LEVEL 2 LOAD RATING (VIRTIS)

MILEPOST: 225.48 BIN: 5516072

REGION: 2 COUNTY: HERKIMER

FEATURE CARRIED: 90 IX EB

FEATURE CROSSED: CR 53 MILLERS GROVE RD

LEVEL 2 LOAD RATING REVIEW

VIRTIS RUN DATE: 7/7/2017

CHANGES TO INPUT DATA: Overall web section loss of 5% input to Girders G1 & G7 from Begin to 31.25 ft., and 7% section loss input for the end 1.0 ft.

LOADING	INVENTORY RATING (TONS)	OPERATING RATING (TONS)
HS-20	33.0 (HS-18)	55.1 (HS-30)
H-20	21.4 (H-21)	35.8 (H-35)
EV-2	-	46.2
EV-3	-	45.5

* ANALYSIS METHOD: LOAD FACTOR

** Truck loading controls the rating.

CONTROLLING MEMBER FOR RATING

LOCATION: MIDSPAN

COMPONENT: FASCIA GIRDERS G1 AND G7

FAILURE TYPE: STEEL SERVICEABILITY

EFFECTIVE SPAN LENGTH: 32'

H EQUIVALENT OF LEGAL LOAD H22

PRIMARY MEMBER RATING: 5

SAFE LOAD CAPACITY: H29

SLC COMPUTATION USED (IN BOLD)				
0.60 HOR	0.70 HOR	0.80 HOR	***0.85 HOR***	HOR

ACTION TAKEN: NONE REQUIRED X

RECOMMEND LEVEL 1

UNRATABLE

COMPLETED BY

KENNETH SWEENEY

REVIEWED BY

AMODH NIRALA

PE # 086434

LOAD RATING ENGINEER

Bridge

Bridge Id:	5516072	
Description:	Original analysis by Hardesty & Hanover, LLP - January 2005. Reviewed by Clark Patterson Associates - March 2005. Reviewed by DiDonato Associates - May 2007. Reviewed by DiDonato Associates - July 2009. Reviewed by DiDonato Associates - January 2012. Reviewed by CHA - May 2013. Reviewed by CHA - June 2015. Reviewed by WSA PE-PC - July 2017. Original construction under Contract MT 52-7. Rehabilitation under Contract TAS 92-74B. One simple span; rolled multi-girder. 7 girder cross-section. Structural deck thickness = 7.5 inches. Asphalt overlay = 3.0 inches. Bridge skew = 1.66 degrees. Bridge oriented southeast. 2007 Notes: - Added self load for diaphragms. - Corrected rail type/load. 2009 Notes: - Section loss (10% to bottom flange- full length) for right fascia girder (G7) input based on 2009 inspection report. 2011 Notes: - Rating engine changed from BRASS LFD to VIRTIS LFD. - Section loss (5%) for web of fascia girders at supports entered per 2011 inspection report. 2013 Notes: - Concrete strength revised based on year built, per MBE. - Beam section properties revised to match AISC 5th Edition. - Railing load revised. - Sidewalk thickness revised. - Wearing surface unit weight revised. - Diaphragm connection angles added as equivalent partial height plate. - Member load added to G2 for timber shoring. - G2 shear distribution factor at the supports revised. - G2 composite deck thickness revised due to spalling. - Haunches revised. - G1/G7 web loss at supports revised per 2013 inspection report. 2015 Notes: - Changed rating engine to AASHTO LFD - G3 created w/ shoring load. Load removed from G2. - G7 linked to G1, web loss at ends changed to 20%. - Web loss added to G1 away from supports, see member alt. desc. for more info. 2017 Notes: - Overall web section loss of 5% input to Girders G1 & G7 from Begin to 31.25', and 7% section loss for input for the end 1.0'.	
Facility Carried:	90 IX (EB)	
Feature Intersected:	Millers Grove Road	
Structure Number:	5516072	
Location:	Schuyler	
Length:	32.25	ft
Route Number:		
System Of Units:	US Customary	
Year Built:	1954	
Name:	MP 225.48 - 90 IX (EB) over Millers Grove Road	
District:		
County:		

LOAD RATING SUMMARY

Member Rating Results

System of Units: (•) US Customary ( ) SI / Metric

Lane/Impact Loading Type: (•) As Requested ( ) Detailed

Display Format: Mutiple rating levels per row

Bridge Id	Structure	Member	Vehicle	Inventory Rating Factor	Operating Rating Factor	Legal Operating Rating Factor	Legal Rating Factor	Permit Inventory Rating Factor	Permit Operating Rating Factor	Permit Rating Factor	Inventory Capacity (Ton)	Operating Capacity (Ton)	Legal Operating Capacity (Ton)	Legal Capacity (Ton)	Permit Inventory Capacity (Ton)	Permit Operating Capacity (Ton)	Permit Capacity (Ton)	Inventory Location (ft)	Operating Location (ft)
5516072	Location	G1	H 20-44	1.073	1.792						21.47	35.85						16.13	16.13
5516072	Location	G2	H 20-44	1.373	2.292						27.45	45.85						16.13	16.13
5516072	Location	G3	H 20-44	1.298	2.168						25.97	43.36						16.13	16.13
5516072	Location	G1	HS 20-44	0.917	1.532						33.03	55.16						19.35	19.35
5516072	Location	G2	HS 20-44	1.170	1.953						42.11	70.32						12.90	12.90
5516072	Location	G3	HS 20-44	1.107	1.849						39.85	66.56						19.35	19.35

