



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

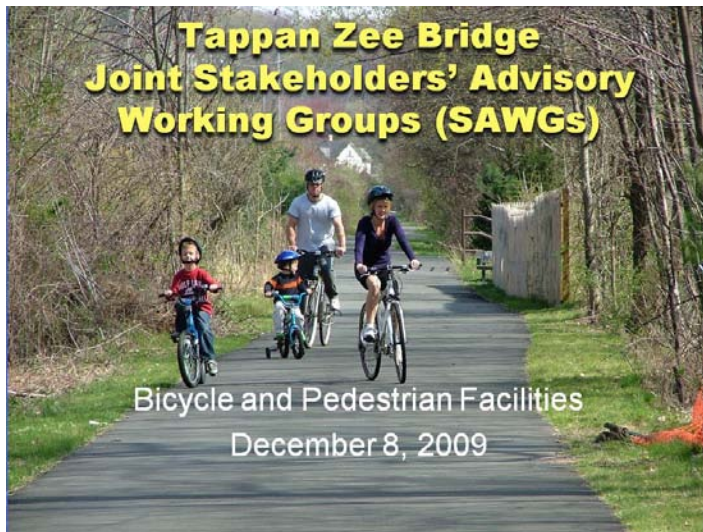
Presentation

***Stakeholders' Advisory Working Groups (SAWGs)
Bridge and Bike / Pedestrian SAWG (#15)***

Tappan Zee Bridge/I-287 Corridor Project



December 8, 2009



Slide 1. This is the title slide for the Tappan Zee Bridge Joint Stakeholders' Advisory Working Groups (SAWGs) for Bicycle and Pedestrian Facilities on December 8, 2009.



Slide 2. Tonight's meeting is to provide an overview of the project, where we are in the process, where we've been, and how bike/ped accommodations fit into the process. We will also look at how other bridges domestically and internationally accommodate bike/ped facilities. Finally, we will be forming a bike/ped advisory panel, which will meet a few times in early 2010 to provide advice and feedback to the project team.



Slide 3. One of the outcomes of scoping was to provide non-motorized transportation across the Hudson River. At this stage, we are still in the process of defining the best way for that to occur.

Achieving Project Purpose and Need

Single Level Option



Dual Level Option



Slide 4. The project is proposing a replacement Tappan Zee Bridge with either a dual level or single level configuration. Bike/ped facilities are assumed on all configurations. We have yet to determine whether a path will be provided on one side or both sides of the proposed bridge.



Slide 5. The Brooklyn Bridge's bike/ped facility connects to major trip generation areas.

Bike/Ped Advisory Panel

- **Similar to 9A project approach**
- **Small, hands-on working group focused on detailed issues:**
 - How many paths on bridge
 - Width of paths
 - Logical termini
- **Membership - 1 rep each from:**
 - Adjacent municipalities
 - Bike and pedestrian groups
 - County planning departments
- **2-3 meetings planned in January/February**

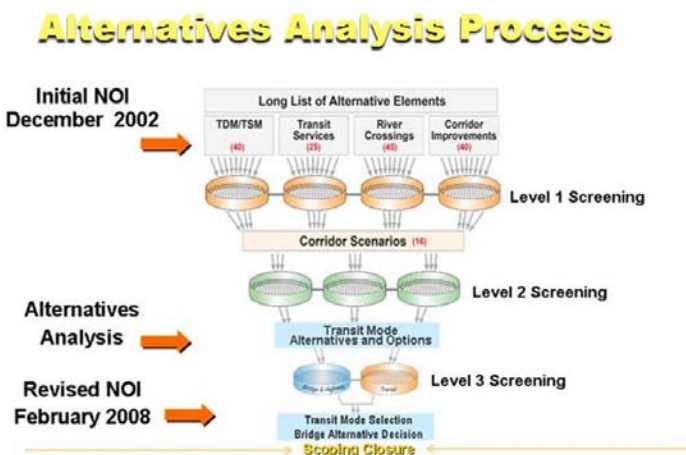
Slide 6. The bike/ped advisory panel will consist of stakeholders such as representatives from municipalities adjacent to the river, bike and ped groups, and county planning departments. There will be two to three meetings in early 2010 and we want those meetings to be small, focused, and productive. During these meetings we'll focus on the number of paths on the bridge (one or two), widths of paths, and logical termini of the paths.



Slide 7. The Bay Bridge in San Francisco is being reconstructed with a new bike/ped on the south side. This is a rendering of the future path.




Slide 8. The 9A Hudson River Greenway is one of the pre-eminent bike paths in the state. It is heavily used, as many of you know, for both recreational and commuting purposes.



