

Appendix A: Project Planning and Development
A-5 Non-Standard Feature Justification

APPENDIX A5 – NON-STANDARD FEATURES

Note: The location # given for each non-standard feature stated in the following tables refers to the highway stationing of the design options plans included within Appendix A2 – Short Span, and Appendix A3 – Long Span. The highway is stationing is stated for the eastbound and westbound direction of the I-287.

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:	8TZ1.00	NHS (Y/N):	Yes
Route No. & Name:	I-287 WB Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Interstate
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Qualifying Hwy.

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance (Horizontal)		
Location:	FEIS Plan Stations WB STA 836+86 to STA 871+29 (GP1 – Location #1) WB STA 1015+29 to STA 1018+66 (GP1 & GP2 – Location #2)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	600ft (GP1 – Location #1)	Advisory Speed:	62 mph (GP1)
	472ft (GP1 – Location #2)		53 mph (GP1)
	660ft (GP2 – Location #2)		66 mph (GP2)
Proposed Value:	586ft (GP1 – Location #1)	Advisory Speed:	61 mph (GP1)
	571ft (GP1 – Location #2)		60 mph (GP1)
	630ft (GP2 – Location #2)		64 mph (GP2)
b. - Accident Analysis			
Current Accident Rate:	1.62 Acc/mvm**		
Statewide Rate:	1.16 Acc/mvm**		
Is the non-standard feature a contributing factor?	Horizontal Sight distance is not a contributing factor to the existing accident rate. Greater than 85% of the accidents are driver related errors such as following too closely, sudden lane changes, or obstructions/debris.		
Anticipated Accident Rates, Severity, and Costs:	.Rates, Severity, and Costs of accidents are not anticipated to vary from existing conditions.		
c. - Cost Estimates			
Cost to Fully Meet Standards:	>\$10 M, excluding additional property takes. Cost includes replacement of Route 9 South Broadway Bridge in Westchester.		
Cost(s) For Incremental Improvements:	There are no costs associated with the incremental improvements to the bridge as these improvements are inherent in the design to meet the project purpose and need goals.		
d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):			
	W-Beam railing has been specified on the landing to reduce the visual obstruction of concrete barrier and over widened median shoulders on the structure eliminate median related Non-Standard Features at those locations. The SSD is proposed to improve from 472 ft to 571 ft at STA 1015+29 to STA 1018+66.		
e. - Compatibility with Adjacent Segments & Future Plans:			
	Required to fit re-aligned highway within highway boundary with minimal land take and property impact. Sight distance at Location #2 lanes could be improved with future replacement of Westchester County South Broadway Bridge or if All Electronic Tolling payment systems become feasible for the NYSTA system.		
f. - Other Factors (e.g., Social, Economic & Environmental):			
	The proposed design minimizes land take and property impacts, and eliminates changes outside the project limits. Tying in to the existing highway section prior to Interchange 10 means no alterations need to be made to the Interchange ramps or bridges, thereby reducing impacts on surrounding resources.		
g. - Proposed Treatment (i.e., Recommendation):			
	Provide horizontal sight distances as documented which improve horizontal sight distance at one location while slightly decreasing proposed distance at two locations. Retention of these non-standard features are recommended to avoid additional impacts to surrounding areas..		

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.

** The units are accidents per million vehicles-miles traveled

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:	8TZ1.00	NHS (Y/N):	Yes
Route No. & Name:	I-287 EB Tappan Zee Bridge	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Interstate
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Qualifying Hwy.

