PROGRAMMATIC SECTION 4(f) EVALUATION OF THE PROPOSED BRIDGE REPLACEMENT ON US 83 AT SALT FORK OF RED RIVER IN COLLINGSWORTH, COUNTY, TEXAS CHILDRESS DISTRICT CSJ 0031-03-029

Texas Department of Transportation

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TABLE OF CONTENTS

US 83 Programmatic Section 4(f) Evaluation

TABLE 1: Programmatic Section 4(f) Evaluation Alternatives Comparisons Chart

Appendix A – Location Maps and Schematics
Appendix B – Site Photographs
Appendix C – Comparative Data
THC Historic Sites Atlas Data
Parker Through Truss Census Map
Parker Through Truss Census Data
Appendix D – Excerpts from: *On-System Historic Metal Truss Bridge Task Force Final Report,* April 25, 2002
Appendix E – Maintenance Issues
Cathodic Protection Efforts
Wellington Maintenance Section Supervisor Email
Deicer Chemical Comparison Table
Comparison of Maintenance Expenses for Selected On-System Trusses
Maintenance Expenses for US 83 at Salt Fork Red River Bridge Breakdown
FHWA Documents Concerning the 10 year Rule
SH 203 Maintenance Plan and Rehabilitation Funding
Appendix F – Cost Analysis
Statement of Cost Effectiveness of Widening SB Bridge
Cost Estimates for Alternative 3a (Pedestrian Use) Options
Cost Comparisons for Alternatives 3b and 4
Truss Relocation Cost Estimate
Relocation Map
Appendix G – Consultation
SHPO Coordination
-March 2005
-February 22, 2010
-March 24, 2010
OTHM Relocation Coordination
Table 4 Consulting Party Comment Tracking Table, October 2010
Appendix H – Marketing Activities
Appendix I –
Safety Conflicts: 2005 Scenic By-Pass Design graphic
US 83 Programmatic Section 4(f) Evaluation, September 2004

Programmatic Section 4(f) Evaluation for a Historic Bridge
County: Collingsworth
CSJ: 0031-03-029
Structure Number: 25-044-0-0031-03-002
Highway: US Highway 83
Limits: At Salt Fork Red River

INTRODUCTION

The Texas Department of Transportation (TxDOT) Childress District is proposing to replace the existing National Register Listed United States Highway (US) 83 Bridge over the Salt Fork Red River (see Figures 1 - 4 in Appendix A and Figures 1 - 18 in Appendix B). The preferred alternative would not require any new right-of-way (ROW) or easements.

This analysis is undertaken in compliance with 23 CFR 774 which implements 23 U.S.C. 138 and 49 U.S.C. 303. The regulation states that:

> The Administration may not approve the use, as defined in §774.17, of Section 4(f) property unless a determination is made under paragraph (a) . . .
>
> (a) The Administration determines that:
>
> (1) There is no feasible and prudent avoidance alternative, as defined in §774.17, to the use of land from the property; and
>
> (2) The action includes all possible planning, as defined in §774.17, to minimize harm to the property resulting from such use; . . .

At §774.17, the regulation defines *Feasible and prudent avoidance alternative* as

> (1) A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.
>
> (2) An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.
>
> (3) An alternative is not prudent if:
>
> (i) It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
>
> (ii) It results in unacceptable safety or operational problems;
>
> (iii) After reasonable mitigation, it still causes:

(A) Severe social, economic, or environmental impacts;

(B) Severe disruption to established communities;

(C) Severe disproportionate impacts to minority or low income populations; or

(D) Severe impacts to environmental resources protected under other Federal statutes;

(iv) It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;

(v) It causes other unique problems or unusual factors; or

(vi) It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

Throughout the following alternatives analysis, reference to the above definition of a prudent alternative will be made thus (3)(i), (3)(iii)(C), or (3)(vi).

While this alternatives analysis was conducted under the above cited statutes and regulations and with FHWA's policy papers, project planning was also conducted concurrently with the National Environmental Policy Act (NEPA) process.

Description of the Bridge

The US 83 Bridge at Salt Fork Red River is a complex structure built in 1939 by the Texas Highway Department (THD). The bridge is comprised of three main components: the main spans and the south and north approach spans. The main spans of the bridge are three riveted steel, Parker through-truss spans, each measuring 179.67 feet long. The superstructure of the south approach span consists of steel I-beams while the north approach consists of a steel three girder system. The five south approach spans are each 28.50 feet in length with a timber piling substructure and steel channel bent caps. The south approaches pre-date the rest of the structure by approximately seven years. The three north approach spans (40-foot, 60-foot, and 40-foot) feature a substructure of steel pilings with concrete bent caps. Reconstruction of the north approach spans occurred after a fire in 1949 destroyed the original timber bents and steel I-beam spans. The substructure of the main truss spans are concrete pier walls. The horizontal clearance at the trusses is 27 feet and the vertical clearance at the center of the north bound portal is 15.50 feet.

Site Conditions

US 83 is classified as a Rural Minor Arterial on the Texas Highway Trunk System (43 TAC Chapter 15, Subchapter D and TXDOT Transportation Planning and Programming Statewide Planning Map). The Trunk System is a network of rural four lane or better divided highways intended to connect all Texas cities over 20,000, major ports, and major ports of entry. In establishing the selection criteria, the Texas Legislature gave

priority to, among other considerations, maximizing use of existing four-lane divided highways, connecting with major roadways to adjacent states, and major truck routes. The Trunk system is aspirational in that a four-lane divided cross-section is the goal and that it is not consistent with the intent of the legislation for designated trunk roads to regress. In the case of the section of US 83 on either side of the Salt Fork Red River, the roadway was divided in 1973-74. The original roadway is the northbound side. It consisted of a 20 foot wide concrete pavement. The then District Engineer wanted to widen the pavement to make it safer for the types traffic using US 83 at the time. However widening the pavement and adding 10 foot shoulders would not do much, because there would still be a bottleneck at the truss bridge. The truss bridge could not be widened nor the overhead height raised. So the decision was made to divide the highway from Lutie, south to approximately 1.2 miles north of SH 203. This way there would be a widened section for the southbound traffic and a widened section for the northbound traffic. The northbound lanes were widened from 20 feet to 38 feet in 1978.

US 83 runs from the Texas/Oklahoma border near Perryton, Texas south to the Gateway International Bridge that crosses the Rio Grande in Brownsville, Texas. Within the proposed project area in Collingsworth County, US 83 is a four-lane divided facility with a 38-foot wide paved surface on both the northbound and southbound lanes with a 75-foot median (see Figures 1 and 2 in Appendix B). The exception to that design is on the northbound lanes at the existing historic bridge over the Salt Fork Red River, where the roadway narrows to a single 14-foot lane with a 6-foot outside shoulder and a 4-foot inside shoulder as it enters the truss bridge (see Figure 3 in Appendix B). According to the TxDOT 2008 Childress Traffic Analysis, the facility carries an average daily traffic (ADT) volume of 1,800 vehicles per day, with 39.3% truck traffic. It is projected to increase to 2,400 vehicles per day by 2024 and to 2,500 vehicles by 2028. The existing Parker through-truss bridge is located approximately six miles north of Wellington, Texas, in a rural area where the crossing is routinely used for large agricultural equipment. The bridge is owned and maintained by TxDOT.

North of Wellington, US 83 begins a gradual, 234 foot, decent over the course of two and a half miles to the bottom of the Salt Fork valley. The highway emerges from a broad curve approximately 0.52 miles south of the river to make its final approach to the bridge. Almost immediately (0.06 miles, 318 feet) north of the truss bridge is a median crossover that provides access to a joint TxDOT rest stop / county park. The curve, the decent into the valley, the traffic conditions, and the location of the park entrance represent multiple factors that combine with the design and condition of the historic truss bridge to create “unique problems.” An alternative is not prudent under 23 CFR 774.17 if it “involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems . . .”

In February 2010, a four foot hole opened in the deck. An investigation to repair the hole took place. District maintenance forces chipped and hammered at the surrounding deck concrete to locate a stable concrete section, which could be used to place new steel and concrete to repair the hole. The surrounding concrete, however, was easily cracked and was removed with a hammer. The deck reinforcing steel had had areas of significant section loss likely due to the continuous salting of the roadway and deck during icy conditions over the years since the structure was constructed in 1939. Ultimately, it was determined that there was not a suitable location to anchor the repair and that the

required repairs would be outside the scope of a routine maintenance contract. TxDOT's Bridge Division recommended the bridge be permanently closed and TxDOT's Childress District did so February 19, 2010. Northbound traffic was shifted to the existing southbound bridge. A 34.2 mile detour for oversized (80,000 pounds or greater) and over width (14 feet or wider) loads is now in place. See Detour map in Appendix A and Figures 23 - 27 in Appendix B.

Since the bridge has been closed, three accidents have occurred within the detour around the truss bridge. On May 28, 2010, a rural mail carrier was traveling north bound on US 83 along the closed section of the roadway. The driver was distracted by an animal in the adjacent field, crashed into the concrete barrier and spun the vehicle around. The driver was transported by ambulance to the Collingsworth General Hospital. On January 6, 2011, a pickup truck was traveling south bound through the detour loaded with a round bale of hay. The vehicle started the climb up the hill (south of the bridge) when the driver lost control, climbed the concrete barrier, and flipped the vehicle. No one was injured. In April 2011, a tow truck hauling heavy agricultural equipment jumped the concrete barrier and travel 600 feet. No one was injured.

Proposed Project

TxDOT proposes to demolish the existing truss bridge and construct an 850-foot long bridge on the existing northbound alignment. It would feature nine 95-foot spans formed by TX40 pre-stressed concrete girders resting bent caps supported by 36-inch concrete columns and drilled shafts. The overall width of the proposed bridge would be 40 feet, with a 38-foot roadway surface of two 12-foot travel lanes, a 10-foot outside shoulder and a 4-foot inside shoulder. The deck would be concrete cast-in-place with a Type T202 (SPL) rail.

If funding from an outside source was available, TxDOT would be willing to relocate the bridge, a truss, or a piece of a truss to another location. Previous cost estimates by the TxDOT Bridge Division, show that relocating one span of the truss to Pioneer Park as a monument would cost approximately 1.5 million. This cost estimate does not include any rehabilitation work such as stabilization repairs, lead removal, or painting. See Appendix F for Rehabilitation as Monument in Park and Location Options map. Relocation could be accomplished in a way that would cause minimal damage to the roadway. Also, US 83 would be closed for 1-4 hours to cross the southbound lanes and make the turn into the park. No core logs were done at the potential locations of a truss in the park, but could be obtained if this became a viable option.

NATIONAL REGISTER ELIGIBILITY

A review of the National Register of Historic Places (NRHP), the list of State Archeological Landmarks, and the list of Recorded Texas Historic Landmarks and a site visit indicated that one historically significant resource is located within the area of potential effects. The US 83 at the Salt Fork Red River Bridge was listed on the NRHP in 1996.

The 827-foot, three-span Parker through-truss on US 83 at the Salt Fork Red River was built in 1939. The Texas Highway Department designed the bridge and contracted its

construction through the Pittsburgh-Des Moines Steel Company. The bridge's defining characteristics are:

-State Highway Department-designed Parker through trusses,
-open steel railing, and
-approach spans from an earlier bridge (including its original timber bents) erected in the same location.[1]

The bridge is historically significant under Criterion C for embodying the defining characteristics of a THD truss bridge and as an example of a bridge employing "technically complex, advanced or innovative designs or construction methods." As such the bridge meets National Register Criterion C in the area of Engineering at a state level of significance. See Appendix C for summary National Register of Historic Place data and nomination.

Currently there are 32 extant Parker through-trusses in the state. Of these, 26 are listed or eligible for listing on the NRHP. See Appendix C for a table and a map listing all known Parker through trusses constructed in Texas.

NEED AND PURPOSE

Need for the Project

Large farm equipment and heavy trucks cannot use the existing historic bridge, which services a US highway in the Texas Highway Trunk System, in its current condition and outdated design. It currently has a sufficiency rating of 21.20 out of a possible 100. The bridge has become a safety hazard, and through traffic has had to be rerouted, with detours adding many miles to trips.

Purpose of the Project

The purpose of this project is to provide a safe and efficient crossing of US 83 over the Salt Fork Red River by meeting all design standards with respect to lane width and load carrying capacity appropriate to US 83's designation as a component of the trunk system.

Project Objectives

1. To provide safe and efficient crossing of US 83 over the Salt Fork Red River

2. To address the historic character of the existing bridge, which is listed on the National Register of Historic Places

[1] Under Section 106 of the National Historic Preservation Act (NHPA) implemented by 36 CRF 800, unsympathetic repair, alteration, or removal of those features that make a resource NRHP eligible (*i.e.* characteristics defining) constitutes an adverse effect. Deck systems on *truss* bridges, including deck surface materials, stringers, floor beams, and lateral bracing are generally not considered contributing features. This is because deck components rarely reach any meaningful level of engineering complexity and because some were intended to be replaced.

Background on Safety Issues

Bridge Closed

Currently, the truss structure is closed to through traffic due to a failure in the bridge deck. The south bound structure accommodates both north and south bound traffic. Oversized loads (80,000 pounds or greater) and over-width loads (14-foot or wider) are diverted around the crossing along a 34.2 mile detour.

Accidents

Since the bridge has been closed, three accidents have occurred within the detour around the truss bridge. On May 28, 2010, a rural mail carrier was traveling north bound on US 83 along the closed section of the roadway. The driver was distracted by an animal in the adjacent field, crashed into the concrete barrier and spun the vehicle around. The driver was transported by ambulance to the Collingsworth General Hospital.

On January 6, 2011, a pickup truck was traveling south bound through the detour loaded with a round bale of hay. The vehicle started the climb up the hill (south of the bridge) when the driver lost control, climbed the concrete barrier, and flipped the vehicle. No one was injured. There are safety issues with the current condition (i.e. truss closed, NB traffic sharing the SB bridge) and also with the crossing before the truss was closed.

A third accident happened in April 2011. A towing truck hauling a combine header got a too close to the concrete traffic barrier, jumped it, and rode it for about 600 feet. No injuries were reported. See Figure 32 in Appendix B.

Functional Deficiencies

The bridge is functionally obsolete as it does not meet width specifications for two-lane traffic. Any proposed project would need to eliminate the rerouting of legal sized and weight permitted loads that the trunk system was designated to carry. The project must also allow for essential vehicles in the area, such as large farm equipment, recreational vehicles (RVs) and tractor trailers, to utilize the crossing. Northbound travelers require safe access to the rest stop and the county park northwest of the crossing while ensuring safe passage of northbound travelers who do not use the rest stop.

Structural issues include an inventory load rating of HS 10.0 controlled by substantial section loss in the floor beams and deterioration in the bottom chords.[2] Current bridge standards require a legal load carrying capacity of HS 20 for all structures located on-system. Additional structural problems include, but are not limited to: the south approach timber bents located at the south approach, which have experienced section

[2] In 1977 FHWA funded a nationwide demonstration project that installed a cathodic protection system in the deck. The system included sacrificial anodes consisting of steel disks. A negative charge was induced on the anodes and a positive charge was induced on the deck with the intent of reversing corrosion of the deck's reinforcing bars. The installation was regularly monitored for seven to eight years until it was damaged by a flood. (Donald R. Jackson, *Interim Report Demonstration Project No. 34: Cathodic Protection for Reinforced Concrete Bridge Decks* (Arlington, VA: Federal Highway Administration: 1982) copy in Appendix E; Oral interview of Willie Gragson, Project Manager Wellington Area Office and Dannie Tiffin, District Electrician, by Marty Smith on March 1, 2011.)

loss in both the piles[3] and steel caps; the north approach concrete approach bents, which have major deterioration including delaminated concrete and exposed reinforcement; and the condition of the entire bridge deck, which has transverse and longitudinal cracks, efflorescence, and concrete spalling.

The bridge is located on a roadway designated as part of the Texas Highway Trunk System. Current features include a horizontal roadway clearance of 24 feet and a vertical clearance of 15.50 feet at the centerline and 14.25 feet at each end of the bridge portals with a 38-foot roadway approach width.[4] The Texas Highway Trunk System section of the Transportation Planning Manual (Section 6) indicated that the "minimal design criteria for this network specify that each highway should be at least a four-lane divided facility." This section of US 83 is a rural four-lane divided highway, except at the northbound bridge crossing of the river. The Roadway Design Manual specifications call for minimum 12' lanes with an additional 6' for safe zone such as shoulders. Two such lanes total 24' and would put the lane line right next to the curb and bridge rail. From driver psychology, truss protection, and design standards perspective, the geometry of the trusses limits the structure one-lane. The northbound two-lane section is stripped to converge the roadway at the existing historic bridge into a single 14-foot lane with a 6-foot outside shoulder and a 4-foot inside shoulder.

Oversized Loads

Due to the below-standard horizontal clearance, large vehicles (such as farming equipment) and oversized loads traveling north routinely cross the median to the south bound bridge to travel north, creating a safety issue. US 83 is a major route for the wheat harvest. Wheat-cutting crews travel from Texas to Oklahoma, Kansas, and Nebraska, pass through Collingsworth County. The combines are very wide and they have difficulty making it through the truss structure. With each crew there will be up to 5 or 6 combines plus travel trailers and grain hauling trucks. See Figures 28 – 30b in Appendix B of such equipment observed in the Childress District in May 2010. Figures 31 - 31a in Appendix B show a wind turbine component in July 2010 using the current detour around the US 83 truss. A specific example of the larger farm equipment that utilizes this crossing can be seen in the lower left hand corner of Figure 1 in Appendix B. That particular type of equipment is a swather (also known as a windrower) that is a self-propelled harvester with a fixed cutting header. Case IH manufactures swathers with headers that range from 18 feet wide to 35 feet wide. Widths 24 to 35 feet can not transverse the existing bridge.

Heavy loads such as wind turbines are damaging the FM roads that make up the larger part of the route detour. The detour also increases the transportation costs for detoured

[3] The timber planks around the four timber bents were removed during the inspection conducted on April 23, 2010. The soil was excavated to approximately 5-ft below the ground line at bents two and four (Removing additional soil around the bents would be dangerous for both the workers and the structure). Pile cores taken below the ground line showed that 95% of the original timber was still intact. The pile cores taken above the ground line showed between 9% - 73% section loss and had the appearance of being dry, split and checked.

[4] See figures 42-44 in Appendix B for photographs of damage to the upper truss bracing. The TxDOT *Bridge Design Manual* specifies 16'-6" for all roadway grade separation vertical clearance if possible and is mandatory for all new construction over interstate highways. The *Manual* also indicates that 14'-6" is the absolute minimum in these situations.

traffic. This situation, in the past, has led to similar equipment crossing the median and using the southbound bridge for northbound travel.[5] Although there is no documentation for the number and frequency of such equipment utilizing the project roadway, the photograph in Appendix B illustrates that similar equipment uses the crossing. The current detour route for oversized and over width loads from Wellington to Shamrock is 34.2 miles long and adds 22.9 miles to north bound travel. For continued use, the fully restored bridge would require extensive rehabilitation and still fail to meet both the design specifications and the geometric criteria for a Rural Minor Arterial on the Texas Highway Trunk System.

Park Access

Located on the north bank of the river and west of the travel lanes is Pioneer Park, a Collingsworth County maintained recreational area. Adjoining the park is a rest area constructed and maintained by TxDOT (see maps in Appendix A and Figures 19 through 21 in Appendix B). The rest area is provided by TxDOT as a service for the traveling public and the park is utilized by campers with RVs and trailers. The TxDOT Childress District office has observed a substantial usage of the rest area and park averaging 131 vehicles per day according to a recent informal traffic study.[6] Maintaining access is essential for continued service to the traveling public. Currently, northbound traffic accesses the park by using the existing crossover just north of the two existing bridges. The proposed project should continue to allow for northbound traffic to utilize the TxDOT rest area and the county park in a safe manner.

Reduced Sight Lines

Several independent factors including the upper lateral bracing of the historic truss, the cross-over to the park about 0.06 miles (318 feet) north of the bridge, the sloping approach to the northbound bridge, the vehicular speeds, and the high percentage of truck traffic combine to create an undesirable safety issue. For northbound travel, safety issues include both sight and stopping distances along with at-grade crossing of southbound traffic entering the area. Sight distance and acceleration distance along with at grade crossing of the south and northbound travel are safety issues for northbound traffic exiting the rest area. The top bracing obscures the brake lights of vehicles decelerating on the one-lane truss bridge that are preparing to turn left into the park from high speed vehicles descending US 83 to the truss. As a result, the driver of a semi-trailer truck approaching the bridge cannot see or judge slowing traffic on the bridge. Numerous skid marks on the pavement in the area of the truss attest to the resulting sudden braking actions (see Figure 3 in Appendix B). A new multi-lane bridge without top bracing would reduce the safety risks associated with sight distance for traffic decelerating to enter the park. Similarly, a new multi-lane bridge without vertical truss elements would reduce the safety risks currently caused by the trusses obscuring high

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[5] Eyewitness accounts from a former maintenance supervisor suggest that on average 2 times per month an oversize vehicle would detour onto the southbound bridge to by pass the truss structure. Sometimes this happens legally (with proper traffic control) and sometimes illegally. Wind power components generally only require 14.40 feet of clearance. Also see Appendix E for an email from the current Wellington Maintenance Section Supervisor.

[6] The study's findings are thus: Thursday, May 27, 2010 - 66 vehicles; Friday, May 28, 2010 - 160 vehicles; Saturday, May 29, 2010 - 154 vehicles; Sunday, May 30, 2010 - 203 vehicles; Monday, May 31, 2010 - 102 vehicles; Thursday, June 10, 2010 - 39 vehicles; Friday, June 11, 2010 - 97 vehicles; Saturday, June 12, 2010 - 156 vehicles; Sunday, June 13, 2010 - 78 vehicles.

speed traffic on the existing bridge from northbound traffic accelerating upon leaving the rest stop. See Figures 4a-b in Appendix B.

Structural Deficiencies

An engineering analysis of the bridge determined the bridge structurally deficient with a sufficiency rating of 21.20 out of a possible 100. When the bridge was closed, it was load posted for a gross 18,000 pounds single/tandem axle. The truss bridge has an inventory load rating of HS 10.0, which is below the HS 20 criteria for on-system bridges.

The engineering analysis included the following discussion of deficiencies. The controlling members of the truss are the floor beams, which require significant rehabilitation or replacement. Four of the floor beams (as well as two stringers) are in need of immediate attention, as these structural members have localized areas of 100% section loss. The section loss in the shear region is as great as 65%. Floor beam repair is a labor-intensive process and would require complete demolition of the concrete deck, given its poor condition, as well as partial dismantling of the truss. Because the floor beams, stringers and concrete deck are not a composite structure, they do not act as a single element. If a floor beam were to fail, sections of the concrete deck would fall into the river. The bearings locked up and do not allow the proper transfer of the loads from the superstructure to the substructure. In addition, the failed bearings do not allow the structure to expand and contract as needed with the changing temperatures. Retrofitting of the north approach spans with temporary supports was necessary due to the failed bearing and failed joints. The batten plates and lower gusset plates on the trusses experienced section loss as well and are in need of repair or replacement. Deterioration of the truss can also be attributed to bearing failure which resulted in cracks in the bottom chord channels. The new 4 foot hole in the bridge's road surface demonstrates the seriousness of this issue. Many of these issues trace back to the once use of sodium chloride as a deicer during a period when there were no other options.[7] The salt damage is so extensive that it extends to the reinforcing steel deep in the deck slabs.

Other Environmental Impacts

The US 83 crossing of the Salt Fork Red River involves other potential environmental impacts that need to be considered besides historic structures. These include removal of mature trees, potential impacts to threatened and endangered species including the Interior Least Tern, and water quality of the Waters of the U.S. As explained below in the Alternatives Analysis section, there are only minor differences between the alternatives with respect to other environmental impacts.[8]

MAINTENANCE PRACTICE

[7] The US 83 Bridge is a bridge on minor rural arterial in a section of Texas that has severe winters. As such TxDOT has to use some method to keep the bridge open in winter. As the Chemical Composition Table in Appendix E shows, three deicers were available before 1990. Calcium chloride is more corrosive than sodium chloride. Potassium acetate is very expensive. It can also lead to alkali-silica reaction (ASR) in concrete and is thus not suitable for bridges with reinforced concrete decks and bents.

[8] An Official Texas historical Marker commemorating the "The Red River Plunge of Bonnie and Clyde" is located in the project APE. The marker is not NRHA eligible (Criterion Consideration F). Proposed relocation of the marker is discussed in the "Mitigation for Adverse Effects" section, below.