[x] Show up-to-date results only

Print Close

Member Rating Results

System of Units: (•) US Customary ( ) SI / Metric

Lane/Impact Loading Type: (•) As Requested ( ) Detailed

Display Format: Mutiple rating levels per row

Bridge Id	Structure	Member	Vehicle	Inventory Rating Factor	Operating Rating Factor	Legal Operating Rating Factor	Legal Rating Factor	Permit Inventory Rating Factor	Permit Operating Rating Factor	Permit Rating Factor	Inventory Capacity (Ton)	Operating Capacity (Ton)	Legal Operating Capacity (Ton)	Legal Capacity (Ton)	Permit Inventory Capacity (Ton)	Permit Operating Capacity (Ton)	Permit Capacity (Ton)	Inventory Location (ft)	Operating Location (ft)
5516072	Location 1	G1	Type EV2		1.609							46.26							19.35
5516072	Location 1	G2	Type EV2		2.611							75.06							12.90
5516072	Location 1	G3	Type EV2		2.471							71.04							19.35
5516072	Location 1	G1	Type EV3		1.058							45.51							16.13
5516072	Location 1	G2	Type EV3		1.723							74.07							16.13
5516072	Location 1	G3	Type EV3		1.629							70.06							16.13

[x] Show up-to-date results only

Print Close

Bridge Name: MP 225.48 - 90 IX (EB) over Millers Grove Road
NBI Structure ID: 5516072
Bridge ID: 5516072

Analyzed By: BrR
Analyze Date: Friday, July 07, 2017 15:49:56
Analysis Engine: AASHTO LFR Engine Version 6.7.0.3001
Analysis Preference Setting: None

Report By: BrR
Report Date: Friday, July 07, 2017 15:50:23

Structure Definition Name: Single Span Multi Girder
Member Name: G1
Member Alternative Name: G-1

Individual Vehicle Load Factor Rating Summary

		Vehicle Rating			Capacity	Location				
Live Load		**Type**	**Factor**	**Controls**	**(Ton)**	**Span**	**(ft)**	**Percent**	**Impact**	**Lane**
H 20-44	Inventory	Lane	1.253	Service - Steel	25.06	1	16.12	50.0	As Requested	As Requested
H 20-44	Operating	Lane	2.092	Service - Steel	41.84	1	16.12	50.0	As Requested	As Requested
H 20-44	Inventory	Lane	1.253	Service - Steel	25.06	1	16.12	50.0	With Impact	Single Lane
H 20-44	Operating	Lane	2.092	Service - Steel	41.84	1	16.12	50.0	With Impact	Single Lane
H 20-44	Inventory	Lane	1.253	Service - Steel	25.06	1	16.12	50.0	With Impact	Multi-Lane
H 20-44	Operating	Lane	2.092	Service - Steel	41.84	1	16.12	50.0	With Impact	Multi-Lane
H 20-44	Inventory	Lane	1.629	Service - Steel	32.57	1	16.12	50.0	Without Impact	Single Lane
H 20-44	Operating	Lane	2.720	Service - Steel	54.40	1	16.12	50.0	Without Impact	Single Lane
H 20-44	Inventory	Lane	1.629	Service - Steel	32.57	1	16.12	50.0	Without Impact	Multi-Lane
H 20-44	Operating	Lane	2.720	Service - Steel	54.40	1	16.12	50.0	Without Impact	Multi-Lane
H 20-44	Inventory	Axle Load	1.073	Service - Steel	21.47	1	16.12	50.0	As Requested	As Requested
H 20-44	Operating	Axle Load	1.792	Service - Steel	35.85	1	16.12	50.0	As Requested	As Requested
	Inventory		1.073		21.47	1	16.12	50.0		

H 20-44		Axle Load		Service - Steel					With Impact	Single Lane
H 20-44	Operating	Axle Load	1.792	Service - Steel	35.85	1	16.12	50.0	With Impact	Single Lane
H 20-44	Inventory	Axle Load	1.073	Service - Steel	21.47	1	16.12	50.0	With Impact	Multi-Lane
H 20-44	Operating	Axle Load	1.792	Service - Steel	35.85	1	16.12	50.0	With Impact	Multi-Lane
H 20-44	Inventory	Axle Load	1.395	Service - Steel	27.91	1	16.12	50.0	Without Impact	Single Lane
H 20-44	Operating	Axle Load	2.330	Service - Steel	46.60	1	16.12	50.0	Without Impact	Single Lane
H 20-44	Inventory	Axle Load	1.395	Service - Steel	27.91	1	16.12	50.0	Without Impact	Multi-Lane
H 20-44	Operating	Axle Load	2.330	Service - Steel	46.60	1	16.12	50.0	Without Impact	Multi-Lane

