



STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

Inspection Report for  
B-40-252

N 107TH ST over STH 145-W FOND DU LAC AV  
Mar 27, 2018



B-40-252 N 107th St. over STH 145/W Fond Du Lac Ave.  
West Elevation Looking East  
3/27/18

Type	Prior	Frequency (mos)	Performed
Routine	04-28-16	24	X
Deck Evaluation		0	X
SIA Review	04-28-16	48	
Vertical Clearance Measured		0	X

Start Coordinates		End Coordinates (optional)	
Latitude	43°08'38.74"N	Latitude	
Longitude	88°02'42.20"W	Longitude	
Owner	STATE HIGHWAY DEPT	Maintainer	STATE HIGHWAY DEPT

Time Log

Team members

Hours	Minutes	
3	20	

Inspector	Name	Number	Signature	Date
	Brooks, Julie	2017	<i>Julie Brooks</i> E-signed by Julie W Brooks(dotj5w)	05-11-18

**BRIDGE INSPECTION REPORT**  
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**Identification & Location**

Feature On: N 107TH ST	Section Town Range: S19 T08N R21E	Structure Number: <b>B-40-252</b>
Feature Under: STH 145-W FOND DU LAC AV	County: MILWAUKEE	
Location 0.2M S JCT Good Hope Rd.	Municipality: MILWAUKEE	Structure Name:

**Geometry**

measurements in feet, except where noted

Approach Roadway Width: 44	Bridge Roadway Width: 44.0	Total Length: 249.4
Approach Pavement Width: 44	Deck Width: 51.0	Deck Area (sq ft): 13592

**Traffic**

	Lanes	ADT	ADT year	Traffic Pattern
On	3	10900	2013	TWO WAY TRAFFIC
Under	6	20100	2015	TWO WAY TRAFFIC

**Capacity**

**Load Rating**

Inventory rating: HS16	Overburden depth (in): 2.0	Last rating date: 08-05-13	Controlling: INTERIOR DECK GIRDER Moment
Operating rating: HS27	Deck surface material: LOW SLUMP CONCRETE	Re-rate for capacity (Y/N):	Control location: 4.8 SPAN 2, 39.4
Posting:	Re-rate notes:		

**Hydraulic**

**Classification**

Scour Critical Code(113): (N) NO WATERWAY	Q100 (ft3/sec): 0	
High water elevation (ft): 0.0	Velocity (ft/sec): 0.0	Sufficiency #: 38.8

**Span(s)**

Span #	Material	Configuration	Depth (in)	Length (ft)	Main
1	CONT STEEL	DECK GIRDER		44.5	
2	CONT STEEL	DECK GIRDER		82.0	Y
3	CONT STEEL	DECK GIRDER		82.0	
4	CONT STEEL	DECK GIRDER		36.0	

**Expansion joint(s)**

**Temperature:**

Joint #	Location	Type	Last inspection date	Last measure (in)	New measure (in)
1	NORTH ABUTMENT	SSA-400L	04-28-16	0.8	0.6
2	SOUTH ABUTMENT	SSA-400L	04-28-16	0.3	0.6

**Clearance**

Item	File Measurement (ft)	File Date	New Measurement (ft)
Highway Min Vertical Under Cardinal	14.46	26-Apr-2012	14.55
Highway Min Vertical Under Non-Cardinal	14.53	26-Apr-2012	14.64
Horizontal Under Cardinal	65.4		
Horizontal Under Non-Cardinal	64.9		
Highway Min Vertical On Cardinal			
Horizontal On Cardinal			

**Special Components**

Component	Year	Work Performed	Note
SUPERSTRUCTURE - WELDED COVER PLATES			

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Structure No.: **B-40-252**

**Construction History**

Year	Work Performed	FOS id
1999	OVERLAY - CONCRETE - NEW JOINTS	2320-02-60
1964	NEW STRUCTURE	

**Maintenance Items History**

Item	Recommended by	Status	Status change	Year completed
<b>IMP-Concrete Overlay</b>	Sadowski, Jason (9593)	REJECTED	04/20/18	
Recommend 2019				

