

23-1 INTRODUCTION

This chapter addresses the requirements of Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966.¹ The Tappan Zee Hudson River Crossing Project would use three Section 4(f) Properties—Tappan Zee Bridge, Elizabeth Place Park, and the South Nyack Historic District. The use of Elizabeth Place Park is considered *de minimis*. The use of the Tappan Zee Bridge and South Nyack Historic District cannot be avoided, and therefore, the Federal Highway Administration (FHWA) has identified measures to minimize harm to these properties.

23-2 REGULATORY CONTEXT

Section 4(f) of the USDOT Act of 1966 (49 USC § 303; 23 CFR §774) prohibits the Secretary of Transportation from approving any program or project that requires the “use” of (1) any publicly owned parkland, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; or (2) any land from a historic site of national, state, or local significance (collectively, “Section 4(f) properties”), unless there is no feasible and prudent alternative to the use of such land and such program or project includes all possible planning to minimize harm to the park, recreation area, wildlife refuge, or historic site. A historic site is considered to be a property that is listed on, or eligible for listing on, the National Registers of Historic Places (“NR-listed” and “NR-eligible”).

A project uses a Section 4(f) property when:

- It permanently incorporates land from the property into a transportation facility;
- It temporarily but adversely occupies land that is part of the property; or
- It “constructively” uses the property, which occurs “when the transportation project does not incorporate land from a Section 4(f) property, but the proximity impacts are so severe that the protected activities, features, or attributes that qualify property for protection under Section 4(f) are substantially impaired.”

Whenever a Section 4(f) property would be used for a transportation project, documentation must be prepared to demonstrate that:

- No feasible and prudent alternative exists to the use of the 4(f) property; and
- The project includes all possible planning to minimize harm to the property.

¹ In 1983, Section 4(f) of the USDOT Act was codified as 49 USC §303(c), but this law is still commonly referred to as Section 4(f).

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As described in 23 CFR § 774.17, an alternative is not feasible if it cannot be built as a matter of sound engineering judgment. An alternative is not prudent if:

- It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
- It results in unacceptable safety or operational problems;
- After reasonable mitigation, it still causes:
 - Severe social, economic, or environmental impacts;
 - Severe disruption to established communities;
 - Severe disproportionate impacts to minority or low income populations; or
 - Severe impacts to environmental resources protected under other Federal statutes;
- It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
- It causes other unique problems or unusual factors; or
- It involves multiple factors of the above, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

If there is no feasible and prudent avoidance alternative, FHWA may approve only the alternative that causes the least overall harm in light of Section 4(f)'s preservation purpose. As stated in 23 CFR § 774.3 The "least overall harm" is determined by balancing the following list of factors:

- The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
- The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
- The relative significance of each Section 4(f) property;
- The views of the official(s) with jurisdiction over each Section 4(f) property;
- The degree to which each alternative meets the purpose and need for the project;
- After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
- Substantial differences in costs among the alternatives.

23-2-1 DE MINIMIS IMPACTS

Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU amended the Section 4(f) legislation to simplify the approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). *De minimis* impacts related to historic sites are defined as the determination of either "no adverse effect" or "no historic properties affected" in compliance with Section 106 of the National Historic Preservation Act (NHPA; 16 USC § 470 et seq.; 36 CFR

Part 800). *De minimis* impacts on publicly owned parks, recreation areas, and wildlife and waterfowl refuges are defined as those that do not “adversely affect the activities, features, and attributes” of the Section 4(f) property.

A finding of a *de minimis* impact on a historic site may be made when:

- The process required by Section 106 of the NHPA results in the determination of "no adverse effect" or "no historic properties affected" with the concurrence of the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO), if applicable, and the Advisory Council on Historic Preservation, if participating in the Section 106 consultation process;
- The SHPO and/or THPO, and ACHP, if participating, is informed of FHWA's intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination; and
- The FHWA has considered the views of any consulting parties participating in the Section 106 consultation.

The impacts of a transportation project on a park, recreation area, or wildlife and waterfowl refuge may be determined to be *de minimis* if:

- The transportation use of the Section 4(f) property, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f);
- The official(s) with jurisdiction over the property are informed of FHWA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and
- The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) property.

Once FHWA determines that a transportation use of Section 4(f) property results in a *de minimis* impact, analysis of avoidance alternatives are not required and the Section 4(f) evaluation process is complete.

23-2-2 PROGRAMMATIC SECTION 4(f) EVALUATION FOR HISTORIC BRIDGES

In July 1983, FHWA issued through the *Federal Register* a programmatic Section 4(f) approval for historic bridges that are part of the interstate highway system or a state or local highway system. Programmatic Section 4(f) evaluations streamline the amount of documentation, approval, and interagency coordination that is required. If a project meets the criteria of the Programmatic Section 4(f) evaluation, it is deemed to meet the regulations of Section 4(f). For Programmatic Section 4(f) evaluations, interagency coordination is required with the official(s) with jurisdiction over the resource but not with the U.S. Department of Interior (DOI).

In its programmatic evaluation for historic bridges, FHWA states that:

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Even though these structures are on or eligible for inclusion on the National Register of Historic Places, they must perform as an integral part of a modern transportation system. When they do not or cannot, they must be rehabilitated or replaced in order to assure public safety while maintaining system continuity and integrity.

FHWA can apply the programmatic Section 4(f) evaluation for historic bridges if a project that meet the following criteria:

- The bridge is to be replaced or rehabilitated with federal funds.
- The project will require the use of a historic bridge structure which is on or is eligible for listing on the National Register of Historic Places.
- The bridge is not a National Historic Landmark.
- The FHWA Division Administrator determines that the facts of the project match those set forth in the sections of the programmatic Section 4(f) evaluation.
- Agreement among the FHWA, SHPO, and ACHP has been reached through procedures pursuant to Section 106 of the NHPA.