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Stopping Stop Distance (Horizontal)		
Location:	FEIS Plan Stations EB STA 835+39 to STA 850+00 (+/-) Median Lane Only – Location #1)		
	EB STA 989+/- to STA 995+00 (Inside Open Road Tolling Lane Only - Location #2)		
	FEIS Plan Stations EB STA 1016+/- to STA 1023+14 (Inside Open Road Tolling Lane Only – Location #3)		
Standard Value:	730ft	Design Speed:	70 mph
Existing Value:	385ft – Location #1	Advisory Speed:	47 mph
	440ft – Location #2		51 mph
	518ft – Location #3		57 mph
Proposed Value:	599ft – Location #1	Advisory Speed:	62 mph
	617ft – Location #2		63 mph
	518ft– Location #3		57 mph
b. - Accident Analysis			
Current Accident Rate:	2.98 Acc/mvm**		
Statewide Rate:	1.16 Acc/mvm**		
Is the non-standard feature a contributing factor?	Horizontal Sight distance is not a contributing factor to the existing accident rate. Greater than 85% of the accidents are driver related errors such as following too closely, sudden lane changes, or obstructions/debris.		
Anticipated Accident Rates, Severity, and Costs:	Rates, Severity, and Costs of accidents are not anticipated to vary from existing conditions.		
c. - Cost Estimates			
Cost to Fully Meet Standards:	>\$25 M, excluding additional property takes to widen ML structure shoulders and replace Westchester South Broadway Bridge.		
Cost(s) For Incremental Improvements:	There are no costs associated with the incremental improvements to the bridge as these improvements are inherent in the design to meet the project purpose and needs goals.		
d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):			
	W-Beam type railing has been specified on the landings to reduce the visual obstruction of concrete barrier and over widened median shoulders on the structure eliminate median related Non-Standard Features at those locations. The SSD at Locations #1 and #2 will be increased under the proposed design.		
e. - Compatibility with Adjacent Segments & Future Plans:			
	Required to fit re-aligned highway within highway boundary with minimal land take and property impact. Non-standard sight distance at Location #3 lanes could be eliminated when South Broadway Bridge (Westchester County) is replaced or if All Electronic Tolling payment systems become feasible for the NYSTA system.		
f. - Other Factors (e.g., Social, Economic & Environmental):			
	The proposed design minimizes land take and property impacts, and eliminates changes outside the project limits. Tying in to the existing highway section prior to Interchange 10 means no alterations need to be made to the Interchange ramps or adjacent bridges, thereby reducing impacts on surrounding resources.		
g. - Proposed Treatment (i.e., Recommendation):			
	Improve the existing sight distances at Locations #1 and #2 and retain existing stopping sight distance at Location #3 using design as proposed which avoids additional impacts to surrounding features.		

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.

** The units are accidents per million vehicles-miles traveled

NON-STANDARD FEATURE JUSTIFICATION (in accordance with HDM §2.8)			
PIN:	8TZ1.00	NHS (Y/N):	Yes
Route No. & Name:	I-287 EB New York State Thruway Toll Road	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Interstate
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Qualifying Hwy.
a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Shoulder width- EB Left and Right (Open Road Tolling Lanes)		
Location:	EB STA 1015+60 to STA 1018+50+/- Left and Right		
Standard Value:	10ft; 12 ft desirable	Design Speed:	70 mph
Existing Value:	12ft (Left) Location #1	Advisory Speed:	70 mph
	9ft (Right) Location #2		
Proposed Value:	4ft (Left) Location #1	Advisory Speed:	70 mph
	1ft (Right) Location #2		
b. - Accident Analysis			
Current Accident Rate:	2.98 Acc/mvm**		
Statewide Rate:	1.16 Acc/mvm**		
Is the non-standard feature a contributing factor?	Horizontal Sight distance is not a contributing factor to the existing accident rate. Greater than 85% of the accidents are driver related errors such as following too closely, sudden lane changes, or obstructions/debris.		
Anticipated Accident Rates, Severity, and Costs:	.Rates, Severity, and Costs of accidents are not anticipated to vary from existing conditions.		
c. - Cost Estimates			
Cost to Fully Meet Standards:	>\$10 million to rebuild the Route 9 South Broadway Bridge in Westchester.		
Cost(s) For Incremental Improvements:	There are no costs associated with the incremental improvements to the bridge, as these improvements are inherent in the design to meet the purpose and needs goals. No incremental improvements are available for Location #2 without bridge replacement.		
d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):			
	Mitigation consisting of no shoulder warning signs. Full width shoulders maintained east and west of South Broadway bridge.		
e. - Compatibility with Adjacent Segments & Future Plans:			
	Shoulder width is tapered to match existing shoulder widths at the project limit. Non-standard shoulder width could be eliminated when South Broadway Bridge (Westchester County) is replaced or if All Electronic Tolling payment systems become feasible for the NYSTA system.		
f. - Other Factors (e.g., Social, Economic & Environmental):			
	Tying to the existing lanes widths prior to the Route 9 South Broadway Bridge in Westchester mean no alterations need to be made to the existing South Broadway bridge. An additional toll lane has been added under the structure and therefore the shoulder has been removed to avoid replacing the bridge.		
g. - Proposed Treatment (i.e., Recommendation):			
	Construct divided highway/ramp directional section which reduces available horizontal clearance but applies mitigation measures such as Reduced or No shoulder warning signs.		

