



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

**Presentation**

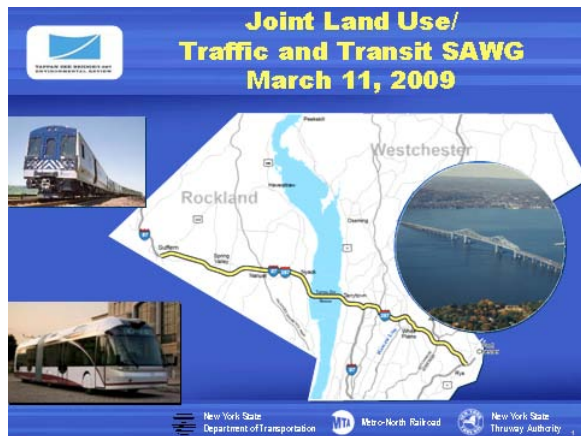
***Stakeholders' Advisory Working Groups (SAWGs)  
Joint Land Use/Traffic & Transit SAWG Meeting***

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

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March 11, 2009



Slide 1




Slide 2

The purpose of tonight's meeting is to recap the transit mode recommendations made in the *Transit Mode Selection Report* and describe how they will be cast into DEIS alternatives. Additionally, we will describe the next step in the process, which is the evaluation of Transit Alignment Options. A work plan has been developed to evaluate BRT and CRT options in Rockland and Westchester Counties.






Slide 3



## DEIS Alternatives

- A: No Build
- B: Full-Corridor Busway and Rockland CRT
- C: Busway/Bus Lanes and Rockland CRT
- D: HOV/Busway and Rockland CRT
- E: HOV/Bus Lanes and Rockland CRT


### Slide 4

The evaluation of modal alternatives/options in the *Transit Mode Selection Report* led to the recommendation that cross-corridor BRT and cross-Rockland CRT with a connection to the Hudson Line for service to Grand Central Terminal be advanced into the DEIS. The DEIS will evaluate four build alternatives relative to this recommendation.



## A

## No Build







### Slide 5

The No Build Alternative is required under the National Environmental Policy Act and is the basis for comparison of impacts with the build alternatives.



## BRT Travel Ways

- Busway**
  - Dedicated barrier-separated lanes
  - No mixed traffic
- BRT/HOV Lanes**
  - BRT lanes shared with HOV vehicles
- Bus Lanes**
  - Dedicated in-street lanes
  - No mixed traffic
  - Signal prioritization





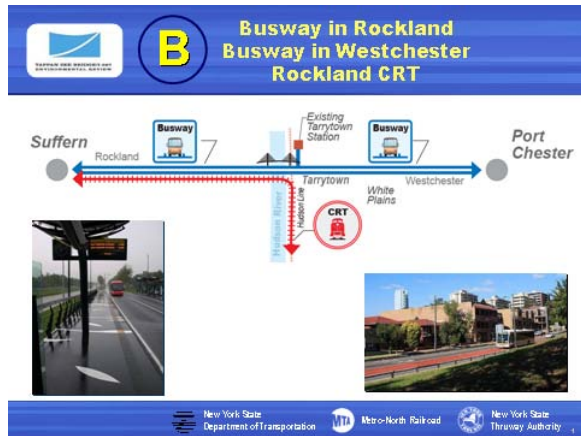




### Slide 6

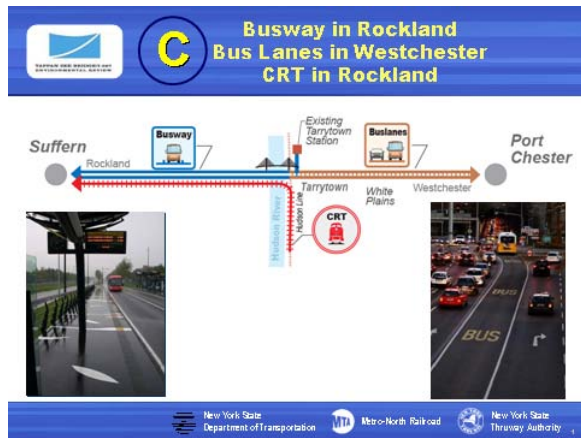
The build alternatives (B, C, D and E) differ from each other in the type of travel way that the BRT buses would use.

BRT includes a variety of physical facilities—from dedicated lanes to dedicated structures. The major principle is to provide uncongested operation for the buses, so that their speeds are dependable and greater than highway speeds.



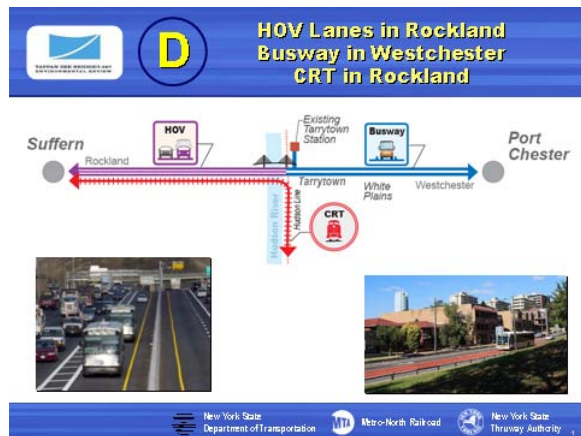
## Slide 7

Alternative B includes a busway in Rockland and in Westchester County. As with all build alternatives there would be CRT from Suffern to a direct connection with the Hudson Line for service to Grand Central Terminal and a replacement bridge.



