**New York State Department of Transportation**
**Metropolitan Transportation Authority Metro-North Railroad**
**New York State Thruway Authority**

**Presentation**

# *Stakeholders' Advisory Working Groups (SAWGs)*
# *Environmental SAWG Meeting #11*

***Tappan Zee Bridge/I-287 Corridor***
***Environmental Review***

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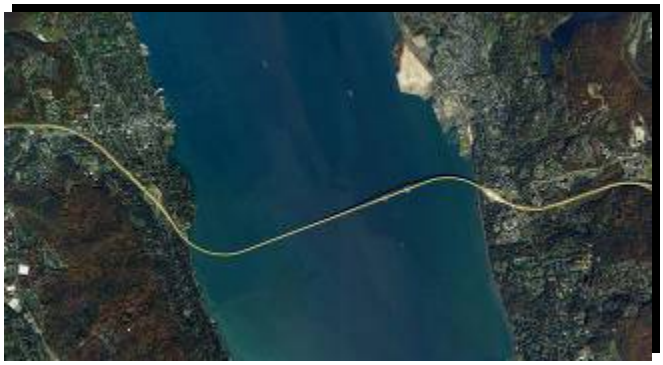
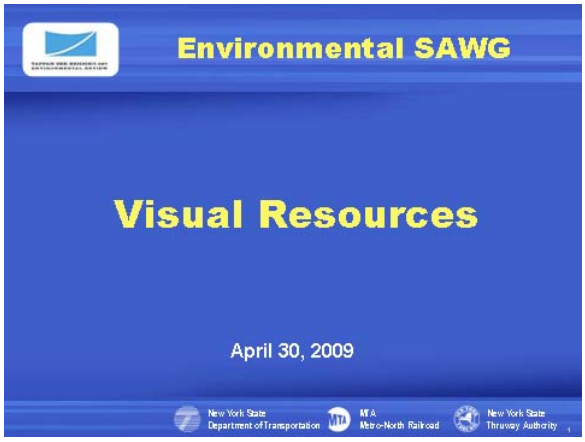


April 30, 2009

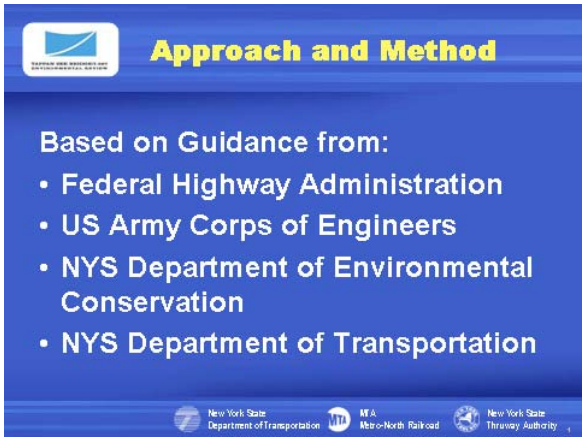



**Slide 1**

Continuing the series of Environmental Stakeholder Advisory Working Groups (SAWG), this evening focuses on Visual Resources.


**Slide 2**

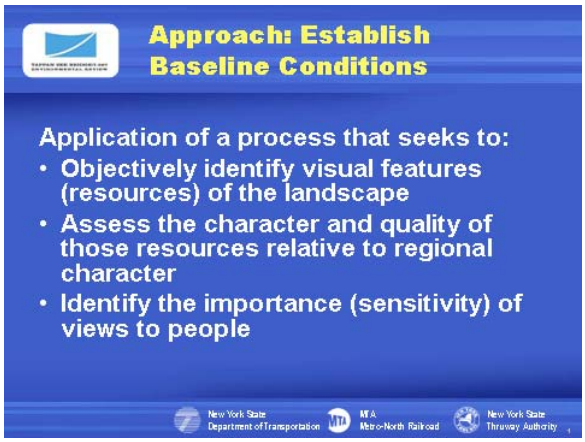
As with the previous Environmental SAWGs, our attention is primarily to methodology and approach, in this case, how we go about assessing Visual Resources, Viewers, and impacts upon them both. We are not yet at the stage of actually assessing impacts because the design drawings for the DEIS Alternatives are still to be completed and several options have to be selected. Presumably, there will be another opportunity to revisit this topic as the impact analysis is advanced. The Scoping Update Packet, Winter 2008, also discusses methodology and is available on the Project Web site, at www.TZBsite.com website.




**Slide 3**

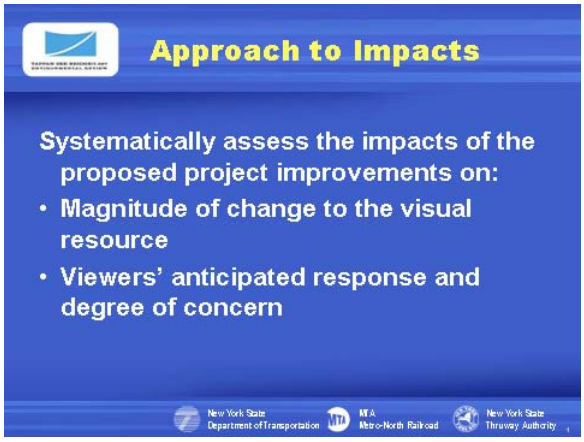
Visual assessments and impact analyses are important for this project for several reasons. Visual analysis is mandated under NEPA and SEQRA and is an important component of Neighborhood Character. In addition, the Tappan Zee is an area of great scenic importance and the existing Tappan Zee Bridge (TZB) is a National Register eligible structure. Consequently, its replacement will be subject to substantial public scrutiny, and the project sponsors desire a "signature" quality bridge. We approach the study of visual resources following guidance from:

- FHWA guidance: Guidance Material on the Preparation of Visual Impact Assessments (1986);
- US Army Corps of Engineers, Visual Resources Assessment Procedure (1988);
- NYS DEC Program Policy Assessing and Mitigating Visual Impacts (DEC-00-2, July 2000);
- NYS DOT Engineering Bulletin (EB) 03-052 and Engineering Instruction (EI) 02-025.