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.

** The units are accidents per million vehicles-miles traveled

NON-STANDARD FEATURE JUSTIFICATION			
(in accordance with HDM §2.8)			
PIN:	8TZ1.00	NHS (Y/N):	Yes
Route No. & Name:	I-287 EB New York State Thruway Toll Road	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Interstate
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Qualifying Hwy.

a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Minimum Horizontal Clearance (Mainline and Tolling Area Ramp)		
Location:	FEIS Plan Stations EB STA 1016+80 to STA 1018+35 (Open Road Tolling Lanes) FEIS Plan Stations EB STA 1016+80 to STA 1018+35 (Cash/Ramp Lanes)		
Standard Value:	Shoulder Width, not Less than 4 ft, match existing	Design Speed:	70 mph (Open Road Tolling Lanes) 50 mph (Tolling Ramp Lanes)
Existing Value:	9ft Right 6ft Left	Advisory Speed:	70 mph
Proposed Value (Open Road Tolling Lanes)	1ft Right 4ft Left	Advisory Speed:	70 mph
Proposed Value (Tolling Ramp Lanes)	0ft Right 1ft Left	Advisory Speed:	50 mph
b. - Accident Analysis			
Current Accident Rate:	2.98 Acc/mvm**		
Statewide Rate:	1.16 Acc/mvm**		
Is the non-standard feature a contributing factor?	Accident data indicate that greater than 85% of the accidents are driver related errors such as following too closely, sudden lane changes, or obstructions/debris which should be partially mitigated by separation of cash/Interchange 9 traffic from Open Road Tolling lanes.		
Anticipated Accident Rates, Severity, and Costs:	Rates, Severity, and Costs of accidents are not anticipated to vary from existing conditions.		
c. - Cost Estimates			
Cost to Fully Meet Standards:	\$10 million to rebuild the Route 9 South Broadway Bridge in Westchester County.		
Cost(s) For Incremental Improvements:	Incremental improvements would cause reduction of horizontal clear area from WB I-287 with estimated cost >\$1M.		
d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):			
	Proposed length of reduced horizontal clearance is limited to the area under the Westchester South Broadway bridge structure and tapers. Mitigation shall consist of no shoulder warning signs and full width shoulders west of the South Broadway bridge. Separation of cash/Interchange 9 traffic from Open Road Tolling lanes using barrier system is anticipated to reduce lane weaving. Multiple directional lanes are available for use by overwidened traffic and Interchange 9 has low truck usage which reduces the need for clearance at the structure. Additionally, cash lane operations of the Toll Plaza reduce traffic speeds at this feature location.		
e. - Compatibility with Adjacent Segments & Future Plans:			
	Non-standard horizontal clearance could be eliminated when South Broadway Bridge (Westchester County) is replaced. Replacement of this bridge will not be essential to eliminate this non-standard feature if All Electronic Tolling payment systems become feasible for the NYSTA system.		
f. - Other Factors (e.g., Social, Economic & Environmental):			
	Incorporation of standard width Open Road Tolling,, barrier separation, and Toll Plaza/Ramp lanes requires replacement of the South Broadway Bridge. Application of reduced shoulder and horizontal clearance widths at this location least impacts project area social and environmental features.		
g. - Proposed Treatment (i.e., Recommendation):			
	Construct divided highway/ramp directional section which reduces available horizontal clearance but applies mitigation measures such as No shoulder warning signs in advance of the bridge.		