**Maintenance Items**

Item	Priority	Recommended by	Status	Status change
<b>Misc - Other Work</b>	HIGH	Sadowski, Jason (9593)	IDENTIFIED	05/14/14
Repair broken conduit hangers for 4 - duct package over WB shoulder. Consider replacement of corroded hangers. Or remove duct package altogether if no longer in use.				
<b>Misc - Remove/Monitor Loose Concrete</b>	HIGH	Buckett, Chris (9500)	IDENTIFIED	11/14/16
Possible loose delams over SB lanes 2 & 3 and Right Shoulder, over NB lane 3				
<b>Bearings - Repair / Replace</b>	MEDIUM	Sadowski, Jason (9593)	IDENTIFIED	05/14/14
Extend slots for hold down devices, and replace sheared bolts. Clean and paint corroded bearings at S. abutment. Replace keeper bars as needed. If bridge is scheduled for replacement, then no need for bearing work				
<b>Substructure - Other Work</b>	MEDIUM	Sadowski, Jason (9593)	IDENTIFIED	05/14/14
Concrete surface repair at Center pier				
<b>Misc - Cut Brush</b>	MEDIUM	Buckett, Chris (9500)	IDENTIFIED	11/14/16
Cut brush on slopes at corners of bridge and tree overhanging sidewalk at NW Wing				
<b>IMP-Structure Replacement</b>	MEDIUM	Brooks, Julie (2017)	IDENTIFIED	04/20/18
2025 Recommended due to condition of deck, girders, possible tipping of abutments, broken bolts on hold-down bearings				

**Elements**

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State			
						1	2	3	4
X	12		<b>Reinforced Concrete Deck-Black Steel Reinforcing</b>	SF	13,592	6,325	5,380	1,887	0
			<b>Spans are numbered 1-4 N-S</b>						
		1080	Delamination - Spall - Patched Area	SF		0	1,808	1,817	0
			Multiple spalls and delaminated areas in all spans. Several spalls with separated and loose concrete over slopes not affecting any traffic or pedestrians. <b>Outer soffit/Fascias spalling over piers. Spalls adjacent to girders, end haunches over diaphragms. Large full-depth repair patch, bay 5 over SB lanes. Few delams over SB right shoulder, possibly over SB lanes 2&amp;3, possible delam over NB Lane 3 Bay 4.</b>						
		1130	Cracking (RC)	SF		0	3,572	70	0
			Span 1: Nar trans & map crkng w/hvy effl - 50 SF CS3, Remainder - Nar trans crkng w/lt effl - 50% CS2 Span 2: Nar trans crkng w/lt effl, incl overhangs - <b>5%</b> CS2 Span 3: Nar trans crkng w/hvy effl - 20 SF CS3, Remainder - Nar trans crkng w/lt effl - <b>5%</b> CS2 Span 4: Nar trans crkng w/scaling -100% CS2						
	8514		Concrete Overlay	SF	10,974	0	3,363	7,611	0
		3210	Debonding/Spall/Patched Area/Pothole	SF		0	0	1,317	0
			<b>2004 IR: &lt;2% w/ small spalls, 2009 IR: 0-5% Delam and &lt;2% Spall, 2013 IR Indicated 5-10% Delamination and &lt;2% Spalling</b>						
		3220	Crack (Wearing Surface)	SF		0	3,363	6,294	0
			Span 1: Nar to Med map crkng - 25% CS3; Span 2: Nar to Med map crkng - 50% CS3; Span 3: Nar to Med map crkng - 75% CS3; Span 4: Med map crkng - <b>75%</b> CS3						