**Slide 4**

Many people think aesthetics is inherently subjective and are dismissive of it as a real discipline. However, all the previous references point us towards a more objective review and systematic assessment process. That is the perspective I will be attempting to demonstrate this evening. The process begins by establishing a baseline of existing conditions: identifying visual resources and assessing their quality in the context of regional character. Next, we identify the various viewer groups and their anticipated response and concerns to changes to their views.

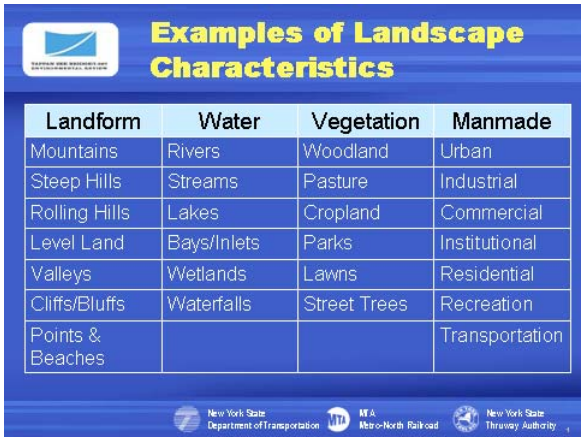



**Slide 5**

Project impacts are assessed in terms of the magnitude of change to the visual resource and the anticipated response of viewers to these changes.


**Slide 6**

The approach thus far focuses on: 1) the visual resources of the existing landscape; and 2) the viewers in the study area. The photo is looking north from the Scenic Hudson waterfront park in Irvington, about 2.5 mi. south of the Tappan Zee Bridge, with the Palisades to the rear left.



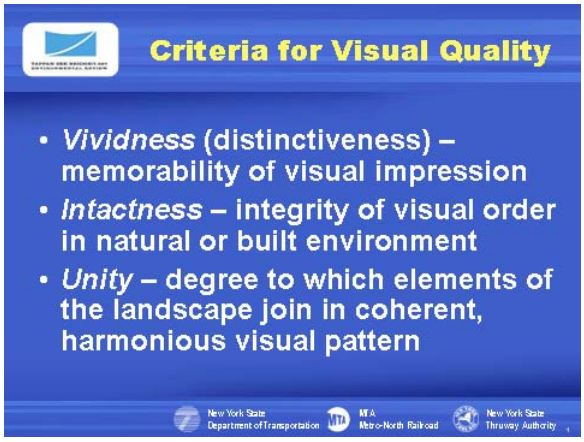

| Landform | Water | Vegetation | Manmade |
|---|---|---|---|
| Mountains | Rivers | Woodland | Urban |
| Steep Hills | Streams | Pasture | Industrial |
| Rolling Hills | Lakes | Cropland | Commercial |
| Level Land | Bays/Inlets | Parks | Institutional |
| Valleys | Wetlands | Lawns | Residential |
| Cliffs/Bluffs | Waterfalls | Street Trees | Recreation |
| Points & Beaches | | | Transportation |

**Slide 7**

The table shows examples of various landscape elements. In our study area, there are found most types of the land forms, water features, vegetation and manmade features. Absent are agricultural elements and much heavy industry.


**Slide 8**

High visual quality exists when the landscape is striking and conveys visual excellence, and/or is important for cultural or recreational reasons. As expected, the higher the visual quality, the higher the anticipated sensitivity to change. The photograph shows the Tappan Zee Bridge – a National Register eligible structure – viewed from Tarrytown, about 2,000 ft. north of the bridge.




**Slide 9**

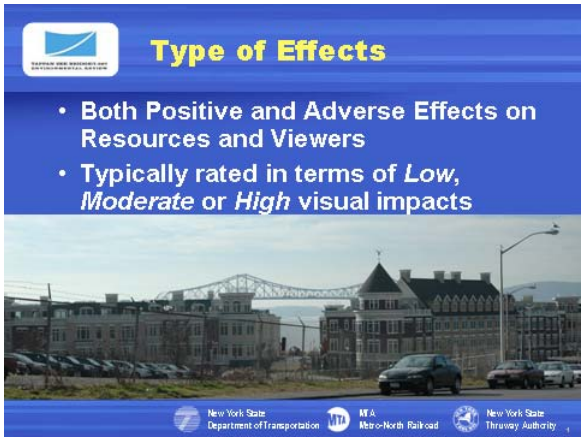
The three key criteria defining visual quality are: vividness, intactness, and unity. Brief definitions are shown in the slide. When all three elements are present, we are likely to have a high quality visual landscape.


**Slide 10**

Next, we define the various viewer groups, beginning with viewers from the roadway (I-287) or transit facility, as vehicle occupants. This traveler group is typically composed of high volumes but because they are traveling at high speeds, their sensitivity is typically lower than other groups. However, some contexts, such as crossing the Tappan Zee Bridge present these travelers with views of exceptional quality, such as in the photo from the bridge looking northwest towards the Palisades.

