

9-1 INTRODUCTION

This chapter describes the potential impacts of the No Build and Replacement Bridge Alternatives on the visual character of the study area. It describes the regulatory setting and methodology used to conduct the visual analysis, the affected environment, and the potential environmental impacts for visual and aesthetic resources.

9-2 REGULATORY AND GUIDANCE CONTEXT

In 1987, the Federal Highway Administration (FHWA), jointly with the Federal Transit Administration, established Environmental Impact and Related Procedures (23 CFR § 771) for the evaluation of transportation projects and the compliance of these projects with 23 U.S.C. § 109 (h), which focuses on design criteria relating to social, economic, and environmental effects. FHWA Technical Advisory T6640.8A (1987) identifies visual resources as an item to be included in environmental and Section 4(f) documents. FHWA's *Visual Impact Assessment for Highway Projects* (1981) and FHWA's *Environmental Impact Statement Visual Impact Discussion* (1990) provide further guidance on assessing visual impacts. The assessment of visual resources also draws from the FHWA recommended procedures in *Guidance Material on the Preparation of Visual Impact Assessments* (1986). A Visual Impacts Assessment (VIA) is also required under the New York State Department of Transportation's (NYSDOT's) Engineering Bulletin (EB) 03-052, which replaced pages 3 and 4 of Engineering Instruction (EI) 02-025 and supplements EI 02-025.

In accordance with these guidelines, the existing visual character and quality of the affected environment, as well as the viewer response to those resources, provide the framework for assessing the change in visual character that would occur as a result of the project.

9-3 METHODOLOGY

The visual analysis study area is defined as the area within visual range of Interstate 87/287 between Interchange 9 (Route 9) in Westchester County and Interchange 10 (Route 9W) in Rockland County. The potential viewshed is shaped by the study area's topography, as well as its built (e.g., structures) and natural (e.g., primarily vegetation) environment.¹ For the most part, the viewshed of Interstate 87/287 in the land portions of Rockland and Westchester Counties is limited, primarily because of vegetative screening and obstructing structures. The study area is more expansive along the

¹ FHWA's *Visual Impact Assessment for Highway Projects* (1981) defines a viewshed as the surface area visible from a given viewpoint or series of viewpoints; it is also the area from which that viewpoint or series of viewpoints may be seen.(see page 26).

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Hudson River to account for the many views possible to the Tappan Zee Bridge. Depending on weather conditions, views of the bridge may be achieved up to approximately five miles to the north and south.

Visual quality is most frequently the result of the relationship of all the components of a landscape, rather than the presence of a single feature. Therefore, the landscape's visual features and must be objectively identified and their character and quality assessed. In addition, the assessment must identify the importance to people ("viewer groups"), or sensitivity of views of visual resources in the landscape.

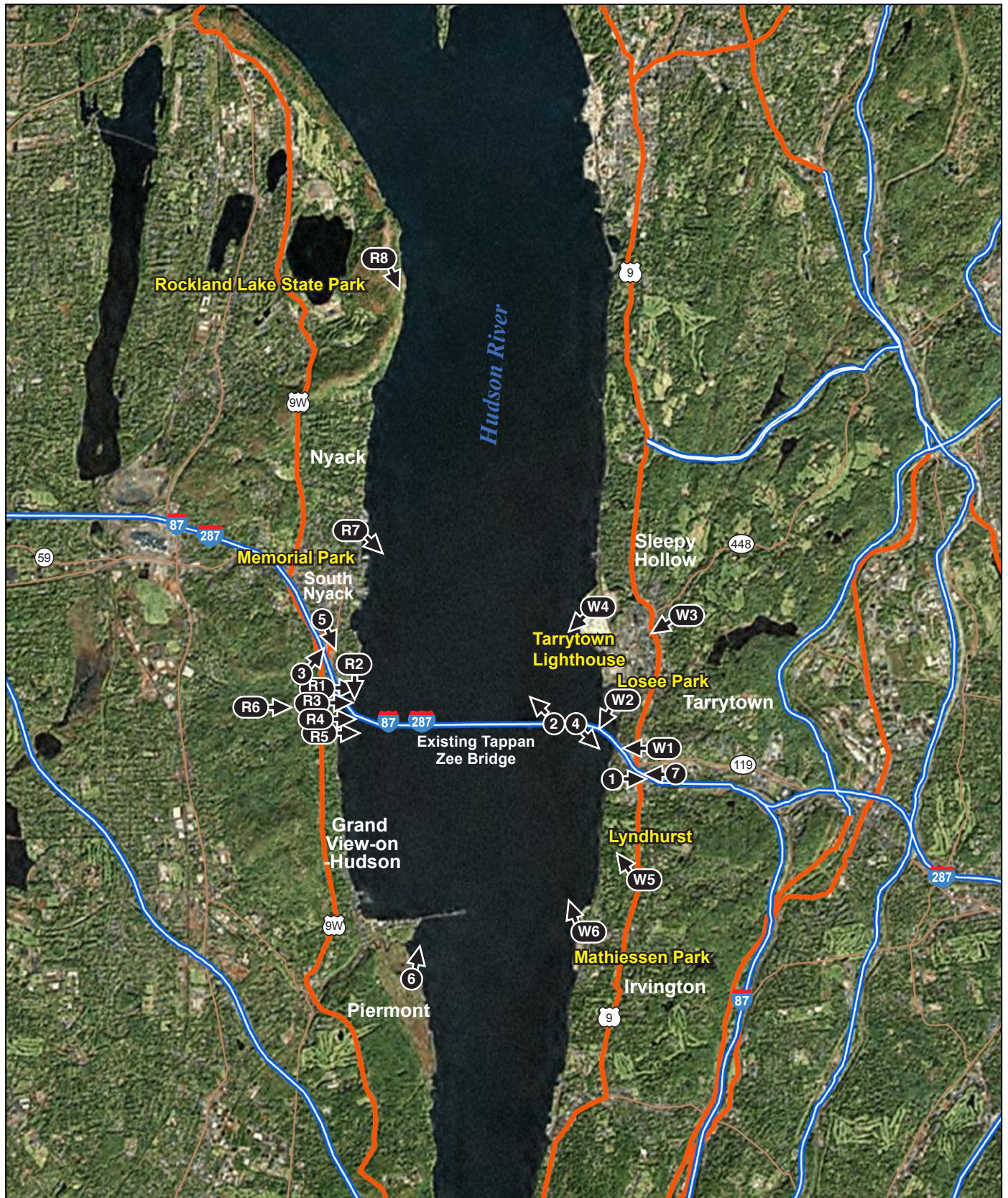
Having established the baseline of existing conditions, proposed changes to the landscape as a result of project improvements are then evaluated for their degree of impact. The degree of impact depends on both the magnitude of change to the visual resource (i.e., visual character and quality) and viewers' responses to and degree of concern for those changes.

Viewer groups are defined as viewers from the roadway (e.g., motorists and users of the proposed shared-use path) or viewers of the roadway (e.g., residents, users of recreational resources including parks, boaters, pedestrians and bicyclists on other trails, rail travelers, and motorist on local roadways). Viewers are considered in terms of their sensitivity and view duration, with residents considered among the most sensitive viewers because they may view the proposed visual change from a stationary viewpoint for the most prolonged periods of time. Travelers on the roadways, on the other hand, would be much less sensitive because they may only see the proposed visual change for only a short duration. Also considered in the analysis is the distance of the observer from the visual change; as the distance increases, the ability of the viewer to see the details of an object decreases.

To aid in the determination of visual impacts and improve understanding of the visual character of the Replacement Bridge Alternative, visualization techniques were employed. Given the visual significance of the Hudson River valley, computer-generated photo simulations of the Replacement Bridge Alternative are included from key viewpoints where visual changes would be noticeable after project implementation. The locations of the views, distances from the Hudson River crossing (including near, medium, and far distances), significance of view selection, and potential effects of the project are then considered as they relate to both the visual resources and to the viewer groups. The locations of views depicting existing conditions and the photo simulations are shown in **Figure 9-1**.

9-4 AFFECTED ENVIRONMENT

As specified in FHWA's Environmental Impact Statement Visual Impact Discussion (1990), specific visual features create the visual environment of the study area. These include the region's landform or topography, as it shapes rivers, mountains, and valleys; the vegetation that covers the land surface; the water surfaces that contrast with the land; and the manmade development that define much of the suburban landscape of the study area.



1 Existing Conditions Photograph

R1 Existing Conditions and Visual Simulations - Rockland County

W1 Existing Conditions and Visual Simulations - Westchester County

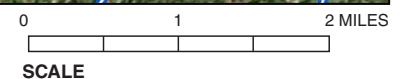


Figure 9-1
**Locations of Photographs
and Simulations**

9-4-1 VISUAL CHARACTER OF INTERSTATE 87/287 AND THE TAPPAN ZEE BRIDGE

9-4-1-1 INTERSTATE 87/287

Interstate 87/287 is a heavily travelled highway with a right-of-way generally 250 feet wide that increases at the interchanges and toll plaza. There are landscaped/vegetative buffers on both sides of the highway. In some locations, the buffer areas provide a dense vegetative screening that blends into the suburban landscape beyond and obstructs views to and from the highway. This is the case in Rockland County, where the south side of the highway east of Interchange 11 (Nyack) near the Hudson River contains a thickly vegetated buffer zone that extends to Highland Avenue, sloping upward as part of the Palisades Ridge. East of Interchange 10 (Route 9W), a noise barrier extends along the north side of the right-of-way.

New York State Thruway Authority (NYSTA) maintenance areas are located at both the Rockland and Westchester County bridge landings. In South Nyack, maintenance ramps extend from the eastbound and westbound shoulders to NYSTA facilities along Piermont Avenue at the Hudson River. In Westchester, NYSTA administration and maintenance facilities and state police barracks are located north of the highway at the toll plaza. These include a large, one-story brick office building with a number of projecting wings. It is surrounded by paved parking and set back from Route 9 behind a landscaped area.

In Tarrytown, the eastbound lanes widen from the bridge approach to multiple lanes that lead to a wide toll plaza extending across eastbound lanes. A small one-story building, paved parking area, and additional mobile offices housed in trailers are located between this building and Van Wart Avenue to the south. There is a screening buffer of trees between the toll facility on the south side of the highway and Van Wart Avenue. Noise barriers are built along much of Interstate 87/287 east of the toll plaza. The Talleyrand Swamp, which is east of Meadow Street, is described below. It provides a natural buffer on both sides of the highway; there is no noise barrier.