Note:
"N/A" indicates not applicable
"**" indicates not available

Individual Vehicle Load Factor Rating Summary

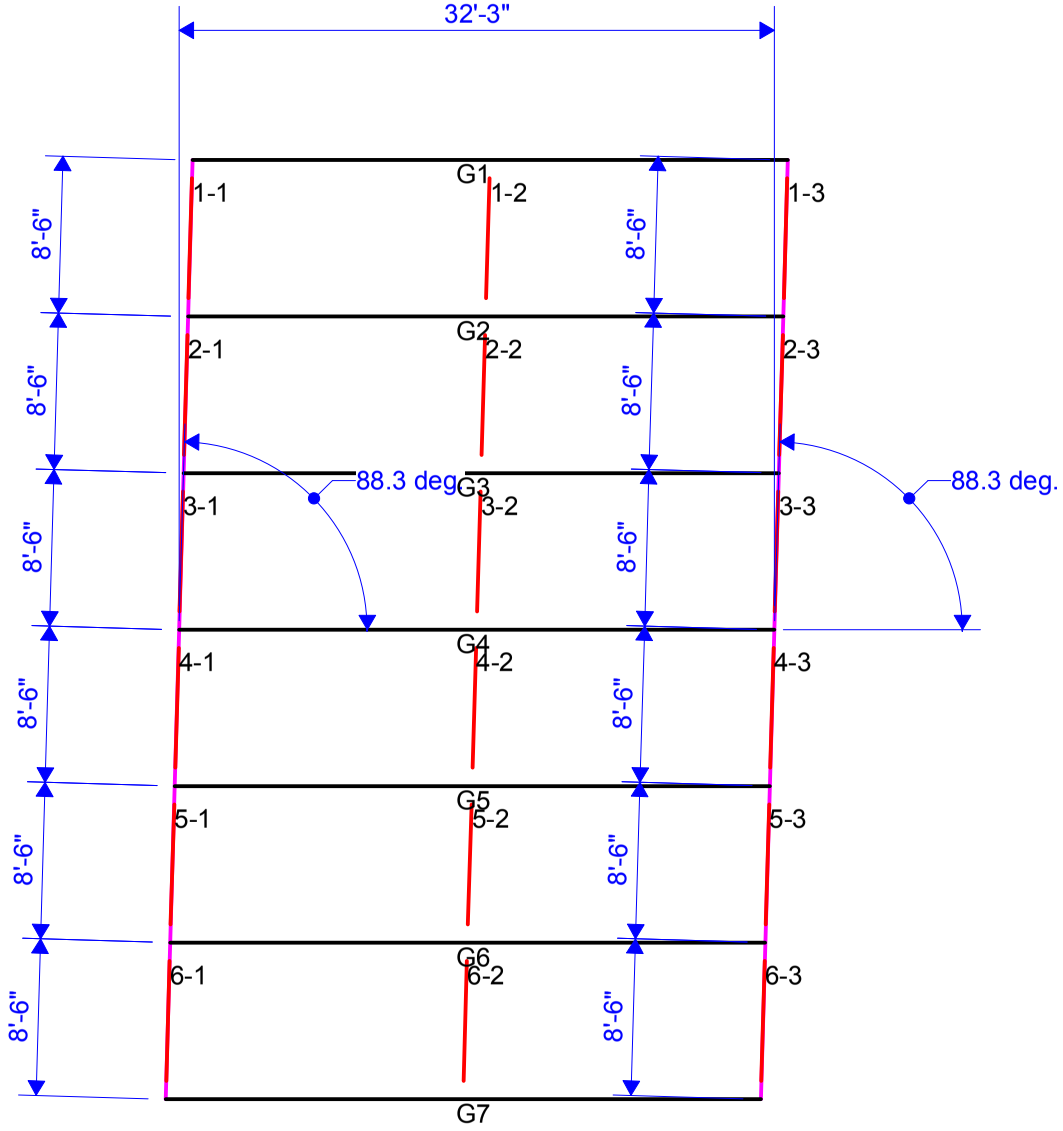
	Vehicle Rating				Capacity		Location			
Live Load		**Type**	**Factor**	**Controls**	**(Ton)**	**Span**	**(ft)**	**Percent**	**Impact**	**Lane**
HS 20-44	Inventory	Lane	1.253	Service - Steel	45.10	1	16.12	50.0	As Requested	As Requested
HS 20-44	Operating	Lane	2.092	Service - Steel	75.32	1	16.12	50.0	As Requested	As Requested
HS 20-44	Inventory	Lane	1.253	Service - Steel	45.10	1	16.12	50.0	With Impact	Single Lane
HS 20-44	Operating	Lane	2.092	Service - Steel	75.32	1	16.12	50.0	With Impact	Single Lane
HS 20-44	Inventory	Lane	1.253	Service - Steel	45.10	1	16.12	50.0	With Impact	Multi-Lane
HS 20-44	Operating	Lane	2.092	Service - Steel	75.32	1	16.12	50.0	With Impact	Multi-Lane
HS 20-44	Inventory	Lane	1.629	Service - Steel	58.63	1	16.12	50.0	Without Impact	Single Lane

HS 20-44	Operating	Lane	2.720	Service - Steel	97.91	1	16.12	50.0	Without Impact	Single Lane
HS 20-44	Inventory	Lane	1.629	Service - Steel	58.63	1	16.12	50.0	Without Impact	Multi-Lane
HS 20-44	Operating	Lane	2.720	Service - Steel	97.91	1	16.12	50.0	Without Impact	Multi-Lane
HS 20-44	Inventory	Axle Load	0.917	Service - Steel	33.03	1	19.35	60.0	As Requested	As Requested
HS 20-44	Operating	Axle Load	1.532	Service - Steel	55.16	1	19.35	60.0	As Requested	As Requested
HS 20-44	Inventory	Axle Load	0.917	Service - Steel	33.03	1	19.35	60.0	With Impact	Single Lane
HS 20-44	Operating	Axle Load	1.532	Service - Steel	55.16	1	19.35	60.0	With Impact	Single Lane
HS 20-44	Inventory	Axle Load	0.917	Service - Steel	33.03	1	19.35	60.0	With Impact	Multi-Lane
HS 20-44	Operating	Axle Load	1.532	Service - Steel	55.16	1	19.35	60.0	With Impact	Multi-Lane
HS 20-44	Inventory	Axle Load	1.193	Service - Steel	42.94	1	19.35	60.0	Without Impact	Single Lane
HS 20-44	Operating	Axle Load	1.992	Service - Steel	71.70	1	19.35	60.0	Without Impact	Single Lane
HS 20-44	Inventory	Axle Load	1.193	Service - Steel	42.94	1	19.35	60.0	Without Impact	Multi-Lane
HS 20-44	Operating	Axle Load	1.992	Service - Steel	71.70	1	19.35	60.0	Without Impact	Multi-Lane