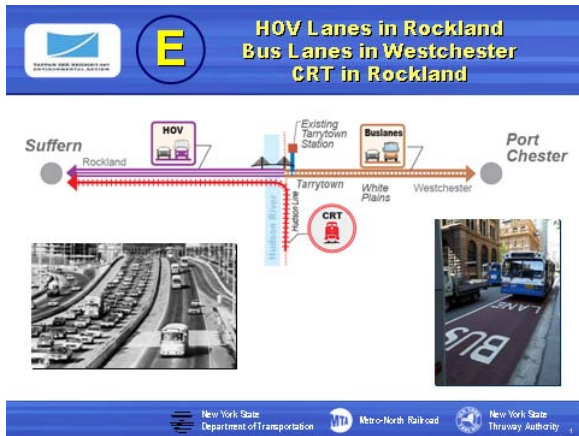
## Slide 8

Alternative C includes a busway in Rockland County, bus lanes in Westchester County, CRT from Suffern to the Hudson Line for service to Grand Central Terminal, and a replacement bridge.



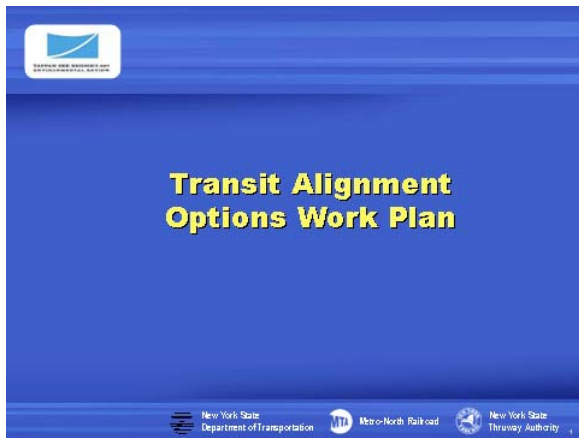
## Slide 9

Alternative D includes BRT in HOV lanes in Rockland County, a busway in Westchester County, CRT from Suffern to the Hudson Line for service to Grand Central Terminal.

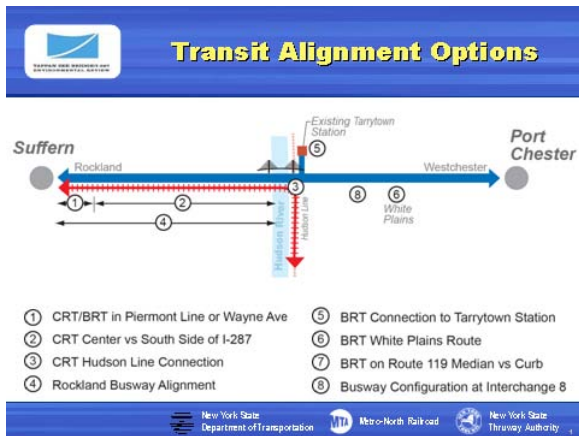


## Slide 10

Alternative E includes BRT in HOV lanes in Rockland County, bus lanes in Westchester County, CRT from Suffern to the Hudson Line for service to Grand Central Terminal, and a replacement bridge.



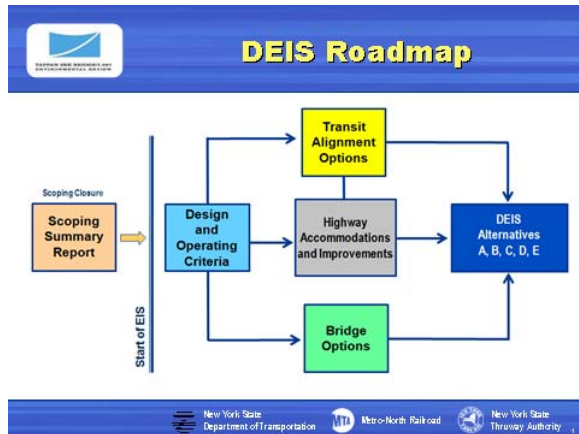
## Slide 11



## Slide 12

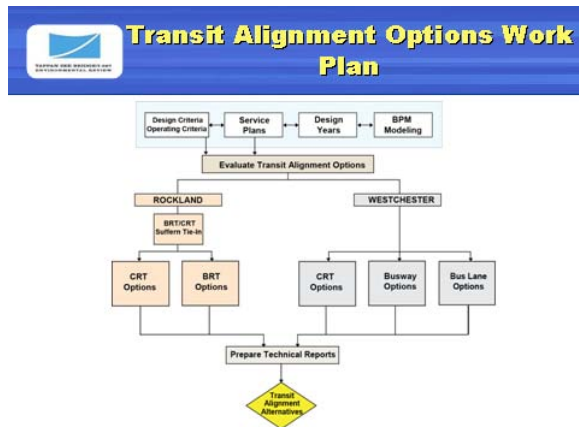
While DEIS alternatives have been identified, there are still many alignment options within those alternatives. The eight major ones are shown here.





