo chutes would be vented to a baghouse. Roadways at the concrete batch plant, and all unloading and loading material handling operations, would have a dust control plan providing at least a 50 percent reduction in PM₁₀ and PM_{2.5} emissions from fugitive dust through wet suppression. - All reasonable efforts would be made to address heavy duty vehicle idling at the project site in order to reduce fuel usage (and associated costs) and emissions. On-road diesel fueled trucks may not idle for more than five consecutive minutes except under certain specific conditions. In addition to enforcing the on-road idling prohibition, all reasonable efforts will be made to reduce non-productive idling of non-road diesel powered equipment. - The contractor will be required to implement a strict fugitive dust control plan. - A real-time air quality monitoring program will be implemented to ensure contractor compliance with the emissions control plan.
Noise	In order to minimize or avoid potential noise impacts during construction, the following measures or practices would be implemented: <ul style="list-style-type: none"> - As practicable, noise abatement measures would include shrouds to reduce pile driver noise, quiet compressors and generators, and use of portable or other noise barriers and/or enclosures. - As practicable, electric powered equipment rather than diesel would be utilized. - Use of impact devices such as jackhammer, pavement breakers, and pneumatic tools would be limited and shrouds would be utilized. - Construction staging areas would have appropriate noise attenuation installed. - Contractors and subcontractors would be required to properly maintain equipment. - Attenuating curtains or shrouds would be used on pile drivers when in close proximity to residential areas. - Moveable noise attenuation measures would be erected around pumps, trucks, etc. when close to residential areas. - Nighttime, Saturday morning, and Sunday activities will be limited to 70dBA Lmax at 50 feet. - Temporary noise barriers would be installed along truck access routes and shoreline work platforms. - A noise and vibration monitoring program would be conducted to document contractor compliance with allowable emission levels.

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Energy and Climate Change	Construction contracts would, as practicable, require several measures during construction: the use of supplementary cementitious materials; reduction of concrete waste; and optimization of cement content. In addition, the following measures would be implemented, where practicable: the use of biodiesel fuel, the use of recycled steel, and the use of local materials sourcing.
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Table 4 (Cont'd)

Summary of Environmental Performance Commitments (EPCs)

Environmental Resource Area	Environmental Performance Commitment
Topography, Geology, and Soils	An erosion and sediment control plan, developed as part of a Stormwater Pollution Prevention Plan (SWPPP) for the project, would be implemented to minimize soil erosion and sedimentation of surrounding waterways.
Water Resources / Ecology	<p>The following measures and EPCs would be implemented to minimize or avoid potential adverse water quality impacts during construction:</p> <ul style="list-style-type: none"> - A SWPPP would be developed pursuant to a State Pollution Discharge Elimination System (SPDES) General Permit to avoid adverse impacts to water quality. Further, activities within any floodplains, dredging, and disposal of dredge material would comply with all applicable federal and state legislation and regulatory programs. - Existing Bridge Demolition: No blasting will occur; columns and footings cut with diamond wire or broken by pneumatic hammers, timber piles will be cut off just below the mudline; materials not re-used or recycled would be transported to an appropriate, permitted off-site disposal facility; Turbidity curtains will be used as required during removal of columns, footings, pile caps and piles, including timber piles. All debris shall be prevented from falling into or otherwise being deposited into the river during demolition. Regularly scheduled side-scan sonar surveys shall be performed for verification. - EPCs to be employed during construction of the substructure include: Driving the largest piles within the first few months of the project; using cofferdams and silt curtains, where feasible, to minimize discharge of sediment into the river; using a vibratory pile driver to the extent feasible; using bubble curtain or other technologies to achieve a reduction of at least 10 dB of noise attenuation during pile driving; limiting the periods of pile driving to no more than 12-hours/day; limiting driving of 8 and 10 ft. piles with an impact hammer within water depths of 18 to 45 feet to 5 hours per day during the period of spawning migration for shortnose and Atlantic sturgeon (April 1 to August 1); maintaining an acoustic corridor where the sound level will be below an SELcum of 187 dB re 1 $\mu\text{Pa}^2\text{-s}$ totaling at least 5,000 ft at all times; pile tapping to cause fish to move from the immediate area. - In addition, development of a comprehensive monitoring plan would include: noise monitoring to characterize the hydroacoustic field surrounding pile-driving operations; monitoring water quality parameters such as suspended sediment concentrations in the vicinity of the pile driving; monitoring fish mortality and inspection of fish; monitoring the recovery of the benthic community within the dredged area at the end of the construction period; supporting the Atlantic and shortnose sturgeon sonic-tagging program; monitoring predation levels by gulls and other piscivorous birds; developing criteria for re-initiating consultation with NMFS should specific numbers of shortnose or Atlantic sturgeon come to the surface injured or dead. - Dredging operations would be conducted using a clamshell dredge with an environmental bucket and no barge overflow. Dredging operations would only be conducted during a three-month period from August 1 to November 1; NMFS-approved inspectors would oversee the dredging operations; Armoring of the channel would be undertaken to prevent re-suspension of sediment during the movement of construction vessels, installation and removal of cofferdams, and pile driving.
Hazardous Materials	A Phase II subsurface investigation was performed in areas of potential soil disturbance. A site-specific Remedial Action Plan (RAP) and Construction Health and Safety Plan (CHASP) would be developed based on results of the Phase II to outline appropriate handling and disposal methods of any identified hazardous or contaminated materials. If additional areas of subsurface disturbance are identified prior to construction, Phase II Subsurface Investigations will be performed and the RAP and CHASP updated accordingly.

