

# Oklahoma Dept. of Transportation - Bridge Inspection Report

<b>NBI No.:</b> 10965	<b>Structure No.:</b> 0706 0000 X	<b>Local ID:</b> 035	<b>Suff. Rating:</b> 42.30	<b>FO</b>
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<p><b>Bridge Description:</b> IDENTIFICATION</p> <div style="border: 1px solid black; padding: 2px;">250ft. HI. TRUSS, 63-61ft., STEEL GIRDER 23-35ft. TOWER SPANS (ROOSEVELT B RID)</div> <p>1. State: Oklahoma 2. Division: Division 2 3. County: BRYAN 4. City: Unknown Admin Area: Unknown 5a. On/Under: Route On Structure 5b. Kind of Hwy: U.S. Hwy 5c. Lvl of Svc: Mainline 5d. Route No.: 00070 5e. Dir. Sufx: N/A (NBI)</p> <p>7. Facility Carried: U.S. 70 6. Feat. Intersect: LAKE TEXOMA(ROOSEVELT) 9. Location: MARSHALL CO. LINE 11. Mile Post: 12.439 mi 13. LRS Inv. / Sub Rte: 0700006H\ / 00 16. Latitude: 33° 59' 55.05" 17. Longitude: 096° 38' 03.70" 98. Border Brdg: Unknown (P) % Responsible: 0.00 99. Border Brdg #: Unknown</p>	<p style="text-align: center;"><b>INSPECTION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Type</th> <th>Insp. Req.</th> <th>Insp. Done</th> <th>Freq.</th> <th>Insp. Date</th> <th>Next Insp.</th> </tr> </thead> <tbody> <tr> <td>NBI:</td> <td></td> <td>1</td> <td>24 months</td> <td>8/12/2021</td> <td>08/12/2023</td> </tr> <tr> <td>FC:</td> <td>Y</td> <td>1</td> <td>24 months</td> <td>8/12/2021</td> <td>8/12/2023</td> </tr> <tr> <td>UW:</td> <td>Y</td> <td>0</td> <td>60 months</td> <td>8/31/2020</td> <td>8/31/2025</td> </tr> <tr> <td>OS:</td> <td>Y</td> <td>0</td> <td>24 months</td> <td>7/15/2020</td> <td>8/12/2022</td> </tr> </tbody> </table> <p style="text-align: center;"><b>CLASSIFICATION</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>12. Base Hwy Net.: On Base Network</td> <td>101. Parallel Str.: No    bridge exists</td> </tr> <tr> <td>20. Toll Facility: On free road</td> <td>102. Traffic Dir.: 2-way traffic</td> </tr> <tr> <td>21. Custodian: State</td> <td>103. Temp. Str.: Not Applicable (P)</td> </tr> <tr> <td>22. Owner: State</td> <td>104. Hwy System: On the NHS</td> </tr> <tr> <td>26. Function Class: 02 Rural Other Princ</td> <td>105. Fed Land Hwy: N/A (NBI)</td> </tr> <tr> <td>37. Historical Sig.: Br eligible for NHRP</td> <td>110. Defense Hwy: Not a STRAHNET hwy</td> </tr> <tr> <td>100. Def. Hwy: Not a STRAHNET hwy</td> <td>112. NBIS Length: Long Enough</td> </tr> </table>	Type	Insp. Req.	Insp. Done	Freq.	Insp. Date	Next Insp.	NBI:		1	24 months	8/12/2021	08/12/2023	FC:	Y	1	24 months	8/12/2021	8/12/2023	UW:	Y	0	60 months	8/31/2020	8/31/2025	OS:	Y	0	24 months	7/15/2020	8/12/2022	12. Base Hwy Net.: On Base Network	101. Parallel Str.: No    bridge exists	20. Toll Facility: On free road	102. Traffic Dir.: 2-way traffic	21. Custodian: State	103. Temp. Str.: Not Applicable (P)	22. Owner: State	104. Hwy System: On the NHS	26. Function Class: 02 Rural Other Princ	105. Fed Land Hwy: N/A (NBI)	37. Historical Sig.: Br eligible for NHRP	110. Defense Hwy: Not a STRAHNET hwy	100. Def. Hwy: Not a STRAHNET hwy	112. NBIS Length: Long Enough
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<p style="text-align: center;"><b>STRUCTURE TYPE AND MATERIALS</b></p> <p>43a/b. Main Span: Steel / Truss-Thru 44a/b. Appr. Span: Steel / Stringer/Girder 45. # of Main Spans: 1 46. # of Appr. Spans: 86 107. Deck Type: Concrete-Cast-in-Place 108a. Wearing Surface: Monolithic Concrete 108b. Membrane: Unknown 108c. Deck protection: Unknown</p>	<p style="text-align: center;"><b>CONDITION</b></p> <p>58. Deck: 5 Fair 59. Sup.: 5 Fair 60. Sub: 6 Satisfactory 61. Chan./Chan. Prot.: 7 Minor Damage</p> <p><b>Flowline Notes</b></p> <div style="border: 1px solid black; padding: 2px;">There is no significant local or general scour at the time of the inspection. The pile supported footings were below grade at the time of inspection.</div>