Slide 9. Alternative Analysis Process.
A quick overview of our scoping process. Over the past 6 years we have evaluated various elements or solutions to the needs of the corridor and river crossing, resulting in the Bridge and Transit mode recommendations presented in the fall of 2008

Scoping Process - 4 Reports


- Scoping Summary Report
- Scoping Comments Report
- Transit Mode Selection Report
- Alternatives Analysis for Bridge Rehabilitation and Replacement Report



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Slide 10. Scoping Process for reports includes the Scoping Summary Report, Scoping Comments Report, Transmit Mode Selection Report, and Alternatives Analysis for Bridge Rehabilitation and Replacement Report.

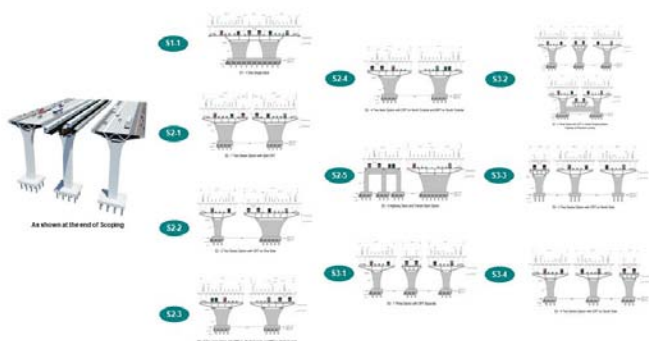
Transit Alternatives



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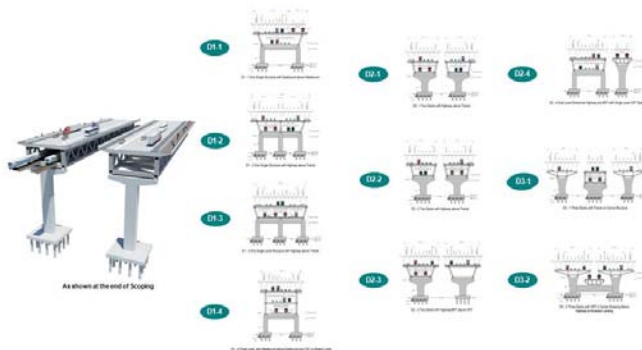
Slide 11. Transit Alternatives.

Possible Bridge Configurations Single Level Option



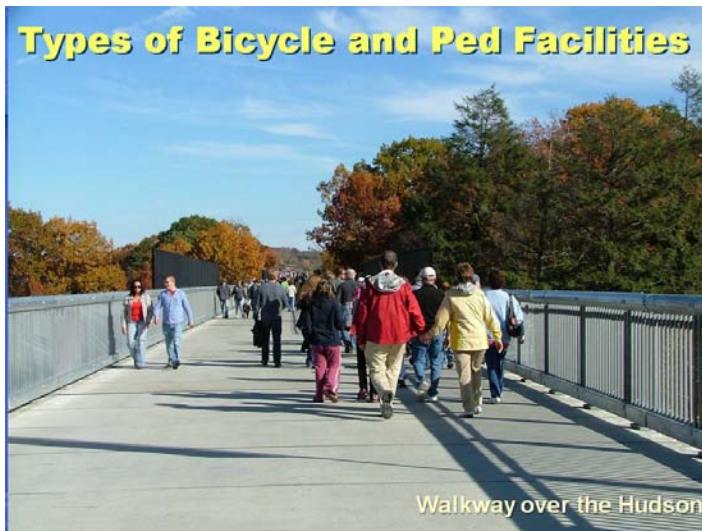
Slide 12. Possible Bridge Configurations and Single Level Options.

Possible Bridge Configurations Dual Level Option



Slide 13. Possible Bridge Configurations and Dual Level Options.

Types of Bicycle and Ped Facilities



Slide 14. This slide is the Walkway over the Hudson, a shared use path and a New State Park. On its opening day, 40,000 people crossed it.

Shared Use Path



Slide 15. NYSDOT has built hundreds of miles of paved shared use paths and trailways throughout the Hudson Valley. This slide shows the South County Trailway in Elmsford in Westchester County.

Bike Lanes



9th Avenue, NYC	
Type	Bike Lane with Buffer
Materials	Paved
Users	~150 (peak hour)
Width	10-ft lanes
Owner	NYC DOT

A portion of the roadway which has been designated for the preferential or exclusive use by bicyclists

AASHTO Standards: 5-ft (4-ft if no curb and gutter)

Slide 16. Outside major cities there are a few bike lanes in the Hudson Valley.