11-May-2018

X	107		<b>Steel Open Girder</b>	LF	1,718	0	1,341	377	0
			Girders numbered 1-7 from East to West; <b>Welded cover plates over piers. Few scrapes on bottom of G7 over SB Lane 3.</b>						
	1000		Corrosion	LF		0	1,341	377	0
			Span 1: Hvy rust @ ends of all girders - 35' CS3; <b>Span 2: Mod-Hvy rust on bottom flanges, Lt-Moderate rust on webs and top flanges; Span 4: Heavy rust on girders at S Abut, Lt-Moderate rust elsewhere</b> Over P1: Hvy rust @ top & bot flanges all girders Over P2: Hvy rust @ top & bot flanges all girders Over P3: Hvy rust @ N ext gird						
	8516		Painted Steel	SF	20,555	0	5,040	5,258	10,257
		3440	Effectiveness (Steel Protective Coatings) Paint <b>in place is dull and faded, peeling paint in several areas</b> on bottom flanges at <b>piers</b> and <b>over roadways</b> . Ends of girders exhibit moderate loss of paint and peeling thru all coats. <b>Paint is no longer effective in areas of rust.</b>	SF		0	5,040	5,258	10,257
X	205		<b>Reinforced Concrete Column</b>	EA	15	1	0	14	0
			<b>Piers are numbered N-S, columns numbered W-E</b>						
	1080		Delamination - Spall - Patched Area	EA		0	0	14	0
			P1: <b>C1-3 delams at bottom and/or top, C4-5 spalls with exposed rebar</b> P2: <b>C1 spall with exposed rebar, C3 delam at bottom, C4 delam at bottom, C5 Cracked/delaminating patch</b> P3: <b>Failing patches on C2 &amp; 4, CS3 delams on C1,3,5</b>						
X	215		<b>Reinforced Concrete Abutment</b>	LF	137	22	82	33	0
			<b>Need to monitor abutments for possible tipping inward - bearings at limit of expansion</b>						
	1080		Delamination - Spall - Patched Area	LF		0	4	20	0
			S Abut: Lg <b>delams and spalls</b> on sill w/exp rebar - 20' CS3, <b>patch and small spall at east end backwall, delam in body at G6</b> N Abut: <b>delams at G5, small spall at CL Joint, spall at G4</b>						
	1130		Cracking (RC)	LF		0	78	13	0
			S Abut: Med crks on sill - <b>13' CS3, diagonal crack with efflorescence at west end, vertical cracks</b> N Abut: Nar crks that extend into bkwl -10' CS2, <b>Diagonal crack at NE and at G5,6</b> N. bkwl: <b>Nar/medium crack at base</b> for <b>most of</b> length at beam seat						
X	234		<b>Reinforced Concrete Cap</b>	LF	190	181	1	8	0
			<b>Piers are numbered N-S</b>						
	1080		Delamination - Spall - Patched Area	LF		0	1	3	0
			<b>P2: Large spall with exposed rebar at west end; P3: delam at W end</b>						
	1130		Cracking (RC)	LF		0	0	5	0
			<b>P3: Med</b> horiz. crk						
X	300		<b>Strip Seal Expansion Joint</b>	LF	144	0	144	0	0
			<b>Joints measured at East sidewalk at 43 degrees. S Joint: 5/8", N Joint: 5/8"</b>						
	2350		Debris Impaction	LF		0	144	0	0
			both joints filled with debris						
	2360		Adjacent Deck or Header Damage	LF		0	72	0	0
			N Abut: <b>Plow abrasion and</b> spalling <b>on deck</b> and <b>paving block in SB lanes, on paving block in NB lanes</b>						
X	311		<b>Moveable Bearing</b>	EA	28	0	14	14	0
			Located at N & S abuts, Piers 1 <b>&amp; 3; hold-down bearings at abutments</b>						
	1000		Corrosion	EA		0	14	0	0
			S Abut: Hvy rust, missing keeper bars; <b>P3: Moderate rust; P1: Med rust; N Abut: Med rust (some defects accounted for under connection and alignment)</b>						
	1020		Connection	EA		0	0	7	0
	2220		N Abut: <b>Connection</b> bolts sheared off at hold downs at 6 of 7 bearings; <b>S Abut: Bronze plate sliding out at G7</b>						
			Alignment	EA		0	0	7	0
			All girders over <b>P3</b> appear shifted slightly over bearing seats; <b>S Abut: All girders are at limit of expansion of bearings at 43 degrees, N Abut: 5 of 7 are at limits of expansion (some defects accounted for under</b>						

			connection)						
X	313		<b>Fixed Bearing</b> Located at center pier #2	EA	7	0	7	0	0
		1000	Corrosion P2: Med rust	EA		0	7	0	0
X	331		<b>Reinforced Concrete Bridge Rail</b>	LF	566	131	428	7	0
		1080	Delamination - Spall - Patched Area <b>E Rail: sm-medium spalls @ NE wing, patches at both exp. joints</b> <b>W Rail: Cracked patches near middle pier, spall with exposed rebar</b>	LF		0	3	7	0
		1130	Cracking (RC) Both rails have <b>HL</b> -narrow vertical and horiz cracking	LF		0	425	0	0
X	8400		<b>Integral Wingwall</b>	EA	4	2	2	0	0
		8903	Wall Deterioration SW: <b>S</b> pill at corner; NW: narrow vertical crack	EA		0	2	0	0