TxDOT's decisions about appropriate maintenance activities for the historic bridge are based on the findings of the *On-System Historic Metal Truss Task Force Final Report* (April 25, 2002), written with the full participation of the Texas SHPO's office. Comprised of engineers, historians and a THC historical architect, the task force's report set the tone for decision-making about the bridge when it recommended that the US 83 truss be documented and removed as it

> suffers from advanced deterioration, including decaying timber bents and exposed reinforcing steel bar on bent caps. These factors, in addition to unacceptable geometric and a high percentage of truck traffic, make it unwise to retain this bridge.

During the years in question, the Childress District spent an average of 1.3% of its annual maintenance budget on its 711 on-system bridges. Roughly $19,240 per year was spent on bridge maintenance, repair, and/or embankment work for the on-system bridges that the district maintains. Inspections conducted every 24 months determine which bridges need repairs or replacement. Maintenance repairs to the US 83 truss bridge focused mainly on the deck of the bridge to keep it operational. The $35,061 in maintenance expenditures between 1995 and 2010 accounted for 12% of all such funding expended by the district for the 711 bridges. By comparison and discounting painting costs, less was spent for three on-system trusses in the San Angelo and Abilene Districts during the same period, with an estimated $30,000 dedicated to spalling and bearing repairs. See Appendix E. TxDOT's engineers design bridges for a typical 50 year life cycle requiring little to no intensive maintenance. The adjoining concrete southbound bridge on the Salt Fork Red River, for example, required no maintenance expenditures since its construction in 1973.

The repairs needed to rehabilitate the US 83 truss were not considered routine maintenance and would have been costly. In 1994 the truss bridge was put on the federal replacement program and was listed to be replaced. Spending federal funds to rehabilitate a bridge that is eligible for replacement would have jeopardized the funding to replace the bridge per FHWA regulations.[9]

Highway Bridge Program (HBP) funds are subject to the federal 10-year rule if the work performed is classified as rehabilitation or replacement. The HBP was established under 23 CFR 650.405 and defines "rehabilitation" as

> The project requirements necessary to perform the major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects are eligible except as noted under ineligible work. Bridges to be rehabilitated both on- or off- the [Federal Aid] System shall, as a minimum, conform with the provisions of 23 CFR part 625, Design Standards for Federal-aid Highways, for the class of highway on which the bridge is a part.

[9] Reference to this rule can be found in FHWA's Federal-Aid Policy Guide Title 23 - Code of Federal Regulations (and Non-Regulatory Supplements) Subchapter G - Engineering and Traffic Operations, Section 650 - Bridges, Structures, and Hydraulics, Non-regulatory Supplement for Part 650, Subpart D. In addition, a memorandum was distributed on November 1, 2007 providing additional clarification on the rehabilitation and replacement of bridge decks. This document reinforces previous FHWA correspondence, dated February 25, 2000, which states that bridge deck replacement is rehabilitation work.

The following is a *condensed* list of work required for all alternatives that are considered to be a use the historic bridge:

- Replacing the floor beams and stringers that have significant section loss
- Repairing the truss gusset plates
- Cleaning, repairing and sealing all open joints on the approach and truss spans
- Replacing truss bearings
- Replacing all missing rivets with A325 dome-headed bolts of the same diameter
- Sand-blasting the surface steel of the approach and bridge members to remove corrosion (replacing any and all members found to have a section loss greater than 50%) and deteriorated paint (which would require a containment system, even for spot cleaning, because of its lead content)
- Applying a new paint system to the bridge after sand blasting to protect from further deterioration
- Repairing approach span bents

The extent of the required work for the US 83 Bridge demonstrates that maintenance repairs to the historic truss would not have changed the preservation outcome. Only repairs on the order of magnitude requiring HBP funding can address such an extensive list of issues.

ALTERNATIVES ANALYSIS

Overview

Consultation with the Texas SHPO concerning the US 83 Bridge began in 1999 with the creation of the Metal Truss Task Force. The US 83 project was coordinated with the Texas SHPO under Section 106 of the NHPA in March 2005. The proposal put forth in 2005 for the US 83 crossing was reviewed and the recommended alternative for the historic bridge was “Rehabilitation as a Scenic By-Pass” with a new bridge built east (downriver) from the historic bridge. The district did not proceed with the project at that time because of perceived public objection to the expenditure of funds and land owners’ objection to selling land for the new ROW required under this alternative. FHWA in consultation with TxDOT raised safety and funding concerns. Safety concerns of the 2005 scenic by-pass design included:

- New alignment would introduce reverse curves into NB roadway.
- The T-intersection created by the multiple bridges and Pioneer Park.
- Truss members decrease sight distance for NB vehicles leaving the rest stop.
- The multiple intersecting travel paths of turning vehicles would introduce an area of increased conflicts between turning traffic and traffic merging onto the main lanes of US 83:

    1) NB vehicles turning off the highway.
    2) NB vehicles turning into the park from the scenic by-pass.
    3) NB vehicles returning back to the highway from the scenic by-pass.
    3) NB vehicles from the park returning to the highway.
    4) SB vehicles entering the park.
    5) SB vehicles returning to the highway from the park.

- Larger RVs, trucks, and other large NB vehicles could not use the scenic by-pass to enter the park. They would increase the magnitude of these safety conflicts because of their size and limited mobility. (See Appendix I.)

Since 2005, the bridge continued to deteriorate due to limited funds per FHWA's 10-year rule and estimated costs for various alternatives increased, which prompted a new Section 4(f) evaluation. The most recent alternatives evaluation revealed the importance of including full northbound access to the rest stop and park in the project purpose and need. Ensuring full access to the rest stop identified a series of geometric constraints that along with the heavy amount of truck and RV usage created cumulative problems.

The bridge meets the necessary criteria for replacement using federal funds based on its Sufficiency Rating of 21.80 (a rating under 50 qualifies) and its classification as structurally deficient. Although the following alternatives analysis shows that the most viable preservation alternative is 3b (Widen Southbound Bridge to Two-way Traffic, By-pass Truss). TxDOT staff recommend it not prudent under (3)(vi) as it involves multiple factors that while "individually minor, cumulatively cause unique problems." Even though it required demolition of the historic bridge, TxDOT staff recommends that building a new bridge on current alignment is the only prudent and feasible alternative.

Alternatives considered for this analysis are: 1) No-Build, 2) Rehabilitation for Continued Vehicular Use, 3a) Widen Southbound Bridge to Two-way Traffic, Rehabilitate Truss for Pedestrians, 3b) Widen Southbound Bridge to Two-way Traffic, By-pass Truss (monument), 3c) Widen Southbound Bridge to Two-way Traffic, Rehabilitate Truss for Scenic By-pass, and 4) New Structure on Current Alignment with Demolition of the Truss Bridge. Earlier studies investigated several other alternatives:

I. Preservation as Scenic By-Pass - new bridge to the east.
II. Preservation as Scenic By-Pass - new bridge to the west.
III. Preservation for Pedestrian Use - new bridge to the west.
IV. Rehabilitation as a Monument - new bridge to the west.

These four alternatives have not been carried over to the present study through consultation. Alternative 3b is a minimize harm option that arose out of consultation with SHPO and consulting parties. Each was included in studies submitted to the Historic Bridge Foundation and the Texas SHPO on February 22, 2010. (See Appendix G.) Nevertheless, TxDOT Design Engineers continued to explore alternatives that would avoid or minimize harm to the historic bridge.

Alternative I, Scenic By-Pass with new bridge to the east, addresses some of the geometric and structural deficiencies through new construction, rehabilitation, and repairs. At $4,831,502, the estimated cost of by-pass rehabilitation far exceeds the estimated demolition funds of $550,000 allowed by the Federal Highway Bridge Program.

While Alternative I, Scenic By-Pass with new bridge to the east, was successfully coordinated with SHPO on March 25, 2005 under Section 106 of the NHPA, it was not submitted to FHWA for final approval under Section 4(f) regulations. The alternative was developed in response to interest at a public meeting on February 10, 2004 in preserving

the truss bridge despite the recommendations of the Metal Truss Task Force that the bridge could not be preserved. At a public hearing held May 10, 2005, the landowners on the East side of the bridge opposed Alternative I because they did not want the new structure closer to their homes and they objected to selling any additional ROW to construct the new bridge after having donated land for the county park and rest stop. The elected officials also changed their opinion of the project. They were not in favor of having to make the 10% contribution towards the cost of additional ROW and utility relocation required of local entities by 43 TAC 15.51. FHWA also expressed concern that the coordinated design presented safety issues from truck traffic making a left turn into the park from the fast lane of the proposed new bridge. Finally FHWA noted that the estimated cost was incorrectly based on an allowance of twice the estimated cost of demolition. Such a “double allowance” was ultimately not authorized by Congress in SAFETEA-LU. Thus TxDOT revisited the coordinated project.

Alternatives II, III, and IV represent variations on the concept of constructing a new bridge between the existing ones. Each of these alternatives addressed the concerns of local government and landowners concerning acquisition of new ROW east of the historic truss. They do, however, require a change in traffic patterns for northbound traffic seeking access to the park including a 2.25 mile detour for those resuming northbound travel. The detour would create a series of cumulative safety issues recommended unacceptable under section (3)(ii) of the definition of prudent codified at 23 CFR 774.17

Each of these alternatives (I-IV) was recommended as not prudent as defined by 23 CFR 774.17 in the coordination documentation provided the Texas SHPO on February 22, 2010. When SHPO asked if any alternatives involving widening the existing southbound bridge had been considered, TxDOT engineers investigated three such designs. Alternatives I-IV were subsequently dismissed from further consideration.

The analysis of the remaining alternatives should be read in conjunction with Table 1 and Appendix F.

1. No-Build

The “No-Build” alternative calls for leaving the structure in situ with no maintenance work to be performed. No work would be done to remove the structural and functional deficiencies. There would be no bypass constructed, no rehabilitation work, a new structure would not be built, upper truss members would continue to obscure the break lights of vehicles slowing to turn into the park, northbound traffic would continue to share the southbound bridge, and the 34.2 mile detour would become permanent for over weight and over sized loads. The needed repairs to the structure are beyond the scope of routine maintenance even if this alternative contemplated it. This alternative would not address the structural deficiencies or functional inadequacies of the existing bridge and would not bring the crossing up to the minimum standards set forth in the Texas Highway Trunk System guidelines. Large vehicles such as farming equipment and oversized loads might attempt to negotiate the narrow lane on the southbound bridge converted to northbound use, in order to avoid the legal 34.2 mile detour. The no-build alternative would perpetuate the current detour and the use of the southbound bridge for two-way traffic in contradiction with trunk system guidelines.

Structural Deficiencies
The "No-Build" alternative does not address the structural deficiencies affecting this structure. The shear force of the floor beams has the highest concentration located at the ends of the beams where floor beam connects to the bottom chord of the truss. This is where the loads from the deck and stringers are transferred to the truss and/or bearings. If a beam were to fail at this location, shear is the most likely mode. At a minimum, four floor beams and two stringers need to be replaced and several others require extensive rehabilitation. Extensive portions of the deck would need to be removed to accomplish these repairs, and this work is outside the scope of general maintenance. TxDOT engineers have concluded that the recently developed hole in the deck surface is also outside the scope of general maintenance and have closed the bridge. There are several truss floor beams that have up to 65% section loss in the shear region. The structure's inventory load rating has, over the last several years, decreased from HS 16.60 to HS 10.0 which translates to a posted load carrying capacity of 18,000 pounds axle/tandem axle, because of the floor beams. Maintenance efforts could not correct this issue because generalized section loss cannot be restored.

The bridge's bearings have also failed. Bearings transfer loads from the superstructure to the substructure as well as help the structure expand and contract in hot and cold weather. The bearings are in need of extensive rehabilitation to "unlock" the structure and allow it to expand and contract as it was designed.

Another structural deficiency facing this bridge is the condition of the approach spans. The south approach spans all have such timber supports.[10] They currently show signs of up to 50% section loss in some locations. All bent caps are in need of repair and there are several locations that are experiencing concrete spalling which has exposed the reinforcing steel. Corrosion at this site has reduced the capacity of the bents.

Functional Deficiencies
The controlling functional inadequacies at this location are the restrictive horizontal clearances. The bridge can only accommodate a single 14-foot travel lane with a 6-foot outside shoulder and a 4-foot inside shoulder. Shoulders are critical safety provisions for 70 mile per hour roadways with high percentage of truck traffic. TxDOT's Roadway Design Manual recommends a minimum 30-foot horizontal clearance. While it may seem that the closure of the bridge and the establishment of a posted 34.2 mile long legal detour have rendered these functional deficiencies moot, converting the existing southbound bridge to two-way traffic to by-pass the closed truss resulted in a greater bottleneck and a more serious safety issue. There is no room for any shoulders on the converted two-way bridge. The lack of shoulders on the bridge lessons recovery opportunities as does the barrier between north- and southbound traffic.

Other Environmental Impacts
No other environmental impacts are anticipated by the no-build alternative.

Summary

[10] The north approach spans were originally supported by timber bents. They were replaced after a fire with the current concrete bents.

The “No-Build” alternative does not meet the purpose and need for the project. This option does not address the conditions which render the bridge structurally deficient, the functional obsolescence of the structure, or the continued deterioration of the deck and the integrity of the historic truss. With the closure of the truss safety concerns associated with No-Build alternative include the absence of a turn lane for park access created by a single lane of northbound traffic on the southbound bridge, accidents associated with two-way traffic on a trunk system bridge designed for one way traffic, the absence of shoulders on a highway with heavy truck traffic, and the incidental pedestrian use of the truss. Further, this alternative would do nothing to arrest the deterioration of the truss as a historic resource. It is not reasonable to select this alternative because it does not meet the project purpose and need. Therefore it not recommended as a prudent alternative under (3)(i) and (3)(ii) of 23 CFR 774.17.

2. Rehabilitation for Continued Vehicular Use

This alternative would consist of using Federal HBP funds for the rehabilitation of the structure for continued vehicular use which would attempt to correct the structural and functional deficiencies of the bridge: replace both approaches; entirely replace truss deck; clean and paint truss; clean, paint, and rehabilitate rail, install crash tested railing, repair structural steel, and replace bearings and deck joints. The overall condition of this structure is poor with an inventory load carrying capacity of HS 10.0, a value controlled by the floor beams. The additional work proposed in this alternative would affect the integrity of the existing bridge by removing and replacing some of the original character defining fabric such as the timber bents. The estimated cost of rehabilitating the bridge for continued vehicular use is estimated at $9,561,893. See Table 1.

Structural Deficiencies

As previously stated in the “No-Build” alternative, the condition of the floor beams require significant rehabilitation or replacement. The entire structure is in need of extensive repair work. To properly rehabilitate the bridge for continued vehicular use, all floor beams and stringers would need replacing. These repairs would require removal of extensive portions of the deck, not only to provide access to the deck subsystems, but also to address the pervasive corrosion of the deck rebar. Replacement of all approach spans would be necessary. It is current TxDOT policy to replace all timber substructure elements on on-system bridges due to their unknown capacity. If these and additional repairs were made to the structure, the truss would still not meet current load capacity standards for an on-system structure with full service traffic. This is because the trusses experienced general section loss, which cannot be repaired or rehabilitated. As a result, increasing the bridge’s capacity requires replacing numerous deficient members.

Functional Deficiencies

The historic bridge does not meet existing and proposed criteria. Upper truss members would continue to obscure the break lights of vehicles slowing to turn into the park. A design exception is not a viable option due to the need for a wider horizontal clearance as outlined above.

Other Environmental Impacts

No other environmental impacts are anticipated by this alternative.

Summary
The "Rehabilitate for Continued Vehicular Use" alternative does not address the functional deficiencies affecting this structure and would only partially address the structural deficiencies of the structure. Vehicles traveling northbound that are wider, taller, and/or heavier would continue to create unsafe situations by crossing the median to cross the river northward in the southbound lanes. It would not change the issues contributing to safety risks associated with northbound entrance into the park. Informal conversations with the Texas SHPO suggest that installation of crash tested rail on the trusses could be done in a manner sensitive to the contributing rail. Finally, loss of defining characteristics, such as the timber bents, would be an adverse effect under 36 CFR 800.5. Therefore, this option is not recommended as a prudent alternative as it does not accomplish the project's purpose and need (3)(i) and would result in an increased construction cost of an extraordinary magnitude (3)(iv), as defined at 23 CFR 774.17.

3a) Widen Southbound Bridge to Two-way Traffic, Rehabilitate Truss for Pedestrians
Alternatives 3a-c would permanently convert the existing southbound bridge to two-way traffic by widening it from two to five lanes. The center lane would be a dedicated northbound park access turn-lane. Extended-length approaches would be constructed to transition northbound traffic westward across the widened bridge and then back to the current alignment. (See Appendix A.) Portions of the existing structure would need to be broken back or removed to allow for the widening which would consist of placing new reinforcing steel, forming the deck, and uninstalling the barrier rail. There would not be a median barrier between the north and southbound lanes. Providing a barrier would be the safer option, however due to the access issues with northbound traffic entering the park, it is not possible to install a median barrier to separate the north and southbound traffic. This Alternative would greatly increase the opportunity for head-on collisions when compared to Alternative #4.

TxDOT engineers investigated a range of options to rehabilitate the trusses for pedestrian uses. See Appendix F. The least expensive would remove both approaches, construct a new north approach, remove the existing truss decks, remove the lead paint, repair the steelwork, clean and paint the trusses, install a new full-width deck, and rehabilitate the rail to pedestrian standards ($3,576,705). The most expensive option would add a new south approach ($3,868,645). A life cycle cost analysis showed that

> to widen the southbound now and replace entirely in 20 years is not cost effective. There is no "cost" benefit to the State or traveling public for widening the structure today and replacing it within the next 20 years. Widening the structure now would only cause the safety concerns outlined . . . and require additional expenditures between $3,664,560 to $5,226,015. (See Appendix F.)

Structural Deficiencies
Alternative 3a would address all the structural capacity issues for vehicular traffic at this crossing. This alternative would meet pedestrian loading standards of 85 lbs/sq. foot.

Functional Deficiencies

Widening the existing southbound bridge would address the horizontal clearance issue. It would, however, introduce reverse curves in the alignment (as would Alternatives 3b and 3c) and would place northbound traffic adjacent to southbound traffic. The Salt Fork crossing is located on a 7.5 mile stretch of US 83 that is a high-speed divided highway and as a result drivers do not to expect two-way traffic, reverse curves, or a sudden lack of a median. While the longer approaches that may available for funding by FHWA under these alternatives would reduce the magnitude of the safety issue associated with reverse curves, undoing the divided highway it would have a substantial impact on the safety of US 83 at this crossing.

Other Environmental Impacts
Widening the southbound bridge per Alternatives 3a-c would impact 0.232 acres of mature trees as well as riparian habitat. The proposed construction area contains potential habitat for the federally-listed and state-listed endangered Interior Least Tern (ILT) and the state-listed threatened Texas Horned Lizard. Coordination with the Texas Parks and Wildlife Department is required for potential impacts to both habitat (mature trees, riparian habitat) as well as state-listed species. Informal Section 7 Consultation with the U.S. Fish and Wildlife Service for potential impacts to Interior Least Tern has been completed. As a condition of the informal consultation, TxDOT would monitor the construction site during the nesting season to make sure that ILT do not begin nesting near the construction site. If this happened, TxDOT would have to stop construction and contact USFWS for further instructions. Coordination with TPWD concerning the Horned Lizard would result in notes being placed in the EPIC sheets/construction plans instructing the contractor to avoid individuals if they are encountered on site. While there would be no impacts to wetlands or other special aquatic sites, new piers required by the widening would impact waters of the United States and thus would require use of a nationwide permit (NWP) as the impact to the non-tidal water would be less than 0.5 acre. A Pre-Construction Notification (PCN) would be required to be submitted to the USACE based upon General Conditions 17 and 18 (endangered species and historic properties, respectively).

Summary
Alternative 3a would widen the southbound bridge for two-way traffic and rehabilitate the historic truss for pedestrians. FHWA agreed the longer approach transitions for this alternative may be eligible for federal funding and as such the reverse curves would not be as sharp as they otherwise would be. The funding would, however, be limited to 25% of the roadway-to-bridge cost and state funds would be required to fund any overages. Five lane cross-sections are familiar to Texas drivers in urban areas. Research, however, has shown that the predicted crash reductions for conversion from a two-lane roadway to a four-lane divided section ranged from 40 - 60%.[11] Changing the cross section design of this roadway, from a four-lane divided to a five-lane undivided could increase the predicted crash rate by as much as 60%. With the five-lane undivided section, there is no where for wayward vehicles to travel except into the travel lanes of the opposing traffic. At 70 miles per hour, this leaves little to no reaction time for the opposing traffic to take evasive measures.

[11] Kay Fitzpatrick, Comparisons of Crashes on Rural Two-Lane and Four-Lane Highways in Texas Technical Report 0-4618-1 (Austin, TX: Texas Transportation Institute, September 2005).

The widening would cost approximately $3,922,583 and the rehabilitation, depending on its extent, would cost from $3,576,705 to $3,868,645. Even the least expensive rehabilitation far exceeds the allowable $550,000 based on the estimated cost of demolition. See Table 1 and Appendix F.

Federal regulations on the use of Highway Bridge Program funds limit expenditures on the historic bridge to the estimated cost of demolition.[12] Costs beyond that estimate must be leveraged into the project from state monies (see Appendix F). Alternative 3a faces a $2,180,585 million funding gap. This gap would need to be met through expenditures from either the Childress District's discretionary funding or other state Fund 6 monies. The result of diverting district funding for this use may affect future plans for the rehabilitation of the SH 203 Bridge and maintenance plan for the SH 203 Bridge. The $2,180,585 million coincides with the estimated costs currently scheduled for FY 2012 funding to accomplish these significant tasks. Similarly, diminished Fund 6 monies would eliminate state matching monies currently slated to leverage approximately $13.75 million in federal revenues into the state's assistance to local governments seeking financial support for improving off-system bridge safety. This funding gap would curtail approximately seven to ten such projects in coming fiscal years.

Removing the approach spans and rail would be an adverse effect, but the rail on the trusses could be left alone or sympathetically modified. Consultation with the U.S. Fish and Wildlife Service may result in monitoring the construction site during the nesting season of the Interior Least Tern.

This alternative is feasible but is not prudent per (3)(vi) of 23 CFR 774.17 because of cumulative impacts of safety (3)(ii), cost (3)(iv), and other individually minor factors cumulatively causing “unique problems” providing access to the park (3)(v). Therefore it is not a recommended alternative.

3b) Widen Southbound Bridge to Two-way Traffic, By-pass Truss (monument)
This alternative is the same as 3a with respect to functional and structural issues except that it would stabilize the truss and prevent public access. Cleaning and painting would be required in order to remove pack rust and arrest corrosion. Full lead abatement would be required to protect the laborers and insure proper paint cohesion. The deck would be removed to provide access to the areas requiring critical steel member and bearing repairs. A new deck would not be installed and both sets of approach spans would be removed. By these means, all but the most determined trespassers would be kept off the trusses.

Other Environmental Impacts
This alternative would have the same impacts to natural resources as would 3a.

Summary
Alternative 3b would widen the southbound bridge for two-way traffic and rehabilitate the historic truss as a monument. FHWA agreed the longer approach transitions for this alternative may be eligible for funding and as such the reverse curves would not be as

[12] Title 23, U.S Code, Chapter 1, section 144 (n)(4).

sharp as they otherwise would be. The funding would, however, be limited to 25% of the roadway-to-bridge cost and state funds would be required to fund any overages.

Five lane cross-sections are familiar to Texas drivers in urban areas. Research, however, has shown that the predicted crash reductions for conversion from a two-lane roadway to a four-lane divided section ranged from 40 - 60%. Changing the cross section design of this roadway, from a four-lane divided to a five-lane undivided would have the reverse effect. Predicted crash rates could increase by as much as 60% with this change in the roadway cross section. With the five-lane undivided section, there is no where for wayward vehicles to travel except into the travel lanes of the opposing traffic. At 70 miles per hour, this leaves little to no reaction time for the opposing traffic to take evasive measures.

