



TAPPAN ZEE BRIDGE/ I-287 CORRIDOR PROJECT

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

Rt gupwv kqp

***Joint Stakeholder Committee/
Stakeholders' Advisory Working Groups Meeting***



June 24, 2010

Tappan Zee Bridge / I-287 Corridor Project



Overview of Open House Presentations June 28 & 30 2010







Slide 1.

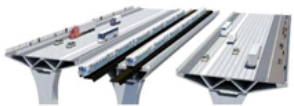
Scoping Results (May 2009) Replacement of the Tappan Zee Bridge

Transit Mode Identification


Slide 2.

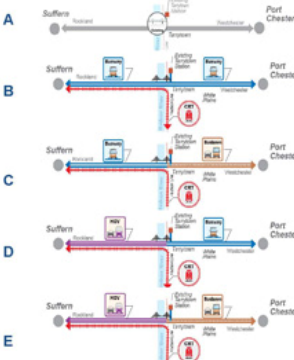
Full-Corridor BRT and CRT from Suffern to Grand Central Terminal

Possible Single-Level Configuration



Possible Dual-Level Configuration





Slide 3.

Public Outreach


- Bridge/transit reports available on www.tzbsite.com
- Open houses/working meetings for general public in Ramapo, Clarkstown, Orangetown, Greenburgh, White Plains, and Rye
- Working Meetings targeted to Environmental Justice populations
- Ongoing SAWG meetings

Transit-Related Outreach

- 20 transit-related meetings with towns/villages across corridor
- Coordination with County Planning Departments
- Input from Participating Agencies

Bridge-Related Outreach

- Series of meetings with from villages and towns adjacent to bridge
- Input from Cooperating Agencies on Hudson River ecology issues
- Input from Consulting Parties and National Historic Landmark properties



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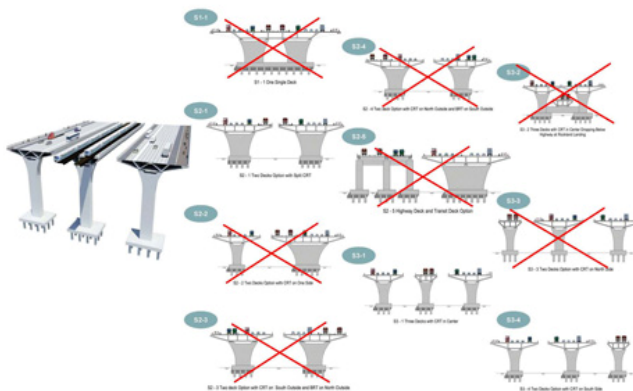
Slide 4.

Bridge Configurations



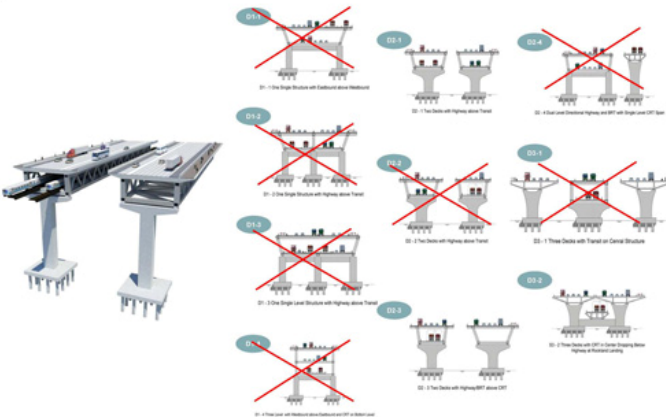
Slide 5.

Single Level Bridge Configurations Considered



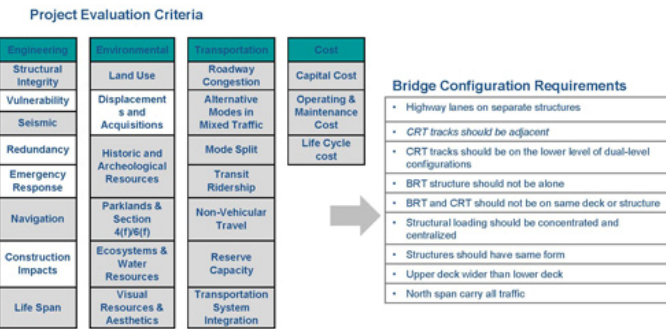
Slide 6.