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<p style="text-align: center;"><b>AGE AND SERVICE</b></p> <p>19. Detour Length: 39.1 mi 27. Year Built: 1948 28a/b. Lanes on/und: 2 / 0 29. ADT: 7,800 30. Year of ADT: 2020 42a/b. Type of Svc on/und: Highway / Waterway</p> <p>106. Year Reconst.: 109. Truck ADT: 25%</p>	<p style="text-align: center;"><b>LOAD RATING AND POSTING</b></p> <p>31. Design Load: M 18 (H 20) 41. Post. Status: A Open, no restriction 70. Posting: 5 At/Above Legal Loads 63. Op / 65. Inv. Rating Meth.: 1 LF Load Factor / 1 LF Load Factor</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>H</th> <th>HS</th> <th>3-3</th> <th>EV3</th> <th>SHV</th> </tr> </thead> <tbody> <tr> <td>64. Operating Rating (tons):</td> <td>23.00</td> <td>40.70</td> <td>67.50</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>66. Inventory Rating (tons):</td> <td>13.60</td> <td>24.40</td> <td>40.50</td> <td></td> <td></td> </tr> </tbody> </table>		H	HS	3-3	EV3	SHV	64. Operating Rating (tons):	23.00	40.70	67.50	0.00	0.00	66. Inventory Rating (tons):	13.60	24.40	40.50		
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<p style="text-align: center;"><b>GEOMETRIC DATA</b></p> <p>10. Vert. Clearance: 14.99 ft 32. Appr Rwy Width: 38.00 ft 33. Median: No median 34. Skew: 0.00° 35. Struct. Flared: No flare 47. Horizontal Clr: 24.00 ft 48. Length Max Span: 250.00 ft 49. Struct. Length: 4,942.91 ft</p> <p>50a. Curb/Sdwk Width L: 2.50 ft 50b. Curb/Sdwk Width R: 2.50 ft 51. Width Curb to Curb: 24.00 ft 52. Width Out to Out: 29.00 ft Deck Area: 143,343.00 sq. ft 53. Min. Vert. Cl. Ovr Brg: 14.99 ft 54a. Min. Vt. Undclr. Ref.: N Feature not hwy c 54b. Min. Vert. Undclr.: 0.00 ft 55a. Min. Lat. Undclr. Ref.: N Feature not hwy 55. Min. Lat. Underclr. R: 99.90 ft 56. Min. Lat. Underclr. L: 99.90 ft</p>	<p style="text-align: center;"><b>APPRAISAL</b></p> <p>36a. Brdg Rail: 0 Substandard 36b. Transition: 0 Substandard 36c. Appr. Rail: 1 Meets Standards 36d. Appr. Rail Ends: 1 Meets Standard 67. Str Evaluation: 5 Above Min Toler</p> <p>68. Deck Geom.: 2 Intolerable - Replace 69. Vert./Horiz. Undclr: Not applicable (NB) 71. Waterway Adeq: 5 Above Tolerable 72. Appr. Alignment: 8 Equal Desirable Crit 113. Scour Critical: 8 Stable Above Footir</p>
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<p style="text-align: center;"><b>OKLAHOMA ITEMS</b></p> <p>200c. Temperature: 90 200d. Weather: Clear 201. Struc. Stl. ASTM Desig.: -1 / -1 202. Waterprf. Membrane: -1 Date Installed: 01/01/1901 203. Type Exp. Device: Open Joint-No Device Sliding Plate 204. Type of Railing: Metal Railing (other) 205. Material Quantity: -3.00 208a. Type of Abutment: Skeleton b. Type of Found.: Concrete Piling 209. Type of Pier/Found.: 2 / No Concrete Piling</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>210. Foundation Elev.:</td> <td>-1.00</td> <td>-1.00</td> </tr> <tr> <td></td> <td>-1.00</td> <td>-1.00</td> </tr> </table> <p>211. Wear. Surf. Prot. Sys: None Date Installed: 01/01/1901 211c. Silane Reapplied 211d. Date: 213. Utilities Attached: Power</p>	210. Foundation Elev.:	-1.00	-1.00		-1.00	-1.00	<p>214a. Posted Weight Limit: NR b. Posted Speed Limit: N c. Narrow/1way Brdg Sign: No d. Vertical Clr. Sign: Yes Adv. Warning Sign: No e. Navigation Lights?: Yes Working/Not Working: Yes</p> <p>215. Overpass: U.S. HIGHWAY 218. Functionally Obsolete: FO 220. Bridge Redecked: - 221. Substr. Cond. (U/W): Satisfactory Condition 222. Fill Over RCB: 223. Appr. Slab/Rwy Cond.: 3 225. Paint Type/Ovrct: Inorganic Zinc 2Coat Sys N/A 226. Date Painted: 2021 227. Paint Color: Silver 233. Deck Forming: Conventional Forming 238. School Bus Rte.: Current bus route 240. Appr. Rwy Type.: Asphalt/Bituminous 243. Grdr Spacing/No.: /</p>
210. Foundation Elev.:	-1.00	-1.00					
	-1.00	-1.00					