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Table 5

Summary of Mitigation Measures and Environmental Commitments—Construction Period

Environmental Resource Area	Proposed Mitigation
Ecology	<p>Measures to mitigate adverse impacts on ecology during construction would include:</p> <ul style="list-style-type: none"> - Restoration of 13 acres of hard bottom/shell oyster habitat in the immediate vicinity of the existing bridge and reintroduction of oysters to the habitat; - Development of a secondary channel restoration project at Gay’s Point, Columbia County; and - Wetlands enhancement at Piermont Marsh that includes Phragmites control on approximately 200 acres within the marsh, restoration of flow to an historic oxbow, development of a green infrastructure project to improve the quality of runoff entering Sparkill Creek and restoration of historic wetlands at the northern end of the marsh. <p>Measures to achieve a net conservation benefit under 6 NYCRR Part 182 Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern; Incidental Take Permits, and measures listed as “Conservation Recommendations” in NMFS’s BO include:</p> <ul style="list-style-type: none"> - Mapping of Hudson River shallows to document benthic habitat used by sturgeon; and studying sturgeon foraging habits; - Sturgeon capture and tagging; tracking of acoustically marked sturgeon (stationary and mobile tracking); (Tagging and mapping efforts will support NMFS’s recommendation to support studying the distribution of sturgeon throughout different habitat types within the Hudson River, and to support studying the seasonal distribution of sturgeon within the Tappan Zee reach. The intent of these studies will support the request from NMFS to aid in the updating of population estimates for both species of Sturgeon.); - Preparation of written material to be used as part of ongoing outreach to reduce impacts of commercial by-catch of Atlantic sturgeon in the near shore Atlantic Ocean; and - The tissue of any dead sturgeon removed from the Hudson River during the course of the bridge construction project will be analyzed to determine contaminated loads.

8 MONITORING AND ENFORCEMENT PROGRAM

As specified in the Design-Build Contract Documents (Part 3 § 3.3.3.2), the Design-Builder is required to develop and submit environmental compliance plans. In each of the documents listed below, the Design-Builder shall identify the frequency of submission of compliance reports to NYSTA. These plans must be approved by NYSTA prior to construction and include the following:

- Spill prevention, control, and countermeasures (SPCC) plan;
- Contaminated materials management plan;
- Hazardous waste operations safety and health program for hazardous waste operations plan;
- Construction noise and vibration control plan;
- Air quality control plan;
- Dust control plan;
- Health and safety plan (HASP);
- Rodent control plan;
- Lead compliance plan;
- Stormwater pollution prevention plan (SWPPP; see Project Requirement 23 – Drainage and Stormwater);
- Project-generated waste management plan;
- Cultural resource protection plan;

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- Construction Protection Plan for Historic Properties;
- Dredge materials management plan;
- Ecological management plan;
- Energy conservation plan; and
- Educational and Interpretive Materials Plan.