Dual Level Bridge Configurations Considered



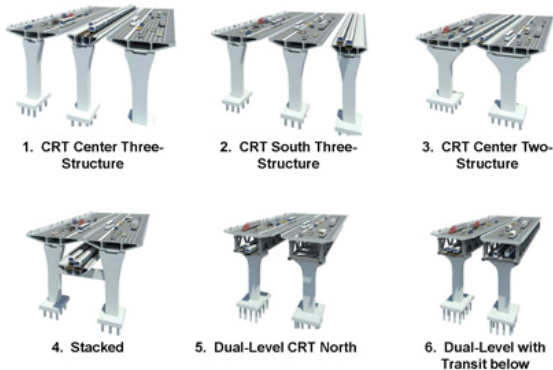
Slide 7.

Bridge Option Definition Report: Evaluation



Slide 8.

Bridge Options Definition Report: Conclusions

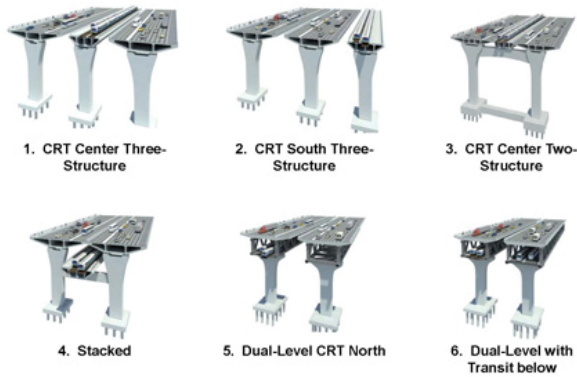


Slide 9.

Bridge Options Definition Report: Refined Options



Slide 10.



Feasible Alternatives for DEIS: Evaluation



Slide 11.

Engineering	Environmental (Operating)	Environmental (Construction)	Transportation	Cost
Structural Integrity	Land Use	Displacements and Acquisitions	Roadway Congestion	Capital Cost (2047)
Operations and Risk Assessment	Displacements and Acquisitions	Historic Resources	Alternative Modes in Mixed Traffic	Capital Cost (2017)
Seismic	Historic Resources	Archeological Resources	Mode Split	Operating and Maintenance Cost
Redundancy	Archeological Resources	Parklands & Section 4(f)/6(f)	Transit Ridership	Life Cycle cost
Emergency Response	Parklands & Section 4(f)/6(f)	River Ecology	Non-Vehicular Travel	
Navigation	River Ecology	Community Noise	Reserve Capacity	
Construction	Avifauna		Transportation System Integration	
Life Span	Visual Resources & Aesthetics			

Transit Alignment Options



Slide 12.

Elements of Transit Systems



- Vehicles & Branding**
- Guideways**
- Stations & Terminals**
- Systems & Technology**