<p style="text-align: center;"><b>PROPOSED IMPROVEMENTS</b></p> <p>94. Bridge Cost: \$14,323,474 95. Roadway Cost: \$4,500,000 96. Total Cost: \$19,888,954 97. Yr. of Cost Est.: 2015</p> <p>75. Type of Work: 31 Repl-Load Capacity 76. Lngth of Improvement: 4,942.9 ft 114. Future ADT: 12,480 115. Yr. of Future ADT: 2040</p>	<p style="text-align: center;"><b>NAVIGATION DATA</b></p> <p>38. Nav. Control: Permit Not Required 39. Vert. Clearance: 0.0 ft 40. Horiz. Clearance: 0.0 ft</p> <p>111. Pier Protect.: 1 Not Required 116. Lift Bridge Vert. Clr.: 0.0 ft</p>
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<p>244. Span Lengths: 245. Girder Depth: 246a. Type of Overlay: NA b. Overlay Thickness: c. Overlay Date: d. Ovlv Depth Changed &gt;1": - 247. Protective Systems:</p>	<p>248. # Field Splices w/ Corrosion: 0 249. Scour Crit. POA Exists?: No 250. Headwall: 258. Plans w/Found. in ODOT File: - 259. Scour Eval. in ODOT File: - 263. Interchange at Intersection: No 264. Interstate Milepoint:</p>
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Inspection Date: 8/12/21 Brendan Prendeville

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Invoice No.: Submittal 106 Inspected With: -1



**BRIDGE NOTES:**

250' Riveted Thru Truss (Span 71), Sixty-three (63) – 61' twin girder spans, and Twenty-three (23) – 35' twin girder spans

Other Special Inspection Items Include:

- Spalling along the underside of the joints for holes developing through the deck.
- Joints near the abutments for signs of movement due to the abutment joints being fully closed.
- Plug welds in the tension flange of the approach girders for the development of cracks (locations noted in Appendix A: Plug Welds).
- Cracks in the welded utility brackets for propagation into the base metal at:
  - o Span 72, girder 2 between FBs 4 and 5.
  - o Span 73, girder 2 between FBs 2 and 3.
  - o Span 77, girder 2 at FB 2.
  - o Span 79, girder 1 west of FB 5.
- Cracks in the sharp stringer connection copes in the truss span (span 71) at:
  - o Stringer 4, west face of FB 1 (3/8 inch).
  - o Stringer 1, west face of FB 8 (1/8 inch).
  - o Stringer 4, east face of FB 9 (1/4 inch).
- Sister FBs not tight against the deck:
  - o FB 7, span 28.
  - o FBs 0, 2 and 3, span 38.
  - o FBs 0 and 2, span 39.
- Lap in the bottom flange of FB 3, span 15 for signs of distress.
- Cracks in the fillet welds between the vertical members and fill plates in span 71 at south U4, U6 and U8, and north U2, U4, U6 and U8 for propagation into the member.
- Girder bearings locations where undermining of the grout material has occurred.

