

DATE: February 16, 2021

TO: File

FROM: Joe Brutsché, Project Management Division

SUBJECT: J/P 29571(04) McClain Co. SH-74 at I-35 Interchange
Preliminary Engineering – Alternative Analysis (scope background)

A virtual scoping/planning meeting was held on Wednesday, September 16, 2020 at 8:30am via Microsoft Teams to discuss the project intent and the design efforts and schedule going forward.

Meeting Attendee list:

Ron Brown – District 3
Luis Malave – Purcell Residency
Matthew Helton – Wewoka Residency
George Mallett – Dist. 3 Bridge
Caleb Austin – Roadway Design
Eduardo Elder – Roadway Design
Steven Bowen – Roadway Design
Ben Mazloompour – Roadway Design
Dustin Powell – Roadway Design
Danna Hogan – Roadway Design
Joe Brutsché – Project Management Div.

Lauren Ludwig – Traffic E&O Division
Samuel Hardin – Traffic E&O Division
Carissa Russell – Roadway Design
Kamber Norman – Roadway Design
Amanda Alexander – Environmental Div.
Alex Peta – Environmental Div.
Brandy Moore – R/W & Utilities Division
Derrick Anderson – Survey Division
Steve Jacobi – Bridge Division
Justin Hernandez – Bridge Division
Roland Sison – Bridge Division

The following items were discussed:

Overview and Background –

Project J/P 23283(04) (designed in-house) was let to construction in 2019 and is currently under construction.

This project consisted of interchange modifications with the addition of an I-35 SB exit ramp to SH-74 and modification to the I-35 NB exit/entrance ramp with the addition of a roundabout at Adkins Hill Rd and Airport Rd. The existing SH-74 bridge over I-35 was rehabbed as part of this project.

Existing Program –

Recently this project J/P 29571(04) was evaluated for rehabilitation and under contract with CEC.

That project was cancelled in 2018 because it was clear that the existing skewed bridge will need full replacement. Until recently was programmed as a bridge and approaches on SH-74, with the intent to replace the skewed SH-74 bridge over I-35. In 2019 Roadway geometrics produced 3 potential ultimate interchange alternatives. At this time a preliminary AJR analysis was performed.

Scope Discussion and Action Plan -

It has been decided that a preliminary engineering/alternatives analysis will be needed to determine a preferred design solution.

- Traffic Division Planning and Analytics Branch will begin data collection which can be provided for the development of the preliminary engineering study/alternatives analysis
- The PE Study will consist of:
 - At minimum 2 alternatives with bridge skew between 0° and 30° which are compatible with the J/P 23283(04) design, and plan for an ultimate 6-lane I-35 with median and widened to the outside.
 - Cost comparison for a replacement bridge options at skew between 0° and 30°
 - Cost comparison of the Roadway and Traffic improvements
 - Emphasis will need to be on the constructability of each alternative, factoring in the elevations and roadway tie-in points to achieve the required span length and bridge clearance over I-35
 - Impact Matrix comparing of R/W, utility and Environmental impacts between the alternatives
- District 3 asked that the analysis plan for construction phasing of each alternative.
 - The project has been modified in the program from Bridge and Approaches to an Interchange.

The project schedule and programming estimate will be revised after the analysis and selection of the preferred alternative.

Environmental and Public Involvement –

- As this is an interchange modification, it will require public involvement to present the alternative analysis, preferred alternative and the access change.
- This could be a good candidate for Virtual Public Involvement (VPI) and EPD can do the VPI either after the completion of alternative analysis if District 3 is looking for public input in the selection of preferred alternative, or after 60% if District 3 is looking to present the proposed design with the environmental impacts.
- Likely environmental impacts with the interchange modifications are:
 - Access change
 - Noise
 - Possible business relocations
 - Possible hazardous waste issues
- EPD will have to wait for 30% plans to perform noise analysis, and won't be able to present the noise impacts if we are doing the VPI prior to 60% plans.
- The NEPA document will likely be Documented Categorical Exclusion (DCE) because it is an interchange modification instead of just a bridge replacement.
- EPD will wait until the preliminary analysis is complete before task ordering NEPA and Public Involvement to a consultant or to include them with design solicitation if ODOT opts to solicit design after the completion of the alternative analysis.

