OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

September 5, 2019

Ms. Lynda Ozan
Deputy State Historic Preservation Officer
Oklahoma History Center
800 Nazih Zuhdi Drive
Oklahoma City, Oklahoma 73105

Dear Ms. Ozan:

Re: File 0545-15/MOA 386; Canadian County Federal Highway Administration Funded Project: J/P 27004(04); HAER Level II equivalency documentation for replacement of the I-40B bridge over UPAC Railroad (Structure 0904 0690 X [NBI 10566]).

Thank you for your comments of November 15, 2018 regarding Stipulation I of the Memorandum of Agreement (MOA) for the referenced undertaking. In response with your comment to Stipulation I(A), please find the revised Photo #19. In response to your comment to Stipulation I(C), please find the attached revised Historic American Engineering Record (HAER) document for the subject bridge. We have incorporated your comments into the document. As we consider the document to be final, we are submitting the attached HAER package to SHPO and the City of El Reno, in accordance with Stipulation I(E).

In accordance with Stipulation II(B) of the MOA for the referenced project, please find the attached final signed plans for the project. As discussed in Stipulation II(A), the plans illustrate a variety of design aesthetics that will be incorporated on the new bridge. Please refer to our correspondence on March 31, 2017 (further confirmed in our October 31, 2018 transmittal), that ODOT would not pursue WPA (Works Progress Administration) elements in the design of the new bridge. You concurred with this approach in your April 19, 2017 response letter.

In accordance with the following stipulations, please refer to the associated plan sheets that illustrate our compliance with the mitigation commitments in the design of the new structure. ODOT has worked diligently with the City of El Reno in incorporating aesthetic treatments agreed-upon in the Memorandum of Agreement (MOA) for the project. Per SHPO correspondence dated March 10, 2015, the stipulations regarding the aesthetics were worded to allow for flexibility in the design.

Stipulation II(A)(a) – Sheets B026, B030, B031, B039, B040, B042, B043, B044 illustrate a fluted design on the pedestrian rail posts and entry pilaster. This design is consistent with concrete railing posts from several of our 1930s bridges. Per City of El Reno request, pedestrian rail posts and entry pilasters will be painted white, with blue relief in flutes.

Stipulation II(A)(b) – Sheet B044 illustrates a Route 66 shield form liner in the entry post at the south face of the two southern pilasters and the north face of the two northern pilasters. In addition, the Route 66 shield form liner is incorporated into the parapet elevation at four locations on each side of the bridge along the traffic side of the concrete traffic safety barriers (eight total locations). Per City of El Reno request, the shield form liner will be painted blue around the number "66" and red around the word "ROUTE".

Stipulation II(A)(c) – This was removed as part of our prior consultation discussed above.

Stipulation II(A)(d) – Sheets B030, B031, B039, B040, B044 illustrate the metal picket pedestrian rail. The picket rail is specified to be "galvanized" be galvanized steel and will not be painted.

Stipulation II(A)(e) – Sheet T006 illustrates the lighting detail for light poles that will be placed on an offset along both sides of the bridge (see Sheets T004 through T006). The lighting conforms to the City of El Reno's request. In addition, lighting is included at the top of the entry pilasters, as indicated on Sheet B042.

With the exception of ODOT, FHWA, and SHPO, the City of El Reno is the only signatory to the MOA. Correspondence indicating our completion of the mitigation commitments will be submitted to all consulting parties.

If you have any questions or need further information, please contact me at 325-7201.

Sincerely,

Scott A. Sundermeyer
ODOT Cultural and Natural Resources Program Director

MEMORANDUM OF AGREEMENT
AMONG
FEDERAL HIGHWAY ADMINISTRATION,
OKLAHOMA DEPARTMENT OF TRANSPORTATION,
AND THE OKLAHOMA STATE HISTORIC PRESERVATION OFFICE,
REGARDING
REPLACEMENT OF US-81/I-40B BRIDGE OVER UPAC RAILROAD

WHEREAS, the Oklahoma Department of Transportation (ODOT) plans to replace the existing bridge carrying I-40B over the UPAC Railroad in El Reno, Canadian County, Oklahoma, a property determined eligible for listing on the National Register of Historic Places (NRHP), by constructing a new bridge existing alignment; and

WHEREAS, the Federal Highway Administration (FHWA) plans to fund the Project, thereby making the Project an undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA, 54 U.S.C. § 300101 et seq), and its implementing regulations, 36 CFR Part 800; and

WHEREAS, FHWA has determined that Federal-Aid Project NHPPI-4000-(014)SS, State Job J/P 27004(04) will have an adverse effect to the I-beam bridge over the UPAC Railroad (Structure 0904 0690X [NBI 10566]), a property determined eligible for inclusion in the National Register of Historic Places, and has consulted with the Oklahoma State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800; and

WHEREAS, the subject bridge retains design elements and associations consistent with its association as a former 1947 alignment of Route 66 and was constructed as part of a Depression-era Federal-aid Works Program Grade Separation Project FAGH 163G.

WHEREAS, in accordance with 36 CFR 800.3(f) ODOT and FHWA, in consultation with the Oklahoma SHPO, identified the Oklahoma Route 66 Association, the City of El Reno, Preservation Oklahoma, Oklahoma Historic Bridge and Highway Group, Preservation El Reno, and El Reno Main Street as consulting parties and invited them to sign this MOA; and

WHEREAS, ODOT and FHWA consulted with Oklahoma SHPO, Preservation Oklahoma, Preservation El Reno, and El Reno Main Street on February 6, 2015; and

WHEREAS, the FHWA has consulted with the Cheyenne and Arapaho Tribes, Comanche Nation, Delaware Nation, Osage Nation, and Wichita and Affiliated Tribes in accordance with 36 CFR 800.2(c)(2), and determined that no properties of traditional religious cultural significance will be affected by the undertaking; and

WHEREAS, in accordance with 36 CFR Part 800.6(a)(1), the FHWA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation and the ACHP has chosen not to participate in the consultation; and

NOW, THEREFORE, FHWA, ODOT, and the Oklahoma SHPO, agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

FHWA will ensure that the following measures are carried out. Measures will be met within the timeframes presented for each stipulation.

I. **Documentation.** Prior to the construction of the new bridge, ODOT will record the existing bridge at the equivalent of Level II documentation as specified by the Historic American Engineering Record (HAER).

A. High Quality, 35 mm black and white photographs, of the bridge documenting its present appearance and major structural or decorative details, together with all negatives on archival gold CD as digital TIFF files that meet or exceed the minimum requirement for pixel depth. The photographs will be a minimum 4" x 6" and no larger than 8" x 10", and will be clearly labeled with the following information:

a. Name of property;
b. Location (county, city, state, and street address);
c. Name of photographer;
d. Date of photograph
e. Location of photographic negative;
f. Indication of direction camera is pointing; and
g. Number of photograph in series

Photographs are to be submitted by ODOT and approved by SHPO as meeting the conditions outlined above before any work takes place that will affect the property.

B. The document will include photographic reproduction of selected original (as-built) construction plans and historic photographs, if they exist.

C. The document will include a preparation of a brief written technical description of the bridge and historical summary.
   a. The summary shall include documentation of the association of the structure with Route 66 and its construction under a Federal-aid Works Program Grade Separation project.
      i. ODOT will make a reasonable attempt to seek out individuals in the El Reno vicinity who may have worked on construction of the bridge and who may be able to provide additional perspectives regarding the historic context of the bridge.

D. All documentation will be edited, catalogued and packaged in a manner acceptable to the Oklahoma SHPO. The Oklahoma SHPO and the City of El Reno will be the repository for the documentation.

E. ODOT will provide all research documentation, research materials, copies of

photographs, and HAER documentation of the bridge to the Oklahoma SHPO and the City of El Reno within three years of the execution of this MOA,.

II. **Mitigation.** ODOT will implement design considerations to acknowledge the historic association of the bridge in its Route 66 and Works Progress Administration (WPA) context. These design elements will be developed in coordination with SHPO and consulting parties to ensure compatibility with the surrounding area and be consistent with goals outlined in the *Route 66 Corridor Management Plan* and the *Route 66 Economic Impact Study*. The existing I-40B roadway corridor no longer retains historic integrity, however, new construction features on the bridge will consider the association with Route 66 and WPA. ODOT and FHWA shall consult with the consulting parties in the development of the bridge design.

A. ODOT will review and consider design elements in the configuration of the new bridge and approaches will include measures to incorporate consistent design and feel of historic Route 66 while ensuring that the design elements are clearly modern and do not present a sense of false history. Such design elements may include:

   a. Incorporating Art Deco aesthetic treatments in the new bridge;
   b. Including appropriate Route 66 and/or WPA signage or stamps on the endposts of the bridge;
   c. Constructing an historic marker for placement on or near the bridge that provides the context of the bridge in regards to the WPA;
   d. Construction of decorative metal picket railing similar to the galvanized silver color of the current rail;
   e. Incorporate lighting to match the City of El Reno's current lighting;

B. ODOT shall provide copies of plans, drawings, or other documentation regarding design elements that are proposed for the new bridge. Signatories will review these materials and provide comment within 30 days of receipt of such materials.

C. ODOT shall not advertise this project for construction bids until all agreed-upon design and construction measures are incorporated into the final Plans, Specifications, and Estimates (PS&E) package.

III. **Duration.** This MOA will be null and void if its stipulations are not carried out within ten (10) years from the date of its execution. At such time, and prior to work continuing on the undertaking, FHWA shall either (a) execute a MOA pursuant to 36 CFR § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. Prior to such time, FHWA may consult with signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VII below. FHWA shall notify signatories as to the course of action it will pursue.

IV. **Post-Review Discoveries.** If potential historic properties are discovered or

unanticipated effects on historic properties found, FHWA shall follow ODOT Spec 107.09, Protection of Archeological and Unmarked Human Burial Sites.

V. **Dispute Resolution.** Should any signatory party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FHWA shall consult with such party to resolve the objection. If FHWA determines that such objection cannot be resolved, FHWA will:

A. Forward all documentation relevant to the dispute, including FHWA's proposed resolution, to the ACHP. The ACHP shall provide FHWA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FHWA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. FHWA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FHWA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FHWA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VI. **Amendments.** This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VII. **Termination.** If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, FHWA must either (a) execute an MOA pursuant to 36 CFR § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. FHWA shall notify the signatories as to the course of action it will pursue.

Execution of this MOA by FHWA and SHPO and implementation of its terms evidence that FHWA has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

Signatory

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

Federal Highway Administration

BY: _____ DATE: April 14, 2015

John Hartley
Environmental Program Manager
Oklahoma Division

Signatory

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

Oklahoma Department of Transportation

BY: _____ DATE: 6/02/2015

Dawn Sullivan
Environmental Programs Division Engineer

BY: _____ DATE: 4/13/15

Brian Taylor
Division IV Engineer

Signatory

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

Oklahoma State Historic Preservation Office

BY: _____ DATE: 4/14/15

Melvena Heisch
Deputy State Historic Preservation Officer

Signatory

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

City of El Reno

BY: _____ DATE: 5/12/15

~~Tony Rivera~~ Ed Stanton

~~El Reno City Manager~~ Assistant City Manager

Concurring Party

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

Preservation El Reno

BY: Astrid Lee DATE: 5-19-15

Astrid Lee
President

Concurring Party

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

Preservation Oklahoma

BY: _____ DATE: 04/16/15

David Pettyjohn
Executive Director

Concurring Party

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

El Reno Main Street

BY: _____ DATE: 4-14-15

Debbie Harrison
Director

Concurring Party

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

Oklahoma Route 66 Association

BY: Brad Nickson DATE: 5-20-2015

Brad Nickson
President

Concurring Party

MOA for NHPPI-4000-(014)SS; State Job 27004(04) I-40B over UPAC Railroad in Canadian County, Oklahoma (Structure 0904 0690X [NBI 10566])

Oklahoma Historic Bridge and Highway Group

BY: _____ DATE: 5-28-15

~~Weslee Kinsler~~ Ken Parker
~~Administrator~~ Board Member

Preserving America's Heritage

April 9, 2015

Mr. John D. Hartley
Environmental Program Manager
Federal Highway Administration
Oklahoma Division
5801 N. Broadway Extension, Suite 300
Oklahoma City, OK 73118

Ref: *Proposed Replacement of Canadian County Bridge US-81/I-40B over Union Pacific Railroad*
Canadian County, Oklahoma
Project NHPPI-4000-(014)SS; J/P 2700 4(04)

Dear Mr. Hartley:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Oklahoma State Historic Preservation Office (SHPO), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Najah Duvall-Gabriel at 202-517-0210 or via e-mail at ngabriel@achp.gov.

Sincerely,

LaShavio Johnson

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

U.S. Department of Transportation
Federal Highway Administration

Oklahoma Division

5801 N Broadway Ext., Ste. 300
Oklahoma City, OK 73118
Phone: 405-254-3300
Fax: 405-254-3302
www.fhwa.dot.gov/okdiv

March 25, 2015

In Reply Refer To:
HDA-OK

Mr. Reid Nelson, Director
Office of Federal Agency Programs
Advisory Council on Historic Preservation
1100 Pennsylvania Ave, NW, Suite 803
Washington, D.C. 20004-2501

Attention: FHWA Liaison

Dear Mr. Nelson:

Pursuant to Section 800.6(a)(1) of regulations implementing the National Historic Preservation Act, we are notifying your office of our determination that Canadian County Project NHPPI-4000-(014)SS; J/P 2700 4(04); US-81/I-40B viaduct over the Union Pacific (UPAC) Railroad, will have an adverse effect on the NRHP-eligible I-beam bridge structure (ODOT Structure 0904 0690; NBI 10566).

The following documentation prepared by the Oklahoma Department of Transportation (ODOT) is attached for your review and consideration.

- A transmittal letter from ODOT summarizing ODOT's identification and consultation efforts undertaken on behalf of FHWA.
- The following documents are enclosed for your review:
    - A Draft Section 106 MOA which addresses adverse effect to the property which has been circulated to all consulting parties and approved in principle.
    - The Cultural Resources Report.
    - All consultation to date with the Oklahoma SHPO and the Oklahoma State Archaeologist.
    - Copies of ODOT's Tribal consultation correspondence undertaken on FHWA's behalf for this project.
    - Consultation with other interested/consulting parties.
    - Design Analysis in support of the Section 4(f) evaluation.

The proposed project consists of construction of a new viaduct on essentially the same alignment as the historic bridge, necessitating its removal. Prior to demolition of the existing bridge, it will be documented to appropriate HAER standards. Other mitigation measures will include design treatments on the new viaduct developed in consultation with SHPO and other consulting parties that reflect and acknowledge the structure's historic associations with Route 66 and the Works Progress Administration (WPA).

Please let us know if the ACHP desires to participate in the resolution of adverse effect for this undertaking. If you have any questions or need additional information regarding this action, please contact me at 405-254-3341, or by email at john.hartley@dot.gov.

Sincerely,

John D. Hartley
Environmental Program Manager

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

March 24, 2015

Mr. John D. Hartley
Environmental Program Manager
Federal Highway Administration
5801 North Broadway Extension, Suite 300
Oklahoma City, OK 73118

Re: Documentation of Consultation under Section 106 of the NHPA, Section 4(f) of the USDOT Act, Notification of Adverse Effect, and Draft MOA for the Canadian County Federal-aid project NHPPI-4000-(014)SS, J/P 27004(04) US-81/ I-40B over UPAC Railroad NRHP-eligible I-beam bridge (Structure 0904 0690; NBI 10566).

Dear Mr. Hartley:

The Oklahoma Department of Transportation (ODOT) proposes a federal-aid highway funded bridge replacement project in El Reno, Oklahoma. In consultation with the Oklahoma State Historic Preservation Officer (SHPO), the Oklahoma Department of Transportation (ODOT) reviewed National Register Bulletin 15 and applied the Criteria of Adverse Effect found in 36 CFR 800.5 to this undertaking and has determined that there will be an adverse effect to the National Register eligible bridge carrying US-81/I-40B over the Union Pacific (UPAC) Railroad, by constructing a new bridge on existing alignment and removing the existing historic bridge. Your office reviewed and concurred with the design analysis in support of the Programmatic 4(f) for the use of the bridge on May 20, 2014.

In accordance with 36 CFR Part 800.4, the following identification efforts of historic properties were made:

800.4(a)(1) - The Area of Potential Effect (APE) is defined as the NEPA study area, as indicated in the attached cultural resources report.

800.4(a)(2) - Review of existing information consisted of researching the National Register of Historic Places in Oklahoma, the Oklahoma Determination of Eligibility database, the archeological site files at the Oklahoma Archeological Survey. The ODOT Cultural Resources Program conducted the cultural resources studies and reviewed the undertaking.