NOTE: Underwater Inspection. (PIERS 76 - 87)

The underwater inspection was conducted on August 04, 2015. The weather was clear with temperatures up to 97F. The water temperature was approximately 89F. There was no measurable flow at the bridge, and the average visibility was 3 feet.

Access to the water was gained by a boat ramp located 2 miles to the east of the bridge.

The water elevation during the inspection was at ELEV. 631.1 obtained from the Monthly Lake Report from the Corps of Engineers. The water elevation remained unchanged for the duration of the inspection.

See underwater inspection report for further details

OVERLOAD TRAFFIC RESTRICTED BY WES KELLOGG 05/26/20201 BY WES KELLOGG DUE TO SECTION LOSSES TO FLOOR BEAM MEMBERS.

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**INSPECTION NOTES:** 8/12/21

U/W 2020 General Notes: The substructures in the waterway are in satisfactory condition. The columns and struts have random areas of voiding.

- PX**
- Reattach the bridge railing post connections to the deck.
  - Repair the rail post connection at:
    - o North rail at floor beam 3, span 39 – damaged connection to floor beam.
    - o North rail at floor beam 5, span 39 – missing bolts at connection to floor beam.
    - o South rail at floor beams 4 and 5, span 72 – missing bolts at connection to floor beam.
    - o South rail at floor beams 2 and 4, span 82 – broken weld between post and anchor plate to curb.
    - o South rail at floor beams 2, 3 and 4, span 82 – missing bolts at rail connections to posts.
    - o South rail at floor beam 3, span 83 – missing bolts at rail connections to post.
    - o North rail at floor beam 5, span 83 – missing bolts/weld at connection to floor beam.
  - Seal joints in deck to prevent further deterioration of the concrete and steel below.
  - Clean and paint the floor beams under the expansion and fixed joints to prevent further deterioration and section loss.
  - Install sister floor beams at all locations noted in rehabilitation plans and at floor beam 1, span 25 and floor beam 2, span 74 where significant section loss was observed in the top flange.
  - Install additional shims between sister floor beams and girder to make tight against the deck at:
    - o Floor beam 7, span 28.
    - o Floor beams 0, 2 and 3, span 38.
    - o Floor beams 0 and 2, span 39.
  - Repair the corrosion holes through the lower lateral bracing gusset plates in span 72 over pier 71.
  - Remove debris collecting inside the lower chord members in span 71.

- FX – Monitor**
- Spalling along the underside of the joints for holes developing through the deck.
  - Joints near the abutments for signs of movement due to the abutment joints being fully closed.
  - Plug welds in the tension flange of the approach girders for the development of cracks (locations noted in Appendix A: Plug Welds).
  - Cracks in the welded utility brackets for propagation into the base metal at:
    - o Span 72, girder 2 between floor beams 4 and 5.
    - o Span 73, girder 2 between floor beams 2 and 3.
    - o Span 77, girder 2 at floor beam 2.
    - o Span 79, girder 1 west of floor beam 5.
  - Cracks in the sharp stringer connection copes in the truss span (span 71) at:
    - o Stringer 4, west face of floor beam 1 (3/8 inch).
    - o Stringer 1, west face of floor beam 8 (1/8 inch).
    - o Stringer 4, east face of floor beam 9 (1/4 inch).
  - Stringer to floor beam connections in span 71 for distress from pack rust.
  - Lap in the bottom flange of floor beam 3, span 15 for signs of distress.
  - Truss web members and truss connections at the gusset plates for signs of distress or cracking as a result of past impact damage to the sway struts.
  - Cracks in the fillet welds between the vertical members and fill plates in span 71 at south U4, U6 and U8, and north U2, U4, U6 and U8 for propagation into the member.
  - Girder bearings for further undermining of the grout material.
  - Missing and/or bent anchor bolts at the expansion bearings for signs of lateral displacement.

