

# LANE SUMMARY

## Site: 1 [Route 12F-New Bridge- ETC+20 (2041) - AM Peak]

Route 12F/New Bridge  
 ETC+20 (2041)  
 AM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg. Satn	Lane Util.	Average Delay	Level of Service	50% Back of Queue Veh	Back of Queue Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %	Cap. veh/h	v/c	%	sec							
East: Route 12E - WB													
Lane 1 <sup>d</sup>	204	12.7	1315	0.156	100	4.0	LOS A	0.4	10.6	Full	1600	0.0	0.0
Approach	204	12.7		0.156		4.0	LOS A	0.4	10.6				
North: New Bridge - SB													
Lane 1 <sup>d</sup>	393	1.9	1091	0.360	100	6.9	LOS A	0.9	23.6	Full	1600	0.0	0.0
Approach	393	1.9		0.360		6.9	LOS A	0.9	23.6				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	270	2.4	825	0.327	100	8.1	LOS A	0.8	20.4	Full	1600	0.0	0.0
Approach	270	2.4		0.327		8.1	LOS A	0.8	20.4				
Intersection	868	4.6		0.360		6.6	LOS A	0.9	23.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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Organisation: CREIGHTON MANNING ENGINEERING | Processed: Wednesday, April 01, 2020 10:23:41 AM

Project: C:\Users\mnadolny\Desktop\working\12E\NewBridge\_Intersections.sip8

# LANE SUMMARY

## Site: 1 [Route 12E-New Bridge- ETC+30 (2051) - AM Peak]

Route 12E/New Bridge  
 ETC+30 (2051)  
 AM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: New Bridge - NB													
Lane 1 <sup>d</sup>	146	9.8	829	0.176	100	6.2	LOS A	0.4	10.5	Full	1460	0.0	0.0
Approach	146	9.8		0.176		6.2	LOS A	0.4	10.5				
East: Route 12E - WB													
Lane 1 <sup>d</sup>	233	13.8	1043	0.224	100	5.6	LOS A	0.5	15.2	Full	1600	0.0	0.0
Approach	233	13.8		0.224		5.6	LOS A	0.5	15.2				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	522	4.3	1093	0.477	100	8.7	LOS A	1.5	37.8	Full	1600	0.0	0.0
Approach	522	4.3		0.477		8.7	LOS A	1.5	37.8				
Intersection	901	7.6		0.477		7.5	LOS A	1.5	37.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

## Site: 1 [Route 12F-New Bridge- ETC+30 (2051) - AM Peak]

Route 12F/New Bridge  
 ETC+30 (2051)  
 AM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
East: Route 12E - WB													
Lane 1 <sup>d</sup>	208	12.7	1316	0.158	100	4.0	LOS A	0.4	10.8	Full	1600	0.0	0.0
Approach	208	12.7		0.158		4.0	LOS A	0.4	10.8				
North: New Bridge - SB													
Lane 1 <sup>d</sup>	403	1.9	1090	0.370	100	7.1	LOS A	1.0	24.5	Full	1600	0.0	0.0
Approach	403	1.9		0.370		7.1	LOS A	1.0	24.5				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	277	2.4	818	0.338	100	8.4	LOS A	0.8	21.3	Full	1600	0.0	0.0
Approach	277	2.4		0.338		8.4	LOS A	0.8	21.3				
Intersection	888	4.6		0.370		6.8	LOS A	1.0	24.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

## Site: 1 [Route 12E-New Bridge- ETC (2021) - PM Peak]

Route 12E/New Bridge  
 ETC (2021)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: New Bridge - NB													
Lane 1 <sup>d</sup>	422	0.4	1132	0.372	100	6.9	LOS A	1.0	25.7	Full	1460	0.0	0.0
Approach	422	0.4		0.372		6.9	LOS A	1.0	25.7				
East: Route 12E - WB													
Lane 1 <sup>d</sup>	320	2.5	930	0.345	100	7.6	LOS A	0.9	22.6	Full	1600	0.0	0.0
Approach	320	2.5		0.345		7.6	LOS A	0.9	22.6				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	255	2.4	1095	0.233	100	5.5	LOS A	0.6	14.7	Full	1600	0.0	0.0
Approach	255	2.4		0.233		5.5	LOS A	0.6	14.7				
Intersection	997	1.6		0.372		6.8	LOS A	1.0	25.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

## Site: 1 [Route 12F-New Bridge- ETC (2021) - PM Peak]

Route 12F/New Bridge  
 ETC (2021)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
East: Route 12E - WB													
Lane 1 <sup>d</sup>	706	1.3	1448	0.487	100	7.3	LOS A	1.8	44.9	Full	1600	0.0	0.0
Approach	706	1.3		0.487		7.3	LOS A	1.8	44.9				
North: New Bridge - SB													
Lane 1 <sup>d</sup>	247	1.9	892	0.277	100	7.0	LOS A	0.6	16.3	Full	1600	0.0	0.0
Approach	247	1.9		0.277		7.0	LOS A	0.6	16.3				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	194	6.0	887	0.219	100	6.3	LOS A	0.5	13.5	Full	1600	0.0	0.0
Approach	194	6.0		0.219		6.3	LOS A	0.5	13.5				
Intersection	1147	2.2		0.487		7.0	LOS A	1.8	44.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

## Site: 1 [Route 12E-New Bridge- ETC+10 (2031) - PM Peak]

Route 12E/New Bridge  
 ETC+10 (2031)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows		Cap.	Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	veh/h	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: New Bridge - NB													
Lane 1 <sup>d</sup>	432	0.4	1126	0.384	100	7.1	LOS A	1.1	26.9	Full	1460	0.0	0.0
Approach	432	0.4		0.384		7.1	LOS A	1.1	26.9				
East: Route 12E - WB													
Lane 1 <sup>d</sup>	330	2.5	925	0.357	100	7.8	LOS A	0.9	23.7	Full	1600	0.0	0.0
Approach	330	2.5		0.357		7.8	LOS A	0.9	23.7				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	261	2.4	1091	0.240	100	5.5	LOS A	0.6	15.3	Full	1600	0.0	0.0
Approach	261	2.4		0.240		5.5	LOS A	0.6	15.3				
Intersection	1024	1.6		0.384		6.9	LOS A	1.1	26.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

## Site: 1 [Route 12F-New Bridge- ETC+10 (2031) - PM Peak]

Route 12F/New Bridge  
 ETC+10 (2031)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
East: Route 12E - WB													
Lane 1 <sup>d</sup>	725	1.3	1445	0.502	100	7.5	LOS A	1.9	47.3	Full	1600	0.0	0.0
Approach	725	1.3		0.502		7.5	LOS A	1.9	47.3				
North: New Bridge - SB													
Lane 1 <sup>d</sup>	253	1.9	885	0.286	100	7.1	LOS A	0.7	16.9	Full	1600	0.0	0.0
Approach	253	1.9		0.286		7.1	LOS A	0.7	16.9				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	199	6.0	882	0.225	100	6.4	LOS A	0.5	13.9	Full	1600	0.0	0.0
Approach	199	6.0		0.225		6.4	LOS A	0.5	13.9				
Intersection	1176	2.2		0.502		7.2	LOS A	1.9	47.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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## LANE SUMMARY

### Site: 1 [Route 12E-New Bridge- ETC+20 (2041) - PM Peak]

Route 12E/New Bridge  
 ETC+20 (2041)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: New Bridge - NB													
Lane 1 <sup>d</sup>	443	0.4	1121	0.395	100	7.3	LOS A	1.1	28.0	Full	1460	0.0	0.0
Approach	443	0.4		0.395		7.3	LOS A	1.1	28.0				
East: Route 12E - WB													
Lane 1 <sup>d</sup>	339	2.5	919	0.369	100	8.1	LOS A	1.0	24.8	Full	1600	0.0	0.0
Approach	339	2.5		0.369		8.1	LOS A	1.0	24.8				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	269	2.4	1087	0.247	100	5.6	LOS A	0.6	15.9	Full	1600	0.0	0.0
Approach	269	2.4		0.247		5.6	LOS A	0.6	15.9				
Intersection	1051	1.6		0.395		7.1	LOS A	1.1	28.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