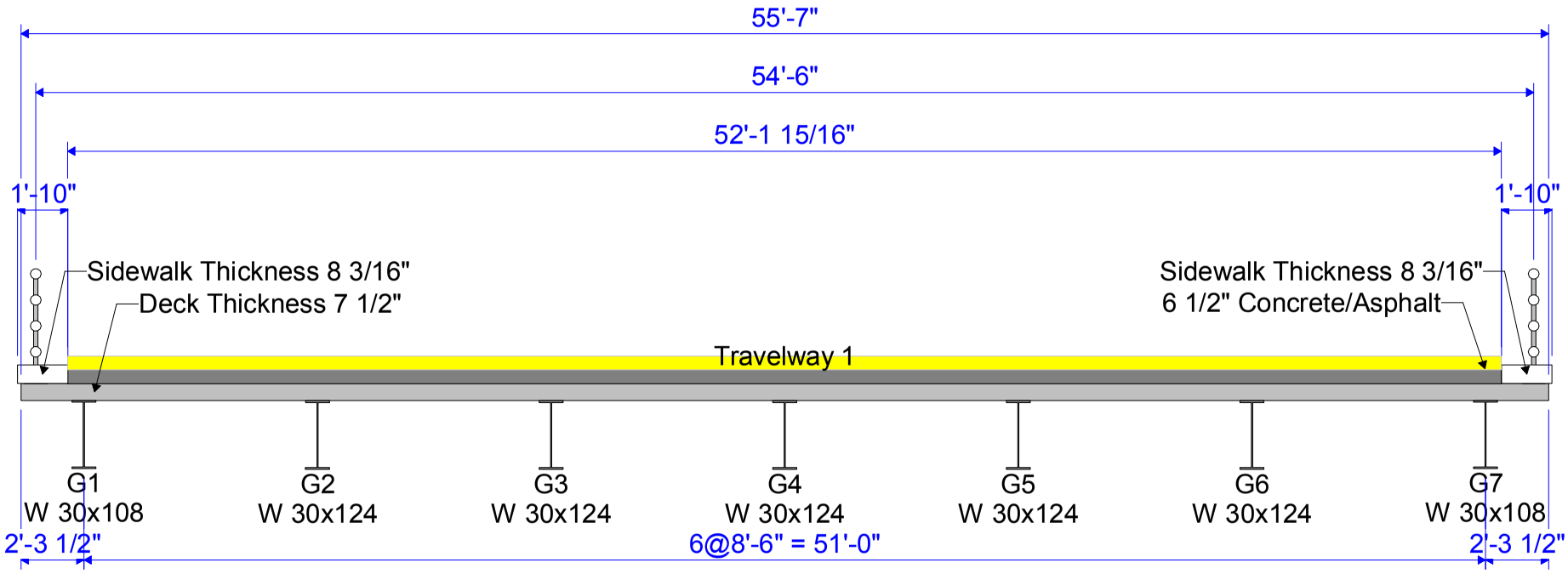
Note:
"N/A" indicates not applicable
"**" indicates not available

SCHEMATIC DRAWINGS

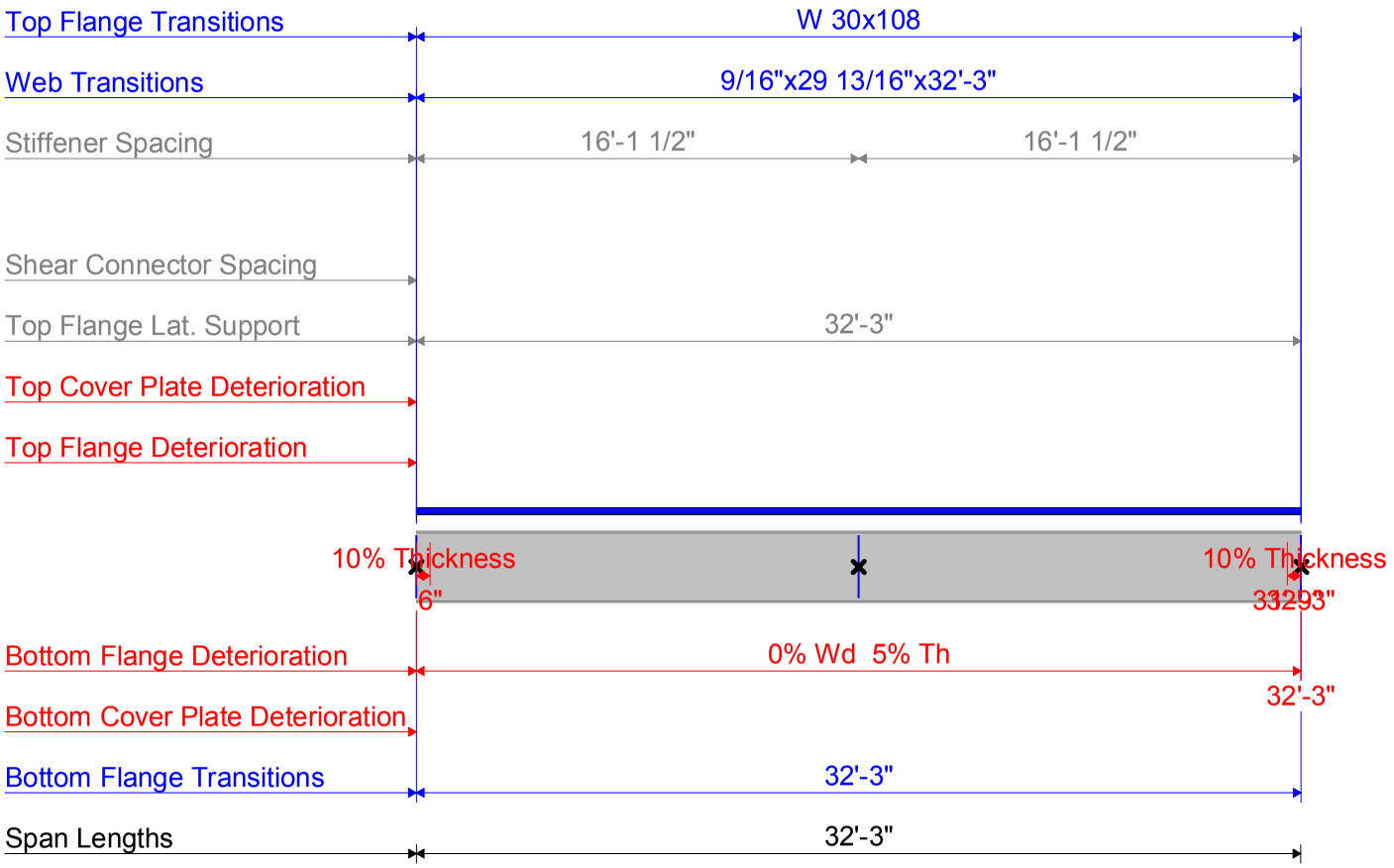
5516071
MP 225.49 - 90 IX (WB) over Millers Grove Road - Single Span Multi Girder
90 IX (WB) / Millers Grove Road
06/02/17