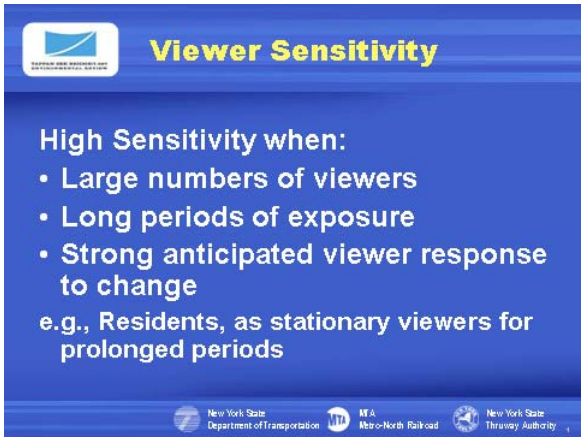

**Slide 11**

There are more diverse groups of viewers *of* the roadway or transit, including residents with views, usually the most sensitive group. Others are likely to have less extensive exposure or are involved in activities that do not focus on the landscape. Travelers on other local roads are likely to have very brief view of the highway/transit facility as they pass over or under it.



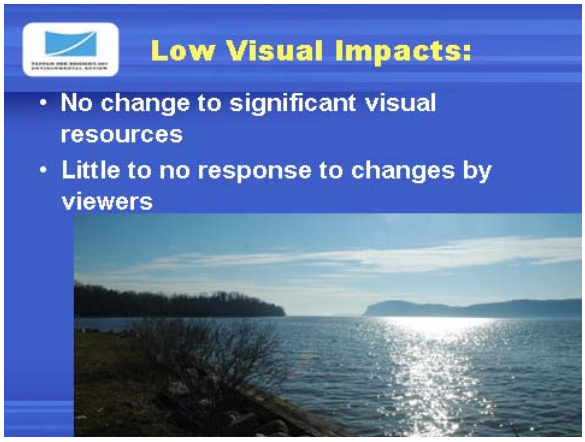

**Slide 12**

Project effects can be positive or adverse on both visual resources and on viewers. These effects are typically ranked in terms of high, moderate or low impacts.



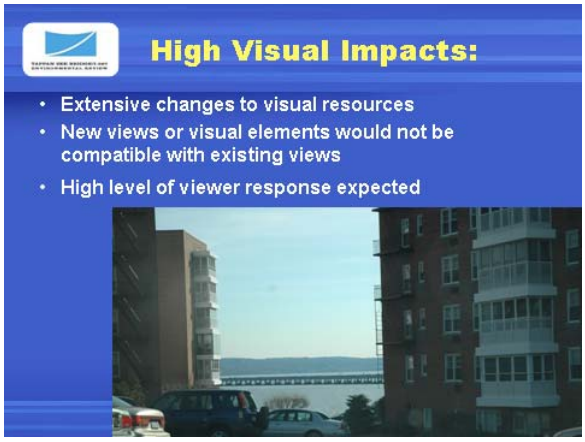

**Slide 13**

Viewer sensitivity is rated high when there are large numbers of viewers with long exposure, who are anticipated to have a strong response to proposed visual changes. Residents are likely to have long periods of exposure but their numbers and response to a visual change will vary by location and type of visual change.



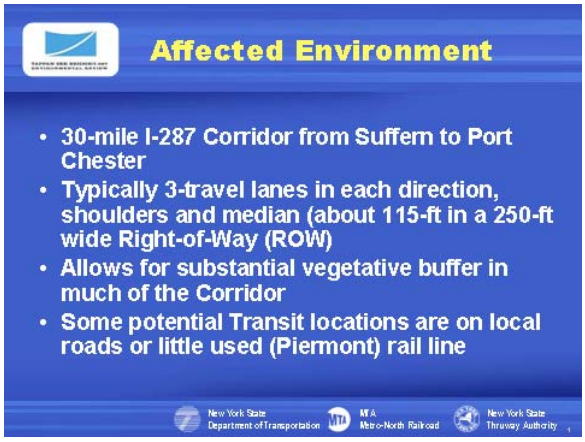

**Slide 14**

The opposite, of low visual impact is expected when the visual changes are minor and little viewer response is anticipated. For example, this would be the case for Croton Point Park users. The photograph looks south from Croton Point Park, about 7 mi. north of the Tappan Zee Bridge. Bridge is not perceptible, thus there would be no change to the visual resource of the Hudson River or the parkland and its users at this location from any change to the bridge.




**Slide 15**

On the other hand, large numbers of viewers close to a new bridge who may experience a major change in their views of the river or the bridge by its being closer, or obscuring views, would be likely to experience high levels of viewer concern. The photograph shows the Tappan Zee Bridge causeway from Salisbury Point Apartments, at the water's edge in South Nyack.




**Slide 16**

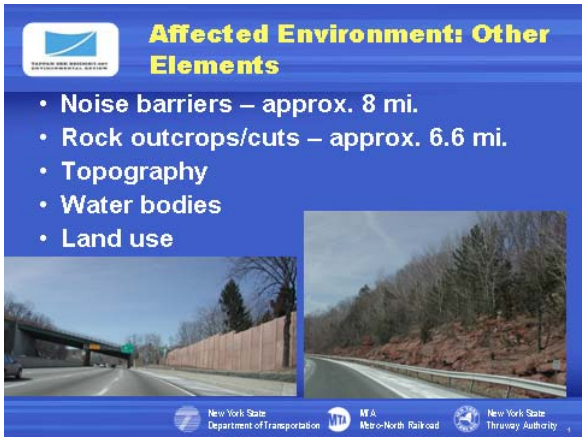
The study area for visual resources is the 30-mile I-287 Corridor from Suffern to Port Chester. The slide notes that the highway is typically 250 ft wide (there is more variation in Westchester than in Rockland), typically with three travel lanes in each direction, shoulders and medians. This generally allows for a substantial vegetative buffer from adjacent land uses. Exceptions occur, and in some cases transit options use local roads and/or a portion of the Piermont Line right-of-way.


**Slide 17**

The vegetative buffer along the highway typically blends into the naturally wooded suburban landscape, thereby "channelizing" it within the 50-60-ft. tree line for extensive segments and minimizing views of and from the highway. The photo shows the approach to interchange 11 in Nyack.