The programmatic Section 4(f) evaluation and approval may be used only for projects where the FHWA Division Administrator, in accordance with the project's Section 4(f) evaluation, ensures that the project includes all possible planning to minimize harm. For bridges that are to be replaced, this is considered to occur when: 1) the existing bridge is made available for an alternative use, provided a responsible party agrees to maintain and preserve the bridge; and 2) agreement among the SHPO, ACHP, and FHWA is reached on measures to minimize harm through the Section 106 process of the NHPA, and such measures are incorporated into the project.

23-2-3 SECTION 4(f) REVIEW PROCESS

After public comments on this draft Section 4(f) statement are received, a final Section 4(f) evaluation will be prepared. The final Section 4(f) evaluation will contain the conclusions of the Section 4(f) evaluation, encompassing:

- A description of the basis for concluding that there are no prudent and feasible alternatives to the use of the Section 4(f) property, including a demonstration that there are unique problems or unusual factors involved in the use of alternatives that avoid these properties, or that the cost, social, economic, and environmental impacts or community disruption resulting from the alternatives reach extraordinary magnitudes;
- A description of the basis for concluding that the proposed action includes all possible planning to minimize harm; and
- A summary of appropriate formal coordination with the U.S. Department of the Interior (DOI).

FWHA, acting as the lead federal agency, will make its final Section 4(f) finding when it issues the Final Environmental Impact Statement (FEIS) for the Tappan Zee Hudson River Crossing Project.

23-3 APPLICABILITY OF SECTION 4(f) TO THE PROJECT

Three Section 4(f) properties would be temporarily and/or permanently used by the Replacement Bridge Alternative. These effects of the Short Span and Long Span Options for the Replacement Bridge Alternative would be the same with respect to these Section 4(f) properties. The location of these Section 4(f) properties is shown in **Figure 23-1**.

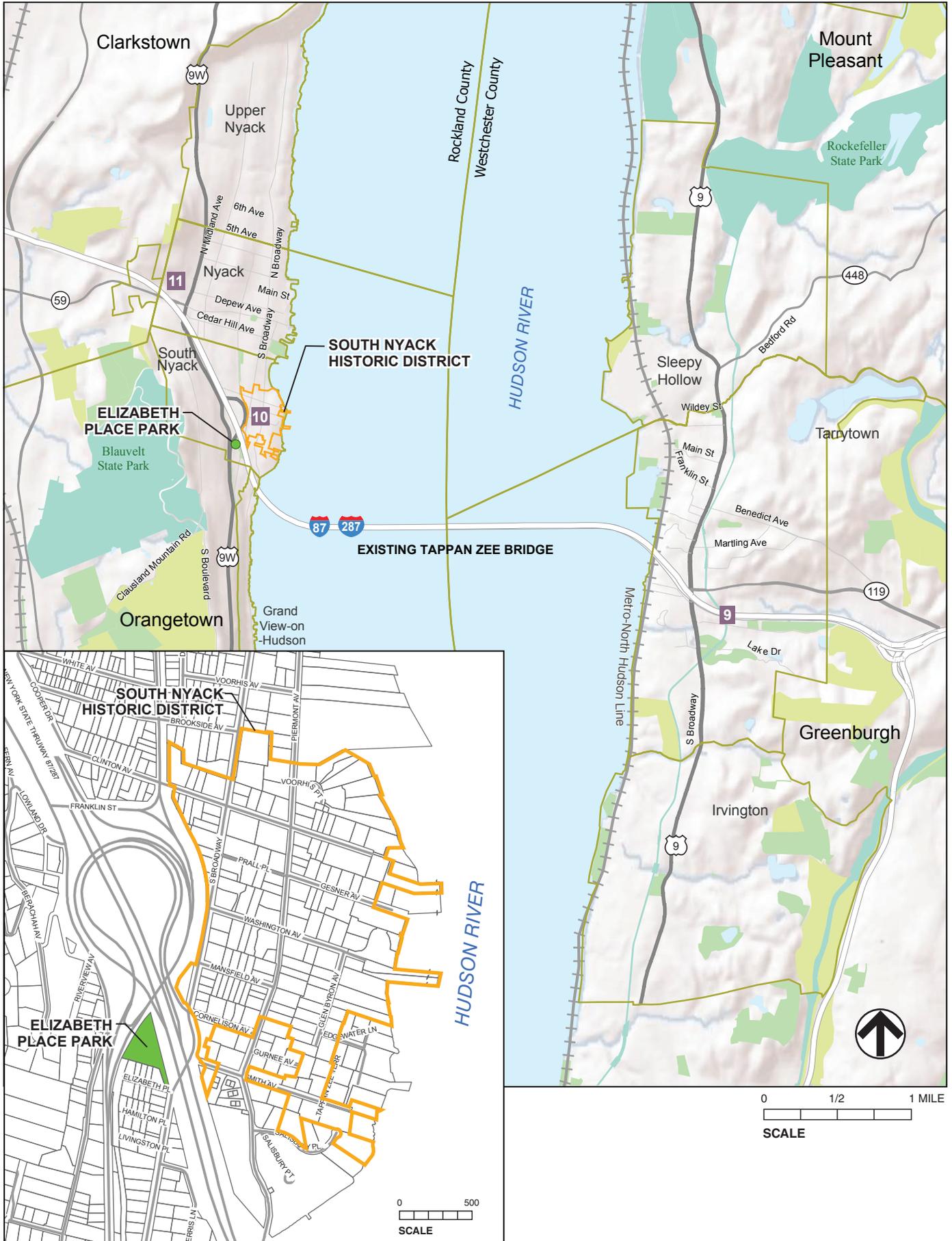
- The Replacement Bridge Alternative would remove the existing Tappan Zee Bridge, which is S/NR-eligible;
- The Replacement Bridge Alternative would require a temporary easement of 0.03 acres of Elizabeth Place Park in South Nyack, Rockland County for three years during construction; and
- The Replacement Bridge Alternative would require the permanent acquisition and demolition of the houses at 21 Cornelison Avenue and 78 Smith Avenue, South Nyack, Rockland County, both of which are contributing resources to the NR-eligible South Nyack Historic District.