5516071
MP 225.49 - 90 IX (WB) over Millers Grove Road - Single Span Multi Girder
90 IX (WB) / Millers Grove Road
06/02/17



5516071
MP 225.49 - 90 IX (WB) over Millers Grove Road - Single Span Multi Girder - G1
90 IX (WB) / Millers Grove Road
06/02/17



Notes:
* All flange length dimensions are horiz. (length along flange may differ).
* Transverse stiffener pairs shown in red.
* Single transverse stiffener shown in blue.
* Bearing stiffeners shown in green.
* Dimensioning starts and ends at CL bearings.
* X denotes cross frame locations.

VIRTIS INPUT

Username: BrR
Date: Tuesday, July 11, 2017 14:34:03

Bridge ID 5516072 MP 225.48 - 90 IX (EB) over Millers Grove Road

NBI Structure ID (8): 5516072
Description: Original analysis by Hardesty & Hanover, LLP - January 2005.
Reviewed by Clark Patterson Associates - March 2005.
Reviewed by DiDonato Associates - May 2007.
Reviewed by DiDonato Associates - July 2009.
Reviewed by DiDonato Associates - January 2012.
Reviewed by CHA - May 2013.
Reviewed by CHA - June 2015.
Reviewed by WSA PE-PC - July 2017.

Original construction under Contract MT 52-7.
Rehabilitation under Contract TAS 92-74B.
One simple span; rolled multi-girder.
7 girder cross-section.
Structural deck thickness = 7.5 inches.
Asphalt overlay = 3.0 inches.
Bridge skew = 1.66 degrees.
Bridge oriented southeast.

2007 Notes:
- Added self load for diaphragms.
- Corrected rail type/load.

2009 Notes:
- Section loss (10% to bottom flange- full length) for right fascia girder (G7) input based on 2009 inspection report.

2011 Notes:
- Rating engine changed from BRASS LFD to VIRTIS LFD.
- Section loss (5%) for web of fascia girders at supports entered per 2011 inspection report.

2013 Notes:
- Concrete strength revised based on year built, per MBE.
- Beam section properties revised to match AISC 5th Edition.
- Railing load revised.
- Sidewalk thickness revised.
- Wearing surface unit weight revised.
- Diaphragm connection angles added as equivalent partial height plate.
- Member load added to G2 for timber shoring.
- G2 shear distribution factor at the supports revised.
- G2 composite deck thickness revised due to spalling.
- Haunches revised.
- G1/G7 web loss at supports revised per 2013 inspection report.

2015 Notes:

- Changed rating engine to AASHTO LFD
- G3 created w/ shoring load. Load removed from G2.
- G7 linked to G1, web loss at ends changed to 20%.
- Web loss added to G1 away from supports, see member alt. desc. for more info.

2017 Notes:
- Overall web section loss of 5% input to Girders G1 & G7 from Begin to 31.25', and 7% section loss for input for the end 1.0'.

Description

Location:	Schuyler
Total Length:	32.25 *(ft)*
Facility Carried:	90 IX (EB)
Route Number:	
Feature Intersected:	Millers Grove Road
Mi Post:	225.48 *(mi)*
Units:	US Customary
Year Built:	1954
Recent ADTT:	0
District:	
County:	
Owner:	
National Highway System:	
Functional Class:	

Global Reference Point

X Coordinate:	0.000 *(ft)*
Y Coordinate:	0.000 *(ft)*
Elevation:	*(ft)*
Longitude:	*(Degrees)*
Latitude:	*(Degrees)*

Materials

Structural Steel

Name:	**ASTM A7**
Description:	Fy = 33 ksi

Specified minimum yield strength (Fy):	33.000 *(ksi)*
Specified minimum tensile strength (Fu):	60.000 *(ksi)*
Coefficient of thermal expansion:	*(1/F)*
Density:	0.4900 *(kcf)*
Modulus of elasticity (E):	29000.00 *(ksi)*

Concrete

Name:	**Unknown strength concrete prior to 1959**
Description:	f'c = 2500 psi

Specified compressive strength at 28 days (f'c):	2.500 *(ksi)*
Initial specified compressive strength (f'ci):	*(ksi)*
Coefficient of thermal expansion:	0.0000060000 *(1/F)*
Density (for dead loads):	0.150 *(kcf)*

Density (for modulus of elasticity):	0.145 *(kcf)*
Modulus of elasticity (Ec):	2880.95 *(ksi)*
Poisson's ratio:	0.200
Modulus of rupture:	0.379 *(ksi)*
Shear factor:	1.000
Composition of concrete:	Normal
Initial modulus of elasticity (Eci):	0.00 *(ksi)*

Reinforcing Steel

Name:	**Grade 40**
Description:	40 ksi reinforcing steel
Specified yield strength (Fy):	40.000 *(ksi)*
Modulus of elasticity (Es):	29000.00 *(ksi)*
Ultimate strength (Fu):	70.000 *(ksi)*
Type:	Plain

No prestressing strand materials.

No timber materials.

Beam Shapes

Steel Shapes

No steel angles.

No steel channels.