NYSTA is developing an Environmental Compliance Oversight Plan (ECOP). This ECOP will describe the environmental requirements that were identified during the environmental reviews, as documented in the FEIS, ROD, as stipulated by the permits and as set forth by the Biological Opinion, EFH Assessment, and the Federal, State and local regulatory requirements to be followed during construction. The objectives of the ECOP will be to:

- Identify environmental requirements and the protected resources within the project that require compliance to all existing and any forthcoming Federal, State, and local regulatory permit conditions and the procedures defined to meet them;
- Define environmental commitments and mitigation measures stipulated by the Federal and State permits and regulations; and those contained within the FEIS and ROD (such as the recommendation by NMFS to monitor benthic habitat recovery rates within the project area);
- Ensure that the required environmental commitments and mitigation measures are identified in the Contract documents and pertinent submittals;
- Define responsibilities and actions by NYSTA, NYSDOT, its representatives, and its Contractors needed to maintain compliance with environmental requirements during design and construction;
- Define responsibilities and actions by NYSTA, NYSDOT, its representatives, and its Contractors needed to effectively respond to situations or agency/public concerns;
- Establish necessary procedures by NYSTA, NYSDOT, its representatives, and its Contractors for communication, documentation, and review of environmental compliance activities for each construction contract;
- Ensure that Contractors submit all environmental documents, designs and plans required by the Contractor specifications;
- Ensure that Contractors provide all means and methods to avoid or minimize impacts to the environment and general public in compliance with the construction contract documents; and,
- Ensure all work is monitored in accordance with the environmental commitments contained within the ECOP, and all Federal, State, and local regulatory rules and permit conditions.

The ECOP will identify the coordination and procedures necessary to limit potential impacts to the environment and communities within and adjacent to the project. The ECOP will provide guidance to the Design-Builder and to specify actions and protocols to monitor the Design-Builder's compliance with the project's EPCs and other mitigation commitments.

The ECOP will be updated as design and construction progresses and as further environmental requirements and/or issues are identified, if applicable. Periodic reviews of the ECOP and procedures will be performed to ensure continual improvement of the plan's adequacy, and it will be expanded and updated during the duration of the project. The ECOP provides a general framework for methods that will be employed to reduce environmental impacts from construction activities. Specific environmental requirements and controls will be tailored to the various construction contracts and will be included in contract specifications.

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9 COMMENTS ON THE FEIS

The cover sheet of the FEIS was signed by NYSDOT and NYSTA on July 24, 2012 and by FHWA on July 25, 2012. An NOA was published in the Federal Register on August 3, 2012, initiating a public review period which lasted until September 4, 2012. During the public review period, about 30 written comment letters and emails were received. New or substantive comments on the project are addressed in **Attachment A** of this ROD. In summary, comments were received on: the analyses related to sturgeon and other aquatic resources; the financial plan and potential toll increases; potential impacts during construction; potential short- and long-term property value, noise, and quality of life impacts to residents near the bridge; mitigation measures; effects of permanent easements; NYMTC procedural requirements; the NEPA process for the project; and express bus lane commitments on the replacement bridge. The letters and emails also reiterated comments provided previously, in particular project alternatives and immediate provisions for transit. All comments from elected officials, local agencies, and the public on the FEIS are provided in **Attachment B** of this ROD, but only new or substantive comments are reflected in **Attachment A**. **Attachment C** includes letters received from state and federal agencies.

10 CONCLUSION

Having carefully considered the environmental record noted above, the mitigation measures as required herein, the written and oral comments offered by other agencies and the public on this record, and the written responses to the comments, the FHWA, NYSDOT, and NYSTA have determined that (1) adequate opportunity was offered for the presentation of views by all parties with a significant economic, social, or environmental interest; (2) fair consideration has been given to the preservation and enhancement of the environment and to the interests of the communities in which the Selected Alternative is located; (3) all reasonable steps have been taken to minimize adverse environmental impacts of the Selected Alternative; and (4) where adverse impacts remain, there exists no feasible and prudent alternative to avoid or further mitigate such impacts.