As stated in 23 CFR § 77.11 and 23 CFR § 77.13, Section 4(f) applies to all archeological sites on or eligible for inclusion on the National Register, including those discovered during construction, except when:

- The Administration concludes that the archeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place. This exception applies both to situations where data recovery is undertaken and where the Administration decides, with agreement of the official(s) with jurisdiction, not to recover the resource; and
- The official(s) with jurisdiction over the Section 4(f) resource have been consulted and have not objected to the Administration finding.

The potential archaeological resources identified for the Tappan Zee Hudson River Crossing Project and described in Chapter 10, "Historic and Cultural Resources," would be important for the information they might yield and not for preservation in place. Therefore, at this time, these resources are not considered as Section 4(f) properties. However, if based on further study and consultation with the State Historic Preservation Officer (SHPO) of the New York State Offices of Parks, Recreation, and Historic Preservation (OPRHP), it is determined that these resources are important for preservation in place, this Section 4(f) evaluation would be supplemented to address these properties.

As described above, a "constructive" use occurs "when the transportation project does not incorporate land from a Section 4(f) property, but the proximity impacts are so severe that the protected activities, features, or attributes that qualify a property for protection under Section 4(f) are substantially impaired." The Replacement Bridge Alternative would construct a new bridge north of the existing location of the Tappan Zee Bridge with realignment and regrading of Interstate 87/287 in Rockland and Westchester Counties to meet the new bridge abutments. The realignment of the highway would result in its closer proximity to Section 4(f) properties on the north side



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of the existing right-of-way, and the higher elevation of the highway would be more visible from Section 4(f) properties on the south side of the right-of-way.

While this shift may increase noise levels and vehicle emissions at some discrete locations, it would not substantially alter the existing character of these properties, as they already exist very near Interstate 87/287. New noise walls and the highway grade may block views of and from certain historic properties, but the viewshed is not considered a character defining feature. Therefore, the Replacement Bridge Alternative, including the shift of the Interstate 87/287 right-of-way to the north, would not constitute a constructive use on Section 4(f) properties.

23-4 SECTION 4(f) EVALUATION

Below is an evaluation of the use of each of the Section 4(f) properties identified above to determine whether there are any feasible and prudent alternatives to its use. If multiple adverse factors, such as environmental impacts, increased costs, and impaired traffic operations, taken together create unique problems, these resulting problems can mean an alternative is not prudent. An alternative that would not meet the project's purpose and need also is not prudent. An alternative is not feasible if it cannot be built as a matter of sound engineering practice. Where prudent and feasible alternatives to avoid the use of a Section 4(f) property cannot be identified, this section describes the measures that would be implemented to minimize harm to the property.

23-4-1 TAPPAN ZEE BRIDGE

Section 6007 of SAFETEA-LU exempts the Interstate Highway System from being considered as a Section 4(f) property. This exemption applies to the entire Interstate System, except for specific facilities designated by FHWA as having national and/or exceptional significance. Although it is part of the Interstate Highway System, the requirements of Section 4(f) apply to the Tappan Zee Bridge as it is designated as having exception significance in engineering history for its use of prefabricated buoyant caissons supports.

The Tappan Zee Bridge was constructed between 1952 and 1955. Captain Emil H. Praeger, U.S. Navy Retired (1882–1973), served as chief engineer for Madigan-Hyland, the designers of the bridge. The bridge is 3.1-mile-long structure supported by a substructure consisting of abutments and 198 piers. It is the longest bridge in the state and one of the longest in the country. It also has the world's ninth longest cantilever span, at 1,212 feet. It has been determined eligible for National Register listing for its significance in the areas of transportation and engineering. The Tappan Zee Bridge is not designated as a National Historic Landmark.

23-4-1-1 DESCRIPTION OF THE USE OF THE SECTION 4(F) PROPERTY

The Replacement Bridge Alternative would incorporate portions of the existing Rockland and Westchester Counties' landings of the Tappan Zee Bridge into the new structure and would demolish the existing bridge, causeway, and approach spans.

23-4-1-2 ALTERNATIVES TO AVOID THE USE OF THE SECTION 4(F) PROPERTY

FHWA's programmatic Section 4(f) Evaluation identifies three alternatives to the use of a historic bridge: 1) Implement the No Build Alternative ("Do Nothing Alternative"); 2)

Build a new structure at a different location without affecting the historic integrity of the old bridge, as determined by procedures implementing the NHPA; and 3) Rehabilitate the historic bridge without affecting the historic integrity of the structure, as determined by procedures implementing the NHPA.