### Slide 13

The evaluation of transit options is but one step in the ultimate definition of DEIS alternatives. A similar process will be used to narrow down highway and bridge options as well as shown in the overall DEIS Roadmap, shown here. This process will offer many opportunities for public involvement as part of the Project Sponsors' robust community involvement program.



### Slide 14

Transit Alignment Options – There are currently eight major CRT/BRT alignment options identified in the corridor that support the transit mode recommendation moving forward. These options will be evaluated soon after scoping closure to establish the full corridor alignments for each alternative. The full corridor alignments will be the basis for the Tier 1 Transit Impact Evaluations and an integral part of the Tier 2 Bridge/Highway Impact Evaluations.



### Slide 15

To set the framework for the evaluation of transit alignment options, a number of basic criteria need to be developed or refined. The design criteria shown here are part of that process.



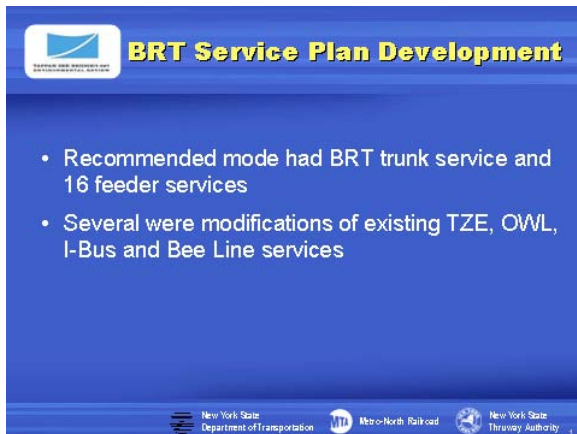
**Operating Criteria**

- Identify jurisdictional agency policies pertaining to service operations, maintenance and security and incorporate into the DEIS alternatives
- Coordinate with Jurisdictional Agencies:
  - NYSDOT; NYSTA; Metro-North; Rockland County DOT; Westchester County DOT; Palisades Interstate Parkway Commission
  - NJ Transit , CSX and Norfolk Southern

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## Slide 16

Similarly, operating criteria need to be refined. The Project Sponsors have worked with a variety of other agencies in this effort.



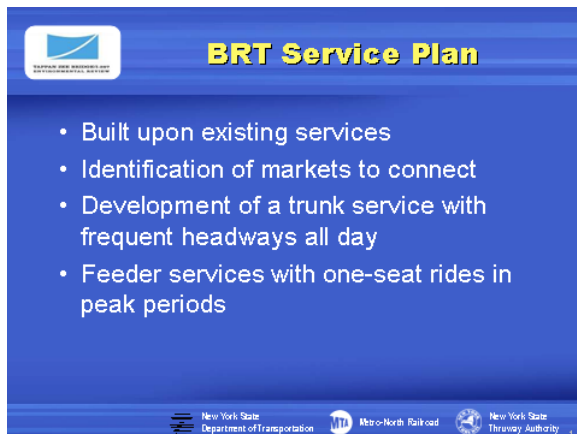
**BRT Service Plan Development**

- Recommended mode had BRT trunk service and 16 feeder services
- Several were modifications of existing TZE, OWL, I-Bus and Bee Line services

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## Slide 17

Service plans are key elements in the evaluation of transit alignment options as they establish routes and station locations. A BRT workshop was held by the agencies in the Fall of 2007 where BRT experts from across the country got together and reviewed the work of the Project Sponsors. BRT service plans were then modified in several ways as shown here.



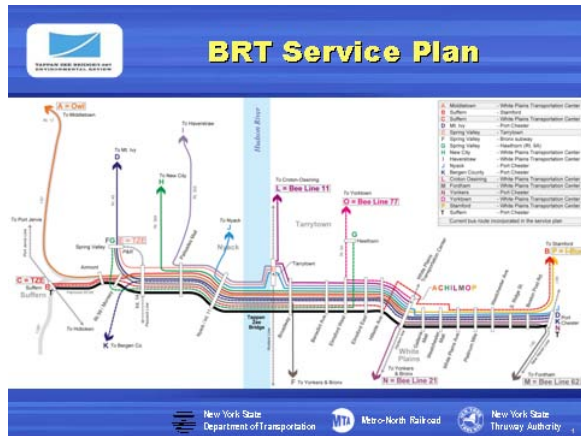
**BRT Service Plan**

- Built upon existing services
- Identification of markets to connect
- Development of a trunk service with frequent headways all day
- Feeder services with one-seat rides in peak periods

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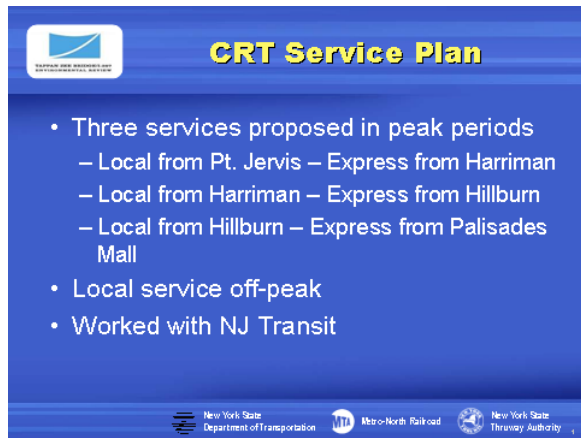
## Slide 18

The BRT service plans were built upon service plans of existing bus companies in the corridor. A trunk route service was then included with feeder services in peak periods. One of the goals was to provide as many one-seat rides as possible.



