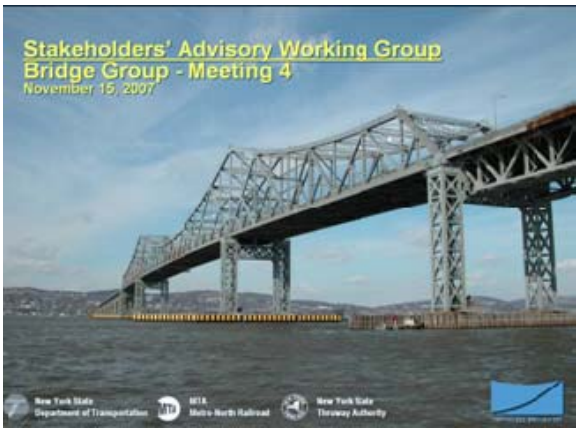
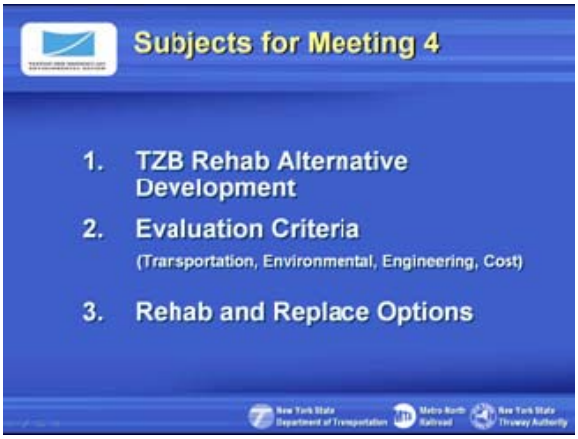


Slide 1

The objective of the meeting was to receive feedback on the analysis process and criteria for evaluation of the rehabilitation and replacement options for the TZB.

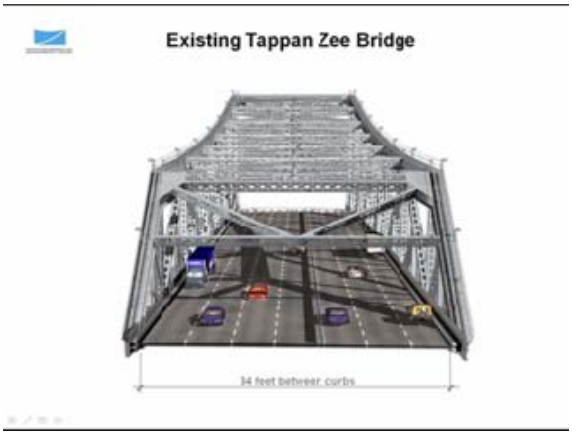


Slide 2

The meeting was arranged in three parts beginning with some history outlining how TZB rehabilitation has been included in the study to date, followed by detail of the evaluation criteria and analysis options to be considered.

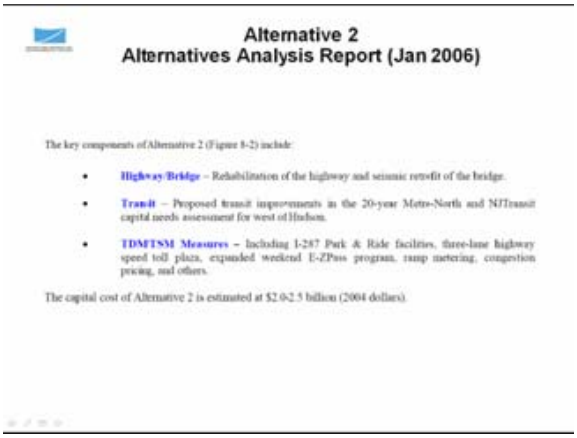
Slide 3

Introductory slide to Part 1 of the presentation – Development of the TZB rehabilitation alternative.



