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Metropolitan Transportation Authority Metro-North Railroad
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Presentation

Stakeholders’ Advisory Working Groups (SAWGs)
Traffic and Transit SAWG Meeting #7

Tappan Zee Bridge/I-287 Corridor
Environmental Review

December 4, 2008
Slide 1
Title Slide

Slide 2
This presentation discusses the contents of the Transit Mode Selection Report.

Slide 3
The report was completed to reduce the number of modes being considered so as to permit focusing on the recommended mode and its options in greater detail, while permitting the bridge reconstruction to proceed more expeditiously.
These are the transit alternatives/options currently under evaluation. Each includes consideration of replacement or rehabilitation of the Tappan Zee Bridge.

The top two are based on Bus Rapid Transit service and each labeled with a 3. The other four alternatives are all labeled with a 4 and all feature commuter rail service:

4A: Full corridor Commuter Rail Transit (or CRT)
4B: CRT in Rockland, LRT in Westchester
4C: CRT in Rockland, BRT in Westchester
4D: CRT in Rockland with full corridor BRT

All of the CRT alternatives/options include a direct connection to the Hudson Line.

Full corridor BRT includes HOT lanes in Rockland County and BRT on exclusive lanes in Westchester County.

Dedicated busway in Westchester County instead of exclusive lanes.
Slide 7

Rail connecting the Port Jervis Line to the Hudson Line to Manhattan and the New Haven Line to Stamford.

Slide 8

Rail connecting the Port Jervis Line to the Hudson Line to Manhattan, and LRT in Westchester County from Tarrytown to Port Chester.

Slide 9

Rail from the Port Jervis Line to the Hudson Line with BRT in exclusive lanes in Westchester County.
Slide 10

BRT crossing the corridor with a full range of service, coupled with CRT connecting the Port Jervis Line to the Hudson Line.

Slide 11

It has to be recognized that there are two distinct markets which utilize the corridor which need to be addressed.
The best transit mode has to address both markets effectively.
This reality is fundamental to understanding and addressing the transit solution.

Slide 12

Three categories of evaluation criteria were used to evaluate the alternatives and options.
Ridership criteria include New Transit Riders (diverted from other modes), Ridership on New Services and improvements to transit for West-of-Hudson travelers crossing the river.

Total transit ridership ranges from 66,000 in the No Build to 83,000 in Option 4D, cross-corridor, and 95,000 in the No Build to 109,000 in Option 4D to and from NYC.
New Transit Trips (diverted from other modes) range from 14,000 in Option 4A-X to 31,000 in Option 4D.

Trips on New Services range from 37,000 in Option 4A-X to 80,000 in Option 4D.
Looking at total daily trips on the new service (shown in black), we note that Option 4D indicates the highest number at almost 79,900.

Option 4C is next at 66,200, followed by 4A at 61,900. The remaining options – 4B and the BRT options, all serve 53,000 to 54,000 new daily trips.

This ridership measure shows total daily transit trips on the regional transit system that would result from implementation of the alternatives/options.

These numbers are total transit trips, not just the trips on the new services. All of the build alternatives provide substantially better transit service than the no-build alternative.

These numbers indicate that BRT alternatives (3A and 3B) or those with full corridor BRT component (Options 4D) attract higher cross-corridor riders than the CRT alternatives would.

However, to/from NYC bound riders are better served by CRT alternatives (4A, 4B and 4C) or Option 4D.

This suggests that the different transit modes have characteristics that better serve the cross corridor or the NYC market.

The rail alternatives have about 25,000 trips to Manhattan, while the bus alternatives have about 30,000 intra-Westchester County trips.
Slide 20

Option 4D combines the best of the alternatives.

Slide 21

One of the questions we have addressed is the effect of the ARC project on the Tappan Zee Bridge project, and vice versa. The overall effect differs by alternative/option, but the CRT alternatives/options 4D would result in up to 30% ARC Port Jervis riders using the TZ alternative.

Slide 22

Travel times are illustrated for selected origin-destination pairs, to calculate savings for those pairs. Aggregate travel time saved is also calculated.
Slide 23

All alternatives improve travel time to White Plains and other Westchester destinations from Rockland County origins. Rail alternatives improve travel time to Manhattan destinations, depending on connectivity to the subway and PATH systems.

Slide 24

Nyack benefits from improvements to both rail and bus accessibility, as Nyack is not now well connected to existing services.

Slide 25

Another measure is the annual travel time benefits, which monetizes the value of travel time saved for riders.