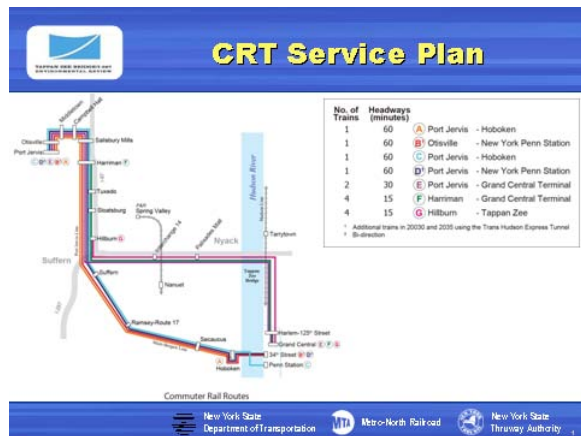
## Slide 19

Trunk service is all day at frequent intervals. All other routes can be feeders to the trunk off-peak, but provide one seat rides during peak periods. Some lines proposed are modifications to existing routes, Bee Line, Tappan Zee Express and OWL.



## Slide 20

A service plan for commuter rail was also developed. Metro-North worked extensively with NJTransit to coordinate service plans for both the Access to the Region's Core (ARC) and Tappan Zee Bridge/I-287 Corridor Projects.



## Slide 21

Multi-modal stations at Hillburn, Interchange 14 and Palisades Mall Feeder services serve both the BRT Trunk Route T and the CRT. BRT allows a one-seat ride to many destinations.





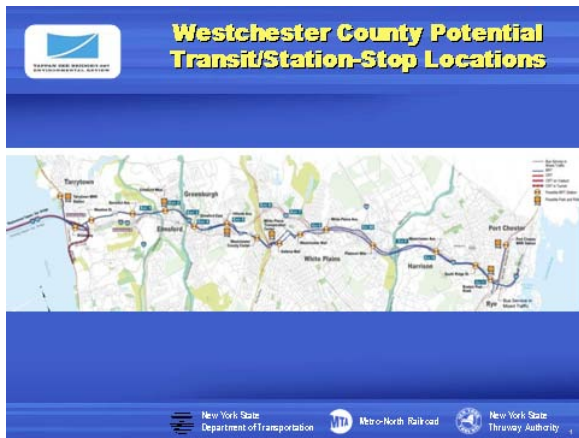
## Slide 22

The next two slides show the station locations that were included as part of the transit mode recommendation. This is the basis for going forward.

CRT Stations at Hillburn, Interchange 14, and Palisades Mall.

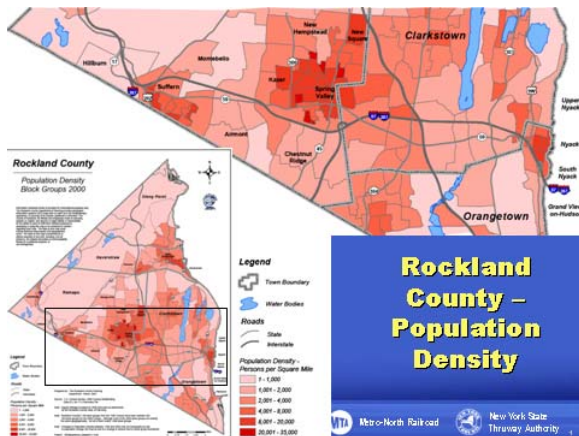
BRT only Stations at Suffern, Airmont, Monsey, and Nyack

All are subject of further study



## Slide 23

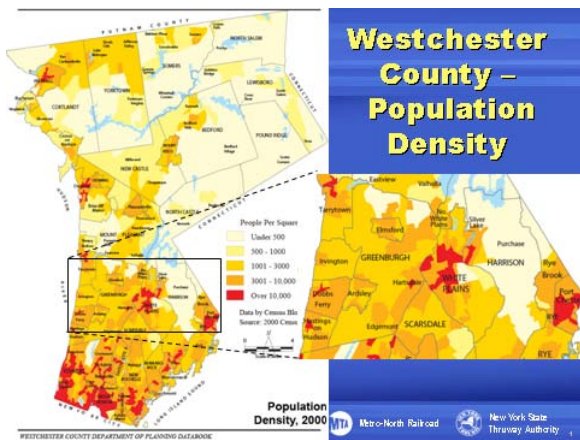
BRT stations/stops are at Tarrytown MNR, Broadway, possibly Meadow, Benedict, Elmsford West, Elmsford East, Hillside Avenue, Westchester County Center, White Plains Transportation Center, Galleria Mall, Westchester Mall, White Plains Ave., Platinum Mile, Westchester Ave., South Ridge, Boston Post Road, Port Chester MNR.