Slide 4

- Image shows the existing Tappan Zee Bridge at main span.
- There are seven lanes and a moveable barrier but no shoulders.
- The moveable barrier accommodates four lanes in the direction of peak traffic flow with three lanes in the opposite direction.
- Typically the bridge is arranged with four lanes in the eastbound direction for the morning rush hours and four in the westbound direction for the evening rush hours.
- While the TZB has only seven lanes, it effectively operates as an eight-lane bridge.



Slide 5

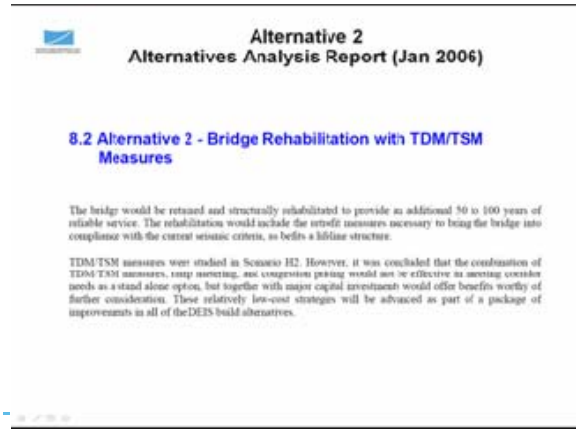
Jan 2006

- This slide and the next two slides were an extract from the Alternatives Analysis (AA) Report of January 2006 – which included the first definition of a possible rehabilitation alternative.
- Rehabilitation of the bridge to meet seismic standards was the primary component of the alternative, which did not include provision for any new transit beyond that identified in the agencies' long range 20-year plans.
- New highway measures were limited to TSM/TDM

Slide 6

Jan 2006

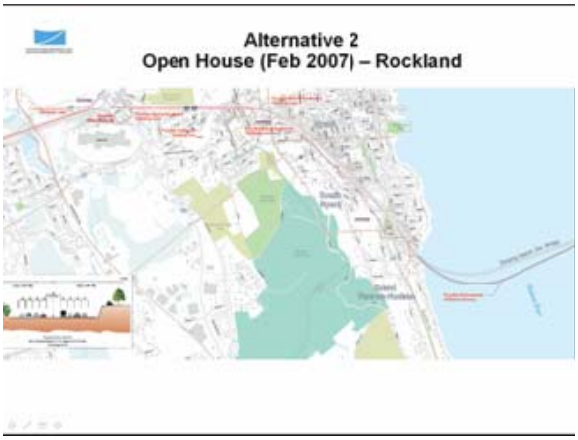
This slide is a graphic representation of the extent of the modifications proposed in the Jan 2006 AA report.



Slide 7

Jan 2006

- As stated in this further extract from the 2006 AA Report, the Rehabilitation Alternative as defined "would not be effective in meeting corridor needs."
- Upon review of the detailed requirements of the proposed alternatives after the Jan 2006 publication of AA report, it was determined that further consideration of the components of this Rehabilitation Alternative was required to determine how the alternative could be effective in meeting corridor needs.



Slide 8

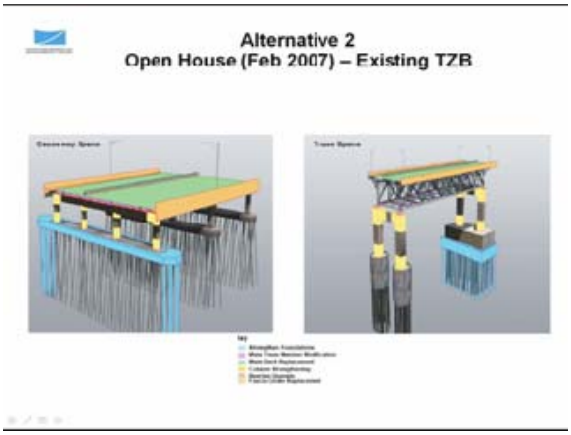
Feb 2007

- At the open house in Feb 2007, at which the large scale drawings were presented, possible new highway components were included for evaluation in the Rehabilitation Alternative.
- As an example of the possible changes presented at the open house, an option for new climbing lanes in Rockland was included.
- These climbing lanes were the same as those included for the other alternatives presented at the open house.
- At the time of the open house, the project team was still in the process of reviewing further possible modifications to the Rehabilitation Alternative to enable it to meet

