Missouri Department of Transportation

STRUCTURAL REHABILITATION CHECKLIST

Bridge No.:	A5045	*Job No.:*	J6S3488
Route:	Bryan Rd.	*Over:*	I-70
County:	St. Charles	*Date of Field Check:*	12-27-2019

*** * * Please include photographs for all items that apply. * * ***

1

OVERLAY

* **Type of existing overlay:** ☑ None ☐ Asphalt ☐ Low Slump ☐ Silica Fume ☐ Latex ☐ Epoxy ☐ Other: _____

* **Existing overlay thickness:** _____ "

* **Year overlay was applied:** _____ ☐ Unknown

* **% of overlay repaired or patched:** _____ %

* **Replace overlay:** ☐ Yes ☐ No

* **Notes:** Recommend Hydro demolition and Latex Modified Concrete Overlay on deck and semi-deep slabs

Picture #

2A

DECK REPAIRS

(Deck repair quantities are required even if a Deck Test request has been ordered for this structure.)

* **Half-sole repairs:** 1150* sq. ft.
(round up to the nearest 50 sq. ft.)

* **Full-depth repairs:** 225** sq. ft.
(round up to the nearest 25 sq. ft.)

* **Slab edge repairs:** 40 lin. ft.
(covers the outer 4" of the slab edge)

* **Superstructure repair (Unformed):** _____ sq. ft.
(covers the remaining slab cantilever beyond the outer 4")

* **Clean & seal slab edge:** _____ lin. ft.
(in lieu of edge repairs)

* **Existing Deck Patching:** _____ sq. ft.
(round up to the nearest 25 sq. ft.)

* **Total surface hydro demolition bridge deck:** ☑ Yes ☐ No
(half-sole and full depth repair quantities still required)

* **Full deck replacement (redeck):** ☐ Yes ☑ No ☐ Optional

* **Superstructure replacement:** ☐ Yes ☑ No ☐ Optional

* **Deck repairs with voided tube replacement:** ☐ Yes ☑ No
(if applicable)
_____ sq. ft.

* **Full bridge replacement:** ☐ Yes ☑ No ☐ Optional
(Deck repair quantities required for cost comparison of alternatives)

* **How were the quantities obtained?** ☑ Visual ☐ Bridge Inspection Report ☐ Sounded ☐ Other _____

* **Notes:** Consider on-call deck survey contract for GPR/IR deck sounding to supplement visual repair estimate

*Estimated 5% half-sole/monolithic repairs. **Estimated 1% Full Depth at few saturated P/C panel joints

Picture #

2B

DECK REPAIRS CONT.

*** ISSUES \ PROBLEMS WITH PRECAST PRESTRESSED DECK PANELS**

Spans	At Panel Jt.	Btwn (mid) Panel Jt.	Location in Span: End	Mid	End	Deterioration: Type	Amount	Describe
1 & 2	☑	☐	☐ ☐	☐ ☐	☐	Saturation	sq. ft.	Randon panel joint locations
	☐	☐	☐ ☐	☐ ☐	☐		sq. ft.	
	☐	☐	☐ ☐	☐ ☐	☐		sq. ft.	
	☐	☐	☐ ☐	☐ ☐	☐		sq. ft.	
	☐	☐	☐ ☐	☐ ☐	☐		sq. ft.	
	☐	☐	☐ ☐	☐ ☐	☐		sq. ft.	

* **Notes:** See Section 2A notes

(Deterioration may include water saturation, efflorescence, rust staining, cracking, spalling, exposed steel, disintegration of panel edges at joints, etc. Typically observed at or near panel joints. The location and "Type" of deterioration should be recorded.)

Picture #

3

APPROACH SLABS

* **Is there a bridge approach slab in place?** ☑ Yes ☐ No * **Type:** ☑ Concrete ☐ Asphalt ☐ Other

* **Is there a rdwy. approach pavement in place?** ☑ Yes ☐ No * **Type:** ☑ Concrete ☐ Asphalt ☐ Other

* **Is the approach slab sinking at the end bent?** ☐ N/A ☐ Yes ☑ No

* **Are repairs needed to the bridge approach slab driving surface?** ☑ Yes ☐ No
(Typically a roadway item but will be reported to district on the Bridge Memorandum.)

* **Full Replacment of Approach Slab?** ☑ Yes ☐ No New BAS slab should be tied to Semi-Deep slab

* **Notes:** Roadway appr. pavement may need repairs. Traffic signal loops installed in approach pave.

Longitudinal joint in roadway pavement @ SE quad. Sinking/breaking up.

Picture #

4

SLAB DRAINS

* **Is the drainage system working adequately?** ☐ Yes ☑ No

* **Recommendations:** Install new inlet basins (standards), pipe and FES. Tie into existing drain system. NE quad has paved ditch SE quad has existing inlet at bottom of slope, NW & SW quads are outleted at toe of slopes btwn ML & ramps

* **Notes:** Existing aprons cracked, failing, clogged. GR updates will be driven through existing basins.