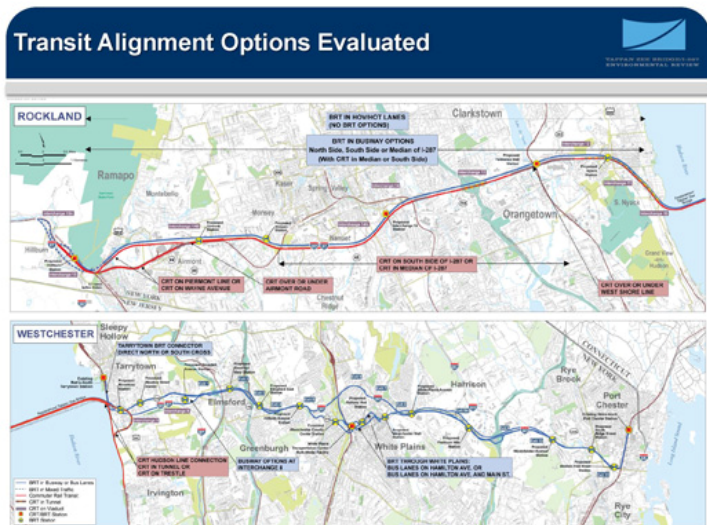
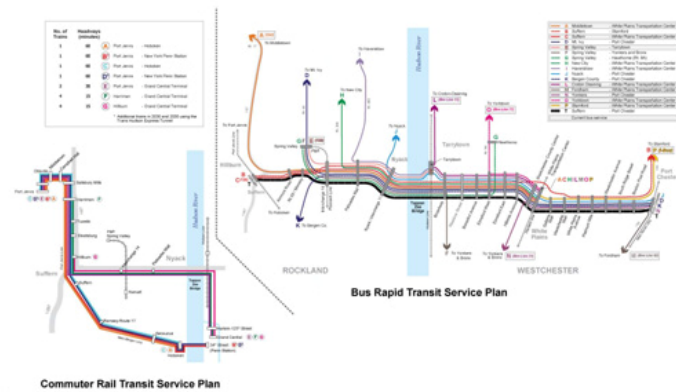
SERVICE PLAN

- Frequency of service
- Type of service (Local / Express)
- Hours of operation
- Routes
- Stations/ Stops
- Fares

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CRT and BRT Service Plans

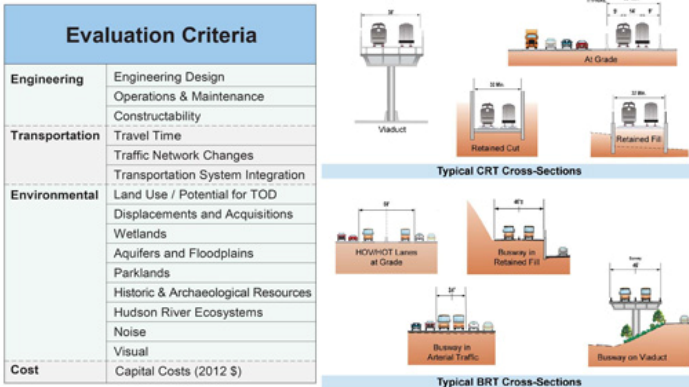
Slide 14.



Slide 15.

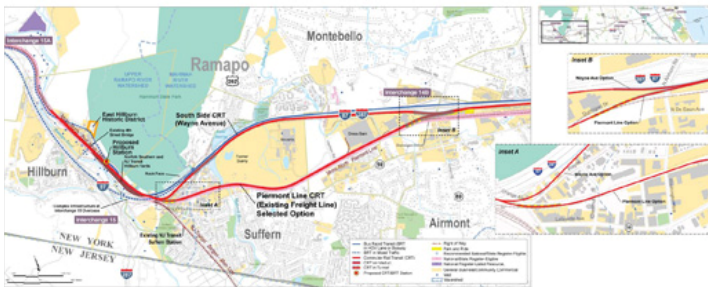
Screening Criteria Typical Transit Infrastructure

Slide 16.



Hillburn to Airmont CRT in Piermont Line Right-of-Way

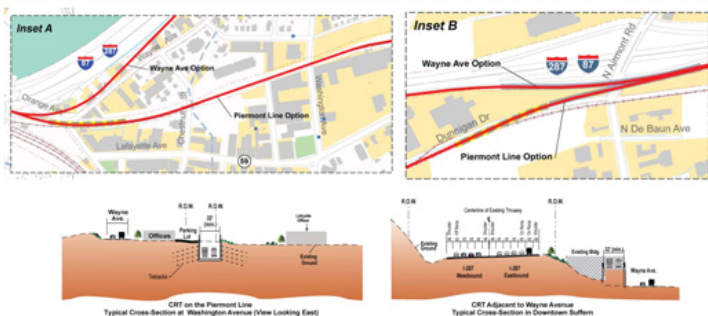
Slide 17.