## Assessments

Chk	Element	Defect	Description	UOM	Total	Quantity in Condition State			
						1	2	3	4
X	9001		<b>Drainage - Ends of Structure</b> <b>Curb matches into deck at all corners, some erosion along SW wing onto slope paving</b>	EA	4	3	1	0	0
X	9009		<b>Sidewalk</b> <b>E</b> Sdwk: Long & trans crks, popouts, and spalls at curb - CS2 <b>N</b> Sdwk: Long & trans crks, popouts, and spalls at curb - CS2	EA	2	0	2	0	0
X	9011		<b>Utilities</b> Utility1: 6-6" Dia PVC, broken at both abutments <b>and separated over SB lanes</b> Utility 2: 4-4" Dia, 4 sets of broken hangers over N. Pier to WB lane 3, all hangers with hvy corrosion - CS3 Utility 3: 6" Dia pipe, 1 missing pipe roller over WB lane 2 - CS2 <b>Utility 4; underdeck lighting attached to center pier</b>	EA	3	0	1	1	1
X	9035		<b>Signs - Other</b> <b>E</b> Rail: "107TH STREET SIGN" - CS1 <b>W</b> Rail: "107TH STREET SIGN" Impacted & tilted - CS2 <b>P1</b> : "30 MPH SIGN" - CS1	EA	3	2	1	0	0
X	9042		<b>Slope Protection- Concrete</b> <b>S</b> Abut: Crkng & settling, undermining, <b>separating from abutment</b> <b>N</b> Abut: Crkng & settling, undermining	EA	2	0	2	0	0
X	9167		<b>Steel Diaphragm</b> All Diaphs: Lt-mod rust, slightly heavier at S Abut -100%	EA	96	0	96	0	0
X	9322		<b>Approach Roadway - Concrete (non-structural)</b> <b>S</b> Appr: Nar- <b>wide</b> crkng some settlement - <b>some sealed</b> , +/- 1/2" full width of approach	EA	1	0	0	1	0
X	9323		<b>Approach Roadway - Asphalt</b> <b>Cracking and distress at header, cracking in NB lanes</b>	EA	1	0	1	0	0

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Structure No.: **B-40-252**

X	9335		<b>Decorative Rail</b>	EA	2	0	2	0	0
			E Rail: 1 Bolt missing, <b>Lt-moderate</b> rust @ anchor, impact scrapes W Rail: Minor impact damage with scrapes and one bent bottom rail over SB rdway at south end of rail, <b>bent top rail over NB lanes, missing set bolt at N end</b>						
X	9336		<b>Luminaire Bases</b>	EA	2	1	0	1	0
			<b>Spall with exposed rebar</b> under luminaire base <b>on west rail</b>						

**NBI Ratings**

	File	New
Deck	5	4
Superstructure	5	4
Substructure	5	4
Culvert	N	N
Channel	N	N
Waterway	N	N

**Structure Specific Notes**

N. bkwf sheared for nearly entire length at beam seat, both abuts may be rotating inward - Monitor
Bridge painted in 1988.

**Inspection Specific Notes**

Monitor corroded duct hangers for 4-duct package
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**Inspector Site-Specific Safety Considerations**

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**Structure Inspection Procedures**

<b>Top Side: Shoulder area available SB just north of bridge</b>
<b>Bottom Side: Shoulder space available NB &amp; SB STH 145</b>

**Special Requirements**

Chk	Hours	Cost	Comments
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**Routine**

**Document Comment/Description**

Roadway on structure looking North

**B-40-252 N 107th St. over STH 145/W Fond Du Lac Ave.**

**Roadway on Structure Looking North**

**3/27/18**



**Routine**

**Document Comment/Description**

East parapet spall at north expansion joint





**Routine**

**Document Comment/Description**

Deck cracking - typical throughout entire deck

B-40-252 N 107th St. over STH 145/W Fond Du Lac Ave.  
Wearing Surface Cracking - Typical  
3/27/18