Will need to add approx. 30 LF of type A curb at all 4 quads. To close off existing drain basin openings.

Picture #

5

CURBS & RAILS

* **Existing curb (left side):** ☑ Safety Barrier Curb ☐ Curb/parapet ☐ Blockouts ☐ Thrie Beam ☐ Baluster ☐ Steel Channel

☐ Other _____ ☐ Handrail ☐ Fence _____

* Does curb need repair ☐ Yes ☐ No * Curb repair _____ lin. ft.

* Remove hand rail ☐ Yes ☐ No * Add curb blockout ☐ Yes ☐ No

* **Existing curb (right side):** ☑ Safety Barrier Curb ☐ Curb/parapet ☐ Blockouts ☐ Thrie Beam ☐ Baluster ☐ Steel Channel

☐ Other _____ ☐ Handrail ☐ Fence _____

* Does curb need repair ☑ Yes ☐ No * Curb repair 30 lin. ft.

* Remove hand rail ☐ Yes ☐ No * Add curb blockout ☐ Yes ☐ No

* **Existing median curb:** Type: raised median Width 48 " Height 6 "

* Does curb need repair ☐ Yes ☐ No * Curb repair 8 lin. ft.

* **Approach rail attachment:** ☐ None ☐ Not attached ☐ 4 Hole ☑ 5 Hole ☐ Turn-down ☐ Other _____

* **If the existing handrails will be removed, does the local maintenance supervisor wish to keep them?** ☐ Yes ☐ No

Storage address: *location:* _____

address: _____

city: _____ *state:* _____ *zip:* _____

* **Notes:** Median curb repair/replace at joint replacement locations. GR at all 4 quadrants need updated to MASH standard height and end treatments.

Picture #

6

EXPANSION DEVICES

Bent	Type	USE-IN-PLACE	REPAIR	REPLACE	Gap Left	Gap Right	Temperature & Other Info
1	Compression	☐	☐	☑	"	"	
3	Compression	☐	☐	☑	"	"	
		☐	☐	☐	"	"	
		☐	☐	☐	"	"	
		☐	☐	☐	"	"	
		☐	☐	☐	"	"	

* Notes: Replace existing with strip seals

Picture #

7

BEARINGS

Bent	CLEAN & OVERCOAT	BLAST CLEAN & RECOAT	USE-IN-PLACE	REPAIR	RESET	REPLACE	MAKE END BENT SLIDING SLAB	MAKE END BENT INTEGRAL	Notes (indicate which bearings at each bent)
1	☐	☑	☑	☐	☐	☐	☐	☐	
2	☐	☑	☑	☐	☐	☐	☐	☐	
3	☐	☑	☑	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	☐	☐	
	☐	☐	☐	☐	☐	☐	☐	☐	

* Notes:

Picture # (Provide Pictures of Each Bearing)

8

COATING SYSTEM (PAINT)

* **Existing coating system:** System C ☑ green ☐ gray ☐ other

* **Date last coated:** 1991

* **Is existing coating peeling?** ☑ Yes (Overcoat is not an option) ☐ No

* **Coating recommendation:**

☑ Blast clean & recoat all steel

☐ Clean & overcoat all steel

☐ Blast clean & recoat only at joint locations

☐ Blast & recoat at joint locations and clean & overcoat all other steel

Note: Pull off test required for overcoat (Calcium Sulfonate) option. Bridge Division will request pull off tests.

* Notes: Flanges and Webs peeling & rusting over traffic lanes from salt spray. New expansion joints will required new paint as well, most practical to blast & repaint entire structure.

Picture #

9

SUPERSTRUCTURE REPAIRS *(Repairs needed not previously stated.)*

Concrete Slab Superstructure or Girder: *(above the bearings)*
(Example: Deck solid slabs, voided slabs, box girder, deck girders & prestressed girders)

Steel: *(Example: Beams, stringers, girders, diaphragms, cross-frames, misc. steel)*

Member	*(Check all that apply) (Attach pictures)*						Describe & Locate
	☐	Section Loss	%	☐	Cracks	in.	
	☐	Section Loss	%	☐	Cracks	in.	
	☐	Section Loss	%	☐	Cracks	in.	
	☐	Section Loss	%	☐	Cracks	in.	

Notes: Re-weld abut diaphgram cross brace connections prior to re-paint.