Slide 9

Feb 2007

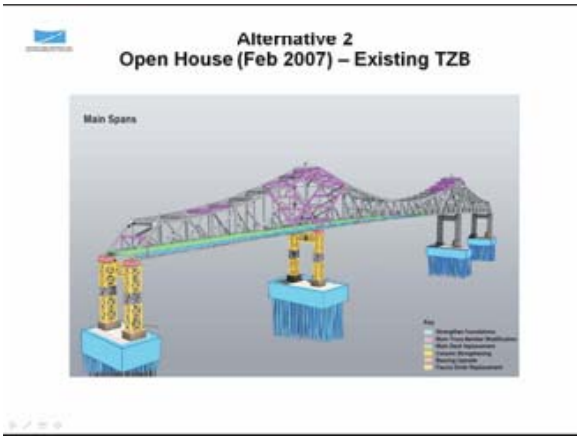
- As presented at the open house, no highway changes were proposed in Westchester County.
- The graphic shows an extract of the Tarrytown area at the end of the rehabilitated TZB.



Slide 10

Feb 2007

- Details of the modifications required for the existing TZB to comply with current seismic standards were also shown.
- This slide shows the elements of the causeway and deck truss spans that would need to be rehabilitated in a seismic upgrade.
- Replacement of the causeway was assumed as part of the Rehabilitation Alternative.



Slide 11

Feb 2007

- This slide shows the elements of the main spans that would need to be rehabilitated in a seismic upgrade.
- The seismic upgrade would require extension or replacement of the existing four 'floating' foundations at all the main span piers with associated impact to the Hudson River.

Slide 12

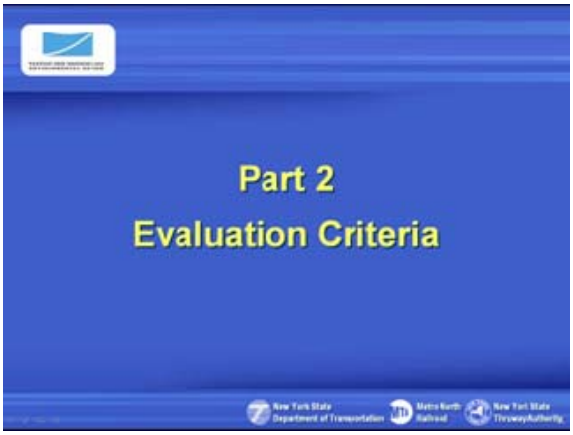
Nov 2007

- This slide was shown to re-familiarize SAWG members with the overall goals of the study and to facilitate discussion of the components that need to be included in the Rehabilitation Alternative to meet the corridor needs.