Signed Shared Roadway



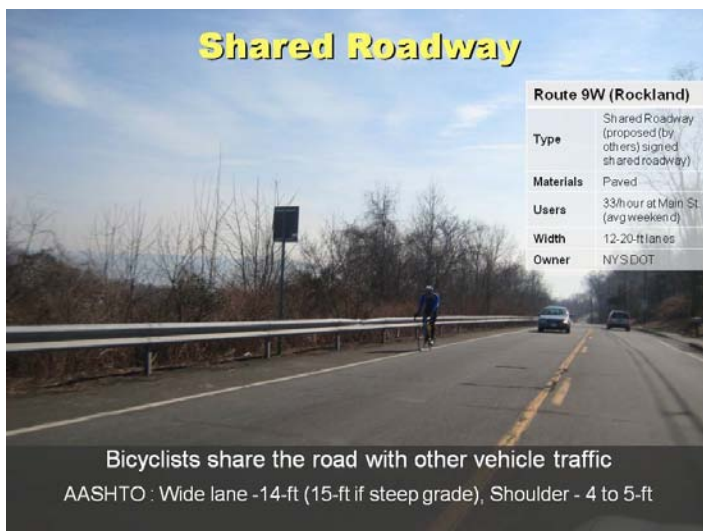
River Rd/Piermont Ave	
Type	Signed Shared Roadway
Materials	Paved
Users	200/hour at Station Ln (avg weekend)
Width	10-15-ft lanes
Owner	Rockland County

Shared roadways (bicyclists share the road with other vehicles) that have been identified by signing as preferred bike routes

AASHTO : Wide lane -14-ft (15-ft if steep grade), Shoulder- 4 to 5-ft

Slide 17. NYSDOT has signed many bicycle routes in NYS. This is River Road in the Nyack area, signed as a NYS Bicycle Route 9; sections of it are also Hudson Valley Greenway Trail. NYS Bicycle Route 9 is signed from NYC to Montreal.

Shared Roadway

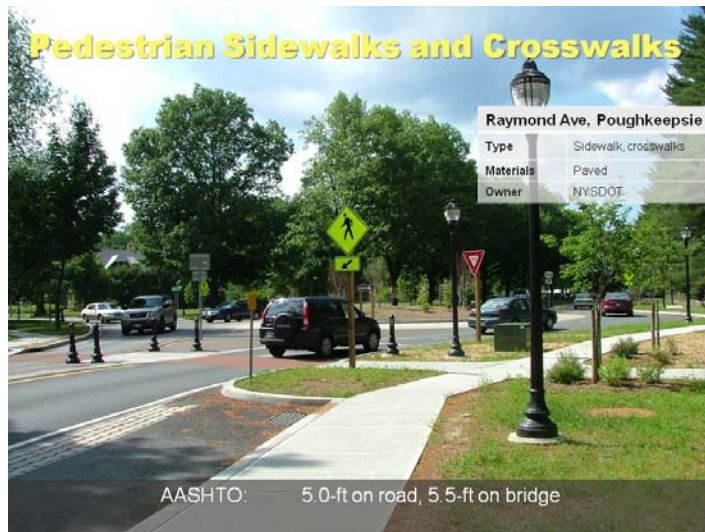


Route 9W (Rockland)	
Type	Shared Roadway (proposed by others) signed shared roadway)
Materials	Paved
Users	33/hour at Main St (avg weekend)
Width	12-20-ft lanes
Owner	NYSDOT

Bicyclists share the road with other vehicle traffic

AASHTO : Wide lane -14-ft (15-ft if steep grade), Shoulder - 4 to 5-ft

Slide 18. By NYS Law, bicyclists and pedestrians have the right to share the road (at Raymond Avenue, Poughkeepsie).



Slide 19. There are many pedestrian facilities, and sidewalks are important possible connectors for the bridge. This project is a NYSDOT project - Raymond Avenue in Poughkeepsie. This project is a good example of high-level pedestrian design. It includes traffic calming, colored crosswalks, protected median areas, decorative lighting and high visibility signage.