Picture #

10

SUBSTRUCTURE REPAIR

Bent	Formed Repair	Unformed Repair	Seal Concrete Beam Cap Bts.	Coat Exposed Pile @ Int. Pile Cap Bts.	Describe (Beam, Backwall, Wing, etc.)
1	sq. ft.	123 sq. ft.	☑ Yes ☐ No	☐ Yes ☐ No	60 LF epoxy injection of backwalls
2	sq. ft.	sq. ft.	☑ Yes ☐ No	☐ Yes ☐ No	Conc. Prot. Coat full column height
3	sq. ft.	204 sq. ft.	☑ Yes ☐ No	☐ Yes ☐ No	96 LF epoxy injection of backwalls
	sq. ft.	sq. ft.	☐ Yes ☐ No	☐ Yes ☐ No	
	sq. ft.	sq. ft.	☐ Yes ☐ No	☐ Yes ☐ No	

* **Does the structure need graffiti protection?** ☑ No ☐ Bottom 8' of Concrete ☐ End Bents ☐ Other

* **Notes:** Unformed repairs are for beam cap & walls - require shotcrete method to perform repairs.

Picture #

11

SIGNS, SIGNALS &/OR LIGHTING ATTACHED TO STRUCTURE

* **Are there signs attached directly to this structure?** ☑ Yes ☐ No quantity 1 location deck/median over Bt. 2

* **Describe proposed work to be done to signs.** None

* **Are there signals attached directly to this structure?** ☐ Yes ☑ No quantity ____ location ____

* **Describe proposed work to be done to signals.** ____

* **Is there aviation lighting attached to this structure?** ☐ Yes ☐ No ☑ N/A ☐ Red ____ qnty. ☐ Green ____ qnty.

* **Is there navigational lighting attached to this structure?** ☐ Yes ☐ No ☑ N/A ☐ Red ____ qnty. ☐ Green ____ qnty.

* **Is there roadway lighting attached to this structure?** ☐ Yes ☑ No ☐ N/A

* **Describe proposed work to be done to lighting.** ____

* **Notes:** ____

Picture #

12

UTILITIES ATTACHED TO STRUCTURE

Type			Qty.	Size	Owner	Condition			
☑ Conduit	☐ Pipeline	☐ Other	1	2 in	MoDOT	☐ Repaint	☐ Repair	☐ Replace	☐ Remove
☐ Conduit	☐ Pipeline	☐ Other				☐ Repaint	☐ Repair	☐ Replace	☐ Remove
☐ Conduit	☐ Pipeline	☐ Other				☐ Repaint	☐ Repair	☐ Replace	☐ Remove
☐ Conduit	☐ Pipeline	☐ Other				☐ Repaint	☐ Repair	☐ Replace	☐ Remove

* **Notes:** Conduit encased in deck at right slab edge. Caution to be taken around any slab edge repairs.

Picture #

13 CATHODIC PROTECTION SYSTEM

* **Is there a cathodic system on this structure?** ☐ Yes ☑ No ☐ Remove ☐ Do not alter ☐ Abandon in place (grooved system)
* **Is it on and working?** ☐ Yes ☐ No ☐ Unknown
* **Notes:**

Picture #

14 CHANNEL ALIGNMENT, SLOPE PROTECTION & SCOUR

* **Is channel aligned to bridge opening?** ☐ Yes ☐ No Describe N/A
* **Is drift a continual problem?** ☐ Yes ☐ No Describe & Locate N/A
* **Is erosion a problem?** ☑ Yes ☐ No Describe & Locate @ drain basins, SW&NE Slope Prot., under Bt. 1 beam
* **Describe slope protection in place.** Concrete Paved Slope
* **Scour**

At Footing	At Piling	Depth	Bent	Recommendation
☐	☐			
☐	☐			

* **Describe needed work.** Repair Erosion - approx. 15 CY of fill

1100 LF of joint sealing of concrete paved slope protection

Picture #

15 TRAFFIC LANES

* **Number of lanes striped:** on structure 6 under structure 6
* **Shoulder width:** ☐ None on structure 2 (left) 2 (right) under structure 4 (left) 10 (right)
* **Sidewalk widths:** on structure 0 (left) 0 (right) under structure 0 (left) 0 (right)
* **Median width:** on structure 4 under structure 2.5
* **Proposed improvements for lanes/shoulders/sidewalks:** None

Picture #

16

GENERAL AREA CONDITIONS

* **Primary area:** ☑ Commercial ☐ Industrial ☐ Residential ☐ Agricultural ☐ Military ☐ Other _____

* **Posted speed limit on structure:** 45 mph

* **Posted load on structure:** _____ tons @ _____ mph ☐ NA

Single Unit: _____ tons @ _____ mph ☐ NA

Semi (tractor/trailer): _____ tons @ _____ mph ☐ NA

* **Are both signs in place?** ☐ Yes ☐ No

* **Do pedestrians and/or bicyclists regularly use this structure?** ☐ Yes ☑ No ☐ Undetermined

* **Notes:** _____

Picture #

17

MAINTENANCE

* **What work has been done to this structure that may not be reflected on existing bridge plans?** Deck sealed with silane/Pavon

2014-crews replaced 9 bearings on south abut., welded keepers to sole plates. 100 Sqft south abut sub repairs, sealed beam cap.