Federal regulations on the use of Highway Bridge Program funds limit expenditures on the historic bridge to the estimated cost of demolition. Costs beyond that estimate must be leveraged into the project from state monies (see Appendix F). Alternative 3b, faces a $2,180,585 million funding gap. This gap would need to be met through expenditures from either the Childress District's discretionary funding or other state Fund 6 monies. The result of diverting district funding for this use may affect future plans for the rehabilitation of the SH 203 Bridge and maintenance plan for the SH 203 Bridge. See Appendix E. The $2,180,585 million coincides with the estimated costs currently scheduled for FY 2012 funding to accomplish these significant tasks. Similarly, diminished Fund 6 monies would eliminate state matching monies currently slated to leverage approximately $13.75 million in federal revenues into the state's assistance to local governments seeking financial support for improving off-system bridge safety. This funding gap would curtail approximately seven to ten such projects in coming fiscal years.

The widening would cost approximately $3,922,583 and the stabilizing of the truss as a monument would cost $2,730,505 (including full lead abatement), which is almost 500% more that the $550,000 estimated for demolition. See Table 1. As with Alternative 3a, the lifecycle cost analysis shows “no "cost" benefit to the State or traveling public for widening the structure today and replacing it within the next 20 years.” Removing the approach spans and their contributing rail would be an adverse effect. Consultation with the U.S. Fish and Wildlife Service may result in monitoring the construction site during the nesting season of the Interior Least Tern. This alternative is feasible but is not prudent per (3)(vi) of 23 CFR 774.17 because of cumulative impacts of safety (3)(ii), cost (3)(iv), and other individually minor factors cumulatively causing “unique problems” providing access to the park (3)(v). Therefore it is not a recommended alternative.

3c) Widen Southbound Bridge for Two-way Traffic, Rehabilitate Truss for Scenic By-pass

This alternative is the same as 3a and 3b with respect to functional and structural issues except that the trusses would serve as a scenic by-pass. The historic bridge would be restricted to passenger and small RVs. Larger RVs and buses would need to be prevented from gaining access to the structure. Although signage would instruct trucks not to use the structure, individuals driving larger RVs and busses may not be aware

when their vehicles exceed the legal loading limits posted for the structure.[13] It is these individuals who are most likely to travel across the historic bridge and cause cumulative damage. Rehabilitation efforts would primarily arrest the deterioration of the bridge and would not add capacity. It would replace both approaches; repair truss piers, bearings, and deck joints; replace truss deck, repair truss and rehabilitate rails, install crash tested rail, clean and paint truss (full lead abatement). The estimated cost for preserving the bridge as a scenic by-pass is $4,831,502. See Table 1.

Other Environmental Impacts
This alternative would have the same impacts to natural resources as would 3a and 3b.

Summary
Alternative 3c would widen the southbound bridge for two-way traffic and rehabilitate the historic truss for limited vehicular use. The safety issues would be the same as for Alternatives 3a and 3b. Federal funding rules would have similar implications for Alternative 3c as for 3a-b, except that Alternative 3c faces for example, faces a $2,180,585 million funding gap. This gap would need to be met through expenditures from either the Childress District's discretionary funding or other state Fund 6 monies. The result of diverting district funding for this use may affect future plans for the rehabilitation of the SH 203 Bridge and the maintenance plan for the SH 203 Bridge. The $2,180,585 million coincides with the estimated costs currently scheduled for FY 2012 funding to accomplish these significant tasks. Similarly, diminished Fund 6 monies would eliminate state matching monies currently slated to leverage approximately $13.75 million in federal revenues into the state's assistance to local governments seeking financial support for improving off-system bridge safety. This funding gap would curtail approximately seven to ten such projects in coming fiscal years.

The widening would cost approximately $3,922,583 and the rehabilitating of the trusses for a reduced level of vehicular service would cost $4,831,502. As with Alternatives 3a-b the lifecycle cost analysis shows “no "cost" benefit to the State or traveling public for widening the structure today and replacing it within the next 20 years.” Informal conversations with the Texas SHPO suggest that installation of crash tested rail on the trusses could be done in a manner sensitive to the contributing rail. Consultation with the U.S. Fish and Wildlife Service may result in monitoring the construction site during the nesting season of the Interior Least Tern. This alternative is feasible but is not prudent per (3)(vi) of 23 CFR 774.17 because of cumulative impacts of safety (3)(ii), cost (3)(iv), and other individually minor factors cumulatively causing “unique problems” providing access to the park (3)(v). Therefore it is not a recommended alternative.

4) New Structure on Current Alignment with Demolition of the Truss Bridge.
The “New Structure on Current Alignment” alternative has several elements making it a viable option. This alternative would address the structural and functional issues associated with the historic bridge including maintaining the divided cross-section of this portion of US 83. It would provide a bridge that meets current and future transportation needs with the least social, economic, and safety consequences, given the unique site

[13] Other options include designing the turn off to discourage use by large vehicles. Physical barriers, such as a vertical clearance bar, could be problematic in the absence of sufficient room for a turn around.

problems. These include improved sight lines of vehicles for both those slowing to turn into the park and those leaving the park. It also includes a 191 foot deceleration lane with a 100' long transition zone. Totaling 291 feet, the proposed left turn pocket almost matches the 300 foot stopping distance at this location and permits vehicles turning into the park to move out of the high speed lane as they begin to slow down. However, this alternative does create an adverse effect by the removal of the historic truss bridge as the proposed bridge would be built on its location. The estimated cost of this alternative would be $3,143,372 for a new bridge and $550,000 set aside for demolition of the truss bridge. See Table 1.

Other Environmental Impacts
Widening the southbound bridge would impact 0.377 acres of mature trees as well as riparian habitat. Other than a 0.145 acre increase in impacts to mature trees, this alternative would have the same impacts to natural resources as would Alternatives 3a-c.

Summary
Under this alternative, the proposed northbound bridge replacement would be constructed on the current alignment and the historic truss bridge would be demolished. This alternative meets the purpose and need of the project, resolves numerous safety issues, and does not create any additional hazards:

-it keeps this divided section of the trunk system divided (does not introduce reverse curves),
-addresses the horizontal clearance issue
-permits over size and over weight vehicles to cross the Salt Fork without a 34.2 mile detour or illegal use of the southbound bridge,
-eliminates the hazard of upper truss members obscuring the break lights of vehicles slowing to turn into the park,
-provides a deceleration lane for north bound vehicles turning into the rest stop,
-eliminates sightline issues for northbound vehicles exiting the park caused by vertical truss members.

Alternative 4 is recommended as both feasible and prudent under 23 CFR 774.17 given the unique problems at this crossing. The historic bridge would need to be removed prior to the construction of the new northbound bridge and is an adverse effect under 36 CFR 800.5. The existing southbound bridge would continue to carry two-way traffic during construction of the new bridge. Maintaining temporary two-way traffic on the southbound bridge would continue the current traffic flow disruptions during construction. Construction for Alternative 4 would not be as long as for Alternatives 2 and 3a-c. Consultation with the U.S. Fish and Wildlife Service may result in monitoring the construction site during the nesting season of the Interior Least Tern. This alternative is preferred because there are no feasible and prudent preservation alternatives.

DESCRIPTION OF PREFERRED ALTERNATIVE FOR PROPOSED ACTION

The preferred alternative for proposed action is to construct a new bridge on existing alignment. The preferred alternative would require demolition of the existing trusses and

maintaining two-way traffic on the existing southbound bridge during construction of the proposed bridge.

MEASURES TO MINIMIZE HARM

TxDOT has extensively studied alternatives that would avoid or minimize harm to the historic bridge even though the THC, TxDOT, and FHWA all agreed in the *On-System Historic Metal Truss Bridge Task Force Report* that there were no viable preservation alternatives. Despite the identification of feasible alternatives per 23 CFR 774.17, in depth analysis identified no prudent preservation alternatives.

Efforts to minimize harm to the historic bridge have been an integral part of the project planning and development process. During the course of the Programmatic Section 4(f) Evaluation process, TxDOT explored leaving the historic bridge in place and still maintaining access to the rest area/park by northbound traffic using a turn-around under the bridges. After trenching tests under the bridges, the proposal was discounted due to the evacuation depth required to provide a safe clearance under the bridges and the current water table level. Water seeped into the trench after reaching a depth of 4 feet. Given the low water table thus revealed and the depth of excavation required to construct a northbound turn around, it would require extraordinary expense to both resist the hydrostatic pressure and to keep the road surface dry. TxDOT also explored Alternatives I-IV, and variations thereto, through numerous iterations during the last nine years. As noted above, the investigation of widening the southbound bridge was begun at SHPO's suggestion.

In response to public comments, TxDOT engineers also investigated relocating one of the trusses to the rest stop as a monument. Estimated costs for relocating one truss identified a funding gap of $1,411,200.40. While strongly supported by Historic Wellington and the Save the Bridge interest group, this option is not recommended as prudent. It represents an expense of extraordinary magnitude per (3)(iv). See Appendix F.

As a component of its NHPA Section 110 compliance process, TxDOT initiated the re-evaluation of its metal truss bridge inventory in 2010. This effort was prompted in part by the passage of time and the diminution of the pool of historic bridges of this type. The initiative calls for the development of updated evaluation methodologies, maintenance best practices standards and rehabilitation plans for selected historic metal truss bridges.

TxDOT historians determined the nearby SH 203 at Salt Fork Red River Bridge to be NRHP-eligible through this process because it is the most comparable example of the Parker through-truss form in the region. TxDOT bridge engineers have initiated planning efforts to address the deficiencies of the SH 203 Bridge by capitalizing on the lessons learned from the analyses conducted for the US 83 bridge project. These efforts provide an opportunity to develop models for adaptation to other truss bridges across the state. The initiative will result in the development of a long term maintenance plan based on the detailed condition assessment to ensure that value engineering efforts guiding the rehabilitation extend the life expectancy of the historic bridge. TxDOT's Bridge Division committed funding for the project through FHWA's highway bridge program in FY 2012.

See Appendix E for the SH 203 Maintenance Plan and for documentation of TxDOT's commitment to fund the SH 203 rehabilitation.

The SH 203 Bridge is experiencing many of the same structural deficiencies as US 83, although it has lower traffic volumes. For example:

-west abutment is slightly undermined, but is generally in good condition
-moderate delamination of the top surface of Pier #2
-steel I-beams of the approach spans experienced slight corrosion
-deck shows signs of severe deterioration
-minimal corrosion or section loss of the truss stringers
-paint system failure
-floor beams exhibit severe corrosion and section loss

As on the US 83 bridge, this deck must be removed to properly address structural components requiring maintenance and allow replacement of compromised members. Planning efforts are underway to avoid or minimize any resultant potentially adverse effects, with a detailed conditions assessment, maintenance plan, and a FY 2012 programmed letting. Successful implementation of these efforts would require ongoing consultation with the consulting parties identified for the US 83 project and with SHPO.

TxDOT marketed the bridge in an effort to mitigate the adverse effects of the preferred alternative. The marketing of historic bridges to a responsible party is required under Title 23, U.S. Code, Section 144 of the Department of Transportation Act (DOT). This marketing requirement applies to both truss and non-truss bridges, when TxDOT cannot leave a bridge in place and is unsuccessful in locating an appropriate county or local governmental custodian. Per FHWA policy, current procedures and processes for marketing these bridges can be streamlined to more adequately reflect the difficulties of relocation while still complying with these federal obligations. Since the $550,000 allowance for demolition most likely would not cover the estimated cost of relocating the entire truss system or a single truss span, the bulk of the cost would have to be borne by the recipient. TxDOT implemented a marketing plan in accordance with Title 23, U.S. Code, Section 144 to make the bridge available to a responsible party that would agree to preserve and maintain the bridge. The availability of the bridge was published in four local newspapers between December 17, 2009 and December 31, 2009. Copies of the marketing activities are included in Appendix H. No party inquired about the bridge during the marketing period or since then. Moving and storing the structure would be prohibitively expensive, given its size and current condition.

As recommended by the *On-System Historic Metal Truss Bridge Task Force Report*, TxDOT proposes adding the SH 203 at the Salt Fork Red River Bridge, Collingsworth County, NBI # 250440023001006 to the NRHP when TxDOT amends and updates the existing multi-property nomination. A conditions assessment of the bridge was recently completed[14] and TxDOT programmed the rehabilitation of the SH 203 Bridge to the

[14] The SH 203 Bridge is experiencing many of the same structural deficiencies as US 83: west abutment is slightly undermined, but is generally in good condition; moderate delamination on the top surface of Pier #2; steel I-beams of the approach spans have experienced slight corrosion; deck shows signs of severe deterioration; minimal corrosion or section loss of the truss stringers; paint system failure; floor beams have

Secretary of the Interior's Standards for Historic Rehabilitation in FY 12. The rehabilitation efforts would also establish a best-practices maintenance plan for the SH 203 Bridge that would serve as a statewide model and precedent.

MITIGATION FOR ADVERSE EFFECTS

The US 83 Bridge was documented to the satisfaction of the Texas SHPO, per its March 24, 2010 letter, as part of listing it on the NRHP. A kiosk will be placed in the park to document the history of the Truss Bridge. The public, local officials, and the Collingsworth County Historical Commission will have input as to what the kiosk looks like and what information, pictures, and exhibits will be included. A concrete pad would be poured, kiosk installed, and a roof would cover the kiosk. The facility may also include landscaping and other amenities. The proposed kiosk facility will cost approximately $20,000. Finally, TxDOT will relocate the Official Texas Historical Marker "The Red River Plunge of Bonnie and Clyde" to a location in the county park that best interprets the commemorated events.

Conclusion

This alternatives analysis was conducted under the above cited statutes and regulations and with FHWA's policy papers. Project planning was also conducted concurrently with the National Environmental Policy Act (NEPA) process.

Based upon the above considerations, this analysis recommends that the only feasible and prudent alternative that meets all aspects of the purpose and need as stated is to use the US 83 Bridge over the Salt Fork Red River as described in the "New Structure on Current Alignment with Demolition of the Truss Bridge" alternative. The proposed action includes all possible planning to minimize harm to the Section (4f) property resulting from such use. Therefore, the proposed action would dismantle the historic bridge and construct a new bridge on the current alignment.

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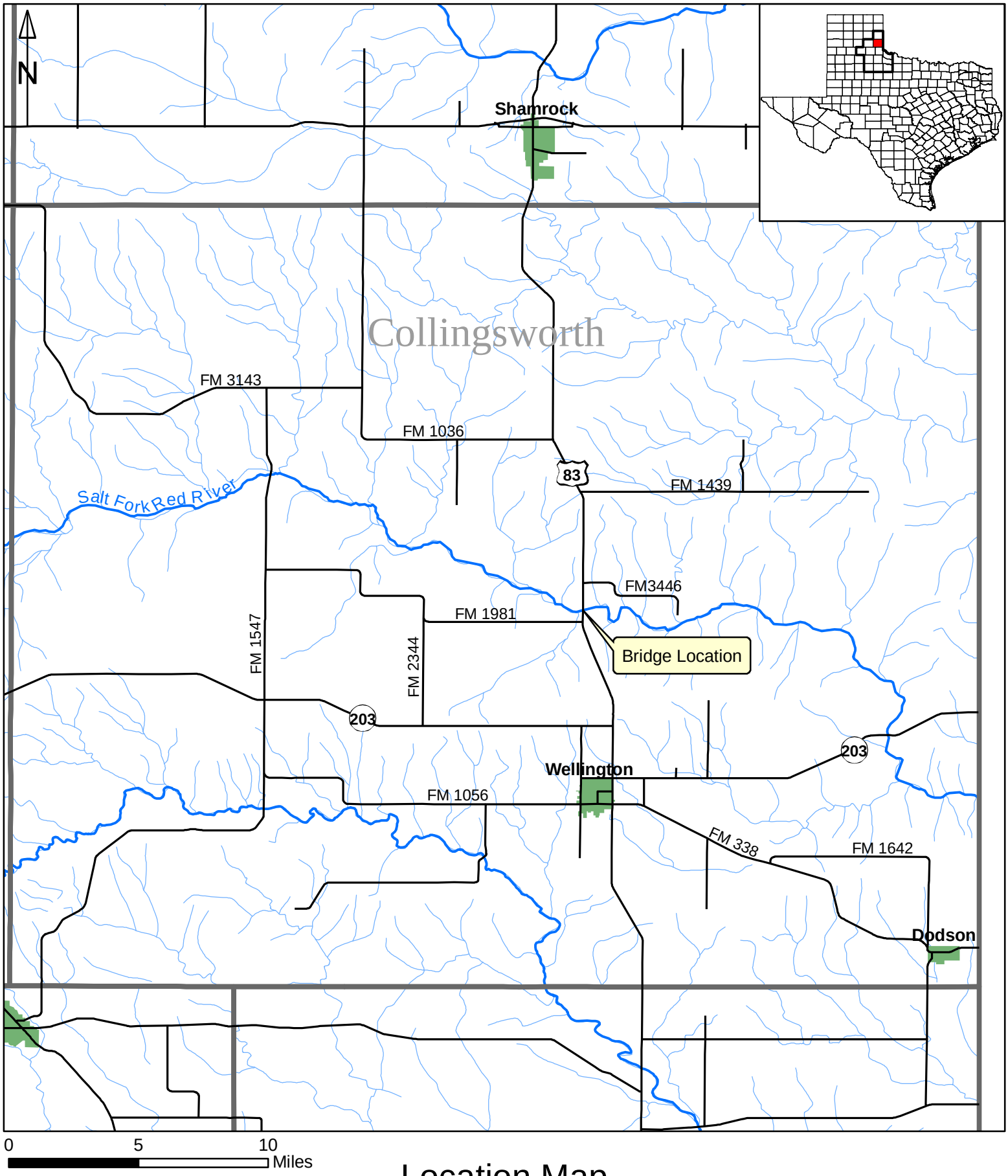
sever corrosion and section loss. In short, like US 83, the deck will have to be removed in order to properly address the items needing maintenance and provide access to members that need to be replaced.

TABLE 1: Programmatic Section 4(f) Evaluation

Alternative	Meets Purpose and Need for the Project?	Does the project address the following deficiencies? 1) Functional 2) Structural	Estimated Costs			Social, Economic or Environmental Impacts?	Constructability/ Safety/Design Issues?
			Construction ($)	ROW ($)	Total cost ($)		
1. No-Build (truss as *de facto* monument)	No	1) No 2) No	$0	0 acres $ 0	$0	No - However: 1) Continued detour represents higher long-term transportation costs for over width and over weight vehicles. 2) Damage to FM roads on detour from over width and over weight vehicles. 3) Impacts integrity of historic bridge through continued deterioration.	Yes - 1) Bridge is structurally and functionally deficient and prevents large agricultural equipment from using NB bridge. Structure is currently closed to vehicular traffic. 2) Limited turn room for large northbound vehicles entering park. 3) 2-way traffic on a bridge designed for 1-way traffic. 4) Risks from pedestrians on closed trusses.
2. Rehabilitate existing truss bridge for continued use	No	1) No 2) Yes	Historic bridge $9,561,893	0 acres $0	$9,561,893	Yes - 1) Rehabilitation cost is of extraordinary magnitude as defined by US DOT regulations. 2) Removing contributing features such as approach spans or railings is an adverse effect.	Yes - 1) Bridge would remain functionally deficient and still prevent two lane traffic and large agricultural equipment from using truss bridge. 2) Upper truss bracing presents safety hazard by obscuring brake lights of northbound vehicles preparing to turn into park. 3) Vertical truss members presents safety hazard by obscuring high speed traffic on bridge from northbound traffic exiting rest stop.
3a. Widen southbound bridge to 2 way traffic, rehab truss for pedestrians	Yes	1) Yes 2) Yes	Widen bridge $3,922,583 Historic bridge $3,576,705 - $3,868,645	0 acres $0	$7,499,288 - $7,791,228	Yes - 1) Adverse effect to remove contributing features such as railings or approach spans. 2) Cost of rehabilitation far exceeds $550,000 allowed by FHWA based on estimated cost of demolition by an extraordinary amount. 3) Impact to 0.232 acres of trees. 4) Least Tern and Horned Lizard habitat requires avoiding construction during nesting season and individual lizards, respectively. 5) Impacts to waters of the US less than 0.5 acres.	Yes - 1) Safety concerns of no barrier between opposing traffic traveling at high speeds across widened bridge. 2) Safety concern of unexpected reverse curves and no median along this section of US 83.
3b. Widen southbound bridge to 2 way traffic, by-pass truss (monument)	Yes	1) Yes 2) Yes	Widen bridge $3,922,583 Historic bridge $2,730,505	0 acres $0	$6,653,168	Yes - 1) Adverse effect to remove contributing features such as railings or approach spans. 2) Cost of rehabilitation far exceeds $550,000 allowed by FHWA based on estimated cost of demolition by an extraordinary amount. 3) Impact to 0.232 acres of trees. 4) Least Tern and Horned Lizard habitat requires avoiding construction during nesting season and individual lizards, respectively. 5) Impacts to waters of the US less than 0.5 acres.	Yes - 1) Safety concerns of no barrier between opposing traffic traveling at high speeds across widened bridge. 2) Safety concern of unexpected reverse curves and no median along this section of US 83.
3c. Widen southbound bridge to 2 way traffic, rehab truss for scenic by-pass	Yes	1) Yes 2) Yes	Widen bridge $3,922,583 Historic bridge $4,831,502	0 acres $0	$8,745,085 (access additional)	Yes - 1) Adverse effect to remove contributing features such as railings or approach spans 2) Cost of rehabilitation far exceeds $550,000 allowed by FHWA based on estimated cost of demolition by an extraordinary amount. 3) Impact to 0.232 acres of trees. 4) Least Tern and Horned Lizard habitat requires avoiding construction during nesting season and individual lizards, respectively. 5) Impacts to waters of the US less than 0.5 acres.	Yes - 1) Safety concerns of no barrier between opposing traffic traveling at high speeds across widened bridge. 2) Safety concern of unexpected reverse curves and no median along this section of US 83.
4. New Structure on Current Alignment with Demolition of the Truss Bridge	Yes	1) Yes 2) Yes	New bridge $3,143,372 Demolition of historic bridge $550,000 Mitigation $20,000	0 acres $0	$3,713,372	Yes - 1) Removal of historic bridge is an adverse effect. 2) Impact to 0.377 acres of trees. 3) Least Tern and Horned Lizard habitat requires avoiding construction during nesting season and individual lizards, respectively. 4) Impacts to waters of the US less than 0.5 acres.	No

Appendix A
Location Map and Schematics



Location Map
US 83 @ Salt Fork Red River
CSJ: 0031-03-029, 0311-04-045
Collingsworth County

Texas Department of Transportation

Exhibit A

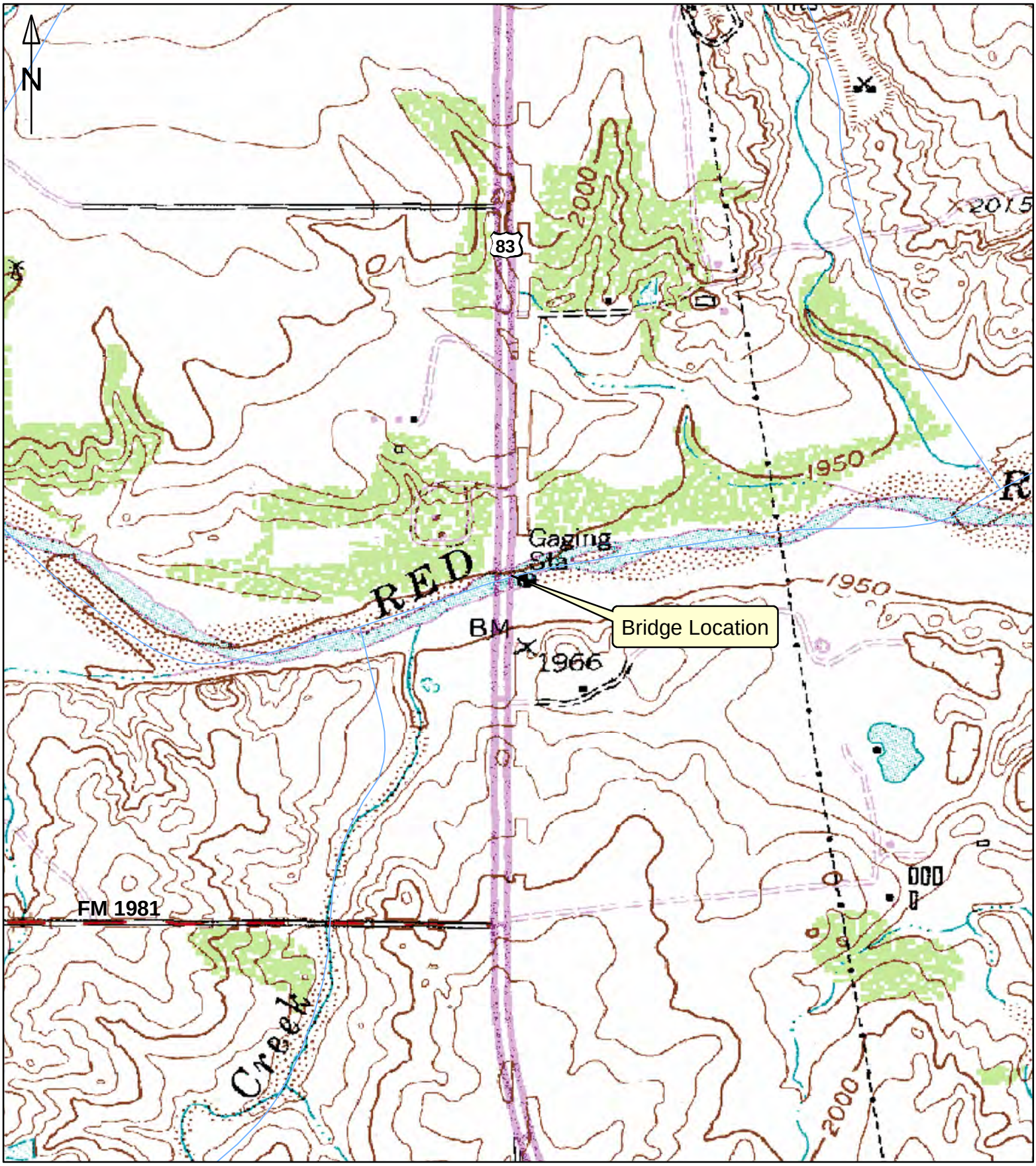
0 0.1 0.2 Miles

Didgital Ortho Quarter Quads
Wellington NW 3400-443

Aerial Map
US 83 @ Salt Fork Red River
CSJ: 0031-03-029, 0311-04-045
Collingsworth County