**ELEMENT CONDITION STATE DATA**

Elem. / Env	Description	Unit	Total Qty	% 1	Qty. 1	% 2	Qty. 2	% 3	Qty. 3	% 4	Qty. 4
12 / 1	Re Concrete Deck	sq.ft	118,608.00	0%	0.00	92%	109,380.30	8%	9,227.70	0%	0.00
Transverse cracks up to 1/16 inch wide, spalls and asphalt patches in truss span. Diagonal cracks up to 1/16 inch side in span 41. Shallow spalls typical along edge of unarmored fixed joints. Concrete patches in span 39 (previous asphalt patches replaced with concrete). Spalls with exposed reinforcing steel in the face of both curbs, most prevalent in spans 47 through 68. Vertical offset between spans at the fixed joints at pier 11 (3/4 inch), pier 64 (3/8 inch) and pier 75 (1/4 inch).											
107 / 1	Steel Opn Girder/Beam	ft	7,608.00	0%	0.00	46%	3,508.00	54%	4,100.00	0%	0.00
FX – Numerous plug welds exist in multiple spans in the top and bottom flange angles and cover plates of the girders, no cracking was noted (locations noted in Appendix A: Plug Welds); Utility brackets welded to girder top flange with cracks at: Span 72 girder 2 between FBs 4 and 5, Span 73 girder 2 between FBs 2 and 3, Span 77 girder 2 at FB 2. Fretting corrosion between FB knee braces and girder top flange. Pack rust between knee brace fill plate and top flange, 1/16-inch loss under pack rust. Corrosion and pitting of girder ends under joints where not recently repainted. Pack rust developing between girder flange components.											
515 / 1	Steel Protective Coating	sq.ft	2,800,990.00	0%	0.00	100%	2,800,990.0	0%	0.00	0%	0.00
PX – Active corrosion and section loss in isolated locations where not recently painted. The paint system on the thru-truss is chalking and weathered with isolated exposed primer and minor surface corrosion. Spans 1 through 12 were painted in 2020 and spans 13 through 40 were painted in 2021.											
113 / 1	Steel Stringer	ft	600.00	0%	0.00	98%	588.00	2%	12.00	0%	0.00