9-4-1-2 TAPPAN ZEE BRIDGE

Interstate 87/287 crosses the Hudson River at one of its widest reaches, known as the Tappan Zee. The Tappan Zee Bridge is 91 feet wide and carries seven lanes of traffic with no shoulders/breakdown lanes. From the Rockland County landing, the bridge curves to the southeast and proceeds in an east-west trajectory across the Hudson River. The Westchester County bridge landing is located farther south than the Rockland County landing. For this reason, the bridge curves to the west from its Westchester County landing to meet the main structure.

Much of the bridge's western portion is on a causeway only about 25 feet above mean high, but rises to 139 feet above mean high over the navigation channel in the eastern portion. The western approach structure, including the causeway, is approximately 2.18 miles long. The eastern approach structure is much shorter (approximately 1/3 less) and is approximately 100 feet above the Hudson River's mean high-tide level at the Westchester County shoreline.

The bridge has relatively narrow piers spaced approximately 50 feet apart with the exception of those in the navigational channel. The western causeway consists of a thin

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deck supported by narrow, paired concrete piers. As the western approach ascends, the road deck is laid over a steel truss that connects to the western main span. The main spans are supported on larger steel truss piers, including the two largest piers that support the bridge over the navigational channel. At the navigation channel, the bridge's cantilever truss superstructure rises to 293 feet for approximately 0.4 miles long. The cantilever truss superstructure provides a clear span of 1,000 feet over the Hudson River. The deck of the eastern approach is also laid over a steel truss and supported by paired concrete piers similar to the western approach, but at a greater spacing than the western approach.

The roadway and superstructure at the main spans are lit at night. Standard cobra head lamp posts are located along the roadway and the shape of the cantilever truss is outlined with individual lights. Flashing lights are located at the peaks of the cantilever truss at the main spans as required by the FAA.

The elevated character of the bridge structure and open nature of the Tappan Zee river crossing provide motorists with extensive and dramatic views that are amplified by the topographic drama of the Palisades, which rise steeply along the Rockland County shore. Views to and from the Tappan Zee Bridge are described below.

9-4-2 VISUAL CHARACTER OF THE STUDY AREA

9-4-2-1 LANDFORM

A basic factor contributing to the location of the highway and land uses is the topography of the two counties. In Rockland County, the land rises from sea level at the Hudson River to over 900 feet at the Ramapo Mountains near Suffern. In Westchester County, the land rises from sea level to cross a series of ridges that, near Elmsford, reach over 500 feet.

In Rockland County, the highway descends to the Tappan Zee Bridge. East of Interchange 11 (Nyack), the highway alignment has cut through the local grade, producing notable rock outcrops, or ledges, along the highway. The south side of the highway is situated in a cut into the Palisades Ridge. As Interstate 87/287 proceeds east towards the Tappan Zee Bridge, it aligns closely to the base of the ridge to the south. To the north, the land slopes down to the river from South Broadway, with Piermont Avenue extending to the south down a steep hill to Grand View-on-Hudson where the road parallels the Hudson River to Piermont.

Westchester County has a number of north-south ridges that parallel the Hudson River, however, only one ridge is affected by the project. In Tarrytown, Interstate 87/287 cuts through the first ridge east of the Hudson River, rising on an uphill slope. The cut through the ridge leaves exposed rock walls on either side of the highway in the vicinity of Interchange 9 (Route 9). The land slopes down from the ridge with an especially steep slope from Route 9 to the Hudson River.

9-4-2-2 VEGETATION

Vegetation is typically deciduous and consists of forested areas, such as in the large parks located along the ridge in Rockland County as well as less vegetated areas in the more densely developed villages of South Nyack and Tarrytown adjacent to Interstate 87/287. As described above, buffer areas at the edge of the highway provide a

vegetative screening that can blend into the suburban landscape beyond. In addition, the rock outcrops along Interstate 87/287 in Rockland and Westchester counties are also largely vegetated with trees and other natural greenery (see view 1 of **Figure 9-2**). Lawns, trees, and a variety of shrubs and plants are located throughout the study area including on residential properties, along streets, and in parks.

9-4-2-3 WATER

Hudson River

The Hudson River is the most prominent and valued visual resource in the study area. Its wide expanse in both east-west and north-south directions permits distant views in all these directions. In addition, the ridges that bound the river, including the tall Palisades Ridge and in particular the cliffs that rise dramatically from the river, particularly in Upper Nyack on the Rockland County side, create memorable views (see view 2 of **Figure 9-2**) that have attracted numerous residents to locate where they look out on such views of the river, both at the shore and on the ridge sides.

The Hudson River is one of America's most important historic, commercial, and recreational waterways. More than 314 miles long, it extends south from its source at Lake Tear of the Clouds on Mount Marcy in the Adirondack Mountains to the Battery in New York Harbor. At the Tappan Zee Bridge, the river is approximately 3 miles wide (compared to 0.6 miles at the George Washington Bridge, 15 miles downstream to the south). This wide reach of the river extends approximately 17 miles from the Palisades (at the New York-New Jersey line) north to Stony Point and the beginning of the Hudson Highlands.

The scale of the river here prompts images of a broad lake, with extensive vistas and panoramas not only across but also to the north and south of the river, interrupted only by the bridge. Two miles south of the bridge, the Piermont Peninsula extends into the river 1.2 miles from the west bank. Parts of the Manhattan skyline are visible in the background more than 16 miles away. To the north of the bridge, views of the river extend approximately seven miles before they are obscured by the Croton Point peninsula. As stated earlier, the topography, with notable ridges on each side of the river, defines the viewshed.

Parts of the Hudson River are designated as "Scenic Area of Statewide Significance" pursuant to 19 NYCRR 602.4. The Tappan Zee Scenic District, a New York State Department of Environmental Conservation (NYSDEC)-designated scenic zone, extends along the west side of the Hudson River shore from the New York/New Jersey border northward to Hook Mountain in Upper Nyack. The area of the river north of Peekskill (about 10 miles north of the Tappan Zee Bridge) is part of the Hudson Highlands scenic area, but the Tappan Zee is not included. The Hudson River is also designated as an American Heritage River (Executive Order 13061), a federal designation to protect and restore rivers and their adjacent communities. The Hudson River Valley National Heritage Area, an affiliate unit of the National Park Service, was approved by Congress and signed into law by President Clinton on November 12, 1996.



View west on Interstate 87/287 east of the
Route 9 bridge in Tarrytown

1



View northwest from the Tappan Zee Bridge to
the Palisades in Rockland County

2

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Other Bodies of Water

The next largest body of water in the study area is in Tarrytown. East of Meadow Street, the Talleyrand Swamp is bisected by Interstate 87/287. The swamp does not present a clear water surface, but is quite an extensive wetland covered by common reed.

9-4-2-4 MANMADE DEVELOPMENT AND LAND USE

Land uses in the study area vary but generally reflect the suburban character of the neighborhoods along the river in the two counties. In much of the study area, the suburban landscape predates the Interstate 87/287 highway and the Tappan Zee Bridge, constructed in the early 1950s and opened to traffic in 1955. The predominant land use in the study area is residential, which is mostly zoned low to medium density. Tarrytown has seen more post-highway development than South Nyack: Route 9/Broadway and Route 119/White Plains Road have been developed with a variety of commercial uses including office buildings, shopping centers, and apartment and condominium complexes.

Rockland County

In South Nyack, houses are typically single-family and multi-family residences with some homes that include office uses. North of Interstate 87/287, the South Nyack neighborhood is organized in a grid pattern, and a large portion of this area is contained in a State/National Register-eligible historic district. South Broadway and Piermont Avenue extend north-south with intersecting east-west streets, a number of which dead-end at the Hudson River. Piermont Avenue continues south beneath the Tappan Zee Bridge into Grand View-on-Hudson. Immediately north of the bridge are a number of apartment buildings. These include the low-rise multi-family-unit Bradford Mews, which is contained in three 3-story buildings centered between Interstate 87/287 and Piermont Avenue; and the Salisbury Point residential complex, located north of Piermont Avenue and consisting of four 7-story brick apartment buildings with frontage onto the Hudson River. These properties have landscaped areas and surface parking. The Bradford Mews buildings are separated from Interstate 87/287 by a vegetative buffer with trees and a noise barrier. The surface parking is located between the buildings and the vegetated buffer area. Salisbury Point's buildings are separated from Interstate 87/287 by the Bradford Mews property and have lawns that extend to the Hudson River.

The shoreline in the Grand View-on-Hudson and South Nyack communities is almost exclusively lined with large homes with river frontage. South of the bridge, Piermont Avenue/River Road is lined with many older homes that predate the construction of Interstate 87/287 and the bridge. These homes are in a State/National Register-eligible historic district. The houses along the river typically have river access and docks for private boats.

South Broadway is carried over Interstate 87/287 on a bridge (see view 3 of **Figure 9-3**). On the south side of Interstate 87/287, residences are located along Route 9W/Hillside Avenue and several other roads that generally parallel the ridge, including South Broadway and Shadyside Avenue. These too are typically older homes. Route 9W is a busy two-way road that traverses the area and provides access into New Jersey and New York's upstate environs. A small open space area, Elizabeth Place, is situated adjacent to the highway on the south side of Interchange 10. A bicycle trail, the



View northwest on South Broadway from Ferris Lane in South Nyack.
The South Broadway Bridge is at the end of the view

3



View southeast from the Tappan Zee Bridge

4

Figure 9-3

Raymond G. Esposito Memorial Trail, crosses the highway on the Route 9W cross-over bridge.

Westchester County

The Westchester County shoreline contains Metro-North Railroad's (MNR) Hudson Line right-of-way. The tracks run parallel to and are adjacent to the river. The tracks pass beneath the Tappan Zee Bridge, with a station in Tarrytown approximately a half-mile to the north. The Tarrytown Train Station consists of a recently restored, historic one-story stone building with a peaked slate roof. Between the tracks and the Hudson River is a large commuter parking lot. Also located along the river and north of the commuter parking lot is a series of new residential buildings contained in the Hudson Harbor development. South of the commuter parking lot there are marinas (Tarrytown Boat Club) including a restaurant with outdoor seating located on a pier. Along the river there is also a park (Losee Park) with baseball diamonds.