Steel I Shapes

Name:	**W 30x108**
Description:	W 30x108 from AISC 5th Edition Tables (1946-1962)
Depth (d):	29.8200 *(in)*
Flange width (bf):	10.4840 *(in)*
Flange thickness (tf):	0.7600 *(in)*
Web thickness (tw):	0.5480 *(in)*
k:	1.5000 *(in)*
k1:	1.0000 *(in)*
Cross sectional area:	31.770 *(in^2)*
Nominal load:	108.000 *(lb/ft)*
Ixx:	4461.000 *(in^4)*
Iyy:	135.100 *(in^4)*
Zx:	346.000 *(in^3)*
Zy:	43.900 *(in^3)*
Nominal Depth:	30.0000 *(in)*
Type:	W Shape

Name:	**W 30x124**
Description:	W 30x124 from AISC 5th Edition Tables (1946-1962)
Depth (d):	30.1600 *(in)*
Flange width (bf):	10.5210 *(in)*
Flange thickness (tf):	0.9300 *(in)*
Web thickness (tw):	0.5850 *(in)*
k:	1.6250 *(in)*
k1:	1.0000 *(in)*
Cross sectional area:	36.450 *(in^2)*
Nominal load:	124.000 *(lb/ft)*
Ixx:	5347.100 *(in^4)*
Iyy:	169.700 *(in^4)*
Zx:	408.000 *(in^3)*
Zy:	54.000 *(in^3)*
Nominal Depth:	30.0000 *(in)*
Type:	W Shape

No steel structural tee shapes.

Prestressed Shapes

No prestressed shapes.

Timber Shapes

No timber shapes.

Appurtenances

No concrete railings.

Railings

Name:	**Four Rail w/ Thrie Beam**
Description:	
Effective Wind Height:	48.0000 *(in)*
Railing Load:	0.065 *(kip/ft)*
Distance From Edge to Centroid:	6.5000 *(in)*
Width:	10.0000 *(in)*

Impact

Standard Impact Factor

Type:	Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states:	15.0 *(%)*
All other limit states:	33.0 *(%)*

Factors

No LFD Factors specified.

No LRFD Factors specified.

Bridge Alternatives Location 1

Reference Line
Reference Line Length: *(ft)*
Starting Station: *(ft)*
Bearing: N 90^ 0' 0.00" E
Global Positioning
Distance: 0.000 *(ft)*
Offset: 0.000 *(ft)*
Elevation: *(ft)*

Structures
Name: Location 1
Description:

Structure Alternatives
Name: Inspection 2005
Description:
Superstructure Definition: Single Span Multi Girder

Superstructure Definition Single Span Multi Girder

Definition
Units: US Customary
Number of spans: 1
Number of girders: 7

Span	Length *(ft)*
1	32.2500

Frame Structure Simplified Definition:

Support	Frame Connection
1	
2	

Girder Spacing Display Type: Perpendicular
Average Humidity: *(%)*
Analysis
Default Library Factors
Factor Override
Analysis Module

Analysis Method: ASD
Analysis Module:
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module:
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module:
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module:
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Impact

Standard Impact Factor

Type: Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states: 15.0 *(%)*

All other limit states: 33.0 *(%)*

Structure Framing Plan Details

Layout

Support	Skew *(Degrees)*
1	1.6611
2	1.6611

Girder Spacing Orientation: Perpendicular

Girder Bay	Girder Spacing Start *(ft)*	End *(ft)*
1	8.5000	8.5000
2	8.5000	8.5000
3	8.5000	8.5000
4	8.5000	8.5000
5	8.5000	8.5000

6	8.5000	8.5000

Diaphragms

Girder Bay 1

Distance Left Girder *(ft)*	Distance Right Girder *(ft)*	Diaphragm Spacing *(ft)*	Number of Spaces	Diaphragm Weight *(kip)*
0.00	0.00	0.00	1	
16.13	16.13	16.13	1	
16.13	16.13	0.00	1	

Girder Bay 2

Distance Left Girder *(ft)*	Distance Right Girder *(ft)*	Diaphragm Spacing *(ft)*	Number of Spaces	Diaphragm Weight *(kip)*
0.00	0.00	0.00	1	
16.13	16.13	0.00	1	
16.13	16.13	16.13	1	

Girder Bay 3

Distance Left Girder *(ft)*	Distance Right Girder *(ft)*	Diaphragm Spacing *(ft)*	Number of Spaces	Diaphragm Weight *(kip)*
0.00	0.00	0.00	1	
16.13	16.13	16.13	1	
16.13	16.13	0.00	1	

Girder Bay 4

Distance Left Girder *(ft)*	Distance Right Girder *(ft)*	Diaphragm Spacing *(ft)*	Number of Spaces	Diaphragm Weight *(kip)*
0.00	0.00	0.00	1	
16.13	16.13	16.13	1	
16.13	16.13	0.00	1	

Girder Bay 5

Distance Left Girder *(ft)*	Distance Right Girder *(ft)*	Diaphragm Spacing *(ft)*	Number of Spaces	Diaphragm Weight *(kip)*
0.00	0.00	0.00	1	
16.13	16.13	16.13	1	
16.13	16.13	0.00	1	

Girder Bay 6

Distance Left Girder *(ft)*	Distance Right Girder *(ft)*	Diaphragm Spacing *(ft)*	Number of Spaces	Diaphragm Weight *(kip)*
0.00	0.00	0.00	1	
16.13	16.13	0.00	1	
16.13	16.13	16.13	1	

Structure Typical Section

Deck

Left start width:	27.79	*(ft)*
Left end width:	27.79	*(ft)*
Right start width:	27.79	*(ft)*

Right end width: 27.79 *(ft)*
Left start overhang: 2.29 *(ft)*
Left end overhang: 2.29 *(ft)*

Deck (Cont'd)
Deck concrete: Unknown strength concrete prior to 1959
Total deck thickness: 7.5000 *(in)*
Deck crack control parameter: *(kip/in)*
Sustained modular ratio factor: 3.000

Railing

Name	Load Case	Measure To	Measured From	Distance At Start	Distance At End	Front Face Orientation
Four Rail...	DC2		Left Ed...	0.13	0.13	Right
Four Rail...	DC2		Right E...	0.13	0.13	Left

Sidewalk

Width	Thickness At End	Material	Load Case	Measure to	Measured From	At Start	
22.0000	8.2000	Unknown...	DC2		Left Ed...	-0.13	...
22.0000	8.2000	Unknown...	DC2		Right E...	-0.13	...