Texas Department of Transportation

Exhibit B



0 0.2 0.4 Miles

USGS Topography Maps
Wellington NW 3400-443

Topography Map
US 83 @ Salt Fork Red River
CSJ: 0031-03-029, 0311-04-045
Collingsworth County

Texas Department of Transportation

Exhibit C

0 0.05 0.1 Miles

Digitial Ortho Quarter Quad
Wellington NW 3400-443

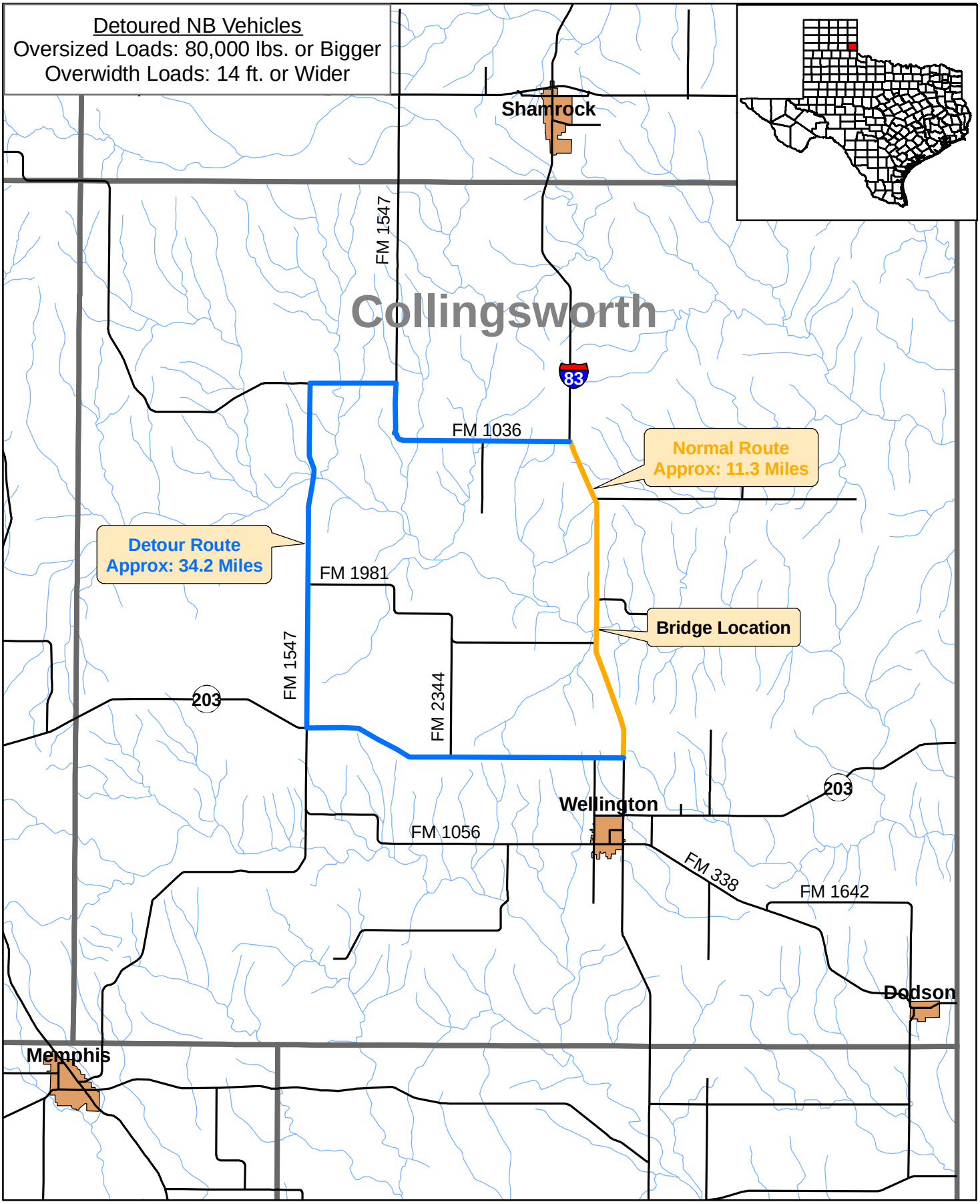
Pioneer Park Site Map
Collingsworth County
July 2008

Figure 5

County Property

State Property

Texas Department of Transportation



0 2 4 8 Miles

N

Detour Route
US 83 @ Salt Fork of the Red River
Collingsworth County
July 2010

Texas Department of Transportation

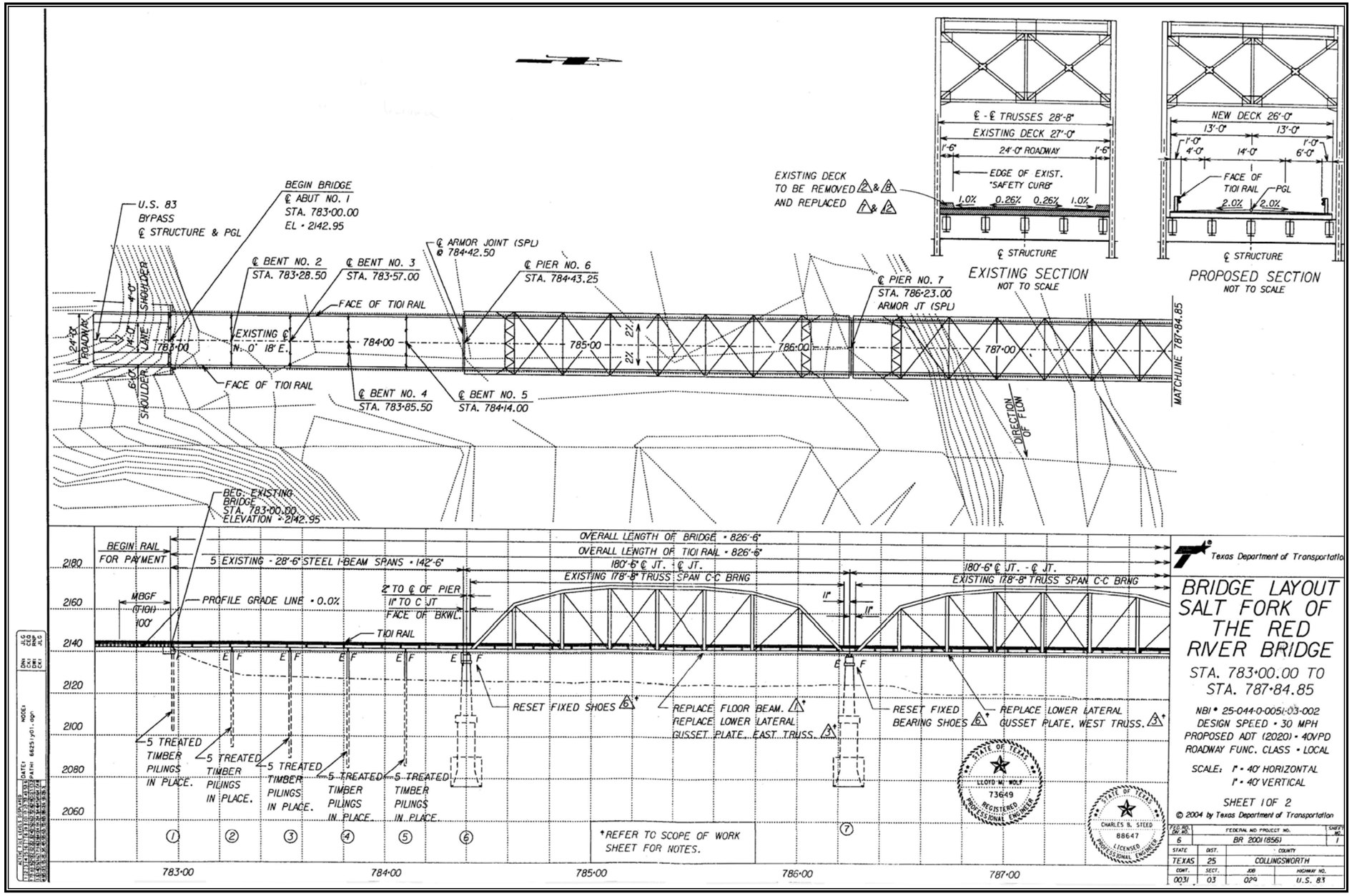


Figure 3. Part one of plan and elevation drawings for existing bridge, courtesy of TxDOT.

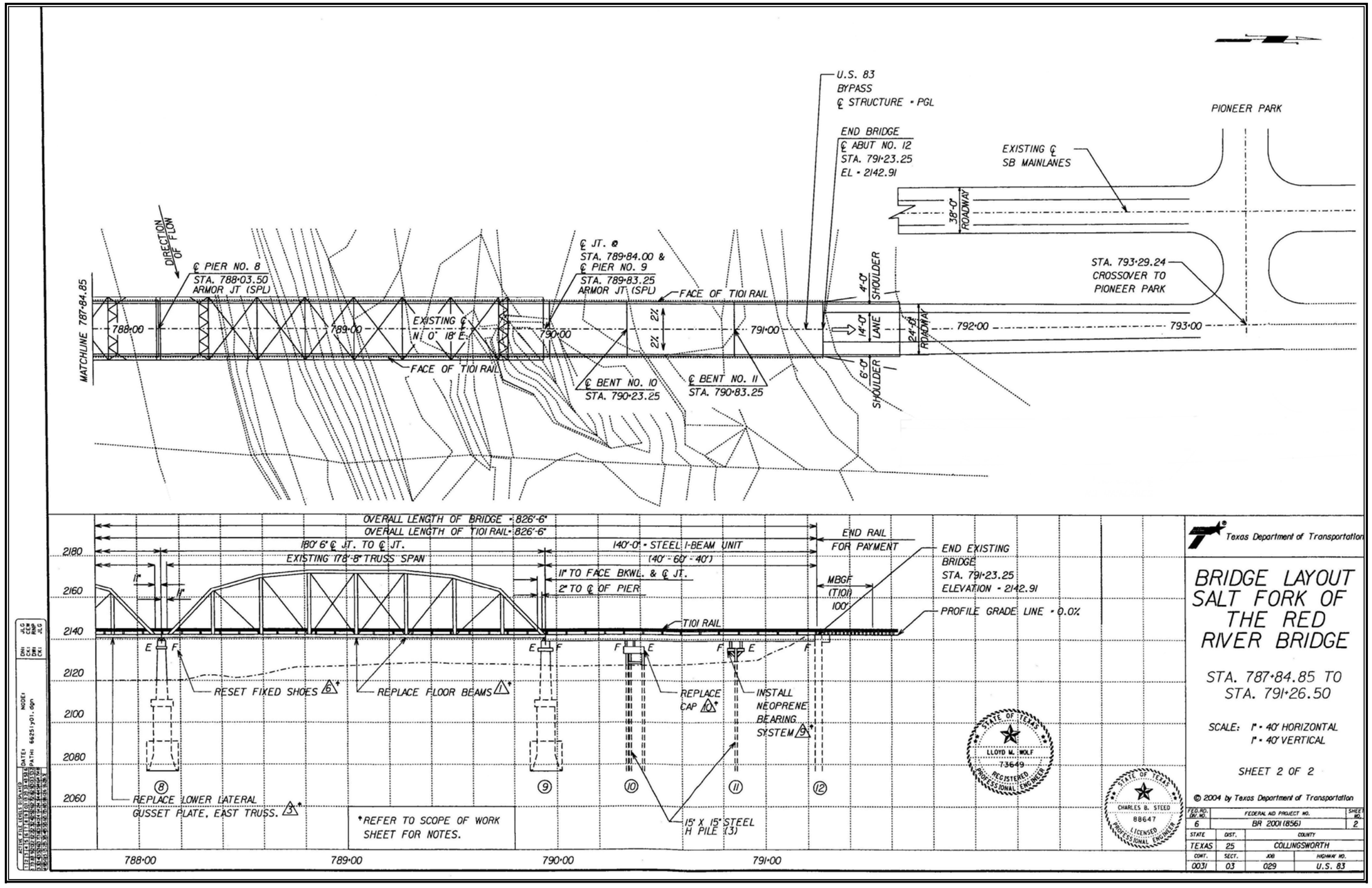
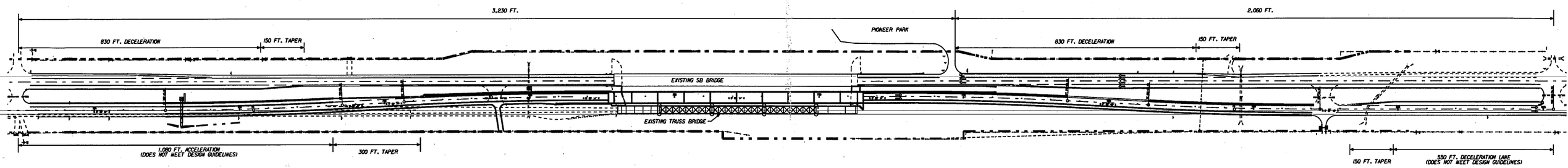


Figure 4. Part two of plan and elevation drawings for existing bridge,

Appendix A

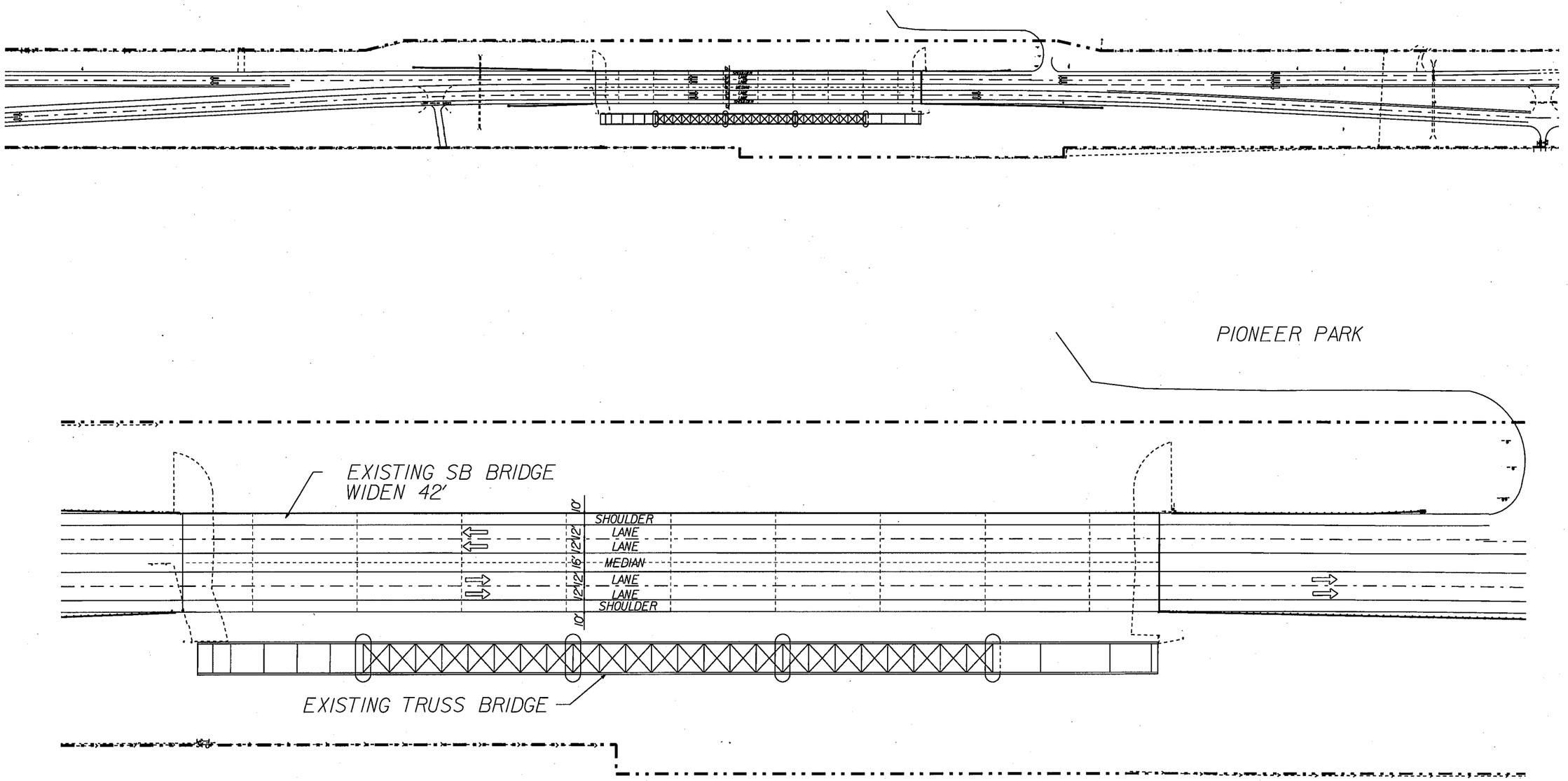
Alternative 3a: Widen Southbound Bridge to Two-Way Traffic, Rehabilitate Truss for Pedestrian Use



'Schematic for Clay.dgn 10/16/2009 1:12:11 PM

Appendix A

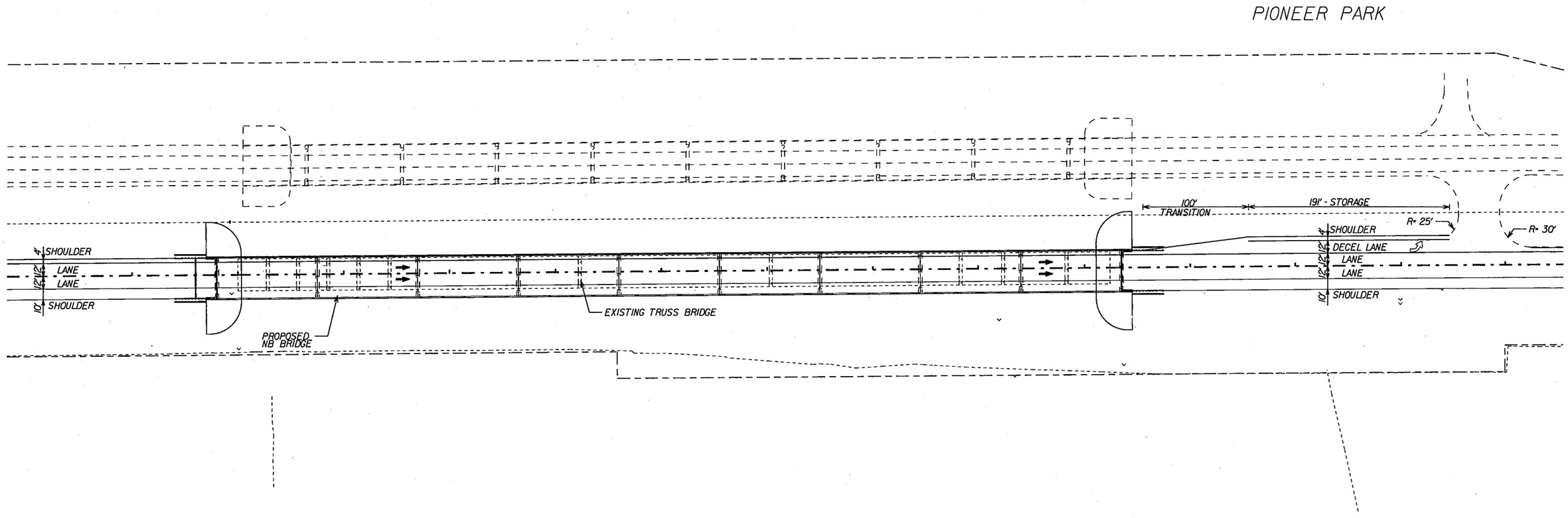
Alternative 3b: Widen Southbound Bridge to Two-Way Traffic, By-Pass Truss (Monument)



ALTERNATE 3B
WIDEN SB BRIDGE AND
RELALIGN NB TRAFFIC

Appendix A

Alternative 4:New Structure on Current Alignment with Demolition of the Truss Bridge



PREFERRED ALTERNATIVE
REMOVE TRUSS BRIDGE AND
REPLACE ON EXISTING
ALIGNMENT

Appendix B
Site Photographs

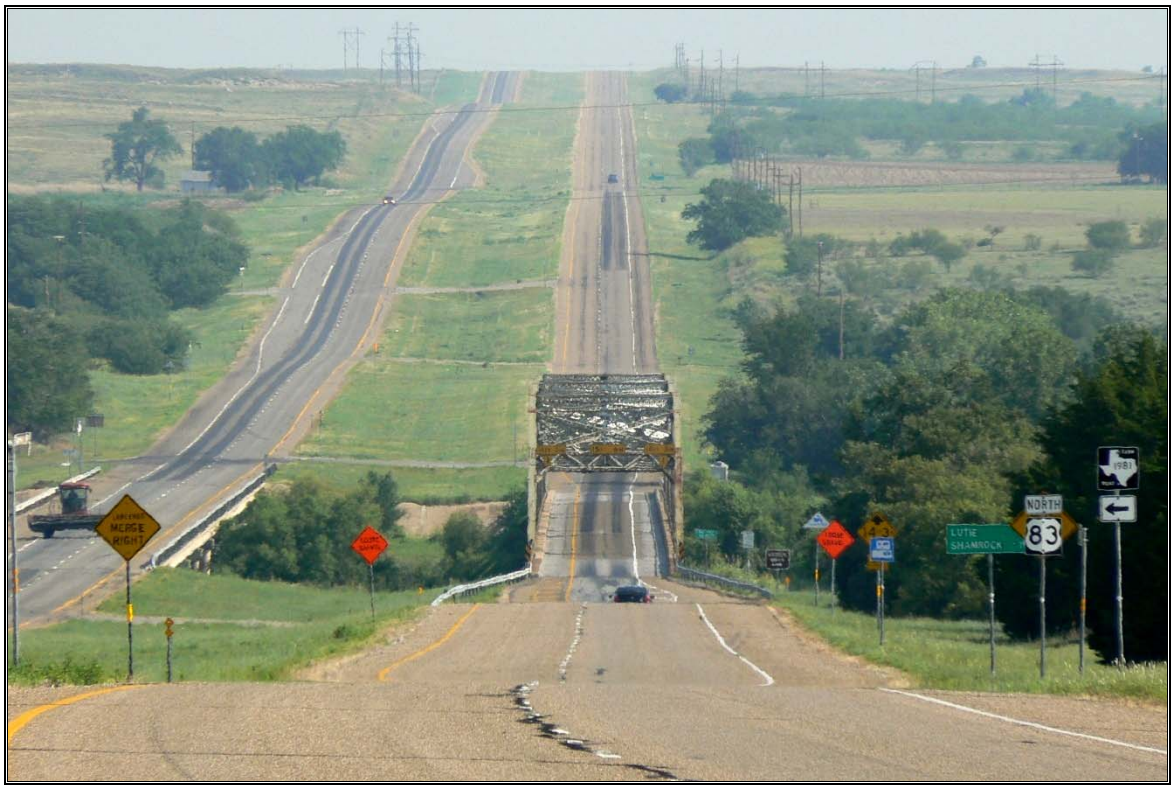


Figure 1. View of US 83 NB and SB lanes at Salt Fork of the Red River, camera facing north. Note swather (windrower) crossing SB bridge at lower left of frame.