South of the bridge are a number of highly valued historic and visual resources, including Lyndhurst and Sunnyside. Lyndhurst is an 1838 Gothic Revival stone estate that is on the State/National Register of Historic Places and is designated a National Historic Landmark. Located about 4,000 feet south of the bridge in Tarrytown, this 80-acre riverfront estate is open to the public and owned and operated by the National Historic Trust. Farther to the south, about 1.5 miles from the Tappan Zee Bridge, is Sunnyside which was once the home of 19th-century author Washington Irving. Sunnyside and its 40-acre estate are also listed on the State/National Register of Historic Places and are designated a National Historic Landmark; the landmark is owned by Historic Hudson Valley and open to the public. Between Lyndhurst and Sunnyside, the Westchester County Department of Parks, Recreation and Conservation has acquired much of the intervening property to maintain it as a natural preserve. This park, New County Park, has been determined eligible for listing on the State/National Register of Historic Places.

North of the bridge is another historic and visual resource, Kykuit, the Rockefeller estate in Sleepy Hollow. Kykuit (meaning "lookout" in Dutch) is located approximately two miles northeast of the bridge. It is a National Historic Landmark that is a historic site of the National Trust for Historic Preservation and open to the public for tours between May and November. This historic property is situated on an elevated vantage point with views that include the Hudson River and the Palisades. The property includes an early 20th century stone house with accessory estate buildings and extensive terraced gardens that contain Governor Nelson A. Rockefeller's collection of 20th century sculpture.

Route 9 (Broadway) is a heavily trafficked, north-south transportation corridor that extends through Tarrytown and is carried over Interstate 87/287 on a bridge. Residential streets extend east and west from Route 9. Route 119 is another busy four-lane road that extends east from Route 9 and is located just north of the Interstate 87/287.

Located immediately south of Interstate 87/287 and west of Route 9 (Broadway) are the single-family residential community around Van Wart Avenue. A Jewish community center and preschool are located on Route 9, along with commercial uses (the Doubletree Hotel and the Kraft Foods complex). East of Interchange 9 (Route 9) and to

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the south of Interstate 87/287, a single-family residential neighborhood (Sheldon Avenue) extends past Meadow Street, where a public park (Lagana Field) is located adjacent to the highway, and a daycare facility (former Irvington Union Free School) is in the park.

To the north of the toll plaza and west of Route 9, a mix of uses is found, including: commercial (a five-story contemporary glass-and-metal office building); residential (the Quay of Tarrytown condominiums, Tappan Landing Condominiums, tall apartment buildings including Franklin Towers near the Tarrytown Train Station, and the older single-family neighborhood of Tappan Landing); and institutional (Washington Irving Middle School). There is also some industrial land alongside the railway in Tarrytown. East of Route 9, Route 119 parallels the highway with major commercial uses. Across Route 9 from the NYSTA facility are the Tappan Manour Condominiums, which are mid-rise brick residential buildings set back behind gardens with large mature trees.

9-4-3 VISUAL QUALITY

The river valley in general has a high visual quality, enhanced particularly by the wide expanse of the river in this reach (the Tappan Zee), which permits “big sky” panoramas, and dramatic views of the Palisades cliffs to the west. Though determined eligible for listing on the State/National Register of Historic Places, the present Tappan Zee Bridge is already a major visual intervention in this context. On the other hand, it has been part of the view for 56 years and does permit the numerous viewers from the roadway uniquely powerful and exceptional views of this resource.

The visual quality of the inland study areas varies. Interstate 87/287 bisects the Rockland and Westchester County study areas, diminishing the intactness of the landscape. Several residential neighborhoods, including South Nyack north of Interstate 87/287, Grand View-on-Hudson, Van Wart Avenue/Paulding Avenue, and Tappan Landing are visually cohesive neighborhoods that also have been determined historically significant (see Chapter 10, “Historic and Cultural Resources”). The historic Lyndhurst and Sunnyside estates have a high visual quality, whereas the Route 9 corridor in Tarrytown, consisting of a variety of commercial, institutional, and residential uses of differing ages, materials, and appearance has a less uniform visual character.

9-4-4 VIEWS AND VIEWER GROUPS

9-4-4-1 INTERSTATE 87/287 MOTORISTS

Interstate 87/287 motorists, consisting of approximately 140,000 daily travelers, are the largest number of viewers. However, they comprise the least sensitive group because high rates of speed preclude fixed views of their surroundings. Therefore, the viewer sensitivity of this group is low.

The rock cuts at Interchange 9 (Route 9) provide visual interest to the motorist. In most cases, views from the highway to the surrounding neighborhoods are precluded by dense vegetation (as on the south side of Interstate 87/287 in Rockland County) and by noise barriers located along the right-of-way on both sides of the river. In Tarrytown, a prominent visual feature is the eastbound toll plaza. Motorists also have views of the one-story NYSTA administrative and maintenance buildings north of it, and the four-story glass and metal office building at 303 South Broadway (accessed from Route 9) behind it.

The Tappan Zee Bridge provides panoramic views of both shorelines and of the north and south expanses along the Hudson River. These include views to the south of the Piermont Peninsula, which juts out into the Hudson River and of the dramatic Palisades in Rockland County (see view 2 of **Figure 9-2**).

In Westchester, the bridge provides partial views of Lyndhurst, characterized by a Gothic church-like style, and Axe Castle on the top of the crest of the ridge (see view 4 of **Figure 9-4**). Motorists have distant views of part of the Manhattan skyline, more than 16 miles away to the south. Looking north from the bridge, motorists have views of the more densely developed areas of Tarrytown. Of visual interest is the gold dome above Marymount College on the ridge top in Tarrytown, and the Tarrytown Lighthouse at the tip of Kingsland Point Park, which extends out into the water beyond the vacant General Motors Plant.

9-4-4-2 BOATERS

Boaters include those on the river for both commercial and recreational purposes. Viewer sensitivity is considered high, especially for recreational boaters who spend longer times out on the water, can have longer views, and may pass close to, or beneath the Tappan Zee Bridge.

9-4-4-3 VIEWERS IN ROCKLAND COUNTY

Local Motorists

Motorists on local roads with unobstructed views of Interstate 87/287 include those traveling on the cross-over bridges in the study area, estimated at over 5,000 daily viewers. These include travelers on the Hillside Avenue (Route 9W) Bridge, the Interchange 10 (Route 9W) ramp, the Franklin Street Extension/Route 9W Bridge, and the South Broadway Bridge. Motorists are typically traveling at a variety of speeds ranging from 25 to 55 mph and have passing views of the highway. Therefore viewer sensitivity is low.

Views of the highway from the residential streets in South Nyack north of Interstate 87/287 are mostly precluded due to the noise barrier that extends along the right-of-way. The bridge approach that crosses Piermont Avenue/River Road is visible to motorists on Piermont Avenue/River Road (see existing conditions photograph of **Figure 9-7**). Intermittent views of Interstate 87/287 and the Tappan Zee Bridge are also available to travelers on local roads on the Palisades Ridge, including Route 9W/South Broadway, Highland Avenue/Tweed Boulevard, Old Mountain Road, and other local streets on the steep ridge. Due to the transient nature of views, viewer sensitivity is also rated low.

Bicyclists and Pedestrians

Bicyclists and pedestrians also have a transient perspective. However, viewers in this group include those out for recreational purposes, and therefore would be more sensitive to their surroundings with moderate viewer sensitivity. South Highland Avenue/Route 9W, Piermont Avenue/River Road, and the Raymond G. Esposito Memorial Trail that crosses over Interstate 87/287 on the Route 9W bridge are popular with bicyclists. The Raymond G. Esposito Memorial Trail is also popular with pedestrians. Views east from the Raymond G. Esposito Memorial Trail on the Route



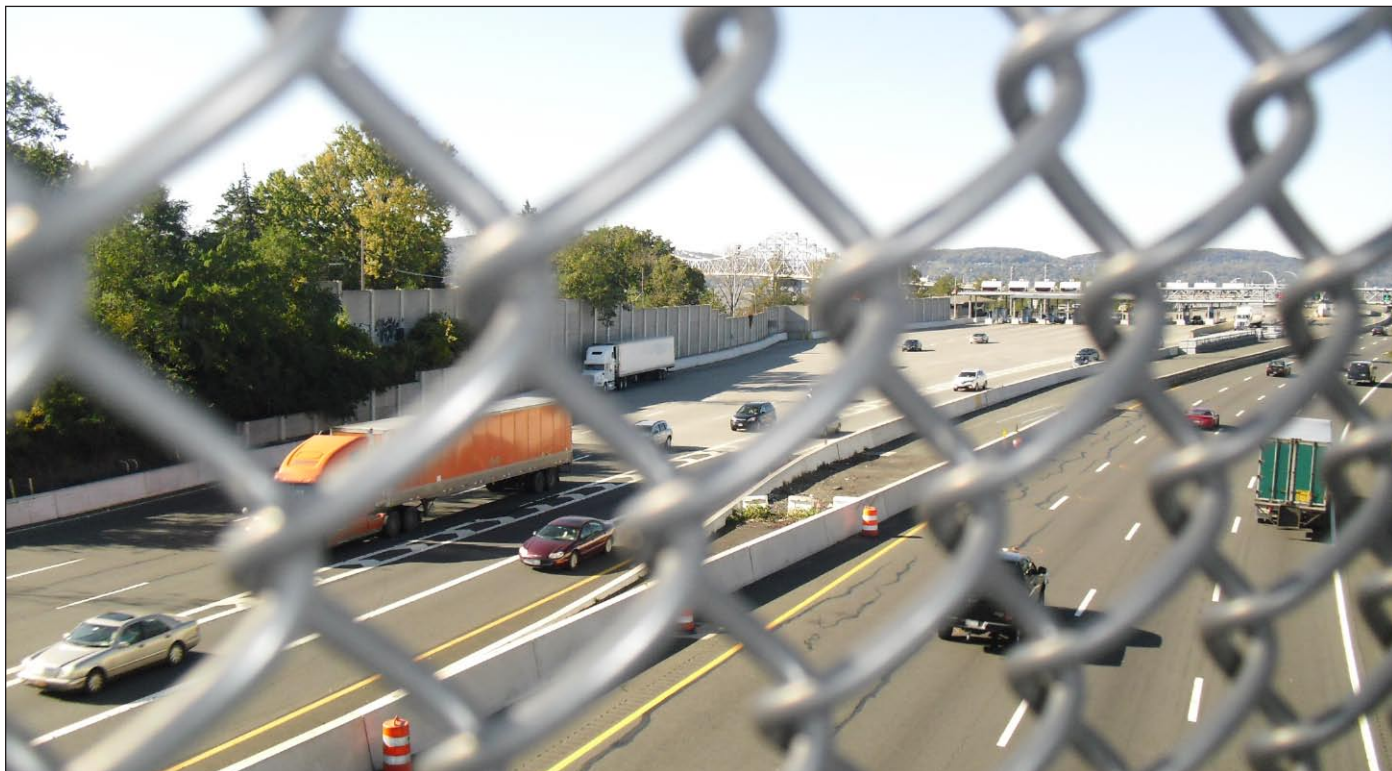
View east of Interstate 87/287 from Route 9W bridge in South Nyack