Lane Position
Offset Left Start: -26.08 *(ft)*
Offset Left End: -26.08 *(ft)*
Offset Right Start: 26.08 *(ft)*
Offset Right End: 26.08 *(ft)*

Wearing Surface
Wearing surface material: Asphalt
Description:
Wearing surface thickness: 3.0000 *(in)*
Wearing surface density: 150.000 *(pcf)*
Load case: DW

Load Case Description

Load Case Name	Description	Stage	Type	Time *(Days)*
DC1	DC acting on non-comp...	Non-composite (Sta...	D,DC	
DC2	DC acting on long-ter...	Composite (long te...	D,DC	
DW	DW acting on long-ter...	Composite (long te...	D,DW	
Timber Shoring	Weight of the timber ...	Non-composite (Sta...	D,DC	

Superstructure Loads

Uniform Temperature
Load Case:
Temperature rise: *(F)*
Temperature fall: *(F)*

Gradient Temperature
Load Case:
Temperature value T1: *(F)*
Temperature value T2: *(F)*
Temperature value T3: *(F)*

Wind

Load Case:
Design Pressure: *(psf)*
Wind Load Path: Truss action
DL Distribution
Stage 1 Dead Load Distribution: Tributary Area
Stage 2 Dead Load Distribution: Tributary Area

Stiffener Definitions

Transverse Stiffeners

Name: 1 Sided Dia. Conn.
Stiffener number: Single
Plate Width: 7.0000 *(in)*
Plate Thickness: 0.4380 *(in)*
Material: ASTM A7
Top Gap: 1.2500 *(in)*
Bottom Gap: 1.2500 *(in)*
Top Weld:
Web Weld:
Bottom Weld:

Name: 2 Sided Dia. Conn.
Stiffener number: Pair
Plate Width: 7.0000 *(in)*
Plate Thickness: 0.4380 *(in)*
Material: ASTM A7
Top Gap: 1.2500 *(in)*
Bottom Gap: 1.2500 *(in)*
Top Weld:
Web Weld:
Bottom Weld:
No prestress stress limits.

No prestress properties.

No vertical shear reinforcement definitions.

No horizontal shear reinforcement definitions.

Member G1

Link with: None
Description:

Existing: G-1 - Additional self load is for the diaphragms.
Current: G-1 - Additional self load is for the diaphragms.
Number of Spans: 1

Span	Span Length

Number	(ft)
1	32.250000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 *(lb/ft)*

Member Loads

Member Loads - Settlement

Support Number	Horizontal (in)	Vertical (in)	Rotational (Radians)	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation (kip/ft)	Y Translation (kip/ft)	Z Rotation (kip-in/rad)	Override Computed Z Rotation
1				
2				

Member Alternative G-1

Description: Additional self load is for the diaphragms.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 6.0000 *(in)*
Right end X: 6.0000 *(in)*
Additional Self Load: 0.020 *(kip/ft)*
Additional Self Load %: *(%)*

Analysis Module

Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:

Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors
Factor Override
LRFD:
LFD:
ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials
Structural steel: ASTM A7
Deck concrete: Unknown strength concrete prior to 1959
Deck reinforcement: Grade 40
Welds:
Bolts:

Impact
Standard Impact Factor
Type: Standard - AASHTO
LRFD Dynamic Load Allowance
Fatigue and fracture limit states: 15.0 *(%)*
All other limit states: 33.0 *(%)*

Live Load Distribution

Standard

Distribution Factor (Wheels)

Lanes Loaded	Shear	Shear at Supports	Moment	Deflection
1 Lane	1.388	0.961	1.388	0.286
Multi-Lane	1.388	0.961	1.388	0.857

Girder Profile

Shape

Shape:	W 30x108
Distance:	0.00 *(ft)*
Length:	32.25 *(ft)*
Material:	ASTM A7

Deck Profile

Bracing Ranges

Lateral Support

Distance *(ft)*	Length *(ft)*
0.00	32.25

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance *(ft)*	Number	Spacing *(in)*
1 Sided Dia. Conn.	0.00	1	0.0000
1 Sided Dia. Conn.	16.13	1	0.0000
1 Sided Dia. Conn.	32.25	1	0.0000

Bearing Stiffener Locations

Top Flange Deterioration

Width Loss *(%)*	Thickness Loss *(%)*	Start Distance *(ft)*	Length *(ft)*

Bottom Flange Deterioration

Width Loss *(%)*	Thickness Loss *(%)*	Start Distance *(ft)*	Length *(ft)*
	15.0	0.00	32.25

Web Deterioration

Thickness Loss *(%)*	Start Distance *(ft)*	Length *(ft)*

5.0	0.00	1.00
5.0	1.00	30.25
7.0	31.25	1.00

Member G2

Link with: None
Description:

Existing: G-2 - Additional self load is for the diaphragms.
Current: G-2 - Additional self load is for the diaphragms.
Number of Spans: 1

Span Number	Span Length *(ft)*
1	32.250000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 *(lb/ft)*

Member Loads

Member Loads - Settlement

Support Number	Horizontal *(in)*	Vertical *(in)*	Rotational *(Radians)*	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation *(kip/ft)*	Y Translation *(kip/ft)*	Z Rotation *(kip-in/rad)*	Override Computed Z Rotation
1				
2				

Member Alternative G-2

Description: Additional self load is for the diaphragms.
Description
Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based