## Site: 1 [Route 12F-New Bridge- ETC+20 (2041) - PM Peak]

Route 12F/New Bridge  
 ETC+20 (2041)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	50% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %						Veh	Dist ft				
East: Route 12E - WB													
Lane 1 <sup>d</sup>	742	1.3	1442	0.514	100	7.7	LOS A	2.0	49.6	Full	1600	0.0	0.0
Approach	742	1.3		0.514		7.7	LOS A	2.0	49.6				
North: New Bridge - SB													
Lane 1 <sup>d</sup>	261	1.9	880	0.296	100	7.3	LOS A	0.7	17.7	Full	1600	0.0	0.0
Approach	261	1.9		0.296		7.3	LOS A	0.7	17.7				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	204	6.0	876	0.233	100	6.6	LOS A	0.6	14.5	Full	1600	0.0	0.0
Approach	204	6.0		0.233		6.6	LOS A	0.6	14.5				
Intersection	1207	2.2		0.514		7.4	LOS A	2.0	49.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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Organisation: CREIGHTON MANNING ENGINEERING | Processed: Wednesday, April 01, 2020 10:23:42 AM

Project: C:\Users\mnadolny\Desktop\working\12E\NewBridge\_Intersections.sip8

# LANE SUMMARY

## Site: 1 [Route 12E-New Bridge- ETC+30 (2051) - PM Peak]

Route 12E/New Bridge  
 ETC+30 (2051)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows			Deg.	Lane	Average	Level of	50% Back of Queue		Lane	Lane	Cap.	Prob.
	Total	HV	Cap.	Satn	Util.	Delay	Service	Veh	Dist	Config	Length	Adj.	Block.
	veh/h	%	veh/h	v/c	%	sec			ft		ft	%	%
South: New Bridge - NB													
Lane 1 <sup>d</sup>	455	0.4	1118	0.407	100	7.5	LOS A	1.2	29.3	Full	1460	0.0	0.0
Approach	455	0.4		0.407		7.5	LOS A	1.2	29.3				
East: Route 12E - WB													
Lane 1 <sup>d</sup>	346	2.5	911	0.380	100	8.3	LOS A	1.0	25.8	Full	1600	0.0	0.0
Approach	346	2.5		0.380		8.3	LOS A	1.0	25.8				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	275	2.4	1083	0.254	100	5.7	LOS A	0.6	16.5	Full	1600	0.0	0.0
Approach	275	2.4		0.254		5.7	LOS A	0.6	16.5				
Intersection	1076	1.6		0.407		7.3	LOS A	1.2	29.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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# LANE SUMMARY

## Site: 1 [Route 12F-New Bridge- ETC+30 (2051) - PM Peak]

Route 12F/New Bridge  
 ETC+30 (2051)  
 PM Peak  
 Site Category: (None)  
 Roundabout

Lane Use and Performance													
	Demand Flows		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	50% Back of Queue		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	Total veh/h	HV %						Veh	Dist ft				
East: Route 12E - WB													
Lane 1 <sup>d</sup>	761	1.2	1444	0.527	100	7.9	LOS A	2.1	52.1	Full	1600	0.0	0.0
Approach	761	1.2		0.527		7.9	LOS A	2.1	52.1				
North: New Bridge - SB													
Lane 1 <sup>d</sup>	267	1.9	873	0.306	100	7.5	LOS A	0.7	18.5	Full	1600	0.0	0.0
Approach	267	1.9		0.306		7.5	LOS A	0.7	18.5				
West: Route 12E - EB													
Lane 1 <sup>d</sup>	209	6.0	869	0.240	100	6.7	LOS A	0.6	15.1	Full	1600	0.0	0.0
Approach	209	6.0		0.240		6.7	LOS A	0.6	15.1				
Intersection	1237	2.2		0.527		7.6	LOS A	2.1	52.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

<sup>d</sup> Dominant lane on roundabout approach

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Organisation: CREIGHTON MANNING ENGINEERING | Processed: Wednesday, April 01, 2020 10:23:42 AM

Project: C:\Users\mnadolny\Desktop\working\12E\NewBridge\_Intersections.sip8

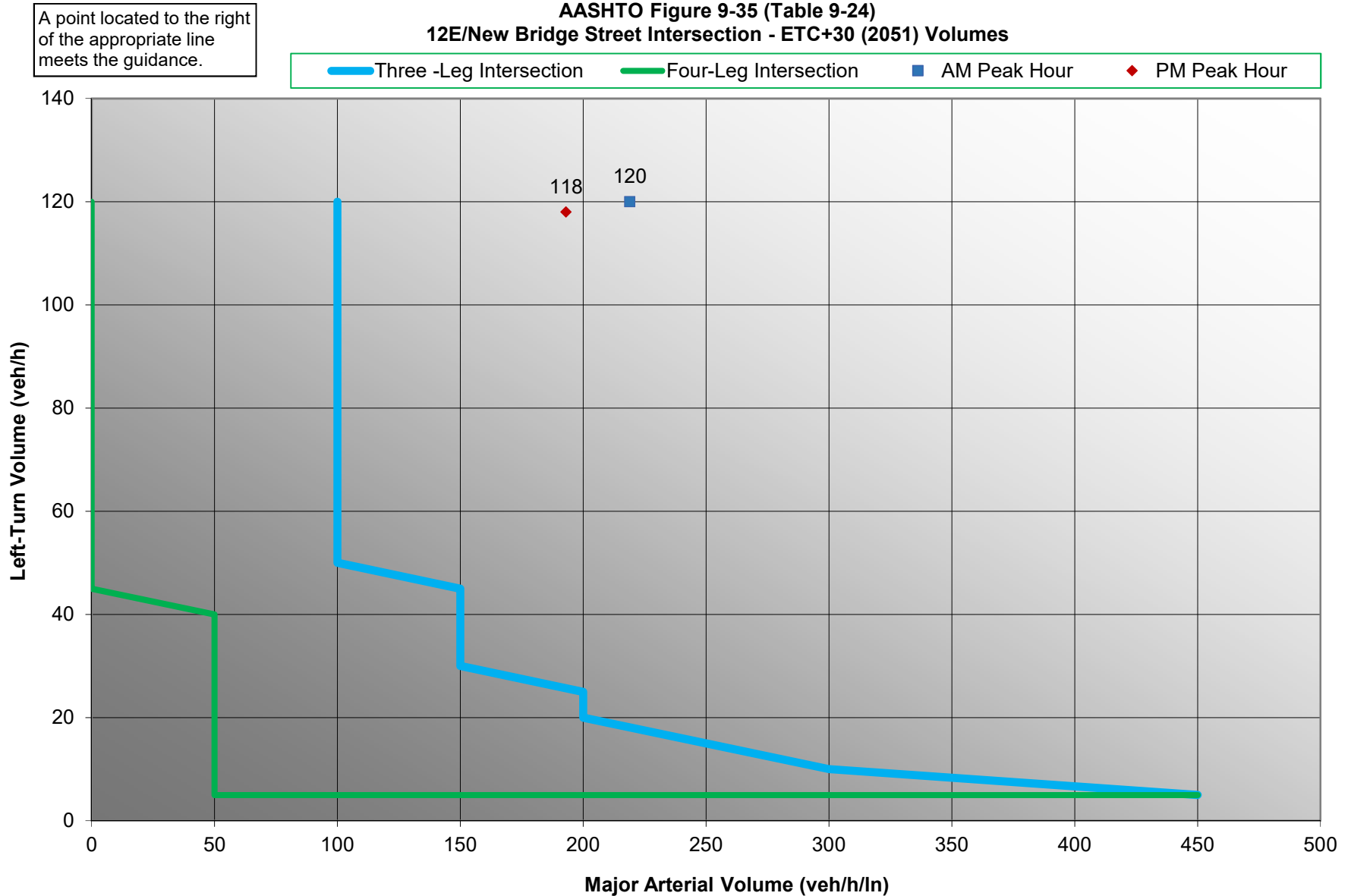
Attachment C  
Left Turn Lane Warrants

PIN 7780.09 – New York Route 12E over Black River Bridge Replacement  
Town of Brownville and Town of Hounsfield, New York

## Suggested Left-Turn Lane Warrants Based on Results from Benefit-Cost Evaluations for Intersections on Arterials in Urban Areas

AASHTO Figure 9-35 (Table 9-24)