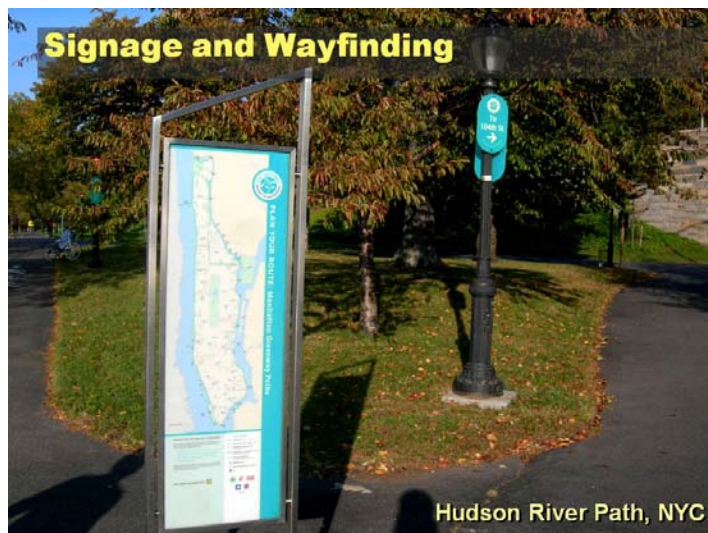
Slide 20. There are a number of possible pedestrian connections in Nyack and Tarrytown, including the Long Path, Riverwalk and many sidewalks including Route 9 and Route 119 in Tarrytown and River Road, Broadway, and Franklin Street in Nyack.



Slide 21. Bicycle and pedestrian trips can be extended on buses and the new Bus Rapid Transit vehicles will have bicycle racks.



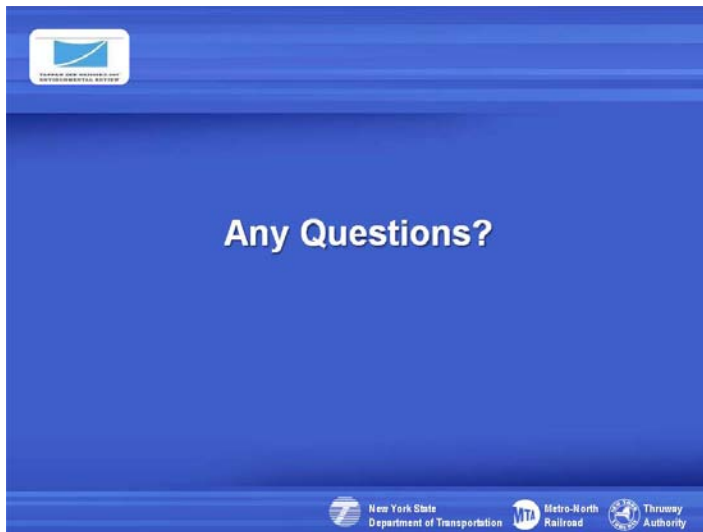
Slide 22. Bicycle and pedestrian trips can also be extended on commuter rail in Tarrytown using Metro-North.



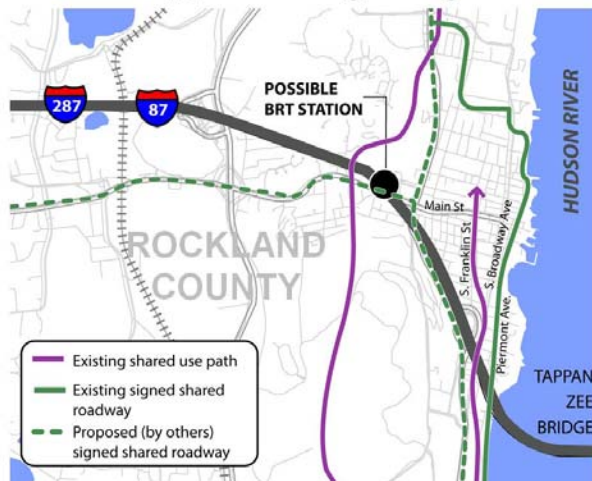
Slide 23. Example of Signage and Wayfinding.



Slide 24. Bicycle parking at Transit Stations.