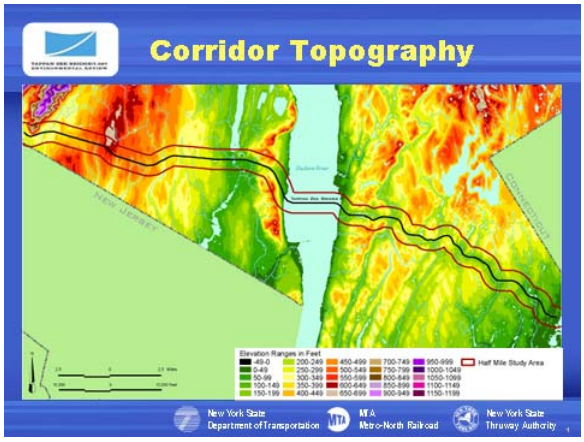

**Slide 18**

The aerial shows a typical section in Rockland I-287 in Rockland County facing east, with lake de Forest and the Hackensack River valley in the rear, and with Clarkstown South High School to left of I-287.



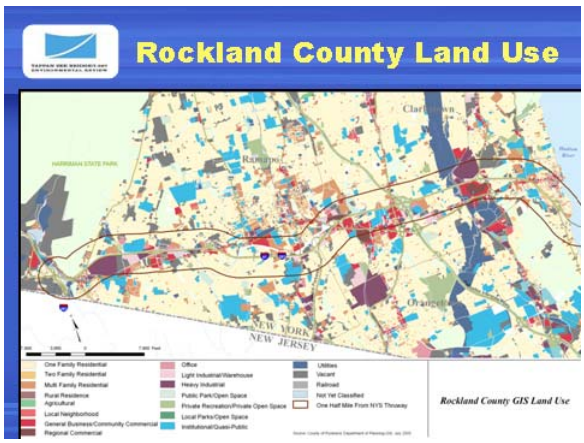

**Slide 19**

Noise barriers: In Rockland, approximately 2.35 mi. on north side and 0.96 mi. on south side; in Westchester approximately 1.5 mi. on north side and 3.2 mi. on south side. These screen the highway from adjacent viewers. Rock outcrops where highway cuts through local grade, these not only screen the highway but also provide some visual interest to motorists, with exposure of local geology, including red sandstones at highpoints of Rockland Plateau, grey granite of the Palisades escarpment, and schists and gneisses on the higher ridges of Westchester County. In all, about 6.6 mi. with 1.7 mi. on the north side in Rockland and 1.8 mi. on the south side; and 1.8 mi. on the north side in Westchester and 1.4 mi. on the south side. Other elements to consider are topography and land use.



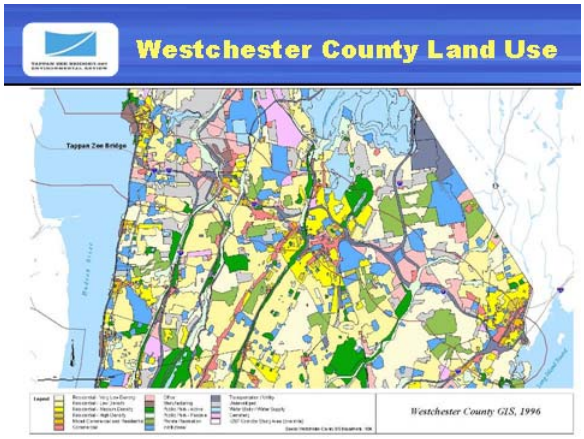

**Slide 20**

I-287 traverses a varied terrain, generally finding a path of moderate grade changes. In the west, it begins with a break through the Ramapo Mountains known as the Ramapo Pass created by the Ramapo River, where I-87 continues north and I-287 turns south. After crossing the Mahwah River in Suffern, it continues east across the Rockland Plateau, with its high point near Monsey. Thereafter, it descends to cross the broad Hackensack River Valley, before rising again to pass through a notch in the Palisades. The highway descends to the Hudson River and the Tappan Zee Bridge. The Tappan Zee is a wide section of the Hudson River, almost 3 mi. wide at the bridge. On the Westchester side of the river, I-287 weaves its way across the county using a series of breaks in the otherwise north-south series of ridges and valleys.



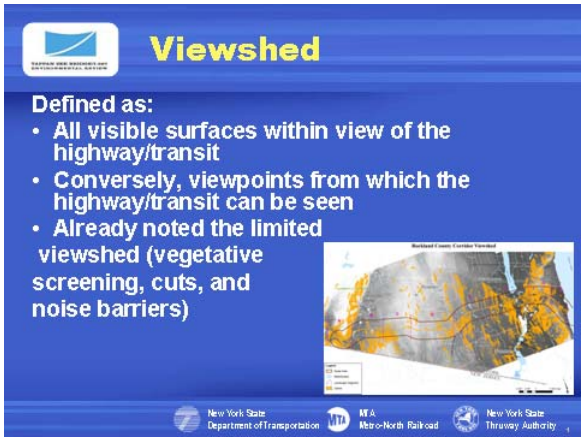

**Slide 21**

Rockland County exhibits mostly low- to moderate-density suburban residential users with some older, denser urban areas (e.g., Nyack, Spring Valley, Suffern). Substantial commercial occurs along the corridor, in particular following the Route 59 corridor (e.g., Palisades Center, Nanuet, and Airmont). There is some light manufacturing, mining, and warehousing, and a scattering of institutional uses (e.g., schools, hospitals). Little vacant land is apparent, except on the steep slopes in the Hillburn area to the west.