**Routine**

**Document Comment/Description**

South Approach Looking East  
Wide cracks and settling





**Routine**

**Document Comment/Description**

West Sidewalk - spalling along top inside



B-40-252 N 107th St, over STH 145/W Fond Du Lac Ave.  
West Sidewalk and Parapet  
Cracking and Spalling  
3/27/18



**Routine**

**Document Comment/Description**

Northwest Wing - tree overhanging sidewalk



B-40-252 N 107th St. over STH 145/W Fond Du Lac Ave.  
West Sidewalk at NW Wing  
Brush Overhanging Sidewalk  
3/27/18



**Routine**

**Document Comment/Description**

North Expansion Joint Looking East - Abrasion on deck and paving block

B-40-252 N 107th St. over STH 145/W Fond Du Lac Ave.  
North Approach at Paving Notch  
Abrasion on Paving Notch and Deck  
3/27/18





**Routine**

**Document Comment/Description**

West tubular rail - bent outward



**B-40-252 N 107th St. over STH 145/W Fond Du Lac Ave.  
West Decorative Rail  
Impacted and Bent Near North End  
3/27/18**



**Routine**

**Document Comment/Description**

South Abutment - Spall with exposed rebar at beam seat



B-40-252 N 107th St. over STH 145/W Fond Du Lac Ave.  
South Abutment  
Spall with Exposed Rebar  
3/27/18