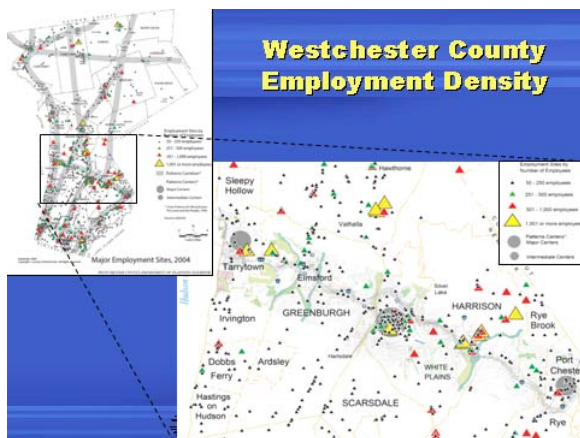
## Slide 24

The service plans reflected consideration of where people live and work – for example, population centers in Spring Valley, Suffern and Nyack.

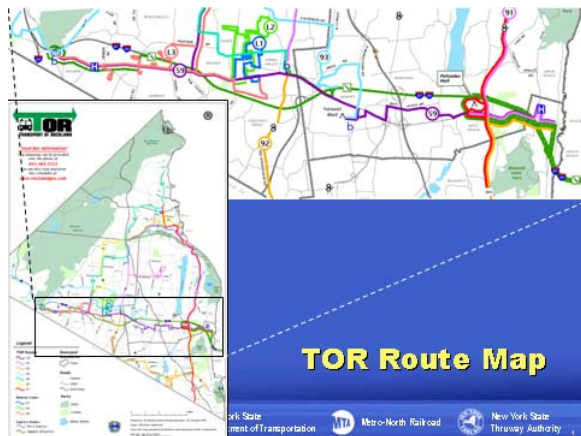
From an employment perspective, the office complexes in Suffern, Spring Valley and Nanuet and the commercial center at Palisades Mall were considered.



In Westchester County, White Plains is the focus. Tarrytown, Elmsford/Greenburgh, Port Chester areas are also important residential concentrations.

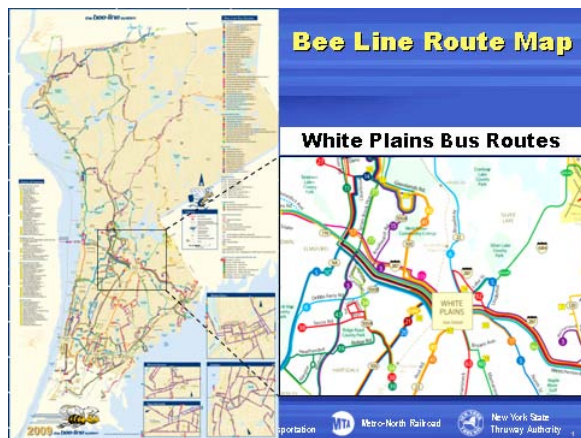


The employment centers of White Plains, Tarrytown, and Port Chester/Platinum Mile were considered.



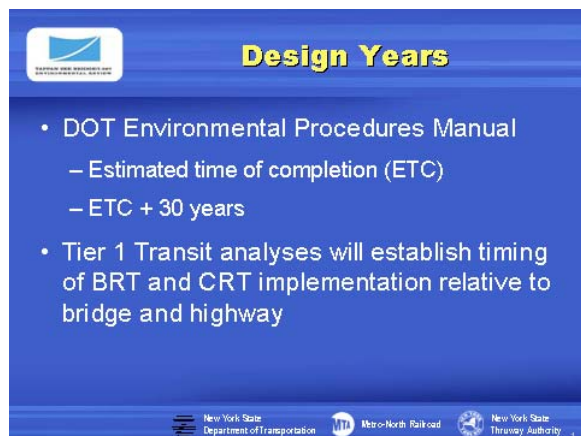
### Slide 28

As stated earlier, existing bus service plans were considered. The Transit of Rockland (TOR) route map is shown here.



### Slide 29

As stated earlier, existing bus service plans were considered. The Bee Line route map is shown here. There is a more complete network in southern Westchester County. White Plains is the focus in central Westchester. Routes are sparse in northern Westchester.

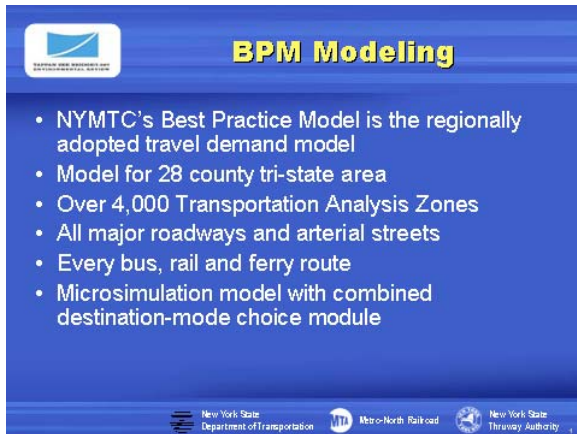


### Slide 30

The Project Sponsors will establish design years as the basis of future project analyses. The DOT Environmental Procedures Manual calls for analysis of the estimated time of project completion and ETC plus 30 years.