**Slide 22**

Westchester exhibits a similar pattern of low- to moderate-density suburban residential with some older, denser urban areas (e.g., Port Chester, White Plains, Tarrytown). Substantial commercial occurs in particular areas (e.g., Platinum Mile, White Plains, and Route 119). Institutional (e.g., schools, hospitals), parklands and country clubs are plentiful while vacant land is quite rare, usually as a result of wetlands and steep slopes.

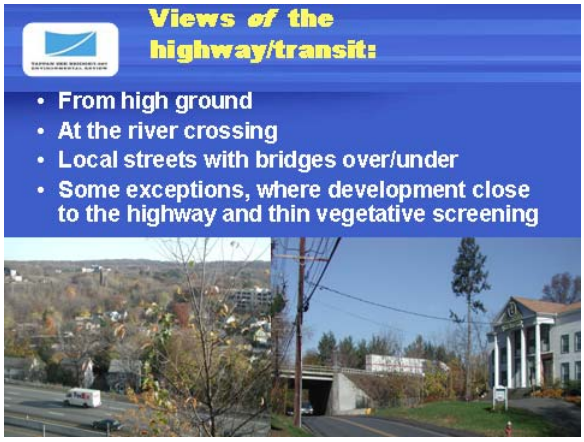



**Slide 23**

The viewshed is the basis of the study area, from which the highway/transit may be seen. Computer models based on topography can be helpful but not very reliable in linear corridors with this amount of mature vegetation and frequency of man-made structures. The insert shows a viewshed model in the Rockland portion of the corridor. In reality, there are far fewer areas with views than the model portrays.

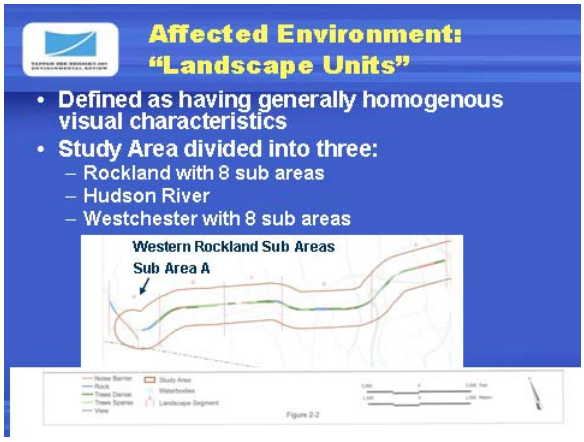

**Slide 24**

Views from the highway tend to be linear of the road ahead, as a result of the channelizing referred to earlier. Consequently, more distant views tend to be limited to where the highway descends, as in the photograph to the left, or where the land rises near the roadway. The photo to the left shows the highway descending from the cut in the Palisades and looks west to the Rockland plateau. The photo to the right shows the highway as it approaches the Ramapo Mountains.




**Slide 25**

Views *of* the highway or transit will be from high ground (note photo on left is from the Harriman State Park overlooking Suffern; note also the degree to which local vegetation obscures much of the village). Also at the river crossing (to be discussed as an example below), and from local streets or bridges in close proximity (photo at right is of Strawtown Road in West Nyack). Exceptions occur where the vegetative buffer is thin, or transit would use local roads or the little used Piermont Rail Line.




**Slide 26**

The 30-mile corridor is divided into landscape units – segments which have similar visual characteristics. We have divided each county into eight landscape units or sub areas and keep the Hudson River Crossing as a separate study area. Tonight we will examine Sub Area A in Rockland, the Hillburn-Suffern area, and the Hudson River Crossing.


**Slide 27**

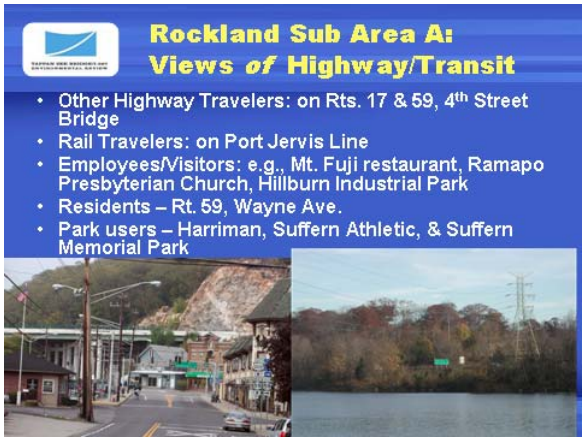
Rockland Sub Area A extends from Interchange 15A to Lake Antrim (~ 2 mi.) and is characterized as "Natural but Altered". It presents a potentially dramatic natural landscape, including a narrow valley and steep wooded mountains, some with some cliffs. It has however, been substantially altered, including two villages, a railway and rail yard, multiple transmission lines across the mountains and down the valley, and I-287 and I-87 and associated interchange ramps, as well as local highway commercial and industrial uses on Routes 59 and 17.


**Slide 28**

The photos show the Mount Fuji restaurant in Hillburn (transported former Japanese temple) that presents a landmark on the hill. The photo to the right shows the rail yard and sidings that occupy much of the Ramapo Valley in Hillburn.

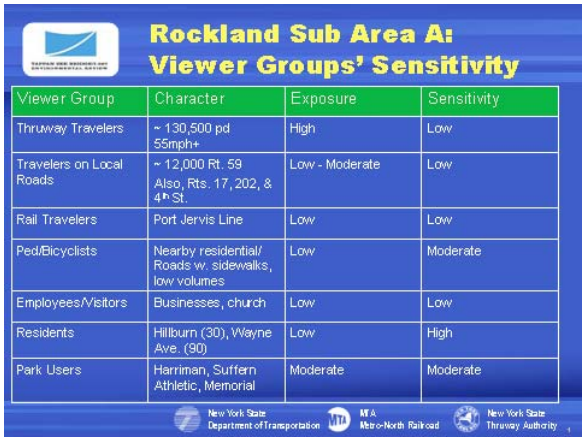

**Slide 29**

Highway viewers see not only the Ramapo Mountains (photo to right) but also the transmission towers, ramps and other highway elements (e.g., signage), and the railyards.