Reset bearings G8 & G9 on north abutment and welded keepers to sole plates. 100 SQFT Approach slab repair

2017- Bridge Crew did 400 Sqft approach slab repair

2015 - JOC installed emseal compression seals @ joints

Picture #

18

ADDITIONAL FIELD NOTES

Picture #

19

STAGING / DETOUR

* **Traffic Control:** ☐ Close structure ☑ Stage construction on structure ☐ Cross over traffic to adjacent structure ☐ Detour

☑ Other option **Could close bridge, but leave exit ramps open and detour traffic to outer roads and Hwy K or Lake St. Louis Blvd.**

* **Define probable detour route.** _____

20

PERSONS ASSISTING WITH CHECKLIST

Name	**Joe Molinaro**	Title	**District Bridge Eng.**	Ph.	(**314**) **453** - **1760**
Name	**Zach Evans**	Title	**Sr. Construction Insp**	Ph.	(**314**) **453** - **5080**
Name		Title		Ph.	( ) -
Name		Title		Ph.	( ) -
Name		Title		Ph.	( ) -

21

REQUIRED SIGNATURES

I have reviewed the information on this checklist and believe it to be as accurate as possible.

Name _____ **Date** _____

Transportation Project Manager

Name Joseph Molinaro Digitally signed by Joseph Molinaro Date: 2019.12.31 14:19:29 -06'00' **Date** _____

District Bridge Engineer

The structural rehabilitation checklist indicates how the bridge is functioning and aging.

All deterioration should be noted, even if it is known that the work will not be completed under the proposed project.

Send **NEW** Structural Rehabilitation Checklist by email
To: "Bridge Survey Processor"
Cc: Structural Project Manager or Structural Resource Manager

12/27/2019
A5045: Bryan Rd. over I-70
Gen. view looking South

A5045: Bryan Rd. over I-70
NE rail end terminal
12/27/2019

A5045: Bryan Rd. over I-70
NE Drain Basin
12/27/2019

A5045: Bryan Rd. over I-70
NB lanes North Approach Slab
Many patches, delams & spalls
12/27/2019

A5045: Bryan Rd. over I-70
SB lanes North Approach Slab
Many patches, delams & spalls
12/27/2019

EAST
ONLY
70
A5045: Bryan Rd. over I-70
Median sign truss on deck (UIP)
Looking South
12/27/2019

A5045: Bryan Rd. over I-70
Typical large longitudianal
cracks in semi-deep slab
12/27/2019

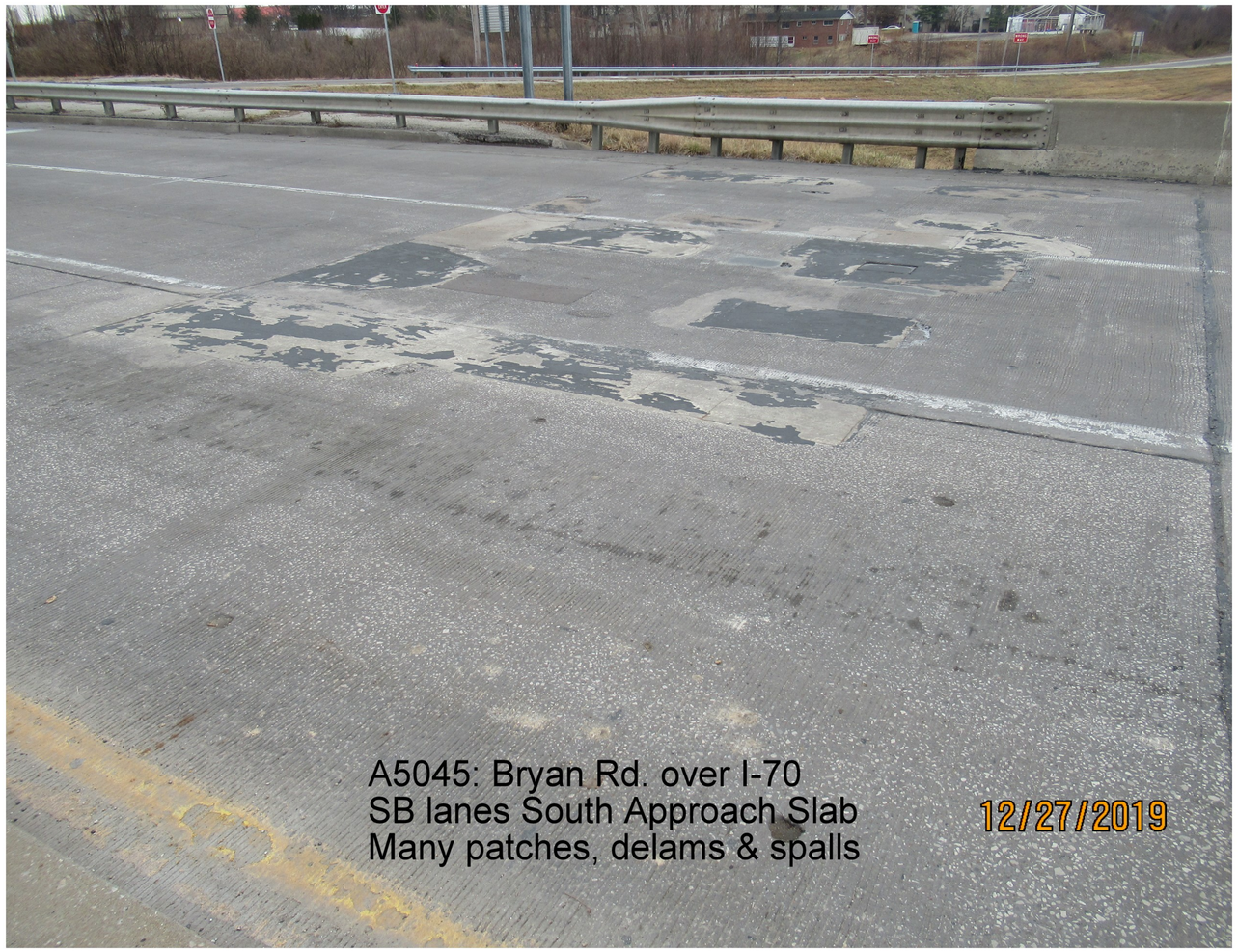
A5045: Bryan Rd. over I-70
NB lanes South Approach Slab
Many patches, delams & spalls
12/27/2019