Options Evaluated:
CRT in Piermont Line ROW
CRT on Wayne Avenue

Hillburn to Airmont CRT in Piermont Line Right-of-Way

Slide 18.



- Piermont Line Option takes three structures (2 businesses and 1 dwelling unit)
- Wayne Avenue Options takes 16 structures (6 businesses and 64 dwelling units)
- Piermont Line Option is \$170 M less costly
- Piermont Line Option has flatter CRT profile

Airmont to Monsey CRT Over Airmont Road



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Options Evaluated CRT over Airmont Road CRT under Airmont Road

- Under Option requires a tunnel beneath Airmont Rd and deep cuts and a long tunnel to Route 59 in Monsey
- Over Option is close to Thruway grade, therefore shorter construction duration (1 year) and less cost (\$1.0 billion less)



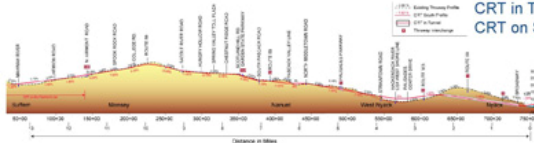
Monsey to West Nyack CRT in Median or South Side of Thruway



Slide 20.



Options Evaluated: CRT in Thruway Median CRT on South Side of Thruway



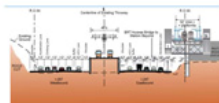
Monsey to West Nyack CRT in Median or South Side of Thruway



Slide 21.

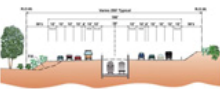


Between Interchange 14A and Interchange 13

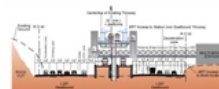


Possible Palisades Mall Intermodal Station

- Thruway relocation and reconstruction is required for Median, not for South Side
- Thruway/CRT operations, maintenance and access favor the South Side



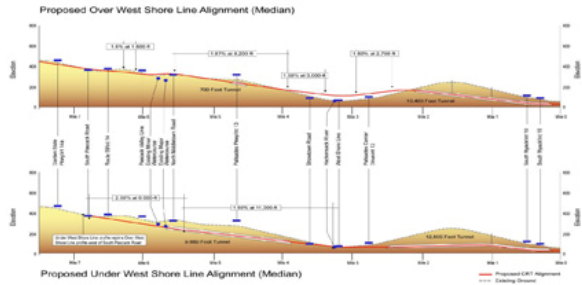
Between Interchange 14A and Interchange 13



Possible Palisades Mall Intermodal Station

- CRT stations on south side are simpler to construct with simpler passenger access.
- BRT access ramps from HOV/HOT lanes are split and doubled to clear Median CRT
- Median construction duration significantly longer and more complex.
- Median construction costs appreciably higher due to complexities and restricted access.

Clarkstown/Orangetown CRT Over / Under CSX West Shore Line



Options Evaluated:
CRT Over West Shore Line
CRT Under West Shore Line

- Under WSL negative impacts include:
- Long 2-mile tunnel to the west, longer tunnel to the east
 - Strawtown Road to be lowered 10 to 15 feet
 - Tunnel to the west intersects two major water courses
 - Interchange 14 CRT station not feasible at preferred location
 - Construction one year longer
 - Cost an extra \$680 million

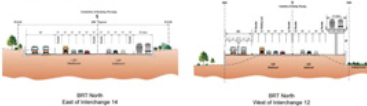
Slide 22.