12E/New Bridge Street Intersection - ETC+30 (2051) Volumes



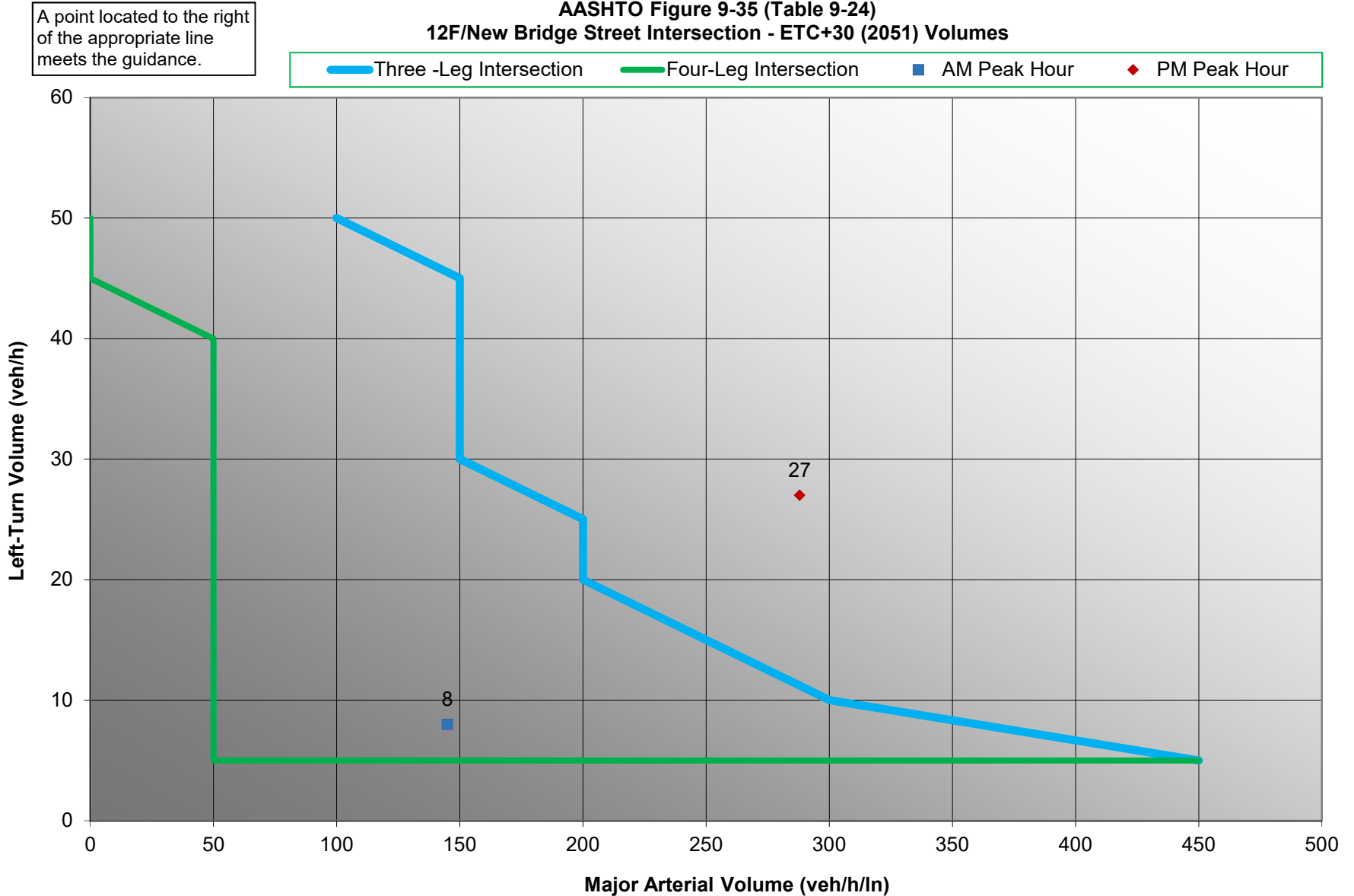
Source: *A Policy on Geometric Design of Highways and Streets, 2011, Table 9-23*

N:\Projects\2019\119-100 NYSDOT RDSA 12E over Black River\Working\Traffic\Analysis\Left Turn\119100\_AASHTO LTL Guidance (2018)-12E Int\_20200407.xlsx

## Suggested Left-Turn Lane Warrants Based on Results from Benefit-Cost Evaluations for Intersections on Arterials in Urban Areas

AASHTO Figure 9-35 (Table 9-24)

12F/New Bridge Street Intersection - ETC+30 (2051) Volumes



Source: A Policy on Geometric Design of Highways and Streets, 2011, Table 9-23

N:\Projects\2019\119-100 NYSDOT RDSA 12E over Black River\Working\Traffic\Analysis\Left Turn\119100\_AASHTO LTL Guidance (2018)-12F Int\_20200407.xlsx

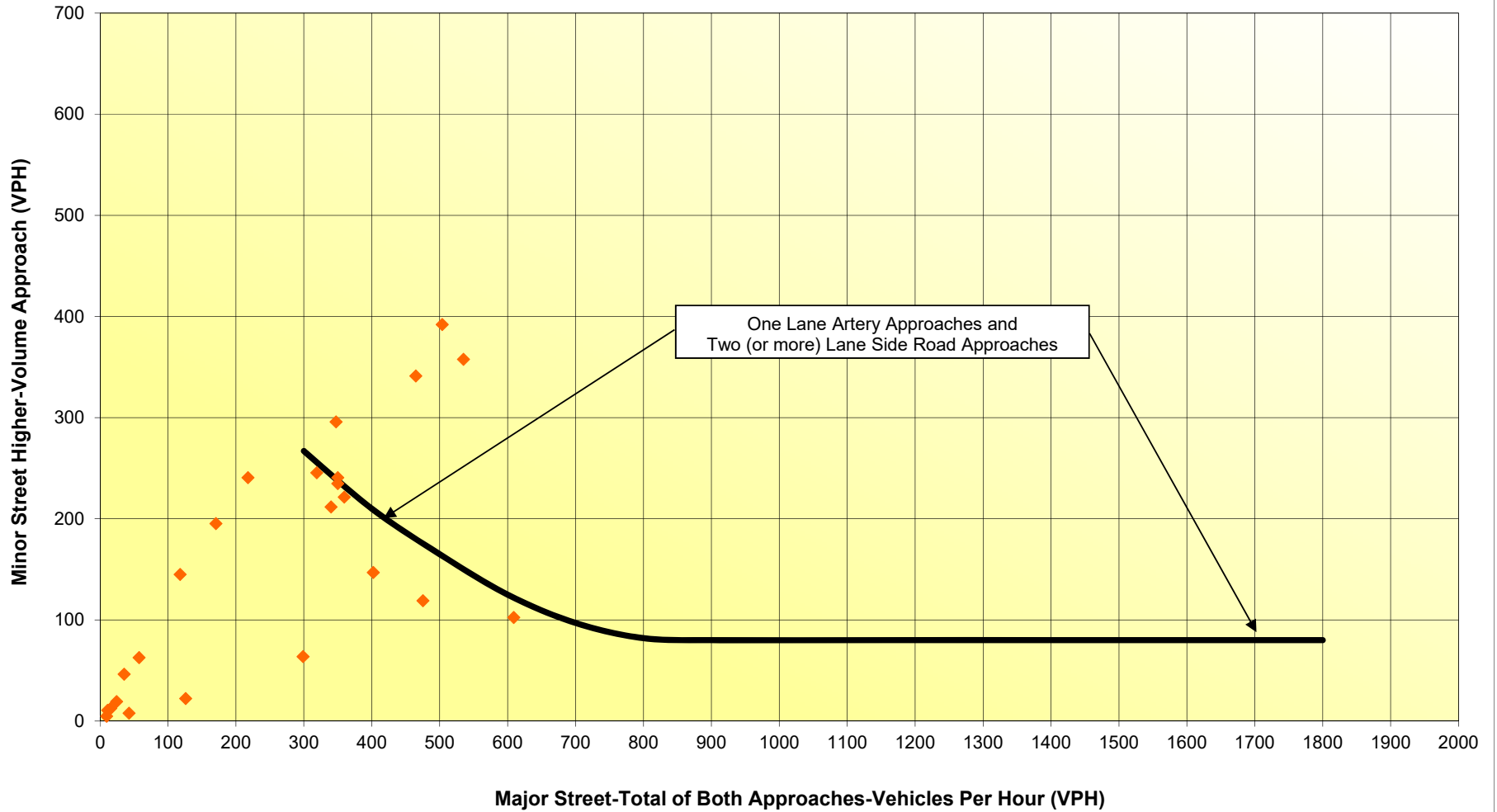
## Attachment D Signal Warrants

PIN 7780.09 – New York Route 12E over Black River Bridge Replacement  
Town of Brownville and Town of Hounsfield, New York