A5045: Bryan Rd. over I-70
SB lanes Abut. 1 Exp. JT
Needs replacement
12/27/2019

A5045: Bryan Rd. over I-70
NB lanes Abut. 1 Exp. JT
Needs replacement
12/27/2019

12/27/2019

12/27/2019


A5045: Bryan Rd. over I-70
SB lanes South Approach Slab
Many patches, delams & spalls
12/27/2019

A5045: Bryan Rd. over I-70
SE rail end terminal
need some roadway pavement
repair
12/27/2019

ONE WAY
A5045: Bryan Rd. over I-70
SW rail end terminal
12/27/2019

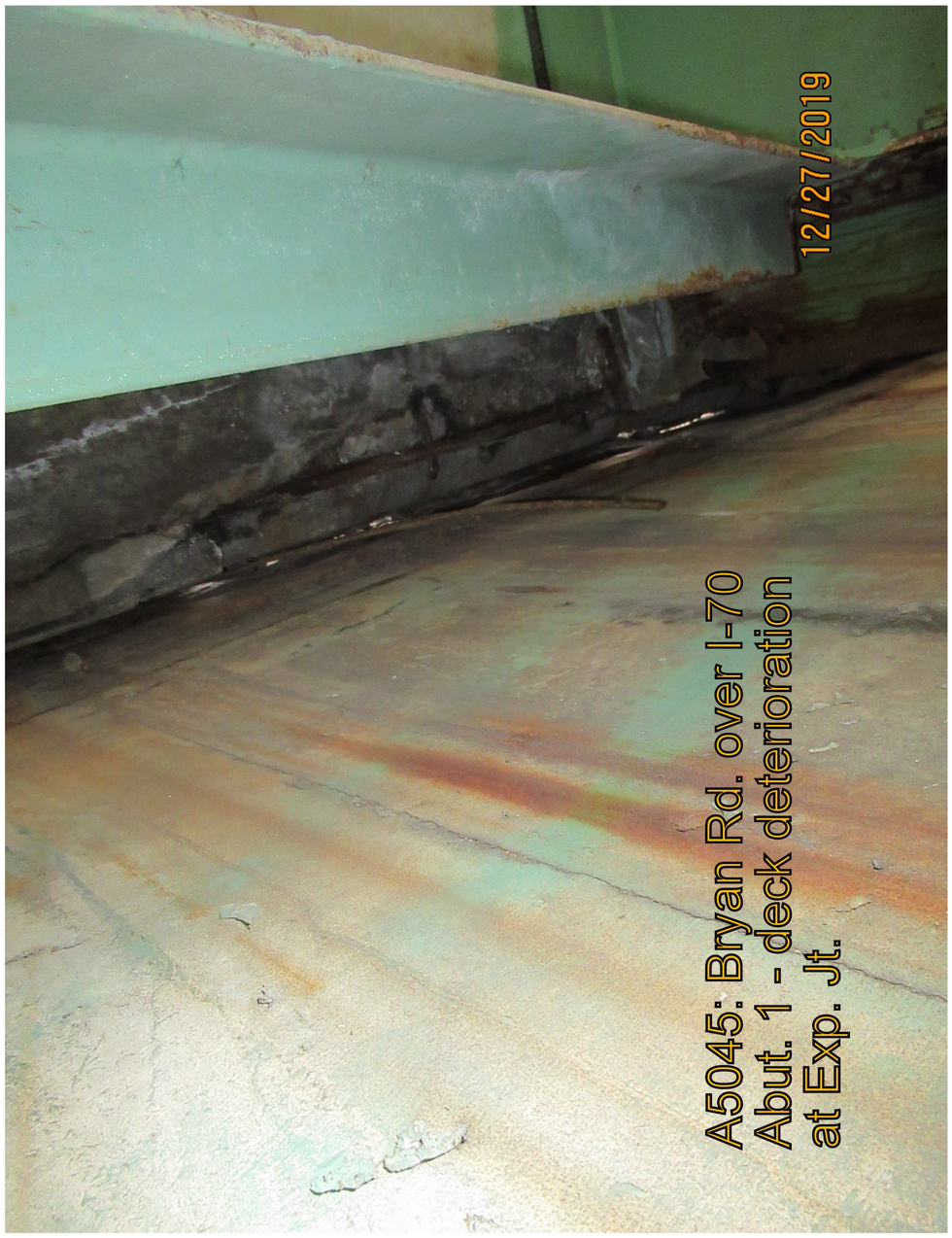
A5045: Bryan Rd. over I-70
Span 2 West barrier needs
30 ft. of repair
12/27/2019