No Build Alternative

The No Build Alternative (“Do Nothing” Alternative”) would not result in the demolition of the Tappan Zee Bridge. Ongoing maintenance and capital projects would ensure that the Tappan Zee Bridge would remain safe to the traveling public, but these projects would not correct the structural, operational, safety, or mobility needs of the bridge. The New York State Thruway Authority (NYSTA) estimates that it would spend \$1.3 billion to maintain and repair the bridge over the next decade. Major work activities will include seismic upgrades to portions of the bridge, navigational safety improvements, steel and concrete repairs, and other miscellaneous improvements to continue to keep the bridge safe for traveling public. Despite this considerable expenditure, the structural, operational, safety, and mobility needs of the Tappan Zee Hudson River crossing would not be fully corrected.

Given the age of the bridge and the vulnerabilities in extreme events, it is possible that the crossing could be closed altogether at some point in the future. If the bridge were closed, the vital link between the population and employment centers of Rockland and Westchester Counties would be removed, causing a break in the regional and national transportation network. As a result, the local and regional population and workforce could be adversely affected by the No Build Alternative.

While the No Build Alternative would be feasible, it is not prudent, as it would not meet the project’s purpose and need and could result in severe social, economic, and environmental impacts.

Build at a New Location Alternative

Construction of a new bridge on another alignment and retention of the existing bridge in a manner that would preserve its historic integrity would avoid a use of the Tappan Zee Bridge. Two potential alignments for a new bridge were evaluated—Remote Northern Route and Remote Southern Route (see **Figure 23-2**).

- **Remote Northern Route.** A Remote Northern Route was identified 3 miles north of the existing bridge that would generally avoid terrain obstacles. This route would require a new, 2-mile corridor in Rockland County, diverging from Interstate 87/287 near Interchange 12 (Palisades Interstate Parkway). In Westchester County, the alignment would require a new ½-mile long roadway from the Hudson River to Route 117 at its interchange with Route 9. At this point, the Remote Northern Route would rejoin the existing Interstate 87/287 right-of-way.
- **Remote Southern Route.** A Remote Southern Route was identified in the vicinity of Snedens Landing in Rockland County and Dobbs Ferry or Hastings on Hudson in Westchester County, approximately 4 miles south of the existing bridge. This route would diverge from the existing right-of-way at the Palisades Interstate Parkway (Interchange 13) in Rockland County and would rejoin Interstate 87 at south of Interchange 7 (Interstate 287) in Westchester County. It would require acquisition of about two miles of new right-of-way in Rockland County and about two to three