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.: 14496	Structure No.: 4405 2297 X	Local ID: -1	Suff. Rating: 49.10	SD																														
Bridge Description: 50ft.(2-83ft. CONT.)50ft. I-BM. SPANS SK. 37 DEG. 11ft.48ft. WITH 2-18ft. SC		INSPECTION																																
IDENTIFICATION		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Type</th> <th>Insp. Req.</th> <th>Insp. Done</th> <th>Freq.</th> <th>Insp. Date</th> <th>Next Insp.</th> </tr> <tr> <td>NBI:</td> <td></td> <td>1</td> <td>24 months</td> <td>8/18/2021</td> <td>08/18/2023</td> </tr> <tr> <td>FC:</td> <td>N</td> <td>0</td> <td></td> <td>NA</td> <td>NA</td> </tr> <tr> <td>UW:</td> <td>N</td> <td>0</td> <td></td> <td>NA</td> <td>NA</td> </tr> <tr> <td>OS:</td> <td>N</td> <td>0</td> <td></td> <td>NA</td> <td>NA</td> </tr> </table>			Type	Insp. Req.	Insp. Done	Freq.	Insp. Date	Next Insp.	NBI:		1	24 months	8/18/2021	08/18/2023	FC:	N	0		NA	NA	UW:	N	0		NA	NA	OS:	N	0		NA	NA
Type	Insp. Req.	Insp. Done	Freq.	Insp. Date	Next Insp.																													
NBI:		1	24 months	8/18/2021	08/18/2023																													
FC:	N	0		NA	NA																													
UW:	N	0		NA	NA																													
OS:	N	0		NA	NA																													
1. State: Oklahoma 2. Division: Division 3 3. County: MCCLAIN 4. City: GOLDSBY Admin Area: Unknown 5a. On/Under: Route On Structure 5b. Kind of Hwy: State Hwy 5c. Lvl of Svc: Mainline 5d. Route No.: 00074 5e. Dir. Sufx: N/A (NBI)		7. Facility Carried : S.H. 74 6. Feat. Intersect: I-35 UNDER 9. Location: 2.7 MI S CLEV. C/L 11. Mile Post: 24.183 mi 13. LRS Inv. / Sub Rte: -1 / -1 16. Latitude: 35° 09' 11.01" 17. Longitude: 097° 28' 36.74" 98. Border Brdg: Unknown (P) % Responsible: 0.00 99. Border Brdg #: Unknown																																
STRUCTURE TYPE AND MATERIALS		CLASSIFICATION																																
43a/b. Main Span: Steel Cont. / Stringer/Girder 44a/b. Appr. Span: Steel / Stringer/Girder 45. # of Main Spans: 4 46. # of Appr. Spans: 0 107. Deck Type: Concrete-Cast-in-Place 108a. Wearing Surface: Bituminous 108b. Membrane: Unknown 108c. Deck protection: Unknown		12. Base Hwy Net.: Not on Base Network 20. Toll Facility: On free road 21. Custodian: State 22. Owner: State 26. Function Class: 07 Rural Mjr Collecto 37. Historical Sig.: Not eligible for NRHP 100. Def. Hwy: Not a STRAHNET hwy																																
AGE AND SERVICE		CONDITION																																
19. Detour Length: 29.0 mi 27. Year Built: 1959 28a/b. Lanes on/und: 2 / 4 29. ADT: 5,400 30. Year of ADT: 2019 42a/b. Type of Svc on/und: Highway / Highway		58. Deck: 4 Poor 62. Culvert: N/A (NBI) Flowline Notes I-35 UNDER 59. Sup.: 5 Fair 60. Sub: 6 Satisfactory 61. Chan./Chan. Prot.: N/A (NBI)																																
GEOMETRIC DATA		LOAD RATING AND POSTING																																
10. Vert. Clearance: 99.99 ft 32. Appr Rwy Width: 28.00 ft 33. Median: No median 34. Skew: 53.00° 35. Struct. Flared: No flare 47. Horizontal Clr: 27.89 ft 48. Length Max Span: 83.01 ft 49. Struct. Length: 271.98 ft		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 64. Operating Rating (tons): <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>H</td> <td>HS</td> <td>3-3</td> <td>EV3</td> <td>SHV</td> </tr> <tr> <td>40.00</td> <td>52.00</td> <td>74.00</td> <td>45.00</td> <td>49.00</td> </tr> <tr> <td>24.00</td> <td>31.00</td> <td>45.00</td> <td>27.00</td> <td></td> </tr> </table> 66. Inventory Rating (tons):			H	HS	3-3	EV3	SHV	40.00	52.00	74.00	45.00	49.00	24.00	31.00	45.00	27.00																