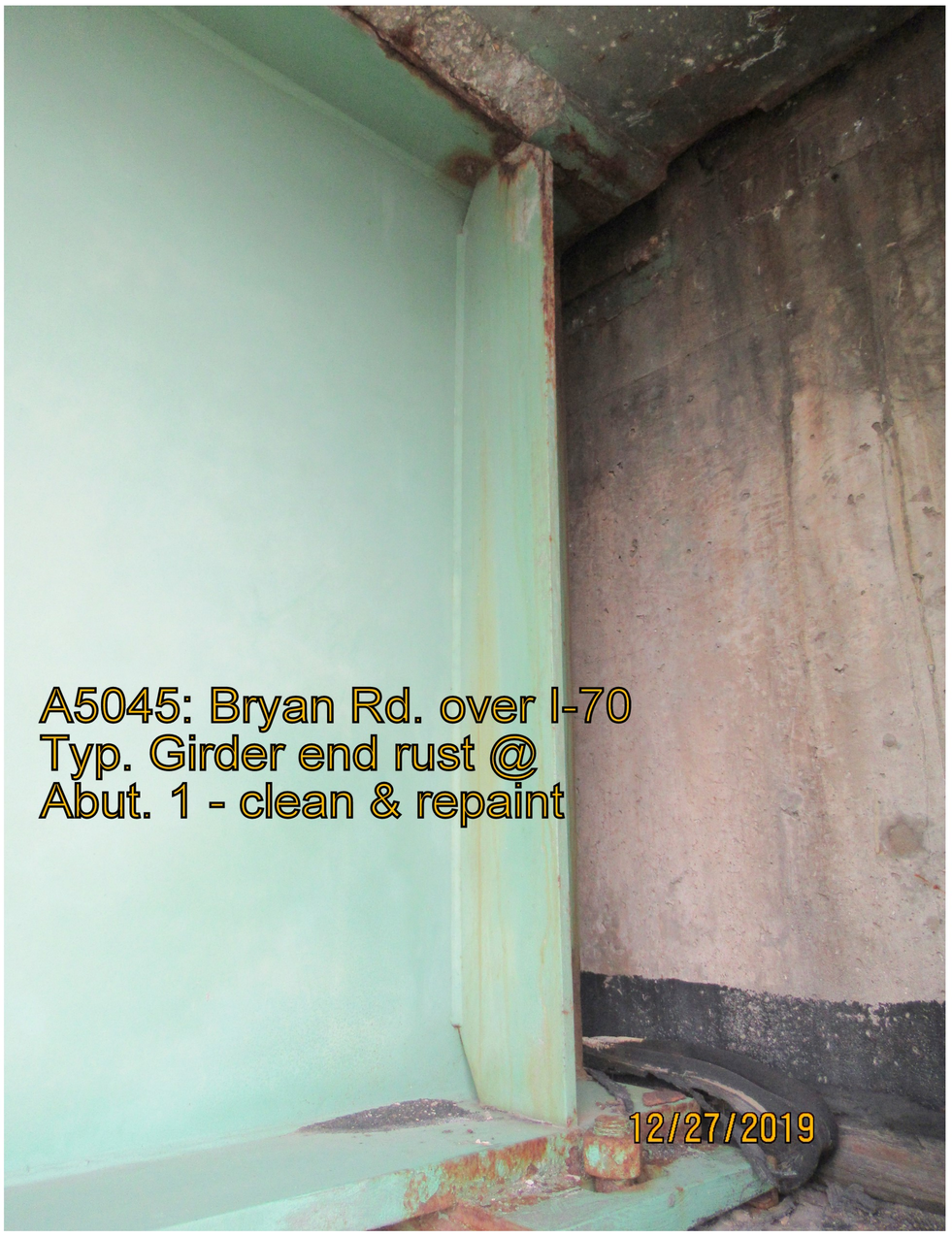
St Louis
70
A5045: Bryan Rd. over I-70
SW drain basin with severe
erosion and undermining
12/27/2019