Slide 13

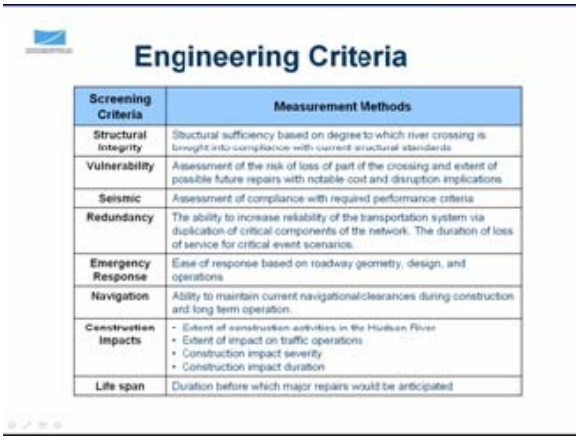
Nov 2007

- Since the Feb 07 open house, further modifications to the Rehabilitation Alternative have been identified to ensure that the corridor needs are met.
- The primary component would be the inclusion of corridor transit – possibly BRT or CRT – to improve mobility and meet travel demand.
- Other components to meet safety and security improvement goals would include the introduction of traffic shoulders as required in current standards and removal of the movable barrier.
- These changes would greatly improve the effectiveness of the Rehabilitation Alternative across the full corridor and place it on par with the effectiveness of the other proposed build alternatives as included in the AA Report of Jan 2006.
- In fact, the components of the rehabilitation and other build alternatives in both Rockland and Westchester would be exactly the same (for similar transit modes).
- The only difference between the rehabilitation and other build alternatives would be the use of a rehabilitated or replacement TZB to cross the Hudson River.



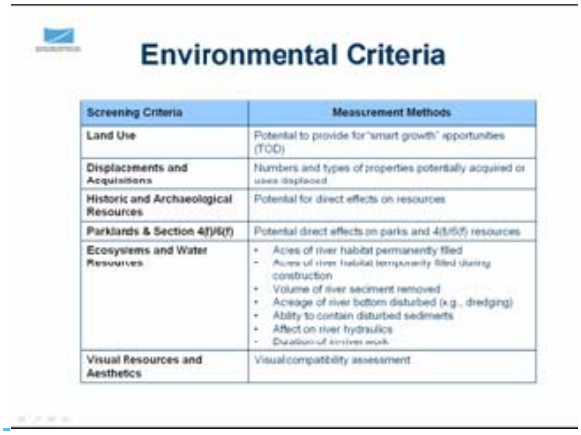
Slide 14

- To determine whether a rehabilitated or replaced TZB is preferred, an assessment of the associated engineering, environmental, transportation and cost impacts is to be conducted.
- Part 2 of the SAWG meeting was a discussion of the evaluation criteria to be used in the comparison of rehabilitation and replacement options for the TZB.



Slide 15

- This table highlights the engineering criteria to be used for comparison of the rehabilitation and replacement options for the TZB.
- Discussion within the SAWG group focused on the vulnerabilities associated with the existing bridge and the extent of the physical modifications required.

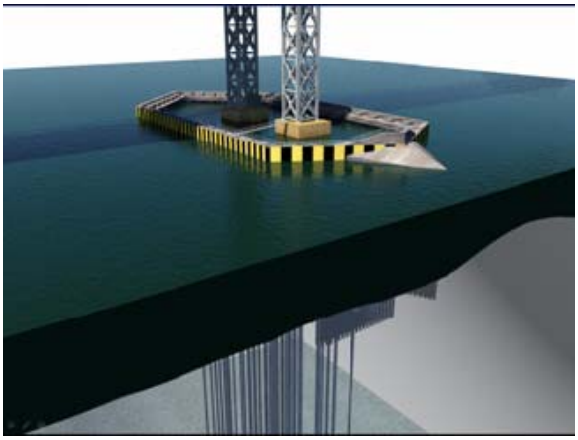


Slide 16

- This table shows the environmental criteria to be used for comparison of the rehabilitation and replacement options for the TZB.
- Discussion focused on the extent of assessment to be conducted to establish the impacts to the Hudson River.

Slide 17

- Because of the sensitivity of the Hudson River, all construction activities have the potential for undesirable environmental impact.
- To introduce the SAWG members to some of the construction difficulties anticipated, this cartoon graphic of the river at the main spans was discussed.
- This graphic shows a simulation of the main span bridge, piers and foundations.
- The opaque grey at the bottom of the picture is the bedrock. Note that some piles go to bedrock.
- The semi-opaque layer above the bedrock represents the soft ground which is up to 300 feet below the river bed.
- The layer representing water is hardly visible at the top of the soft ground. At a maximum of 40-45 feet deep the river is hardly visible in the graphic.