In addition, the Tier 1 transit analyses will establish the timing of the implementation of BRT and CRT relative to the bridge and highway construction.





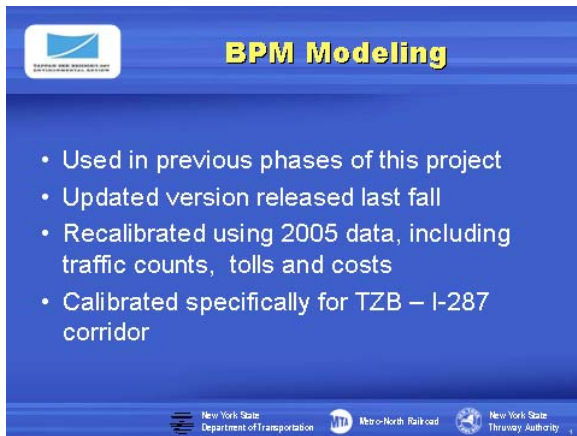
**BPM Modeling**

- NYMTC's Best Practice Model is the regionally adopted travel demand model
- Model for 28 county tri-state area
- Over 4,000 Transportation Analysis Zones
- All major roadways and arterial streets
- Every bus, rail and ferry route
- Microsimulation model with combined destination-mode choice module

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### Slide 31

The modeling tool to predict future traffic volumes and transit ridership is the Best Practice Model (BPM) developed by the New York Metropolitan Transportation Council (NYMTC). It includes the characteristics shown here.



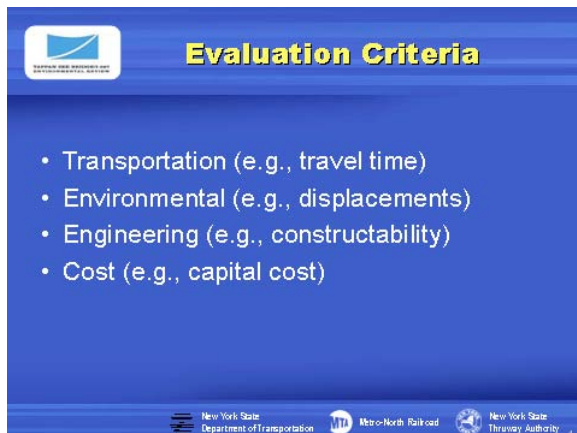
**BPM Modeling**

- Used in previous phases of this project
- Updated version released last fall
- Recalibrated using 2005 data, including traffic counts, tolls and costs
- Calibrated specifically for TZB – I-287 corridor

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### Slide 32

BPM has been used in previous phases of the project and will be recalibrated because of a revised model and socioeconomic forecasts from NYMTC. The calibration will focus on the I-287 Corridor.



**Evaluation Criteria**

- Transportation (e.g., travel time)
- Environmental (e.g., displacements)
- Engineering (e.g., constructability)
- Cost (e.g., capital cost)

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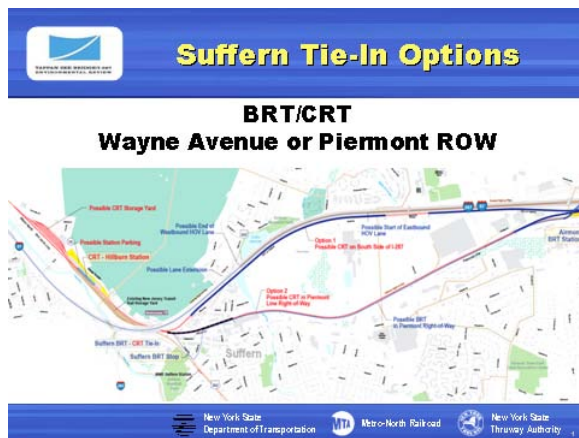
### Slide 33

Similar to what was done for the *Transit Mode Selection Report* and the *Bridge Rehabilitation and Replacement Report*, a set of evaluation criteria will be used to assess the transit alignment options.



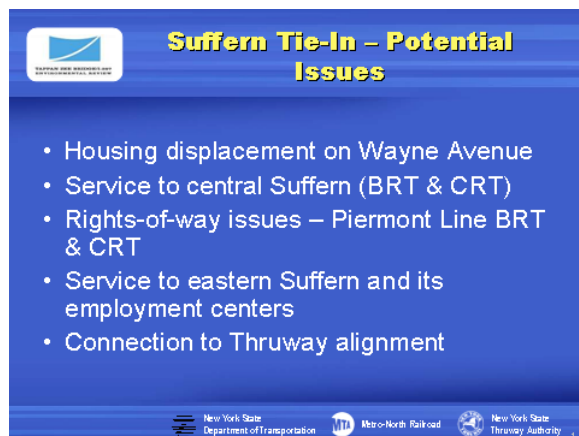
### Slide 34

The CRT and BRT alignment options will now briefly be described along with what the Project Sponsors believe are the related key issues. In the future set of combined Land Use/Transportation SAWGs we will address these in much more detail. Issues are suggested here. But we want you to consider your homework assignment to be to review them and come to the next set of meetings with your thoughts and suggestions.