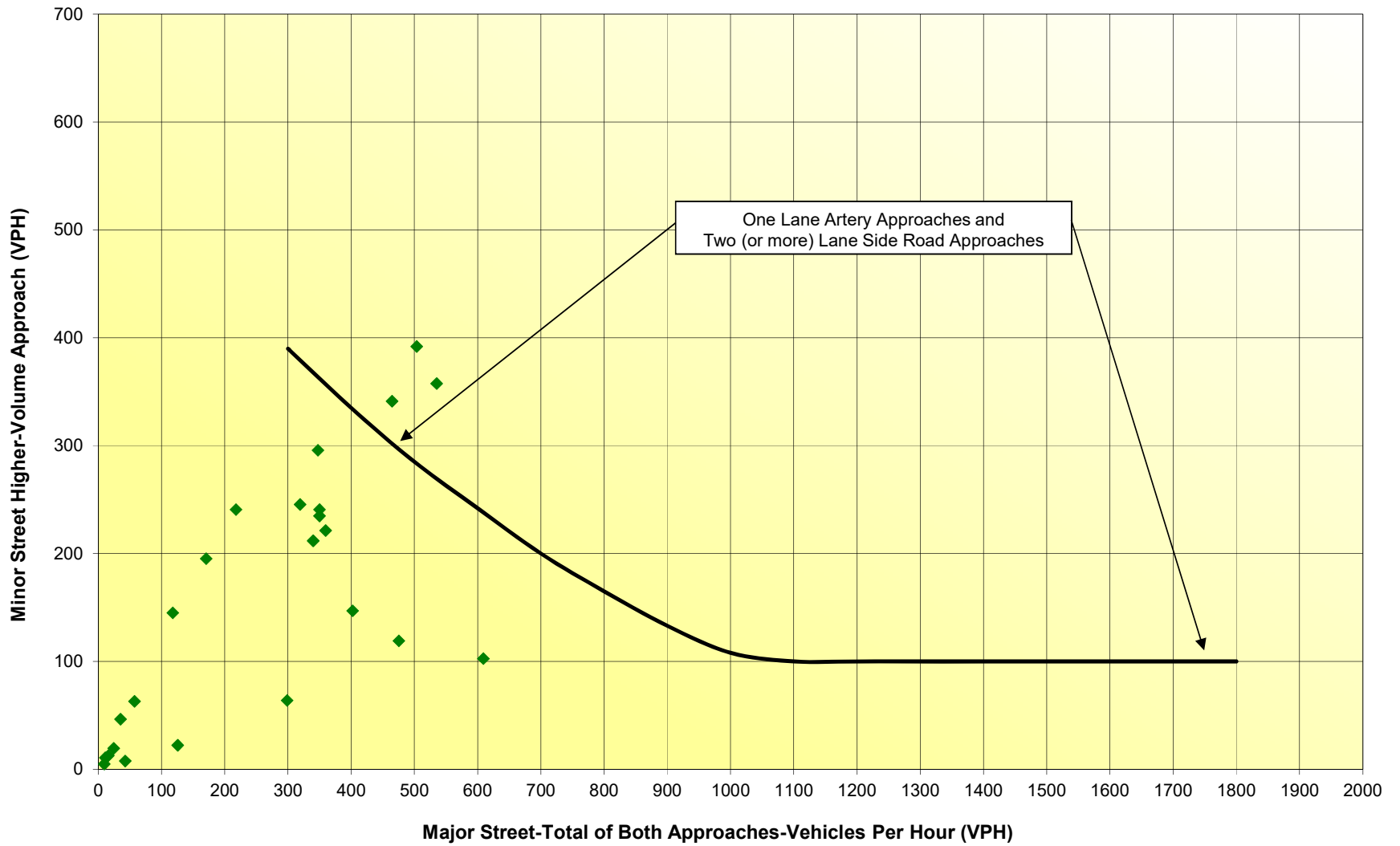




**Figure 4C-2**  
**Reduced Four-Hour Vehicular Volume Warrant**  
Source: Federal MUTCD  
**NY Route 12E/New Bridge Street - ETC Traffic Volume Conditions**

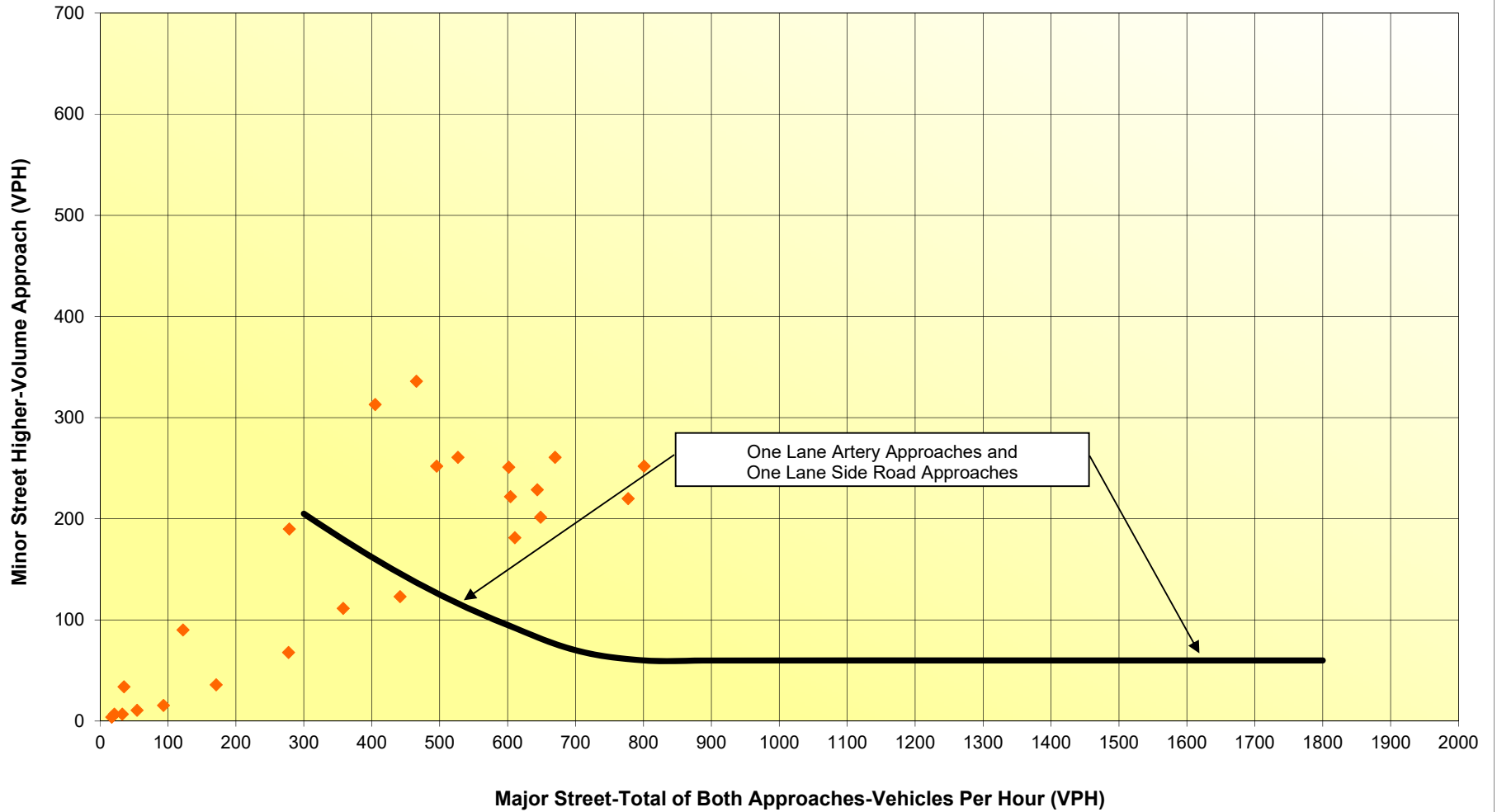


**Figure 4C-4**  
**Reduced Peak Hour Volume Warrant**  
 Source: Federal MUTCD  
**NY Route 12E/New Bridge Street - ETC Traffic Volume Conditions**