Figure 2. View of US 83 SB (on left) and NB bridges (on right) with south crossover in foreground, camera facing north. The crossover would be eliminated in Alternatives 3a-c.

Figure 3. View of US 83 NB historic Parker through truss bridge superstructure, camera facing north.

Figure 3a. View of US 83 NB historic Parker through truss bridge superstructure, camera facing north.

Figure 4. View of NB truss bridge at meeting of south approach spans and the south main span, camera facing northwest.

4a: View of US 83 Bridge, cross over, and rest stop entrance. Looking SE.

4b: View of US 83 trusses from median showing how trusses obscure NB traffic on bridge from NB vehicles in crossover. Looking S.

Figure 5. Detail of south approach span timber bent constructed in 1932.

Figure 6. Scenic view of the Salt Fork of the Red River main channel taken from the center span, camera facing east (downriver).

Figure 7. Elevation of Pier No. 8 at connection between second and third truss spans, camera facing west.

Figure 8. Oblique detail view of Pier No. 8, camera facing northwest.

Figure 9. Elevation of Pier No. 9 at connection between northern most truss span and north approach span, camera facing east.

Figure 10. View of truss span substructure, camera facing north.

Figure 11. Detail view of truss span substructure showing corrosion of beams (section loss), camera facing northeast.

Figure 12. View of modifications to substructure, camera facing south.

Figure 13. View of substructure and abutment, camera facing north.

Figure 14. View of truss and north approach spans of historic bridge, camera facing southeast. Existing SB bridge at right in frame.

Figure 15. View of truss span, Piers 9, 10, and 11. Camera facing northeast.

Figure 16. View of existing NB (on left) and SB (on right) lanes in project area, camera facing south. Alternative 3a would eliminate many of the existing crossovers by the construction of the proposed NB lanes in between the existing roadways.

Figure 17. View of US 83 SB and NB bridges, camera facing northeast. Photograph taken from deck of SB bridge.

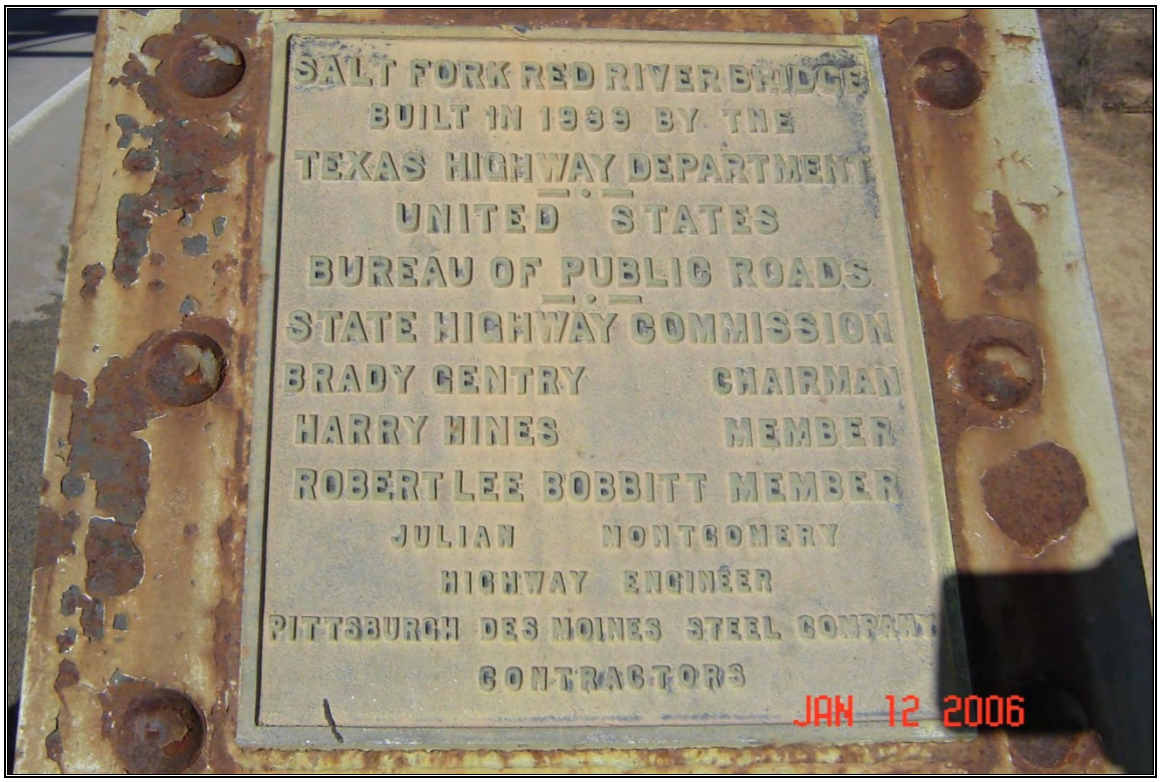


Figure 18. View of bridge dedication plaque.

Figure 19. View of Collingsworth Pioneer's Park and TxDOT Rest Area, camera facing southwest. Park and Rest Area are located on the north bank of the river and west of the bridges. Entrance to park and rest area are to the left of the frame.

Figure 20. Rocking Chair "Ranche" marker at entrance to Collingsworth Pioneer's Park and TxDOT Rest Area.

Figure 21. View of southern section of the county park with abutments of "Bonnie and Clyde" bridge in foreground and the US 83 bridges in the background, camera facing southeast.

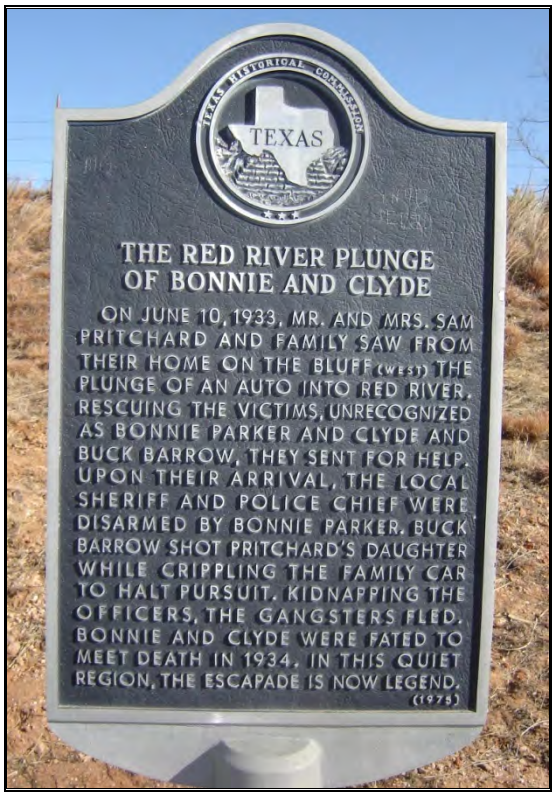


Figure 22. Official State Historical Marker #4218. "Red River Plunge of Bonnie and Clyde" erected in 1975. Marker is located south of the historic truss bridge just off the east shoulder

Figure 23. Bridge closure looking north.

Figure 24. Bridge closure looking south.

Figure 25. Bridge closure looking south. Traffic cones on the deck indicate the location of the hole.

Figure 26. Hole in bridge deck..

Figure 27. Hole in bridge deck..

Figure 28. Itinerant combine crew equipment, Munday, TX.

Figure 29. Itinerant combine crew equipment, Munday, TX.

Figure 30a. Itinerant combine crew equipment, Knox City, TX.

Figure 30b. Itinerant combine crew trailers, Munday, TX.

Figure 31. Wind turbine on the FM 1574 segment of the US 83 detour.

Figure 31a. Wind turbine on the FM 1574 segment of the US 83 detour. Notice how the truck is straddling the centerline because FM roads such as this one are not designed for over width and over weight loads.

Figure 32. April 2011 accident.

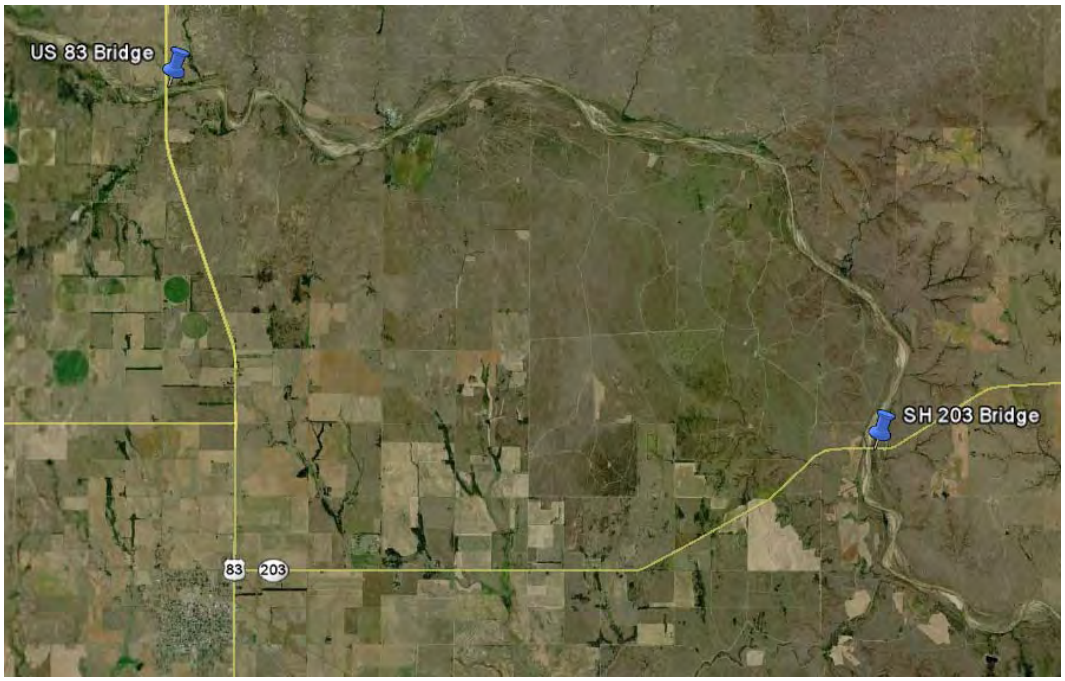


Figure 33. Location map for SH 203 truss bridge in relationship to US 83 truss bridge.

Figure 34. Distant view of SH 203 bridge, camera facing southwest.

Figure 35. Detail of SH 203 bridge approach and rail, camera facing east.

Figure 36. Detail of SH 203 bridge plaque.

Figure 37. SH 203 bridge, camera facing northeast.

Figure 38. Detail of SH 203 bridge pier, camera facing west.

Figure 39. SH 203 bridge approach, camera facing west.

Figure 40. SH 203 bridge, camera facing north.

Figure 41. Detail of SH 203 bridge pier, camera facing south.

Figure 42. Damage to portal bracing on south most truss, looking south.

Figure 43. Damage to portal bracing on south most truss, looking northwest.

Figure 44. Damage to portal bracing on north most truss, looking north.

Figure 45. Damage to portal bracing on north most truss, looking east.

Appendix C: Comparative Data

THC Historic Sites Atlas Data
Parker Through Truss Census Map
Parker Through Truss Census Data

U.S. 83 Bridge at the Salt Fork of the Red River

Reference Number:	96001117
Resource Name:	US 83 Bridge at the Salt Fork of the Red River
Other Name:	CG0031-03-002
Address:	US 83, 16 mi. S of Wheeler Cnty. line
Restricted:	
City:	Wellington
State:	
County:	Collingsworth
Ownership:	STATE
Resource Type:	STRUCTURE
Number of Contributing Buildings:	0
Number of Contributing Sites:	0
Number of Contributing Structures:	1
Number of Contributing Objects:	0
Number of Non-contributing Buildings:	0
Number of Non-contributing Sites:	0
Number of Non-contributing Structures:	0
Number of Non-contributing Objects:	0
Federal Agency:	
Related Multiple Property Listing:	Historic Bridges of Texas MPS
Nominated Name:	STATE GOVERNMENT
Certification:	LISTED IN THE NATIONAL REGISTER
Certification Date:	1996-10-10 00:00:00.000
Significance Level:	STATE
Significant Person:	
Circa:	
Significant Dates:	1939
Cultural Affiliation:	
Architect:	Pittsburgh-DesMoines Steel Co.; Texas Highway Department
Other Description:	parker through truss bridge
Applicable Criteria:	ARCHITECTURE/ENGINEERING

Criteria Considerations:	
Areas of Significance:	ENGINEERING
Architectural Style:	OTHER
Current Function:	TRANSPORTATION
Subfunction:	ROAD-RELATED
Historic Function:	TRANSPORTATION
Historic Subfunction:	ROAD-RELATED
Foundation Material:	STEEL
Wall Material:	NONE LISTED
Roof Material:	NONE LISTED
Other Materials:	CONCRETE
Other Certifications:	DATE RECEIVED/PENDING NOMINATION
Other Documentation:	
Period of Significance:	1925-1949

Acreage:	9

Narrative: **Description:**

The US 83 Bridge at the Salt Fork of the Red River consists of three 179-foot Parker through truss spans and eight steel I-beam approach spans (see Photograph 2). The bridge carries a single lane of northbound traffic on US 83 (see Figure 1). It is in central Collingsworth County, about seven miles north of Wellington, the county seat. Collingsworth County is in the Texas Panhandle bordering Oklahoma. The county's economy relies primarily on cattle ranching as well as cotton, grain and peanut farming.

Texas Highway Department (THD) engineers developed a special design for the bridge's three riveted Parker through truss spans, each measuring 178 feet 8 inches. These truss spans rest on reinforced concrete piers consisting of battered cylindrical columns in a dumbbell configuration. The bridge's eight steel I-beam approach spans are supported on a series of concrete and timber bents. Custom-designed railing adorns both the truss spans and the approach spans, forming a continuous line over the bridge's entire length. This unique railing consisted of three horizontal elements (a channel member at mid-height with angle members above and below it) attached to steel channel posts (see Photograph 1). The bridge's southern entrance features a bronze plaque affixed to the truss end post. In addition to naming the bridge contractor, the plaque identifies THD and the Bureau of Public Roads (BPR) as the governmental agencies responsible for the project. It reads:

SALT FORK RED RIVER BRIDGE

BUILT IN 1939 BY THE
TEXAS HIGHWAY DEPARTMENT
*
UNITED STATES
BUREAU OF PUBLIC ROADS
*
STATE HIGHWAY COMMISSION
BRADY GENTRY CHAIRMAN
HARRY HINES MEMBER
ROBERT LEE BOBBITT MEMBER
JULIAN MONTGOMERY
HIGHWAY ENGINEER
PITTSBURGH DES MOINES STEEL COMPANY
CONTRACTORS

A water level gaging station operated by the United States Geological Survey (USGS) is attached to the bridge's east side.

In 1939, the Pittsburgh-Des Moines Steel Company reconstructed the flood-damaged Salt Fork bridge under contract to THD. The former bridge (completed in 1934) consisted of 29 I-beam spans, only eight of which survived the flood undamaged. The bridge was reconstructed using these eight spans augmented by three new truss spans and two new approach spans. In 1949, five approach spans on the bridge's north end were damaged in a fire. The Buckner Brothers, under contract to THD, replaced the five damaged spans with three longer steel I-beam spans. From 1973 to 1975, THD undertook a project to turn the Salt Fork bridge into part of a one-way pair by constructing a companion bridge to serve southbound lanes. No other major alterations have been performed on the bridge. Although the reconstruction of the bridge's north end resulted in a loss of original material, the work was carried out in a manner compatible with the bridge's original construction. As such, the bridge retains substantial integrity of design, materials and workmanship. Because the bridge remains in place serving highway traffic, it also retains integrity of location and association. Although the construction of the companion bridge has somewhat compromised integrity of setting and feeling, the truss bridge retains substantial integrity overall. Although no projects are currently planned for this bridge, its BRINSAP sufficiency rating as of April 1995 is 46.9, making the bridge eligible for replacement under the federal Highway Bridge Replacement and Rehabilitation program (HBRRP).

general specs

truss type:	Parker through
thd std. design:	n/a
no. truss spans:	3
truss span length:	179'
roadway width:	24'
deck width:	27'
approach spans:	1 - 60'3", 1 - 41'1", 1 - 40'4" & 5 - 28'6" steel I-beam spans

overall length:	827'
special features	
bridge plaque:	yes
approach railing:	steel railing
other:	bridge reconstructed using approach spans from previous bridge superstructure
truss depth:	33'6"
truss panels:	8 - 22'4" panels
top chord & end posts:	2 channels w/ cover plate and lacing
bottom chord:	2 channels w/ batten plates
vertical posts:	2 channels w/ lacing or I-beam
diagonal members:	2 angles w/ batten plates or I-beam
deck type:	concrete
substructure	
piers/interior bents:	concrete piers and bents
thd std. design:	n/a
abutments/end bents:	concrete end bents
thd std. design:	n/a

Statement of Significance:

The US 83 Bridge at the Salt Fork of the Red River was constructed in 1939. It is significant under Criterion C for embodying the defining characteristics of a THD truss bridge and as an example of a bridge employing "technically complex, advanced or innovative designs or construction methods." As such the bridge meets National Register Criterion C in the area of Engineering at a state level of significance.

The Salt Fork bridge was built on US 83, former State Highway (SH) 4. SH 4 ran south-to-north from Uvalde and Del Rio to the Texas and Oklahoma state line. By about 1930, the northern portion of the route through the Texas Panhandle was designated SH 4/US 83, and by 1938 the original SH 4 designation had been dropped.

On June 15 and 16, 1938, a devastating flood washed out the original Salt Fork bridge. Fifteen of the bridge's 29 steel I-beam spans were washed out; several others were damaged. The high water elevation exceeded that previously recorded at the bridge site by about 5 inches. The same flood also washed out a bridge 12 miles downstream on SH 52 (now SH 203).

THD immediately applied for federal emergency relief funding to cover up to 50 percent of the reconstruction of the two bridges; state funds had been appropriated for the repair of other bridges and roadways washed out by the flood. BPR approved the use of emergency relief highway funds provided for

under Section 3 of the Hayden-Cartwright Act of 1934. In addition to extending federal relief funding established under the National Industrial Recovery Act, the Hayden-Cartwright Act provided emergency funds for the repair or reconstruction of highways and bridges on the federal aid system "which have been damaged or destroyed by floods, hurricanes, earthquakes or landslides. . . ." THD engineers prepared the plans for the reconstruction of the two bridges in Collingsworth County, and BPR engineers reviewed and approved them.

Rather than use a standard design, THD bridge engineers specially designed the 178-foot-8-inch riveted Parker through truss spans for use on the two bridges. Nine other Parker truss bridges specially designed by THD survive today. Instead of repairing the damaged bridge downstream on SH 52, THD engineers chose to replace the structure with a new bridge consisting of four truss spans and a single I-beam approach span. The US 83 Bridge, on the other hand, was reconstructed using eight of the original 28-foot I-beam spans. In addition, two more such spans were rebuilt according to the original design. Using the short spans from the original bridge in combination with longer truss spans saved money while providing clearance for drift. The 10 approach spans rested on the existing timber pile bents from the original structure. Treated wood sheathing was placed around the bents to protect them from weathering (see Photograph 3). Three truss spans were added, as were the four dumbbell piers supporting them (see Figure 2). The Type L steel and concrete railing employed on the original I-beam spans was removed, and custom-designed steel railing, matching that used on the trusses, was placed on all 10 of the bridge's approach spans. While the bridge downstream on SH 52 (now SH 203) also survives, the US 83 Bridge at the Salt Fork of the Red River, displaying specially designed steel approach railing and representing technological innovation in the reconstruction of a flood-damaged bridge, is the better of the two examples.

The Texas Highway Commission first held bidding for the US 83 bridge reconstruction in November 1938. Only two bids were received, both nearly 40 percent above THD's preliminary estimate. THD engineers modified the pier design slightly in the hope of attracting lower bids. After the second call for bids in February 1939, six bids were received. The lowest bid, of just under $191,000, came to within 6 percent of the estimate. The Pittsburgh-Des Moines Steel Company of Des Moines, Iowa, submitted the low bid and was awarded the contract. Work on the bridge began on April 24, 1939. The THD resident engineer in Wellington supervised the construction which engineers from THD and BPR periodically inspected. The bridge was completed on November 28, 1939, at a cost of just over $197,000. The federal contribution through the Emergency Relief Program came to about $97,000.

On Saturday, June 25, 1949, a gasoline truck collided with two automobiles on the Salt Fork bridge; the resulting fire damaged five approach spans on the north end of the bridge. By 10:15 a.m. on Monday, June 27, THD had received three telephone bids for the bridge's reconstruction and had awarded the contract to the Buckner Brothers of Cleburne, Texas. The Buckner Brothers' bid was $17,136 which fell substantially below THD's preliminary estimate of $25,000. Work on the bridge began on Tuesday, June 28, and was completed on July 26. The urgency of the project was reflected in a memo from J.B.

Nabers, District Engineer, to D.C. Greer, then State Highway Engineer, dated September 30, 1949:

When 142 feet of the Salt Fork of the Red River Bridge was destroyed by fire about two months ago, your office and this office proceeded as rapidly as possible to replace the bridge. It was completed except for curing of the concrete, twenty-one days after the fire. Construction started Tuesday morning after the fire on Saturday afternoon. Someone made an estimate of $25,000 to make the replacement. We had no plans and no accurate idea of the cost. When the job was completed, the final cost was $31,079.85. Please request the proper authorities to make an additional appropriation of $6,079.85 to take care of the over-run on this project.

In reconstructing the damaged north end of the bridge, the Buckner Brothers replaced the five 28-foot I-beam spans with three I-beam spans measuring roughly 60, 41 and 40 feet. The I-beams making up these spans were salvaged from a grade separation structure (i.e. underpass or overpass) near Waco. Workers were able to salvage the steel approach railing from the damaged spans and erected them on the three replacement spans. Rather than using timber piling as was employed in the original bents, the replacement bents were constructed with steel piling.

From 1973 to 1975, THD responded to increasing traffic volumes on US 83 by constructing a prestressed concrete beam bridge adjacent to the Salt Fork bridge to serve southbound traffic. The original truss bridge was then converted into a one-way bridge serving northbound traffic; it currently provides a single lane in that direction. This configuration lightened the traffic burden on the truss bridge, allowing for its preservation in place. Although the construction of the companion structure has somewhat altered the setting of the truss bridge, as a transportation facility it is compatible with the use of the original bridge and therefore does not significantly compromise its integrity.