800.4(a)(3) - The surrounding area public were informed via a Section 106 consulting party meeting held on February 6, 2015. In attendance were: Oklahoma SHPO, Preservation Oklahoma, Preservation El Reno, El Reno Main Street Association, ODOT, and FHWA. The Oklahoma Route 66 Association was consulted and invited to the meeting, but could not attend. The Oklahoma Historic Bridge and Highway Group was invited but could not attend. They sent comments, which were read at the meeting.

800.4(a)(4) – Consultation with Native American tribes was conducted via letters containing project information and scope, in accordance with existing MOUs or PAs ODOT and TxDOT have with the tribes. For this undertaking, ODOT sent letters to six federally recognized Tribes in Oklahoma who have demonstrated their interest in being consulted in Jefferson County for FHWA projects (Cheyenne and Arapaho Tribe, Comanche Nation, Delaware Nation, Osage Nation, and Wichita and Affiliated Tribes). The final report of investigations was also submitted to these tribes. .

800.4(c) – ODOT- Cultural Resources Program conducted cultural resources surveys within the APE to determine if properties met National Register criteria. In addition to the subject bridge, six buildings were documented and were determined not eligible for inclusion in the NRHP.

The following documents are enclosed for your review and consideration:

- A Draft Section 106 MOA which addresses the adverse effect to the property
    - Please note that the attached MOA has been circulated for review and approved by all consulting parties
- The Cultural Resources Report
- All consultation to date with the Oklahoma SHPO and Oklahoma State Archeologist
- Copies of ODOT's tribal consultation
- Design Analysis in support of the 4(f)

The bridge was determined eligible for inclusion in the NRHP as part of a SHPO-funded Route 66 roadbed study in 2002 and officially listed in the Determination of Eligibility list in 2003, through consultation between ODOT and SHPO for an undertaking involving a rehabilitation of the structure. No bridge forms are available for the bridge.

The above-referenced documentation regarding the referenced project should be submitted to the Advisory Council on Historic Preservation, pursuant to Section 800.6(a)(1) of the Section 106 regulations. Please inform our office when this information has been forwarded to the ACHP so that ODOT-CRP may provide this documentation to other consulting parties, as stipulated in 36 CFR 800.6(a)(3).

If you have any questions regarding this project, please contact me at 325-7201.

Sincerely,

Scott A. Sundermeyer, RPA
Director, ODOT Cultural Resources Program

attachments

Oklahoma Historical Society *Founded May 27, 1893*
State Historic Preservation Office
Oklahoma History Center • 800 Nazih Zuhdi Drive • Oklahoma City, OK 73105-7917
(405) 521-6249 • Fax (405) 522-0816 • www.okhistory.org/shpo/shpom.htm

January 9, 2015

Mr. Scott Sundermeyer, Director
ODOT Cultural Resources Program
111 E. Chesapeake, Rm. 102, OU
Norman, OK 73019-5111

RE: File #0545-15; Proposed I-40B/US-81/US-66 Bridge Project over the Union Pacific Railroad & an Unnamed Creek in Southeast El Reno, Canadian County, #JP-27004(04)

Dear Mr. Sundermeyer:

We have received and reviewed the documentation on the referenced project. We concur with your opinion that Structure #0904-0690X (US-81/Route 66 Viaduct) over Union Pacific Railroad is still eligible for the National Register of Historic Places under Criteria A and C.

We also concur that the following properties are not eligible for listing in the National Register of Historic Places: Properties named Buildings #1, #2, #3, #4, #5 & #6 at 1515 South Rock Island Avenue; Sec 16 T12N R7W (underlying edge of I-40 UPAC-RR Viaduct); 1305 South Rock Island Avenue; 1301 South Rock Island Avenue; 399 East Elm Street; 1313 South Rock Island Avenue; and the Culvert (#0904-0710X) over unnamed creek in Sec16 T12N R7W.

Also, we concur with your opinion that the project as proposed will have an adverse effect on the Structure #0904-0690X (US81/Route 66 Viaduct). Our opinion of adverse effect is based on the following information presented in the ODOT Cultural Resources Survey and Report of December 22, 2014. In place of ODOT's continued repair and use of the Bridge, the proposed alternative includes the following actions: (1) Demolition of the Structure #0904-0690X (US81/Route 66 Viaduct); (2) Replacement of the Structure #0904-0690X (US81/Route 66 Viaduct) with new construction in the same general location; and, (3) Disturbance of the immediate and surrounding grounds of the property.

The demolition of Structure #0904-0690X (US81/Route 66 Viaduct) obviously destroys the property's historical integrity, and demolition of a historic property is an adverse effect per the definitions found in the Advisory Council on Historic Preservation's regulations (36 CFR Part 800).

We welcome the opportunity to continue consultation so that you can mitigate, minimize, or even eliminate the adverse effects of this proposed project. Unless further consultation with our office eliminates the adverse effect of the project, ODOT will need to contact and invite the participation of the Advisory Council on Historic Preservation (ACHP) in order to complete the Section 106 process as outlined in 36 CFR Part 800. Should the ACHP choose not to participate in the resolution of the adverse effect finding, ODOT and the SHPO may execute a Memorandum of Agreement (MOA). Upon the execution of an MOA, a copy must be filed with the ACHP to complete the Section 106 process.

RE: File #0545-15; Proposed I-40B/US-81/US-66 Bridge Project over the Union Pacific Railroad & an Unnamed Creek in Southeast El Reno, Canadian County, #JP-27004(04)

Thank you for the opportunity to review this project. Future correspondence pertaining to this project must reference the above underlined file number.

If you have any questions, please do not hesitate to contact Ms. Catharine M. Wood, Historical Archaeologist and Section 106 Program Coordinator for the Oklahoma SHPO, at (405) 521-6381.

Sincerely,

Melvena Heisch
Deputy State Historic
Preservation Officer

MH:pm

Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

January 6, 2015

Scott Sundermeyer
Assistant Director
Cultural Resources Program
Oklahoma Department of Transportation
111 East Chesapeake
University of Oklahoma
Norman, OK 73019-5111

Re: Proposed bridge replacement on I-40B/US-81/US-66 in El Reno over the Union Pacific Railroad and an unnamed stream. Legal Description: W ½ Section 16 T12N R7W, Canadian County, Oklahoma. J/P # 27004 (04)

Dear Mr. Sundermeyer:

I have received a report documenting the results of a cultural resource inventory for the above referenced action. Personnel from the ODOT Cultural Resources Program conducted this work during October 2014. The field inspection of some 35.6 acres representing the area of potential effect found no evidence of prehistoric or historic archaeological sites.. However, the existing bridge had been previously determined eligible for the National Register. **I defer opinion on project effect to the Historical Archaeologist with the State Historic Preservation Office.**

This review has been conducted in cooperation with the State Historic Preservation Office, Oklahoma Historical Society. You must also have a letter from that office to document your consultation pursuant to Section 106 of the National Historic Preservation Act

Sincerely,

Robert L. Brooks
State Archaeologist

Cc: SHPO

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

December 22, 2014

Ms. Melvena Heisch
Deputy State Historic Preservation Officer
State Historic Preservation Office
Oklahoma Historical Society
800 Nazih Zuhdi Drive
Oklahoma City, Oklahoma 73105-7917

Dear Ms. Heisch:

Re: Canadian County J/P 27004(04): Proposed I-40B/US-81/US-66 bridge project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno.

Attached is a cultural resources survey report for the referenced project prepared by the ODOT Cultural Resources Program. Also attached are Historic Preservation Resource Identification (HPRI) forms for six buildings and an Oklahoma Bridge Survey Inventory (OBSI) form for the bridge-length culvert over an unnamed creek. No archeological properties were documented during the investigations.

The existing bridge over the UPAC RR is a multi-span I-beam structure with concrete deck and supports constructed in 1942 (ODOT Structure 0904 0690 X; NBI 10566). This bridge was determined eligible for inclusion in the NRHP through consensus in 2003 under criteria A and C (SHPO File no. 0751-03). You may recall that the structure was the subject of a rehabilitation for which ODOT consulted with your office to achieve a 'no adverse effect'.

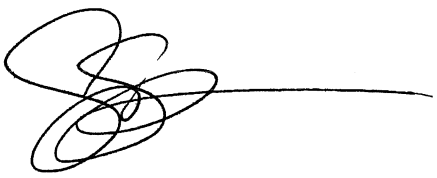
Pursuant to 36 CFR 60.4, it is our assessment that the bridge-length culvert documented over the unnamed creek (ODOT Structure 0904 0710 X; NBI 10415) lacks sufficient combination of historic integrity and engineering distinction, and is not eligible for inclusion in the NRHP either individually or in connection with the UPACC RR bridge. Additionally, it is our assessment that the six documented buildings lack sufficient historic integrity and, architectural distinction, and significant associations and are therefore, considered to be not eligible for inclusion in the NRHP. Pursuant to 36 CFR 800.4(c), we are seeking comment regarding the eligibility of the properties documented in the APE.

In accordance with 23 CFR 774, ODOT has completed an analysis of the alternatives to the removal of the subject bridge and, in consultation with FHWA-Oklahoma, has concluded that there is no feasible and prudent alternative to the *use* of the bridge, which includes replacement and removal of the structure and construction of a new bridge. The alternatives analysis is presented in the form of a Programmatic Section 4(f) Evaluation, and is attached for your review. Pursuant to 36 CFR 800.5, it is our assessment that the proposed undertaking will have an adverse effect to the existing bridge.

It is our desire to incorporate your comments and the comments of the public into the design of the proposed undertaking in order minimize or mitigate effects to the bridge over the UPAC RR. We understand the significance of this structure in its association with Route 66 and would like to consider comments to the mitigation of the adverse effect to this structure, to include context sensitive design of a new facility. In order to achieve this, ODOT would respectfully invite the Oklahoma Route 66 Association, Preservation Oklahoma, and the Oklahoma Historic Bridge and Highway Group as consulting parties for this undertaking. We gladly invite your comments regarding additional consulting parties for this undertaking, and would like to consider a meeting with consulting parties and stakeholders prior to February 6, 2015

If you have any questions regarding this project, please contact me at 325-7201.

Sincerely,



Scott Sundermeyer
Director, ODOT Cultural Resources Program

cc: State Archaeologist

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

January 12, 2015

Dear Consulting Party:

Re: Canadian County J/P 27004(04): Proposed I-40B/US-81/US-66 bridge project over the Union Pacific Railroad and an unnamed creek in El Reno.

The Oklahoma Department of Transportation is proposing to replace the referenced bridge over the Union Pacific Railroad in El Reno. The bridge is a multi-span I-beam structure with concrete deck and supports constructed in 1942 (ODOT Structure 0904 0690 X; NBI 10566).The structure was assessed in 2002 as part of the Oklahoma Route 66 Roadbed Documentation Project and determined eligible for inclusion in the National Register of Historic Places (NRHP) in January, 2003, under criterion A, for its association with Route 66, and criterion C, for its distinctive engineering attributes. A major element that contributes to the structure's eligibility is the art deco-style concrete and steel railing system on the pedestrian walkways. Most recently, the structure was identified as having an association with a Depression-era Federal-aid Grade Crossing Program, a New Deal federal relief program that provided funding for railroad grade separations, which further confirms its historic significance. ODOT has completed a cultural resources study for the project. A copy of the report of investigations is attached for your review. With the exception of the subject bridge, the study contains no other historic properties.

In accordance with 23 CFR 774, ODOT has completed an analysis of the alternatives to the removal of the subject bridge and, in consultation with FHWA-Oklahoma, has concluded that there is no feasible and prudent alternative to the *use* of the bridge, which includes replacement and removal of the structure and construction of a new bridge. It is our assessment that the proposed undertaking will have an adverse effect to the existing bridge.

It is our desire to incorporate the comments of the public into the design of the proposed bridge in order minimize or mitigate effects of the project. We understand the significance of this structure in its association with Route 66 and would like to consider a context sensitive design of a new facility. In order to achieve this, ODOT would respectfully invite you as a Section 106 consulting party and stakeholder. We gladly invite your comments regarding additional consulting parties for this undertaking, and would like to consider a meeting with consulting parties and stakeholders prior to February 6, 2015. Once we have received responses, we will coordinate the location of the stakeholder meeting.

If you have any questions regarding this project, please contact me at 325-7201.

Sincerely,

Scott A. Sundermeyer
Director, ODOT Cultural Resources Program

cc: Preservation Oklahoma
Oklahoma Historic Bridge and Highway Group
Oklahoma Route 66 Association
El Reno Main Street
Preservation El Reno
City of El Reno

CANADIAN COUNTY JP 27004(04)
I-40B: OVER THE UPAC RAILROAD ON THE SOUTH EDGE OF EL RENO

Section 106 Consulting Party Meeting
Oklahoma History Center
LeRoy H. Fischer Boardroom (third floor)
February 6, 2015
10:00 a.m. to 12:00 p.m.

AGENDA

1) Introductions

2) Purpose of Meeting

3) History of Bridge (NBI 10566) and eligibility for National Register of Historic Places
   a) Route 66
   b) Depression-era Works Program Grade Separation Project
   c) Previous rehab and SHPO consultation

4) Discussion of "no-use" alternatives evaluated in support of Programmatic Bridge 4(f) analysis
   a) No-build
   b) Build on offset
   c) Rehabilitate

5) Selection of the preferred alternative – build on existing alignment and replace existing bridge

6) Preferred alternative is a 4(f) use and an adverse effect to the historic bridge. Will need to minimize and mitigate adverse effects.
   a) Bridge Rails
   b) Document Bridge (HAER)
   c) Suggestions from consulting parties

7) Adjourn

Section 106 consulting party meeting

Canadian County JP 27004(04) I-40B: over the UPAC Railroad on the South Edge of El Reno

Name	Representing	Contact information (email or phone number)
Scott Sundermeyer	ODOT Cultural Resources	ssundermeyer@ou.edu 405-325-7201
Siv Sundaram	ODOT Environmental Programs Division	ssundaram@odot.org
Tim Vermillion	ODOT Environmental Programs Division	tvermillion@odot.org
Allison Archambo	SHPO	aarchambo@okhistory.org
Debbie Harrison	El Reno Main Street	director@elrenomainstreet.com
Astrid Lee	Preservation El Reno	preservationelreno@gmail.com
Tyra Owen	Preservation El Reno	tyraowen1555@gmail.com
Melvena Heisch	SHPO	mheisch@okhistory.org
Cate Wood	SHPO	cwood@okhistory.org
Tim Vermillion	ODOT ENV DIV4	tvermillion@odot.org
TRAVIS COLLINS	CEC	travis.collins@connectcec.com
Taylor Barnes	CEC	taylor.barnes@connectcec.com
Siv Sundaram	ODOT EnvProg	ssundaram@odot.org
Elizabeth Romero	FHWA-OK	elizabeth.romero@dot.gov
Heather Goodson	Mead & Hunt	heather.goodson@meadhunt.com
Daniel Nguyen	ODOT-PMD	dnguyen@odot.org
Justin Hernandez	ODOT-Bridge Div.	jhernandez@odot.org
David Pettigrew	Preservation Oklahoma	david@preservationok.org
Lynda Ozan	SHPO	lozan@okhistory.org

Meeting Minutes

Canadian County JP 27004(04) UPAC Rail Road Consulting Party Meeting

Held on 6 February 2015 at the Oklahoma History Center, Oklahoma City, OK at 10:00 AM

Scott Sundermeyer, Director ODOT Cultural Resources makes introductions, explains and defines section 4(f), section 106 and the 4(f) programmatic agreement. He also mentions that the RT 66 association couldn't be in attendance but that their comments on the proposed project were neutral.

Mr. Sundermeyer talks about the Corridor study and explains that the roadway is no longer historic due to the many changes it has experienced over time. But that the bridge is eligible for listing due to criteria A and C. Criteria A for its association with Rt 66 and C because of its bridge rail design. In addition, he explains its association to the FDR works project. Heather from Meade and Hunt provides more detail on the FDR works project.

<u>Agenda is started:</u>

Taylor Barnes of CEC engineering, who has been hired to design the bridge, explains the status of the bridge and goes over the avoidance alternatives and explains that the "on existing alignment" option is the preferred alignment. It can't be left in place because of the vertical clearance requirements over a railroad and it can't be rehabilitated in an economically feasible manner.

Bridge Rail designs are looked over and it is mentioned that the picket rail design is 6 inches taller than original.

Mr. Sundermeyer talks about mitigation: He says that the HAER documentation has in the past, been the "go to" mitigation method.

<u>Mr. Sundermeyer opens up the floor for comments</u>.

The Deputy SHPO explains that she wants to do more than HAER documentation. She suggests that due to the fact people often don't know how to navigate Rt. 66, that corridor signage would be one mitigation method.

City of El Reno seconds SHPO comments about corridor signage.

City of El Reno asks questions about location of emblems. Wants to know if they will be visible as you approach the bridge. Mr. Barnes indicated that they would have emblems on the ends of the bridge facing oncoming traffic.

City of El Reno wants the bridge to be as aesthetically close to the existing bridge as possible.