A5045: Bryan Rd. over I-70
SW drain basin with severe
erosion and undermining
12/27/2019

A5045: Bryan Rd. over I-70
Typ. Broken welds @
Abut. Diaphragms - clean &
re-weld before painting
12/27/2019

A5045: Bryan Rd. over I-70
Typ. Girder end rust @
Abut. 1 - clean & repaint
12/27/2019


A5045: Bryan Rd. over I-70
Abut. 1 - deck deterioration
at Exp. Jt.
12/27/2019


A5045: Bryan Rd. over I-70
Typ. Girder end rust @
Abut. 1 - clean & repaint
12/27/2019

A5045: Bryan Rd. over I-70
Typ. Girder end rust @
Abut. 1 - clean & repaint
12/27/2019

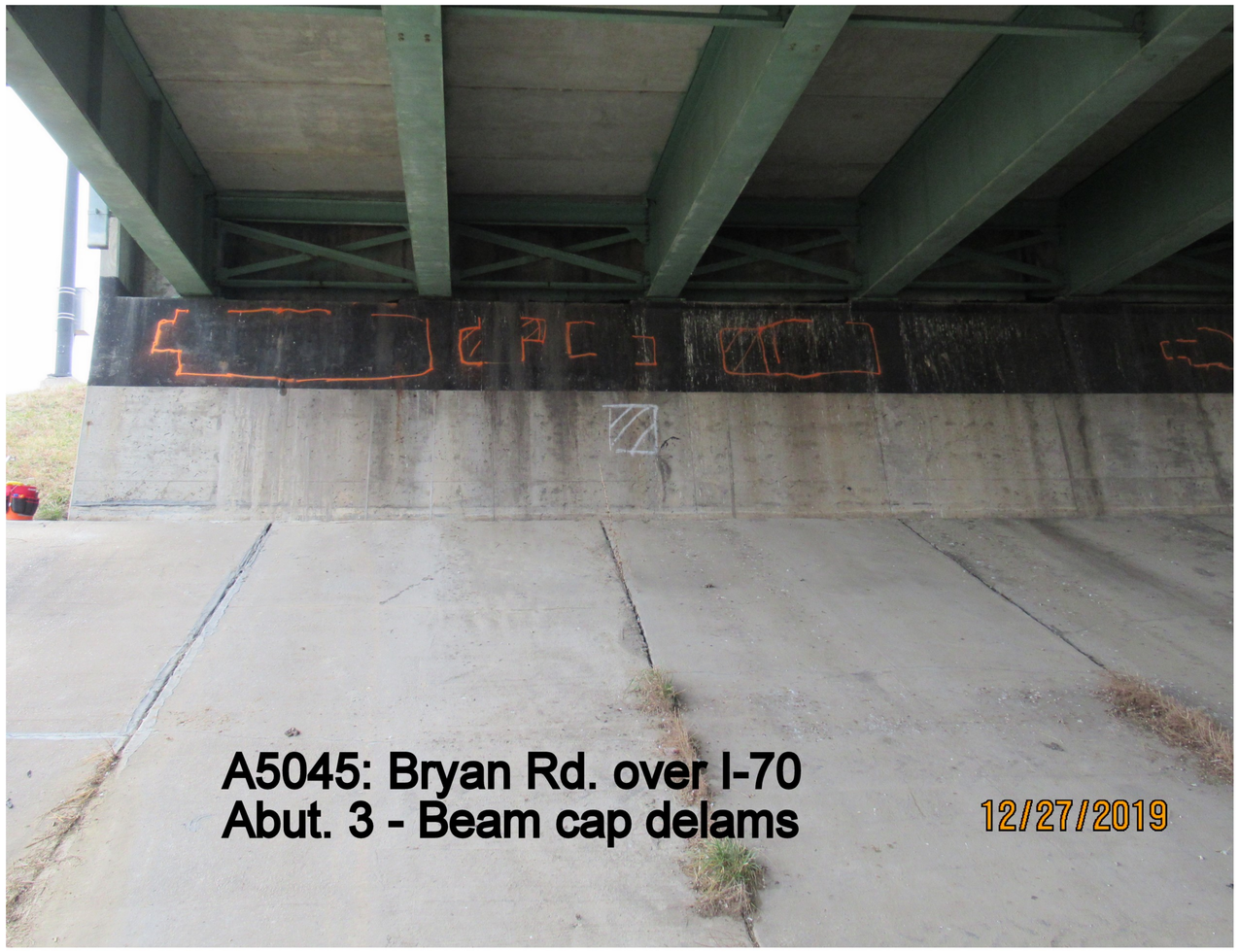
A5045: Bryan Rd. over I-70
Typ. Girder end rust @
Abut. 1 - clean & repaint
12/27/2019