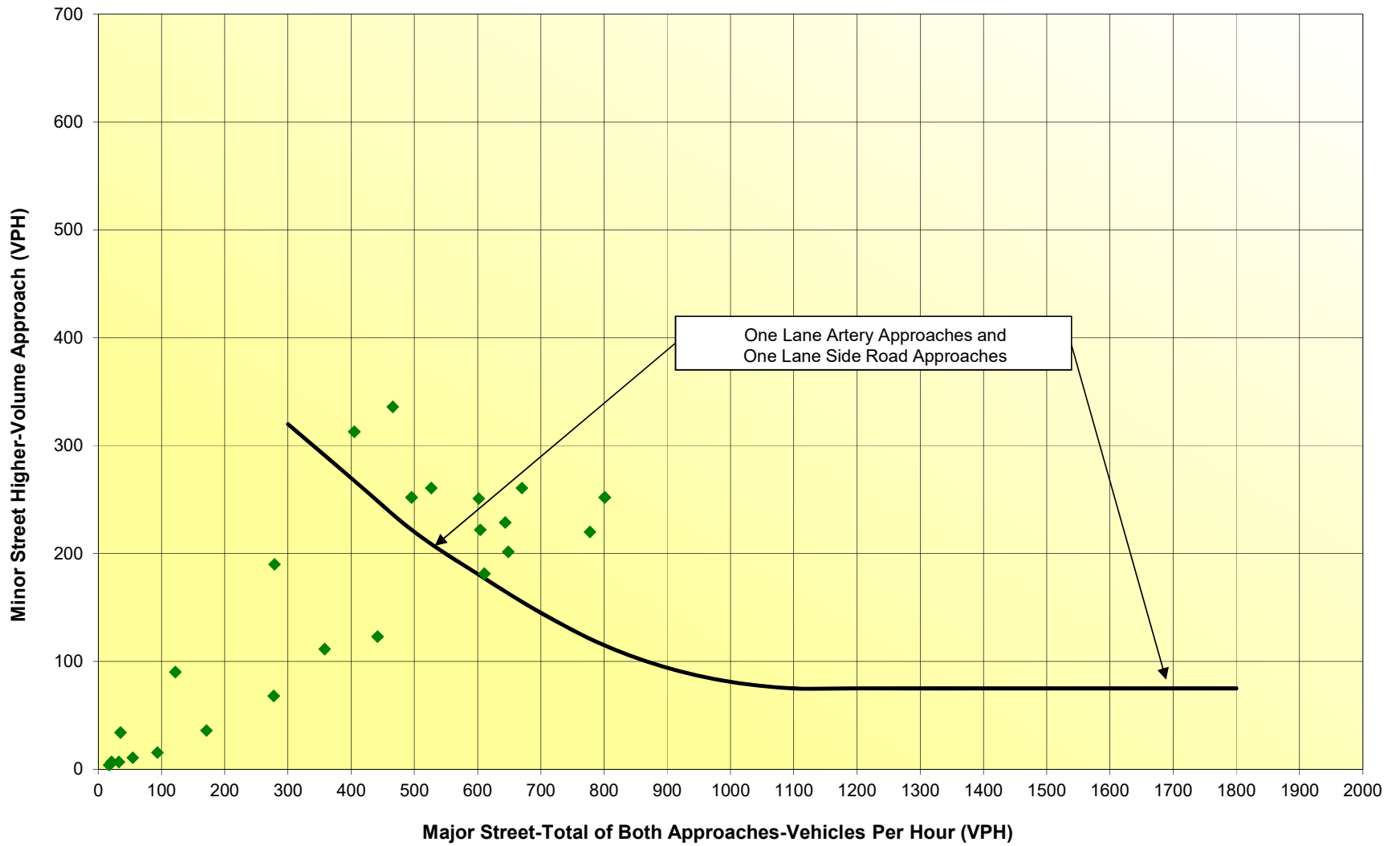




**Figure 4C-2**  
**Reduced Four-Hour Vehicular Volume Warrant**  
Source: Federal MUTCD  
**NY Route 12F/New Bridge Street - ETC Traffic Volume Conditions**



**Figure 4C-4**  
**Reduced Peak Hour Volume Warrant**  
Source: Federal MUTCD  
**NY Route 121F/New Bridge Street - ETC Traffic Volume Conditions**



## **APPENDIX D** – *Structures Information*

# New York State Department of Transportation General Bridge Inspection Report

**Inspection Date:** December 03, 2021

## Structure Information

**BIN:** 3338900

**Feature Carried:** 971HX

**Feature Crossed:** BLACK RIVER

**Orientation:** 2 - NORTHEAST

**Region:** 07 - WATERTOWN

**County:** JEFFERSON

**Political Unit:** Town of HOUNSFIELD

**Approximate Year Built:** 1954

**Primary Owner:** New York State Department of Transportation

**Primary Maintenance Responsibility:** New York State Department of Transportation

**General Type Main Span:** 3 - Steel, 10 - Truss - Thru

This Bridge is not a Ramp

**Number of Spans:** 1

## Postings

**Posted Load Matches Inventory:** Yes

**Posted Load in field:** Code 88 - No Vehicles  
with R Permits

**Posted Vertical Clearances Match Inventory:** N/A

**Inventory On:** Not Posted

**Inventory Under:** Not Posted

## Number of Flags Issued

**Red PIA:** 0

**Red:** 1

**Yellow:** 4

**Safety PIA:** 0

## New York State Inspection Overview

**General Recommendation:** 4

## Federal NBI Ratings

**NBI Deck Condition:** 5

**NBI Superstructure Condition:** 4

**NBI Substructure Condition:** 4

**NBI Channel Condition:** 7

**NBI Culvert Condition:** N

## Action Items

**Non-Structural Condition Observations noted:** NO

**Vulnerability Reviews Recommended:** NO

**Diving Inspection Requested:** NO

**Further Investigation Requested:** NO

## Inspector & Reviewer Signature Information

**Inspection Signature:** Russell P. Dunderdale, P.E. 074648-1

**Date:** January 21, 2022

**Review Signature:** Lawrence Mathews, P.E. 051173-1

**Date:** January 21, 2022

**Processed by :** Timothy Snow, P.E. 085992-1

**Date:** January 21, 2022

Report Printed: January 21, 2022 2:56:11 PM

**Special Emphasis Inspection**

Special Emphasis Detail	"Other" Special Emphasis Detail Description	Hands-On Insp Performed	Hands-On Inspection Note
Non-redundant or Fracture-Critical Structures		Yes	2021 – All truss members are non-redundant. All members other than end posts and top chord are fracture critical members.  Floor beams are spaced at 22'-4", therefore members are fracture critical.  A 100% hands-on-inspection was performed for the special emphasis details. No defects were found.
AASHTO Category D, E, and E' welded details		Yes	2021 – Primary member butt welds, intermittent welds on inside section of diagonal members. This is a welded truss therefore welds at all gusset plates and nodes are special emphasis. Welds details joining floorbeams to truss members are also special emphasis.  A 100% hands-on-inspection was performed for the special emphasis details. No defects were found.

**Additional Information**

**Overloads Observed**

No overload vehicles observed during this inspection.

**Notes to Next Inspector**

2021 - The BIN plate is on the left side of the begin backwall.  
 2021 Access - Walking, Bucket Truck, Moog 60, Lane Closure with Flagging Operation

**Improvements Observed**

2021 – Red Flag 7B20M8W027 was removed based on repairs made by Bridge Maintenance. Small angle-iron bolsters were lagged to the left edge of the deck to support the intermediate sidewalk floor beams. The end abutment joint headers have been repaired since the previous inspection. The outer gusset plates for the right truss at L04 were repaired (certified by NYSPE) and Red Flag 7B21N6W016 was removed on 12/2/21 (photo 43).

2020 - Begin Abutment Joint with deck appears to have been replaced since last inspection. Joint consisted of elastomeric concrete header with compression seal.

**Pedestrian Fence Height**

None

**Snow Fence**

None

**Bin Plate Condition**

OK

**Scour Critical Rating**

5 - Bridge foundations determined to be stable for assessed or calculated scour condition. Scour is determined to be within the limits of footing or piles by assessment (i.e., bridge foundations are on rock formations that have been determined to resist scour within the service life of the bridge), by calculations or by installation of properly designed countermeasures.



**Field Notes**

<b>Staff Present During Inspection</b>		
<b>Name</b>	<b>Title</b>	<b>Organization</b>
Caine Moynahan	Laborer	CP Ward
Cody Brown	Bucket Truck Operator	NYSDOT Region 7
Jeff Grill	Regional Structures Engineer	NYSDOT Region 7
Michelle Talkiewicz	ATL	Lu Engineers
Natalie Newman	Laborer	CP Ward
Patrick Manning	Moog 60 Operator	NYSDOT Region 7
Rick Hunkins	Regional Bridge Maintenance	NYSDOT Region 7
Shannon Sobolewski	Foreman	CP Ward

<b>General Equipment Required for Inspection*</b>
<b>Access Type</b>
13 - Walking
16 - 40 foot Under Bridge Inspection Unit (UBIU)
17 - 60 foot Under Bridge Inspection Unit (UBIU)
19 - Up to 30 Foot Lift
28 - Lane Closure Without Shadow Vehicle

\* For span specific equipment requirements refer to the Active Inventory's "Access Needs" tab in BDIS.