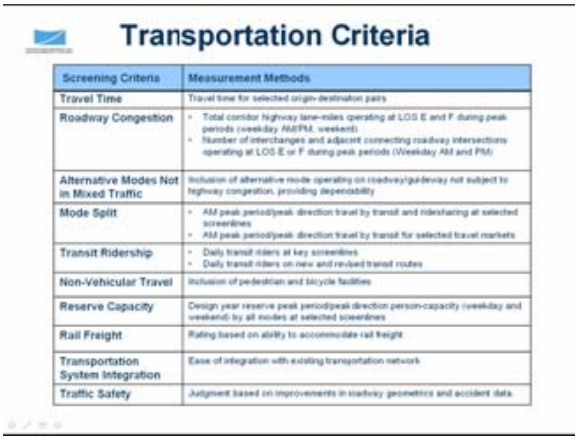


Slide 18

- This graphic is a close up of the previous slide at one of the main piers of the main span.
- SAWG members were familiar with this pier as the group visited this location previously.
- The graphic shows what is visible of the main span foundations above the water line.
- The large yellow and black structure surrounding the foundation is for ship impact protection. It is a prestressed concrete structure, anchored into the ground with large battered piles that are designed to deform in order to absorb the impact of a large ship.
- The triangular shape outside the pier protection is designed to break up ice flows and prevent damage to the main structure.

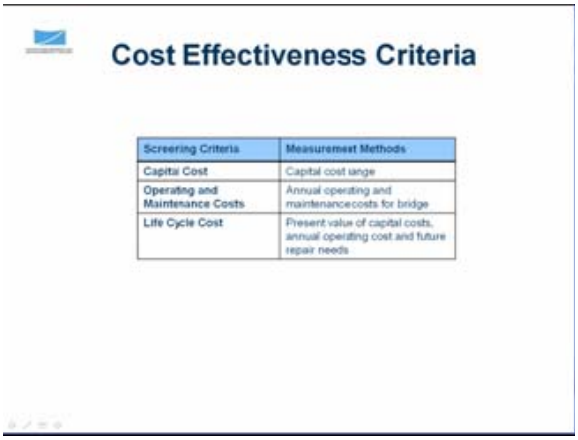
Slide 19

- This graphic is exactly the same as the previous except that the river's water and soils have been removed to reveal the foundations.
- In this slide, the sheet piles under the ice breaker structure are visible as well as the piles supporting the foundation and ship impact protection.
- Old ship impact protection structures are present but not visible in this image.
- Though difficult to see, the 'floating' foundation is shown inside the pier protection piles directly under the steel towers.
- Discussion with SAWG members focused on the implications to the river in the rehabilitation option where enlarging of the foundations is required.



Slide 20

- This graphic shows the transportation criteria to be used for comparison of the rehabilitation and replacement options for the TZB.
- Travel time was the primary criteria discussed.

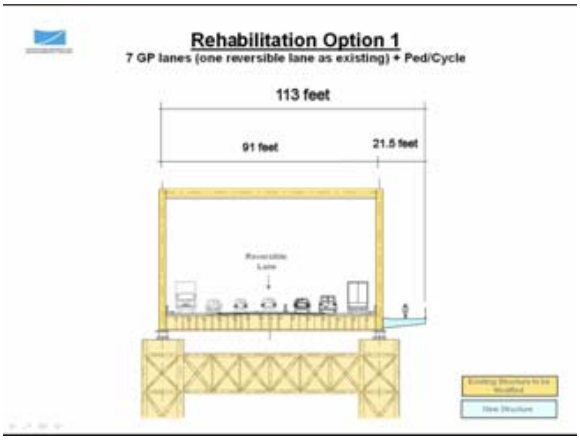


Slide 21

- This graphic shows the cost criteria to be used for comparison of the rehabilitation and replacement options for the TZB.
- Discussion focused on the difference in maintenance and life cycle costs.