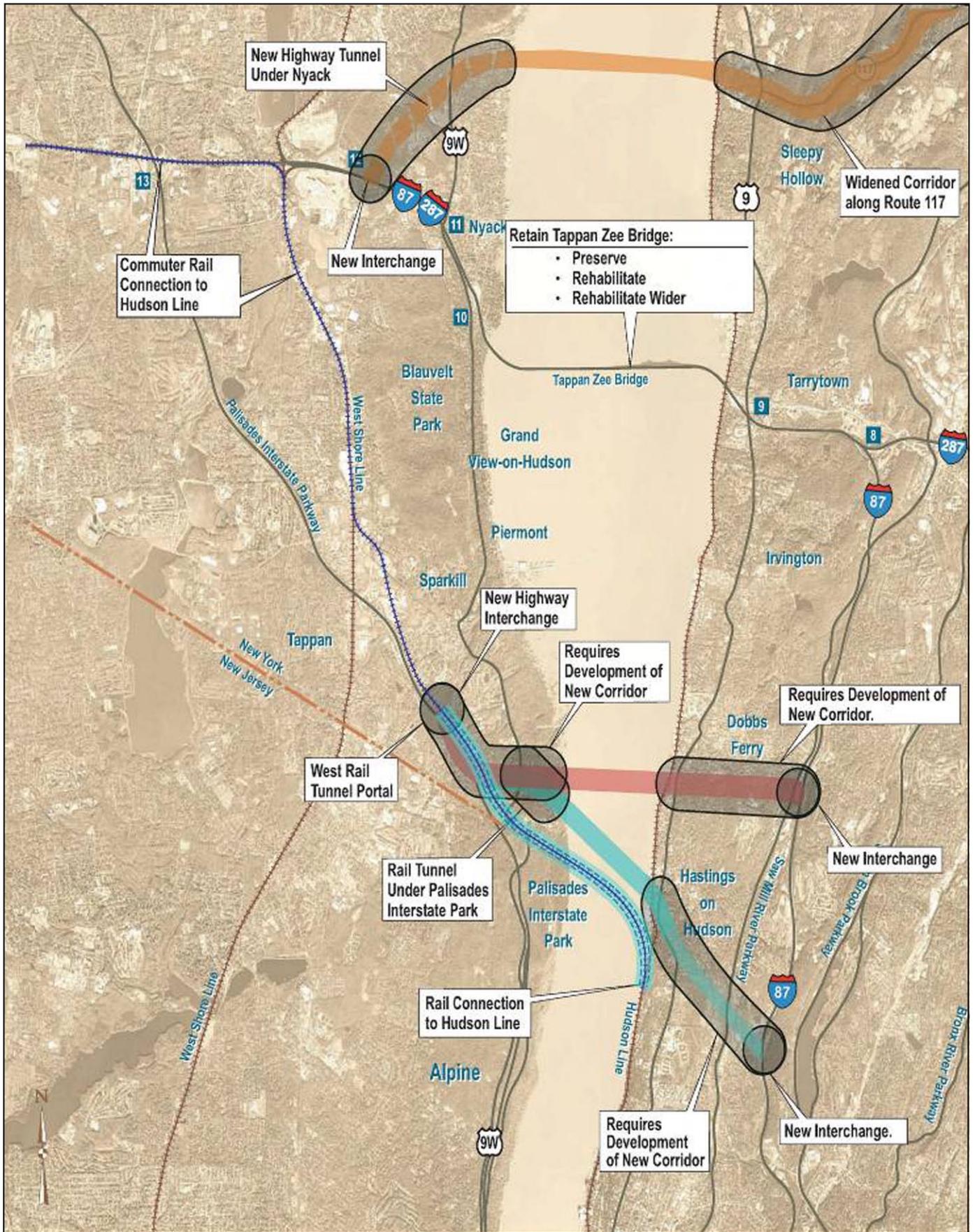


Figure 23-2

Avoidance Alternatives: Build at a New Location Alternative

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miles of new right-of-way in Westchester County. The Remote Southern Route would also require extensive modifications to the Palisades Interstate Parkway to meet design requirements for interstate highways.

The Remote Northern and Remote Southern Routes would require acquisition of more than 40 acres of property in a heavily populated area, resulting in a substantial number of residential and commercial relocations. Furthermore, the Remote Northern and Southern Routes would require reconstruction of portions of the Palisades Interstate Parkway to provide new interchanges and allow for truck access. The construction and reconstruction of the highway would impact a number of built and natural features in both Rockland and Westchester Counties. Thus, the Remote Northern and Remote Southern Routes are not considered prudent.

Rehabilitation Alternative

The Alternatives Analysis for Rehabilitation and Replacement of the Tappan Zee Bridge Report (March 2009) identified four rehabilitation options to enhance the structural integrity and operation of the existing Tappan Zee Bridge. Four rehabilitation options were considered:

- 1) Replacement Causeway and Rehabilitated Main Span;
- 2) Replacement Causeway and Widened Main Span;
- 3) Replacement Causeway, Rehabilitated Main Span, and Single Level Supplemental Bridge; and
- 4) Replacement Causeway, Rehabilitated Main Span, and Dual Level Supplemental Bridge.

The findings of this report were reviewed in the context of the goals and objects for the current project (see Chapter 1, "Purpose and Need"). This review concluded that the Rehabilitation Alternative is not considered prudent for the reasons described below.

The Rehabilitation Alternative would fail to meet the project goal of "ensuring the long-term vitality of this Hudson River crossing" for the following reasons:

- The Rehabilitation Alternative would be designed to comply with seismic criteria, which are based on strength. However, the Rehabilitation Alternative would lack ductility, which allows bridge members to endure changes in shape without breaking. Therefore, the Rehabilitation Alternative would be vulnerable during an extremely long or intensive earthquake.
- The Replacement Bridge Alternative would consist of two structures to provide for service redundancy in the event that one structure is closed for damage, maintenance, and/or repair. The Rehabilitation Alternative options that have a single structure would lack this service redundancy. If the bridge were heavily damaged by a natural or man-made event, it would be closed for repairs. If the bridge were closed, there would be no alternative routing for traffic at this location along the Hudson River.

The Rehabilitation Alternative would fail to meet the project goal of "improving transportation operations and safety on the crossing" for the following reasons:

- The Rehabilitation Alternative would lack alternative load path redundancy (i.e., the ability of bridge members to be supported by multiple means such as a deck supported both by a deck truss and by a bridge cable). As such, the Rehabilitation Alternative would not adequately address security or operational concerns. Its closure would severely affect traffic operations, freight movement, and economic conditions across the region.

The Rehabilitation Alternative would fail to meet the project goal of “maximizing the public investment in a new Hudson River crossing” for the following reasons:

- The life span of bridge components retained in the Rehabilitation Alternative would be shorter than those of a new bridge. To maximize the public investment in a new Tappan Zee Hudson River crossing, the desired life span of the new structure is at least 100 years before major maintenance or rehabilitation is needed. However, components of the Rehabilitation Alternative would need major maintenance or replacement in as few as 50 years.
- The construction duration for the Rehabilitation Alternative would be one year longer than for a replacement bridge.
- There is much uncertainty associated with rehabilitation projects in that the extent of damage to certain bridge components may not be fully known until they are actually replaced. This uncertainty would have the potential to substantially increase the construction cost and duration of the Rehabilitation Alternative.
- The Rehabilitation Alternative would involve both upland and in-water construction activities and would be expected to result in many of the same environmental impacts of a replacement bridge.
- The Rehabilitation Alternative with two bridges would cost \$2.5 to \$2.7 billion more than the Replacement Bridge Alternative. It would also result in more in-water work and would have the same deficiencies described above in terms of life cycle and vulnerabilities.

In addition, the Rehabilitation Alternative would remove historic features of the Tappan Zee Bridge and many other impacts of its construction and operation would be materially the same or potential worse than the Replacement Bridge Alternative. Given these considerations, the Rehabilitation Alternative would not meet the project’s purpose and need. While feasible, the Rehabilitation Alternative is not prudent. Rehabilitation without adversely affecting the historic integrity of the Tappan Zee Bridge also appears to not be feasible.

Reuse Alternative

The reuse of the existing Tappan Zee Bridge in tandem with the Replacement Bridge Alternative would partially avoid a use of this Section 4(f) property. Under the Reuse Alternative, FHWA, New York State Department of Transportation (NYSDOT), and NYSTA would seek a new owner for the existing Tappan Zee Bridge once the Replacement Bridge Alternative is operational. The new owner would be responsible for the future use of the bridge in accordance with federal, state, and local laws, permits, and approvals and would be responsible for the maintenance of the structure.