<b>Detailed Time &amp; Weather Conditions</b>				
<b>Field Date</b>	<b>Arrival</b>	<b>Departure</b>	<b>Temp (F)</b>	<b>Weather Conditions</b>
10/20/2021	07:15 AM	12:00 PM	55	Cloudy
11/16/2021	07:45 AM	03:45 PM	30	Partly Cloudy
11/17/2021	02:45 PM	03:30 PM	48	Cloudy with Light Rain
12/03/2021	09:20 AM	11:00 AM	31	Partly to Mostly Cloudy

<b>Inspection Times (hours)</b>	
Time required for travel, inspection and report preparation	25
Lane closure usage	11.5
Railroad flagging time	No

**Element Quantities**

**Element Assessment Summary Table**

Element	Total Quantity	Unit	CS-1	CS-2	CS-3	CS-4	CS-5
29 - Steel Deck with Concrete Filled Grid	4320	SQUARE FOOT		3240	1080		0
113 - Steel Stringer	900	ft	810	45	45		0
120 - Steel Truss	360	ft			360		0
152 - Steel Floor Beam	240	ft			240		0
162 - Steel Gusset Plate	22	each	10	12			0
215 - Reinforced Concrete Abutment	28	ft			12		16
217 - Masonry Abutment	20	ft			20		0
220 - Reinforced Concrete Pile Cap/Footing	28	ft		16	12		0
302 - Compression Joint Seal	25	ft			25		0
303 - Assembly Joint with Seal	25	ft		20		5	0
311 - Movable Bearing	2	each			2		0
313 - Fixed Bearing	2	each	2				0
330 - Metal Bridge Railing	540	ft		530	10		0
510 - Wearing Surfaces	4320	SQUARE FOOT		3240	1080		0
515 - Steel Protective Coating	16913	SQUARE FOOT	2596	7447	2621	4249	0
800 - Erosion or Scour	96	ft		78		18	0
801 - Stream Hydraulics	1	each		1			0
810 - Sidewalk	810	SQUARE FOOT		565	63	182	0
811 - Curb	360	ft		360			0
830 - Secondary Members	1	each			1		0
850 - Backwall	56	ft		42	14		0
851 - Abutment Pedestal	4	each		2	2		0
853 - Wingwall	40	ft		22		18	0

**Element Assessment by Span**

Element**	Total Quantity	Unit	CS-1	CS-2	CS-3	CS-4	CS-5
<i>Span Number : 1</i>							
BA220 - Reinforced Concrete Pile Cap/Footing	28	ft		16	12		0
BA302 - Compression Joint Seal	25	ft			25		0
BA313 - Fixed Bearing	2	each	2				0
515 - Steel Protective Coating	4	SQUARE FOOT			2	2	0
BA800 - Erosion or Scour	28	ft		28			0

BIN: 3338900 Bridge Inspection Report  
Inspection Date: December 03, 2021

Element**	Total Quantity	Unit	CS-1	CS-2	CS-3	CS-4	CS-5
BA850 - Backwall	28	ft		22	6		0
BA851 - Abutment Pedestal	2	each		2			0
BW800 - Erosion or Scour	20	ft		2		18	0
BW853 - Wingwall	20	ft		2		18	0
EA215 - Reinforced Concrete Abutment	28	ft			12		16
EA217 - Masonry Abutment	20	ft			20		0
EA303 - Assembly Joint with Seal	25	ft		20		5	0
EA311 - Movable Bearing	2	each			2		0
515 - Steel Protective Coating	4	SQUARE FOOT			2	2	0
EA800 - Erosion or Scour	28	ft		28			0
EA850 - Backwall	28	ft		20	8		0
EA851 - Abutment Pedestal	2	each			2		0
EW800 - Erosion or Scour	20	ft		20			0
EW853 - Wingwall	20	ft		20			0
29 - Steel Deck with Concrete Filled Grid	4320	SQUARE FOOT		3240	1080		0
510 - Wearing Surfaces	4320	SQUARE FOOT		3240	1080		0
113 - Steel Stringer	900	ft	810	45	45		0
515 - Steel Protective Coating	4280	SQUARE FOOT	2596	1284	200	200	0
120 - Steel Truss	360	ft			360		0
515 - Steel Protective Coating	8140	SQUARE FOOT		3256	1628	3256	0
152 - Steel Floor Beam	240	ft			240		0
515 - Steel Protective Coating	2200	SQUARE FOOT		1980	110	110	0
162 - Steel Gusset Plate	22	each	10	12			0
515 - Steel Protective Coating	110	SQUARE FOOT		56	27	27	0
330 - Metal Bridge Railing	540	ft		530	10		0
515 - Steel Protective Coating	2175	SQUARE FOOT		871	652	652	0
801 - Stream Hydraulics	1	each		1			0
810 - Sidewalk	810	SQUARE FOOT		565	63	182	0
811 - Curb	360	ft		360			0
830 - Secondary Members	1	each			1		0

\*\* Elements with a prefix designate the locations of BA-Begin Abutment, BW-Begin Wingwall, EA-End Abutment, EW-End Wingwall, CO-Culvert Outlet, and PR-Pier. No prefix generally indicates the element is part of the superstructure.

**Inspection Notes**

**General Notes**

2021 – No bats were observed during this inspection.  
 Wingwalls are not considered integral with the abutments.  
 The plans have been reviewed. No changes have been made to the plans.  
 The Stream Channel consists of bedrock and water is flowing fast in the Black River. Channel cross-section readings along the fascia were not taken.  
 “No Trucks with R Permits” signs are present at the beginning and end of the bridge. Both sides are in good condition and are visible to the traveling public (photos 7 and 8).  
 The 2020 Electrical Hazard form was verified.

**Element Condition Notes**

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 29 - Steel Deck with Concrete Filled Grid</b>	4320	0	3240	1080	0	0

**Condition State 3 Note**

**Referenced Photo(s):** 1, 2, 3, 4, 5, 6

**Referenced Sketch(es):** None

2021 – The underside of the concrete filled steel deck grating as several isolated random areas of spalled concrete exposing the steel deck grating with corrosion and minor section losses evident. This condition is the worst in the fascia bays and near the abutments (photos 1 through 3).  
 Both edges of the deck (fascia) have spalling with the worst conditions occurring on the right fascia. The right edge of the deck and brush curb have isolated areas of heavy spalling around isolated bridge railing posts at the begin right exposing railing anchorage (photo 4).  
 In addition, both deck fascia have steel armoring/plates/channels with varying degrees of corrosion with some perforations and with the steel peeling away from the deck fascia at some locations (photos 5 and 6).  
 Approximately 25% of the overall area is affected.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 29 - Steel Deck with Concrete Filled Grid-510 - Wearing Surfaces</b>	4320	0	3240	1080	0	0

**Condition State 3 Note**

**Referenced Photo(s):** 9, 10, 11

**Referenced Sketch(es):** None

2021 – The asphalt wearing surface is cracked/raveled with potholes developing in various locations. Conditions are worse near the beginning of the bridge (photos 9 and 10) and in the right lane (photo 11). The top 1 inch layer of asphalt is worn/raveled away in a few locations (most notably adjacent to the centerline).  
 Approximately 25% of the overall wearing surface area is affected.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 113 - Steel Stringer</b>	900	810	45	45	0	0

**Condition State 3 Note**

**Referenced Photo(s):** 5, 12, 13

**Referenced Sketch(es):** None

2021 – The fascia stringers (S1 and S5) have laminated corrosion with up to 15% section loss to the flanges and webs (photos 5, 12 and 13). Approximately 5% of the overall stringer quantity is affected.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 113 - Steel Stringer-515 - Steel Protective Coating</b>	4280	2596	1284	200	200	0

**Common**

**Referenced Photo(s):** 5, 12, 13

**Referenced Sketch(es):** None

2021 – (Condition State 4) – Approximately 5% of the paint on the stringers has failed allowing corrosion to occur (photos 5, 12 and 13).  
 (Condition State 3) – Approximately 5% of the paint on the stringers is starting to fail.

Most of the deterioration has occurred on stringers 1 and 5.

<b>Span 1: 120 - Steel Truss</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	360	0	0	360	0	0
<b>Common</b>						
<b>Referenced Photo(s):</b> 14, 15, 16, 17, 18, 19, 20, 21, 43, 44						
<b>Referenced Sketch(es):</b> 2, 7						

2021 – Background Information: The right and left bottom chords have been retrofitted with steel tension rods in the past. In addition, right and left diagonal members U01-L02 and L06-U07 were retrofitted with steel tension rods in the past.