Rockland County Busway on Thruway



Options Evaluated: Northside southside and median

Busway North

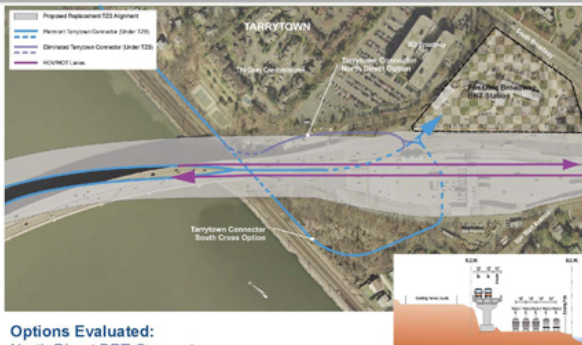


Busway North advantages include:

- Thruway relocation not required
- BRT Airmont, Monsey and Interchange 14 Stations are preferable on north side - Palisades Mall and Nyack Stations are on south side for all options
- Shortest construction duration and \$500 million less costly

Slide 23.

Tarrytown BRT Tarrytown Connector



Options Evaluated:
North Direct BRT Connector
South Cross BRT Connector

- South Cross Connector:
- Incorporates integrated access
 - Avoids area of tight ROW
 - Reduces construction complexity
 - Increases flexibility for bridge pier location
 - Lower cost

Slide 24.

Tarrytown Benedict Avenue Busway near Interchange 8



Slide 25.



Options Evaluated:
Benedict Avenue
I-287 ROW

- Benedict Avenue Station more easily accessible in center of office parks
- Along Interchange 8 there is limited area for alignment and poor station location. Hotel rear access impacted

White Plains Bi-Directional Bus Lanes on Hamilton Avenue



Slide 26.



Options Evaluated:
Bi-Directional Bus Lanes on Hamilton Avenue
Bus Lanes on Hamilton Avenue and Main Street



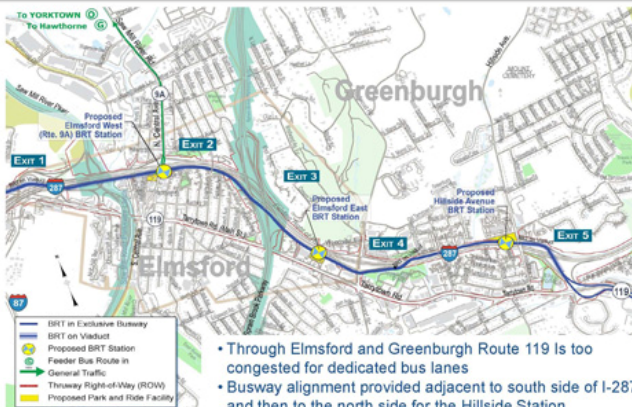
Dedicated lanes on Main Street and Hamilton Avenue were evaluated:

- Bus lanes on Hamilton Avenue and Main Street create severe traffic impacts on Main Street
- Bus lanes on Hamilton Avenue (bi-directional) have less impacts to downtown traffic
- Project will assume bi-directional on Hamilton Avenue for EIS, but will be refined in Tier 2 transit analyses

Elmsford and Greenburgh BRT Bus Lanes Alignment

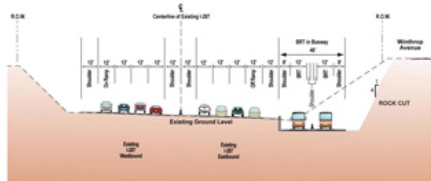


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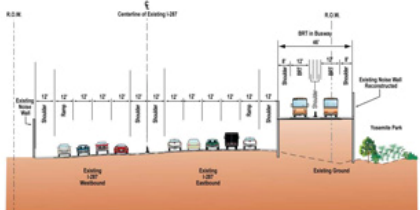


- Through Elmsford and Greenburgh Route 119 is too congested for dedicated bus lanes
- Busway alignment provided adjacent to south side of I-287 and then to the north side for the Hillside Station