The Reuse Alternative is not prudent for the following reasons:

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- Consistent with the project's objectives to "minimize effects on existing highways" and "maximize the use of existing right-of-way," the Replacement Bridge Alternative would incorporate as much of the existing bridge landings as possible into the new structures. In Rockland County, the landings would shift slightly north; however, in Westchester County, the new landings would fully incorporate right-of-way for the existing landings. Therefore, under the Reuse Alternative, access to the existing Tappan Zee Bridge would be precluded without an alternative upland right-of-way. Upland right-of-way would be need for pathways to get onto the bridge and possibly for parking or uses related to the bridge's conversion to public space.
- The reuse of the existing bridge in combination with the Replacement Bridge Alternative would result in three structures over a 500-foot corridor of the navigable channel. Based on conversations with the U.S. Coast Guard, retention of the existing bridge would be considered an obstruction to navigation.
- The cost to rehabilitate the existing structure for alternative use and to maintain its ongoing structural integrity would be very high. The estimated cost for full rehabilitation of the existing bridge is \$3.5 billion, including replacement of the causeway and seismic upgrades. The costs to maintain the bridge would be about \$50 million per year.
- The reuse of the existing structure would require demolition, alteration, or removal of bridge features. These efforts would adversely affect the historic integrity of the Tappan Zee Bridge.

23-4-1-3 MEASURES TO MINIMIZE HARM

As described above, the reuse of the existing Tappan Zee Bridge in place is not considered prudent or feasible. The Tappan Zee Bridge is more than 3.1 miles long with 198 piers, and the removal and relocation of the bridge in tact would be infeasible. Disassembly and reassembly of the structure would also be extremely difficult given the location, length, and age of the Tappan Zee Bridge. Furthermore, the removal of the bridge would likely alter or demolish its causeway foundations, buoyant foundations, and cofferdams, which are contributing elements to the historic integrity of the bridge.

Since preservation in place or relocation is not a viable option, FHWA, NYSDOT, and NYSTA, in consultation with SHPO, have explored measures to mitigate the adverse effect on the Tappan Zee Bridge. These measures, which are identified in the draft Section 106 Memorandum of Agreement (see **Appendix C**), are as follows:

- American Engineering Record (HAER) documentation of the Tappan Zee Bridge would include at a minimum large-format black-and-white archival photographs, measured drawings, and a historic report meeting the current HAER guidelines established by the Heritage Documentation Program of the National Park Service. Copies of the HAER Report would be distributed to the Library of Congress and other appropriate repositories identified in consultation with SHPO. Existing Drawings: Drawings of historic buildings, sites, structures or objects, whether original construction or later alteration drawings that portray or depict the historic value or significance.
- Educational materials documenting the history and construction of the bridge.

23-4-2 ELIZABETH PLACE PARK

Elizabeth Place Park is a public park in the Village of South Nyack. The park is owned and maintained by the Village of South Nyack. It is situated on an approximately 0.81-acre triangular parcel located on the southwest side of Interstate 87/287, north of Elizabeth Place, and east of the Raymond G. Esposito Memorial Trail and Route 9W. The park features active recreation opportunities, including a basketball court, play area, open space, picnic areas, and a dog park.

The South Broadway Bridge over Interstate 87/287 must be lengthened to allow for a northward shift in the highway alignment to meet the new abutments of the Replacement Bridge Alternative. To construct the new South Broadway Bridge, NYSDOT and NYSTA would seek a temporary, 3-year easement for 0.03 acres of Elizabeth Place Park. The easement would consist of a sloped area at the western edge of the park adjacent to South Broadway. This area is vegetated, and its steep slope results in its limited use by park patrons. The easement would allow for staging to reconstruct and realign the South Broadway Bridge over Interstate 87/287. During that time, this portion of the park would be inaccessible to the public. Upon completion of construction, the temporary easement would expire and the 0.03 acres would be returned to parkland. This area would be regraded and flattened such that it would better serve for recreational use.

FHWA proposes a *de minimis* impact finding for the use of Elizabeth Place Park. The use of this property would be temporary and would impact less than 5 percent of the park's area. The use would involve areas of the park with limited public utility and would not affect the other attributes of the park. Furthermore, upon completion of construction, the 0.03 acres would be regraded to better serve park users. FHWA will seek the concurrence with the Village of South Nyack for its proposed *de minimis* impact finding.

23-4-3 SOUTH NYACK HISTORIC DISTRICT

The South Nyack Historic District (determined S/NR-eligible as part of this project) is located within the Village of South Nyack. The southwestern portion of the historic district abuts Interchange 10 (Route 9W) of Interstate 87/287. The proposed historic district is characterized by large, Second Empire estates, Queen Anne-style residences, and modest residences built in the Tudor, Colonial Revival, and Craftsman styles. The district encompasses residences on Piermont, Clinton, Cornelison, Gesner, Glen Byron, Mansfield, Smith, and Washington Avenues; Gurnee and Prall Places; South Broadway; Tappan Zee Terrace; and Voorhis Point. The proposed district includes 130 contributing resources and 34 noncontributing resources. The proposed district was determined eligible for NR listing because it is a cohesive assembly of predominantly residential structures that visually communicate the history of South Nyack's affluent and middle-class neighborhoods over time.

The residences at 21 Cornelison and 78 Smith Avenues are contributing resources to the South Nyack Historic District. The residence at 21 Cornelison is a four-square, hip-roofed structure built in the early 20th century. 78 Smith Avenue consists of a two-story, three-bay residence constructed ca, 1910. Its surrounding landscape features include concrete-paved paths, mature trees, and shrubs. 78 Smith Avenue was designed in an interpretation of the Colonial Revival style that references the Greek Revival style.