For this measure bigger is better and the best alternative/option is 4D followed by 4A.

The lowest benefit options are the BRT options.
Slide 26

Two measures of roadway congestion are used to evaluate alternatives: autos diverted and aggregate Vehicle Miles Traveled (VMT).

Slide 27

All of the alternatives divert drivers to transit. 4D diverts the most drivers.

Slide 28

- The VMT (vehicle miles traveled) levels shown here are for the peak AM period and cover a five-county area (Rockland, Westchester, Orange, Bergen, and Bronx Counties).
- Across the range of alternatives and options evaluated herein it is expected that a reduction in VMT of about 200,000 will be experienced in the five-county area during the design year (2035).

These VMT reductions were then used as the basis of estimates of air emissions and energy savings.
Given the fact that much of the alignments of the alternatives/options studied significantly overlap, the potential for environmental impacts falls into a narrow range as shown here. For example, wetland impacts range from 8 to 14 acres over a 30-mile corridor. There are also some qualitative considerations here. For example, the quality of impacted wetlands varies for the alternatives and options with CRT impacting higher quality wetlands in Rockland and BRT impacting higher quality wetlands in Westchester.

Further planning and engineering will be conducted to further reduce these impacts.
Based on VMT levels, calculations were made of potential regional emission reductions of motor-vehicle-related pollutants: carbon monoxide, volatile organic compounds, nitrogen oxides, and particulate matter.

These are emission reductions compared to the no build condition, for the 6 to 10 AM peak period, for the 5-county area.

As can be seen, since there were not significant differences in VMT among the alternatives, the emission reductions are comparable among the alternatives/options on a regional basis.

It should be noted that future energy air emissions and energy consumption can be further reduced by utilizing Hybrid BRT vehicles or vehicles with improved technology such as improved hybrid or electric models.

An analysis was also done of the potential for fuel savings based on the VMT calculations.

This is for the AM peak period for the five-county area mentioned earlier.

Again these fuel savings are relative to the no build condition.

Basically, all alternatives/options have the potential for fuel savings, but the differences are not significant on a regional basis.
Here are the updated total costs for the alternatives. These are 2012 dollars and include all components, highway, bridge and transit.

The cost criteria include not only the capital cost of the options, but the annual operating costs, fare revenue, net cost per passenger, net cost per passenger mile and total travel time benefits.

Transit options, unlike highway options, have to consider operating costs and revenues, in addition to capital cost and travel time benefits.

Annualized capital costs for transit range from $600 million for Alternative 3A to $1.6 billion for Alternative 4A.
Annual operating costs range from $75 million for Alternative 3A to $294 for Alternative 4A.

Fare revenues were calculated in 1996 dollars, based on monthly pass costs in 2005, then inflated to 2012 dollars for compatibility.

The net cost per passenger mile considers capital and annual operating costs and then deducts the fare box revenues to arrive at a cost per passenger mile. Lower is better for this measure and the BRT option 3A has the lowest net cost per passenger mile of the options. Alternative 4A would have the highest cost.
Net cost per passenger mile ranges from $0.72 in Alternative 3A to $5.36 in Option 4A-X.

Net cost per passenger ranges from $6 in Alternative 3A to $100 in Option 4A-X.

The finance plan is not presented here, but is available on the web site.
Slide 44

Option 4D was recommended as the best for meeting the combined criteria.

Slide 45

Option 4D can include BRT service at the time of the bridge opening, with improvements phased in over time.
Slide 47

This slide summarizes how Option 4D provides the highest levels of transit service.

Slide 48

Continued.

Slide 49

The Executive Steering Committee’s transit mode recommendation is outlined here along with the decisions to be made in the future.
The transit alternatives to be studied in the DEIS are described here.

BRT experience worldwide has been largely positive.

In Rockland, BRT would operate at express speeds in HOV lanes.
Slide 53

Alternatively, in Rockland, BRT could operate in exclusive guideways.

Slide 54

BRT in most areas operates in exclusive lanes, which is one alternative for BRT in Westchester.

Slide 55

BRT in Westchester could also operate in exclusive guideway.
Slide 56

Commuter rail can operate within freeway medians, which is one option for CRT in the I-287 right-of-way.

Slide 57

Alternatively, CRT could operate on the south side of I-287. There are both advantages and disadvantages to operating along the south side of I-287 in Rockland County.

Slide 58

These are possible discussion topics for the next scheduled SAWG in January.