**Routine**

**Document Comment/Description**

Girder/Bearing #2 at South Abutment - at limit of expansion at 43 degrees

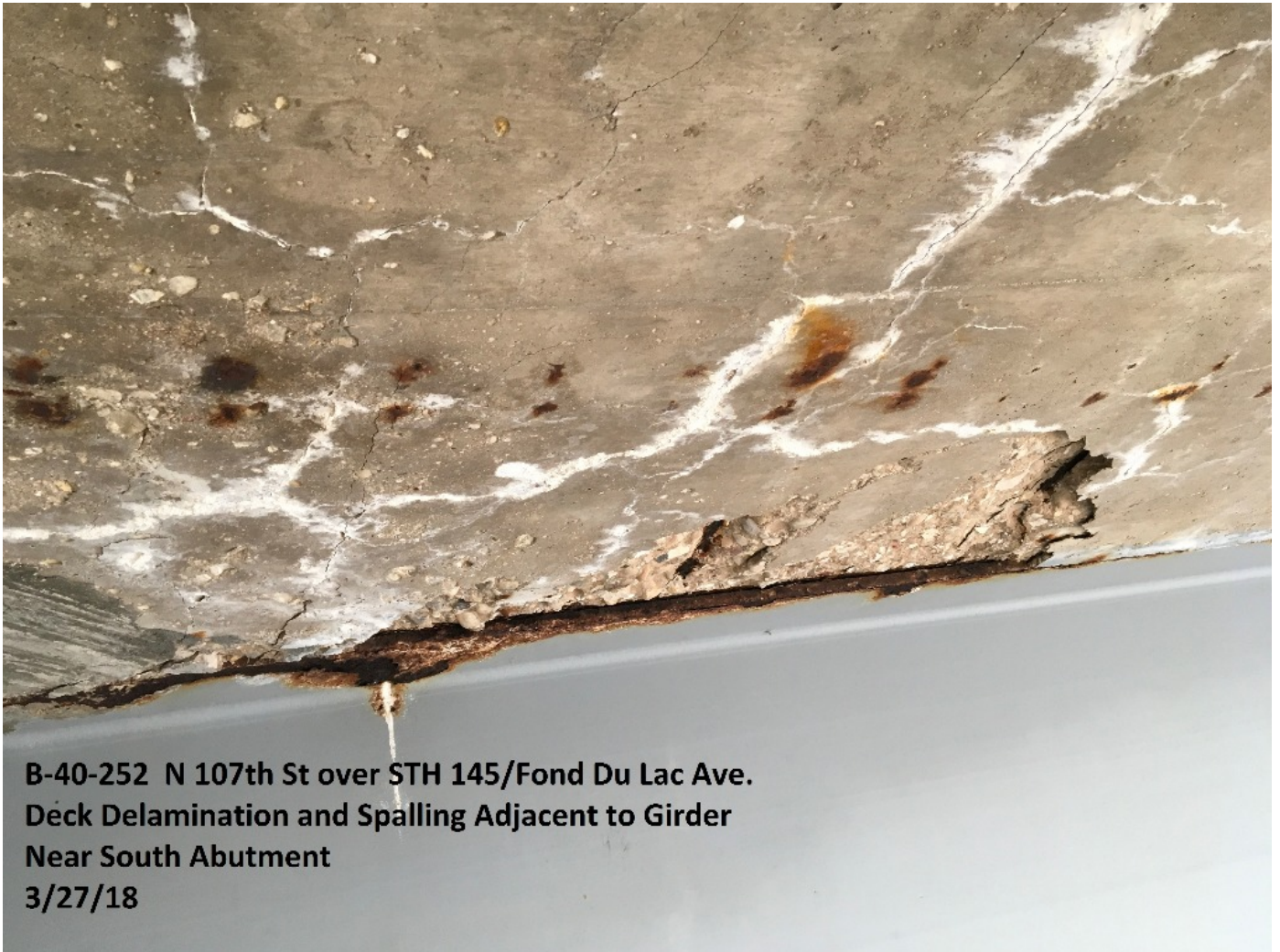




**Routine**

**Document Comment/Description**

Deck delamination and spalling adjacent to girder near South abutment



**B-40-252 N 107th St over STH 145/Fond Du Lac Ave.  
Deck Delamination and Spalling Adjacent to Girder  
Near South Abutment  
3/27/18**

**Routine**

**Document Comment/Description**

Broken utility conduit at South abutment





**Routine**

**Document Comment/Description**

Girder/Bearing #3 at South Abutment at limit of expansion



**Routine**

**Document Comment/Description**

Girder/Bearing #7 at South Abutment - Corrosion, at limit of expansion, bronze plate slipping out



**B-40-252 107th St. over STH 145/Fond Du Lac Ave.  
Girder #7 at South Abutment  
At Limit of Expansion at 43 Degrees  
Bronze Plate Slipping Out  
3/27/18**



**Routine**

**Document Comment/Description**

Pier 3 cap at West end - Medium horizontal crack

**B-40-252 N 107th St over STH 145/Fond Du Lac Ave.**

**Medium Horizontal Crack**

**Pier 3 Cap at West End, North Side**

**3/27/18**



Routine  
Document Comment/Description  
Span 4 View Looking South





Routine  
Document Comment/Description

Span 3 Looking North, spalling with exposed rebar



B-40-252 N 107th St over STH 145/Fond Du Lac Ave.  
Span 3 View Looking North  
3/27/18

**Routine**

**Document Comment/Description**

Deck spalling with exposed rebar in outer soffit and haunch above girder at pier 2





**Routine**

**Document Comment/Description**

Pier 2 Cap at West end - Large spall with exposed rebar



**Routine**

**Document Comment/Description**

Pier 1, East Column - Large Spall with exposed rebar



B-40-252 107th St. over STH 145/Fond Du Lac Ave.  
Pier 1, East Column  
Large Spall with Exposed Rebar  
3/27/18



**Routine**

**Document Comment/Description**

Girder/Bearing #1 at North Abutment - Broken keeper bar bolt, abument backwall is delaminated and cracked

**B-40-252 107th St. over STH 145/Fond Du Lac Ave.  
Girder 1 Bearing at North Abutment  
Broken Keeper Bar Bolt  
Abutment Backwall Cracked & Delaminated  
3/27/18**



**Routine**

**Document Comment/Description**

South Abutment Backwall near Girder #4 - Medium Cracks



B-40-252 107th St. over STH 145/Fond Du Lac Ave.  
North Abutment Backwall  
Medium Crack near Girder #4  
3/27/18



**Routine**

**Document Comment/Description**

Deck Delaminations near North Abutment

**B-40-252 107th St. over STH 145/Fond Du Lac Ave.  
Delaminations - Underside of Deck  
3/27/18**



Vertical Clearance Verification  
Document Comment/Description

Non-Cardinal Vertical Clearance Verification





Vertical Clearance Verification  
Document Comment/Description

Cardinal Vertical Clearance Verification



Non-Image Documents

Type	Document	Document Comment/Description	Attached
Deck Evaluation	b40-252_18_Kd1.pdf	2013 IR Deck Scan Results	X