Facilities Approaching Bridge Landing

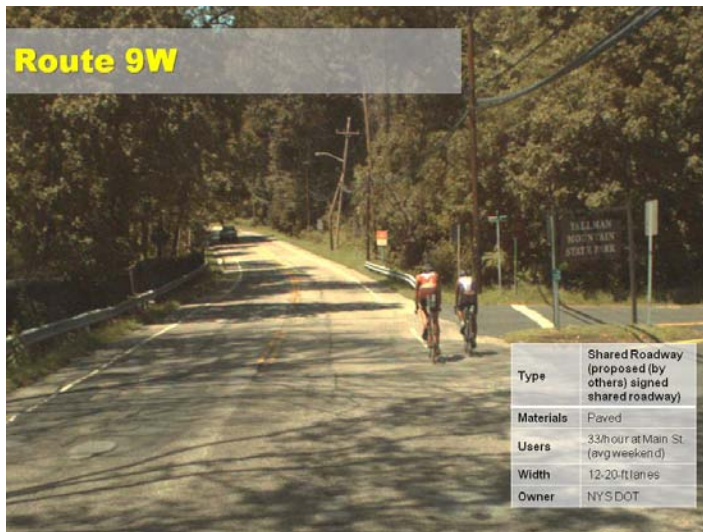


Slide 26. There are several types of non-motorized facilities near the bridge in Rockland, NY. Route 59 is proposed as part of other projects to become a signed shared roadway. Route 9W is a shared roadway already used by experienced cyclists that is proposed by other projects to become a signed shared roadway. The Long Trail is primarily used by hikers, but is used on some portions by mountain bikers. River Road and Piermont Avenue form NYSDOT's signed shared NY State Bike Route 9 and some segments in Piermont and South Nyack are signed as the Hudson River Greenway. The Esposito Trail is a shared use path. South Broadway is a local street connecting Interchange 10 to Main Street in Nyack with continuous sidewalks on both sides.

Rockland County Facilities At Bridge Landing



Slide 27. Route 9W is a state highway with narrow shoulders that has over 30 average hourly users on weekends near Main Street in Nyack despite there being no signed bike route on Route 9W in this area. The Esposito Trail is a shared use path that connects farther south to the Old Erie Path and Hader Park Trail. The Esposito Trail uses an old railroad right-of-way and an abandoned railway bridge over the Thruway next to the Route 9W bridge. River Road is signed as NY Bike Route 9, and is heavily used by long-distance cyclists. Just north of the Tappan Zee Bridge, River Road becomes Piermont Avenue and is signed as the Hudson River Greenway Trail at the South Nyack border. NY Bike Route 9 continues north into downtown Nyack and joins US Route 9W farther north.



Slide 28. Route 9W: type: shared roadway (proposed by others) signed shared roadway; materials: paved; users: 33 per hour at Main Street on an average weekend; width: 12 to 20 foot lanes; owner: NYSDOT.



Slide 29. Esposito Trail: type: shared use path; materials: gravel and paved; users: 31 per hour on an average weekend; width: 12 feet; owner: Village of South Nyack.



Slide 30. River Road: type: signed shared roadway; materials: paved; users: 208 an hour at Station Lane on an average weekend; width: 10 to 15 foot lanes; owner: Rockland County.

Facilities Approaching Bridge Landing



Slide 31. US Route 9 is a shared roadway that is proposed as part of other projects to become a signed shared roadway. NY Route 119 is proposed by other projects to connect to White Plains using a signed shared roadway. The Old Croton Aqueduct is a shared use trail. The River Walk has been completed in some places, and is proposed as part of the other projects to connect Tarrytown to Irvington underneath the Tappan Zee Bridge. Routes 9 and 119 have continuous sidewalks in this area that are used by local residents and workers for walking.



Slide 32. River Walk is a shared use path proposed as part of other projects to connect Yonkers to Peekskill along the Hudson River. Several sections are complete, including parts in Yonkers, Irvington, Tarrytown, and Croton-on-Hudson. A portion has recently been completed that allows access from Van Wart Avenue just south of the bridge in Tarrytown. The Old Croton Aqueduct runs from the New York City border to the New Croton Dam. It is primarily used by local residents for recreation. Route 9 is already used by experienced long-distance cyclists, and is proposed as part of other projects to become a signed shared roadway.



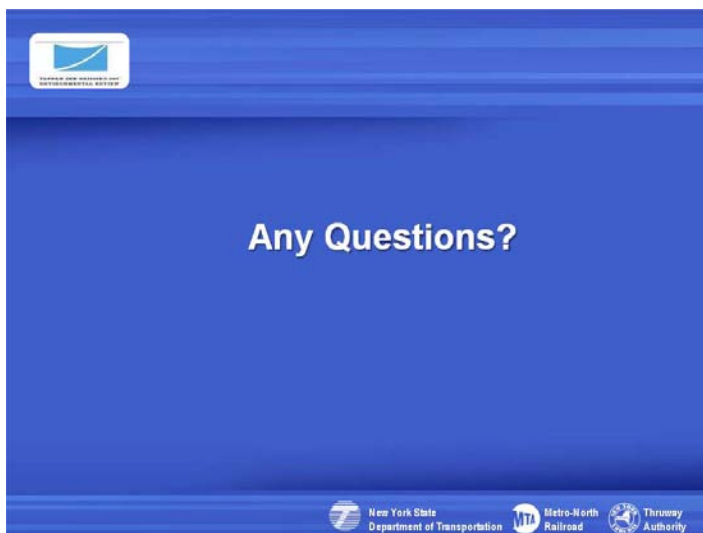
Slide 33. River Walk: type: shared use path; materials: paved; users: not available; width: 8 feet; owner: Westchester County.