Section loss readings were taken at several locations as follows:

(CS3) - Left Truss bottom chord member L01-L02 has 28% section loss to the left flange, 33% section loss to the right flange and 25% section loss to the web. The total section loss for the member is 30% (photo 14). The previous inspection indicates that bottom chord section loss was estimated at 30%. No flag is issued for this condition due to the presence of the steel tension rods that were added in the past and since the bridge is posted for “No Trucks with R Permits”. See Truss Member Section Loss Sketch. Bottom truss section loss is similar throughout the full length of both bottom chords.

(CS3) - Right truss vertical compression member L06-U06 has 4% left flange section loss, 19% right flange section loss and 39% web section loss. The total section loss for the member is 19% (photo 15). The previous inspection indicates that section loss for this member was approximately 9%. See Truss Member Section Loss Sketch.

(CS4) - Yellow Flag 7B21N6W019 was issued due to heavy section losses of Right truss vertical member L05-U05 and Left Truss vertical member L01-U01:  
 Right truss vertical member L05-U05 has 29% left flange section loss, 23% right flange section loss, and 59% web loss. The total section loss for the member is 34% (photo 16). The previous inspection indicates that section loss of flanges was 5% and 17%. See Truss Member Section Loss Sketch.  
 Left Truss L01-U01 vertical member section loss readings were taken just above the sidewalk. The left flange has approximately 30% section loss; the right flange has approximately 32% section loss, the web has approximately 14% section loss. The total section loss for the member is 27% (photo 17). Deterioration for this member was previously estimated to have 10% section loss. See Truss Member Section Loss Sketch. Also See Yellow Flag Yellow Flag 7B21N6W019 for additional information.

Yellow Flag 7B21N6W021 was issued due to heavy section loss of right truss member L04-U04 below the elevation of the top of the floorbeam. This flag was issued after discussion with the Region and the QC Engineer. Right truss vertical member L04-U04 has 10% (estimated) left flange section loss, 30% right flange section loss, and up to 100% web loss below the elevation of the top of the floorbeam. The total section loss for the member below the top of the floorbeam is 41% (photos 43 and 44). Also, See Right Truss L04-U04 Section Loss Sketch and Yellow Flag 7B21N6W021.

The remaining truss verticals have up to 15% +/- overall section loss mostly between the top of the floorbeam and top of curb on the right side and between the top of the floorbeam and top of the sidewalk and the left side (photos 19 through 21).

Truss diagonals also have up to 15% +/- overall section loss near their connections to the bottom chord.

<b>Span 1: 120 - Steel Truss-515 - Steel Protective Coating</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	8140	0	3256	1628	3256	0
<b>Common</b>						
<b>Referenced Photo(s):</b> 14, 16, 19, 20, 21						
<b>Referenced Sketch(es):</b> None						

2021 – (Condition State 4) – Approximately 40% of the paint on the truss members has failed allowing corrosion to occur (photos 14, 16, 19, 20 and 21).

(Condition State 3) – Approximately 20% of the paint on the truss members is starting to fail.

Most of the paint deterioration is below the splash zone (from 6 feet above the deck to the bottom of the bottom chord).

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 152 - Steel Floor Beam</b>	240	0	0	240	0	0
<b>Condition State 3 Note</b>						
<i>Referenced Photo(s):</i> 22, 23						
<i>Referenced Sketch(es):</i> None						
2021 – All floorbeams have some degree of visible section loss or pitting to lower web (5%-10% section loss) (no significant change since last inspection) over most of their lengths (photos 22 and 23). Section loss is mostly arrested by current paint coating.						
<b>Span 1: 152 - Steel Floor Beam-515 - Steel Protective Coating</b>	2200	0	1980	110	110	0
<b>Common</b>						
<i>Referenced Photo(s):</i> 16, 20, 21, 22, 23						
<i>Referenced Sketch(es):</i> None						
2021 – (Condition State 4) – Approximately 5% of the paint on the floor beams has failed allowing corrosion to occur (photos 16, 20 through 23). (Condition State 3) – Approximately 5% of the paint on the floor beams is starting to fail.						
<b>Span 1: 162 - Steel Gusset Plate</b>	22	10	12	0	0	0
<b>Common</b>						
<i>Referenced Photo(s):</i> 18, 43, 45, 46, 47, 48						
<i>Referenced Sketch(es):</i> 3						
2021 – Red Flag 7B21N6W016 (new flag) was issued during this inspection due to heavy section loss with perforations to the outer gusset plates at right truss L04. See Red Flag 7B21N6W016, the Gusset Plate Section Loss Sketch and photo 18. Section loss was not previously reported at this location.						
The outer gusset plates for the right truss at L04 were repaired (certified by NYSPE) and Red Flag 7B21N6W016 was removed on 12/2/21 (photo 43).						
The inner gusset plates at L04 have 10% to 15% section loss (photos 45 through 48).						
<b>Span 1: 162 - Steel Gusset Plate-515 - Steel Protective Coating</b>	110	0	56	27	27	0
<b>Common</b>						
<i>Referenced Photo(s):</i> 18						
<i>Referenced Sketch(es):</i> None						
2021 – (Condition State 4) – Approximately 25% of the paint on the gusset plates has failed allowing corrosion to occur (photo 18). (Condition State 3) – Approximately 25% of the paint on the gusset plates is starting to fail.						
<b>Span 1: EA215 - Reinforced Concrete Abutment</b>	28	0	0	12	0	16
<b>Common</b>						
<i>Referenced Photo(s):</i> 24, 25						
<i>Referenced Sketch(es):</i> None						
2021 – The end concrete abutment has a stone masonry abutment in front of most of the stem wall, with reinforced concrete abutment exposed for approximately 6 feet of length on each side of the stone masonry wall below the abutment pedestals (photo 25).						
(Condition State 3 – 12 feet) The right exposed portion of the stem is spalled up to 6 inches deep by 3 feet high by up to full width with exposed corroded reinforcing (photo 24) near the top. The area below this has spalling up to 5 inches deep with the worst spalling occurring at the base with corroded reinforcing steel exposed. The begin face of the abutment stem below the end left pedestal area is spalled up to 4 inches deep inches deep for most of the abutment height.						

(Condition State 5) – The remainder of end concrete abutment behind the masonry wall is not visible.

<b>Span 1: EA217 - Masonry Abutment</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	20	0	0	20	0	0

**Condition State 3 Note**  
*Referenced Photo(s):* 25  
*Referenced Sketch(es):* None

2021 – The stone masonry abutment typically has mortar missing throughout its length, especially at the top half (photo 25).

<b>Span 1: BA220 - Reinforced Concrete Pile Cap/Footing</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	28	0	16	12	0	0

**Condition State 3 Note**  
*Referenced Photo(s):* 26  
*Referenced Sketch(es):* None

2021 – The begin abutment consists of a continuous footing supporting the truss bearings. The top corner of the begin abutment footing is spalled up to 4 inches deep between the truss bearings for approximately 12 feet of length on the right side (photo 26). The bearings are not undermined.

<b>Span 1: BA302 - Compression Joint Seal</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	25	0	0	25	0	0

**Condition State 3 Note**  
*Referenced Photo(s):* 10  
*Referenced Sketch(es):* None

2021 – The begin abutment joint seal is torn/shredded for most of its length and is depressed in some areas (photo 10). The joint leaks lightly for most of its length.

<b>Span 1: EA303 - Assembly Joint with Seal</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	25	0	20	0	5	0

**Common**  
*Referenced Photo(s):* 27  
*Referenced Sketch(es):* None

2021 – The end abutment joint headers have been repaired since the previous inspection (photo 27). The joint appears to leak moderately on the right 5 feet of its length.

<b>Span 1: EA311 - Movable Bearing</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	2	0	0	2	0	0

**Condition State 3 Note**  
*Referenced Photo(s):* 28  
*Referenced Sketch(es):* None

2021 – The end abutment movable bearings for the truss have scaling corrosion present between the sliding surfaces hindering movement (photo 28).