5



View of the Tappan Zee Bridge from lookout in Tallman State Park

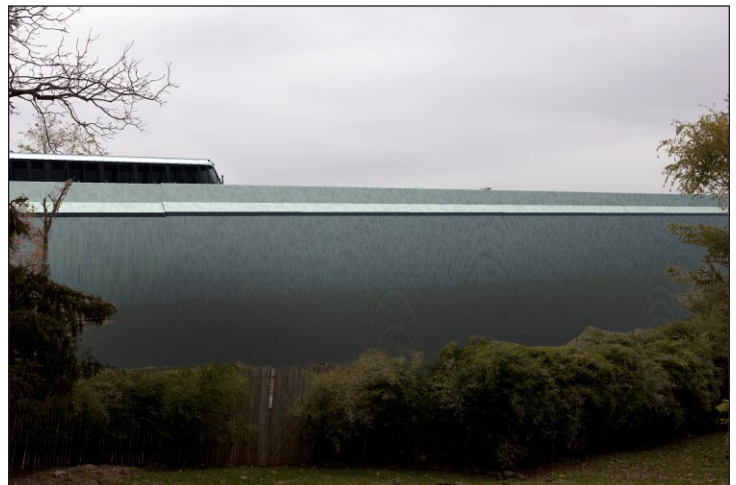
6



View west of Interstate 87/287 from Route 9/Broadway Bridge



Existing Conditions



Short Span Option



Long Span Option

Figure 9-6

Visual Simulation R1

Rockland County



Existing Conditions



Short Span Option



Long Span Option

Figure 9-7

Visual Simulation R2
Piermont Avenue, Grand View-on-Hudson
Rockland County



Existing Conditions



Short Span Option



Long Span Option

Figure 9-8

Visual Simulation R3
River Road, Grand View-on-Hudson
Rockland County



Existing Conditions



Short Span Option



Long Span Option

Figure 9-9

Visual Simulation R4
River Road, Grand View-on-Hudson
Rockland County



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option

Figure 9-10

Visual Simulation R5
River Road, Grand View-on-Hudson
Rockland County



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option

Figure 9-11

Visual Simulation R6 **Old Mountain Rd, Orangetown** **Rockland County**

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9W bridge are through a chain-link fence. Large highway signage is mounted immediately to the east of the bridge over the westbound lanes, partially obscuring views. This view focuses on the highway though there are distant views of the Hudson River, the Piermont Peninsula, and Westchester landform (see view 5 of **Figure 9-4**).

Park Users

Parks and recreation areas are generally recognized as sensitive locations, though sensitivity depends on the viewer's activities and view duration. Users of Elizabeth Place Park south of Interstate 87/287 have views of the highway and the South Broadway Bridge from the side of the park. Though the number of viewers from this location is estimated to be low, these users would have increased sensitivity as views can be stationary. Users of the small open space between Interstate 87/287 and South Broadway also have views of the South Broadway Bridge, though the utilization of this open space is low due to its small size, lack of active recreation, and audible proximity to Interstate 87/287.

Trails in the parks located on the Palisades Ridge, including Tallman Mountain State Park, Clausland Mountain Park, Blauvelt State Park, Hook Mountain & Nyack Beach State Park, Rockland Lake State Park, and High Tor State Park, provide several spectacular viewing points of the river. Tallman Mountain State Park is designated a National Historic Landmark as part of the Palisades Interstate Park (the designation also includes portions of the park in New Jersey). Hook Mountain and Nyack Beach State Park is designated by the National Park Service as a National Natural Landmark. The existing conditions photograph in **Figure 9-13** shows the view from a high viewpoint (approximately 600 feet) in Rockland Lake State Park about 3.75 miles north of the bridge. Rockland Lake State Park connects south to Hook Mountain and Nyack Beach State Park, approximately 3.4 miles north of the Tappan Zee Bridge, via an approximately two mile pathway that extends between the Palisades and the Hudson River. The bridge is visible from locations on this pathway as well as the beach and picnicking locations at the park located between the parking lot and the Hudson River. In these views, the bridge is also visible in the distance in views south, with the cantilever truss at the main spans projecting above the Westchester ridge line.

The New York-New Jersey Trail Conference, Inc. publishes maps of the area's trails that indicate scenic viewpoints. Two viewpoints are identified south of the Tappan Zee Bridge at the Fremont Monument in the Rockland Cemetery and at the intersection of the Long Path and Tweed Boulevard. However, field visits to these locations (in 2007 before the leaves appeared) no longer afforded views of the bridge. Another location at elevation 160 feet in Tallman Mountain State Park (included in the National Historic Landmark designation for the Palisades Interstate Park) permits a distant view of the Tappan Zee Bridge from approximately 2.5 miles to the south (see view 6 of **Figure 9-4**).

North of the Tappan Zee Bridge, views are available from Memorial Park, a riverfront park about 1.1 miles to the north (see existing conditions photograph in **Figure 9-12**).

Residents

Residents have high viewer sensitivity due to prolonged stationary views. Residents with views of Interstate 87/287 include those in homes and apartments adjacent to the



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option

Figure 9-13

**Visual Simulation R8
Rockland Lake, Clarkstown
Rockland County**



Existing Conditions



Short Span Option



Long Span Option



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option

Figure 9-16

**Visual Simulation W3
Warner Library, Tarrytown
Westchester County**



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option

Figure 9-18

**Visual Simulation W5
Lyndhurst, Tarrytown
Westchester County**



Existing Conditions



Short Span Arch Design Option



Short Span Cable-Stayed Design Option



Long Span Arch Design Option



Long Span Cable-Stayed Design Option

Figure 9-19

Visual Simulation W6
Mathiessen Park, Irvington
Westchester County

highway with upper floors that extend above the sound barrier (i.e., at Smith Avenue) and scattered single-family homes along Hillside Avenue and on the ridge to the south.

Apartment dwellers in Salisbury Point and Bradford Mews also have views. The highway and the Tappan Zee Bridge are visible from the upper, southeast-facing floors of Salisbury Point. The existing noise barrier obstructs views to the highway and vegetated Palisades Ridge beyond from the upper, south-facing floors of Bradford Mews. The bridge and bridge landing are less visible to residents here, largely due to the east-west orientation of the Mews buildings, which have few east-facing windows near the river.

From south of Interstate 87/287, the highway is partially visible from residences located on, or west of Hillside Avenue. The highway is visible from the upper floors of several homes near Elizabeth Place and South Broadway, and also from Ferris Lane and Bight Lane (off River Road).

The South Broadway Bridge is visible to a limited number of residents at the intersection of South Broadway and Cornelison Avenue. South of Interstate 87/287, the South Broadway Bridge is most prominently visible to the residents at the north end of South Broadway in proximity to the bridge.

At several locations, particularly south of the bridge in Orangetown, Piermont, Grand View-on-Hudson, and South Nyack, residences are situated along the narrow eastern slopes below the parklands, usually positioned and landscaped to optimize their views of the river. In proximity to Interstate 87/287, residents in the properties southwest of Ferris Lane have intermittent views of the Salisbury Point residential buildings and of the Hudson River through the trees located between Ferris Lane and the existing Interstate 87/287 roadway. Properties northeast of Ferris and Bight Lanes either have views of the river through vegetation or have direct views to the river, existing Tappan Zee Bridge, and Westchester beyond. The highway is fully visible from the property at 3 River Road at Bight Lane, as there is no vegetative screening between this property and Interstate 87/287 (see existing conditions photograph on **Figure 9-6**).

Farther north, in Nyack and Upper Nyack, the ridge curves inland, permitting the more dense residential development of these villages and much of South Nyack. In these areas, views of the river are available typically to only those properties close to the river, from the higher floors of tall buildings, and at the stub ends of roads terminating at the river.

South of the bridge (Grand View-on-Hudson, Orangetown, and Piermont), the bridge is visible from the east-facing yards and windows of nearly all residences built on the east slope of the Palisades Ridge and the Hudson riverfront, extending from the bridge to the Piermont Peninsula (see existing conditions photograph in **Figure 9-10**). These include the residences on Bight Lane and those located on River Road along the Hudson River (see existing conditions photographs in **Figures 9-6, 9-8, 9-9 and 9-10**). The bridge is visible from the walking path on the Piermont Peninsula and all of the north-facing windows of the multi-family residences located on its western half. The Snedens Landing waterfront south of Piermont (approximately 3 miles south of the bridge) provides one of the west bank's southernmost views before the Palisades align to obscure the bridge.

9-4-4-4 VIEWERS IN WESTCHESTER COUNTY

Local Motorists

Route 9 is a heavily trafficked road and is estimated to carry over 21,000 daily motorists. Viewers on Route 9 (who have views of the highway and highway landing from the cross-over bridge) and on Meadow Street (who have views of the highway passing over the highway) are typically traveling at a variety of speeds ranging generally between 25 to 50 mph and therefore have passing views of the highway. Therefore, viewer sensitivity is also low.

The Route 9/Broadway bridge over Interstate 87/287 provides transitory and partial views west of the Tappan Zee Bridge, which is visible beyond the tolls and set against the Rockland County land mass. The bridge is visible to motorists on Route 9 in views west across the Washington Irving Middle School playing fields. In Tarrytown, few other streets provide views of the bridge. Among the few that afford partial views are Tappan Landing Road, Van Wart Avenue, and a segment of Neperan Road.

Farther north, several streets in Sleepy Hollow also align to permit views of the bridge, in particular Beekman Avenue and Cortlandt Street, which are primary commercial streets in the village.