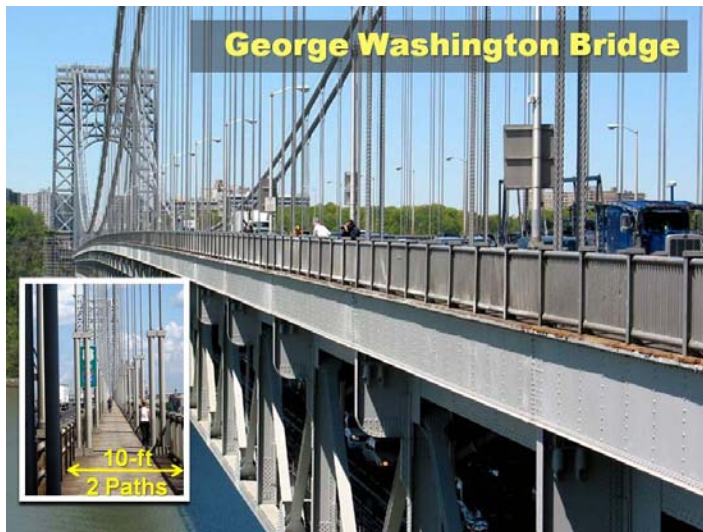
Slide 34. Route 9 (Broadway): type: shared roadway (proposed by others) signed shared roadway; materials: paved; users: 52 at Route 119 as an average volume per hour; width: 11 to 12 foot lanes; owner: NYSDOT.



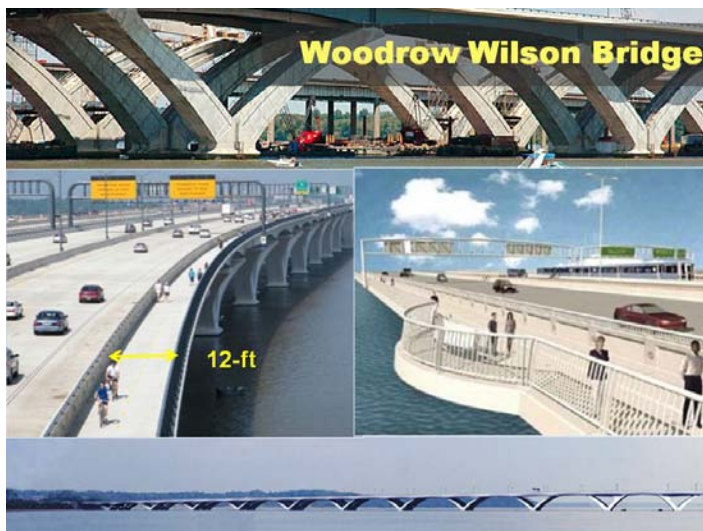
Slide 35. Route 119: type: shared roadway (proposed by others) signed shared roadway; materials: paved; users: 52 at Route 9 as average volume per hour; owner: NYSDOT.



Slide 36. Questions (see minutes).



Slide 37. We will be covering what has been done (or is being done) for bikes/peds on other bridges in the world. We'll then talk about what is happening locally on the 287 Corridor that could impact future bike/ped decisions. The major questions we need to answer are: number of paths (0 for no build, 1 side, 2 sides); width of the path (1 bike = 5 feet, bi-directional bikes = 10 feet, pedestrians = 5 feet); logical termini: where should we connect at ends of the bridge? This slide shows the George Washington Bridge. The shared use path is 10 feet wide and it exists on both sides of the bridge. However, note that the poles are within the 10 foot space, thereby really only providing six to seven feet of space for bikes/peds (called a shyway). This is an example of something we would not do for the TZB.



Slide 38. The Woodrow Wilson Bridge crosses the Potomac and connects Maryland with Virginia on I-95. It was rebuilt and opened in 2005. It provides a shared use path on one side of the bridge, which is 12 feet wide. Note the belvederes (walk-outs). The shared use path is slightly lower than the travel lanes, which may impact the safety and security of bike/ped users.