Preservation Oklahoma wants the WPA significantly recognized in the mitigation efforts.

Ms. Siv Sundaram- Assistant Division Engineer ODOT Environmental, mentions that the HAER documentation be given to the El Reno Pubic Library.

<u>Lighting:</u>
Currently lighting exists on the west side of the bridge.
SHPO doesn't want to recreate WPA era lighting.
Mr. Daniel Nguyen Division 4 Project Manager- says that the lighting questions can be worked out directly with the city. Mr. Nguyen suggests the El Reno Mayor be asked to contact Mr. Brian Taylor ODOT Division 4 Engineer so that he may directly relay the City's wishes concerning the bridge project.
Mr. Sundaram suggests that the lighting design be done concurrently with the bridge design.
It is agreed that the city of El Reno will maintain the lights.

SHPO asks questions about how bridges attain their ratings. Mr. Justin Hernandez ODOT Division 4 Bridge Engineer and Mr. Travis Collins CEC Bridge Engineer explain the methodology to her. She asks how low does the score have to be before they close the bridge. They explain that it's a combination of factors, not just the Sufficiency rating.

Throw fence/Bridge Rail/Oral History Interviews/Anecdotal stories
All stakeholders agree that they want the most aesthetically pleasing fence they can get. Additionally they decide that the color of the bridge rail should be galvanized steel.

City of El Reno says it will investigate and provide names of people involved with construction of existing bridge

Story was shared that came from Greg Allen ODOT Bridge Division about a dance that was held on the bridge after it was constructed but before the highway was connected up. No member from ODOT was sure of it's authenticity or where the story originated.

In closing the SHPO said that they didn't want the proposed bridge to create a false representation.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES SURVEY REPORT

Prepared by: ODOT Cultural Resources Program

County:	Canadian		
J/P Number:	27004(04)		
Surveyed By:	Mike McKay, Kristina Wyckoff, and Anna Eddings	**Prepared By:**	Kristina Wyckoff, Mike McKay, and Anna Eddings
Survey Date:	October, 2014	**Report Date:**	December 22, 2014

1. PROJECT DESCRIPTION:

ODOT is reviewing alternatives for a proposed bridge project over the Union Pacific Railroad (UPAC RR) and an unnamed creek in southeastern El Reno. This report documents a cultural resources survey for the proposed alternatives.

The project bridge, the UPAC RR viaduct, has been the focus of prior review. Following the collapse of a sidewalk for an entire span of the UPACC RR viaduct in December of 2001, ODOT consulted with SHPO regarding rehabilitation of the sidewalks on the bridge. The consultation process included the submission of construction drawings and photographic documentation to SHPO and resulted in a finding of no adverse effect (SHPO File no. 0751-03).

The project study area, as defined, extends along a 3900-foot corridor of I-40B/US-81 beginning along the northern edge of East Elm Street and extending southeast to the Southeast 22nd Street intersection. The study area reaches 150 feet west and 300 feet east of the existing I-40 centerline. In total, the study area encompasses approximately 35.59 acres.

The existing bridge over the UPAC RR is a multi-span I-beam structure with concrete deck and supports constructed in 1942 (ODOT Structure 0904 0690 X; NBI 10566). This bridge was determined eligible for inclusion in the NRHP through consensus in 2003 under criteria A and C (SHPO File no. 0751-03).

The existing bridge over the unnamed creek is a bridge-length reinforced concrete box culvert constructed in 1946 (ODOT Structure 0904 0710 X). This bridge has been documented on an Oklahoma Bridge Survey and Inventory (OBSI) form for SHPO review.

Legal Location:	T12N R7W: Section 16
U.S.G.S. Quadrangle:	El Reno (1972 PR 1983)

2. TOPOGRAPHY AND VEGETATION:

The project study area is located on the secondary terrace of the North Canadian River and is situated in the El Reno city limits. The study area, as mapped, is located in the Central Red Bed Plains geomorphic province, where Permian red shales and sandstones form gently rolling hills and broad, flat plains. The geology of the study area, as mapped consists entirely of Chickasha Formation, which is comprised of red-brown mudstone conglomerate, siltstone, and sandstone.

The vegetation of the study area, as mapped, is tallgrass prairie. In western Oklahoma tallgrass prairie intergrades with mixed-grass eroded plains; however, forest and woodland vegetation readily replace tallgrass prairie following fire suppression and land abandonment.

At the time of survey the study area was comprised of general commercial and large-lot commercial development, and the UPAC RR crossing. Manicured lawns and mixed-grass pasture covered the majority of the study area at the time of survey, and riparian timber was located along the

Vegetation Coverage:

_____	0-25%
_____	25-50%
XXX	50-75%
_____	75-100%

General Soils Observations:

The soil association of the mapped study area is Norge-Bethany association, which consists of deep, well-drained, loamy soils with a clayey and loamy subsoil.

Soils observed in the field consisted of dark brown clay loam (approximately 0-18 centimeters below the surface [cmbs]) overlaying reddish-brown clay loam (approximately 18-90+ cmbs).

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3. PROJECT METHODOLOGY:

A. Background Research:

XXX State Site Files at Oklahoma Archeological Survey

XXX SHPO NRHP and DOE Files

XXX Native American Tribes and Nations Consulted by Procedures Established with FHWA and ODOT: Cheyenne and Arapaho Tribes, Comanche Nation, Delaware Nation, Osage Nation.

XXX Other sources:

1873 General Land Office (GLO) Original Survey Map (T12N R7W)
1892 Kingfisher 30' USGS Quadrangle
1895 Kingfisher 30' USGS Quadrangle
1940 Canadian County General Highway and Transportation Map
1949 Canadian County General Highway and Transportation Map
1954 Geologic Map of Oklahoma
1954 Oklahoma City 1:250,000 Quadrangle
1963 Oklahoma City 1:250,000 Quadrangle
1970 Canadian County General Highway and Transportation Map
1972 Canadian County General Highway and Transportation Map
1972 El Reno 7.5' USGS Quadrangle
1983 El Reno 7.5' USGS Quadrangle
1986 Canadian County General Highway and Transportation Map

Brooks, Robert L.
1983 Resource Protection Planning Process Management Region 4. Report submitted to the State Historic Preservation Office Oklahoma Historical Society. Unpublished manuscript on file at the Oklahoma Archeological Survey, Norman.

Brooks, Robert L.
2005 Oklahoma Atlas of Archaeological Sites and Management Activities. http://www.ou.edu/cas/archsur/Atlas/atlas.htm accessed online September 30, 2014.

Encyclopedia of Oklahoma History and Culture, El Reno entry, Oklahoma Historical Society.
http://digital.library.okstate.edu/encyclopedia/entries/E/EL001.html

accessed online October 23, 2014.

1941 (Revised 1945) As Built Plans [for Viaduct and bridge-length RCB culvert]; Federal Aid Grade Crossing Project No. S.N. – F. A. G. H. 163 "G" (1) (Modified). US Highway nos. 66, 81, 270.

1976 *Soil Survey Canadian County, Oklahoma*. United States Department of Agriculture, Soil Conservation, and Oklahoma Experiment Station. U.S. Government Printing Office, Washington, D.C.

1978 *Railroads of Oklahoma June 6, 1870 – April 1, 1978.* State of Oklahoma Department of Transportation Survey Division. Originally Published January 1, 1970, Revised July 1, 1974, and April 1, 1978.

2001-2002 "Oklahoma Route 66 Roadbed Documentation Project (1926-1970) A Survey of Roadbed and Integral Structures." Prepared by The Oklahoma Route 66 Association for The Oklahoma State Historic Preservation Office, Melvena Heisch, Deputy State Historic Preservation Officer. Accessed online September 30, 2014 at: http://www.okhistory.org/shpo/thematic/rt66roadbed.pdf

RESULTS OF BACKGROUND RESEARCH:

A review of the Oklahoma Archeological Survey (OAS) maps indicates no previously-recorded archaeological sites are located within the project study area nor in the one-mile vicinity

Prehistoric sites in the general region of the project, specifically those located on the Cogar NE, El Reno, Fort Reno, Minco, and Union City quadrangles, are generally located on terraces and rises overlooking major drainages, including the North Canadian River, the Canadian River, Target Creek, Sixmile Creek; sites in this general region are also sometimes located on terraces and rises overlooking small unnamed creeks and streams feeding into these larger drainages. According to the Oklahoma Atlas of Archaeological Sites and Management Activities, in 2004, 145 archaeological sites had been recorded in Canadian County (Brooks 2005). At that time the recorded sites included three Paleoindian period sites, four Archaic period sites, two Woodland period sites, 58 Village Farming period sites, and 55 19th and 20th century sites. At present, there are 231 archaeological sites recorded in Canadian County as a whole. Brooks includes Canadian County in "Region 4" of his Resource Protection Planning Process Management manuscript. "Region 4" consists of Oklahoma's southern mixed-grass and tallgrass prairie and includes sites from Paleoindian, Archaic, Woodland, Village Farming, Protohistoric, and historic periods. Brooks notes this region has yielded evidence of the oldest-known human occupations in Oklahoma, specifically, excavations at the Cooperton site in Kiowa County and the Domebo Site in Caddo County are two Paleoindian mammoth kill sites dating between 11,200 and 20,000 years ago (Brooks 1983:5). In 1983, more Paleoindian sites and more Archaic sites had been recorded in region 4 than in any other region of the state (Brooks 1983:17, 28).

El Reno was originally platted in 1890 by the Oklahoma Homestead and Town Company (Encyclopedia of Oklahoma History and Culture). The Chicago, Kansas and Nebraska Railway Company, later incorporated with the Chicago, Rock Island and Pacific Railway Company (CRI&P) completed a north-south rail line from the Kansas State Line to Minco, which passed through El Reno, in 1890. Additionally, between 1890 and 1892 the Choctaw Coal and Railway Company constructed an east-west line between Oklahoma City and Fort Reno, which passed through El Reno. This rail was eventually leased to CRI&P in 1904, making El Reno the crossroads of the main north-south and east-west lines of a transcontinental railroad In 1903, CRI&P completed the passenger cut-off and wye immediately east of El Reno, which included the portion of abandoned track beneath the viaduct that bisects the study area (Railroads of Oklahoma 1978:40-44).

Despite the close proximity of the study area to the City of El Reno, historic maps and aerial photography indicate no residential or commercial development within the project study area before 1940, and scattered

residential and commercial development beyond the western and eastern study area boundaries.

Nineteenth and 20th century archaeological sites are generally recorded where occupations are indicated on historic maps or aerial photographs. One non-extant building is visible in aerial photography from 1951 and 1957; modern aerial photography shows what appears to be the poured-concrete foundation of this building being used as a parking lot for an adjacent building.

By 1947 the existing roadway alignment (US-66, US-81, I-40 Business) had been constructed as a portion of Route US-66 designed to bypass the earlier route along S Shepard Ave. and E Elm St. in southeastern El Reno (Oklahoma Route 66 Roadbed Documentation Project:23, Map 40). According to the As Built Plans, the original Portland Concrete roadway included a two-foot wide, raised, concrete dividing strip. This segment of roadway has been asphalted over and the raised dividing strip is no longer a feature of the roadway. The original 1947 alignment, along S Rock Island Ave., necessitated the construction of the railroad viaduct in 1942, and the bridge-length reinforced concrete two-box culvert over the unnamed creek in 1946. The 2001-2002 Oklahoma Route 66 Roadbed Documentation Project identified all Route 66 alignments across the state and discussed all segments of roadbed and integral structures which were considered to be historically significant. The segment of Route 66 within the NEPA study area, has been altered and is not considered an eligible segment, and the bridge over the unnamed creek is not considered to be eligible for inclusion in the NRHP; however the railroad viaduct (Structure 0904 0690 X; NBI 10566) was determined eligible for inclusion in the NRHP through consensus in 2003 under criteria A and C (SHPO File no. 0751-03).

The sidewalks on the viaduct were rehabilitated following the collapse of a sidewalk along an entire span of the UPACC RR viaduct in December of 2001. To meet the Americans with Disabilities Act (ADA) requirements, two five-foot by five-foot bump outs were added to each three-foot sidewalk along the length of the bridge to allow pedestrians in wheel chairs to pass one another. As new elements, the bump outs were designed to be clearly differentiated from the original design and fabric of the bridge. Additionally, to meet Federal Highway Association requirements, a crashworthy concrete barrier was added to separate the pedestrian walkway from vehicular traffic. Finally, opportunities for stormwater drainage were incorporated into the bridge traffic rail and the concrete curb at the handrail to prevent future damage due to stormwater retention. Consultation with SHPO regarding this rehabilitation process resulted in a finding of no adverse effect (SHPO File no. 0751-03).

B. Field Investigation Methodology:

_____ 100% Windshield Survey

_____ Windshield survey with sample pedestrian survey

XXX 100% pedestrian survey

XXX Subsurface Testing. Describe methodology of testing under comments, below:

FIELD INVESTIGATION METHODOLOGY COMMENTS:

The entire study area was subjected to pedestrian archaeological survey. Because of the increased likelihood for prehistoric archaeological sites to occur on terraces or rises overlooking major and minor drainages, all terraces and rises in the study area were examined for evidence of archaeological materials. Additionally, all road cuts, stream and creek banks, and eroded areas were examined for evidence of archaeological materials. Judgmental shovel tests were excavated in areas where the study area appeared relatively undisturbed by development.

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4. RESULTS OF INVESTIGATION:

_____ No archeological sites or buildings recorded in study area.

__XXX__ Resources recorded in study area assessed as **not eligible** for the NRHP. Forms being submitted for agency review.

_____ Oklahoma Archeological Site Survey Form(s) for State Archeologist files.

__XXX__ Historic Preservation Resource Identification Form(s) for SHPO files.

__XXX__ Oklahoma Bridge Survey and Inventory Form.

__XXX__ **NRHP-eligible properties** recorded in study area.

Forms being submitted for agency review.

_____ Oklahoma Archeological Site Survey Form(s) for State Archeologist files.

_____ Historic Preservation Resource Identification Form(s) for SHPO files.

_____ Oklahoma Bridge Survey and Inventory Form.

_____ Archeological sites requiring further assessment (i.e. evaluative testing)

COMMENTS AND DESCRIPTION OF FINDINGS:

No archaeological sites were identified during this investigation; however, six pre-1969 buildings (Buildings 1-6) were documented on Historic Preservation Resource Identification (HPRI) forms, and one bridge (Structure 0904 0710 X; NBI 10415) was documented on an Oklahoma Bridge Survey Inventory (OBSI) form. Additionally, three non-significant resources, which ODOT terms "localities" (L-1, L-2, L-3) were observed.

The existing bridge over the UPAC RR is a multi-span I-beam structure with concrete deck and supports constructed in 1942 (ODOT Structure 0904 0690 X; NBI 10566). This bridge was determined eligible for inclusion in the NRHP through consensus in 2003 under criteria A and C (SHPO File no. 0751-03).

The existing bridge over the unnamed creek is a two-span, bridge-length (23 feet) reinforced concrete box culvert constructed in 1946 (ODOT Structure 0904 0710 X; NBI 10415). This culvert is under the roadbed fill, and therefore has no railing, although a non-original steel W-rail borders the east side of the pavement above it. This culvert is located approximately 600 feet south-southeast of the NRHP-eligible UPAC RR bridge, and the project for constructing this bridge, federal aid project FAGH 163G, also included this culvert. However, as noted above, the roadbed between the two has been altered was not designated as NRHP-eligible in the "Oklahoma Route 66 Roadbed Documentation Project." This has impaired the culvert's integrity of setting and feeling in its connection to the bridge. Additionally, concrete culverts are a common bridge type generally without engineering significance. Indeed, while this structure is an exception to the ACHP Program Comment for common bridges and culverts due to its location along a Route 66 alignment, the type of structure is otherwise common and considered exempt from review. It is our assessment that this culvert lacks sufficient combination of historic integrity and engineering distinction, and is not eligible for inclusion in the NRHP either individually or in connection with the UPAC RR bridge.

Localities L-1 and L-2 are cast iron and concrete railway switch boxes associated with the old railroad sidings identified on either side of the existing bridge. All wiring and/or components had been removed from both breaker boxes. Locality L-1 is located in the stream floodplain west of the existing bridge; locality L-2 is located near relict siding earthworks. The cast iron breaker box related to L-2 is located on the ground surface adjacent to its concrete footing. Locality L-3 is a short length of derelict railway siding earthworks, which extends westward from the center point of the existing bridge. The eastern end of the earthworks has been bisected by construction, but to the west the earthworks extends beyond the western limit of the study area. No archaeological materials were observed on the surface or in shovel tests placed in the vicinity of these localities, and these resources (L-1, L-2, and L-3) are considered to be not eligible for inclusion in the NRHP.