Slide 22

- Part 3 of the meeting was focused on the particular rehabilitation and replacement TZB options to be evaluated.
- The following graphics show the four rehabilitation and three replacement TZB options to be evaluated.
- The number of options to be evaluated was larger than anticipated by many SAWG members but reflected the need to consider the full range of transit modes and potential bridge forms.
- The options to be included in the evaluation did not encompass every possible configuration for a rehabilitated or replaced TZB. Rather the options were representative forms included to highlight the full range of potential impacts.
- Once a preference for either rehabilitation or replacement was determined, further bridge options would need to be developed to identify the specific bridge arrangement and associated impacts for inclusion in the DEIS.



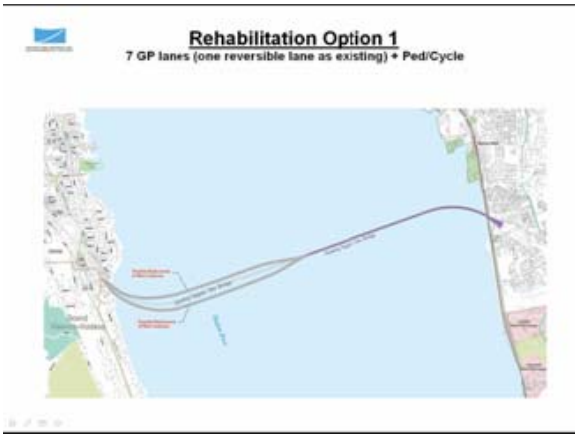
Slide 23

Rehabilitation Option 1

- The first option maintains the existing TZB as defined in the Alternatives Analysis Report of Jan 2006. The arrangement of the TZB is unchanged but a combined pedestrian/cycleway either on one or both sides is added.
- The existing structure is shown in yellow, new structure is shown in blue.
- The option has 7 lanes and would keep the moveable barrier.
- There are no shoulders and the lane width is substandard.
- There is no provision for transit
- This option assumes replacement of the causeway.

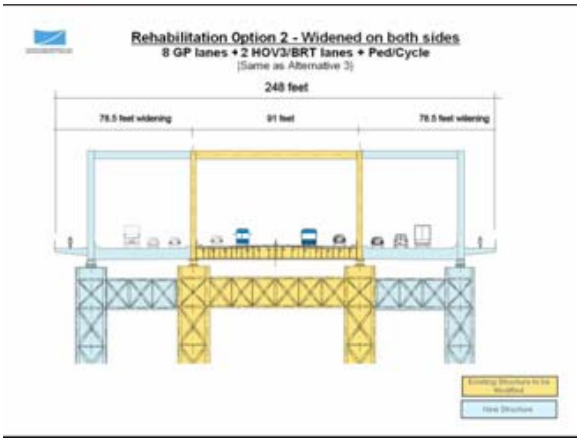
Slide 24

- This graphic is a simulation of Rehabilitation Option 1 at the main spans with a pedestrian/cycleway on one side.



Slide 25

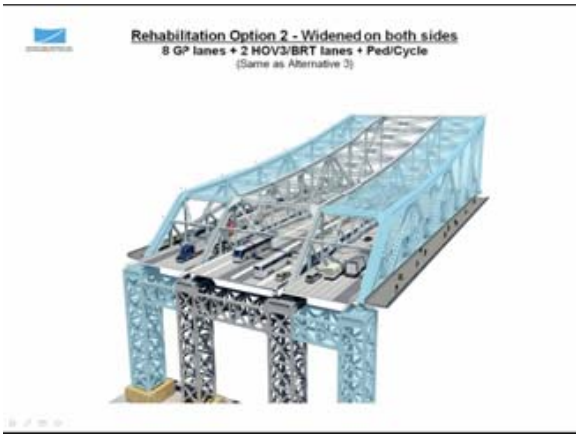
- This graphic shows a plan of the Hudson River with two alignment options for the replaced causeway include in all the rehabilitation options.
- The possible locations for a new causeway are shown in grey to the north or south of the existing causeway. The new causeway represents approximately half the length of the bridge.
- The section of the bridge to be rehabilitated is shown in purple.