Bibliography:

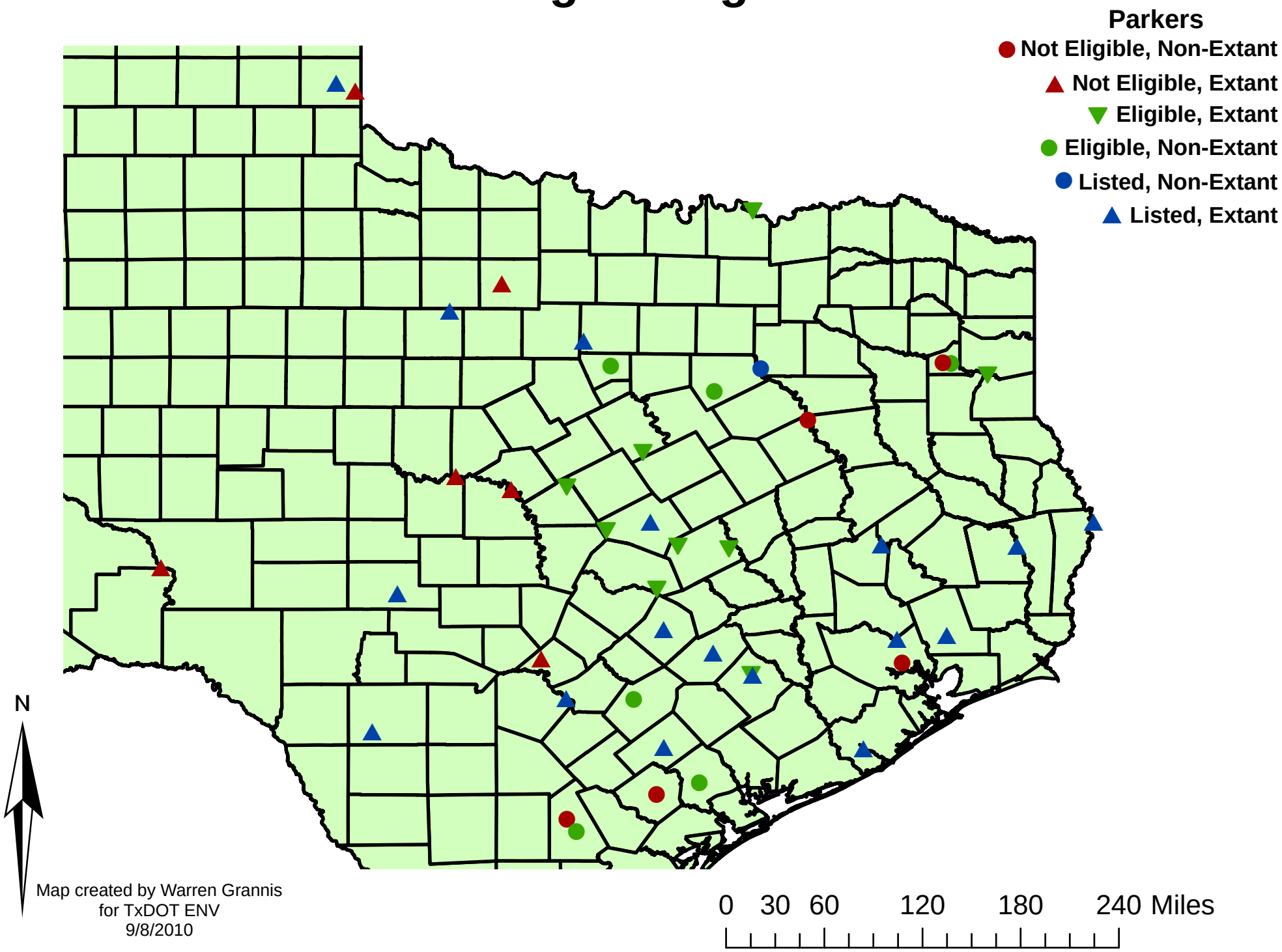
Texas Highway Department. General Information on Texas Highways. Austin: Von Boeckmann-Jones, 1919.

Texas Highway Department. Plans of Proposed State Highway Improvement. Control-Section-Job No. 0031-03-005, located at TxDOT headquarters in Austin.

Texas Highway Department. Project Correspondence Files. Control-Section-Job No. 0031-03-005, located at TxDOT headquarters in Austin.

Texas Highway Department. Project Correspondence Files. Control-Section-Job No. 0031-03-009, located at TxDOT headquarters in Austin.

Parker Through Bridges In Texas



Map created by Warren Grannis
for TxDOT ENV
9/8/2010

Known Parker Trusses in Texas

County	National Bridge Inventory Number	Facility Carried	Feature Crossed	Year Built	Historical Significance	Structure Length (feet)	Maximum Span Length (feet)	Total Number of Spans	Disposition
Grayson	010920004701001	US 69	Red River	1931	2	1,242	25	8	Removed
Hood	021120008010024	LOOP 426	Brazos River	1932	2	1,035	13	3	Removed
Parker	021840031401006	IH 20 N FTG RD	BRAZOS RIVER	1934	1	892	165	14	Rehabilitated
Young	032520036102007	US 380	Brazos River	1933	0	1,063	17	5	Bypassed
Crockett	070530014008051	SH 290	PECOS RIVER	1933	3	940	150	27	In Service
Kimble	071340014201035	IH 10 N FR RD	JOHNSON FORK CREEK	1938	1	666	120	10	Conversion
Shackelford	082090012504019	US 283	Clear Fork Brazos River	1929	1	457	15	11	Bypassed
Bell	090140001505060	FM 817	LEON RIVER	1939	1	412	200	5	In Service
Bell	090140AA0539001	CR 539 (MAXDALE RO	Lampasas River	1914	2			1	Bypassed
Bosque	090180AA0174001	CR 174	N Bosque River	1909	2	354	22	1	Replaced
Anderson	100010012204018	US 287	Trinity River	1935	3	819	20	1	Replaced
Gregg	100930013801002	SH 31 SOUTHBOUND	Sabine River	1934	2	984	17	20	Removed
Gregg	100930054504008	SH 42	Sabine River	1938	3	311	15	1	Removed
Trinity	112280010908023	SH 19 SB BYPASS	TRINITY RIVER	1941	1	2,934	250	54	In Service
Brazoria	120200152401017	FM521	BRAZOS RIVER & SH 332	1939	1	1,124	222	17	In Service
Harris	121020017706027	NB FR ROAD US 59	San Jacinto River	1931	1	1,498	20	32	Bypassed
Harris	121020XXXXXX001	MARKET ST E BND	Greens Bayou	1927	0			1	Removed
Colorado	130450002701001	US 90	COLORADO RIVER	1932	1	766	200	8	In Service

Colorado	130450026608043	BU 71 F	COLORADO RIVER	1949	2	1,042	225	10	In Service
DeWitt	130620014308037	US 87	GUADALUPE RIVER	1938	1	1,295	250	21	In Service
Fayette	130760026514038	BU 71 E	COLORADO RIVER	1941	1	1,414	200	13	In Service
Gonzales	130900AA0143001	CR 143	Guadalupe River	1913	2	360	14	8	Rehabbed & Relocated
Victoria	132350008804021	US 59	Guadalupe River	1932	2	377	18	1	Removed
Bastrop	140110C00045001	PEDEST. (LP 150)	COLORADO RIVER	1924	1	1,285	195	21	Bypassed
Williamson	142460AA0410001	CR 456	BRUSHY CREEK	1912	2	140	136	1	Rehabilitated
Bexar	150150002502011	IH 10 NFR	CIBOLO CREEK	1933	1	434	120	7	Conversion
Comal	150460025303019	US 281 SB	GUADALUPE RIVER	1935	3	612	200	6	In Service
Uvalde	152320002305038	US 90 EB	NUECES RIVER	1933	1	975	150	12	Conversion
Goliad	160890015504007	US 183	San Antonio River	1934	4	379	12	7	Removed
Live Oak	161490025401006	US 281	Nueces River	1931	3	933	13	1	Removed
Live Oak	161490AA0342001	CR 342	Nueces River	XXXX	2			1	Demolished
Milam	171660AA0493002	CR 493	Little River	1913	2	437	15	1	Bypassed
Milam	171660AA0525001	CR 264	SAN GABRIEL RIVER	1906	2	310	234	5	Pedestrian
Ellis	180710004805017	US 77	Chambers Creek	1929	2	209	15	1	Removed
Kaufman	181300017302008	SH 34	Trinity River	1934	1	1,708	15	54	Replaced
Harrison	191030020705005	SH 43	Sabine River	1932	2	952	15	39	Bypassed
Jasper	201220021308074	US 190	NECHES RIVER	1943	1	1,601	240	32	In Service
Liberty	201460002803022	US 90	Trinity River	1930	1	1,465	15	33	Abandoned
Newton	201760021404005	SH 63	SABINE RIVER	1937	1	1,882	250	37	In Service
Brown	230250012801010	US 377	Colorado River	1931	3	848	20	3	Bypassed

Lampasas	231410AA0105001	CR 2925	LAMPASAS RIVER	1907	2	151	149	1	Bypassed
Mills	231670028903040	SH 16	COLORADO RIVER	1939	3	1,205	150	20	In Service
Collingsworth	250440003103002	US 83 NB	SALT FORK OF RED RIVER	1939	1	827	179	11	In Service
Collingsworth	250440023001006	SH 203	SALT FORK OF RED RIV	1939	3	753	179	5	In Service

Historical
Significance Key:
0 = Not evaluated by 1995 survey
1 = NRHP Listed
2 = NRHP Eligible
3 = Not NRHP Eligble
4 = Not evaluated by 1995 survey

Appendix D

Excerpts from: *On-System Historic Metal Truss Bridge Task Force Final Report*,

April 25, 2002

ON-SYSTEM
HISTORIC METAL TRUSS BRIDGE
TASK FORCE

FINAL REPORT

Texas
Department
of Transportation

Prepared by:
Texas Department of Transportation

Design Division
Environmental Affairs Division

TABLE OF CONTENTS

	PREFACE	2
I.	INTRODUCTION	3
	A. On-System Truss Bridges	
	B. Regulatory Obligations	
	C. Formation of the Historic Bridge Task Force	
II.	EVALUATION METHODOLOGY	6
	A. Overview of the Methodology	
	B. Preservation Options	
	C. Evaluation for Vehicular Use	
	D. Evaluation Tools	
III.	DECISION-MAKING FACTORS	10
	A. Technical Criteria	
	B. Historic Significance and Public Interest	
	C. Economic Considerations	
IV.	APPLICATION OF METHODOLOGY	18
	A. Historic Bridge Task Force Evaluations	
	B. Further Analysis of Preservation Options	
	C. Evaluation of Other Historic Bridges	
V.	TASK FORCE RECOMMENDED OPTIONS	20
	A. Summary and Table	
	B. Recommendation Sheets	
	APPENDICES	
	A. Task Force Charter	
	B. Historic Bridge Information Sheet	
	C. Flowchart	
	D. Historic Bridge Worksheet	
	E. Guide to Bridge Coordination Process	
	F. Design Criteria for Off-System Historic Truss Bridges	

PREFACE

Special thanks must be given to the members of the On-System Historic Bridge Task Force. These individuals devoted countless hours of their time and effort to this project. Historic Bridge Task Force members attended numerous planning meetings, traveled throughout the state for field visits, and evaluated available preservation options for each bridge. By sharing their knowledge and giving their time, the Historic Bridge Task Force members made this report possible. Below is a list of Historic Bridge Task Force members, grouped into the three teams in which the members worked. The list also shows each member's place of employment in 1996, when the Historic Bridge Task Force was operational. Several members have changed employment, while others that were part of the Design Division are now part of the more recently formed Bridge Division.

Team 1:

Bruce Bayless	TxDOT/Yoakum District
Michael O'Toole	TxDOT/Design Division
John Ritter	TxDOT/Beaumont District
Barbara Stocklin	TxDOT/Environmental Affairs Division

Team 2:

David Casteel	TxDOT/Abilene District
Alan Matejowsky	TxDOT/Design Division
Gary Hammer	TxDOT/Environmental Affairs Division
Regina Lauderdale	Office of the State Historic Preservation Officer

Team 3:

Chris Freeman	TxDOT/Austin District
Tamer Ahmed	Federal Highway Administration
Charles Walker	TxDOT/Design Division
Linda Roark	Office of the State Historic Preservation Officer

I. INTRODUCTION

The Historic Bridge Task Force was formed in 1996 for the purpose of developing a methodology to evaluate preservation options for on-system truss bridges that are listed, or are eligible for listing in the National Register of Historic Places.

The Historic Bridge Task Force developed a methodology and utilized it to make specific preservation recommendations for each of 38 on-system truss bridges. The preservation plans consist of recommended actions based on the present and foreseeable operational and functional needs of the individual bridges. This report will outline the essential features of the methodology, discuss its application, and present the results of the individual evaluations.

A. On-System Truss Bridges

Since its inception in 1917, the Texas Department of Transportation (TxDOT) and its predecessor agency, the Texas Highway Department, has constructed an unparalleled system of highways stretching across the state. From the beginning, the metal truss bridge has been one of the most noticeable features on the state highway system.

Many of the state's historic on-system truss bridges have been replaced over the years. The remaining on-system truss bridges often do not meet current design criteria for rehabilitation due to narrow deck widths, low vertical clearances, and substandard load capacity. Over the last several years, there have been increasing pressures to replace the remaining on-system truss bridges.

At present there are 38 metal truss bridges 50 years of age or older, remaining on the state highway system. Of these 38 bridges, 33 are listed in the National Register of Historic Places. Bridges listed in, or eligible for listing in the National Register of Historic Places are historic bridges. This study is devoted to developing a comprehensive preservation plan for the remaining on-system historic truss bridges in keeping with TxDOT's federal regulatory obligations.

Of the 38 remaining metal truss bridges, five were previously determined not eligible for listing in the National Register. However, given that the eligibility status of these "not eligible" bridges will be reevaluated at a later date, and given that their age and rarity increases over time as National Register listed bridges continue to be removed from service, the Historic Bridge Task Force members felt that TxDOT's long range comprehensive planning was best served by including these "not eligible" bridges in this study.

B. Regulatory Obligations

Section 106 of the National Historic Preservation Act of 1966, as Amended, requires TxDOT, acting as an agent for the Federal Highway Administration (FHWA), to coordinate all federally funded, licensed or permitted bridge projects involving bridges 50

years of age or older with the staff of the State Historic Preservation Officer (SHPO). In Texas, the SHPO is the Executive Director of the Texas Historical Commission. In order to meet the provisions of this law, TxDOT must consider historic bridge issues early in the project planning and development process, and consider a wide range of project alternatives, including preservation and rehabilitation alternatives. TxDOT must also reach agreement with the SHPO regarding any plans to mitigate or minimize impacts to these historic properties.

Based on agreements with the SHPO, and requirements of the Section 106 Regulations, TxDOT must also seek the input of the county historical commission, other local historical groups and the interested public early in the project development process, for any projects involving historic bridges. The local historical groups are encouraged to comment on the bridge's local significance and on the bridge's National Register eligibility status, if one has been determined. If changes to a historic bridge are included as part of a larger roadway improvement project, additional public involvement may be needed, under the requirements of the National Environmental Policy Act (NEPA). (See Section III-B for more detail.)

TxDOT's Environmental Affairs Division (ENV) has developed a bridge project coordination process to ensure that bridge replacement projects comply with preservation laws and regulations, and to facilitate project coordination with the SHPO (Appendix E).

C. Formation of the Historic Bridge Task Force

In the past, the bridge project coordination process has allowed TxDOT to reach mitigation agreements with the SHPO with few problems. However, SHPO has noted the rising number of bridge replacement projects and their impacts on historic bridges. Recently, SHPO has expressed strong reservations about several historic bridge replacement projects. SHPO concern and increased public interest have lengthened the consultation process. In past mitigation agreements, SHPO emphasized the need for comprehensive and comparative information in order to evaluate the preservation potential of on-system historic truss bridges. Also, FHWA has a regulatory commitment to preserving those bridges with the best potential for rehabilitation and continued use.

In response to these concerns, and with an interest in proactively evaluating the preservation options for the remaining on-system historic metal truss bridges, TxDOT organized the Historic Bridge Task Force. The Historic Bridge Task Force was jointly sponsored by Robert Wilson, P.E., Director of TxDOT's Design Division (DES), and by Dianna Noble, P.E., Director, Environmental Affairs Division. The idea of a task force was first introduced in 1995, with the first full meeting of the Historic Bridge Task Force taking place in April 1996. The Task Force included representatives from the DES, ENV, TxDOT districts, SHPO, and FHWA.

The purpose of the Historic Bridge Task Force was to develop a comprehensive process for evaluating the preservation potential of historic highway (on-system) truss bridges in Texas, with due consideration of the varied factors that could affect eventual preservation

alternatives. These factors include engineering, safety, preservation, economic, and public input issues. The Task Force was then charged with applying the comprehensive methodology to the 38 on-system truss bridges.

The recommendations for the 38 bridges can be used to focus alternative analysis efforts for upcoming projects, by clearly laying out preferred options and discarding unrealistic alternatives. The methodology developed by the Historic Bridge Task Force can be used as a decision-making tool, to evaluate possible alternatives for future bridge projects. The Task Force's recommendations, and the underlying methodology and evaluation process, may enhance TxDOT's credibility for sound decision-making.

TASK FORCE RECOMMENDED OPTIONS

US 83 (northbound lane) at the Salt Fork of the Red River, Collingsworth County
CSS 0031-03-002

Refer to checklists for an evaluation of all preservation options.

TASK FORCE RECOMMENDED OPTIONS

Childress District

US 83 (northbound lane) at the Salt Fork of the Red River, Collingsworth County
CSS 0031-03-002 (task force #14)

Historic Significance:

Built 1939, 3 spans @ 179' Parker through (custom design), open steel railing

Bridge embodies the defining characteristics of a THD truss bridge with a combination of typifying features including multiple truss spans and open steel railing.

Bridge was rebuilt using approach spans from the earlier bridge including the original timber bents. Therefore, bridge is significant for employing "technically complex, advanced or innovative designs or construction methods."

PREFERRED OPTION: Recordation and Removal (checklist F)

Description: This bridge would be recorded and removed and a similar bridge, located just downstream on SH 203 and currently classified as ***not eligible*** for National Register listing, would be reclassified as National Register eligible.

The US 83 bridge was determined eligible, rather than the SH 203 bridge, because the former bridge included approach spans from an earlier bridge at the site. Otherwise, the four Parker through trusses which make up the SH 203 structure are identical to the three trusses of the US 83 bridge. Both bridges were constructed as federal aid projects in 1939.

The US 83 bridge suffers from advanced deterioration, including decaying timber bents and exposed reinforcing steel bar on bent caps. These factors, in addition to unacceptable geometric and a high percentage of truck traffic, make it unwise to retain this bridge. The SH 203 bridge is in better condition than the US 83 structure and has a lower ADT. The district currently has no plans to replace the SH 203 bridge or widen the roadway. Consequently, the SH 203 structure is a better candidate for preservation and could remain in service for the foreseeable future. Given the likelihood that the SH 203 bridge will be preserved, we recommend that it be reclassified as National Register eligible and that the US 83 bridge be documented and removed, as planned.

Implementation: The plan to substitute the SH 203 bridge for the loss of this bridge will have to be coordinated with THC. In order for the SH 203 bridge to be considered a good candidate for preservation (and therefore a good substitute for the loss of the US 83 bridge), a general maintenance plan to address deterioration problems (including the pack rust evident on the bridge) should be implemented.

DECEMBER 2001 UPDATE: Bridge is currently scheduled for replacement in May 2002 (CSJ 0031-03-029). No historic bridge agreement has been executed with BRG. There has been local interest in retaining the bridge. Waiting on confirmation from district, concerning the plans to leave the historic bridge in place and use as a historic bridge turnout, with access to a nearby county park.

Refer to checklists for an evaluation of all preservation options.

Appendix E: Maintenance Issues

Cathodic Protection Efforts
Wellington Maintenance Section Supervisor Email
Deicer Chemical Comparison Table
Comparison of Maintenance Expenses for Selected On-System Trusses
Maintenance Expenses for US 83 at Salt Fork Red River Bridge Breakdown
FHWA Documents Concerning the 10 year Rule
SH 203 Maintenance Plan and Rehabilitation Funding

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INTERIM REPORT

DEMONSTRATION PROJECT NO. 34

CATHODIC PROTECTION FOR REINFORCED CONCRETE BRIDGE DECKS

PREPARED BY: DONALD R. JACKSON

OCTOBER 1982

FEDERAL HIGHWAY ADMINISTRATION
DEMONSTRATION PROJECTS DIVISION
1000 NORTH GLEBE ROAD
ARLINGTON, VIRGINIA 22201

APPENDIX "E"

Information Sheets For Demonstration Installations

CATHODIC PROTECTION SYSTEMS

Agency	Bridge Type	Bridge Location	Year Bridge Built	Total Deck Area (Sq.Ft.)	Deck Condition: Chloride Content at Rebar Level (lb./cy.)	Deck Condition: Average Air Void Content (%)	Deck Condition: Delaminated Areas (%)	Type of Cathodic System	Date that System was Energized	Total Cost of Cathodic System	Performance of Cathodic System
City of Akron, Ohio	3-Span Continuous Steel Beam	North Arlington Street	1970	5,225	>2.0	8.0	0	Impressed Current w/Overlay	10/79	$ 67,665	Satisfactory
Georgia DOT	4-Span Continuous Steel Beam	SR53 in Jackson County	1964	8,840	.80	4.3	-	Impressed Current w/Overlay	7/80	-	Satisfactory
Illinois DOT	2-Span Continuous Steel Beam	I-74 in McLean County	1964	2,484	2.87	4.9	12	Impressed Current w/Overlay	9/77	$ 27,000	Satisfactory
Minnesota DOT	3-Span with Prestressed Concrete Girders	TH100 in Hennepin County	1960	7,400	8.40	5.7	26	Impressed Current w/Overlay	3/76	$ 32,214	Satisfactory
Nebraska DOT	3-Span with Prestressed Concrete Girders	I-80 near Omaha	1958	5,160	>2.0	>5.0	Minimal	Impressed Current w/Overlay	8/75	$ 27,163	Satisfactory
Ohio DOT	3-Span Continuous Steel Beam	I-670 in Columbus	1962	11,613	3.2-8.6	5.2	20	Impressed Current w/Overlay	6/77	$ 61,511	Satisfactory
Pennsylvania DOT	2-Span Continuous Steel Beam	US 11-15 in Union County	1954	8,874	3.82	-	20	Impressed Current w/Overlay	6/77	$ 51,300	Satisfactory
Texas State DHPT	3-Span Continuous Steel Beam	US 83 in Collingworth County	1957	3,384	2.25	-	-	Impressed Current w/Overlay	12/77	$ 16,542	Satisfactory
Wisconsin DOT	4-Span Continuous Steel Beam	TH "F" near Waukesha	1957	5,148	5.0-6.0	4.5	12	Impressed Current w/Overlay	1/77	$ 34,999	Satisfactory
National Park Service	3-Span Steel Girder	Dead Run on GWMP in Fairfax Co. Virginia	1960	8,400	>2.0	7.4	10	Impressed Current w/Overlay	4/76	$ 88,000	Satisfactory when power is available
National Park Service	4-Span Steel Girder	EB Turkey Run on GWMP in Fairfax Co. Virginia	1960	11,200	1.0-4.0	5.5	11.5	Impressed Current w/Overlay	10/75	$123,200	Satisfactory
National Park Service	4-Span Steel Girder	WB Turkey Run on GWMP in Fairfax Co. Virginia	1960	11,200	2.5-10.5	7.2	10	Impressed Current w/Overlay	10/75	$123,200	Satisfactory

CATHODIC PROTECTION SYSTEMS

Agency	Bridge Type	Bridge Location	Year Bridge Built	Total Deck Area (Sq.Ft.)	Deck Condition			Type of Cathodic System	Date that System was Energized	Total Cost of Cathodic System	Performance of Cathodic System
					Chloride Content at Rebar Level (lb./cy.)	Average Air Void Content (%)	Delaminated Areas (%)				
City of Akron, Ohio	3-Span Continuous Steel Beam	North Arlington Street	1966	6,426	6.1-25.6	6.5	0	Impressed Current Non-Overlay	2/82	$ 61,750	Satisfactory except for problem with sealant
Ohio DOT	3-Span Steel Beam	I-670 in Columbus	1962	13,664	1.0-4.0	5.3	-	Impressed Current Non-Overlay	6/82	$ 53,900	Satisfactory
Pennsylvania DOT	3-Span Steel Beam, Dual Structure	TR 15 in Union County	1964	9,680	> 2.0	-	-	Impressed Current Non-Overlay	-	$ 53,900	-
Virginia DOT	3-Span Concrete Tee Beam	Route 15 in Buckingham County	-	3,220	> 2.0	-	5.7	Impressed Current Non-Overlay	-	-	-
West Virginia DOT	4-Span Continuous Steel Beam	I-77 Ramp "H" in Charleston	-	11,070	> 2.0	-	-	Impressed Current Non-Overlay	-	-	-
New York DOT	3-Span	I-81 in Whitney Park	1969	-	-	-	-	Impressed Current Non-overlay	-	-	-
Minnesota DOT	4-span Pre-Cast Concrete Beam	42nd Street in South Minneapolis	1964	10,348	-	-	-	Wire anodes W/Concrete Overlay	-	-	-
South Dakota DOT	Steel Girder Viaduct	U.S. 14 over Brookings By-Pass	1970	14,170	-	-	-	Wire & Carbon anodes W/concrete overlay	-	-	-
Delaware DOT	-	Milltown Road in New Castle County	-	-	-	-	-	Impressed Current Non-Overlay	-	-	-
District of Columbia DOT	3-span steel girder	Klingle Road Over Rock Creek Parkway	1972	-	-	-	-	Impressed Current Non-Overlay	-	-	-

Participating Agency:	Texas State Department of Highways and Public Transportation
Project Location:	The U.S. 83 bridge over the Salt Fork of the Red River in Collingworth County near Wellington.
Description of the Structure:	Constructed in 1957, this is a 3-span structure with an 8-inch thick deck and a deck area of 3,384 square feet.
Condition of the Deck Prior to Installation of Cathodic System:	The deck was in fair condition with an average chloride content of 2.25 lbs./c.y. at the level of the top reinforcing steel. The average corrosion potentials were -.25 volts. Twenty-seven percent of the deck was patched prior to the application of the cathodic system.
Date that the Cathodic System was Energized:	December 28, 1977
Description of the Cathodic System:	This was a conductive coke asphalt, impressed current system with a conventional asphalt wearing course. The anodes were suppressed into the deck for protection. The system consisted of seven zones with a potentially controlled rectifier/controller.