H	HS	3-3	EV3	SHV																														
40.00	52.00	74.00	45.00	49.00																														
24.00	31.00	45.00	27.00																															
OKLAHOMA ITEMS		APPRAISAL																																
200c. Temperature: 78 200d. Weather: Cloudy 201. Struc.Stl. ASTM Desig.: -1 / 18 202. Waterprf. Membrane: PETROTAC Date Installed: 01/01/1901 203. Type Exp. Device: Other 204. Type of Railing: SFP-1 205. Material Quantity: 1,282.00 208a. Type of Abutment: Skeleton b. Type of Found.: Bears on Natural Found. 209. Type of Pier/Found.: 3 / No Concrete Piling 210. Foundation Elev.: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td>-1.00</td> <td>-1.00</td> </tr> <tr> <td>-1.00</td> <td>-1.00</td> </tr> </table> 211. Wear. Surf. Prot. Sys: None Date Installed: 01/01/1901 211c. Silane Reapplied 211d. Date: 213. Utilities Attached:		-1.00	-1.00	-1.00	-1.00	36a. Brdg Rail: 1 Meets Standards 36b. Transition: 0 Substandard 36c. Appr. Rail: 1 Meets Standards 36d. Appr. Rail Ends: 1 Meets Standard 67. Str Evaluation: 5 Above Min Toler																												
-1.00	-1.00																																	
-1.00	-1.00																																	
PROPOSED IMPROVEMENTS		NAVIGATION DATA																																
214a. Posted Weight Limit: NR b. Posted Speed Limit: NR c. Narrow/1way Brdg Sign: No d. Vertical Clr. Sign: Yes Adv. Warning Sign: No e. Navigation Lights?: NA Working/Not Working: NA 215. Overpass: INTERSTATE 218. Functionally Obsolete: - 220. Bridge Redecked: - 221. Substr. Cond. (U/W): 222. Fill Over RCB: 223. Appr. Slab/Rwy Cond.: 6 225. Paint Type/Ovrct: Inorganic Zinc 2Coat Sys N/A 226. Date Painted: 1959 227. Paint Color: Brown 233. Deck Forming: 238. School Bus Rte.: Current & Desired route 240. Appr. Rwy Type.: Asphalt/Bituminous 243. Grdr Spacing/No.: /		68. Deck Geom.: 4 Tolerable 69. Vert./Horiz. Undclr: 4 Tolerable 71. Waterway Adeq: N Not applicable 72. Appr. Alignment: 7 Above Min Criteria 113. Scour Critical: N Not Over Waterway 94. Bridge Cost: \$1,451,545 95. Roadway Cost: \$2,395,049 96. Total Cost: \$4,064,326 97. Yr. of Cost Est.: 2015 75. Type of Work: 31 Repl-Load Capacity 76. Lngth of Improvement: 345.1 ft 114. Future ADT: 8,640 115. Yr. of Future ADT: 2039 38. Nav. Control: NA-no waterway 39. Vert. Clearance: 0.0 ft 40. Horiz. Clearance: 0.0 ft 111. Pier Protect.: Unknown (NBI) 116. Lift Bridge Vert. Clr.: 0.0 ft																																
INSPECTION		APPRAISAL																																
244. Span Lengths: 245. Girder Depth: 246a. Type of Overlay: AC Overlay b. Overlay Thickness: 1.50 c. Overlay Date: 01/01/2005 d. Ovlv Depth Changed >1": N 247. Protective Systems: Membrane 248. # Field Splices w/ Corrosion: 5 249. Scour Crit. POA Exists?: - 250. Headwall: 258. Plans w/Found.in ODOT File: - 259. Scour Eval. in ODOT File: - 263. Interchange at Intersection: Full 264. Interstate Milepoint: 104.65		101. Parallel Str.: No bridge exists 102. Traffic Dir.: 2-way traffic 103. Temp. Str.: Not Applicable (P) 104. Hwy System: Not on NHS 105. Fed Land Hwy: N/A (NBI) 110. Defense Hwy: Not a STRAHNET hwy 112. NBIS Length: Long Enough																																