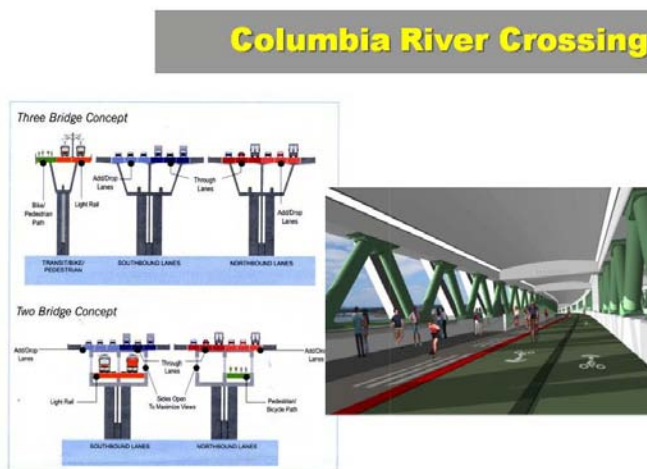
Slide 39. The eastern span of the Oakland Bay Bridge is under construction. The shared use path is proposed to be 15.5 feet wide, with belvederes for look outs. As this bridge is expected to be used by commuters, the bike lane is called out via a solid line. This begs the question for the TZB: who are the expected users? What uses and who do we need to design for? Do we need space set aside for fast and slow bikers? Do we need to differentiate space for commuters versus recreational users?



Slide 40. The Brooklyn Bridge is a heavily used commuter connection because it connects two dense areas. It is also a major tourist draw. The width of the shared use path varies between 10 and 16 feet and it is painted to show where the different users should be. As anyone who uses this path would indicate, it is too narrow for the demand by bikers and pedestrians alike. Would bike/peds on the TZB be commuters? The bridge is 3.1 miles long and the areas on either side are not employment generators.



Slide 41. Cooper River Bridge in Charleston, South Carolina went with a single shared use path that is 12 feet wide.



Slide 42. The proposed Columbia River Crossing in Oregon is an interesting case study. As shown on the left, a variety of single level and dual level option are under consideration. The photo on the right shows the ped/bike/roller blade path on the bottom level. But this presents safety concerns: can I be seen at night if I am using this facility?



Slide 43. Erasmus Bridge in Rotterdam, the Netherlands, shows attributes for the disabled: colors are easy to see for the visually impaired and they are texturally different.

Summary of Bridge Facilities

Shared Pedestrian and Bicycle Paths				
Tacoma Narrows Bridge Tacoma, WA 10' shared-use path (1) Total 10'	Golden Gate Bridge San Francisco, CA 10' shared-use path (1 full-time) 10' (5' clear bike path (weekend)) 1' raised above roadway Total 10' (15' weekend)	Carmichael Bridge Vallejo, CA 12' shared-use path (1) Total 12'	New Bay Bridge SF/Oakland, CA 15.5' shared-use path (1) 7.5' bike lanes (2) Total 15.5'	Cooper River Bridge Charleston, SC 12' shared-use path (1) Total 12'
Separated Pedestrian and Bicycle Paths				
Pflug Bridge Austin, TX 10' bi-directional bike path (1) 5' sidewalk (2) 15' observation deck Total 30'	Willemsbrug Rotterdam, Netherlands 6' sidewalk (2) 6' bike lanes (2) Total 24'	Erasmusbrug Rotterdam, Netherlands 6' sidewalk (2) 6' bike lanes (2) Total 24'	Stone Arch Bridge Minneapolis, MN 8' bi-directional bike path (1) Sidewalk (2) Total 24'	I-80 Ped/Bike Bridge Berkeley, CA 8' bi-directional bike path (1) 5' sidewalk (1) Total 13'

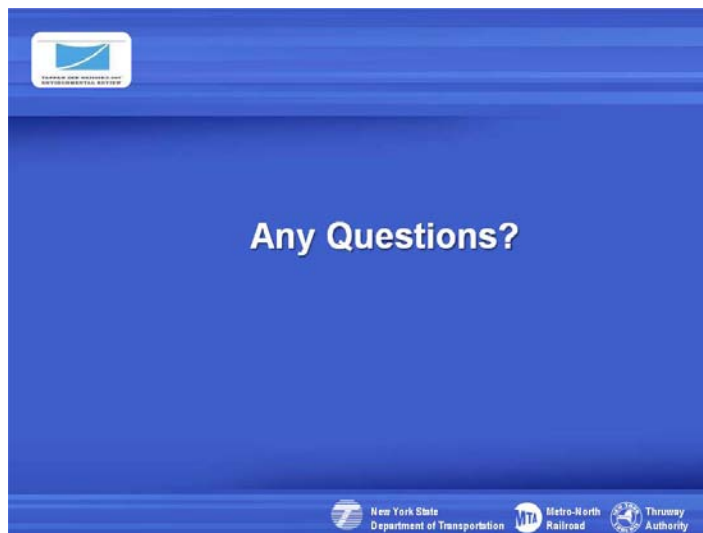
Slide 44. Shows a wide range of different types of ped/bike facilities.