A5045: Bryan Rd. over I-70
Abut. 1 - Beam cap delams
12/27/2019

A5045: Bryan Rd. over I-70
Abut. 1 - Beam cap delams
12/27/2019

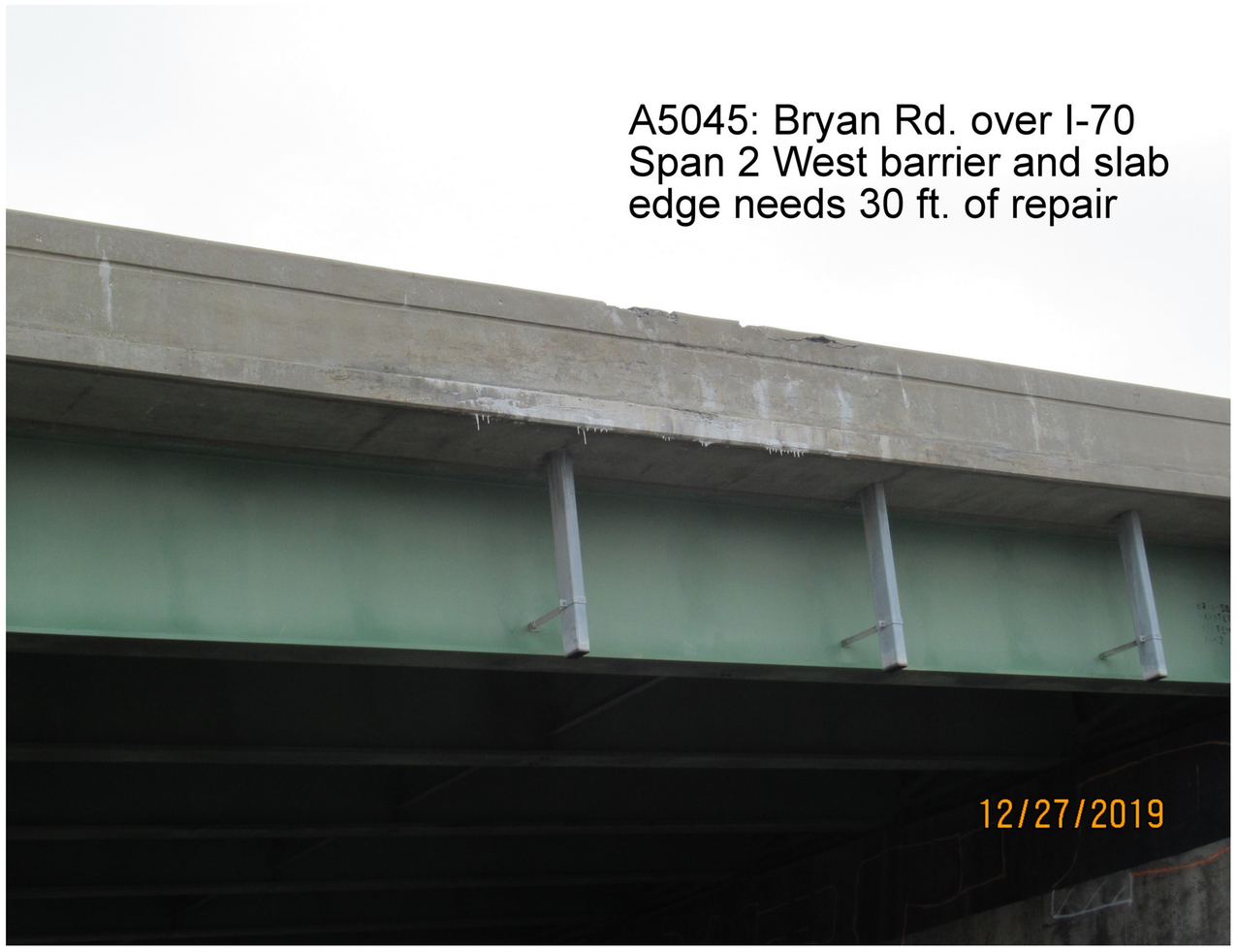
A5045: Bryan Rd. over I-70
Span 1 - over traffic
paint peel & girder rust
clean & repaint
12/27/2019

A5045: Bryan Rd. over I-70
Abut. 3 - Typ. Bearings
12/27/2019


A5045: Bryan Rd. over I-70
Abut. 3 - Beam cap delams
12/27/2019

A5045: Bryan Rd. over I-70
Abut. 3 - Beam cap delams
12/27/2019

A5045: Bryan Rd. over I-70
Span 2 - over traffic paint peel
& girder rust - clean & repaint
12/27/2019


A5045: Bryan Rd. over I-70
Span 2 West barrier and slab
edge needs 30 ft. of repair
12/27/2019