Slide 26

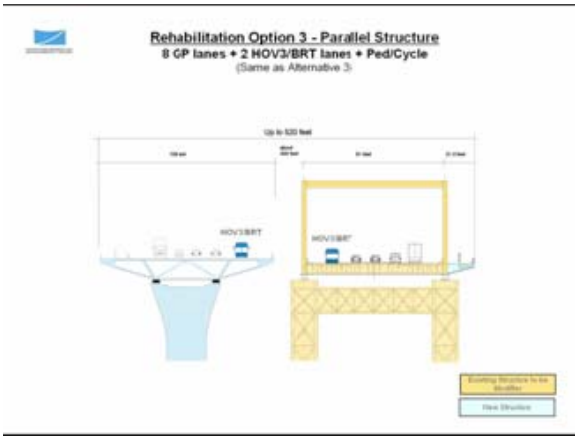
Rehabilitation Option 2

- Option 2 is a widening of the existing TZB on both sides to incorporate HOV/HOT/BRT lanes, shoulders and 4 general purpose lanes in each direction. Pedestrian/cycleways are also included on each side.



Slide 27

- This graphic shows a simulation of Rehabilitation Option 2 at the main spans.



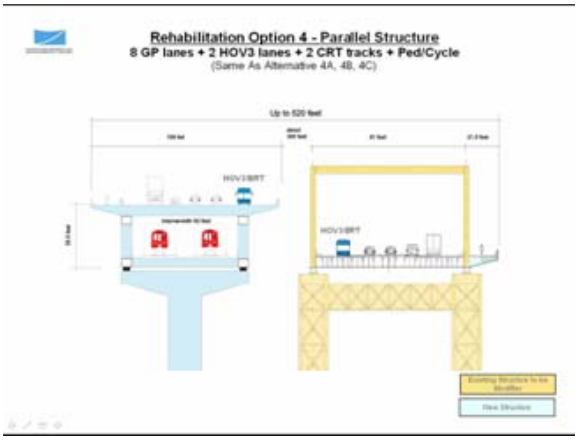
Slide 28

Rehabilitation Option 3

- This option includes the same transit, traffic and pedestrian facilities as Rehabilitation Option 2 but introduces a sister bridge adjacent to the existing TZB to accommodate the increased width required.

Slide 29

- This graphic shows a simulation of Rehabilitation Option 3 at the main spans.



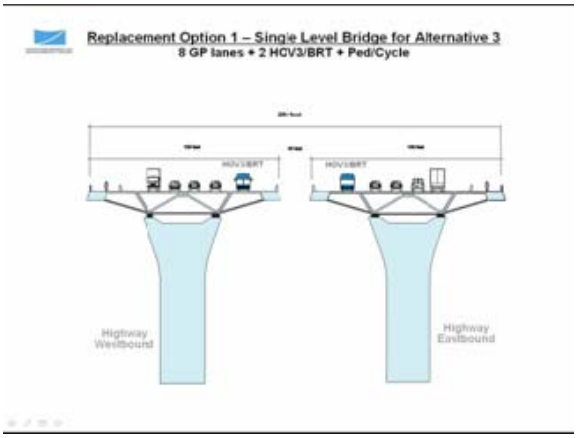
Slide 30

<u>Rehabilitation Option 4</u>

- This option is the same as Rehabilitation Option 3 but with provision of 2 CRT tracks added to the sister bridge.

Slide 31

- This graphic shows a simulation of Rehabilitation Option 4 at the main spans.