Cost Information:

Cathodic system (lump sum)	$ 7,750
Coke-breeze asphalt	4,500
Corrosometer probes	4,292
TOTAL PROJECT COST	$16,542

Performance of the Cathodic System: To date, the system is performing satisfactorily. Shortly after energizing the system, data indicated a problem. The system was checked out and it was determined that the meter on the controller was defective. This was corrected. Two years after installation, corrosometer probes were placed in each zone of the cathodic system to monitor the corrosion rate of the reinforcing steel in the deck. The probes indicate that the steel is cathodically protected. The asphalt overlay is holding up well despite the heavy volume of truck traffic that crosses the structure.

From: Clay Churchill
To: Mark Brown
Date: 4/19/2011 3:42 PM
Subject: Fwd: Wide/Tall Loads US83 Truss Bridge

>>> Michael Breedlove 4/19/2011 3:40 PM >>>
I have witnessed several occasions over the last 23 years of wide and tall loads that where northbound and unable to get through the truss bridge located at Pioneer Park on US83. There have been numerous times when we would know about it, either the truck driver would call, the sheriff's department would call or we would have a permit notifying us of the load and we would go out and provide traffic control, and divert the load around on the southbound bridge. I have also witnessed many occasions when people would go around illegally without any kind of traffic control, the majority of these being farm implements.

CHEMICAL COMPARISON TABLE
Materials and Test Division

CHEMICAL NAME	% LESS CORROSIVE THAN SALT*	CONCRETE SCALING	REINFORCING STEEL CORROSION	EFFECTIVE TEMP** ° C(° F)	RATE OF APPLICATION∅	ESTIMATED MAT'L COST◊ per ln/km
Sodium Chloride (Salt)	0	Moderate to severe	Corrosive	-9 to -6 (15 to 20)	55 to 145 kg/ln km	$2-4
Mag Chloride (Liquid)	36-75♦	Mild to Moderate	Corrosive	-17 to -9 (0 to 15)	Anti-icing: 35-140 L/ln km Prewetting: 26 to 52 L/ln km	$9 - 36 $7 - 14
Mag Chloride (Solid)	34-38♦	Very Little	Corrosive	-17 to -9 (0 to 15)	25-60 kg/ln km	$12-28
CMA 40 (40%CMA, 60% salt)	47-67	No Information Available	Moderately Corrosive	-9 to -6 (15 to 20)	55-85 kg/ln km	$31 - 48
CMA	100	No	Very Low	-9 to -6 (15 to 20)	Solid: 70-115 kg/ln km Liquid anti-icing: 70 to 95 L/ln km Prewetting: 26 to 52 L/ ln km	$68 - 111 $26 - 35 $10 - 19
Potassium acetate	67-100	Very Little	Low	-29 to -17 (-20 to 0)	Prewetting: 26-52 L/ln km Anti-icing: 35 L/ln km Deicing: 70 L/ln km	$33 - 66 $45 $90
Calcium Chloride	data not available (-20)*	Moderate	Corrosive	-29 to -17 (-20 to 0)		

* When using Tex-624-j - results from tests run during winter of 1996/97

** Temperature refers to pavement temperature

♦ Material that does not meet the specification will be not be accepted (must be 65% min)

◊ Costs for prewetting of sand do not include the sand

∅ For prewetting application rates, the assumed concentration of liquid is .1045 L/kg sand (1.25 gal/ 100lbs sand) with an assumed sand application rate of 500 to 1000 kg/ ln km (1800 to 3500 lb./ln mile) Therefore, the liquid rate for prewetting is 52 to 105 L/ln km (22 to 44 gal/ln mile)

* More Corrosive than salt.

● Not available prior to 1980

⊕ Used for aircraft - can lead to ASR problems in concrete - bad

Comparison of Maintenance Expenses for Selected On-System Trusses

Year	Childress District US 83 at Salt Fork, Collingsworth Cnty	Childress District SH 203 at Salt Fork, Collingsworth Cnty	Childress District SH 6 at Brazos, Knox Cnty	San Angelo District IH-10 NB FR at Johnson Frk Crk, Kimble Cnty	San Angelo District Loop 481 at S Llano R, Kimble Cnty	San Angelo District SH 290 at Pecos R, Crocket Cnty	Abilene District FM 601 at Hubbard Creek, Shackelford Cnty
1995	$-	$-	$-	$-	$-	$-	
1996	$-	$-	$-	$-	$-	$-	
1997	$3,842	$-	$-	$-	$-	$-	
1998	$7,515	$-	$3,906	$-	$-	$-	
1999	$160	$-	$-	$-	$-	$-	
2000	$1,017	$1,074	$-	$-	$-	$-	$-
2001	$209	$752	$3,221	$-	$-	$-	$-
2002	$61	$251	$-	$-	$-	$-	$-
2003	$4,703	$2,839	$164	$-	$-	$-	$-
2004	$1,827	$1,548	$-	$-	$-	$-	$-
2005	$587	$-	$-	$-	$-	$-	$-
2006	$7, 445	$1,118	$-	(Estimate) $30,000.00[1]	$-	$-	$-
2007	$4,223	$-	$-	$-	$-	$-	$-
2008	$1,062	$530	$-	$-	$-	$-	$-
2009	$1,068	$-	$-	$-	$-	$-	$-
2010	$1,342	$-	$-	$-	(Work completed, Final amount still to be determined, Amount paid as of 02/24/2011) $7,541,821.27[2]	$-	$-
Total Expenditures	$35,061	$8,112	$7,281	$30,000.00	$7,541,821.27	$-	$-

[1] Concrete spalling and bearing repairs.
[2] Steel member and painting.

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY1995 - FY2010

Year	Cost
1995	$ -
1996	$ -
1997	$ 3,842
1998	$ 7,515
1999	$ 160
2000	$ 1,017
2001	$ 209
2002	$ 61
2003	$ 4,703
2004	$ 1,827
2005	$ 587
2006	$ 7,445
2007	$ 4,223
2008	$ 1,062
2009	$ 1,068
2010	$ 1,342
	$ 35,061

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY1995 (SEPTEMBER, 1994 - AUGUST, 1995)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$

No Data Found

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY1996 (SEPTEMBER, 1995 - AUGUST, 1996)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$

No Data Found

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: DONLEY, MS02
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY1997 (SEPTEMBER, 1996 - AUGUST, 1997)

MS	COUNTY	REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
2	65	130	650	0	$11.14	$0.00	$5.74	$0.00	$0.00	$0.00
2	65	131	650	0	$11.14	$0.00	$5.74	$0.00	$0.00	$0.00
2	65	132	650	0	$11.31	$0.00	$5.78	$0.00	$0.00	$0.00
2	65	133	650	0	$8.31	$0.00	$4.63	$0.00	$0.00	$0.00
2	65	134	650	30,303	$8.31	$0.00	$4.63	$3,703.70	$44.11	$4.48
2	65	135	650	0	$8.31	$0.00	$4.63	$0.00	$0.00	$0.00
TOTAL:					**$58.52**	**$0.00**	**$31.15**	**$3,703.70**	**$44.11**	**$4.48**

GRAND TOTAL: **$3,841.96**

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: DONLEY, MS02
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY1998 (SEPTEMBER, 1997 - AUGUST, 1998)

MS	COUNTY	REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
2	65	130	640	0	$16.77	$0.00	$5.80	$0.00	$0.00	$0.00
2	65	131	640	0	$16.77	$0.00	$5.80	$0.00	$0.00	$0.00
2	65	132	640	0	$16.84	$0.00	$5.73	$0.00	$0.00	$0.00
2	65	133	640	0	$8.74	$0.00	$3.52	$0.00	$0.00	$0.00
2	65	134	631	2200	$191.76	$0.00	$19.59	$0.00	$0.00	$0.00
2	65	134	640	229	$8.74	$0.00	$3.52	$7,105.87	$93.02	$0.00
2	65	135	640	0	$8.74	$0.00	$3.52	$0.00	$0.00	$0.00
TOTAL:					**$268.36**	**$0.00**	**$47.48**	**$7,105.87**	**$93.02**	**$0.00**

GRAND TOTAL: **$7,514.73**

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: DONLEY, MS02
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY1999 (SEPTEMBER, 1998 - AUGUST, 1999)

MS	COUNTY	REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
2	65	130	628	0	$0.00	$0.00	$1.25	$0.00	$0.00	$0.00
2	65	131	628	0	$0.00	$0.00	$1.25	$0.00	$0.00	$0.00
2	65	132	628	0	$0.00	$0.00	$1.25	$0.00	$0.00	$0.00
2	65	133	628	0	$0.00	$0.00	$1.25	$0.00	$0.00	$0.00
2	65	134	628	0	$0.00	$0.00	$1.25	$0.00	$0.00	$0.00
2	65	134	631	0	$152.48	$0.00	$0.00	$0.00	$0.00	$0.00
2	65	135	628	0	$0.00	$0.00	$1.25	$0.00	$0.00	$0.00
TOTAL:					**$152.48**	**$0.00**	**$7.50**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: **$159.98**

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2000 (SEPTEMBER, 1999 - AUGUST, 2000)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
132	650	12,500.00	$416.92	$0.00	$91.82	$0.00	$0.00	$0.00
133	650	12,500.00	$416.92	$0.00	$91.82	$0.00	$0.00	$0.00
TOTAL:			**$833.84**	**$0.00**	**$183.64**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: $1,017.48

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2001 (SEPTEMBER, 2000 - AUGUST, 2001)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	660	0	$31.68	$0.00	$3.23	$0.00	$0.00	$0.00
131	660	0	$31.68	$0.00	$3.23	$0.00	$0.00	$0.00
132	660	0	$31.68	$0.00	$3.23	$0.00	$0.00	$0.00
133	660	0	$31.68	$0.00	$3.23	$0.00	$0.00	$0.00
134	660	0	$31.68	$0.00	$3.23	$0.00	$0.00	$0.00
135	660	0	$31.68	$0.00	$3.23	$0.00	$0.00	$0.00
TOTAL:			**$190.08**	**$0.00**	**$19.38**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: **$209.46**

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2002 (SEPTEMBER, 2001 - AUGUST, 2002)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	660	0	$9.04	$0.00	$1.14	$0.00	$0.00	$0.00
131	660	0	$9.04	$0.00	$1.14	$0.00	$0.00	$0.00
132	660	0	$9.04	$0.00	$1.14	$0.00	$0.00	$0.00
133	660	0	$9.04	$0.00	$1.14	$0.00	$0.00	$0.00
134	660	0	$9.04	$0.00	$1.14	$0.00	$0.00	$0.00
135	660	0	$9.04	$0.00	$1.14	$0.00	$0.00	$0.00
TOTAL:			**$54.24**	**$0.00**	**$6.84**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: $61.08

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2003 (SEPTEMBER, 2002 - AUGUST, 2003)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	670	0	$26.07	$0.00	$14.42	$0.00	$0.00	$0.00
131	670	0	$26.07	$0.00	$14.42	$0.00	$0.00	$0.00
132	670	0	$26.07	$0.00	$14.42	$0.00	$0.00	$0.00
133	670	0	$26.07	$0.00	$14.42	$0.00	$0.00	$0.00
134	650	40	$861.72	$1,200.00	$92.63	$0.00	$75.48	$0.00
134	670	0	$26.07	$0.00	$14.42	$0.00	$0.00	$0.00
135	650	40	$861.73	$1,200.00	$92.62	$0.00	$75.49	$0.00
135	670	0	$26.07	$0.00	$14.42	$0.00	$0.00	$0.00
TOTAL:			**$1,879.87**	**$2,400.00**	**$271.77**	**$0.00**	**$150.97**	**$0.00**

GRAND TOTAL: $4,702.61

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2004 (SEPTEMBER, 2003 - AUGUST, 2004)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	625	0	$84.61	$0.00	$33.01	$0.00	$0.00	$0.00
130	628	0	$37.42	$0.00	$9.74	$0.00	$0.00	$0.00
130	660	0	$74.90	$0.00	$34.95	$0.00	$0.00	$0.00
130	670	0	$25.85	$0.00	$4.09	$0.00	$0.00	$0.00
131	625	0	$84.61	$0.00	$33.01	$0.00	$0.00	$0.00
131	628	0	$37.42	$0.00	$9.74	$0.00	$0.00	$0.00
131	660	0	$74.90	$0.00	$34.95	$0.00	$0.00	$0.00
131	670	0	$25.85	$0.00	$4.09	$0.00	$0.00	$0.00
132	625	0	$84.61	$0.00	$33.01	$0.00	$0.00	$0.00
132	628	0	$37.42	$0.00	$9.74	$0.00	$0.00	$0.00
132	660	0	$74.90	$0.00	$34.95	$0.00	$0.00	$0.00
132	670	0	$25.85	$0.00	$4.09	$0.00	$0.00	$0.00
133	625	0	$84.61	$0.00	$33.01	$0.00	$0.00	$0.00
133	628	0	$37.42	$0.00	$9.74	$0.00	$0.00	$0.00
133	660	0	$74.90	$0.00	$34.95	$0.00	$0.00	$0.00
133	670	0	$25.85	$0.00	$4.09	$0.00	$0.00	$0.00
134	625	0	$84.61	$0.00	$33.01	$0.00	$0.00	$0.00
134	628	0	$37.42	$0.00	$9.74	$0.00	$0.00	$0.00
134	660	0	$74.90	$0.00	$34.95	$0.00	$0.00	$0.00
134	670	0	$25.85	$0.00	$4.09	$0.00	$0.00	$0.00
135	625	0	$84.61	$0.00	$33.01	$0.00	$0.00	$0.00
135	628	0	$37.42	$0.00	$9.74	$0.00	$0.00	$0.00
135	660	0	$74.90	$0.00	$34.95	$0.00	$0.00	$0.00
135	670	0	$25.85	$0.00	$4.09	$0.00	$0.00	$0.00
TOTAL:			**$1,336.68**	**$0.00**	**$490.74**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: $1,827.42

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2005 (SEPTEMBER, 2004 - AUGUST, 2005)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	625	0	$15.49	$0.00	$0.00	$0.00	$0.00	$0.00
130	660	0	$62.98	$0.00	$19.44	$0.00	$0.00	$0.00
131	625	0	$15.49	$0.00	$0.00	$0.00	$0.00	$0.00
131	660	0	$62.98	$0.00	$19.44	$0.00	$0.00	$0.00
132	625	0	$15.49	$0.00	$0.00	$0.00	$0.00	$0.00
132	660	0	$62.98	$0.00	$19.44	$0.00	$0.00	$0.00
133	625	0	$15.49	$0.00	$0.00	$0.00	$0.00	$0.00
133	660	0	$62.98	$0.00	$19.44	$0.00	$0.00	$0.00
134	625	0	$15.49	$0.00	$0.00	$0.00	$0.00	$0.00
134	660	0	$62.98	$0.00	$19.44	$0.00	$0.00	$0.00
135	625	0	$15.49	$0.00	$0.00	$0.00	$0.00	$0.00
135	660	0	$62.98	$0.00	$19.44	$0.00	$0.00	$0.00
TOTAL:			**$470.82**	**$0.00**	**$116.64**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: **$587.46**

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2006 (SEPTEMBER, 2005 - AUGUST, 2006)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	660	0	$23.22	$0.00	$23.00	$0.00	$0.00	$0.00
130	670	0	$10.74	$0.00	$0.00	$0.00	$0.00	$0.00
131	660	0	$23.22	$0.00	$23.00	$0.00	$0.00	$0.00
131	670	0	$10.74	$0.00	$0.00	$0.00	$0.00	$0.00
132	660	0	$23.22	$0.00	$23.00	$0.00	$0.00	$0.00
132	670	0	$10.74	$0.00	$0.00	$0.00	$0.00	$0.00
133	650	50	$600.68	$1,440.30	$289.12	$0.00	$0.00	$0.00
133	660	0	$23.22	$0.00	$23.00	$0.00	$0.00	$0.00
133	670	0	$10.74	$0.00	$0.00	$0.00	$0.00	$0.00
134	650	150	$1,363.76	$1,766.60	$418.21	$0.00	$2.88	$0.00
134	660	0	$23.22	$0.00	$23.00	$0.00	$0.00	$0.00
134	670	0	$10.74	$0.00	$0.00	$0.00	$0.00	$0.00
135	650	100	$763.08	$326.32	$129.12	$0.00	$2.89	$0.00
135	660	0	$23.22	$0.00	$23.00	$0.00	$0.00	$0.00
135	670	0	$10.74	$0.00	$0.00	$0.00	$0.00	$0.00
TOTAL:			**$2,931.28**	**$3,533.22**	**$974.45**	**$0.00**	**$5.77**	**$0.00**

GRAND TOTAL: **$7,444.72**

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2007 (SEPTEMBER, 2006 - AUGUST, 2007)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	660	0	$10.15	$0.00	$0.27	$0.00	$0.00	$0.00
131	660	0	$10.15	$0.00	$0.27	$0.00	$0.00	$0.00
132	660	0	$10.15	$0.00	$0.27	$0.00	$0.00	$0.00
133	660	0	$10.15	$0.00	$0.27	$0.00	$0.00	$0.00
134	650	210	$1,602.60	$0.00	$477.55	$0.00	$0.00	$0.00
134	660	0	$10.15	$0.00	$0.27	$0.00	$0.00	$0.00
135	650	210	$1,602.62	$0.00	$477.56	$0.00	$0.00	$0.00
135	660	0	$10.15	$0.00	$0.27	$0.00	$0.00	$0.00
TOTAL:			**$3,266.12**	**$0.00**	**$956.73**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: $4,222.85

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2008 (SEPTEMBER, 2007 - AUGUST, 2008)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
134	660	0	$423.58	$0.00	$107.42	$0.00	$0.00	$0.00
135	660	0	$423.60	$0.00	$107.42	$0.00	$0.00	$0.00
TOTAL:			**$847.18**	**$0.00**	**$214.84**	**$0.00**	**$0.00**	**$0.00**

GRAND TOTAL: $1,062.02

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2009 (SEPTEMBER, 2008 - AUGUST, 2009)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	650	0	$0.00	$0.00	$0.00	$0.00	$14.09	$0.00
131	650	0	$0.00	$0.00	$0.00	$0.00	$14.09	$0.00
132	650	0	$0.00	$0.00	$0.00	$0.00	$14.09	$0.00
133	650	0	$0.00	$0.00	$0.00	$0.00	$14.09	$0.00
134	650	120	$606.64	$235.84	$155.25	$0.00	$14.09	$0.00
TOTAL:			**$606.64**	**$235.84**	**$155.25**	**$0.00**	**$70.45**	**$0.00**

GRAND TOTAL: **$1,068.18**

EXPENDITURE BY FUNCTION CODE
DISTRICT: CHILDRESS, COUNTY: COLLINGSWORTH
HIGHWAY: US0083 REF MRKRS: 130 - 135
FY2010 (SEPTEMBER, 2009 - MAY, 2010)

REF MKR	FUNC CODE	UNITS OF WORK	LABOR $AMNT$	MATERIAL $AMNT$	EQUIPMENT $AMNT$	CONTRACTOR $AMNT$	MISC. $AMNT$	PREP. $AMNT$
130	650	0	$0.00	$0.00	$0.00	$0.00	$15.29	$0.00
131	650	0	$0.00	$0.00	$0.00	$0.00	$15.29	$0.00
132	650	0	$0.00	$0.00	$0.00	$0.00	$15.29	$0.00
133	650	0	$0.00	$0.00	$0.00	$0.00	$15.29	$0.00
134	650	6	$561.12	$12.75	$58.78	$0.00	$15.29	$0.00
135	650	6	$561.12	$12.75	$58.77	$0.00	$0.00	$0.00
TOTAL:			**$1,122.24**	**$25.50**	**$117.55**	**$0.00**	**$76.45**	**$0.00**

GRAND TOTAL: $1,341.74

Rehabilitation and Replacement of Bridge Decks

Subject: Rehabilitation and Replacement of Bridge Decks

Date: November 1, 2007

From: */s/ Original Signed by*
From: M. Myint Lwin, P.E., S.E.
Director, Office of Bridge Technology

Refer To: HIBT-30

To: Division Administrators

Consistent with the program direction established in legislation and the Federal Highway Administration's interest in reducing structural deficiencies, the rehabilitation or replacement of structurally deficient bridge decks (those with National Bridge Inventory Item 58 - Deck ≤ 4) is eligible for Highway Bridge Program (HBP) funding. Such bridge work is to be considered rehabilitation under the HBP regardless of the bridge's sufficiency rating. The 10-year rule will not prevent a current structurally deficient deck from being replaced or rehabilitated; however, once the deck has been replaced or rehabilitated, the 10-year rule will apply.

Eligibility of structurally deficient bridge decks does not relieve the bridge owner of the need to perform other work required to restore the structural integrity of a bridge or work necessary to correct safety deficiencies. Bridges to be rehabilitated must, as a minimum, conform to the provisions of 23 CFR Part 625, Design Standards for Highways, for the class of highway on which the bridge is a part.

Deck rehabilitation or replacement projects should be identified systematically, in conjunction with a comprehensive bridge management system, in order to make the most effective use of HBP and other bridge funds. An overall balanced program that considers major rehabilitation, replacements, deck rehabilitation and replacement, along with maintenance and preservation activities should be the ultimate goal.

If you have any questions, please feel free to contact Mr. Tom Everett at 202-366-4675, or Thomas.everett@dot.gov.

cc:
Division Bridge Engineers
Resource Center Director

This page last modified on 11/06/07

Events

- View all Upcoming Structures Events

Contact

Tom Everett
Office of Bridge Technology
202-366-4675
E-mail Tom

[Code of Federal Regulations]
[Title 23, Volume 1]
[Revised as of April 1, 2009]
From the U.S. Government Printing Office via GPO Access
[CITE: 23CFR650.405]

[Page 264-265]

TITLE 23--HIGHWAYS

CHAPTER I--FEDERAL HIGHWAY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION

PART 650_BRIDGES, STRUCTURES, AND HYDRAULICS--Table of Contents

Subpart D_Highway Bridge Replacement and Rehabilitation Program

Sec. 650.405 Eligible projects.

(a) General. Deficient highway bridges on all public roads may be eligible for replacement or rehabilitation.

(b) Types of projects which are eligible. The following types of work are eligible for participation in the Highway Bridge Replacement and Rehabilitation Program (HBRRP), hereinafter known as the bridge program.

(1) Replacement. Total replacement of a structurally deficient or functionally obsolete bridge with a new facility constructed in the same general traffic corridor. A nominal amount of approach work, sufficient to connect the new facility to the existing roadway or to return the gradeline to an attainable touchdown point in accordance with good design practice is also eligible. The replacement structure must meet the current geometric, construction and structural standards required for the types and volume of projected traffic on the facility over its design life.

(2) Rehabilitation. The project requirements necessary to perform the major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects are eligible except as noted under

[[Page 265]]

ineligible work. Bridges to be rehabilitated both on or off the F-A System shall, as a minimum, conform with the provisions of 23 CFR part 625, Design Standards for Federal-aid Highways, for the class of highway on which the bridge is a part.

(c) Ineligible work. Except as otherwise prescribed by the Administrator, the costs of long approach fills, causeways, connecting roadways, interchanges, ramps, and other extensive earth structures, when constructed beyond the attainable touchdown point, are not eligible under the bridge program.

NON-REGULATORY SUPPLEMENT

OPI: HNG-33

1. **NEW AND MAJOR RECONSTRUCTION OF BRIDGES**. The FHWA established a "10-year rule" for determining a bridge's eligibility for HBRRP funding after construction or major reconstruction has taken place. The rule prevents a bridge from remaining in a deficient classification after major reconstruction and thereby affecting the bridge fund apportionments to a State.

   a. **New and Major Reconstruction of Bridges-Interpretation of the 10-Year Rule (23 CFR 650.405)**. A bridge improvement would be subject to the 10-year rule if it is classed as rehabilitation or replacement under 23 CFR 650.405(b) irrespective of the funding used. Conversely, a bridge improvement would not be subject to the 10-year rule if it cannot be classed as rehabilitation or replacement under one of the 23 CFR 650.405(b) definitions. Such an improvement would not be eligible for HBRRP funding although it may be eligible for other Federal-aid funding.

   b. b. **New or Major Reconstruction of Bridges Built to Less than AASHTO Standards (23 CFR 650.413)**. Bridges in the NBI with a date of construction or date of major reconstruction (NBI Item 27) within the past 10 years will not be considered a deficient bridge, will not be eligible for HBRRP funds and will not be used to apportion HBRRP funds. For example, a date of 1976 will be used for the determination until the end of 1985. Eligibility for HBRRP funding:

      (1) The definition of major reconstruction should be developed by the region and division offices in consultation with the States.