**Slide 30**

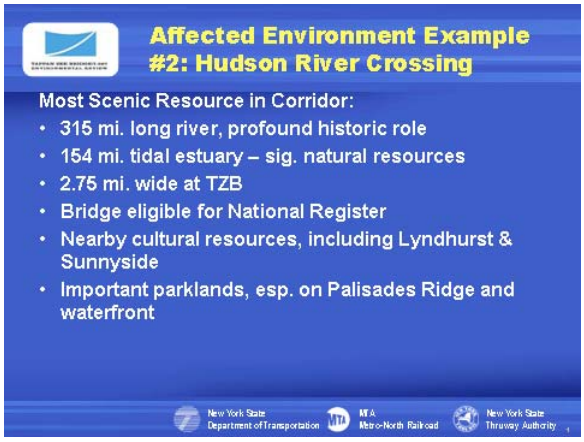
The photo to the left shows downtown Suffern with the Interstate highway on structure above a series of massive columns, and with the side of the mountain cut to accommodate the highway. Photo to the right is from the north side of Lake Antrim in Suffern; the Thruway is barely visible through the vegetation and the transmission line crosses over the lake.




| Viewer Group | Character | Exposure | Sensitivity |
|---|---|---|---|
| Thruway Travelers | ~ 130,500 pd 55mph+ | High | Low |
| Travelers on Local Roads | ~ 12,000 Rt. 59 Also, Rts. 17, 202, & 4th St. | Low - Moderate | Low |
| Rail Travelers | Port Jervis Line | Low | Low |
| Ped/Bicyclists | Nearby residential/ Roads w. sidewalks, low volumes | Low | Moderate |
| Employees/Visitors | Businesses, church | Low | Low |
| Residents | Hillburn (30), Wayne Ave. (90) | Low | High |
| Park Users | Harriman, Suffern Athletic, Memorial | Moderate | Moderate |

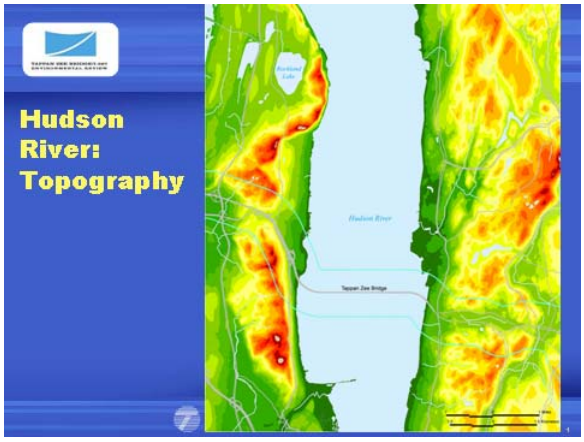
**Slide 31**

In addition to characterizing the landscape elements of each sub area, they are characterized by the exposure and sensitivity of each viewer group. The Table shows that residents are likely to have high sensitivity but that there are relatively few that would be exposed to major visual changes in this sub area.



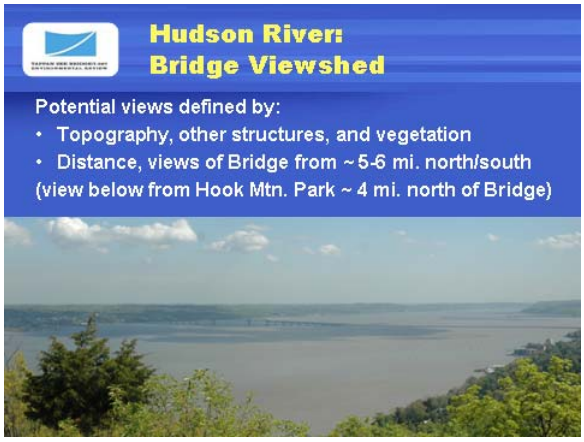

**Slide 32**

Our second example this evening is the Hudson River Crossing, which is considered the premiere scenic resource of the corridor. The river is significant for historic, cultural and economic reasons, and the Tappan Zee Bridge is itself considered eligible for the National Register. Other important cultural and visual resources include Sunnyside and Lyndhurst, as well as the several waterfront parks and those on the Palisades Ridge.




**Slide 33**

This slide shows the topography of the land area near the bridge. Note the Palisades Ridge in Rockland and the more dissected ridge in Westchester. These ridges define the potential viewshed. Other features, such as peninsulars extending into the river, further limit the viewshed.




**Slide 34**

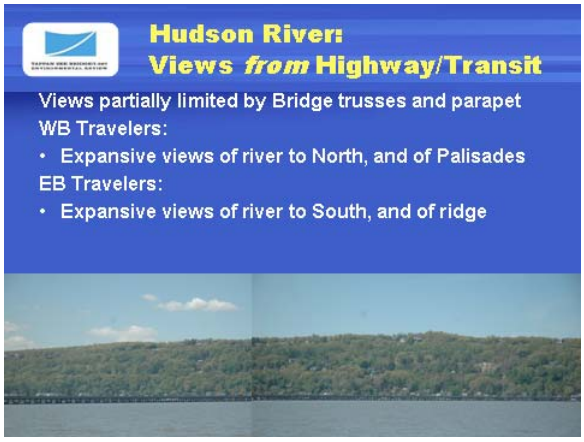
Where there are unobstructed views, the visibility of the bridge depends on weather, distance and elevation. The bridge becomes a minor feature on the horizon within 5-6 miles of it. Depending on the viewers' elevation, the bridge may merge with the backdrop of the land form ridges.