Building 1 is a 1957 modern movement brick building, which houses Veterans of Foreign Wars (VFW) Post 382. This building has a non-original metal roof and an altered porte-cochere. According to information at the Canadian County Historical Museum, this building and the plane on display in front of it were dedicated on September 21, 1957. The building is visible on the 1957 aerial and is indicated on the 1972 USGS El Reno quadrangle.

Building 2, located beneath the eastern edge of the existing bridge and adjacent to the derelict railway earthworks, is a ca. 1950 switchhouse. The building is an approximately eight-foot by eight-foot concrete block structure with a flat, approximately four inch thick poured concrete roof and a single steel-slab entry door. The building is unoccupied and empty.

Building 3 is a ca. 1965 metal commercial garage building with a band of display windows and an overhead garage door.

Building 4 is a ca. 1955 corrugated metal quonset commercial garage building.

Building 5 is a ca. 1940 side-gabled commercial building of no distinctive style, with non-original siding and windows.

Building 6 is a ca. 1960 gabled metal grain storage building.

It is our assessment that all of the buildings documented lack sufficient historic integrity and/or architectural distinction, and are not eligible for inclusion in the NRHP.

---

5. RECOMMENDATIONS:

_____ **Plan Notes** requiring avoidance of cultural resources in off-project areas

_____ **Approval to proceed** with the proposed project as planned with no additional research. If subsurface archaeological materials are exposed during construction, the Contractor and Resident Engineer shall notify the Department Archeologist in accordance with Section 202.04(a), Standard Specifications for Highway Construction.

__XXX__ **Approval NOT Recommended,** until one or more of the following measures are completed.

__XXX__ **Additional consultation with SHPO** regarding NRHP-eligible Properties

_____ **Revise design** to avoid/protect resources

_____ **NRHP Eligibility Archeological Test Excavations**

__XXX__ **Implementation of MOA** with SHPO regarding Mitigation of Adverse Effects to Historic Properties

COMMENTS REGARDING RECOMMENDATIONS:

The existing bridge over the UPAC RR is a multi-span I-beam structure with concrete deck and supports constructed in 1942 (ODOT Structure 0904 0690 X; NBI 10566). This bridge was determined eligible for inclusion in the NRHP through consensus in 2003 under criteria A and C (SHPO File no. 0751-03). Additional consultation will be necessary to avoid, minimize, or mitigate effects to this property.

Pursuant to 36 CFR 60.4, it is our assessment that the bridge-length culvert documented over the unnamed creek (ODOT Structure 0904 0710 X; NBI 10415) lacks sufficient combination of historic integrity and engineering distinction, and is not eligible for inclusion in the NRHP either individually or in connection with the UPAC RR bridge.

Pursuant to 36 CFR 60.4, the buildings and localities identified during the course of this investigation lack sufficient historic integrity, architectural distinction, and significant associations and are therefore considered to be not eligible for inclusion in the NRHP.

ODOT is currently reviewing a variety of alternatives to meet the purpose and need of this project; additional consultation will be necessary once the alternatives analysis has been completed.

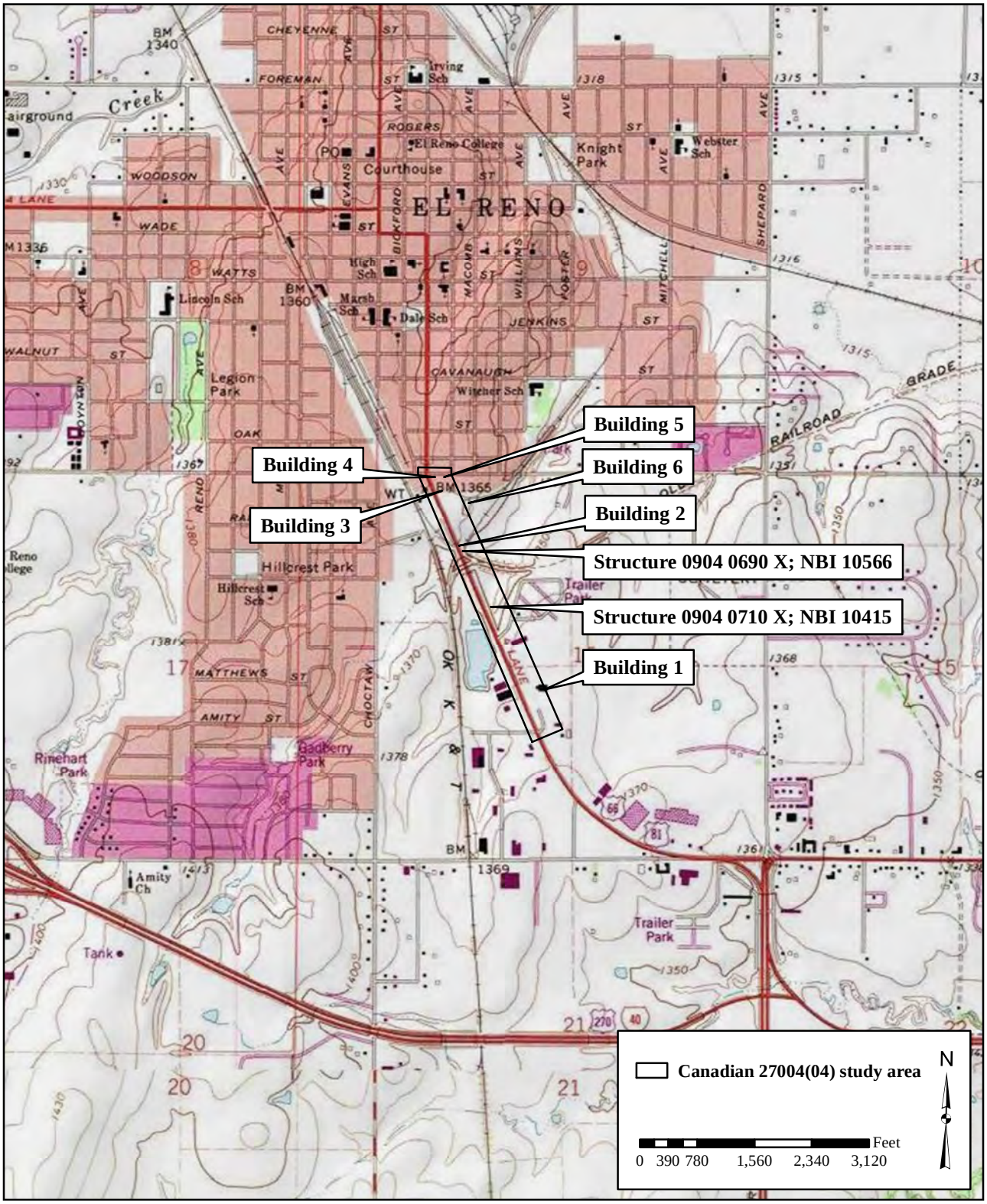

Figure 1. Canadian County JP 27004(04): Alternatives for proposed bridge project over the Union Pacific Railroad (UPAC RR) and an unnamed creek in southeastern El Reno.

Basemap: El Reno (1972 PR 1983) 7.5' USGS Quadrangle. T12N R7W Section 16.

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

18 November 2011

Cheyenne and Arapaho Tribes
Attn: Governor Janice Boswell
P.O. Box 38
Concho, OK 73022

Dear Governor Boswell:

RE: Canadian County removal of the existing bridge on Interstate 40B over the UPAC railroad and replacement with an at-grade railroad crossing; Project # J2-7004(004), JP# 27004(04)

Pursuant to Section 800.2(c)(3) of the 1999 Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Department of Transportation is initiating consultation on behalf of the Federal Highway Administration regarding places of traditional cultural value which may be affected by the above referenced Federal-Aid undertaking.

In order to provide the most thorough consideration of traditional cultural properties, we would appreciate your response to this request within 30 days. When responding, please include the county in which the project is taking place and the Job Piece number (JP#) on all correspondence.

The Department of Transportation will also perform a cultural resources survey in consultation with the Oklahoma State Historic Preservation Office and/or the Oklahoma State Archaeologist. You will be provided a copy of the cultural resources report to review upon its completion.

If this project is likely to affect individual Native American allotments, tribally owned land, tribal cemeteries, cultural or religious sites, or lands held in trust for Native tribes by the United States government, please notify me as soon as possible. Rest assured that the Oklahoma Department of Transportation will respect all wishes regarding the confidentiality of information provided in response to this request.

If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair
Tribal Liaison
ODOT Cultural Resources Program

cc: Lynnette Gray, THPO

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

18 November 2011

Comanche Nation
Attn: Jimmy Arterberry, THPO
Post Office Box 908
Lawton, OK 73502

Dear Mr. Arterberry:

RE: Canadian County removal of the existing bridge on Interstate 40B over the UPAC railroad and replacement with an at-grade railroad crossing; Project # J2-7004(004), JP# 27004(04)

Pursuant to Section 800.2(c)(3) of the 1999 Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Department of Transportation is initiating consultation on behalf of the Federal Highway Administration regarding places of traditional cultural value which may be affected by the above referenced Federal-Aid undertaking.

In order to provide the most thorough consideration of traditional cultural properties, we would appreciate your response to this request within 30 days. When responding, please include the county in which the project is taking place and the Job Piece number (JP#) on all correspondence.

The Department of Transportation will also perform a cultural resources survey in consultation with the Oklahoma State Historic Preservation Office and/or the Oklahoma State Archaeologist. You will be provided a copy of the cultural resources report to review upon its completion.

If this project is likely to affect individual Native American allotments, tribally owned land, tribal cemeteries, cultural or religious sites, or lands held in trust for Native tribes by the United States government, please notify me as soon as possible. Rest assured that the Oklahoma Department of Transportation will respect all wishes regarding the confidentiality of information provided in response to this request.

If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair
Tribal Liaison
ODOT Cultural Resources Program

cc: Chief Johnny Wauqua

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

18 November 2011

Delaware Nation
Attn: President Kerry Holton
Post Office Box 825
Anadarko, OK 73005

Dear President Holton:

RE: Canadian County removal of the existing bridge on Interstate 40B over the UPAC railroad and replacement with an at-grade railroad crossing; Project # J2-7004(004), JP# 27004(04)

Pursuant to Section 800.2(c)(3) of the 1999 Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Department of Transportation is initiating consultation on behalf of the Federal Highway Administration regarding places of traditional cultural value which may be affected by the above referenced Federal-Aid undertaking.

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Sincerely,

Rhonda S. Fair
Tribal Liaison
ODOT Cultural Resources Program

cc: Tamara Francis

Fair, Rhonda S.

From: Jason Ross [JRoss@delawarenation.com]
Sent: Thursday, February 09, 2012 11:11 AM
To: Fair, Rhonda S.
Subject: 6 projects

Delaware Nation

Jason Ross

Section 106/Museum Manager

To: Rhonda S. Fair, Tribal Liaison

cc:

Date: February 9, 2012

Re: 6 completed projects

Hi Rhonda,

The projects listed below the Cultural Preservation Director, Ms. Tamara Francis has reviewed and passed each one.

1. Kingfisher County Roadway improvements (add shoulder, resurface) State Highway 51 from U.S. 81 in Hennessey and extending east 7.53 miles to County Road NS-294; Project# J2-7945(004)(007), JP# 27945(04)(07)

2. Kingfisher County improvements (add shoulders, resurface and 4 bridge replacements on State Highway 51 over Turkey Creek and unnamed creeks (existing Alignment); Project# SSP-137C(070)SS, JP#24211(05)

3. Garvin County bridge replacement on State Highway 76 over the Washita River Project# J2-7997(004), JP# 27997(04)

4. Bryan County construction of an off-ramp at the southbound lane of U.S. 69 at University Boulevard in Durant; Project# NHY-013N(155), JP# 28678(04)

5. Garvin County bridge replacement on State Highway 76 over the Washita River Project# J2-7999(004), JP# 27999(04)

6. Canadian County removal of the existing bridge on Interstate 40B over the UPAC railroad and replacement with an at-grade railroad crossing; Project# J2-7004(004)

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

18 November 2011

Osage Nation
Attn: Chief John Red Eagle
627 Grandview
Pawhuska, OK 74056

Dear Chief Red Eagle:

RE: Canadian County removal of the existing bridge on Interstate 40B over the UPAC railroad and replacement with an at-grade railroad crossing; Project # J2-7004(004), JP# 27004(04)

Pursuant to Section 800.2(c)(3) of the 1999 Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Department of Transportation is initiating consultation on behalf of the Federal Highway Administration regarding places of traditional cultural value which may be affected by the above referenced Federal-Aid undertaking.

In order to provide the most thorough consideration of traditional cultural properties, we would appreciate your response to this request within 30 days. When responding, please include the county in which the project is taking place and the Job Piece number (JP#) on all correspondence.

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If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair
Tribal Liaison
ODOT Cultural Resources Program

cc: Andrea Hunter

Due to a Programmatic Agreement in place with the Wichita and Affiliated Tribes on November 18, 2011, no initial consultation letter was sent for Canadian County JP 27004(04).

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

January 13, 2015

Cheyenne and Arapaho Tribes
Attn: Governor Eddie Hamilton
P.O. Box 167
Concho, OK 73022

Dear Governor Hamilton:

Re: Canadian County proposed Interstate 40 / U.S. 81 / U.S. 66 bridge project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno; JP# 27004(04)

Pursuant to §800.2(c)(2) of the Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Oklahoma Department of Transportation is continuing consultation on behalf of the Federal Highway Administration regarding historic properties that may be affected by the above referenced Federal-Aid undertaking. The Oklahoma Department of Transportation's Cultural Resources Program conducted a cultural resources survey of the proposed project area. A copy of this report is enclosed and describes our efforts to identify historic properties that may be affected by the proposed undertaking.

No archeological properties were documented during the investigations. Pursuant to 36 CFR 60.4, our assessment is that the bridge-length culvert over the unnamed creek lacks a sufficient combination of historic integrity and engineering distinction and is not eligible for inclusion in the National Register of Historic Places. Our assessment is that the six documented buildings also lack sufficient historic integrity, architectural distinction, and significant associations and are considered not eligible for inclusion in the NRHP. The existing bridge over the UPAC RR was determined eligible for inclusion in the NRHP through consensus in 2003 under criteria A and C. Pursuant to 36 CFR 800.5, our assessment is that the proposed undertaking will have an adverse effect to the existing bridge. We are continuing consultation with the SHPO and other consulting parties and stakeholders regarding this resource.

If this undertaking is likely to affect properties of religious and cultural significance to your tribe, please notify me as soon as possible. In order to provide the most thorough consideration of properties in the planning process, we would greatly appreciate your response to this request within 30 days. When responding, please include the county in which the project is taking place and the Job Piece number (JP#) on all correspondence. If the information that you are providing is of a sensitive nature, please rest assured that we will respect your wishes regarding the confidentiality of information provided in response to this request.

If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair, Ph.D.
Tribal Liaison
ODOT Cultural Resources Program

cc: Margaret Anquoe, Acting THPO

TRIBAL
HISTORIC
PRESERVATION
OFFICE

CHEYENNE & ARAPAHO TRIBES

P.O. BOX 167
CONCHO, OKLAHOMA 73022
1800-247-4612 Toll Free
405-422-7416 Telephone

1/15/15
Rhonda S. Fair, Ph.D.
Tribal Liaison
ODOT Cultural Resources Program
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111

RE: Canadian County proposed Interstate 40/ U.S. 81/ U.S. 66 bridge project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno; JP#27004(04)

Dear Rhonda,

On behalf of the Cheyenne and Arapaho Tribes, thank you for the notice of the referenced project. I have reviewed your Consultation request under Section 106 of the National Historic Preservation Act regarding the project proposal and commented as follows:

At this time it is determined to be **No Effect;** however, if at any time during the project implementation inadvertent discoveries are made that reflect evidence of human remains, ceremonial or cultural objects, historical sites such as stone rings, burial mounds, village or battlefield artifacts, please discontinue work and notify the THPO Office immediately. If needed, we will contact the Tribes NAGPRA representatives.

Best Regards,

Andrew K. Willey

Willey, Andrew K. THPO
Tribal Historical Preservation Office
awilley@c-a-tribes.org

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

January 13, 2015

Comanche Nation
Attn: Jimmy Arterberry, THPO
P.O. Box 908
Lawton, OK 73502

Dear Mr. Arterberry:

Re: Canadian County proposed Interstate 40 / U.S. 81 / U.S. 66 bridge project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno; JP# 27004(04)

Pursuant to §800.2(c)(2) of the Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Oklahoma Department of Transportation is continuing consultation on behalf of the Federal Highway Administration regarding historic properties that may be affected by the above referenced Federal-Aid undertaking. The Oklahoma Department of Transportation's Cultural Resources Program conducted a cultural resources survey of the proposed project area. A copy of this report is enclosed and describes our efforts to identify historic properties that may be affected by the proposed undertaking.