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23-4-3-1 DESCRIPTION OF THE USE OF THE SECTION 4(F) PROPERTY

The 21 Cornelison Avenue and 78 Smith Avenue properties would be acquired. Structures would be removed, and the properties would be permanently incorporated into the Interstate 87/287 and future South Broadway right-of-way. In order to reconstruct the South Broadway Bridge and avoid disruption to traffic over Interstate 87/287, the bridge alignment would be shifted slightly east. The property at 21 Cornelison Avenue would be the future location of the shared-use path, the realigned South Broadway Bridge, and landscaped buffer space. The property at 78 Smith Avenue would be the future location of the Replacement Bridge Alternative's shared-use path, a retaining wall, and landscaped buffer space.

23-4-3-2 AVOIDANCE ALTERNATIVES

No Build Alternative

The No Build Alternative would not replace the Tappan Zee Bridge, reconstruct the South Broadway Bridge, or construct a shared-use path adjacent to the westbound lanes of Interstate 87/287. The No Build Alternative would avoid the use of the South Nyack Historic District. However, as described above, the No Build Alternative is not prudent as it would not meet the project's purpose and need and could result in severe social and economic impacts.

Southerly Alignment in Rockland County Alternative (Replace Tappan Zee Bridge but No South Broadway Bridge Replacement)

The Southerly Alignment in Rockland County Alternative would involve construction of a replacement Tappan Zee Bridge and landings in Rockland and Westchester Counties. However, it would not replace the South Broadway Bridge. Instead, Interstate 87/287 would maintain its existing alignment west of and beneath the South Broadway Bridge and would then shift northward to meet the replacement bridge abutments. The Southerly Alignment in Rockland County Alternative would avoid a use of the South Nyack Historic District.

The Southerly Alignment in Rockland County Alternative would result in non-standard roadway features between the South Broadway Bridge and the replacement bridge's abutment. With less horizontal distance to shift the highway alignment northward, the design would call for non-standard, highway curves. To ensure safe travel through this curve, NYSTA would likely reduce the speed limit to 45 miles per hour on this section of Interstate 87/287. There would also not be sufficient spaces for the shared-use path to travel beneath the bridge and connect to the Raymond G. Esposito Memorial Trail. Since the Southerly Alignment in Rockland County Alternative would result in substandard roadway features, permanent speed restrictions on Interstate 87/287, and poor connectivity to the shared-use path, it is not considered a prudent alternative.

Replacement of the South Broadway Bridge at the Same Location Alternative

The South Broadway Bridge over Interstate 87/287 must be lengthened to allow for a northward shift in the highway alignment to meet the new abutments of the Replacement Bridge Alternative as well as to provide for the new shared-use path immediately north of the highway lanes.

The Replacement Bridge Alternative would reconstruct the South Broadway Bridge by first building the structure on adjacent land and then installing it when complete. NYSDOT and NYSTA would acquire property east of South Broadway to stage the bridge's construction. Once completed, the new South Broadway Bridge would be lifted in place. In this manner, NYSDOT and NYSTA could avoid an 18- to 24-month closure of South Broadway.

The Replacement of the South Broadway Bridge at the Same Location Alternative would avoid use of the 21 Cornelison Avenue property. However, the northward shift of the Interstate 87/287 right-of-way, including the shared-use path and a noise wall, would move the transportation infrastructure much closer to the house on this property and would violate legal light and air requirements for residential structures. NYSDOT and NYSTA could acquire the property and maintain the structure, but it could not be legally inhabited upon completion of the project.

Furthermore, the Replacement of the South Broadway Bridge at the Same Location Alternative would lengthen the South Broadway Bridge at its current location within its existing right-of-way. During the 12-month or longer reconstruction of South Broadway, the bridge would be closed to traffic over Interstate 87/287, and vehicles would be diverted to either Route 9W or Piermont and River Roads. The modified grade of the new South Broadway Bridge would also require a new 10-foot-tall retaining wall in front of the South Nyack Village Hall.

The Replacement of the South Broadway Bridge at the Same Location Alternative is feasible but is not prudent. The closure of South Broadway longer than a year would substantially impair travel in South Nyack, as it would divert to either Route 9W or River Road to traverse above or below Interstate 87/287. This diversion would inconvenience motorists and increase travel times, vehicle emissions, and noise. It would also substantially impair emergency response for the Village of South Nyack. Upon completion, the bridge's retaining wall would block the South Nyack Village Hall, which fronts South Broadway, and the residence at 21 Cornelison Avenue may not be legally inhabitable due to light and air considerations. All of these adverse impacts would be avoided with the Replacement Bridge Alternative. Therefore, the replacement of the South Broadway Bridge at the Same Location Alternative would result in severe social, economic, and environmental impacts and is not prudent.

23-4-3-3 LEAST HARM ALTERNATIVES

The No Build Alternative, Southerly Alignment in Rockland County, and Replacement of the South Broadway Bridge at the Same Location Alternatives would avoid a use of the South Nyack Historic District, but these alternatives are not prudent. This section identifies an alternative that would not fully avoid the use of Section 4(f) properties but may result in less harm to the South Nyack Historic District.

Reconstruct South Broadway Bridge to the West Alternative

Reconstruction of the South Broadway Bridge to the west would avoid use of the 21 Cornelison Avenue property. However, the property at 78 Smith Avenue would still be incorporated into NYSTA right-of-way.