Rail Users

Rail users are another transient group and include commuter rail passengers using MNR's Hudson Line. The bridge is visible from the Tarrytown Train Station, including from the platforms and the parking lot west of the station. The bridge is also visible to northbound and southbound travelers of the MNR Hudson line. Views of the river and opposite shoreline, including the Palisades, are especially available to rail travelers south of Tarrytown, as the tracks extend directly along the shoreline providing unobstructed panoramic views of the river, the Tappan Zee Bridge, and the Rockland County shoreline. Rail travelers can be occupied with other tasks on the train, such as reading and working, or gazing out the window. Therefore, these viewers are assumed to have a moderate sensitivity overall.

Bicyclists and Pedestrians

Route 9 has sidewalks, though there are a limited number of pedestrians and bicyclists in the immediate vicinity of the juncture with Interstate 87/287. The interchange for the westbound off-ramp and intersection with Route 119 are busy intersections (and the crossings do not all have traffic lights) that are not conducive to recreational walking or cycling. Pedestrians and cyclists on the Route 9/Broadway Bridge have views west of the bridge landing including the tolls and partial views of the Tappan Zee Bridge. These views are permissible through a chain-link fence along the bridge (see view 7 of **Figure 9-5**). Views are longer in duration than those of motorists but are also transitory. As such, viewer sensitivity is low.

Park Users

Parklands with views of the bridge tend to be those along the river, such as Mathiessen Park and Scenic Hudson Park in Irvington (about 2.5 miles south of the bridge), or Losee and Pierson parks in Tarrytown immediately north of the bridge. The bridge is clearly visible from Losee and Pierson parks and their adjacent marinas. It is also

visible farther north, from Kingsland Point Park in Sleepy Hollow with the Tarrytown Lighthouse prominent in the view. The main span of the bridge is still visible from Rockwood State Park in Mount Pleasant (an extension of the Rockefeller Park Preserve), about 4 miles north of the bridge but the west causeway is little more than a line on the river. The bridge is not always visible from Croton Point County Park, approximately 7 miles to the north.

Views from historic properties open to the public are also described here as they have similar functions as parks. At Kykuit, the Rockefeller estate situated on an elevated vantage point in Sleepy Hollow, the principal and most significant view both historically and from a public perspective are the views west and northwest from Kykuit's west terrace. These views encompass the Hudson River and the dramatic Palisades opposite in Rockland County. From this terrace, the existing Tappan Zee Bridge is fully screened by trees planted southwest of the house and gardens during the summer months. In the winter months, the bridge is partially visible between the trees in views southwest. The bridge is not visible from the surrounding gardens which are at a lower elevation. Portions of the bridge may be seen from the upper south facing windows of the house above and between trees. Views of the bridge are also available from Lyndhurst between trees in views northwest and from Sunnyside (see existing conditions photograph in **Figure 9-18**).

Farther south, views are available from Memorial Park in Dobbs Ferry, approximately four miles south of the bridge and across the river from Sneden Landing. In these more distant views, the west causeway of the bridge appears almost at the water, permitting views over it to the Palisades. The more prominent trussed span over the navigational channel represents only a short segment (approximately 16 percent) of the bridge.

Public access to the waterfront is being advanced by the active development of a county greenway trail (RiverWalk) that encourages public esplanades at new developments along the river. The Tappan Zee Bridge is partially visible from RiverWalk at the foot of Van Wart Avenue in Tarrytown and farther south along the walkway. It is also visible farther north, including from the esplanade at the new residential community of Ichabod's Landing in Sleepy Hollow, about 0.8 miles north of the bridge. Also in Sleepy Hollow, Horan's Landing Park adjacent to a residential complex also has partial views of the bridge.

Employees, Visitors, and Students

There are a number of businesses and office buildings where workers and visitors have views of the highway. These include the NYSTA administrative building at the toll plaza, the office building at 303 South Broadway/Route 9 immediately north of the NYSTA building, and the small commercial properties and gas stations located adjacent to the highway. Employees on the upper south facing floors of office buildings on Route 119 (such as the 11-story Reckson Building) also have views. Employees at the office building at 303 South Broadway/Route 9 as well as shoppers in the parking lot of the shopping center at the northeast corner of Route 9 and Route 119 also have views of the NYSTA facility across Route 9. Employees and visitors of commercial activity have stationary views of the highway but are presumed to be engaged with business and have only transitory views, including to/from parking. Therefore, viewer sensitivity is low.

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Washington Irving Middle School on Route 9 in Tarrytown has clear views of the river and the Hudson River crossing as does its adjacent playing fields. South of Interstate 87/287, the bridge is visible from several institutions on higher elevations of the ridge, including Make a Wish Foundation, and Tarrytown House Conference Center. Marymount College on the ridge crest has large, cleared lawns and playing fields that permit clear views from its main buildings.

Views of the bridge are available from the edge of the Kraft property south of the Doubletree Hotel in Tarrytown. Farther south in Irvington, the bridge is visible from a waterfront mixed-use commercial redevelopment with restaurants, offices, and other commercial uses. Farther north, the bridge is visible from the Phelps Memorial Hospital Center and its esplanade adjacent to the MNR tracks.

Residents

On the Westchester side, there are many west-facing residences at the river. Houses with elevations above the tree line and other structures achieve views of the river. A smaller percentage of houses have views that directly align with the bridge and are not obscured by vegetation.

In the immediate vicinity of the bridge landing, a limited number of residents have views of the highway, toll plaza, or NYSTA facility. Approximately 14 single-family homes have views of the highway. These viewers are located on Van Wart Avenue, Hudson Place, Sawyer Avenue, Tarry Place, Meadow Street, and Summit Street. The Tappan Zee Bridge is visible from west facing yards and windows of approximately 14 riverfront residences on Van Wart Avenue, Paulding Avenue, and Hudson Place.

Residents in the southwest buildings of the Quay Condominiums and residents using its tennis courts and pool also have views of the highway and bridge (see existing conditions photograph in **Figure 9-14**). In addition, views of the NYSTA facility and partial views of the Tappan Zee Bridge are available from the upper southwest and south facing units of the Tappan Manor Condominiums on Route 9 across from the NYSTA facility. North of the Quay Condominiums, the bridge is visible from river- and bridge-facing residences in the Tappan Landing subdivision. The bridge is also visible from the newly constructed condominiums that compose the Hudson Harbor residential development along the Hudson River west of the Tarrytown Train Station. Farther east along Interstate 87/287, noise walls extending to Meadow Street preclude most views of the highway from the Sheldon Avenue neighborhood and Lagana Field.

South of Interstate 87/287, views are available from the homes in The Landing complex in Dobbs Ferry. Farther upland, partial views are available from a small number of homes on the higher elevations of the ridge (e.g., at Tarry Hill Road).

Elsewhere in Tarrytown and Sleepy Hollow, views are achieved in a few tall buildings (e.g., Franklin Towers, a 10-story structure on Franklin Street and Asbury Terrace, a 9-story structure on Cortlandt Street). In Sleepy Hollow, the new Ichabod's Landing (about 44 units) has clear views of the bridge from some of its streets and west-facing structures. Two 10-story public housing towers on Cortlandt Street/College Avenue have views of the bridge, about 0.75-miles away, from their southwest-facing windows.

9-5 ENVIRONMENTAL EFFECTS

9-5-1 NO BUILD ALTERNATIVE

The No Build Alternative would involve the continued operation of the existing seven-lane Tappan Zee Bridge. Under the No Build Alternative, there would be no substantial changes to visual quality or views associated with the project. As described in Chapter 2, "Project Alternatives," other projects may be developed within jurisdictions located in the study area that could alter existing conditions. These may result in additional locations where residents would have views of the Tappan Zee Bridge, including the General Motors site adjacent to the Tarrytown Lighthouse and a mixed-use development one mile north of Interstate 87/287 on the Hudson River waterfront.

9-5-2 REPLACEMENT BRIDGE ALTERNATIVE—SHORT SPAN OPTION

9-5-2-1 ROCKLAND COUNTY

Changes to Visual Character

The new South Broadway Bridge would be moved slightly east of its existing location and would be built at the same elevation (approximately 20 feet above Interstate 87/287). It would require the north approach to shift to the north and east into the west portion of the block bounded by Cornelison and Smith Avenues and into the western end of the block south of Smith Avenue. This would require the removal of the house at 21 Cornelison Avenue and the house at 78 Smith Avenue, construction of a retaining wall from Cornelison Avenue east to the Bradford Mews Apartments, and reconstruction of the existing noise barrier northward of its existing location.

The shift of the bridge to the east would modify the approach from South Broadway south of Interstate 87/287 requiring the acquisition of a portion of the small open space between South Broadway and Interstate 87/287. It is anticipated that the realignment of Elizabeth Place to connect to South Broadway would require the removal of the residence at 306 Elizabeth Place. The three homes located southeast of Elizabeth Park (317, 319, and 321 South Broadway) would also be removed to allow for construction of the new bridge. This would require the removal of the buffer along the south side of Interstate 87/287 in the area of these homes and also farther southeast between the highway and Ferris Lane. Upon completion of project construction, new vegetative screenings would be planted on the acquisition parcels to enhance the appearance of these parcels.

There would not be an increase in the height of the proposed Interstate 87/287 roadway. In the vicinity of properties located on the northeast sides of Ferris Lane and Bight Lane, the roadway height would increase from 0 to approximately 7 feet. A new noise barrier may be constructed along the south side of the Interstate 87/287 right-of-way to mitigate adverse noise impacts (see Chapter 12, "Noise and Vibration").

Creation of the shared use path along the north side of the right-of-way would shift the right-of-way north towards the Bradford Mews parking lot, and would result in the removal of the screening buffer along the right-of-way and relocation of the noise barrier in closer proximity to the residential buildings. The height of the proposed Interstate 87/287 roadway in the vicinity of the Bradford Mews complex would not be substantially different than that of the existing. To enhance the appearance of the new noise barrier,

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the project sponsors would work with the owners of the Bradford Mews residential complex regarding the planting of new vegetation along the noise barrier.

New maintenance ramps would be constructed from eastbound and westbound Interstate 87/287 to Piermont Avenue in the approximate location of the existing maintenance ramps.

Assessment of Impacts

The new South Broadway Bridge would be visible from the edge of Elizabeth Place Park and the residential properties on the ridge south of Interstate 87/287, e.g., on Hillside Avenue and Shadyside Avenue, but would not be expected to have a higher visibility as the new bridge would be constructed at the same elevation. The new bridge would also be visible from the next closest bridge crossing Interstate 87/287, the Route 9W cross-over (to the west), described in greater detail below.