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.

** The units are accidents per million vehicles-miles traveled

NYSTA ONLY NON-STANDARD FEATURE JUSTIFICATION			
(in accordance with HDM §2.8)			
PIN:	8TZ1.00	NHS (Y/N):	Yes
Route No. & Name:	I-287 EB New York State Thruway Toll Road	Functional Class:	Urban Principal Arterial Interstate
Project Type:	Reconstruction	Design Class:	Interstate
% Trucks:	12.4%	Terrain:	Rolling
ADT (ETC+30):	218,551*	Truck Access/Qualifying Hwy.	Qualifying Hwy.
a. - Description of Non-Standard Feature			
Type of Feature (e.g., Lane Width):	Shoulder width- Mainline Toll Plaza Lanes		
Location:	FEIS Plan Stations EB STA 987+97 to STA 1023+15		
Standard Value:	10ft; 12ft desirable both Sides; match existing	Design Speed:	50 mph
Existing Value:	N/A – New Feature	Advisory Speed:	50 mph
Proposed Value:	4ft to 0ft Left (Non-Standard) 10ft Right (Standard) to 0ft Right (Non-Standard)	Advisory Speed:	50 mph
b. - Accident Analysis			
Current Accident Rate:	2.98 Acc/mvm**		
Statewide Rate:	1.16 Acc/mvm**		
Is the non-standard feature a contributing factor?	Implementation of a ramp section to channelize traffic into the Toll Plaza is a new construction feature.		
Anticipated Accident Rates, Severity, and Costs:	Anticipated accident rates, severity, and costs are not expected to vary from existing conditions.		
c. - Cost Estimates			
Cost to Fully Meet Standards:	>\$20 million to widen Structure and landings pavement.		
Cost(s) For Incremental Improvements:	There are no costs associated with the incremental improvements to the bridge, as these improvements are inherent in the design to meet the project Purpose and need goals.		
d. - Mitigation (e.g., increased superelevation and speed change lane length for a non-standard ramp radius):			
	Construction of a 4ft left shoulder width is consistent with NYSDOT/AASHTO Interstate Ramp standards and applied to the maximum extent of the ramp as feasible; EB STA 989(+/-) to EB STA 10+16(+/-). Use of No Shoulder Signs will be applied to the highway section where shoulder width on both sides decreases to 0ft, underneath South Broadway Bridge (Westchester County). Right shoulder width is maintained as Standard except between Stations 1016+80 to STA 1018+35 where width is reduced to 0ft to also pass under South Broadway Bridge (Westchester County).		
e. - Compatibility with Adjacent Segments & Future Plans:			
	Toll plaza lanes and shoulder area will become non-essential if All Electronic Tolling payment systems become feasible for the NYSTA system and are installed by future contract..		
f. - Other Factors (e.g., Social, Economic & Environmental):			
	Installation of a widened shoulder will have a direct impact upon Crossing bridge footprint which will increase project costs and environmental impact on landings and within the river.		
g. - Proposed Treatment (i.e., Recommendation):			
	New tolling plaza lanes and shoulder to be constructed as proposed. No shoulder warning signs to be provided near/underneath Westchester South Broadway Bridge where shoulder widths are reduced below 4ft left and 10ft right.		

* Values were obtained from the 2010 NYSDOT Traffic Data Report and Traffic Data Viewer.

* Future Traffic volume will be split between Open Road Tolling Lanes and Tolling Exit Ramp

** The units are accidents per million vehicles-miles traveled