On the basis of the careful evaluation and weighing of environmental impacts with social, economic and other considerations as presented, and the mitigation measures proposed in the Tappan Zee Hudson River Crossing FEIS and this Joint ROD and Findings Statement as well as the written and oral comments offered by the public and public agencies, the FHWA determined in accordance with 23 CFR 771.105, the NYSDOT certifies in accordance with 17 NYCRR Part 15, and NYSTA certifies in accordance with 6 NYCRR Part 617 that:

- The requirements of 23 CFR 771 and 6 NYCRR Part 617 have been met as the DEIS and FEIS were duly prepared under NEPA, and the FEIS is sufficient to make the findings under 6 NYCRR Part 617.11 as permitted by 6 NYCRR Part 617.15;
- Consistent with social, economic and other essential considerations, from among the reasonable alternatives available, the Selected Alternative is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable and that adverse environmental impacts will be avoided or minimized to the maximum extent practicable by incorporating as conditions those mitigative measures that were identified as practicable;
- Alternative courses of action were evaluated and decisions were made in the best overall public interest based upon a balanced consideration: of the need for safe and efficient transportation; of the social, economic, and environmental impacts of the project; and of national, state and local environmental protection goals;
- The proposed action is consistent with the applicable policies of Article 42 of the Executive Law, as implemented by 19 NYCRR 600.5 and consistent to the maximum extent practicable with the Village

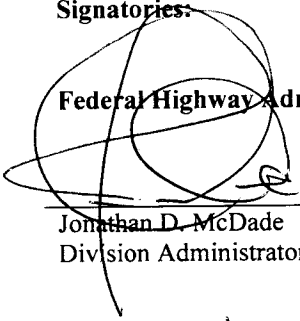
National Environmental Policy Act and New York State Environmental Quality Review Act
JOINT ROD and FINDINGS STATEMENT
Federal Highway Administration, New York State Department of Transportation, and New York State
Thruway Authority

of Nyack and Village of Sleepy Hollow approved Local Waterfront Revitalization Programs (LWRPs);

- The proposed action, to the fullest extent possible, incorporates all environmental investigations, reviews, and consultations in a single coordinated process;
- Compliance with all applicable environmental requirements are reflected in the environmental document required under NEPA, and as applicable, SEQRA; and
- Public involvement and a systematic interdisciplinary approach were essential parts of the development process for the project.

National Environmental Policy Act and New York State Environmental Quality Review Act
JOINT ROD and FINDINGS STATEMENT
Federal Highway Administration, New York State Department of Transportation, and New York State
Thruway Authority

Signatories:



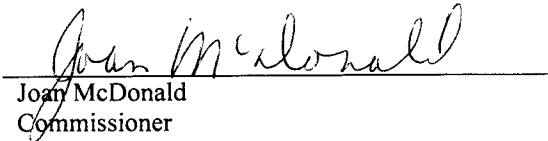
Federal Highway Administration

Jonathan D. McDade
Division Administrator

9/25/12

Date

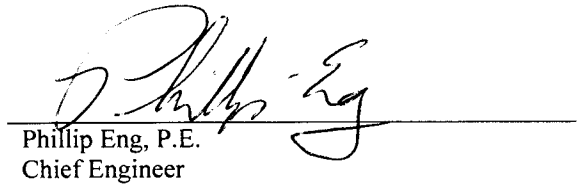
New York State Department of Transportation



Joan McDonald
Commissioner

9/25/12

Date

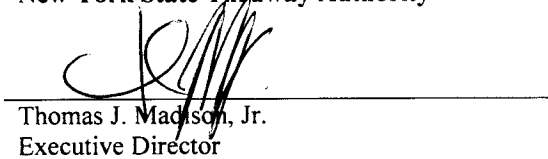


Phillip Eng, P.E.
Chief Engineer

9/25/12

Date

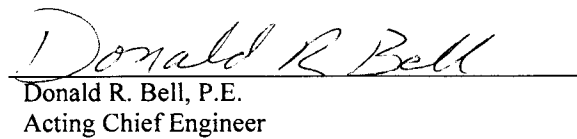
New York State Thruway Authority



Thomas J. Madison, Jr.
Executive Director

9/25/12

Date



Donald R. Bell, P.E.
Acting Chief Engineer

9/25/12

Date