**Elmsford and Greenburgh
BRT Bus Lanes Alignment - Typical Cross Sections**



Bus Lanes Alignment in Elmsford at Winthrop Avenue



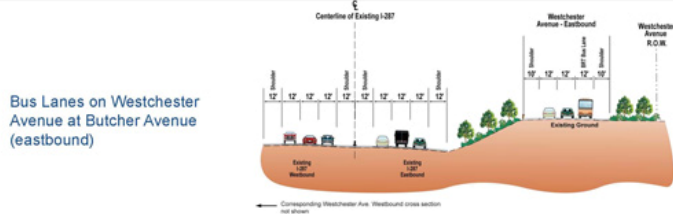
Bus Lanes Alignment in Greenburgh at Yosemite Park

**East of Downtown White Plains
BRT Bus Lane Alignment**

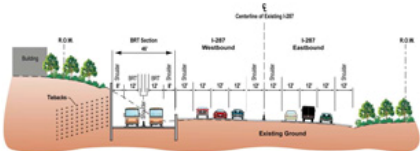


East of White Plains BRT is in dedicated bus lanes on Westchester Avenue to Exit 10. BRT then becomes a busway adjacent to the north side of I-287, and north along the west side of the Metro-North New Haven Line to the Port Chester Station.

East of Downtown White Plains
BRT Bus Lane Alignment – Typical Cross Sections



Bus Lanes on Westchester
Avenue at Butcher Avenue
(eastbound)



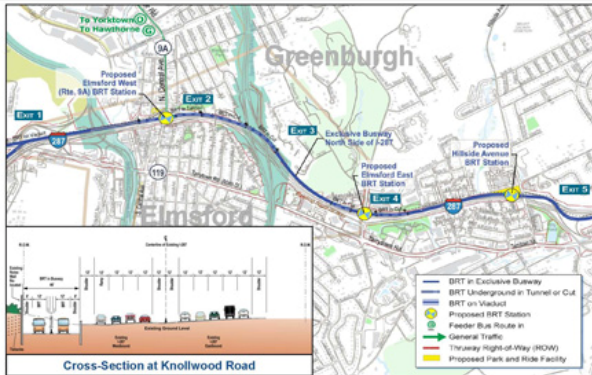
Bus Lanes (as a Busway)
along North Side I-287 at
South Ridge Street

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Slide 30.

Elmsford and Greenburgh BRT Busway Alignment



East of the Benedict Avenue alignment the busway continues adjacent to the north side of I-287 through Elmsford and Greenburgh.

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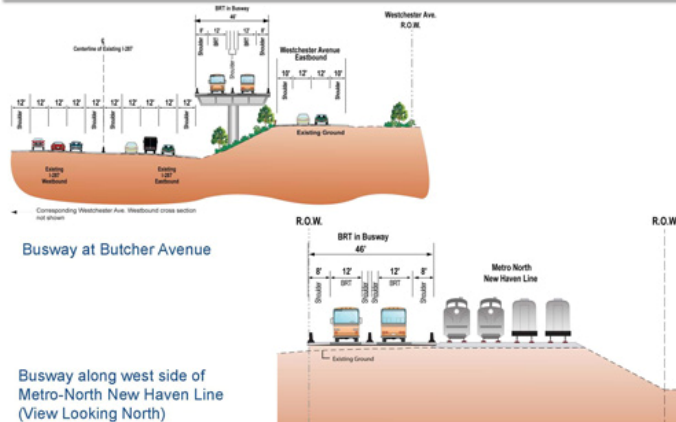
East of Downtown White Plains BRT Busway Alignment



BRT in a busway adjacent to south side of I-287, then crosses to the north side near Exit 10. Busway continues to Metro-North Port Chester Station, similar to the Bus Lane alignment.