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Isolated areas of stringers exhibit surface corrosion.											
152 / 1	Steel Floor Beam	ft	17,927.00	32%	5,805.00	39%	6,978.00	29%	5,144.00	0%	0.00
<p>Strengthening project underway to install sister FBs adjacent to deteriorated FBs.</p> <p>PX – Section loss of FB top flange typical in end FBs full length and interior FBs at overhangs; FBs with significant section loss and not on plans for sistering include Span 25 FB1 and Span 74 FB2; Several sister FBs appear to be in wrong location (Span 18 FB3, Span 23 FB1, Span 28 FB4, Span 30 FB1, Span 68 FBs 0 and 4); Sister FBs not tight against deck after shimmed in place (Span 26 FB7, Span 38 FBs 0, 2 and 3, Span 39 FBs 0 and 2).</p> <p>FX – 1/2-inch lap in bottom flange of Span 15 FB3. Loss to FB web occurs at knee brace (Span 16 FBs 4 and 5, Span 36 FBs 0 and 4, Span 69 FB7); Pack rust and loss in web at exterior stringer connection angles in span 71.</p> <p>Slight lateral misalignment in Span 31 FB5, Span 46 FB6, Span 51 FB5. FB ends bent where railing experienced collision damage; Pack rust typical between deck and FBs at cantilevers and end FBs.</p>											
162 / 1	Stl Gus Plate	each	80.00	0%	0.00	98%	78.00	3%	2.00	0%	0.00
MEMBER ALIGNMENT – Up to 1/4-inch thick pack rust is typical between the lower chord gusset plates and verticals causing gusset plate to bow 1/8 inch at few locations. Gusset plates exhibit 1/16-inch deep section loss along the lower chord at these locations.											
205 / 1	Re Conc Column	each	172.00	0%	0.00	100%	172.00	0%	0.00	0%	0.00
32-inch horizontal by 6-inch vertical by 3-inch deep spall in pier 18 at east face below girder 1, span 19 bearing. Abrasion due to wave action is prevalent on most bent columns at/near the water line.											
215 / 1	Re Conc Abutment	ft	59.00	85%	50.00	15%	9.00	0%	0.00	0%	0.00
Roadway debris and spalled deck concrete are present on abutment seats. The backwall at the east abutment is tilted slightly inward (to the west); likely as a result of combined earth pressure and potential approach pavement growth/pressure. The backwall is contacting the edge of the deck; limiting further expansion of the superstructure though no cracking or spalling was noted. The west abutment backwall is similarly in contact with the deck.											
234 / 1	Re Conc Pier Cap	ft	1,794.00	86%	1,544.00	14%	250.00	0%	0.00	0%	0.00
32-inch horizontal by 6-inch vertical by 3-inch deep spall in pier 18 at east face below girder 1, span 19 bearing. Spalled deck concrete from the underside of the expansion joints is present on few piers (concrete cleaned from caps each inspection).											
304 / 1	Open Expansion Joint	ft	638.00	0%	0.00	100%	638.00	0%	0.00	0%	0.00
PX – Deteriorated joint filler allows joints to leak. FX – Joints closed at abutments and covered with asphalt runoff from approach pavement. Spalling in underside of joints is typical. Shallow spalls exist along sliding plate joints.											
311 / 1	Moveable Bearing	each	174.00	0%	0.00	97%	168.00	3%	6.00	0%	0.00
FX – Past undermining of grout pads has been mitigated with shim plates welded to the masonry plates; Anchor bolts missing at numerous bearings. Bearings typically centered or in expansion at 80F. Bearings slid east at Span 22 pier 22, Span 34 pier 34, Span 57 pier 57, Span 68 pier 68, Span 72 pier 72.											
313 / 1	Fixed Bearing	each	174.00	0%	0.00	97%	168.00	3%	6.00	0%	0.00
FX – Past undermining of grout pads has been mitigated with shim plates welded to the masonry plates; Anchor bolts missing at numerous bearings.											
321 / 1	Re Conc Approach Slab	sq.ft	2.00	0%	0.00	100%	2.00	0%	0.00	0%	0.00
Asphalt approach pavement has 1/4-inch wide unsealed cracks at approximately 15-foot spacing. Light density of map cracking exists in the wheel lines with minor rutting. Minor spalling of the asphalt exists in the approach roadways. Several spalls have been patched in the west approach.											
330 / 1	Metal Bridge Railing	ft	9,885.00	0%	0.00	50%	4,942.50	50%	4,942.50	0%	0.00
PX – Approximately 33% of the railing post bolts to vertical face of deck are sheared or severely bent; Significant impact damage exists at North railing span 39 (posts at FBs 2-5 distorted, post at FB3 has a block shear type failure, splice plate for post at FB4 is broken and ineffective), North railing at pier 65 (one post bent 10 inches with sheared bolts at deck), North railing span 78 (one post bent 18 inches and FB1 web heavily distorted); Rail posts at floor beams 2 through 6 were retrofitted in the south railing in spans 72, 82 83 and 84. South railing spans 82 and 83 replaced (broken weld at curb plate at Span 82, FB 2 and 4, missing rail connection bolts at Span 82 FBs 2, 3 and 4 and Span 83 FB3, Rail post connection missing bolts and welds at Span 83 FB 5).											
919 / 1	St.(Rail) Prot. Coat	(SF)	462,848.00	0%	0.00	46%	212,803.00	54%	250,045.00	0%	0.00
Railing has failed paint in areas of impact damage.											
821 / 1	Steel Truss (Ovhd)	(LF)	500.00	99%	494.00	0%	0.00	1%	6.00	0%	0.00