**Slide 35**

On the Rockland side, the Palisades are a dominant landform (photo to right), with homes seeking vantage points other than in the parklands that exist at the crest of the ridge to the south of the bridge. Views of the bridge tend to be limited to the waterfront parks (photo to left from Memorial Park in Nyack) and homes, a few taller buildings, and the homes on the ridge.

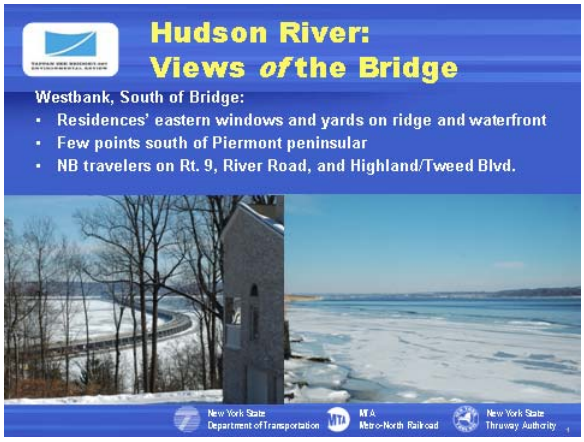

**Slide 36**

The Westchester viewshed of the bridge is limited to the slopes of the ridge, taller buildings and the waterfront. Relatively few streets and views align to view the bridge. Photo to left is of the landmark Tarrytown Lighthouse. Photo to right shows the ridge at Tarrytown, with the gold dome of Marymount College visible on its crest.



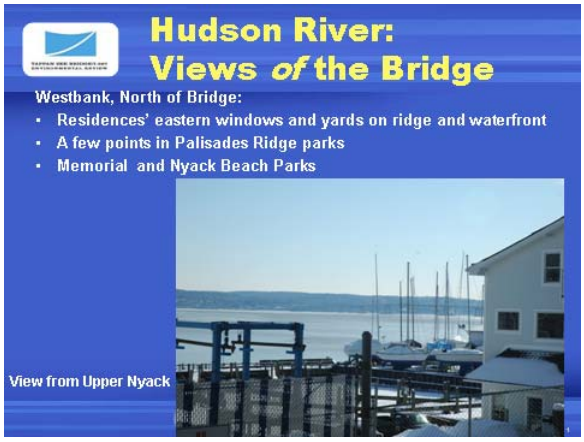

**Slide 37**

Travelers on the bridge view a dramatic waterbody to north and south, and depending on the direction of travel, either the Palisades or the Westchester ridge. The photo shows the bridge's western causeway and the Palisades ridge south of the bridge in Rockland, with multiple homes inserted into the wooded landscape.



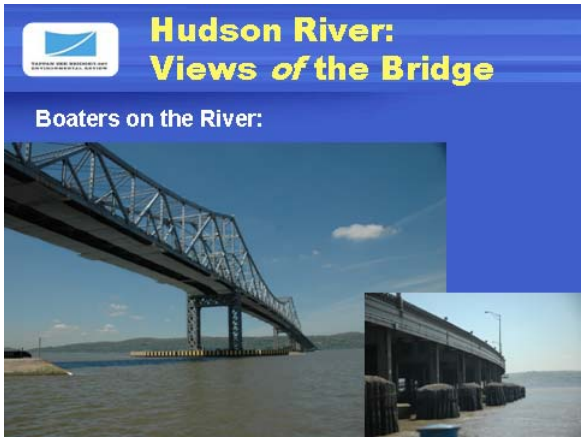

**Slide 38**

View from Route 9W to left showing the bridge's causeway, and from the waterfront at Sneden Landing about 4 mi. south of Tappan Zee Bridge – the bridge superstructure is only slightly visible.



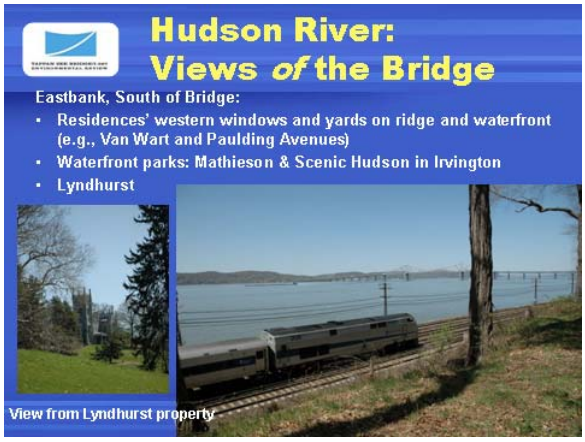

**Slide 39**

View from Upper Nyack at Van Houten's Boatyard, about 2.5 mi. north of the bridge. Note how the bridge can "merge" into the backdrop of the ridge.




**Slide 40**

Boaters view a massive structure rising to clear the navigation channel (photo on left) about 180 ft. above the river. The superstructure rises to 193 ft. The much longer causeway (1.8 mi.) has the roadway only about 20 ft. above the river, with frequent columns and ice fenders presenting a barrier to much boating.

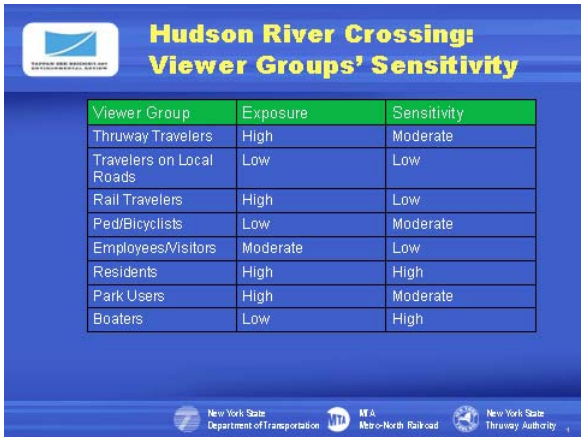



**Slide 41**

Views of the bridge are attained from many of the residences on the Westchester ridge, as well as from homes close to the riverfront, and the several parks along the river, south of the bridge these are notably Mathieson and Scenic Hudson Parks in Irvington. The landmark Lyndhurst property (photo to left) also has a vista of the river (seen in photo on right from the Lyndhurst property adjacent to the MetroNorth's Hudson Line). Travelers on the railway also have dramatic views of the bridge.