At Piermont Avenue, the new westbound maintenance ramp for the Replacement Bridge Alternatives would touch down within NYSTA's existing maintenance area on the west side of Piermont Avenue. This change would not substantially alter the visual character or quality of the view from Piermont Avenue where the maintenance ramp and NYSTA facility are already present. It would also not impact motorists and cyclists traveling on Piermont Avenue/River Road to and from Grand View-on Hudson.

The reconfiguration and shift south of the eastbound maintenance ramp to River Road would require removal of the vegetative buffer along the south side of the highway right-of-way. Properties south of the proposed new maintenance ramp on Ferris and Bight Lanes either have vegetative screenings on their property that partially screen views to Interstate 87/287 or there are more direct views to Interstate 87/287 and the river and Westchester beyond (3 River Road at Bight Lane). If a noise barrier is constructed along the south side of Interstate 87/298, it would be expected to obstruct views in locations where there is visibility to the Hudson River and Westchester County through the vegetative buffer. Since this would remove or substantially alter views to visual resources, the proposed noise barrier would result in visual impacts.

As described above, the Route 9W bridge carries pedestrians and bicyclists utilizing the Raymond G. Esposito Memorial Trail. The new South Broadway Bridge would not be any more visible than the existing bridge in views east from this trail. The new South Broadway Bridge would not obstruct views of the limited distant Hudson River vista, which would continue to be viewed in context of the chain-link fencing on the bridge and the highway signage immediately east of it, which partially obstructs views.

A small number of sensitive viewers are located adjacent to project elements where visual change would be prominent because the work extends beyond the right-of-way. Though the small open space on the east side of South Broadway would be reduced in size with the bridge approach shifted closer, this would impact few viewers as the park is not a visual resource nor does it provide views to visual resources. Residential viewers within visual range of the acquisition parcels associated with the construction of the new South Broadway Bridge and viewers on the south facing floors of the Bradford Mews Apartments would have views altered through the removal of structures and vegetative screenings, and increased proximity to project elements. Since the acquisition parcels and the Interstate 87/287 right-of-way do not contain visual

resources and the project would not obstruct views to visual resources, the project would have no adverse visual impacts.

As discussed above, the greatest number of viewers consists of motorists on Interstate 87/287. The visual character of the highway would not be substantially altered and no prominent visual resources would be affected. In any case, viewers are typically traveling at high speeds. Therefore, there would be no adverse impacts to these viewer groups.

9-5-2-2 HUDSON RIVER CROSSING

Changes to Visual Character

The Short Span Option would consist of two parallel bridges with road decks supported by girders and piers to be constructed approximately 300 feet north of the existing bridge. The thickness of the road deck with girders superstructure from the top of the piers to the surface of the roadway would be 15 feet. The thickness of the superstructure and road deck would be greater than the existing western causeway's but less than the existing portions of the bridge supported on the truss structure (the east portion of the west approach, the main spans, and the east approach). With the inclusion of the gap between the bridges, the Hudson River crossing under the Short Span Option would be 225 feet wide, compared with the 91-foot-wide present crossing. As described above, a shared use path would be located on the north side of the northern bridge structure.

The spacing of the piers would be greater than those of the existing Tappan Zee Bridge with an average distance between the piers of 230 feet. From the Rockland County landing, the approach structure would begin an ascent rather than proceeding as a relatively flat causeway. The height of the western approach above the water would be considerably higher than much of the existing causeway, with as much as a 70-foot difference between the height of the existing approach structure and the new approach structure. The Westchester approach would not be substantially different in height.

The Cable-stayed Option would have four towers (two for each bridge) that would rise approximately 400 feet above the road deck. Cables would extend from each tower to the road deck, to a distance of up to 300 feet east and west of the towers. The top of the towers would be approximately 572 feet above the Hudson River's mean high-tide level. The Arch Option would consist of a steel arch with the curve that would commence on either side of the navigational channel and connect to the bases of the main span piers on either side of the navigational channel. The curves would meet over the middle of the channel and form an arch. The top of the arch would be approximately 200 feet above the road deck and approximately 372 feet above the Hudson River's mean high-tide level. In comparison, the height of the existing superstructure at the navigational channel is 293 feet above the Hudson River's mean high-tide level.

The new bridge would be lit for safety and aviation purposes, as is the current bridge. Lighting would continue to include standard lamp posts along the roadway. It is also envisioned that the superstructure at the main span would be lit—whether the towers for the Cable-stayed Option or the Arch Option—which would be in keeping with the visual character of the present Hudson River crossing. FAA guidelines for bridge

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lighting would require similar flashing lights at the top of the main span superstructure as are located on the existing bridge.

Assessment of Impacts

The height of the west approach and the superstructure at the navigational channel would be greater than the existing under both the Cable-stayed and Arch Options. Though at a greater height, both the Cable-stayed and Arch Options would be relatively transparent, with the Cable-stayed Option thin members and the Arch Option's one structure—the arch—above the road deck. Although lower in height from the road deck, the existing cantilever truss superstructure has a number of structural elements that obstruct, rather than permit, views through it.

The piers would consist of heavy concrete structures close to the water line near the Rockland County shoreline that would block views of the water beneath the bridge in close proximity. The heights of the piers would increase as the bridge ascends to the navigational channel, allowing for views between the bottom of the superstructure and the water. Because of the greater height of the eastern approach structure above the water at take off from the Westchester landing, there would be views beneath the bridge and between the piers that would not occur at the Rockland County landing. The pier spacing for both the eastern and western approaches would be greater than existing conditions, with the spacing almost double that for the Rockland County approach, and over double that for the Westchester County approach. However, in both instances, the piers would be thicker than those of the existing bridge.

At the navigational channel, the bridge would be supported on concrete piers rather than steel truss supports as is the main bridge. For the Cable-stayed Option the piers supporting the towers would be thicker than those for the approach structures. Under the Arch Option, the piers would be structurally linked to the arch structure at the water and thus would have a different profile from the existing vertically oriented truss structures that support the main spans.

In general, the overall visual character and high visual quality of the Hudson River valley would not be substantially altered by either short span option. As described above, the river valley is a visual resource defined by the wide expanse of the river at the Tappan Zee, the Palisades Ridge on the west bank and to a lesser extent the ridges on the east bank, with the existing Tappan Zee Bridge constructed within this natural context. The new Hudson River crossing would be built to the north close to the existing bridge structure and would maintain similar curves at the western and eastern approach structures as presently exist. Therefore, the location of the Hudson River crossing within the natural setting would not substantially differ from existing conditions.

The change in the bridge's appearance, both as the alignment shifts to the north and in the design of its deck, piers, and main span design, would be discernible to viewers who would have varying degrees of sensitivity to the change.

As has been described in "Methodology," the effect of the project on viewers would be largely contingent upon the extent of the change to visual resources, the proximity of the view, the extent of view duration, and the sensitivity of the viewer. No adverse visual impacts would occur to motorists crossing the Tappan Zee Bridge in either direction, as motorists would continue to have views of the river valley and points of visual interest

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including the Palisades and Piermont Peninsula, and other built features of historic or aesthetic interest including the Tarrytown Lighthouse, Lyndhurst, and the Manhattan skyline. Users of the proposed new shared use path would be provided with panoramic views of the Hudson River valley, with views to the north unencumbered by views of the bridge roadway. The shared use path would be a considerable visual amenity, providing a location for viewers to achieve both stationary and transient views of the Hudson River and its eastern and western banks.

Boaters would also continue to have expansive views of the Hudson River, though with views of a different bridge structure both in near, medium and far distances and passing directly beneath the bridge.

As shown in **Table 9-1** and **Figures 9-6 to 9-19**, a number of visual simulations have been prepared from locations that are at close, middle, and far distances from the replacement bridge to give a sense of how views may change. The simulations have been selected to account for different types of potentially sensitive viewer groups, including residents, park users, and those with views to or from areas of historic and cultural prominence.

Table 9-1
Visual Simulations

Figure No.	Photo Locator	Location	Distance	Significance of View Selection
Rockland County				
9-6	R1	3 River Road at Bight Lane	Near (adjacent property)	Residential and historic property
9-7	R2	Piermont Avenue, Grand View-on-Hudson	Near (0.06 miles)	Roadway crossing beneath bridge
9-8	R3	24 River Road, Grand View-on-Hudson (former Wayside Chapel)	Near (0.03 miles)	Residential and historic property
9-9	R4	31 River Road, Grand View-on-Hudson	Near (0.09 miles)	Residential and historic property
9-10	R5	74 River Road, Grand View-on-Hudson	Near (0.24 miles)	Residential and historic property
9-11	R6	Old Mountain Road near Shadyside Avenue, Orangetown	Middle (0.19 miles)	Residential area at a higher elevation
9-12	R7	Memorial Park, Nyack	Middle (1.2 miles)	Local waterfront park
9-13	R8	Rockland Lake State Park, Clarkstown	Far (3.5 miles)	High point in state park
Westchester County				
9-14	W1	Quay Condominiums, Tarrytown	Near (0.07 miles)	Adjacent residential complex
9-15	W2	Losee Park, Tarrytown	Near (0.33 miles)	Local waterfront park
9-16	W3	Warner Library, Tarrytown	Middle (1.2 miles)	Public facility with elevated river views
9-17	W4	Tarrytown Lighthouse	Middle (1.0 miles)	Historic property viewable in context of the bridge
9-18	W5	Lyndhurst, Tarrytown	Middle (1.25 miles)	Historic property
9-19	W6	Mathiessen Park, Irvington	Far (2.0 miles)	Local waterfront park and MNR commuter views
Notes: R = Views in Rockland County; W = Views in Westchester County.				

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As shown in views R1, R2, R3, R4, R5, W1, and W2 (see **Figures 9-6, 9-7, 9-8, 9-9, 9-10, 9-14, and 9-15**), close-up viewers would experience a thicker and heavier bridge structure. As shown visual simulation R2 (see **Figure 9-7**), no views to visual resources would be obstructed and the change would be restricted primarily to the bridge crossing Piermont Avenue/River Road. Viewers would likely consist of pedestrians, cyclists and motorists proceeding north and south on Piermont Avenue/River Road. Viewer exposure and sensitivity would be low as the views would be transient and not shared by a large number of viewers.

Visual simulation R1 (see **Figure 9-6**) is taken from the front porch of the property at 3 River Road (at Bight Lane) within the National Register-eligible River Road Historic District. The view towards the Hudson River and Westchester visible above the existing causeway would be fully obscured by the greater height and thickness of the Rockland County bridge approach. An additional property at 1 River Road at Bight Lane would also be impacted, though views from this property are partially screened by trees and vegetation. The obstruction of views to the Hudson River and opposite shoreline from these residential properties would result in adverse visual impacts.