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East of Downtown White Plains BRT in Busway Alignment – Typical Cross Sections

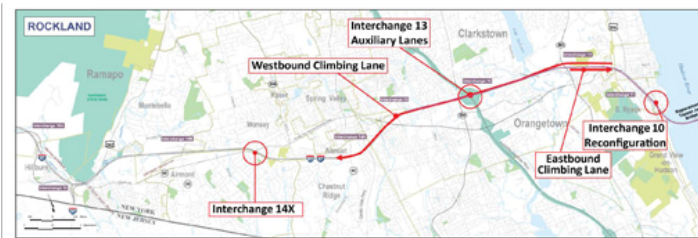
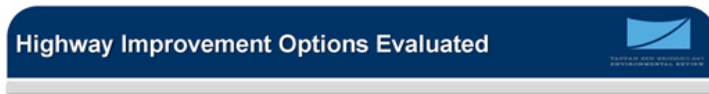


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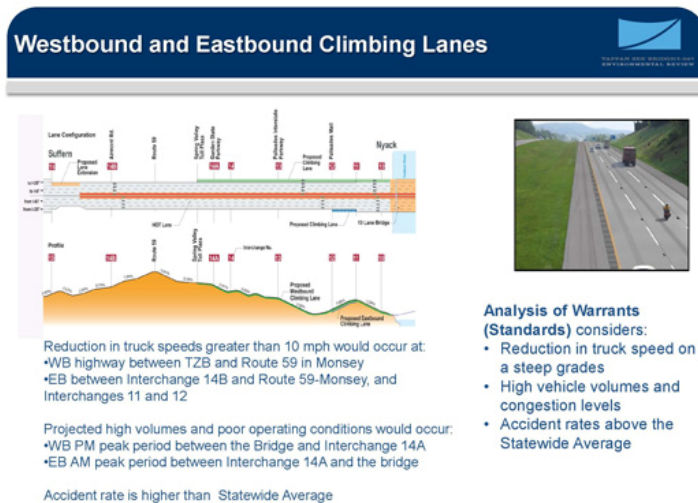
Slide 34.



Slide 35.



Slide 36.



Interchange 13 Auxiliary Lanes



Auxiliary lanes separate the weave/merge operations in a separate roadway parallel to the highway. Traffic analyses show their effectiveness:

- Weaving area separated from mainline traffic creating smoother, safer traffic flow
 - Requires interchange ramps to be reconstructed and entry and exit lanes to be lengthened
- Properties adjacent to the interchange are acquired/impacted



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Interchange 14X Evaluation



Findings:

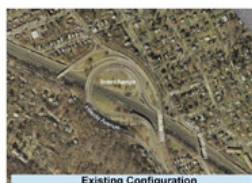
- FHWA Policy for new Interchanges:
- Improve conditions on the interstate system
 - Not added to alleviate local congestion

- Results of traffic analyses:
- Worse conditions at Interchange 14B from higher volumes exiting in the AM and PM
 - Slower speeds and longer delays on WB Thruway during PM peak period
 - Many vehicles would enter 14X WB and exit at 14B using Thruway to bypass Route 59
 - Minimal change in speed and travel times on Route 59



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Interchange 10 Reconfiguration



Existing Configuration

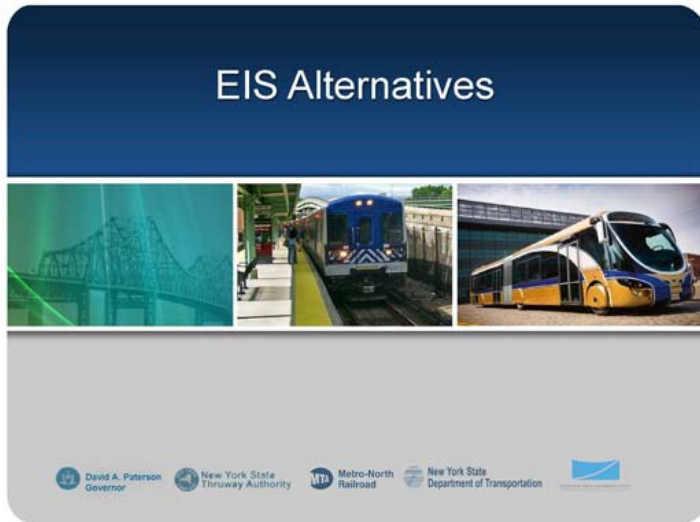


Diamond Configuration with Roundabouts



Diamond Configuration

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Slide 40.



Slide 41.