Left end X: 6.0000 *(in)*
Right end X: 6.0000 *(in)*
Additional Self Load: 0.040 *(kip/ft)*
Additional Self Load %: *(%)*
Analysis Module
Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module:
Analysis Module Component:
Properties:

Default rating method: LFD

Factors
Factor Override
LRFD:
LFD:
ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials

Structural steel:	ASTM A7
Deck concrete:	Unknown strength concrete prior to 1959
Deck reinforcement:	Grade 40
Welds:	
Bolts:	

Impact

Standard Impact Factor

Type:	Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states:	15.0 *(%)*
All other limit states:	33.0 *(%)*

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes Loaded	Shear	Shear at Supports	Moment	Deflection
1 Lane	1.214	1.294	1.214	0.286
Multi-Lane	1.545	1.824	1.545	0.857

Girder Profile

Shape

Shape:	W 30x124
Distance:	0.00 *(ft)*
Length:	32.25 *(ft)*
Material:	ASTM A7

Deck Profile

Bracing Ranges

Lateral Support

Distance *(ft)*	Length *(ft)*
0.00	32.25

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance *(ft)*	Number	Spacing *(in)*
2 Sided Dia. Conn.	0.00	1	0.0000
2 Sided Dia. Conn.	16.13	1	0.0000
2 Sided Dia. Conn.	32.25	1	0.0000

Bearing Stiffener Locations

Member G3

Link with: None

Description:

Existing: G-3 - Additional self load is for the diaphragms.
Current: G-3 - Additional self load is for the diaphragms.
Number of Spans: 1

Span Number	Span Length *(ft)*
1	32.250000

Support	Frame Connection
1	
2	

Pedestrian load: *(lb/ft)*

Member Loads

Distributed Loads

Distance *(ft)*	Length *(ft)*	Start *(kip/ft)*	End *(kip/ft)*	Load Case Name
8.00	20.00	0.030	0.030	Timber Sho...

Member Loads - Settlement

Support Number	Horizontal *(in)*	Vertical *(in)*	Rotational *(Radians)*	Load Case Name
1				
2				

Support Constraints

General

Support Number	Support Type	X Translation	Y Translation	Z Rotation
1	Pinned	Fixed	Fixed	Free
2	Roller	Free	Fixed	Free

Elastic

Support Number	X Translation *(kip/ft)*	Y Translation *(kip/ft)*	Z Rotation *(kip-in/rad)*	Override Computed Z Rotation
1				
2				

Member Alternative G-3

Description: Additional self load is for the diaphragms.

Description

Material Type: Steel
Girder Type: Rolled
Member units: US Customary
Girder property input method: Schedule based
Left end X: 6.0000 *(in)*

Right end X: 6.0000 *(in)*
Additional Self Load: 0.040 *(kip/ft)*
Additional Self Load %: *(%)*
Analysis Module
Analysis Method: ASD
Analysis Module: AASHTO ASD
Analysis Module Component:
Properties:

Analysis Method: LFD
Analysis Module: AASHTO LFD
Analysis Module Component:
Properties:

Analysis Method: LRFD
Analysis Module: AASHTO LRFD
Analysis Module Component:
Properties:

Analysis Method: LRFR
Analysis Module: AASHTO LRFR
Analysis Module Component:
Properties:

Analysis Method: Distribution Factors
Analysis Module: BrR Dist Fact
Analysis Module Component:
Properties:

Default rating method: LFD

Factors
Factor Override
LRFD:
LFD:
ASD Factors

	Inventory	Operating
Structural steel		
Concrete		
PS Concrete Comp.		
PS Concrete Tens.		
PS Moment Cap.		
Reinforcement		
Bearing Stiffener		
Stirrup		
Timber	NA	

Default Materials
Structural steel: ASTM A7

Deck concrete:	Unknown strength concrete prior to 1959
Deck reinforcement:	Grade 40
Welds:	
Bolts:	

Impact

Standard Impact Factor

Type:	Standard - AASHTO

LRFD Dynamic Load Allowance

Fatigue and fracture limit states:	15.0 *(%)*
All other limit states:	33.0 *(%)*

Live Load Distribution

Standard

D i s t r i b u t i o n F a c t o r (Wheels)

Lanes Loaded	Shear	Shear at Supports	Moment	Deflection
1 Lane	1.214	1.294	1.214	0.286
Multi-Lane	1.545	1.824	1.545	0.857

Girder Profile

Shape

Shape:	W 30x124
Distance:	0.00 *(ft)*
Length:	32.25 *(ft)*
Material:	ASTM A7

Deck Profile

Bracing Ranges

Lateral Support

Distance *(ft)*	Length *(ft)*
0.00	32.25

Stiffener Ranges

Transverse Stiffener Ranges (Location)

Name	Distance *(ft)*	Number	Spacing *(in)*
2 Sided Dia. Conn.	0.00	2	193.5000
2 Sided Dia. Conn.	0.00	1	0.0000

Bearing Stiffener Locations

Member G4

Link with: G3

Description:

Existing:
Current:
Number of Spans: 1

Span Number	Span Length *(ft)*
1	32.250000

Support	Frame Connection
1	
2	

Pedestrian load: *(lb/ft)*

Member G5

Link with: G2
Description:

Existing: G5 -
Current: G5 -
Number of Spans: 1

Span Number	Span Length *(ft)*
1	32.250000

Support	Frame Connection
1	
2	

Pedestrian load: *(lb/ft)*

Member G6

Link with: G2
Description:

Existing:
Current:
Number of Spans: 1

Span Number	Span Length *(ft)*
1	32.250000

Support	Frame Connection
1	
2	

Pedestrian load: *(lb/ft)*

Member G7

Link with: G1
Description:

Existing: G-7 - Additional self load is for the diaphragms.
Current: G-7 - Additional self load is for the diaphragms.
Number of Spans: 1

Span Number	Span Length *(ft)*
1	32.250000

Support	Frame Connection
1	
2	

Pedestrian load: 0.000 *(lb/ft)*