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If this undertaking is likely to affect properties of religious and cultural significance to your tribe, please notify me as soon as possible. In order to provide the most thorough consideration of properties in the planning process, we would greatly appreciate your response to this request within 30 days. When responding, please include the county in which the project is taking place and the Job Piece number (JP#) on all correspondence. If the information that you are providing is of a sensitive nature, please rest assured that we will respect your wishes regarding the confidentiality of information provided in response to this request.

If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair, Ph.D.
Tribal Liaison
ODOT Cultural Resources Program

cc: Chairman Wallace Coffey

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

January 13, 2015

Delaware Nation
Attn: President Clifford Peacock
P.O. Box 825
Anadarko, OK 73005

Dear President Peacock:

Re: Canadian County proposed Interstate 40 / U.S. 81 / U.S. 66 bridge project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno; JP# 27004(04)

Pursuant to §800.2(c)(2) of the Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Oklahoma Department of Transportation is continuing consultation on behalf of the Federal Highway Administration regarding historic properties that may be affected by the above referenced Federal-Aid undertaking. The Oklahoma Department of Transportation's Cultural Resources Program conducted a cultural resources survey of the proposed project area. A copy of this report is enclosed and describes our efforts to identify historic properties that may be affected by the proposed undertaking.

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If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair, Ph.D.
Tribal Liaison
ODOT Cultural Resources Program

cc: Nekole Alligood

The Delaware Nation
Cultural Preservation Office
P.O. Box 825 - 31064 State Highway 281- Anadarko, OK 73005
Phone: 405/247-2448 – Fax: 405/247-8905

NAGPRA ext. 1403
Section 106 ext. 1181
Museum ext. 1181
Library ext. 1196
Clerk ext. 1182

February 23, 2015

RE: Proposed Interstate 40 – U.S. 66 Bridge Project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno, Canadian County, OK

Ms. Fair,

The Delaware Nation Cultural Preservation Department received correspondence regarding the above referenced project. Our office is committed to protecting sites important to tribal heritage, culture and religion. Furthermore, the tribe is particularly concerned with archaeological sites that may contain human burials or remains, and associated funerary objects.

As described in your correspondence and upon research of our database(s) and files, we find that the Lenape people occupied this area either prehistorically or historically. However, the location of the project does not endanger cultural or religious sites of interest to the Delaware Nation. Please continue with the project as planned. However, should this project inadvertently uncover an archaeological site or object(s), we request that you halt all construction and ground disturbance activities and immediately contact the appropriate state agencies, as well as our office (within 24 hours).

Please Note the Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge Munsee Band of Mohican Indians are the only Federally Recognized Delaware/Lenape entities in the United States and consultation must be made only with designated staff of these three tribes. We appreciate your cooperation in contacting the Delaware Nation Cultural Preservation Office to conduct proper Section 106 consultation. Should you have any questions regarding this email or future consultation feel free to contact our offices at 405-247-2448 or by email nalligood@delawarenation.com.

Sincerely,

Nekole Alligood

Nekole Alligood
Director

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

January 13, 2015

Osage Nation
Attn: Principal Chief Geoffrey Standing Bear
627 Grandview
Pawhuska, OK 74056

Dear Principal Chief Standing Bear:

Re: Canadian County proposed Interstate 40 / U.S. 81 / U.S. 66 bridge project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno; JP# 27004(04)

Pursuant to §800.2(c)(2) of the Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Oklahoma Department of Transportation is continuing consultation on behalf of the Federal Highway Administration regarding historic properties that may be affected by the above referenced Federal-Aid undertaking. The Oklahoma Department of Transportation's Cultural Resources Program conducted a cultural resources survey of the proposed project area. A copy of this report is enclosed and describes our efforts to identify historic properties that may be affected by the proposed undertaking.

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If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair, Ph.D.
Tribal Liaison
ODOT Cultural Resources Program

cc: Historic Preservation Office

TRIBAL HISTORIC PRESERVATION OFFICE

Date: **January 26, 2015** **File: 1415-773OK-1**

RE: **ODOT JP# 27004(04) Interstate 40/US 81/ US 66 bridge replacement over Union Pacific Railroad and an unnamed creek in southeastern El Reno in Canadian County, Oklahoma**

Oklahoma Department of Transportation
Rhonda S. Fair
111 E. Chesapeake, Room 102
Norman, OK 73019-5111

Dear Dr. Fair ,

The Osage Nation Historic Preservation Office received the cultural resources survey report for the proposed project listed as ODOT JP# 27004(04) Interstate 40/US 81/ US 66 bridge replacement over Union Pacific Railroad and an unnamed creek in southeastern El Reno in Canadian County, Oklahoma. The Osage Nation has no further concern with this project, but we recommend continued consultation with the SHPO. Please provide our office with a copy of the SHPO response to this undertaking.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969). The Osage Nation concurs that as a part of the scoping process U.S. Department of Transportation fulfilled NHPA and NEPA compliance by consulting with the Osage Nation Historic Preservation Office in regard to the proposed project referenced as ODOT JP# 27004(04) Interstate 40/US 81/ US 66 bridge replacement over Union Pacific Railroad and an unnamed creek in southeastern El Reno in Canadian County, Oklahoma.

The Osage Nation has vital interests in protecting its historic and ancestral cultural resources. If artifacts or human remains are discovered during project construction, we ask that work cease immediately and the Osage Nation Historic Preservation Office be contacted.

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you again for consulting with the Osage Nation on this matter.

Andrea A. Hunter, Ph.D.
Director, Tribal Historic Preservation Officer

James Munkres
Archaeologist

627 Grandview, Pawhuska, OK 74056, (918) 287-5328, Fax (918) 287-5376

OKLAHOMA DEPARTMENT OF TRANSPORTATION
CULTURAL RESOURCES PROGRAM
111 E. Chesapeake, Room 102, University of Oklahoma
Norman, OK 73019-5111
Phone: 405-325-7201/325-8665; FAX: 405-325-7604

January 13, 2015

Wichita and Affiliated Tribes
Attn: President Terri Parton
P.O. Box 729
Anadarko, OK 73005

Dear President Parton:

Re: Canadian County proposed Interstate 40 / U.S. 81 / U.S. 66 bridge project over the Union Pacific Railroad and an unnamed creek in southeastern El Reno; JP# 27004(04)

Pursuant to §800.2(c)(2) of the Rules and Regulations implementing Section 106 of the National Historic Preservation Act, the Oklahoma Department of Transportation is continuing consultation on behalf of the Federal Highway Administration regarding historic properties that may be affected by the above referenced Federal-Aid undertaking. The Oklahoma Department of Transportation's Cultural Resources Program conducted a cultural resources survey of the proposed project area. A copy of this report is enclosed and describes our efforts to identify historic properties that may be affected by the proposed undertaking.

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If you have any questions or would like to meet regarding this project, please contact me by telephone at 405.325.8665 or by email at rsfair@ou.edu.

Sincerely,

Rhonda S. Fair, Ph.D.
Tribal Liaison
ODOT Cultural Resources Program

cc: Historic Preservation Office

ODOT 4(f) Meeting Agenda

Project: J/P 27004(04), Canadian County, I-40B(US 81) over UPAC RR on the south edge of El Reno

Meeting Location: ODOT Project Management Conference Room

Meeting Date & Time: May 20, 2014 at 11: 00 A.M.

Purpose: To discuss the Design Analysis to support Section 4(f) Process for the Historic Bridge and select the preferred alternative

Agenda:

- **Purpose & Need for the Project**

- **Section 106 Background**
  Significance of the Bridge, Section 106 Consultation to date, Route 66 Inter(Intra) Agency Agreement

- **Review of Alternative Analysis**
  Do Nothing
  Rehabilitation of Existing Bridge
  One Way Pairs
  Existing Bridge as a Pedestrian Bridge
  Existing Bridge as a Monument

- **Proposed Project Scope**
  I 40B bridge is also a historic Route 66 bridge. The original initiation report called for removal of the existing bridge and an at-grade crossing. Based on the input from City of El Reno, it was decided by the Field Engineer to not construct an at grade crossing. Since this is a historic bridge, a design level Section 4(f) analysis has been performed to decide the preferred option.

- **Next Step**

CEC
infrastructure solutions

ALTERNATIVE ANALYSIS

FOR

Oklahoma Department of Transportation

US 81 (I-40B) in Canadian County
JP 27004(04)
US 81 Bridge over Union Pacific Railroad in El Reno
EC 1408B

December 18, 2014

Prepared By:
CEC
4555 West Memorial Road
Oklahoma City, OK 73142
Phone: 405.753.4200 • Fax: 405.260.9524

TABLE OF CONTENTS

1.0 PROJECT OVERVIEW

1.1 Purpose & Goals

The Oklahoma Department of Transportation (ODOT) has authorized Cobb Engineering Company (CEC) to prepare an alternatives analysis study for improvements relating to JP No. 27004(04). This project includes a section of US-81 (I-40B) in El Reno and the existing bridge (Bridge "A"-NBI 10566) crossing the Union Pacific Rail Road (UPRR). The project is located in Section 16 of T12N-R7W of the Indian Meridian. For bridge location, reference Figure 1: Project Location Map.

The purpose of the project is to provide a new safe crossing and preserve transportation continuity on both US-81 and the UP Railroad. The need for the project is to address the current structural and functional deficiencies of the existing bridge and approach roadway. The following study evaluates alternatives to rehabilitate or replace the existing bridge.

This study will evaluate the alternatives listed below and will culminate in a preferred alignment and bridge improvement or replacement alternative for the project that can be used for project funding and programming and also as the basis of the NEPA clearance and the detailed design and production of construction plans at a later date. Therefore, the information presented in this report is not intended to cover every detail necessary for each alternative, but rather to consider enough information so that the best and most feasible alternative can be selected and its impacts properly understood.

The following potential improvement alternatives are included in this report:

- No Improvements
- Bridge Rehabilitation on Existing Alignment
- Reconstruction on Existing Alignment
- Reconstruction on Offset Alignment West
- Reconstruction on Offset Alignment East

The criteria and information used to evaluate and compare the alternatives include the following:

- Federal and state design specifications
- Preliminary site information collected in accordance with the ODOT Reconnaissance Data Collection
- As-built plans provided by ODOT
- Topographic Survey provided by ODOT
- Structural condition of existing bridge and drainage structures
- Estimated construction costs
- Historical significance of existing highway and bridge
- Public and agency input

1.2 Study Approach

The primary objective of this study is to evaluate alternatives and determine the best and most feasible design to improve US-81 in Canadian County to meet current design criteria and improve the currently structurally deficient bridge (Bridge "A"-NBI 10566). The methodology used to perform this study was as follows:

1. Refer to field reconnaissance data and specialist studies previously collected for site information not included in the survey provided by ODOT including traffic data, accident data, property owners, potentially jurisdictional wetlands, water resources, natural and cultural resources, and hazardous materials.
2. Evaluate the route with respect to current AASHTO and ODOT design criteria while considering traffic service, hydrologic and hydraulic impacts, property impacts, environmental criteria, and estimated construction costs.
3. Develop preliminary cost estimates for each alternative considered that include construction, utility relocation, and right-of-way costs.
4. Develop supporting conceptual drawings and other necessary documentation to sufficiently compare the alternatives.

2.0 EXISTING FACILITY

2.1 Location

The study corridor is located within El Reno city limits in Canadian County. This particular stretch of roadway is part of three highway corridors which utilize the facility in order to traverse El Reno. I-40B in Canadian County is a business loop of Interstate 40 directing business traffic from I-40 through downtown El Reno and then back to I-40. US-81 is the north-south US highway that passes through El Reno and also stretches across the entirety of Canadian County, as well as the state of Oklahoma. Historic Route 66 also utilizes the study corridor while traversing the city of El Reno. Route 66 runs west to northeast across the state of Oklahoma and has a significant historical background.

The study corridor itself is approximately 0.91 miles in length and stretches from the intersection of US-81 and Elm Street in El Reno southeast towards SE 27th Street. A detour route along I-40 and I-40B west of El Reno would be 13 miles long and a detour route north along US-81, SH-3, SH-4, and SH-66 would total 43 miles in length. Therefore, it is desirable to construct this project while maintaining traffic through the study corridor.

There is currently one railroad track under the existing bridge that receives low usage by the BNSF. Through communication with the ODOT Rail Division, the BNSF has indicated that a new bridge should allow enough space for a future track parallel to the existing track, but the configuration shown on the original plans that the existing bridge was built to accommodate is not anticipated.

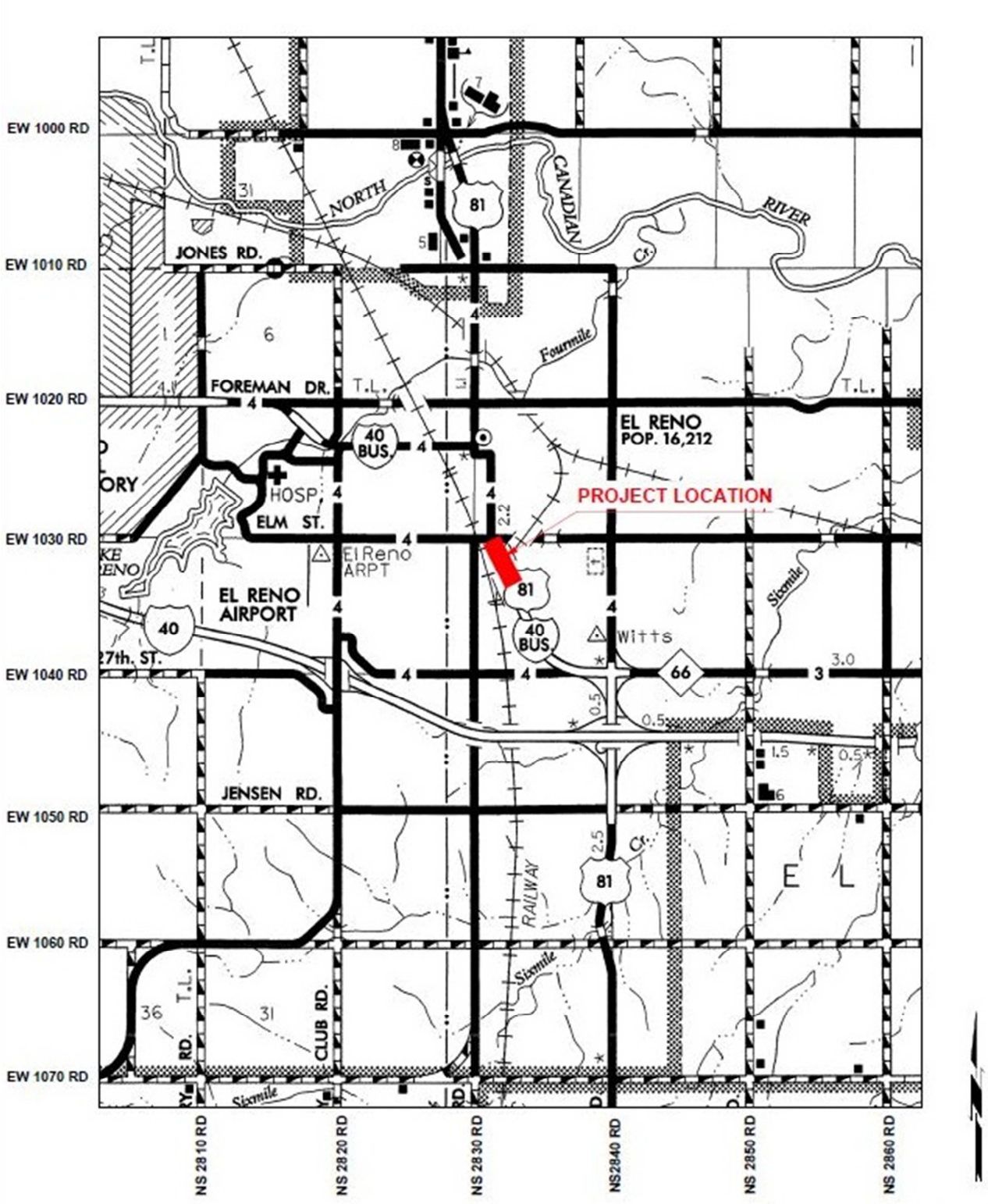

Figure 1: Project Location Map

2.2 Existing Design

The existing highway throughout this corridor was developed with criteria from the late 1930's and 40's. The corridor was designed and built under Federal Aid Grade Crossing Project No. SN-FAGH 163G(I).

The original roadway consisted of a 48' wide paving section for driving lanes with an additional 2' curb and gutter and 4 foot sidewalk on each side. Also, the original construction had a 2 foot wide concrete dividing strip running the length of the typical roadway. This dividing strip has since been either removed or paved over as there is no longer any barrier dividing the lanes in each direction.

A 537'-4" grade crossing (Bridge "A"-NBI 10566) was also constructed in the aforementioned project. The bridge was constructed to overpass up to four railroad crossings (one present and three planned). The substructure of the 12 span bridge was constructed with 10 square column concrete piers with web walls and a 3 steel girder cross beam bent cap spanning the railroad. The bridge superstructure consists of a concrete deck on 12 steel beam lines with one auxiliary beam line under the sidewalk on each side of the bridge. Additionally, the beams over the railroad support a large X-shaped layout of blast plates.