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<p>Upper Chord and End Posts Weathered and peeling paint exposing prime coat and surface corrosion.</p> <p>Lower Chord PX – Bird waste inside lower chord. Random areas of pitting inside lower chord with active corrosion.</p> <p>Web Members FX -Impact damage to sway bracing has bent verticals (zero force and tension members). Verticals heat straightened; Fillet welds between verticals and fill plates at upper chord at South U4, U6 and U8 and North U2, U4, U6 and U8 (no recent change in crack length).</p> <p>Bracing PX – Corrosion holes through lower lateral bracing gusset plates for span 72 at pier 71. East portal bracing has broken angle in bottom strut and west portal bracing has bent angles in bottom strut. Sway bracing replaced prior to 2011 inspection after over height vehicle impact.</p>											
859 / 1	Soffit	(EA)	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
<p>FX – Spalling in underside of joints exposing reinforcing steel. Deck lifting from end FBs and FB cantilevers due to pack rust. Spalling and spalls forming common in the overhangs. Spalls are typical over FBs and stringer ends in span 71.</p>											
865 / 1	St.Open Gird End(5Ft)	(LF)	1,720.00	47%	800.00	54%	920.00	0%	0.00	0%	0.00
<p>Sporadic patches of freckling corrosion, most prevalent on exterior faces near joints, exist throughout the girders. Surface corrosion exists at approximately 30 percent of the girder ends. Isolated beam ends exhibit 1/4-inch deep active pitting to the beam ends.</p>											
870 / 1	Concrete Wingwall	(EA)	4.00	100%	4.00	0%	0.00	0%	0.00	0%	0.00
<p>Embankment erosion has exposed the back face of the northeast wingwall. No signs of undermining were observed.</p>											
877 / 1	St. Stringer End(5Ft)	(LF)	400.00	0%	0.00	97%	388.00	3%	12.00	0%	0.00
<p>FX – Sharp copes are typical with cracks noted at Stringer 4 to FB0 west face (3/8-inch vertical crack), Stringer 1 to FB8 west face (1/8-inch vertical crack), Stringer 4 to FB9 east face (1/4-inch diagonal crack); Pack rust developing between stringer connection angle and FB web. Joint support extensions under the joints at piers 70 and 71 have overcuts in the top flange cope at (Stringer 2 extension at FB0, Stringer 3 extension at FB10).</p>											
909 / 1	Pourable Fix Jt.Seal	(LF)	2,175.00	0%	0.00	0%	0.00	99%	2,146.00	1%	29.00
<p>PX – 2-foot by 4-inch hole through the deck at the edge of the fixed joint at pier 49; Asphalt-impregnated boards are used as joint filler at the fixed joints over the piers and floor beams in the truss span. The filler is missing and/or heavily deteriorated at all locations allowing drainage to pour freely on to the steel superstructure, bearings, and pier caps below. Debris build-up is light to moderate in the joints. Spalling of the underside of joints is typical at most expansion joints throughout the bridge.</p>											
956 / 1	St. Cracking/Fatigue	(SF)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
<p>FX – Sharp copes in stringer ends are typical with cracks noted at Stringer 4 to FB0 west face (3/8-inch vertical crack), Stringer 1 to FB8 west face (1/8-inch vertical crack), Stringer 4 to FB9 east face (1/4-inch diagonal crack); Utility brackets welded to girder top flange with cracks at: Span 72 girder 2 between FBs 4 and 5, Span 73 girder 2 between FBs 2 and 3, Span 77 girder 2 at FB 2; Fillet welds between verticals and fill plates at upper chord at South U4, U6 and U8 and North U2, U4, U6 and U8 (no recent change in crack length). Joint support extensions under the joints at piers 70 and 71 have overcuts in the top flange cope at (Stringer 2 extension at FB0, Stringer 3 extension at FB10).</p>											
957 / 1	Pack Rust Smart Flag	(EA)	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
<p>FX - Pack rust developing between stringer connection angle and FB web. Deck lifting due to pack rust between deck and end FBs and FB cantilevers. Pack rust up to 1 inch thick between knee brace fill plate and girder top flange. Pack rust developing between girder top flange components. Pack rust up to 1/4 inch thick between truss verticals and gusset plates.</p>											
958 / 1	Concrete Cracking SF	(EA)	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
<p>Transverse cracks up to 1/16-inch wide and spaced at 1-foot intervals exist in the deck of the truss span (span 71). Diagonal cracks up to 1/16-inch wide were noted in span 41. This condition is not typical along the length of the bridge. Deck driving surface (monolithic concrete wearing surface) has light density of hairline map cracking up to 1/16 inch wide and 1/8 inch deep is likely due to shrinkage.</p>											
960 / 1	Settlement SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
<p>The backwall at the east abutment is tilted slightly inward (to the west); likely as a result of combined earth pressure and potential approach pavement growth/pressure. The backwall is contacting the edge of the deck; limiting further expansion of the superstructure though no cracking or spalling was noted. The west abutment backwall is similarly in contact with the deck.</p>											
962 / 1	Super.Traffic Impact	(EA)	1.00	100%	1.00	0%	0.00	0%	0.00	0%	0.00
<p>FX – Member Alignment - Impact damage to the lower sway bracing struts in 2011 caused global misalignment of the verticals. The damaged verticals were heat straightened at the chords and previous lower strut connections. The verticals affected by the collision damage are either fracture critical floor beam hanger or zero-force members. The alignment of the verticals was measured during the 2011 fracture critical inspection using a string line to document the remaining global and local distortions not removed during the heat straightening process. A maximum of 1/4-inch longitudinal and 3/4-inch transverse global displacement of the verticals was observed near the original sway strut connection.</p>											
963 / 1	Steel Section Loss SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00