Visual simulations R3 (see **Figure 9-8**) and R5 (see **Figure 9-10**) are taken from the rear of residential properties also located within the National Register-eligible River Road Historic District south of the bridge. Visual simulation R4 (see **Figure 9-9**) is taken in front of another residential property located in the National Register-eligible River Road Historic District. Views in close proximity to the bridge structure as shown in simulation R3 would be available to the residents of the former Wayside Chapel (an individually listed property on the National Register) and the home immediately to the north (the view is taken from the rear of the Wayside Chapel property which is approximately 125 feet from the Rockland County landing). These properties are located on a small cove that is denied most views of the river by the bridge to the north and wooded property extending further into the river to the south. Views would still consist of a bridge approach structure that blocks views of the Hudson River and its opposite east bank, but with the bridge structure shifted slightly north, and therefore, farther away from these viewers. From this close perspective, the increased bulk of the western approach would present a visual change in terms of the greater height of the approach structure which would intrude into the sky. However, views of the Hudson River and Westchester would be available beneath the road deck superstructure and between the piers. Since the bridge approach would not alter views to the Wayside Chapel and views from this location would continue to contain a bridge approach structure with views of the river in the foreground, the project would not result in an adverse impact.

For viewers located on River Road south of the Wayside Chapel (e.g., south of the small cove), the Hudson River crossing is visible from the houses on the east side of River Road. The existing Tappan Zee Bridge is visible from the west side of River Road above and between the structures located on the east side of River Road. Due to the height of the existing causeway, viewers on the west side of River Road can look across the causeway to the river and Westchester County. Under the Short Span Option, the greater thickness and height of the Short Span Option would obstruct views of the Westchester ridgeline and of the Hudson River to residents, depending on viewer elevation. This would result in adverse visual impacts to these viewers.

Proceeding farther south, the Hudson River crossing is visible to the northeast, but the increased distance allows for more generous views of the river (see **Figure 9-10**). There are also generous views afforded of the river in views to the east and southeast that do not contain the bridge. The bridge would be a taller structure that would obstruct views of the Westchester County ridgeline directly behind it in views to the northeast, but would not affect other views east and southeast.

For those in close proximity to the bridge in Westchester County, the greatest effect would be to viewers to the north due to the proposed realignment. Simulation W1 (see **Figure 9-14**) presents views from a residential apartment complex approximately 400 feet north of the bridge (the Quay Condominiums in Tarrytown). Simulation W2 (see **Figure 9-15**) reflects views from Losee Park, a local park along the river farther north. As shown in simulation W1, the new bridge structure would be closer though the view to the west and southwest would continue to consist of the approach structure, which obstructs views south of the Hudson River and southwest to the opposite west river bank. The design of the bridge would also be a visual change, as it would consist of a concrete deck set on piers without an intervening truss structure. The greater proximity and height of the structure, which would obstruct more views of the opposite shore of the river, would also present a visual change to the viewers of the residential complex. While viewer numbers would be low, view duration and viewer sensitivity would be high. However, viewers would continue to have unobstructed views to the west and northwest of the river and Hudson River Valley uninterrupted by a bridge. Since viewers would still be afforded unobstructed views of this visual resource, the project would not result in adverse visual impacts.

Moving farther north, visual simulation W2 (see **Figure 9-15**) depicts how the bridge may look compared to existing conditions from Losee Park, and is indicative of how the bridge may appear to other nearby viewers including those utilizing the Tarrytown marinas or the outdoor restaurant at the marina, MNR commuters utilizing the large commuter lot at the Tarrytown Train Station, or residents in the Hudson Harbor development north of the commuter lot who have south facing views. At approximately 150 feet closer at this location and at a greater height, the bridge would be a more prominent visual presence and would obscure more of the Rockland County shoreline. By virtue of the greater height of the towers, the Cable-stayed Option would represent a higher intrusion into the sky than the lower Arch Option but the towers and cables would have narrow profiles that allow views to pass in between these members. There would continue to be views beneath the road deck and between the piers of the water and Rockland County shoreline, as well as unobstructed views of the river to the north and northwest. Viewer exposure would be high for the park and marina users, and the residents at the Hudson Harbor development, but less so for the commuters in the Tarrytown MNR station commuter parking lot and passenger platforms who typically spend little time in these locations. There would be a lessened visual sensitivity for the park viewers, as many of the users visit the park for active recreation.

Views at a greater distance from the bridge, e.g., at a middle distance of between one and two miles, would be more panoramic, encompassing a greater extent of the Hudson River and opposite shorelines. As shown in simulations R6, R7, and W3–W5 (see **Figures 9-11, 9-12, 9-16, 9-17, and 9-18**), the bridge would continue to appear in the foreground in views oriented to that direction, but with less definition of detail. In

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views directly overlooking the structure at a greater height, as shown in simulation R5, the greater width and height of the road deck would be apparent, and a greater portion of the western approach would be visible in between the trees and other vegetation on the steep incline of the Palisades Ridge that partially obstruct views of the shoreline. Simulation W3 (see **Figure 9-16**), which also shows a viewpoint at a higher elevation, but from Westchester, would show how the bridge may appear in context of other features located farther down the ridge. Due to the greater height of the structure, both the Arch and the Cable-stayed Option would project above the Rockland County ridge line, whereas the existing bridge barely does. As described above, the narrow profiles of Cable-stayed Option towers and cables allow for views to pass between them and do not obstruct views of visual resources.

At Lyndhurst, where visitors would be engaged in various activities including walking the extensive grounds and taking in the views afforded from the property, the proposed visual changes would not be substantial (see simulation W5 in **Figure 9-18**). The superstructure of the new bridge would continue to be centered in views northwest, with the superstructure of the main span clearly visible above and between the trees located on the Lyndhurst property. Both the top of the arch and the tops of the towers with the cables would extend above the Rockland County though with visual effects similar to those for other views from near and medium distances discussed above.

In middle distance views from along the water, as shown from Memorial Park in Nyack (simulation R7 in **Figure 9-12**) and the Tarrytown Lighthouse south of Kingsland Point County Park (simulation W4 in **Figure 9-17**), are even more sweeping and panoramic. In views towards the direction of the Hudson River crossing, the height of the towers and cables for the Cable-stayed Option and of the arch would make the superstructure more prominently visible as these elements would project to a greater height above the Rockland and Westchester horizons than does the existing cantilever truss superstructure, with the Arch Option constituting less of an intrusion due to its lesser height than the Cable-stayed Option. In views south of the historic lighthouse from Kingsland Point Park, the existing bridge and Cable-Stayed Option better frame the structure, as the superstructures rise in peaks on either side of the lighthouse, whereas the arch extends behind the lighthouse, reducing its vividness against the surrounding sky and Rockland County horizon. However, as a freestanding structure in the river, the lighthouse may be viewed from a number of different directions, including views that do not include the bridge.

As shown in simulations R8 and W6, from Rockland Lake State Park and Mathiessen Park respectively (see **Figures 9-13 and 9-19**), views to the Hudson River crossing at between 2 and 3.5 miles away generally reduce the bridge as a focal point and the detail of its individual elements, and the bridge becomes part of the larger Hudson Valley vista. At such distances, the difference in structure would not impact overall views. This is also anticipated to be the case with respect to views from Hook Mountain and Nyack Beach State Park, a National Natural Landmark located southeast of Rockland State Park, and Tallman Mountain State Park, a National Historic Landmark, located south of the bridge. In views south from Hook Mountain and Nyack Beach State Park, approximately 3.4 miles north of the bridge, the replacement bridge would cross the river north of the existing structure with the superstructure above the main navigational channel—either the Cable-stayed or Arch option structure—projecting

above the Westchester County ridgeline as does the existing bridge's cantilever truss. Views north from Tallman Mountain State Park would also continue to contain distant views of a Hudson River crossing. The sweeping vistas afforded from these more distant recreational areas would have a similar visual quality, defined by views of both banks of the Hudson River with a bridge crossing in the approximate location as existing.

It is also not anticipated that views from Kykuit, the National Historic Landmark Rockefeller Estate in Sleepy Hollow would be impacted. The primary views west and northwest to the Hudson River and the Palisades would remain unchanged as the replacement bridge would not enter this viewshed. During the winter months, it is expected that the replacement bridge would be visible between trees in views southwest from the main west terrace as is the existing bridge, but that the foliage would continue to screen the Hudson River crossing from view from this location during the summer months. The replacement bridge would not be expected to be visible from the terraced gardens and would be expected to have visibility, as does the existing bridge, from the upper south facing windows of the house.

As described above, in most cases, the visual changes resulting from the Short Span Option would not result in adverse visual impacts. However, a limited number of residents on Bight Lane (at River Road), and on River Road with views over the existing causeway of the Hudson River and Westchester County would have views obstructed, resulting in adverse visual impacts.

9-5-2-3 WESTCHESTER COUNTY

Changes to Visual Character

The modifications to Interstate 87/287 would require reconstruction of the toll plaza, the westbound on-ramp from Interchange 9 (Route 9), and the existing NYSTA maintenance facility at Interchange 9 (Route 9).

Upon project completion, the tolls would be in the approximate location as present, but shifted south as part of the alignment of the new eastbound roadway. A new toll plaza building would be built which would be of a comparable size to the existing structure. Work would be almost fully contained within the right-of-way.

The westbound on-ramp from Interchange 9 (Route 9) would continue to be located within the NYSTA's right-of-way and it is expected that the NYSTA's facility and state police troopers barracks would be relocated onto the site upon project completion.

Assessment of Impacts

The alterations to Interstate 87/287 would have no adverse impacts on any sensitive viewers. Visibility of the bridge landing to viewers in close proximity is primarily limited to the workers and visitors at the office building at 303 South Broadway/Route 9, the motorists and pedestrians traveling on the Route 9 bridge over Interstate 87/287, and the residents in the southwest buildings of the Quay Condominiums and limited single family homes on Van Wart Avenue and Hudson Place. The largest viewer group consists of the motorists travelling on Interstate 87/287.