At an unknown date, a 4 inch asphalt overlay was added to the bridge, covering up the median dividing strip. Additionally, concrete barriers have been added to the curbs and gutters to separate pedestrian traffic from the roadway.

2.3 Existing Conditions

The bridge currently has operating ratings of H 25.0 and HS 40.0 and does not need to be load posted as no restrictions have been placed on this bridge. Also, the bridge's deck geometry and under-clearance (both vertical and horizontal) are rated to be tolerable. However, the minimum vertical clearance from the top of rail to the bridge low beam of 22'-1" does not meet the UPRR vertical clearance requirement of 23'-4" or the current ODOT policy of providing 23'-10" of vertical clearance from the top of rail to the bridge low beam. Given these conditions, the bridge in question is not functionally obsolete.

The bridge was last inspected on April 24, 2014. The inspection scores different elements of the structure on a scale of 0 to 9. This latest inspection scored several elements at or below 4 (poor condition). Sufficiency ratings are then calculated using a formula that includes various factors determined during the inspection. These sufficiency ratings are intended to indicate a measure of the ability of a bridge to remain in service. Based on the scores of the inspection, the sufficiency rating was determined to be 17.3 out of a possible 100. A rating below 50 would indicate that bridge rehabilitation would be a less cost effective solution than replacing the bridge entirely. The inspection report may be found in Appendix C at the end of the report.

Bridge Inspection Scoring
9 - Excellent Condition
8 - Very Good Condition
7 - Good Condition
6 - Satisfactory Condition
5 - Fair Condition
4 - Poor Condition
3 - Serious Condition
2 - Critical Condition
1 - Failing Condition
0 - Failed Condition

Bridge Inspection Report Findings:

Deck (4) - The bridge inspection report gives a poor rating to the deck. Upon further inspection, the deck was determined to be in serious (3) condition. The many attempted repairs of the joints have rendered most of the expansion joints immobile, resulting in construction joints opening and allowing seepage.

Superstructure (4) - Minor surface rust and speckle rust developing in scattered areas of each span. Minor to severe section loss on various diaphragms and beam ends.

Substructure (3) - Light to heavy spalling on all piers and abutments. Heavily corroded exposed rebar not meeting today's reinforcing practices.

Based on the report's findings, the bridge is classified as structurally deficient, but does not meet the criteria for functionally obsolete. Major concerns include rotten concrete and failed joints in the deck, section loss in the diaphragms, moderate to heavy rusting of the beams and bearings, and large sections of spalling on the piers and abutments. Additionally, over the years, a 4 inch asphalt overlay and a 3 foot tall traffic rail have been incorporated into the structure. These modifications add loads that the original structure was not meant to carry, adding further stress to the weakening members.

A **structurally deficient** bridge is one that is unable to carry the truckloads expected of the road system and require significant maintenance and repair to remain in service.

A bridge is considered **functionally obsolete** when the deck width or vertical clearance is not adequate to accommodate the traffic demand on or under the bridge, or when the waterway cannot accommodate the volume of water under the bridge.

2.4 Significance

The structure was assessed in 2002 as part of the Oklahoma Route 66 Roadbed Documentation Project and determined eligible for inclusion in the National Register of Historic Places (NRHP) in January, 2003, under criterion A, for its association with Route 66, and criterion C, for its distinctive engineering attributes. A major element that contributes to the structure's eligibility is the art deco-style concrete and steel railing system on the pedestrian walkways. Most recently, the structure was identified as having an association with a Depression-era Federal-aid Grade Crossing Program, a New Deal federal relief program that provided funding for railroad grade separations, which further confirms its historic significance.

A considerable rehabilitation of the structure has been previously conducted after the cantilevered sidewalk for an entire span collapsed in 2001, due to deterioration of the structural steel supports of the sidewalks. Subsequent inspections at that time revealed that two additional

spans of sidewalk were in imminent danger of collapsing. The sidewalks were closed until the completed rehabilitation in 2003, which included replacement of the entire sidewalk and support structure. Portions of the existing outbound rails were repurposed and ADA-compliant bump outs were added at two locations on each side of the bridge. Consultation with the State Historic Preservation Office (SHPO) in 2003 resulted in a finding of 'no adverse effect'. The integrity and significance of the bridge was not altered by the rehabilitation.

2.5 Existing Drainage

There are two bridge structures in this study corridor. One span bridge (Bridge "A"-NBI 10566) and one bridge size reinforced concrete box culvert (NBI 10415) over Four-Mile Creek. Bridge A, the span bridge, does not have a corresponding drainage area because the bridge spans were constructed as a railroad overpass. NBI 10415 is a 2-10'X7' RCB, 121' in length. The total and effective drainage area for this box is 678.4 acres (1.06 sq. miles). This drainage area is primarily located southwest of the drainage structure and flows northeast through the box.

2.6 Existing Traffic

Traffic volumes have been collected for use in the analysis of the corridor. The following table shows the design traffic data used in the completion of this study:

Design Traffic Data	I-40B/US-81
2014 AADT	11,500
2034 AADT	16,100
K Factor	11%
D Factor	56%
T (AADT)	12%
T (DHV)	10%
T3	7%

An operational analysis of the US-81/Elm Street intersection at the north end of the project was completed using the design traffic data shown above along with Synchro Modeling Software and the Highway Capacity Manual (HCM). The accident report included in the Data Recon information shows that half of the accidents recorded within the study extents in the past four years occurred at this intersection. The results of the analysis are summarized in the table below:

Intersection Capacity Analysis 2012 Existing Conditions US-81/Elm St. Intersection Level-of-Service				
Intersection	Morning Peak Control Delay (seconds)	Morning Peak LOS	Evening Peak Control Delay (seconds)	Evening Peak LOS
Eastbound Elm St.	23.6	C	25.1	C
Westbound Elm St.	17.8	B	17.7	B
Northbound US-81	12.8	B	18.1	B
Southbound US-81	13.6	B	17.4	B

Intersection Capacity Analysis 2032 Projected Conditions US-81/Elm St. Intersection Level-of-Service				
Intersection	Morning Peak Control Delay (seconds)	Morning Peak LOS	Evening Peak Control Delay (seconds)	Evening Peak LOS
Eastbound Elm St.	303.1	F	87.0	F
Westbound Elm St.	467.1	F	26.7	C
Northbound US-81	16.7	B	24.7	C
Southbound US-81	20.8	C	33.4	C

This traffic analysis shows that US-81 will operate at acceptable levels of service into the future, but Elm Street traffic will experience undesirable levels of service and traffic queues are anticipated to back up across the at-grade railroad intersections to the east and west of US-81.

2.7 Existing Utilities

Utility companies were contacted for information regarding utilities within the study extents. Based on the information provided, the following utilities were identified within the study extents:

Water

Information from the City of El Reno shows several water lines and one water tower within the study extents. The water tower is located just west of I-40B, north of the bridge. A 12” water line extends north from the tower before crossing I-40B north of Elm Street. Another 8” water line parallels I-40B on the east, north of the bridge. Water lines parallel I-40B on both sides south of the bridge, according to the City’s report.

Sanitary Sewer

Information provided by the City of El Reno describes several 10" and 12" sanitary sewer lines within the project study extents. Sewer lines parallel I-40B on both the sides of the highway south of the bridge. There is a sewer line crossing the highway south of the bridge at approximately CL Survey Sta. 104+28 and another underneath the span bridge at approximately CL Survey Sta. 118+38.

Gas

Oklahoma Natural Gas provided information regarding gas pipelines within the study area. A 6" steel pipeline lies west of the I-40B/Elm Street intersection and continues west as it parallels Elm Street. This same line also crosses Elm Street west of the intersection. Also, 4.5" steel pipelines lie east and west of I-40B just south of the bridge. There are three 4.5" pipeline crossings located near the south end of the study area.

Telephone

Pioneer Telephone Company reported underground telephone lines west of I-40B, just south of the site extents. AT&T provided information detailing underground telephone lines east and west of I-40B throughout the study extents with two crossings south of the bridge.

Overhead Electric

OG&E provided information regarding overhead electric distribution lines that parallel I-40B to the east, south of the bridge. These lines and poles are located within public right-of-way. The City of El Reno also has overhead electric lines within the study area. The city's electric lines are used to distribute power to all street lights within the study corridor. These lines parallel I-40B on the west side for the entire project extents.

The approximate locations of the existing utilities have been plotted on the composite aerial maps which are included in Appendix A.

3.0 RECONNAISSANCE DATA COLLECTION & ENVIRONMENTAL STUDIES

A reconnaissance data collection was completed to collect important information along this corridor to aid in the analysis of the proposed improvements. The data collection included preliminary environmental, threatened and endangered species, wetlands, water resources, historic and archaeological resources, land use impacts, hazardous materials, and traffic accidents. This report provides a brief summary of the preliminary data collection with the exception of updated information as described below. Additional information pertaining to the reconnaissance data collection can be found in the Reconnaissance Data Collection report.

Since the completion of the reconnaissance data collection, more in depth specialist studies have been completed for the biological assessments, waters and wetlands, hazardous waste, and

cultural resources. The information found during those studies is summarized in the corresponding paragraphs below. The impacts anticipated due to the improvements proposed for each alternative are included in the alternative analysis matrix at the end of this report. The area of anticipated wetland impacts are also included on the conceptual drawings.

The study area begins at the intersection of I-40B/US-81 and Elm Street in El Reno and continues south and east along I-40B for approximately 0.91 miles.

3.1 Threatened and Endangered Species

The biological assessment completed by ODOT determined that no designated critical habitats were found within the project study area. The study lists five species has potentially having habitat within the area. Three of the species are endangered, one is threatened, and one is a candidate. The three endangered species are the black-capped vireo, the whooping crane, and the interior least tern. The threatened species is the piping plover, and the candidate is the sprague's pipit.

3.2 Waters and Wetlands

The potential jurisdictional waters and wetlands study completed by ODOT determined that there are six potentially jurisdictional wetlands within the study are that would be impacted by the proposed improvements. One unnamed creek is shown as a blue line on the USGS map and will therefore be included within the USACE jurisdiction. These locations are shown on the conceptual drawings and the amount of anticipated impacts are summarized in the alternative analysis matrix at the end of this report.

3.3 Historic and Archaeological Resources

A cultural resources study has been completed within an area large enough to incorporate the alternatives presented in this study. In addition to the subject bridge, one concrete box structure and six buildings were documented in the study. All resources were recommended not eligible for inclusion in the NRHP. In addition, the concrete box culvert (NBI 10415) was constructed in 1946 and is not associated with the New Deal Grade Separation Program. It is of common construction and, with the exception of its association with Route 66, is identified as a property that is exempt from review under Section 106, pursuant to the Advisory Council on Historic Preservation's Program Comment for common bridges built after 1945.

3.4 Land Use Impacts

Impacts to residential and commercial property are anticipated to be an issue with improvements to the existing highway. It is anticipated that right-of-way acquisitions would be required for all improvement alternatives. Therefore right-of-way costs have estimated for each alternative and are included in this report.

No properties within the study area were identified as Indian-Owned or Tribal-Owned. Likewise, no military properties, Oklahoma Turnpike Authority (OTA) properties, parks and recreation

areas, wildlife and waterfowl refugees, cemeteries, or Wetland Restoration Program (WRP) sites were identified within the study area.

3.5 Hazardous Materials

According to EDR, Inc. six hazardous waste sites were located within the study extents. Also, six leaking underground storage tank (LUST) sites were located. Five of these six LUST sites are closed, and the other LUST site, which is located near the south end of the study extents, has been removed and backfilled.

According to the Oklahoma Corporation Commission database and research performed by EDR, Inc. no past or present oil or gas activity has taken place in the study area. Also, no well sites were located within 1/8th of a mile of the study area.

The proposed alternatives are not anticipated to impact any of the storage tank or other hazardous waste sites.

3.6 Traffic Accidents

The collision analysis from ODOT shows that 17 accidents were recorded through the study extents from 2006 to 2011. A summary of the significant collision information is shown below:

- No fatalities were recorded from collisions within the study corridor.
- 8 of the 17 collisions were related to the intersection of US-81 and Elm Street at the north end of the study corridor.
- 3 of the 17 collisions were related to the intersection of US-81 and SE 22nd street near the south end of the study corridor.

4.0 PROPOSED ALIGNMENTS

4.1 Introduction

This section of the report will discuss the design criteria used to evaluate each alternative considered for improving this portion of US-81 and the different alignment alternatives that have been considered. The focus is to present the feasibility and prudence of the alternatives.

> An alternative is considered **feasible** if it can be constructed as a matter of sound engineering.
>
> An alternative is considered **prudent** if it satisfies the project's purpose and need, appropriately addresses safety or operational problems, and the social, economic, and environmental impacts, inclusive of those protected under other Federal statues, are justifiable and reasonable in consideration of proposed improvements.

4.2 Design Criteria

The following documents were used to establish the improvements needed through this corridor:

- "A Policy on Geometric Design of Highways and Streets", AASHTO, 2011
- "Highway Capacity Manual, Transportation Research Board, 2010
- "Roadside Design Guide", Fourth Edition, 2011
- "Oklahoma Department of Transportation Roadway Design Manual", 1992

US-81 in Canadian County is designated as a principal arterial and is part of the National Highway System (NHS). The current posted speed limit is 45 miles per hour. The horizontal and vertical alignments of the existing highway will be evaluated for improvements based on a design speed of 45 miles per hour.

4.3 Alignments Considered

The project for the improvement of US-81 begins at the intersection of US-81 and Elm Street in El Reno and continues south and east along US-81 for approximately 0.91 miles. Several alignment alternatives were evaluated and studied. These alternatives are discussed below.

No Improvements to Existing Facility

This alternative studied the feasibility and prudence of making no improvements to the existing highway and bridge. This alternative would leave the existing four lane roadway and bridge in its current condition. Existing horizontal geometry meets current AASHTO criteria. However, only two of the four vertical curves meet current AASHTO criteria for 45 miles per hour. The sag curves on either end of the span bridge each meet AASHTO criteria for only 40 miles per hour, while the two crest curves are sufficient for the desired speed limit.

This option would result in leaving the existing span bridge in place and requires the state to continue to perform maintenance. The bridge was built in 1942, making it over 70 years old and at the end of its expected life. Leaving the bridge in service will require a significant rehabilitation now and a rehabilitation project an average of every ten years in the future. In its current condition the structural deficiencies of this bridge have the potential to cause substantial operational and safety problems as the bridge continues to deteriorate. Leaving this structure in place without improvements would not comply with ODOT's current program to replace or rehabilitate all structurally deficient bridges and those that are "at-risk" of becoming structurally deficient.

Alternative 1: Rehabilitation of the Existing Structure

This alternative studied the feasibility and prudence of rehabilitating the existing bridge without any roadway reconstruction. This alternative would involve rehabilitating the bridge to repair the damaged portions of the bridge and extend the life of the structure. The goal of rehabilitating the structure would be to achieve a National Bridge Inventory (NBI) condition rating that would classify the bridge as being not structurally deficient. In order to address the structural deficiency of the bridge, many of the steel components of the bridge, including many of the diaphragms,

bearings, and portions of the beams would need replaced. A substantial amount of substructure repairs are also necessary. Additionally, a large portion of the deck would need replaced either by Class B and Class C Deck Repair or by replacing the deck entirely.

This alternative would leave the existing, potentially historically significant, bridge in service while extending its life, but will not raise the grade to meet up to date railroad grade separation requirements, nor will it widen the bridge to accommodate shoulders or improved pedestrian access.

The expected service life and NBI condition ratings must be considered before bridge rehabilitation. The reliability of reinforced concrete depends significantly on the rate of corrosion of the reinforcing steel. Due to uncertainties in concrete properties, environmental conditions, and other factors, the rate of corrosion of reinforcing steel can be highly variable, both within a given structural component and over time.

The need for deck patching, or replacement, is almost always caused by chloride-induced corrosion of the reinforcement as a result of the application of winter maintenance deicing salts. Deck patching is a temporary repair unless all the chloride contaminated concrete is removed before the deck is patched. When only the spalled and delaminated concrete is removed, the corrosion process continues and additional spalled areas will soon appear. Research has shown that sealing and overlaying chloride contaminated concrete cannot stop, but it can retard, the continued corrosion and deterioration of the concrete. As a result, the expected service life of concrete bridge decks that have been patched or replaced is generally less than that of a full replacement due to continued deterioration of the deck concrete or other elements of the bridge. The life expectancy of the superstructure and substructure will depend on continued bridge maintenance, primarily that of the deck joints. The following table shows the expected life for the entire structure as a result of the proposed bridge rehabilitation alternatives.