### Slide 35

There are a variety of options in the Suffern area including CRT on the Piermont Line or along the south side of I-287 and for how BRT would access downtown Suffern.



### Slide 36

These are the potential issues to be evaluated.





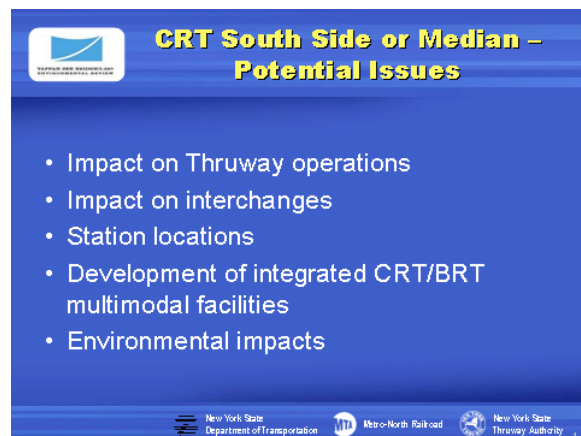
**Slide 37**

East of Airmont, the CRT alignment could run on the south side of I-287.



**Slide 38**

Or in the median.

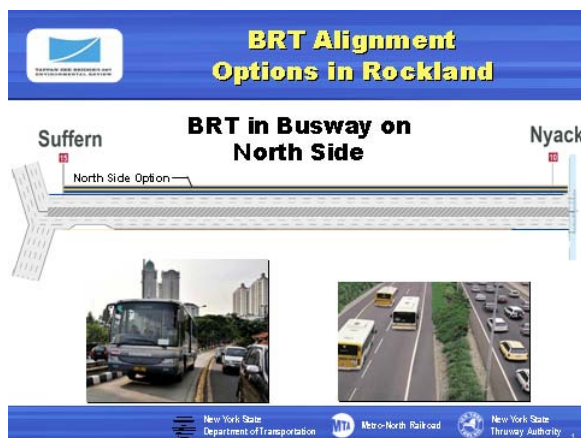


**Slide 39**

These are the potential issues to be evaluated.

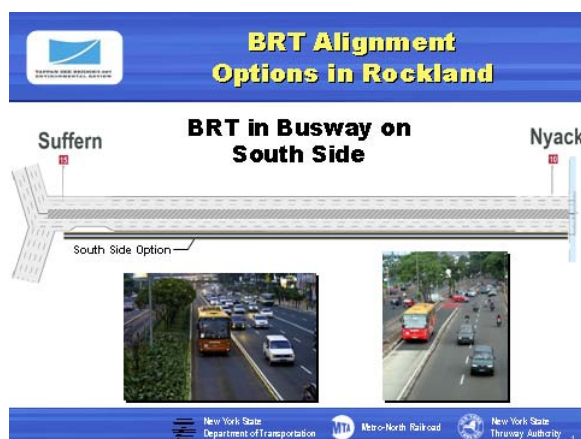


Slide 40



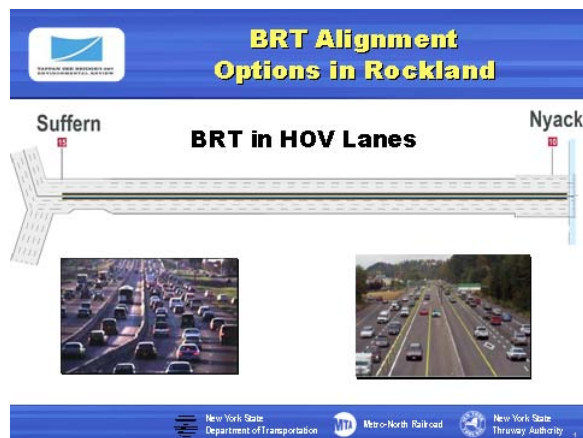
Slide 41

A BRT busway had not been evaluated in the *Transit Mode Selection Report*, but is now being evaluated to cover all types of BRT travel ways in our analyses. The busway could be on the north side of I-287.



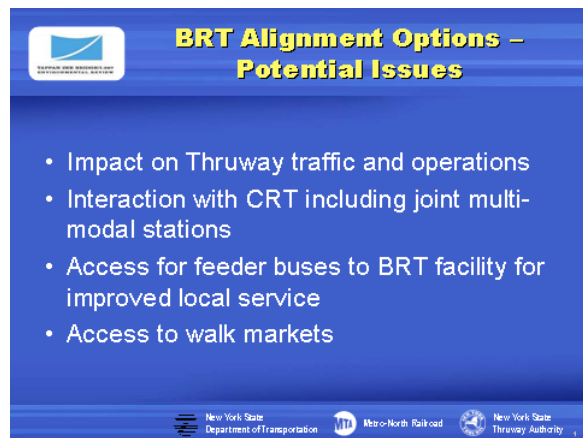
Slide 42

Or on the south side.



**Slide 43**

As an alternative to a busway, BRT could operate in HOV lanes.



**Slide 44**

These are the potential issues to be evaluated.