Slide 45. There are two existing facilities and one proposed on the Rockland Landing that bring us to the Broadway Bridge. At this time, we envision the Broadway Bridge being the logical termini on the Rockland side. But should we connect to all three facilities? One?



Slide 46. There are two existing facilities and two proposed on the Westchester Landing that bring us to the South Broadway Bridge. At this time, we envision the South Broadway bridge being the logical termini on the Westchester side. But should we connect to all facilities? One? Two?



Slide 47. Questions (see minutes).



Slide 48. This will be discussed more in the advisory panel meetings, but it is important to show that bike/ped facilities on the bridge are not being built in a vacuum. There are implications for the decisions regarding the bike/ped path as the ROW at the landing is very tight, with residential properties quite close to the existing ROW. Constraints on the Rockland side include: NYSTA Maintenance Facility, Limited ROW, South Broadway Clearance, Interchange 10 Modifications, Grade issues, CRT Portal.



Slide 49. The slide shows some of the constraints.




Slide 50. The same issues pertain to the Westchester Landing. Topography is also an issue as the bridge lands 120 feet above the Metro-North Hudson Line tracks. Constraints on the Westchester side include: proposed Broadway Station, proposed Tarrytown Connector, toll plaza, limited ROW on north, construction staging, NYSTA maintenance facilities, Troop T Headquarters.



Slide 51. The slide shows some of the constraints.



Design Considerations

-  **Bike/Ped Facilities Both Sides or One Side**
 - Both Sides
 - North Side or South Side
-  **Connections Logical Termini**
 - Nyack Landing Connections
 - Tarrytown Landing Connections
-  **Users and Destinations**
 - Bicyclists
 - Pedestrians

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Slide 52. Ultimately to decide on the ped/bike path, we will be utilizing the following design considerations.



Design Considerations

-  **Property**
 - Property displacement
 - Land use / zoning / access easements
-  **Safety**
 - Personal Safety
 - Emergency Access
-  **Maintenance**
 - Ownership and maintenance strategy

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Slide 53. Ultimately to decide on the ped/bike path, we will be utilizing the following design considerations.



Design Considerations

-  **Cost**
 - Construction
 - Maintenance
-  **Views**
 - From and to facilities
 - On bridge

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Slide 54. Ultimately to decide on the ped/bike path, we will be utilizing the following design considerations.

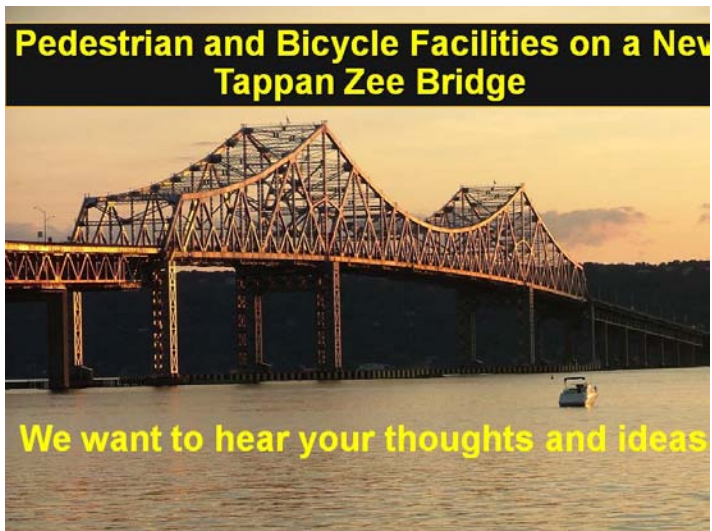
A blue slide with a white logo in the top left corner. The title "Next Steps" is in yellow. Below it, a bulleted list in white text lists two items: "Development of Bike/Ped Advisory Panel" and "Next Meeting January". At the bottom, there are three logos: New York State Department of Transportation, Metro-North Railroad, and Thruway Authority.

Next Steps

- Development of Bike/Ped Advisory Panel
- Next Meeting January

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Slide 55. We want your help to deliberate on the important questions surrounding bike/ped facilities on (and accessing) the bridge. We will then be taking your comments/recommendations into account during the design stages of the project.

A slide with a black header and a photograph of the Tappan Zee Bridge. The header text is in yellow. The photograph shows the bridge's steel truss structure over water. Below the photo, yellow text reads "We want to hear your thoughts and ideas".

Pedestrian and Bicycle Facilities on a New Tappan Zee Bridge

We want to hear your thoughts and ideas

Slide 56. We look forward to working with you on this and would like to open the floor to questions for the project team.