The Reconstruct South Broadway Bridge to the West Alternative would require a more extensive and permanent use of Elizabeth Place Park and would not avoid a

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transportation use within the South Nyack Historic District. The abutment of the new bridge would impact the eastbound ramp from South Broadway to Interstate 87/287 (Interchange 10). This ramp could be reconfigured, but this would require additional property acquisition within the South Nyack Historic District. If property could not be acquired, the ramp would be permanently closed; which would substantially inhibit traffic flow and access in eastern Rockland County.

To provide adequate clearance over Interstate 87/287, the north abutment of the new South Broadway Bridge would be taller than it currently is. The higher elevation and would require retaining walls. These walls would block views from and of properties within the South Nyack Historic District, including the South Nyack Village Hall. In addition, access to some properties would need to be modified or eliminated to accommodate the new grade of South Broadway.

The Reconstruct South Broadway Bridge to the West Alternative would require the closure of South Broadway for a year during construction, thereby diverting traffic to Route 9W or River Road. Such a diversion would increase travel time for the general public and would substantially impair emergency response for the Village of South Nyack.

While it would avoid a use of 21 Cornelison Avenue, the Reconstruct South Broadway Bridge to the West Alternative is not considered the “least harm” alternative for the following reasons:

- The Reconstruct South Broadway Bridge to the West Alternative would result in a permanent use of Elizabeth Place Park. At the same time, it would not avoid the use of 78 Smith Avenue and the existing Tappan Zee Bridge. Therefore, the Reconstruct South Broadway Bridge to the West Alternative results in the same number of impacts to Section 4(f) properties as the Replacement Bridge Alternative.
- Measures to mitigate the adverse effect of the Replacement Bridge Alternative on the South Nyack Historic District could be implemented for the Reconstruction South Broadway Bridge to the West Alternative. However, additional mitigation measures would be required for the Reconstruction South Broadway Bridge to the West Alternative’s permanent use of Elizabeth Place Park.
- The property at 21 Cornelison Avenue is one of 130 contributing resources within the South Nyack Historic District. While its loss would be adverse, the district would retain multiple other homes that contribute to its historic character. On the other hand, the permanent loss of a portion of Elizabeth Place Park would reduce open space within South Nyack, an area with limited open space resources.
- The Replacement Bridge Alternative and the Reconstruct South Broadway Bridge to the West Alternative would both address the structural, operational, safety, security and mobility needs of the existing Tappan Zee Hudson River Crossing. However, the Reconstruct South Broadway Bridge to the West Alternative may require the permanent closure of the eastbound ramp from South Broadway to Interstate 87/287 (Interchange 10)., which would be inconsistent with the Project’s objective to “minimize effects on existing highways” and would not achieve the same mobility benefits of the Replacement Bridge Alternative.

- The Reconstruct South Broadway Bridge to the West Alternative would require mitigation for the permanent loss of a portion of Elizabeth Place Park and for traffic impacts associated with the possible closure of the eastbound ramp from South Broadway to Interstate 87/287 (Interchange 10). The Reconstruct South Broadway Bridge to the West Alternative would also require all of the same measures proposed to mitigate the impacts of the Replacement Bridge Alternative. Therefore, the Reconstruct South Broadway Bridge to the West Alternative would require more extensive mitigation for its impacts than would the Replacement Bridge Alternative.

For the above reasons, the Replacement Bridge Alternative is considered the “Least Harm” Alternative for the use of the South Nyack Historic District.

23-4-3-4 MEASURES TO MINIMIZE HARM

Measures to mitigate the use of the South Nyack Historic District are described in the draft Section 106 Memorandum of Agreement (see **Appendix C**). These measures are as follows:

- Plantings along sound walls on the western edge of the district to provide screening;
- Historic American Building Survey recordation to document 21 Cornelison Avenue and 78 Smith Avenue, the two contributing resources that would be removed; and
- Creation of signage interpreting the history and architecture of the South Nyack Historic District for installation within the South Nyack Historic District or along the Replacement Bridge Alternative’s shared-use path.

23-5 COORDINATION

In accordance with the Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU), FHWA is identified as the lead federal agency for the federal environmental review process, and NYSDOT and NYSTA are identified as the joint lead agencies. As described in this EIS, permits would also be required from federal agencies, including the U.S. Army Corps of Engineers and the U.S. Coast Guard. The Replacement Bridge Alternative would also require permits and approvals from NYSDEC, the New York State Department of State, and SHPO.

Review of this Section 4(f) Evaluation includes FHWA, NYSDOT, NYSTA, DOI, and SHPO. As described in Chapter 3, “Process, Agency Coordination, and Public Participation,” FHWA, NYSDOT, and NYSTA have initiated an extensive public outreach program. As part of these efforts, a formal consultation process under Section 106 of the NHPA was initiated. FHWA contacted Native American tribes and groups who may attach religious and cultural interest in sites within the Tappan Zee Hudson River crossing’s area of potential effect. NYSDOT and NYSTA have contacted municipalities, preservation groups, and individuals with an interest in the project and the Section 106 process as well as property owners of historic sites within the area of potential effect. Through consultation with these groups, FHWA, NYSDOT, and NYSTA have developed measures to minimize harm to the Section 4(f) properties to be used for implementation of the Replacement Bridge Alternative. These measures are described above and are also contained in the project’s draft Section 106 Memorandum of Agreement (see **Appendix C**).

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During the public review of the Draft Section 4(f) Evaluation, FHWA, NYSDOT, and NYSTA will meet with the Village of South Nyack to discuss the project's temporary impacts on Elizabeth Place Park. FHWA will provide the Village with any public comments on the proposed use of Elizabeth Place Park and will seek the Village's concurrence with its proposed *de minimis* impact finding.