Life Expectancy for Proposed Rehabilitation Alternatives

Type of Rehabilitation	Average Expected Life (Years)	Range of Expected Life (Years)
Deck Repair	7	4 to 10
Deck Replacement	22.5	20 to 25

The NBI condition ratings are subject to the inspector's interpretation of the structure and the rating condition description. The following table shows the expected NBI condition ratings for the proposed bridge rehabilitation alternatives.

NBI Condition Ratings			
	Deck	Superstructure	Substructure
Existing Bridge	4	4	3
Deck Repair	5	6	5
Deck Replacement	8	6	5

Bridge elements with extensive patching typically rate lower than elements with minimal or moderate patching. The bridge substructure is expected to have a rating of 5 (fair condition) after rehabilitation efforts due to the extensive amount of patching and crack sealing required. Since a condition rating of 4 (poor condition) would once again classify this structure as structurally deficient this would be a structure considered "at-risk" of becoming structurally deficient. Therefore, a rehabilitation project would not produce the desired improvements for the structure based on ODOT's current bridge improvement program.

Alternative 2: Construct New Bridge on Existing Alignment

This option would consist of demolishing the existing bridge and constructing a new, shorter bridge along the existing alignment. The existing bridge was designed to carry traffic over three railroad tracks. However, at some point, two of the three tracks were taken offline and removed or never constructed. A newly designed bridge would only have to be designed to overpass one railroad track and the more complex components at pier 4 of the existing bridge would not be necessary for a new structure. Thus, a new bridge on the same alignment would be designed significantly shorter, but at an elevated grade to increase the railroad clearance from the existing clearance of 22'-1" to 23'-10" to meet current ODOT Bridge Division policy. In this alternative, the profile of the new bridge would be raised approximately 4' to meet up to date railroad grade separation requirements and account for the structural depth of the new bridge. The new bridge will allow for an additional track offset 20' from the existing track and a 10' wide access road that the UPRR plans to construct in the future.

The possibility of phasing the construction of a new bridge on the existing alignment was considered in this evaluation. However, because of the long span of the steel bent cap at pier 4 over the existing railroad alignment, it will not be feasible to phase the construction of a new bridge on the existing alignment. Therefore, a shoofly detour to the east of the bridge would be recommended to maintain the flow of traffic while the bridge is under construction. This shoofly would feature an at-grade railroad crossing and would also require temporary right-of-way. The at-grade crossing for the detour is anticipated to consist of a signalized crossing with gates based on preliminary conversations with the UPRR. Closing the road to traffic to reconstruct the bridge and approach roadway is not feasible due to the current ADT and the shortest detour of 13 miles would detour traffic on I-40B and SH 66 through El Reno.

This is a more costly alternative than the rehabilitation option, but long term costs to maintain the bridge would be greatly reduced. A shorter bridge would be easier and less expensive to

maintain throughout its life. Also, reconstruction would extend the life of the bridge significantly more than rehabilitation alone. Shortening the bridge requires approximately 240' of new embankment to be placed for the approach roadway construction. Settlement of the in-situ soils is anticipated when the new embankment is placed which will require time for the settlement to occur before paving the new roadway or the placement of overburden soil on top of the embankment to expedite the settlement. The cost estimates include an overburden earthwork quantity 15' high on top of the final grading surface of the embankment.

Leaving the bridge on its current alignment would help to preserve the historic nature of Route 66 in this area. The reason this particular bridge has high potential NRHP eligibility is due to its age and placement on Route 66. This alternative would leave the existing alignment of Route 66 in place while also removing a structurally deficient bridge from the highway system.

Reconstruction on the existing alignment maintains the highway alignment on the south approach to the signalized intersection at Elm Street and minimizes the amount of new right-of-way and utility impacts for the proposed improvements. This alternative will impact areas of potentially jurisdiction wetlands due to raising the grade of the bridge and approach roadway and the construction of the detour to the east of the highway. The areas of potential wetlands are shown on the attached conceptual drawings and the anticipated areas of impact are shown on alternative analysis matrix at the end of this report.

Alternative 3: Construct New Bridge on Offset Alignment West

This alternative would involve constructing a new bridge structure on a new alignment offset to the west. The new roadway would bypass the existing structure. The existing structure could then be removed or left in place to recognize its historical significance. Leaving the existing structure in place as a monument would leave a severely deteriorated bridge standing above a functioning railroad track. Therefore, future maintenance would be necessary on the structure.

The size and configuration of the existing structure and roadway would require an alignment offset of at least 105' with phased construction to avoid the bridge foundations with the new earthwork embankment. The phased construction for the west offset alignment consists of reducing traffic to the existing northbound lanes of the roadway and bridge and removal of the southbound lanes of the existing roadway and bridge and building the southbound lanes of the new roadway and bridge. This offset would impact potentially jurisdictional wetlands that have been identified to the west of the existing roadway.

A reduced offset of 45' was also considered in order to minimize the footprint of the project. This offset would require the same construction phasing as described above in order to maintain traffic through the project area during construction. This offset would also impact the potentially jurisdictional wetlands to the west of the existing bridge and it would require extensive earthwork around the existing bridge piers and under the pier web walls. The placement of embankment around and under the existing bridge foundations will increase the construction cost

and the likelihood of settlement in the future. Settlement of the in-situ soils is anticipated when the new embankment is placed which will require time for the settlement to occur before paving the new roadway or the placement of overburden soil on top of the embankment to expedite the settlement. The cost estimates include an overburden earthwork quantity 15' high on top of the final grading surface of the embankment.

Building a new bridge on the offset alignment would require a significant right-of-way purchase. The City of El Reno owns and operates a water tower west of the highway, immediately south of the Elm Street/I-40B intersection. It appears that construction of the offset alignment can miss this water tower, however the visibility of the intersection and approaching traffic is limited with an offset to the west.

The new bridge will allow for an additional track offset 20' from the existing track and a 10' wide access road that the UPRR plans to construct in the future.

This alternative would alter the existing alignment of Route 66 slightly, resulting in reverse curves to the north and south of the bridge. To the north of the bridge the reverse curves would extend all the way to the Elm Street intersection.

Alternative 4: Construct New Bridge on Offset Alignment East

This alternative would involve constructing a new bridge structure on a new alignment offset to the east. The new roadway would bypass the existing structure. The existing structure could then be removed or left in place to recognize its historical significance. Leaving the existing structure in place as a monument would leave a severely deteriorated bridge standing above a functioning railroad track. Therefore, future maintenance would be necessary on the structure.

The size and configuration of the existing structure and roadway would require an alignment offset of at least 105' with phased construction to avoid the bridge foundations with the new earthwork embankment. The phased construction for the east offset alignment consists of reducing traffic to the existing southbound lanes of the roadway and bridge and removal of the northbound lanes of the existing roadway and bridge and building the northbound lanes of the new roadway and bridge. This offset would require the placement of new earthwork in an area of standing water that has not been identified as potential jurisdictional wetlands but will increase the costs of construction.

A reduced offset of 45' was also analyzed in order to minimize the footprint of the project. This offset would require the same construction phasing as described above in order to maintain traffic through the project area during construction. This offset will require extensive earthwork around the existing bridge piers and under the pier web walls which will increase the construction difficulty and cost as well as the likelihood of settlement in the future. The area to the east of the existing highway that consists of standing water, and has been identified as potentially jurisdictional wetlands, will also increase the construction difficulty and cost. Significant settlement of the in-situ soils is anticipated when the new embankment is placed

which will require time for the settlement to occur before paving the new roadway or the placement of overburden soil on top of the embankment to expedite the settlement. The cost estimates include an overburden earthwork quantity 15’ high on top of the final grading surface of the embankment.

Building a new bridge on the offset alignment would require a larger right-of-way purchase than if the bridge was reconstructed on the existing alignment. The only potential right-of-way complications to the east of the existing alignment involve a building at the north end of the project and a mobile home park south of the bridge. Preliminary offset alignment drawings show that these structures can be avoided and should not have to be purchased in the right-of-way process, but there may be some cost incurred if the use of one of these properties is impacted by the project, such as reduced parking area or restricted access. An alignment offset to the east results in much better visibility at the intersection of I-40B and Elm Street at the north end of the project than an offset to the east.

The new bridge will allow for an additional track offset 20’ from the existing track and a 10’ wide access road that the UPRR plans to construct in the future.

This alternative would alter the existing alignment of Route 66 slightly, resulting in reverse curves to the north and south of the bridge. To the north of the bridge the reverse curves would extend all the way to the Elm Street intersection. This alternative will impact areas of potentially jurisdiction wetlands. The areas of potential wetlands are shown on the attached conceptual drawings and the anticipated areas of impact are shown on alternative analysis matrix at the end of this report.

5.0 COST ESTIMATES

5.1 Construction Cost Estimates

Construction cost estimates were based upon recent contractor bid prices on similar ODOT highway projects. Unit costs for selected major construction items are shown in the tables below. Future construction costs associated should be adjusted for inflation. The following tables show bridge and roadway construction estimates for each alternative.

5.1.1 Bridge Construction Estimates

Bridge Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Rehabilitate Bridge on Existing Alignment (Deck Repair)				
Item	Unit	Quantity	Unit Price	Cost
Substructure Repair:				
CLSM BACKFILL	C.Y.	190	$150.00	$28,500.00
EPOXY COATED REINFORCING STEEL	LB.	100	$1.65	$165.00
PREPARATION OF CRACKS ABOVE WATER	L.F.	100	$45.00	$4,500.00
EPOXY RESIN ABOVE WATER	GAL.	2	$90.00	$180.00
PNEUMATICALLY PLACED MORTAR	S.Y.	845	$750.00	$633,750.00
CARBON FIBER-REINFORCED PLYMER	S.F.	3,803	$95.00	$361,237.50
CORROSION INHIBITOR (SURFACE APPLIED)	S.Y.	400	$40.00	$16,000.00
Superstructure Repairs:				
(PL)FALSEWORK JACKING	LSUM	1	$40,000.00	$40,000.00
ENGINEERED FALSEWORK	LSUM	1	$200,000.00	$200,000.00
SEALED EXPANSION JOINT	L.F.	608	$260.00	$158,158.00
42" F-SHAPED PARAPET	L.F.	1,075	$60.00	$64,482.00
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA.	144	$1,000.00	$144,000.00
WEATHERING STEEL EXP. BEARING ASSEMBLY	EA.	144	$1,000.00	$144,000.00
EPOXY COATED REINFORCING STEEL	LB.	1,200	$1.65	$1,980.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	1,333	$590.00	$786,470.00
SEALER CRACK PREPARATION	L.F.	61	$5.20	$317.20
SEALER RESIN	GAL.	1	$175.00	$175.00
CLASS B BRIDGE DECK REPAIR	S.Y.	1,863	$280.00	$521,640.00
CLASS C BRIDGE DECK REPAIR	S.Y.	1,374	$380.00	$522,120.00
FENCE - STYLE CLF (5' HIGH, CLASS B)	L.F.	110	$25.00	$2,750.00
REMOVAL OF EXISTING PARAPET	L.F.	1,075	$15.00	$16,125.00
PAINTING EXISTING STRUCTURES	LSUM	1	$50,000.00	$50,000.00
COLLECTION AND HANDLING OF WASTE	LSUM	1	$5,000.00	$5,000.00
COLD-MILLING PAVEMENT	S.Y.	3,178	$4.00	$12,712.00
Approach Slab:				
APPROACH SLAB	S.Y.	347	$175.00	$60,672.50
SAW-CUT GROOVING	S.Y.	347	$6.00	$2,080.20
42" F-SHAPED PARAPET	L.F.	120	$60.00	$7,200.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	57	$4.10	$233.85
REMOVE AND RECONSTRUCT GUARDRAIL	L.F.	200	$13.50	$2,700.00
Roadway:				
BEAM GUARDRAIL W-BEAM SINGLE	L.F.	120	$20.00	$2,400.00
TRAFFIC CONTROL	LSUM	1	$10,000.00	$10,000.00
TRAFFIC STRIPE (PLASTIC)(4" WIDE)	L.F.	2,389	$0.75	$1,791.98
	Total Bridge Construction Estimate			**$3,801,340**

Bridge Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Alternative 1: Rehabilitate Bridge on Existing Alignment (Deck Replacement)				
Item	Unit	Quantity	Unit Price	Cost
Substructure Repair:				
CLSM BACKFILL	C.Y.	190	$150.00	$28,500.00
EPOXY COATED REINFORCING STEEL	LB.	100	$1.10	$110.00
PREPARATION OF CRACKS ABOVE WATER	L.F.	100	$45.00	$4,500.00
EPOXY RESIN ABOVE WATER	GAL.	2	$90.00	$180.00
PNEUMATICALLY PLACED MORTAR	S.Y.	845	$750.00	$633,750.00
CARBON FIBER-REINFORCED PLYMER	S.F.	3,803	$95.00	$361,237.50
CORROSION INHIBITOR (SURFACE APPLIED)	S.Y.	400	$40.00	$16,000.00
Superstructure Repairs:				
(PL)FALSEWORK JACKING	LSUM	1	$25,000.00	$25,000.00
ENGINEERED FALSEWORK	LSUM	1	$200,000.00	$200,000.00
SAW-CUT GROOVING	S.Y.	3,105	$3.75	$11,643.75
SEALED EXPANSION JOINT	L.F.	608	$260.00	$158,158.00
42" F-SHAPED PARAPET	L.F.	1,075	$60.00	$64,482.00
STRUCTURAL STEEL	LB.	45,450	$2.00	$90,900.00
WEATHERING STEEL FIXED BEARING ASSEMBLY	EA.	144	$1,000.00	$144,000.00
WEATHERING STEEL EXP. BEARING ASSEMBLY	EA.	144	$1,000.00	$144,000.00
CLASS AA CONCRETE	C.Y.	697	$500.00	$348,450.00
EPOXY COATED REINFORCING STEEL	LB.	156,040	$1.10	$171,644.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	1,333	$590.00	$786,470.00
SEALER CRACK PREPARATION	L.F.	61	$5.20	$317.20
SEALER RESIN	GAL.	1	$175.00	$175.00
FENCE - STYLE CLF (5' HIGH, CLASS B)	L.F.	110	$25.00	$2,750.00
REMOVAL OF BRIDGE ITEM (TYPE A)	LSUM	1	$50,000.00	$50,000.00
PAINTING EXISTING STRUCTURES	LSUM	1	$25,000.00	$25,000.00
COLLECTION AND HANDLING OF WASTE	LSUM	1	$5,000.00	$5,000.00
Approach Slab:				
APPROACH SLAB	S.Y.	347	$175.00	$60,672.50
SAW-CUT GROOVING	S.Y.	347	$6.00	$2,080.20
42" F-SHAPED PARAPET	L.F.	120	$60.00	$7,200.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	57	$4.10	$233.85
REMOVE AND RECONSTRUCT GUARDRAIL	L.F.	200	$13.50	$2,700.00
Roadway:				
BEAM GUARDRAIL W-BEAM SINGLE	L.F.	120	$20.00	$2,400.00
TRAFFIC CONTROL	LSUM	1	$10,000.00	$10,000.00
TRAFFIC STRIPE (PLASTIC)(4" WIDE)	L.F.	2,389	$0.75	$1,791.98
	Total Bridge Construction Estimate			**$3,359,346**

Bridge Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. All Alternatives New 361' Bridge				
Item	Unit	Quantity	Unit Price	Cost
Abutment:				
SUBSTRUCTURE EXCAVATION COMMON	C.Y.	392	$13.00	$5,090.95
CLSM BACKFILL	C.Y.	416	$200.00	$83,217.52
CLASS A CONCRETE	C.Y.	192	$430.00	$82,723.08
EPOXY COATED REINFORCING STEEL	LB.	25,410	$1.00	$25,410.00
PILES, FURNISHED (HP 10X42)	L.F.	320	$30.00	$9,600.00
PILES, FURNISHED (HP 12X53)	L.F.	1,950	$32.00	$62,400.00
PILES, DRIVEN (HP 10X42)	L.F.	320	$13.50	$4,320.00
PILES, DRIVEN (HP12X53)	L.F.	1,950	$13.00	$25,350.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	100	$4.10	$410.00
6" PERFORATED PIPE UNDERDRAIN ROUND	L.F.	187	$20.00	$3,738.12
6" NON-PERF. PIPE UNDERDRAIN RND.	L.F.	50	$19.00	$950.00
Piers:				
CLASS A CONCRETE	C.Y.	288	$430.00	$123,759.49
REINFORCING STEEL	LB.	2,382	$1.10	$2,620.20
EPOXY COATED REINFORCING STEEL	LB.	50,060	$1.10	$55,066.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	171	$4.10	$700.30
DRILLED SHAFTS 72" DIAMETER	L.F.	120	$800.00	$96,000.00
CROSSHOLE SONIC LOGGING	EA.	6	$1,500.00	$9,000.00
CSL ACCESS TUBES	L.F.	30	$10.00	$300.00
Superstructure:				
SAW-CUT GROOVING	S.Y.	19,419	$4.50	$87,386.00
SEALED EXPANSION JOINT	L.F.	94	$260.00	$24,388.00
42" F-SHAPED PARAPET	L.F.	722	$60.00	$43,320.00
STRUCTURAL STEEL	LB.	1,085,140	$1.50	$1,627,710.00
STAINLESS STEEL FIXED BEARING ASSEMBLY	EA.	21	$2,650.00	$55,650.00
STAINLESS STEEL EXP. BEARING ASSEMBLY	EA.	21	$2,650.00	$55,650.00
CLASS AA CONCRETE	C.Y.	710	$450.00	$319,644.98
EPOXY COATED REINFORCING STEEL	LB.	104,830	$1.00	$104,830.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	1,230	$4.10	$5,041.26
SEALER CRACK PREPARATION	L.F.	94	$4.80	$450.24
SEALER RESIN	GAL.	1	$170.00	$170.00
FENCE - STYLE CLF (5' HIGH, CLASS B)	L.F.	275	$25.00	$6,875.00
Approach Slab:				
APPROACH SLAB	S.Y.	907.7	$175.00	$158,847.50
SAW-CUT GROOVING	S.Y.	715.6	$4.50	$3,220.20
42" F-SHAPED PARAPET	L.F.	252.7	$60.00	$15,160.00
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	279	$4.10	$1,143.90
Earthwork and Grading:				
TEMPORARY EARTH RETAINAGE	LSUM	1	$40,000.00	$40,000.00
Miscellaneous:				
SLOPE WALL (4")	S.Y.	1,455	$70.00	$101,850.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM	1	$200,000.00	$200,000.00
	Total Construction Estimate			**$3,441,993**