# Oklahoma Dept. of Transportation - Bridge Inspection Report

<b>NBI No.:</b> 10965	<b>Structure No.:</b> 0706 0000 X	<b>Local ID:</b> 035	<b>Suff. Rating:</b> 42.30	<b>FO</b>
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PX – Active corrosion and section loss exist at FBs not recently painted. The end floor beams typically exhibit more deterioration than the interior. Currently the section loss does not significantly affect the capacity of the bridge. See the floor beam element for specific locations; 1/2-inch edge loss to the end floor beam top flange with adjacent knife edging exists in isolated locations throughout the girder spans. Isolated beam ends exhibit 1/4-inch deep active pitting to the beam ends. Lower chord members exhibit random areas of 2-inch diameter x 1/16-inch deep pitting.

<b>968 / 1</b>	Erosion SF	(EA)	1.00	100%	1.00	0%	0.00	0%	0.00	0%	0.00
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Embankment erosion has exposed the back face of the northeast wingwall. No signs of undermining were observed.

<b>972 / 1</b>	Loss of Bearing SF	(EA)	38.00	0%	0.00	92%	35.00	8%	3.00	0%	0.00
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FX – Undermining of the grout pads for the girder span bearings have been repaired with shim plates. Locations and measurements of undermining are listed below:

- Span 1; W. Abut; South Girder; 5/8-inch
- Span 1; W. Abut; North Girder; 7-inch
- Span 6; Pier 6; South Girder; 3/4-inch
- Span 10; Pier 10; North Girder; 1-inch
- Span 12; Pier 12; North Girder; 3/8-inch
- Span 14; Pier 13; South Girder; 3/4-inch
- Span 14; Pier 14; South Girder; 1/2-inch
- Span 14; Pier 14; North Girder; 3/4-inch
- Span 18; Pier 17; North Girder; 1-inch
- Span 18; Pier 17; South Girder; 1/4-inch
- Span 18; Pier 18; South Girder; 7/8-inch
- Span 18; Pier 18; North Girder; 1/2-inch
- Span 26; Pier 26; North Girder; 1/2-inch
- Span 29; Pier 28; South Girder; 1-inch
- Span 34; Pier 34; South Girder; 3/8-inch
- Span 80; Pier 80; North Girder; 3/4-inch
- Span 82; Pier 82; North Girder; 1-inch
- Span 83; Pier 83; North Girder; 1-inch
- Span 84; Pier 84; North Girder; 1-inch

<b>975 / 1</b>	Supplemental Support	(EA)	4,500.00	100%	4,500.00	0%	0.00	0%	0.00	0%	0.00
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Sister FBs are being installed adjacent to the end FBs and FBs with significant loss.  
 PX - Several sister FBs appear to be in wrong location (Span 18 FB3, Span 23 FB1, Span 28 FB4, Span 30 FB1, Span 68 FBs 0 and 4); Sister FBs not tight against deck after shimmed in place (Span 26 FB7, Span 38 FBs 0, 2 and 3, Span 39 FBs 0 and 2).