The visual character of the highway would not substantially change nor would visual resources be removed. The closest and most sensitive viewers, the residents at the

Quay Condominiums and on Van Wart Avenue and Hudson Place would continue to have views of a highway with a toll plaza. With respect to modifications that would occur in the area of the NYSTA facility and the westbound-on ramp from Interchange 9 (Route 9W), there would be visibility from employees and visitors, such as at the office building at 303 South Broadway/Route 9 and other businesses located on South Broadway/Route 9. Viewers with greater sensitivity are located in the Tappan Manour Condominiums, located across Route 9 from the NYSTA facility. As has been described above, mature trees line the sidewalk in front of the condominium complex, partially obscuring views, and Route 9, a heavily trafficked road, also intervenes. The NYSTA facility is set back from Route 9 behind landscaped areas. Upon project completion, the site would contain the same use, though in a new structure and with new landscaping. Since residential viewers would continue to view a highway ramp with a NYSTA facility, which would continue to be screened by trees, the project would not result in adverse impacts on this sensitive viewer group.

9-5-3 REPLACEMENT BRIDGE ALTERNATIVE—LONG SPAN OPTION

9-5-3-1 ROCKLAND COUNTY

Changes to Visual Character

Due to the greater depth and height of the superstructure under the Long Span Alternative, the highway would commence its ascent to the bridge landing farther west than under the short span alternative (see **Figure 10-8** of Chapter 10, “Historic and Cultural Resources”). East of the South Broadway Bridge, the elevation of Interstate 87/287 would increase in height to the bridge approach, rather than descend as it does now. The height of the proposed Interstate 87/287 roadway would be approximately 40 feet higher than present at takeoff from the Rockland County landing. This would require the westbound maintenance ramp to River Road to be approximately 400 feet longer and commence farther west than the Short Span Option. The westbound maintenance ramp and elevated roadway of Interstate 87/287 would be located south of a reconstructed noise barrier adjacent to the Bradford Mews housing complex and the Interstate 87/287 roadway. The eastbound maintenance ramp would be approximately 100 feet longer and also commence farther west than in the Short Span Option.

The proposed location of the South Broadway Bridge and modifications north and south of Interstate 87/287 would be similar to those required for the Short Span Option.

Assessment of Impacts

The height of the Interstate 87/287 roadway would increase from 10 to 30 feet in the vicinity of the Bradford Mews housing complex. The increased height of the roadway in combination with the reconstructed noise barrier (of approximately 20 feet in height) would obstruct views from the south facing units. As described above, south facing viewers in this residential complex have views obstructed by the existing noise barrier. Therefore, the project would not obstruct views to any visual resources not already blocked under existing conditions. Viewers in the east-facing upper floors of the easternmost residential building in the complex would have views of a larger bridge structure in views southeast, but would continue to have views of the river and Westchester ridge line in views east and northeast.

In views from the south, the increased height of the Interstate 87/287 roadway structure) would be most visible to the properties on Ferris and Bight Lanes. In these locations, the proposed Interstate 87/287 roadway would be 20 to 35 feet higher than existing. Instead of being located in a cut, the new roadway would be approximately 10 feet higher than the existing elevation of Ferris Lane. While the properties on the southeast side of Ferris Lane would be at an elevation that is similar or slightly less than the proposed roadway, the properties northeast of Ferris Lane and northwest of Bight Lane would be at an elevation 10 to 40 feet lower than the proposed Interstate 87/287 roadway. Therefore, the Long Span Option would obstruct to varying degrees views of the Hudson River and Westchester landmass that are not currently blocked by vegetation from these residential properties, which would result in an adverse impact.

Since the proposed location of the South Broadway Bridge and associated modifications north and south of Interstate 87/287 would be similar, the potential impact on viewers would be the same as described for the Short Span Option.

9-5-3-2 HUDSON RIVER CROSSING

Changes to Visual Character

The Long Span Option would also consist of two parallel bridges to be constructed 300 feet north of the existing bridge. The approach structures and main spans would be of the same length as the Short Span Option and with similar spacing between the two structures as the Short Span Option. The major visual differences between the Short Span and Long Span Options are related to a) the spacing between the piers, and b) the design of the Long Span Option with a road deck above a truss structure which raises the height and thickness of the bridge superstructure.

The Rockland County approach spans would consist of an average distance between the piers of 180 feet (in comparison with the Short Span Option that would have an average distance between piers of 96 feet). The Westchester County approach spans would have an average distance between the piers of 180 feet (in comparison with the Short Span Option that would have an average distance between the piers of 112 feet).

The superstructure would also be different. Each bridge would have a truss structure supported by piers with the road deck located on top of the trusses. The thickness of the road deck with the truss structure would be 40 feet between the tops of the piers and the surface of the roadway (in comparison with the Short Span Option where the thickness of the superstructure/road deck would be 15 feet). This would increase the height of the road deck above the Hudson River's mean high water level at the navigational channel to 195 feet (in comparison with 175 feet for the Short Span Option). The larger superstructure would still maintain the same vertical clearance at the navigational channel as the Short Span Option, of approximately 157 feet above the Hudson River's mean high water level.

The difference in height of the superstructure (an increase of 25 feet with the Long Span Option) would raise the height of the Cable-stayed towers above the Hudson River's mean high tide to 597 feet. It would raise the height of the arch above the Hudson River's mean high tide to 397 feet.

The proposed lighting would be as described above for the Short Span Option.

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Assessment of Impacts

In general the overall existing visual character and high visual quality of the Hudson River valley would not be substantially altered. As described above, the river valley is a visual resource defined by the wide expanse of the river at the Tappan Zee, the Palisades Ridge on the west bank and to a lesser extent the ridges on the east bank, with the existing Tappan Zee Bridge a manmade element constructed within the natural context. The new Hudson River crossing would be built to the north close to the existing bridge structure and would maintain similar curves at the western and eastern approach structures as presently exist. Therefore, the location of the Hudson River crossing in the natural setting would not substantially differ from existing conditions.

To viewers in proximity to the bridge approaches, including those residents on Bight Lane (at River Road), on River Road in Grand View-on-Hudson, and residing at the Quay Condominiums in Tarrytown, the increased height of the superstructure (at 40 feet) would increase the bulk and height of the approach structures (see visual simulations R1, R2, R3, R4 and W1 in **Figures 9-6, 9-7, 9-8, 9-9 and 9-14**). From Rockland County, the truss superstructure would be a greater visual change as the existing superstructure of the west causeway of the Tappan Zee Bridge is a relatively thin structure that is not supported by a truss. However, as shown in visual simulations R2 and R3 (see **Figures 9-7 and 9-8**), while the road deck would be at a greater height, the bottom of the truss would also be at a higher elevation, allowing greater views beneath the structure to the Hudson River and sky above it in views from Rockland County for those viewers in close proximity along the shoreline. However, as shown in visual simulations R1 and R4 (see **Figures 9-6 9-9**), residents on Bight Lane (at River Road) and on River Road with views over the causeway would be affected in a similar manner as described above under the Short Span Option. The greater height and thickness of the bridge superstructure would obstruct views of the Westchester landmass and of the Hudson River, depending on viewer elevation, resulting in adverse visual impacts. It is expected that the bridge approach would fully obstruct views of the Hudson River and Westchester County from the residential properties on Bight Lane at River Road (see visual simulation R1 in **Figure 9-6**).

In views from Rockland County at medium and far distances, the greater height of the roadway would be a change but at distances of over one mile, such as from local and state parks including Memorial Park, Hook Mountain and Nyack Beach State Park, Rockland Lake State Park, and Tallman Mountain State Park, vistas afforded from these more distant recreational areas would continue to contain both banks of the Hudson River with a bridge crossing in the approximate location as existing (see visual simulations R7 and R8 in **Figures 9-12 and 9-13**).

In views from Westchester County at near, medium, and far distances, the truss structure would not be substantially visually different from that on the existing eastern approach though the overall height of the approach structure would be taller (see visual simulations W1 through W3 in **Figures 9-14, 9-15, and 9-16**). From the Quay Condominiums, the approach structure would be closer, yet its visual character would not be substantially different as it would consist of a truss structure supporting a road deck, and supported by paired concrete piers. Viewers from this location would continue to have unobstructed views northwest of the Hudson River and the opposite shoreline.

In medium to far views, the greater distance between the piers would constitute a positive change over the existing bridge. The greater distance between the piers would allow for less obstructed views of the Hudson River beneath the superstructure (see visual simulations R7 and W4 through W6, see **Figures 9-12, 9-17, 9-18, and 9-19**). The replacement bridge under the Long Span Option would not enter the principal viewshed containing the Hudson River and the Palisades that is afforded from Kykuit, the Rockefeller Estate in Sleepy Hollow.

Similar to the Short Span Option, the greater height of the cable-stayed towers would constitute a greater change over the Arch Option, extending approximately 300 feet higher than the existing steel truss. This change would not result in adverse visual impacts, as the towers have a relatively narrow profile, the cables allow views between them, and the visual quality of the river valley would not be substantially altered. Westchester County

The modifications to Interstate 87/287, the toll plaza, and the NYSTA facilities and potential impacts on viewers in Westchester County under the Long Span Option would be the same as described for the Short Span Option.

9-6 MITIGATION

As described above, the construction of a possible new noise wall along the south side of the Interstate 87/287 right-of-way in Rockland County and greater height and depth of the western approach in the Hudson River under the Short Span Option would obstruct views to the Hudson River and Westchester land mass from a limited number of residences on Ferris Lane, Bight Lane, and River Road, resulting in adverse visual impacts.

The greater height and depth of the Long Span Option's superstructure would result in adverse visual impacts in locations where residents located south of Interstate 87/287 in Rockland County (i.e., residents on Ferris Lane, Bight Lane, and River Road) would have views of the Hudson River and opposite Westchester shoreline obstructed.

The project sponsors would work with the affected property owners on Ferris and Bight Lanes to develop measures to mitigate adverse visual impacts, such as the planting of visual buffers along the right-of-way to screen views of possible noise walls (under the Short Span Option) and of the superstructure and road deck (under the Short Span and Long Span Alternatives).

Mitigation of the Short and Long Span Options visual impacts resulting from the greater height and depth of the superstructure in the Hudson River, which affects a limited number of residents on River Road south of the existing Tappan Zee Bridge, is not possible. As has been described in Chapter 2, "Project Alternatives," the need to adjust the grade of the approach structure, and the larger spacing between the bridge piers under the Long Span Option (which requires a truss structure to span longer distances) results in the greater height and depth of the bridge structure under both design options. Measures to avoid, minimize, rectify, or reduce the impact as well as compensate for the impact, have not been identified. Therefore, selection of either design option would result in unavoidable adverse impacts on visual resources.