**Slide 42**

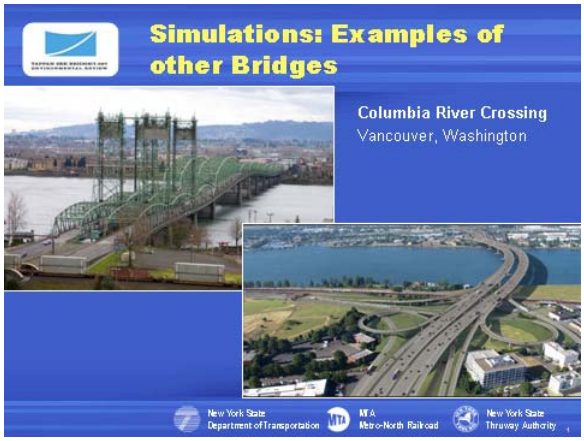
Similarly, north of the bridge, views of the bridge are attained from many of the residences on the ridge, as well as from homes close to the riverfront, and taller buildings in Nyack and Sleepy Hollow. Several parks along the river include: Losee and Pierson in Tarrytown, Horan's Landing Park in Sleepy Hollow, and Rockwood Hall State Park in Briarcliff Manor. Photo left: from Rockefeller State Park Preserve approx. 3 mi. north of TZB. Photo right: from Ichabod's Landing, a new riverfront community, approx 0.6 mi. north of TZB.




| Viewer Group | Exposure | Sensitivity |
|---|---|---|
| Thruway Travelers | High | Moderate |
| Travelers on Local Roads | Low | Low |
| Rail Travelers | High | Low |
| Ped/Bicyclists | Low | Moderate |
| Employees/Visitors | Moderate | Low |
| Residents | High | High |
| Park Users | High | Moderate |
| Boaters | Low | High |

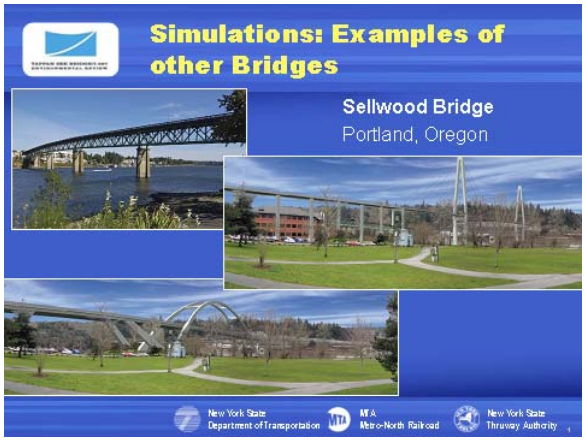
**Slide 43**

Given that the overall Hudson River crossing area is considered one of visual excellence, this summary table assesses viewer groups' sensitivity to visual changes associated with the bridge. Thruway travelers, while traveling relatively fast, are very numerous and are exposed to the panorama of the river and its dramatic shorelines for several minutes. Consequently, their exposure is rated High and their sensitivity as Moderate. Residents are also very numerous, approx. 50,000, live within the potential viewshed, although only a small fraction achieve views of the bridge because of various obstructions. Nonetheless, residents are considered as highly sensitive to changes that may change their views of the bridge and the river. Boaters are another group considered to have High sensitivity, although their numbers and exposure are considered Low.




**Slide 44**

The project is not yet at the point where impacts can be considered because final design is still far from complete for the replacement bridge. When the design alternatives have been defined, we will be able to prepare computer and photographically assisted renderings or simulations of the new bridge from a variety of sensitive perspectives. The photos show the Columbia River Crossing in Washington, with the existing bridge and a simulation of the new bridge.




**Slide 45**

Similarly, these photos show the existing Sellwood Bridge in Oregon, and two simulations of alternative replacement bridges.


**Slide 46**

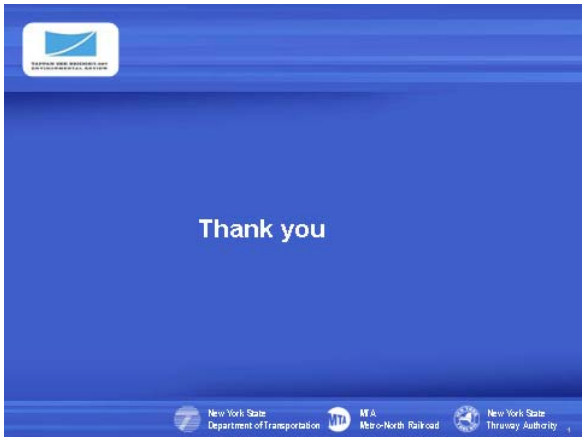
Photo simulation tools can be used in a variety of ways; these photos show a replacement pedestrian bridge in Lower Manhattan, simulated against existing photographs of its context.


**Slide 47**

Multiple bridges along I-287 will need to be lengthened or widened. Again, photo simulations can readily be developed to visualize how new abutments and retaining walls may affect the local context.


**Slide 48**

Finally, this recent simulation of a pedestrian/bikeway path in NYC presents a strong image of how an area can be altered and visually enhanced.




**Slide 49**