**Slide 45**



## Tarrytown Area


- CRT Hudson Line Connection
- BRT Connection to Metro-North Tarrytown Station



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Department of Transportation


### Slide 46

A variety of options have been identified to make the CRT connection from across the bridge to the Hudson Line. Also, there are several options for a BRT connection to the Metro-North Tarrytown Station.




## Tarrytown – Potential Issues

- CRT tunnel alignment and grades to Hudson Line
- Connection to Hudson Line tracks
- Proximity to Lyndhurst
- Environmental impact on the Hudson River
- Bus access to Tarrytown MNR Station
- Service to Broadway/Rt 119
- Feeder bus access to BRT facility peak periods

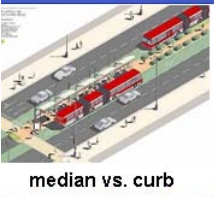


### Slide 47

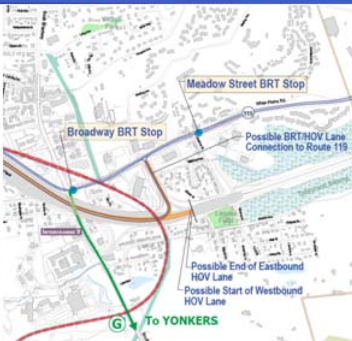
These are the potential issues to be evaluated.



## BRT on Route 119 in Tarrytown



median vs. curb



Meadow Street BRT Stop  
 Broadway BRT Stop  
 Possible BRT/HOV Lane Connection to Route 119  
 Possible End of Eastbound HOV Lane  
 Possible Start of Westbound HOV Lane  
 To YONKERS

### Slide 48

With regard to bus lanes in Westchester County, in the Tarrytown area they could be routed along the center of Route 119 or along the two curb sides.

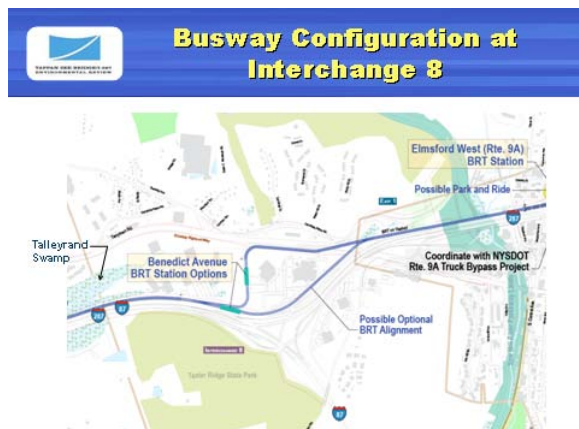
**Route 119 – Potential Issues**

- Median access to pedestrians and interference from left-turning vehicles
- Curbside access and station locations
- Curbside interference from right-turning vehicles and driveway access
- Right-of-way needs



#### Slide 49

These are the potential issues to be evaluated.



#### Slide 50

The Interchange 8 area is complex and routing a busway through it is a challenge. There are a couple of options shown here.

**Busway/Interchange 8 Issues**

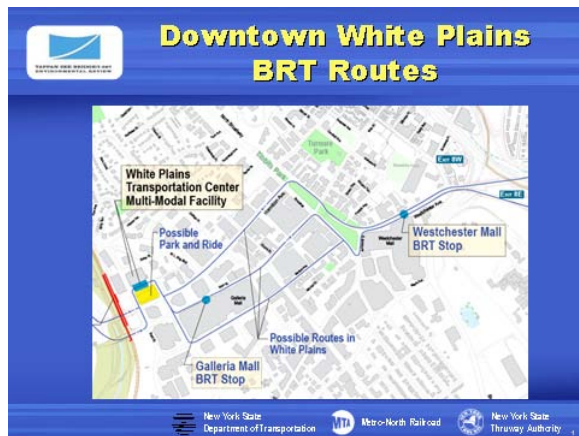
- Environmental issues in Talleyrand Swamp
- Station locations – Meadow Street in particular
- Access to pedestrians and office parks



#### Slide 51

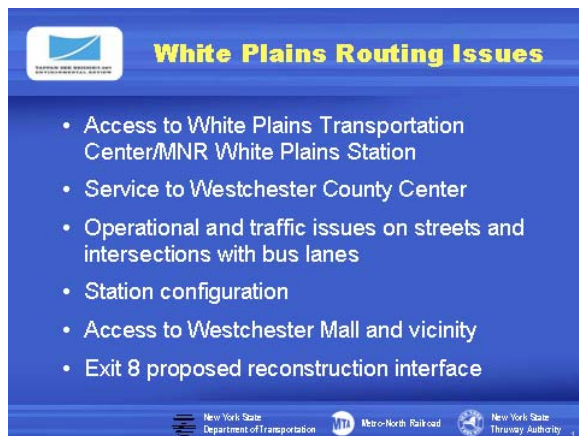
These are the potential issues to be evaluated.





## Slide 52

Routing bus lanes through White Plains is also complex. A wide variety of possible routes was considered in the *Transit Mode Selection Report*. These are some potential BRT routes.



## Slide 53

These are the potential issues to be evaluated.



## Slide 54

For the next several joint Land Use/Transportation working group meetings, we will be bringing preliminary engineering plans so that we can discuss the transit alignment issues in great detail with you. These are potential future joint meeting topics.