5.1.2 Roadway Construction Estimates

Roadway Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Construct New Bridge on Existing Alignment w/ Shoo-Fly Detour				
Item	Unit	Quantity	Unit Price	Cost
Permanent Roadway:				
Excavation	CY	2,532	$5.00	$12,660.00
Borrow	CY	86,140	$8.00	$689,120.00
Overburden Earthwork	CY	6,000	$10.00	$60,000.00
Erosion Control	LSUM	1	$100,000.00	$100,000.00
Drainage Structures	LSUM	1	$10,000.00	$10,000.00
Subgrade Modification	SY	6,370	$5.00	$31,850.00
Asphalt Paving	Ton	3,100	$80.00	$248,000.00
Aggregate Base	CY	1,330	$40.00	$53,200.00
6" Curb and Gutter	LF	2,220	$15.00	$33,300.00
Guardrail	LF	1,200	$20.00	$24,000.00
Striping	LF	11,849	$0.50	$5,924.50
Signing	EA	8	$2,000.00	$16,000.00
			Subtotal	**$1,284,054.50**
Shoo-Fly Detour:				
Excavation	CY	14,000	$5.00	$70,000.00
Borrow	CY	27,875	$8.00	$223,000.00
Erosion Control	LSUM	1	$20,000.00	$20,000.00
Drainage Structures	LSUM	1	$5,000.00	$5,000.00
Asphalt Paving	TON	2,570	$80.00	$205,600.00
Pavement Removal	SY	5,740	$4.00	$22,960.00
Temporary Traffic Control	LSUM	1	$50,000.00	$50,000.00
Temporary Rail Crossing	LSUM	1	$250,000.00	$250,000.00
			Subtotal	**$846,560.00**
	Alternative Total			**$2,130,615**
	15% Contingency			$319,592
	Total Construction Estimate			**$2,450,207**

Roadway Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Construct New Bridge on Offset Alignment - 45' East				
Item	Unit	Quantity	Unit Price	Cost
Roadway:				
Excavation	CY	20,000	$5.00	$100,000.00
Borrow	CY	120,000	$10.00	$1,200,000.00
Overburden Earthwork	CY	15,000	$10.00	$150,000.00
Erosion Control	LSUM	1	$120,000.00	$120,000.00
Drainage Structures	LSUM	1	$10,000.00	$10,000.00
Subgrade Modification	SY	14,140	$5.00	$70,700.00
Aggregate Base	CY	2,950	$40.00	$118,000.00
Asphalt Paving	Ton	6,860	$80.00	$548,800.00
Striping	LF	10,000	$0.50	$5,000.00
Signing	EA	10	$2,000.00	$20,000.00
Temporary Traffic Control	LSUM	1	$50,000.00	$50,000.00
Bridge RCB Extension	LSUM	1	$120,000.00	$120,000.00
	Alternative Total			**$2,512,500.00**
	15% Contingency			$376,875.00
	Total Construction Estimate			**$2,889,375.00**

Additional Paving Estimates

The cost estimates shown below are included to show the estimated cost to reconstruct the existing pavement for the entire length from the US-81/SH-66 intersection just north of I-40 to the south end of the project site. Due to the short project length required to reconstruct the bridge on the existing alignment, there is also a length of additional pavement reconstruction included from the north end of this alternative to the Elm Street intersection.

The additional paving estimates for Alternative 2, Reconstruct the bridge on the existing alignment are shown below.

Roadway Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Additional Paving Reconstruction for Alternative 2 - Reconstruct Bridge on Existing Alignment Reconstruction from north end of project to Elm Street intersection (Length = 480')				
Item	Unit	Quantity	Unit Price	Cost
Excavation	CY	1,000	$5.00	$5,000.00
Pavement Removal	SY	3,520	$4.00	$14,080.00
Drainage Structures	LSUM	1	$13,000.00	$13,000.00
Subgrade Modification	SY	4,270	$5.00	$21,350.00
Aggregate Base	CY	885	$40.00	$35,400.00
Cement Treated Base	SY	3,735	$15.00	$56,025.00
Concrete Paving Placement	SY	3,520	$20.00	$70,400.00
Concrete Paving Materials	CY	975	$120.00	$117,000.00
6" Intetgral Curb	LF	960	$10.00	$9,600.00
Striping	LF	3,500	$0.50	$1,750.00
Signing	EA	2	$2,000.00	$4,000.00
Temporary Traffic Control	LSUM	1	$20,000.00	$20,000.00
Bridge RCB Extension	LSUM	1	$120,000.00	$120,000.00
	Alternative Total			**$487,605.00**
	15% Contingency			$73,140.75
	Total Construction Estimate			**$560,745.75**

Roadway Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Additional Paving Reconstruction for Alternative 2 - Reconstruct Bridge on Existing Alignment Reconstruction from south end of project to US 81 intersection (Length = 5600')				
Item	Unit	Quantity	Unit Price	Cost
Excavation	CY	9,902	$5.00	$49,510.00
Pavement Removal	SY	35,540	$4.00	$142,160.00
Drainage Structures	LSUM	1	$30,000.00	$30,000.00
Subgrade Modification	SY	37,120	$5.00	$185,600.00
Aggregate Base	CY	7,985	$40.00	$319,400.00
Asphalt Paving	Ton	19,900	$80.00	$1,592,000.00
6" Curb and Gutter	LF	11,200	$15.00	$168,000.00
Striping	LF	17,920	$0.50	$8,960.00
Signing	EA	10	$2,000.00	$20,000.00
Temporary Traffic Control	LSUM	1	$50,000.00	$50,000.00
Bridge RCB Extension	LSUM	1	$120,000.00	$120,000.00
	Alternative Total			**$2,685,630.00**
	15% Contingency			$402,844.50
	Total Construction Estimate			**$3,088,474.50**

The additional paving estimate for Alternative 4, reconstruct the bridge on an offset alignment 45’ to the east of the existing are shown below.

Roadway Construction Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Additional Paving Reconstruction for Alt. 4 - Reconstruct Bridge on Offset Alignment (45' East) Reconstruction from south end of project to US 81 intersection (Length = 5600')				
Item	Unit	Quantity	Unit Price	Cost
Excavation	CY	7,900	$5.00	$39,500.00
Pavement Removal	SY	28,432	$4.00	$113,728.00
Drainage Structures	LSUM	1	$30,000.00	$30,000.00
Subgrade Modification	SY	29,700	$5.00	$148,500.00
Aggregate Base	CY	6,400	$40.00	$256,000.00
Asphalt Paving	Ton	15,920	$80.00	$1,273,600.00
6" Curb and Gutter	LF	8,960	$15.00	$134,400.00
Striping	LF	14,400	$0.50	$7,200.00
Signing	EA	10	$2,000.00	$20,000.00
Temporary Traffic Control	LSUM	1	$50,000.00	$50,000.00
	Alternative Total			**$2,072,928.00**
	15% Contingency			$310,939.20
	Total Construction Estimate			**$2,383,867.20**

5.2 Right-of-Way/Property Cost Estimates

Right-of-way cost estimates were prepared by using average unit price of $2,500 per acre of permanent right-of-way and $1,500 per acre of temporary right-of-way. The following tables show estimated right-of-way and associated costs required through the corridor for the alternatives considered. The rehabilitation alternative requires no additional right-of-way acquisitions.

Right of Way Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Alternative 2: Construct New Bridge on Existing Alignment (Shoo-Fly Detour)						
Work Description	Temporary R/W (Acres)			Permanent R/W (Acres)		
	Quantity	Unit Price	Cost	Quantity	Unit Price	Cost
Mainline & Detour Alignments	0.3	$1,500.00	$450.00	1.3	$2,500.00	$3,250.00
					Total R/W Estimate	**$3,700.00**

Right of Way Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Alternative 4: Construct New Bridge on Offset Alignment East (45')						
Work Description	Temporary R/W (Acres)			Permanent R/W (Acres)		
	Quantity	Unit Price	Cost	Quantity	Unit Price	Cost
New Alignment	0	$1,500.00	$0.00	3.00	$2,500.00	$7,500.00
Total R/W Estimate						**$7,500.00**

5.3 Utility Cost Estimates

Most utilities located within the present right-of-way will be relocated at the owner's expense. Existing sanitary sewer line crossings, one under the existing bridge and one south of the bridge are not anticipated to be impacted by construction operations and are not included for relocation. The tables below summarize the anticipated utility relocation costs for each alternative considered. The rehabilitation and west offset alternatives are not anticipated to require any additional costs for utility relocations.

Utility Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Alternative 2: Construct New Bridge on Existing Alignment (Shoo-Fly Detour)				
AT&T Underground Telephone Line				
Station to Station	Description	Relocation Length (ft)	Cost per foot	Cost
112+00 to 121+50	TUG	960	$8.00	$7,680.00
OG&E Overhead Electric Line				
Station to Station	Description	Relcoated poles	Cost per pole	Cost
121+00 to 123+00	OHE	3	$2,150.00	$6,450.00
			Total Utility Estimate	**$14,130.00**

Utility Estimate EC-1408 I-40B/US-81 El Reno, Canadian Co. Alternative 4: Construct New Bridge on Offset Alignment East (45')				
AT&T Underground Telephone Line				
Station to Station	Description	Relocation Length (ft)	Cost per foot	Cost
112+00 to 121+50	TUG	960	$8.00	$7,680.00
OG&E Overhead Electric Line				
Station to Station	Description	Relocated poles	Cost per pole	Cost
121+00 to 122+65	OHE	2	$2,150.00	$4,300.00
			Total Utility Estimate	**$11,980.00**

5.3 Alternative Analysis Matrix

Alternative Comparison Matrix				
Item	**Alternative 1: Rehabilitate Existing Structure (Deck Replacement)**	**Alternative 2: Construct New Bridge on Existing Alignment**	**Alternative 3: Construct New Bridge on Offset Alignment (45' West)**	**Alternative 4: Construct New Bridge on Offset Alignment (45' East)**
Design Criteria	None	AASHTO	AASHTO	AASHTO
Roadway Construction Length (miles)	0.00	0.20	0.43	0.42
Bridge Length (LF)	537	300	300	300
Estimated Right-of-Way (AC)	0	1.60	5.35	3.00
Property Impacts (EA)	None	None	None	None
Hazardous Waste Impacts	None	None	None	None
Cultural Resource Impacts	None	High	High	High
Endangered Species Impacts	None	None	None	None
Jurisdictional Waters/Potential Wetlands Impacts (AC)	None	1.31	0.97	1.12
Roadway Construction Estimate	$0	$2,450,207	$2,889,375	$2,889,375
Bridge Construction Estimate	$3,359,346	$3,441,993	$3,441,993	$3,441,993
Right-of-Way Estimate	$0	$3,700	$11,075	$7,500
Utility Estimate	$0	$14,130	$0	$11,980
Total w/o Additional Paving Cost	**$3,359,346**	**$5,910,030**	**$6,342,443**	**$6,350,848**
Additional Paving Reconstruction Estimate (Optional)	$0	$3,649,221	$2,383,867	$2,383,867
Total with Additional Paving Cost	**$3,359,346**	**$9,559,251**	**$8,726,310**	**$8,734,715**

6.0 CONCLUSION & RECOMMENDATION

This study has considered the options available to improve or replace the existing bridge that carries US 81 traffic over the Union Pacific Railroad in El Reno. The options considered are rehabilitation of the existing structure, reconstruct the bridge on the existing alignment, reconstruct the bridge offset to the west, and reconstruct the bridge offset to the east.

Due to the amount of deterioration of the bridge, rehabilitation is a costly option and would not extend the life of the structure substantially. The bridge would still be considered 'at-risk' of becoming structurally deficient due to the amount of patching and repairs required for the substructure. The vertical clearance of the bridge over the railroad does not meet Union Pacific or ODOT requirements and is not improved with the rehabilitation option. Rehabilitation of the bridge does not accommodate the UPRR's plans to add an additional track and access road in the future.

The recommended alternative to replace the existing bridge over the railroad at this location is to reconstruct the bridge on the existing alignment and shorten it from the current bridge length of 537' to approximately 361'. The proposed bridge accommodates the UPRR"s plans for a future track offset 20' from the existing track and a 10' wide access road. This alternative includes a temporary detour shoo-fly and an at-grade railroad crossing to maintain traffic during construction of the new bridge and approach roadway. The at-grade crossing for the detour is anticipated to consist of a signalized crossing with gates based on preliminary conversations with the UPRR. The detour allows the existing bridge to be removed and reconstructed in one construction phase. It avoids phased construction of the new bridge, phased deconstruction of the existing bridge, and placement of the new roadway embankment around the existing bridge piers and under the existing pier web walls.

It is not recommended to leave the existing bridge in place as a historic monument due to its advanced deteriorated condition and future maintenance and repairs that would be required to keep it in place, the insufficient vertical clearance from the railroad, and insufficient horizontal clearance to the existing bridge piers upon completion of a future track parallel to the existing track. The art deco-style concrete and steel railing system on the pedestrian walkways is a major element of the bridge that contributes to its NRHP eligibility. This railing can be rehabilitated and incorporated into the reconstruction of the a new bridge that will improve the safety and continuity of this transportation corridor and reduce future maintenance costs.

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June 19,2014

Mr. Daniel Nguyen
Project Management Division
Oklahoma Department of Transportation
200 N.E. 21st Street
Oklahoma City, OK 73105

RE: EC-1408B, JP No. 27004(04)
I-40B/US 81 over the Union Pacific Railroad – Preliminary Study Review Meeting

Dear Daniel,

A meeting to discuss the preliminary study for the subject project was held at the ODOT central office on May 20, 2014. Representatives from ODOT Environmental Programs, ODOT Division 4, FHWA, and CEC were present at the meeting. A summary of the items discussed at the meeting is included below:

1) Specialist studies are complete and the design process can begin when the preferred alignment is selected.
2) ODOT Division 4 has no interested in trying to rehabilitate the bridge due to its deteriorated condition.
3) Division 4 desires for design to proceed so the deteriorated bridge can be replaced.
4) CEC will submit a revised report and conceptual drawings to include a minimum offset to the east to build half of the new roadway and bridge in the initial phase while traffic is maintain on the existing roadway and bridge. The feasibility of this option will determine the final alignment of the new construction.
5) ODOT Rail Division will coordinate with BNSF to determine the current and future rail use and if space is needed for a future track.
6) Placement of the traffic barrier between the lanes and the sidewalk and placing a decorative barrier at the outside of the bridge will be considered if necessary due to Route 66.
7) Division 4 expressed a desire to lengthen the project to reconstruct more of the roadway pavement due to its deteriorated condition.
8) The revised report will include additional discussion of the following:
    a. The anticipated design life for the bridge rehabilitation option
    b. Reasons why the bridge can't be left in place.
    c. Explanation of the need to maintain traffic through the construction zone rather than providing an alternate detour route.
    d. Supporting information for the elimination of the other alternatives in the report.

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9) The following anticipated schedule was discussed:
   a. Stakeholder meeting potentially in August
   b. 60% design plan submittal in January 2015.
   c. R/W plan submission mid-2015.
   d. Letting in 2017.

If there are any questions or comments pertaining to the discussion items listed above please contact us as soon as possible.

Sincerely,

CEC // INFRASTRUCTURE SOLUTIONS

J. Taylor Barnes, P.E.

Enclosures