<b>Span 1: EA311 - Movable Bearing-515 - Steel Protective Coating</b> <b>Span 1: BA313 - Fixed Bearing-515 - Steel Protective Coating</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	4	0	0	2	2	0

**Common**  
*Referenced Photo(s):* 28, 29  
*Referenced Sketch(es):* None

2021 – (Condition State 4) – Approximately 50% of the paint on the begin and end abutment bearings has failed allowing



corrosion to occur (photos 28 and 29).  
 (Condition State 3) – Approximately 50% of the paint on the begin and end abutment bearings is starting to fail.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 330 - Metal Bridge Railing</b>	540	0	530	10	0	0
<b>Condition State 3 Note</b>						
<i>Referenced Photo(s):</i> 4, 30						
<i>Referenced Sketch(es):</i> None						

2021 – The safety sidewalk has an isolated spall at the begin right exposing railing post anchor bolts (photo 4). In addition, a few random locations are missing 2 anchor bolt nuts on the underside of the railing anchorage plate (photo 30). Approximately 10 linear feet of the railing is affected.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 330 - Metal Bridge Railing-515 - Steel Protective Coating</b>	2175	0	871	652	652	0
<b>Common</b>						
<i>Referenced Photo(s):</i> 9, 31						
<i>Referenced Sketch(es):</i> None						

2021 – (Condition State 4) – Approximately 30% of the steel protective coating on the railings has failed allowing corrosion to occur (photos 9 and 31).  
 (Condition State 3) – Approximately 30% of the steel protective coating on the railings is starting to fail.  
 Most of the steel protective coating deterioration is has occurred on the left sidewalk railing.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: BW800 - Erosion or Scour</b>	20	0	2	0	18	0
<b>Condition State 4 Note</b>						
<i>Referenced Photo(s):</i> 32						
<i>Referenced Sketch(es):</i> None						

2021 – Repeat Yellow Flag 7B21N6W017 which Supersedes Yellow Flag 7B20M8W028 was issued during this inspection due to undermining of the begin left concrete wingwall (photo 32). See Yellow Flag 7B21N6W017 for conditions and photos. Abutment profile/undermining readings were not taken due to the hazardous nature of the task.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 801 - Stream Hydraulics</b>	1	0	1	0	0	0
<b>Common</b>						
<i>Referenced Photo(s):</i> 41, 42						
<i>Referenced Sketch(es):</i> 4						

2021 – See Stream Hydraulics Defect History Form.

	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
<b>Span 1: 810 - Sidewalk</b>	810	0	565	63	182	0
<b>Common</b>						
<i>Referenced Photo(s):</i> 33, 34, 35, 36						
<i>Referenced Sketch(es):</i> None						

2021 – (Condition State 3 – Approximately 8% of the Sidewalk Area) – The sidewalk grating has severe deterioration in a few locations where the left truss members pass through the sidewalk (photo 33). The worst condition is at diagonal member L0-U01.  
 Floorbeams supporting the grating have varying degrees of missing paint allowing for rust scale and minor section losses of up to 10% (photo 34).  
 Several Clip angles attaching the floorbeams to the outer sidewalk channel have active pack rust between the clip angle and attaching member, causing uplift of angle. The worst condition was at L05 (photo 35).



(Condition State 4 – Approximately 23% of the Sidewalk Area) – Repeat Yellow Flag 7B21N6W018 which supersedes Yellow Flag 7B2095W004 was issued during this inspection since the steel channel embedded in the left deck fascia still has heavy section loss with perforations throughout the length of the bridge (photo 36). See Yellow Flag 7B21N6W018 for additional details and photos.

<b>Span 1: 830 - Secondary Members</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	1	0	0	1	0	0
<b>Condition State 3 Note</b>						
<i>Referenced Photo(s):</i> 37, 38						
<i>Referenced Sketch(es):</i> None						

2021 – All bottom lateral bracing connections to connection plates at the trusses and to middle support of cross bracing have crevice corrosion/pack rust causing deformation and broken welds in several locations (photos 37 and 38).

<b>Span 1: BA850 - Backwall</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	28	0	22	6	0	0
<b>Condition State 3 Note</b>						
<i>Referenced Photo(s):</i> 39						
<i>Referenced Sketch(es):</i> None						

2021 – The begin backwall in Stringer Bay 1 has a 6 foot wide by 2.5 foot high spall that is up to 4 inches deep with adjacent hollow sounding concrete and efflorescence (photo 39).

<b>Span 1: EA850 - Backwall</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	28	0	20	8	0	0
<b>Condition State 3 Note</b>						
<i>Referenced Photo(s):</i> 40						
<i>Referenced Sketch(es):</i> None						

2021 – The end abutment backwall has spalled areas up to 3 inches deep behind the left and right truss bearings affecting approximately 8 linear feet of the wall (photo 40).

<b>Span 1: EA851 - Abutment Pedestal</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	2	0	0	2	0	0
<b>Condition State 3 Note</b>						
<i>Referenced Photo(s):</i> 24						
<i>Referenced Sketch(es):</i> None						

2021 – The end right pedestal is spalled up to 6 inches deep with exposed corroded reinforcing on its begin and right faces (photo 24). The bearing area is not undermined. The begin face of the end left pedestal is spalled up to 3 inches deep for approximately 3 feet of length. The bearing area is not undermined.

<b>Span 1: BW853 - Wingwall</b>	TQ	CS-1	CS-2	CS-3	CS-4	CS-5
	20	0	2	0	18	0
<b>Condition State 4 Note</b>						
<i>Referenced Photo(s):</i> 32						
<i>Referenced Sketch(es):</i> None						

2021 - The wingwall exhibits cracking/spalling above the undermined area because of loss of material supporting the wall (photo 32). Also see Repeat Yellow Flag 7B21N6W017 which Supersedes Yellow Flag 7B20M8W028. There is no evidence of loss of backfill from behind the wall. The condition has not changed significantly since the previous inspection. The wingwall is adjacent to the shoulder of the roadway. Failure of the wingwall may compromise the shoulder/roadway

**Inspection Photographs**

Photo Number: 1 Photo Filename: 01\_Underside of Deck in Stringer Bay 1 above

**Attachment Description:**  
Underside of Deck in  
Stringer Bay 1 above  
Floorbeam 0 Looking  
toward Begin



Photo Number: 2 Photo Filename: 02\_Underside Of Deck In Stringer Bay 4

**Attachment Description:**  
Underside Of Deck In  
Stringer Bay 4 Between  
Floor Beams 1 And 2 from  
End





Photo Number: 3 Photo Filename: 03\_Underside of Deck in Stringer Bay 1 near

**Attachment Description:**  
Underside of Deck in  
Stringer Bay 1 near End  
Abutment from Begin



Photo Number: 4 Photo Filename: 04\_Begin Right Bridge Railing Post

**Attachment Description:**  
Begin Right Bridge Railing  
Post Anchorage at Deck  
Fascia from Begin Right





Photo Number: 5 Photo Filename: 05\_Left Deck Fascia and Stringer 1 between

**Attachment Description:**  
Left Deck Fascia and  
Stringer 1 between Floor  
Beams 1 and 2 from Begin



Photo Number: 6 Photo Filename: 06\_Right Deck Fascia between L02\_L03 from

**Attachment Description:**  
Right Deck Fascia between  
L02\_L03 from Begin





Photo Number: 7 Photo Filename: 07\_Begin Approach\_21\_DSCN4836.JPG

**Attachment Description:**  
Begin Approach



Photo Number: 8 Photo Filename: 08\_End Approach\_21\_DSCN4857.JPG

**Attachment Description:**  
End Approach





Photo Number: 9 Photo Filename: 09\_Wearing Surface from Begin Left Corner

**Attachment Description:**  
Wearing Surface from Begin  
Left Corner of Bridge  
Looking toward End



Photo Number: 10 Photo Filename: 10\_Begin Abutment Joint and Wearing

**Attachment Description:**  
Begin Abutment Joint and  
Wearing Surface from Left





Photo Number: 11 Photo Filename: 11\_Wearing Surface at the End Half of Span

**Attachment Description:**  
Wearing Surface at the End  
Half of Span from Midspan



Photo Number: 12 Photo Filename: 12\_Stringer 1 between L02\_L03 from

**Attachment Description:**  
Stringer 1 between L02\_L03  
from Begin





Photo Number: 13 Photo Filename: 13\_Stringer 5 at L02From

**Attachment Description:**  
Stringer 5 at L02From Right



Photo Number: 14 Photo Filename: 14\_Left Bottom Chord L01\_L02 from Begin

**Attachment Description:**  
Left Bottom Chord L01\_L02  
from Begin Right





Photo Number: 15 Photo Filename: 15\_Begin Face of Right Truss Member

**Attachment Description:**  
Begin Face of Right Truss  
Member L06\_U06 at Deck  
Level



Photo Number: 16 Photo Filename: 16\_End Face of Right Truss Vertical Member

**Attachment Description:**  
End Face of Right Truss  
Vertical Member L05\_U05  
at Top of Floorbeam