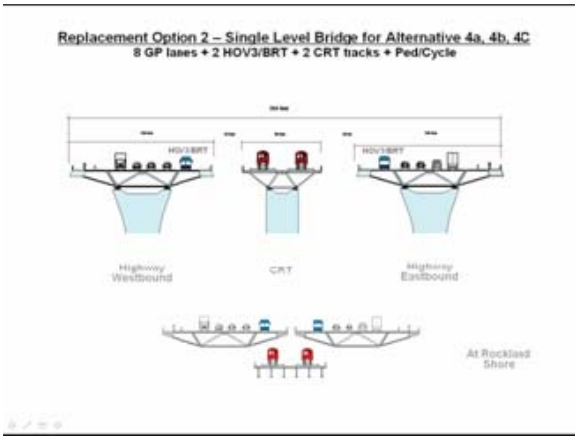
Slide 32

Replacement Option 1

- This option has the same traffic/transit/ped/cycleway components as Rehabilitation Options 2 and 3.
- This option incorporates HOV/HOT/BRT lanes, shoulders and 4 general purpose lanes in each direction. Pedestrian/cycleways are also included on each side.

Slide 33

- This graphic shows a simulation of Replacement Option 1.



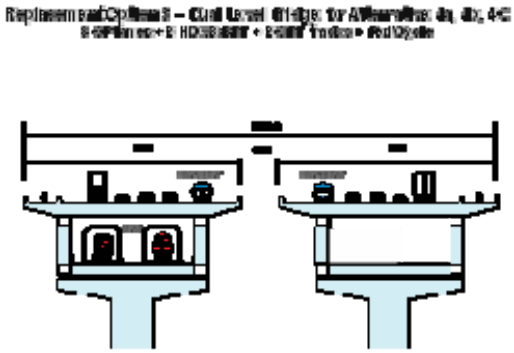
Slide 34

Replacement Option 2

- This option has the same traffic/transit/ped/cycleway components as Rehabilitation Option 4.
- This option incorporates HOV/HOT/BRT lanes, shoulders and 4 general purpose lanes in each direction, plus two CRT tracks.
- Pedestrian/cycleways are also included on each side.
- Highway and transit modes are at the same level at the main spans.

Slide 35

- This graphic shows a simulation of Replacement Option 2.



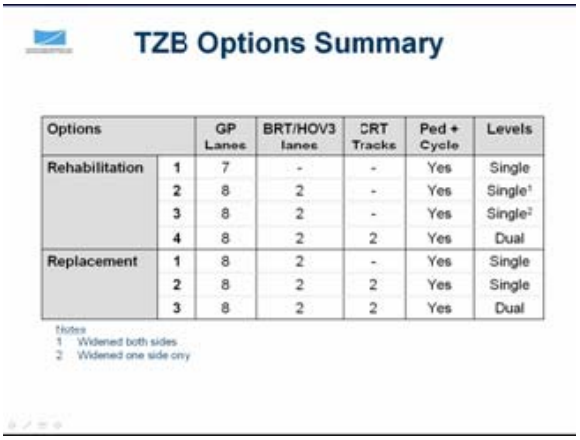
Slide 36

<u>Replacement Option 3</u>

- This option has the same traffic/transit/ped/cycleway components as Rehabilitation Option 4 and Replacement Option 2.
- This option uses a dual level structure compared to the single level structure in Replacement Option 2.

Slide 37

- This graphic shows a simulation of Replacement Option 3.

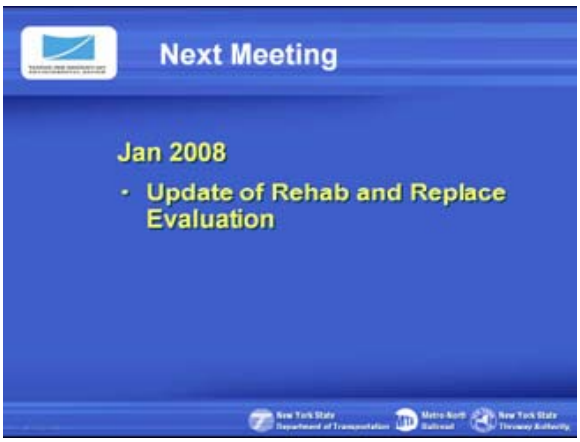


Slide 38

- This graphic summarizes the primary details of the seven options to be evaluated.

Slide 39

This graphic outlines the next steps in the evaluation of the options.



Slide 40

Next bridge SAWG meeting is anticipated in Jan 2008