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.: 14496	Structure No.: 4405 2297 X	Local ID: -1	Suff. Rating: 49.10	SD
--------------------------	--------------------------------------	------------------------	-------------------------------	-----------

Inspection Date: 8/18/21 Adam Hill
 Invoice No.: McClainCo2021 Inspected With: Erik Cox

BRIDGE NOTES:

INSPECTION NOTES: 8/18/21

#214 MINOR VEH DAMAGE TO O/P APPR FLEX. STR. IS NOW SD DUE TO THE INSP. OF THE SOFFIT. 2025 IS THE PROJECTED REPLACEMENT AS OF 2021.

ELEMENT CONDITION STATE DATA

Elem. / Env	Description	Unit	Total Qty	% 1	Qty. 1	% 2	Qty. 2	% 3	Qty. 3	% 4	Qty. 4
12 / 4	Re Concrete Deck	sq.ft	8,385.10	0%	0.00	64%	5,384.10	36%	3,001.00	0%	0.00
SEE NOTES FOR ELEMENTS # 510 & 659.											
510 / 4	Wearing Surfaces	sq.ft	8,385.10	56%	4,716.10	44%	3,669.00	0%	0.00	0%	0.00
107 / 4	Steel Opn Girder/Beam	ft	1,030.00	0%	0.00	93%	956.00	7%	74.00	0%	0.00
LARGE AREAS OF MINOR (LESS THAN 10%) SEC LOSS TO BOTTOM FLANGES. NOTE N. BM OVER S BD. HAS BEEN REPAIRED AFTER VEHICLE DAMAGE. SPAN # 3, BM. # 5 HAS A BOLTED PLATE SECTION 8 in. TALL X 4 ft. LONG.											
515 / 4	Steel Protective Coating	sq.ft	5,850.00	0%	0.00	0%	0.00	0%	0.00	100%	5,850.00
PAINT HAS FAILED.											
205 / 4	Re Conc Column	each	9.00	89%	8.00	11%	1.00	0%	0.00	0%	0.00
-1											
215 / 4	Re Conc Abutment	ft	101.70	84%	85.30	16%	16.40	0%	0.00	0%	0.00
ONE MINOR SPALL W/ EXP REBAR TO ABUT FACE.											
234 / 4	Re Conc Pier Cap	ft	154.20	100%	154.20	0%	0.00	0%	0.00	0%	0.00
SEE NOTE FOR SMART FLAG # 971.											
301 / 4	Pourable Joint Seal	ft	187.00	0%	0.00	0%	0.00	0%	0.00	100%	187.00
PX- SEALANT HAS FAILED & NOSING FAILURES.											
310 / 4	Elastomeric Bearing	each	35.00	29%	10.00	71%	25.00	0%	0.00	0%	0.00
FX- BEARINGS HAVE SOME DEFORMATION, THEY ARE PUSHING OUT IN FRONT & BACK UP TO 1/4 in. THIS IS @ PIER # 3. SPAN # 4. SPAN # 1. PIER # 1 BEARINGS THE SAME.											
321 / 4	Re Conc Approach Slab	sq.ft	2.00	100%	2.00	0%	0.00	0%	0.00	0%	0.00
SLABS HAVE APPR 3 in. LEVELUP.											
331 / 4	Re Conc Bridge Railing	ft	544.60	92%	502.00	2%	13.10	5%	29.50	0%	0.00
FX- MINOR SPALLS W/ EXP REBAR. RUST STAIN @ CURBLINE. RAIL OVER PIER # 2 IS PUSHING TO THE NORTH 2 1/2 in. VERTICAL OPEN & CLOSED CRACKS EXIST 0.1in..											
859 / 4	Soffit	(EA)	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
PX- NUMEROUS RANDOM SPALLS TO HAUNCHES @ TOP FLANGES^ CRACKING^ W/ LEACHING TO SOFFIT - WORST IS @ JOINTS. I DONT SEE ANY LOOSE CONCRETE AT THIS TIME^ CONDITION SHOULD BE CLOSELY MONITORED. BEAM HAUNCHES & CONC. ABOVE DIAPs ARE SPALLED AND/OR DELAMINATED OVER N & S. BD. LANES - BRIDGE CREW PLACED SIGN PANELS OVER DRIVING LANES TO CATCH ANY FALLING CONCRETE/DEBRIS. THE FACIA HAS SOME SUSPECT AREAS.											
865 / 4	St.Open Gird End(5Ft)	(LF)	298.60	0%	0.00	100%	298.60	0%	0.00	0%	0.00
PX- BEAM ENDS OVER CENTER PIER @ CONST. JOINTS HAVE RUST.											
870 / 4	Concrete Wingwall	(EA)	4.00	100%	4.00	0%	0.00	0%	0.00	0%	0.00
909 / 4	Pourable Fix Jt.Seal	(LF)	141.00	0%	0.00	100%	141.00	0%	0.00	0%	0.00
957 / 4	Pack Rust Smart Flag	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
CONT BEAM SPLICES. BM. # 1 OVER PIER.											
962 / 4	Super.Traffic Impact	(EA)	1.00	100%	1.00	0%	0.00	0%	0.00	0%	0.00
SEE NOTE FOR # 107.											
963 / 4	Steel Section Loss SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
PX- CONT. BM. SPLICE CONNECTION @ SPAN # 3, BM. # 5 HAS UP TO 25% SEC. LOSS TO TOP FLANGES.											
971 / 4	FRP Repair SF	(LF)	21.00	100%	21.00	0%	0.00	0%	0.00	0%	0.00
FIBER WRAP REPAIRS DONE TO PIERCAPS # 2 & 3.											