      (2) The 10-year criteria in which a bridge will not be eligible for HBRRP funding applies to bridges replaced or reconstructed with any Federal-aid funds, with all State or local funds, private funds, or any combination thereof.

      (3) To be eligible for funding, the bridge must be of the current HBRRP selection list. Any bridge constructed or reconstructed in the past 10 years will not appear on this list. This will apply whether or not Item 13, Bridge Description, is coded as a temporary structure.

      (4) Any State request to use HBRRP funds for a bridge not on the selection list should be fully documented and justified to indicate that additional deficiencies have developed through some natural or unforeseen phenomenon. Bridges removed from the selection list because of the 10-year criteria but with Federal-aid funds obligated for construction work prior to their removal will continue to be eligible for HBRRP funds. Regions should handle each of the above cases on an individual basis.

      (5) Incorrectly coded data in the National Bridge Inventory should be corrected as soon as possible.

2. **IMPLEMENTATION OF SECTION 123(e)-OFF SYSTEM BRIDGE PROGRAM (No CFR paragraph reference)**

   a. Federal regulations originating with Section 123(e) of the 1987 STURAA, permit the expenditure of local funds on an off-system non-Federal-aid project in some cases to be used to offset the local matching share of a subsequent HBRRP (23 CFR 650, subpart D) bridge project. There have been questions on the work activities that qualify. The FHWA has determined that for the purposes of implementing 23 U.S.C. 144(n), the term "construction" should be broadly defined. It includes most activities incidental to the development and actual replacement or rehabilitation of a highway bridge. However, many States may want to limit the crediting phases of such projects to only the classic "hard construction" activities. These activities are usually easier to track and can be readily quantified at the time the new bridge improvements are ready to accept traffic.

   b. Federal regulations originating in Section 123(e) of the 1987 STURAA, also permits States to carry out bridge improvements on non-controversial off-system bridges (on local roads and rural minor collectors) without Federal funding, and then apply 80 percent of the cost of such projects as credit toward the non-Federal share of other HBRRP projects. The FHWA has developed basic national guidelines for uniform administering those projects and the guidelines are:

(1) The bridges meet the normal current eligibility requirements for HBRRP funding. (They must be both deficient and have a sufficiency rating of 80 or less to be eligible for rehabilitation or a sufficiency rating of less than 50 to be eligible for replacement).

(2) They must be noncontroversial.

(3) Projects must be carried out in accordance with standards which are certified by the State and accepted by the FHWA as meeting all standards applicable to other bridge projects funded under 23 U.S.C. 144.

(4) The resulting improved bridges must not be deficient.

(5) Construction costs are the only expenditures eligible for credit.

(6) Only a minimal amount of approach work is to be applied as a credit.

(7) Credits for future matching of HBRRP will not be made for these bridge projects until the project is complete, inventoried, inspected and the resulting data entered into the State's bridge inventory file.

3. **IMPLEMENTATION OF SECTION 123(d)-BRIDGES TO REPLACE DESTROYED BRIDGES AND FERRYBOAT SERVICE (No CFR paragraph reference)**

   a. Federal regulations originating with Section 123(d) of the 1987 STURAA make the replacement of destroyed bridges and ferryboat service, 23 U.S.C. 144(m), eligible work under the Highway Bridge Replacement and Rehabilitation Program, 23 CFR 650, subpart D. The FHWA has developed basic national guidelines for uniform administration of the eligible work and the guidelines are:

      (1) Bridges built under this section must meet the highway system requirements of which they are a part. Further, regular Federal-aid procedures and Section 144 requirements, where applicable, shall be used. In particular, the requirement that minimal approach roadway costs will be eligible must be observed.

      (2) The program is applicable only to highway bridges.

      (3) Bridges constructed under this section will not be added to the National Bridge Inventory until the new bridge is completed.

      (4) The completed structure does not have to be of bridge length.

      (5) It is possible that a bridge made obsolete by Corps of Engineer actions and in some instances low water crossings, could be classified as deficient bridges. If a bridge is already eligible for the HBRRP, it shall be programmed under the regular HBRRP program with no special designation.

   b. There is a definition of low water crossing to be used for this program. Low water crossings include public road waterway crossings other than bridges where construction improvements have been made in the stream, river or lake bed to provide a firm surface for vehicles to travel across the water course. The crossings are designed and constructed to be passable to traffic most of the year during periods of ordinary stream flow but are impassable to traffic during periods of high water.

4. **HBRRP PROGRAM FUNDING POLICY ON CLOSED BRIDGES (23 CFR 650.413).** The FHWA has developed a funding policy for closed bridges. The HBRRP funds can only be used to replace or to rehabilitate bridges which are significantly important and are unsafe. Bridges out of service (closed) prior to the establishment of the Special Bridge Replacement Program (December 31, 1970) are not eligible for the HBRRP and were removed from the National Bridge Inventory. Bridges taken out of service after December 31, 1970, are also not eligible unless the State highway agency has made reasonable progress in scheduling the rehabilitation or replacement of the facility, thus indicating that the bridge was of significant importance.

5. **USE OF HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM (HBRRP) FUNDS FOR APPROACH ROADWAY CONSTRUCTION (23 CFR 650.413).** The FHWA is concerned that in some instances approach roadway costs associated with HBRRP projects are excessive to the point of not falling within the congressional intent for the program "to improve deficient bridges." States and local entities are encouraged to use other categories of funds for approach roadways

and miscellaneous non-bridge items. Also the FHWA Division offices are directed to:

a. Review and revise policy relating to inclusion of approach roadway items in HBRRP projects to provide for more national uniformity in bridge program management and minimize approach roadway project costs. This action should result in a nationwide average of no more than 10 percent.

b. Review the overall HBRRP where average bridge expenditures are not a high percentage of all HBRRP funds obligated and make appropriate changes to provide more national uniformity in bridge program management

6. **PURCHASE AND INSTALLATION OF BRIDGE LOAD POSTING SIGNS WITH HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM FUNDS (23 CFR 650.413)**. The FHWA has determined that it is consistent with the purpose of the HBRRP to allow the use of bridge program funds to purchase and install load posting signs to protect the public until such bridges can be replaced or rehabilitated. Therefore, the initial set of load posting signs immediately adjacent to the bridge is considered eligible for HBRRP funds.

7. **HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM - HISTORIC BRIDGES (23 CFR 650.413)**. The FHWA has determined that it is consistent with the purpose of the HBRRP to allow the use of bridge program apportioned funds to inventory bridges for historic significance.

8. **HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM FUNDING OF BRIDGE INSPECTIONS (23 CFR 650.413)**. The FHWA has determined that it is consistent with the purpose of the HBRRP to allow the use of bridge program funds for the biennial continued inspection of bridges.

9. **HIGHWAY BRIDGE REPLACEMENT AND REHABILITATION PROGRAM (23 CFR 650.409)**. The National Bridge Inventory will be used for preparing the selection list of bridges both on and off of Federal-aid highways. Highway bridges considered structurally deficient or functionally obsolete and with a sufficiency rating of 80 or less will be used for the selection list. Those bridges appearing on the list with a sufficiency rating of less than 50.0 will be eligible for replacement or rehabilitation while those with a sufficiency rating of 80.0 or less will be eligible for rehabilitation. To be considered for the classification of deficient bridge, a structure must be of bridge length, and had not been constructed or had major reconstruction within the past 10 years.

a. **General Qualifications**: In order to be considered for either the structurally deficient or functionally obsolete classification a highway bridge must meet the following:

Structurally Deficient -

1. A condition rating of 4 or less for
   - Item 58 - Deck; or
   - Item 59 - Superstructures; or
   - Item 60 - Substructures; or
   - Item 62 - Culvert and Retaining Walls.(1) or
2. An appraisal rating of 2 or less for
   - Item 67 - Structural Condition; or
   - Item 71 - Waterway Adequacy.(2)

Functionally Obsolete -

1. An appraisal rating of 3 or less for
   - Item 68 - Deck Geometry; or
   - Item 69 - Underclearances;(3) or
   - Item 72 - Approach Roadway Alignment. or
2. An appraisal rating of 3 for
   - Item 67 - Structural Condition; or
   - Item 71 - Waterway Adequacy.(2)

b. **Any bridge classified** as structurally deficient is excluded from the functionally obsolete category.

1. Item 62 applies only if the last digit of Item 43 is coded 19.
2. Item 71 applies only if the last digit of Item 42 is coded 0, 5, 6, 7, 8 or 9.
3. Item 69 applies only if the last digit of Item 42 is coded 0, 1, 2, 4, 6, 7 or 8.

U.S. Department
of Transportation
**Federal Highway
Administration**

Texas Division Office
300 East 8th Street, Rm 826
Austin, Texas 78701

February 25, 2000

In Reply Refer To:
HPC-TX

Highway Bridge Replacement & Rehabilitation Program [HBRRP]
National Bridge inspection Standards [NBIS]
Ten Year Rule

Ms. Mary Lou Ralls, P.E.
Director, Bridge Division
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Attention: Mr. Michael Lynch P.E.

Dear Ms. Ralls:

The Department has asked a number of questions recently concerning the "Ten Year Rule" as it is applied to Federal projects. I've attached two historic documents that provide a basis for the rule and FHWA's operating guidelines.

1. May 6, 1985 memorandum from FHWA Headquarters.
2. November 26, 1985 memorandum from FHWA Headquarters.

In general terms, the purpose of the rule is to encourage states [on any new bridge, bridge reconstruction or major bridge rehabilitation projects] to provide a structure that is not automatically structurally deficient or functionally obsolete by NBIS standards as soon as the project is complete. To accomplish this, Federal-Aid HBRRP funds cannot be used on any bridge for a period of ten years after any federal funds have been used on a new bridge, reconstructed bridge or major rehabilitation.

There are a number of instances when work on a structure may fall short of the criteria to be classified as a reconstruction or major rehabilitation. The instructions for Item 106 contained in the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges provides some guidance. In these cases, the "Ten Year Rule" would not apply. Further, if problems quickly arise on a new bridge, reconstructed bridge, or major rehabilitation that might have been caused by a catastrophic event or unforseen circumstance, the "Ten Year Rule" can be waived. Should any of the instances occur or if you have a question on eligibility, the Texas Division will be glad to work with you and TxDOT's Districts toward a resolution on a case by case basis.

More recently, our Headquarters office has confirmed that HBRRP projects to retrofit scour countermeasures onto existing bridges will not invoke the "Ten Year Rule" as such projects do not substantially alter physical geometry or load carrying capacity.

Copies of recent E-Mail correspondence with our Headquarters is attached for your information and files.

Sincerely

Donald E. Harley

Donald E. Harley
Structural Engineer

Attachments

RECEIVED
FEB 28 2000
DESIGN DIVISION

U.S. Department of Transportation
Federal Highway Administration

Memorandum

Washington, D.C. 20590

Subject: New or Major Reconstruction of Bridges Built to Less Than AASHTO Standards

Date NOV 26 1985

From: Chief, Bridge Division
Office of Engineering

Reply to Attn. of: HNG-33

To: Regional Federal Highway Administrators
Regions 1-10

Reference is made to Mr. Leathers' May 6 memorandum titled New or Major Reconstruction of Bridges Built to Less Than AASHTO Standards. Recently, a number of questions have arisen concerning eligibility for HBRRP funding under this memo. In response, the following guidance is provided:

1. The definition of major reconstruction should be developed by the region and division offices in consultation with the States.

2. The 10 year criteria in which a bridge will not be eligible for HBRRP funding applies to bridges replaced or reconstructed with any Federal-aid funds, with all State or local funds, private funds, or any combination thereof.

3. To be eligible for funding, the bridge must be on the current HBRRP selection list. Any bridge constructed or reconstructed in the past 10 years will not appear on this list. This will apply whether or not Item 13, Bridge Description, is coded as a temporary structure.

4. Any State request to use HBRRP funds for a bridge not on the selection list should be fully documented and justified to indicate that additional deficiencies have developed through some natural or unforeseen phenomenon. Bridges removed from the selection list because of the 10 year criteria but with Federal-aid funds obligated for construction work prior to their removal will continue to be eligible for HBRRP funds. Regions should handle each of the above cases on an individual basis.

5. Incorrectly coded data in the National Bridge Inventory should be corrected as soon as possible.

The above comments should aid in responding to individual inquiries. If there are any questions, please contact the Design and Inspection Branch at 472-7697.

Stanley Gordon

U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: New or Major Reconstruction of Bridges Built to Less Than AASHTO Standards

Date: MAY 6 1985

From: Associate Administrator for Engineering and Operations
Washington, D.C. 20590

Reply to Attn. of: HNG-33

To: Regional Federal Highway Administrators, Regions 1-10
Direct Federal Program Administrator

In the 1984 management review of the Federal-aid bridge program, it was brought out that many newly built or reconstructed bridges are presently classified as deficient because they were built to less than the American Association of State Highway and Transportation Officials (AASHTO) Standards. Presently some 19,000 bridges, or about one-fourth of all bridges that were constructed or reconstructed in the past 10 years are classified as deficient, either structurally or functionally, in the National Bridge Inventory (NBI). A large share of these bridges are more than 10-years old but have had major reconstruction in the past 10 years.

Any new bridge or any bridge that has had recent major reconstruction must be considered as meeting the minimum requirements of the system. Therefore, effective July 1, 1985, the following policy is establish:

- Bridges in the NBI with a date of construction or date of major reconstruction (NBI Item 27) within the past 10 years will not be considered a deficient bridge, will not be eligible for HBRRP funds and will not be used to apportion HBRRP funds. For example, a date of 1976 will be used for the determination until the end of 1985.

Bridges should be rated based on the needs of the system they are on. Where the decision is made to construct to less than AASHTO Standards, a bridge should not be classified as deficient as a result of that decision. This includes 3R and 4R projects where standards that are less than AASHTO Standards are frequently applied.

Consideration of design exceptions may require some States to modify their bridge condition and appraisal rating criteria. The Regions and Divisions are requested to bring this matter to the attention of the States.

E Dean Carlson
for Rex C. Leathers

SH 203 Maintenance Plan

The following maintenance plan has been developed to assist in the planning and programming of routine and preventative maintenance actions for the structure located on SH 203 at the Salt Fork of the Red River and to help ensure the structure's long-term preservation. Maintenance actions for the structure shall be based on the findings of the Fracture Critical, Routine Maintenance, and Routine Safety Inspections. Each of these inspections shall be performed in accordance to federal and state guidelines, regulations, and laws.

Maintenance for Deck Joints –
Deck joints allow the structure to expand and contract with changing temperatures.

Maintenance Actions for Deck Joints				
Defect	**Condition State (CS)**			
	1	2	3	4
Effectiveness – The degree to which the joint has been determined to allow the structure to expand and contract as well as the degree to which it protects against water leakage	Good Condition, Fully Effective	Fair Condition, Substantially Effective, Joint has not failed and minimal leaks detected; debris is present	Poor Condition, Limited Effectiveness, Joint has failed and moderate to heavy leakage detected	Failed
REQUIRED MAINTENANCE:	No Action Required	Clean of debris	Repair/Replace as appropriate	Repair/Replace as appropriate

Maintenance for Paint System –
Paint system is to be defined as a protective coating such as paint, galvanization, or other top coat steel corrosion inhibitor and shall be quantified as the percent of the entire exposed surface of a steel element.

Maintenance Actions for Paint System				
Defect	**Condition State (CS)**			
	1	2	3	4
Effectiveness – The degree to which the protective system has been determined to protect the steel beneath	Good Condition, Fully Effective	Fair Condition, Substantially Effective	Poor Condition, Limited Effectiveness, Freckled rust evident, peeling and curling has started	Failed, No Protection of the Underling Metal
REQUIRED MAINTENANCE:	No Action Required	No Action Required	Cleaned and Painted[1]	Areas found to have $\geq$ 1 sq. ft. of paint failure shall be cleaned and spot painted

1. Individual members with $\leq$ 49% of their surface area in poor condition shall be spot cleaned and painted. If the total percentage for the entire structure is > 20%, the entire structure shall be cleaned and have a full repaint, otherwise clean and spot paint elements.

Maintenance for Steel Truss Members –
Steel truss members are to be defined as all steel truss elements, including floor beams and stringers regardless of the protective system.

Maintenance Actions for Steel Truss Members				
Defect	**Condition State (CS)**			
	1	2	3	4
Corrosion – The degree to which the protective is wearing away due to chemical reactions	None	Freckled Rust, Corrosion of steel has started	Section Loss, Steel Pitting is evident	Condition Warrants a Structural Review to Determine the Strength or Serviceability of the Element
REQUIRED MAINTENANCE:	No Action Required	No Action Required[1]	Member(s) having ≥ 10 % section loss shall either be repaired or have other corrective actions taken based on structural evaluation	Repair / Replace element or other corrective actions
Cracking/Fatigue – The progressive and localized structural damage due to cyclic loading	None	Arrested Cracks Exist, Cracks with arrest holes, doubling plates, or similar location	Moderate Cracks Exist, Cracks Identified that have not been arrested or otherwise addressed	Condition Warrants a Structural Review to Determine the Strength or Serviceability of the Element
REQUIRED MAINTENANCE:	No Action Required	No Action Required	Cracks shall be arrested or have other corrective actions taken	Repair / Replace element or other corrective actions
Connections –	Sound, Connections are in place; functioning as intended	Sound, Connections are in place; functioning as intended	Isolated Failures, Missing bolt/rivets, broken welds, or severed connection	Condition Warrants a Structural Review to Determine the Strength or Serviceability of the Element
REQUIRED MAINTENANCE:	No Action Required	No Action Required	Repair / Rehabilitate[2]	Repair / Replace element or other corrective actions

1. "No Action Required" refers to the repair of the steel truss member. Condition may warrant other maintenance actions. See Maintenance for Paint System.
2. Members with ≤ 20 connection bolts/rivets cannot have more than 10% missing/damaged/failed. Members with > 20 connection bolts/rivets cannot have more than 20% missing/damaged/failed. Replace missing/damaged/failed bolts or rivets with bolts.

Approved FY 2012 On- System Projects Updated 2/28/11

CSJ	NBI Number	Dist Name	Cnty Name	Feature Crossed	Facility Carried
	192300052002033	Atlanta	UPSHUR (230)	SABINE RIVER RELIEF	SH 155
052002037	192300052002032	Atlanta	UPSHUR (230)	SABINE RIVER	SH 155
084302012	191030084302002	Atlanta	HARRISON (103)	LITTLE CYPRESS BAYOU	FM 450
	191830122201003	Atlanta	PANOLA (183)	MURVAUL CREEK N REL #1	FM 10
	191830122201004	Atlanta	PANOLA (183)	MURVAUL CREEK	FM 10
122201014	191830122201005	Atlanta	PANOLA (183)	MURVAUL CREEK S RELIEF	FM 10
120003028	142270120003015	Austin	TRAVIS (227)	COLORADO RIVER	FM 973
002809111	201810002809065	Beaumont	ORANGE (181)	NECHES RIVER	IH 10
030601059	201810030601017	Beaumont	ORANGE (181)	COW BAYOU	SH 87 NB
244701025	172390244701002	Bryan	WASHINGTON (239)	RALSTON CREEK	FM 577
009805026	251380009805036	Childress	KNOX (138)	BRAZOS RIVER	SH 6
023001018	250440023001006	Childress	COLLINGSWORTH (44)	SALT FORK OF THE RED RIVER	SH 203
001413003	021270001413358	Fort Worth	JOHNSON (127)	BI IH-35-V	BU 67-N
152401076	120200152401017	Houston	BRAZORIA (20)	BRAZOS RIVER & SH 332	FM521
017501005 017502078 091139002	112100017501022	Lufkin	SHELBY (210)	SABINE RIVER	US 84
064101033	011170064101019	Paris	HUNT (117)	LAKE TAWAKONI	SH 276
018901009	011940018901034	Paris	RED RIVER (194)	RED RIVER	SH 37
040102031	102500040102004	Tyler	WOOD (250)	DRY CREEK	SH 154
002603039	130760002603030	Yoakum	FAYETTE (76)	EAST NAVIDAD RIVER	US 90
143801024	130290143801003	Yoakum	CALHOUN (29)	MONKEY SLOUGH	FM 1289
	131580084603011	Yoakum	MATAGORDA (158)	KELLY LAKE	FM 521
	131580084603012	Yoakum	MATAGORDA (158)	COLORADO RIVER WEST RELIEF	FM 521
	131580084603007	Yoakum	MATAGORDA (158)	COLORADO RIVER RELIEF	FM 521

The projects listed below are conditionally approved for the FY 2012 Letting List based of the following:

* Funding for these projects will be determined during the January/ February 2012 Category 6 funding review. Therefore, DCIS letting dates of April or May 2012 are requested.

* If funds are available, projects will be selected on their ability to maximize the number of projects going to letting within the funding limitations.

* Projects must be 100% RTL for an April 2012 or May 2012 letting.

CSJ	NBI Number	Dist Name	Cnty Name	Feature Crossed	Facility Carried
001002090	011130001002100	Paris	HOPKINS (113)	ROCK CREEK RELIEF #3	IH 30
000207900	241160000207139	El Paso	HUDSPETH (116)	LASCA RD	IH 10 WB
000207901	241160000207140	El Paso	HUDSPETH (116)	LASCA RD	IH 10 EB
	212500003804059	Pharr	ZAPATA (253)	ARROYO VELENO	US 83 SB
003804054	212500003804081	Pharr	ZAPATA (253)	ARROYO VELENO	US 83 NB
001107XXX	232150001107056	Brownwood	STEPHENS (215)	HUBBARD CREEK	US 180
060501XXX	131580060501016	Yoakum	MATAGORDA (158)	INTERCOASTAL WATERWAY	FM 457

Appendix F: Cost Analysis

Statement of Cost Effectiveness of Widening SB Bridge
Cost Estimates for Alternative 3a (Pedestrian Use) Options
Cost Comparisons for Alternatives 3b and 4
Truss Relocation Cost Estimate
Relocation Map

From: Michelle Veale
To: Bruce Jensen
CC: Mark Brown
Date: 1/5/2011 11:50 AM
Subject: US 83 Statement on cost effectiveness of widening
Attachments: Michelle Veale.vcf

Per your request....

Several factors are taken into consideration when determining if a structure is a suitable candidate for widening. These factors include but are not limited to: age, condition, structure type, load capacity, and location. Bridges in certain areas of the State, such as the Coastal and Northern regions, have shorter life expectancies than in other parts of the state due to corrosion from a marine environment or exposure to deicing chemicals. For example, the average age of the structures that have been or are in need of replacement in the Childress District is 56 years. Therefore, this structure which is approximately 36 years old would be expected to be in-service another 20 years before needing to be replaced. In addition, the design life of most bridge widenings is nominally 20 to 30 years due to deterioration of the original structure.

A present worth life-cycle cost analysis was developed. The analysis compared the following scenarios:

1) Widening the southbound bridge now and replacing this structure in 20 years:
 a) includes the truss rehabilitation costs but none of the associated maintenance costs to the truss = $7,696,200
 b) includes the truss rehabilitation costs and the associated maintenance costs to the truss = $9,257,660
2) Replacing the northbound structure now and replacing the southbound structure in 20 years = $4,031,640

The analysis showed that the present value to widen the southbound now and replace entirely in 20 years is not cost effective. There is no "cost" benefit to the State or traveling public for widening the structure today and replacing it within the next 20 years. Widening the structure now would only cause the safety concerns outlined in the District's response and require additional expenditures between $3,664,560 to $5,226,015.

Michelle N. Veale, P.E.
Senior Bridge Project Manager - North Region
Project Development Section
Bridge Division
Texas Department of Transportation
(512) 416-2848 ---Phone
(512) 416-2286 --- Fax
Michelle.Veale@txdot.gov

Table 2: Cost Estimates for Alternative 3a (Pedestrian Use) Options

Replace with 24' wide deck & new N. appr.	**Replace deck & rehab N. appr. only**	**Replace deck & rehab appr.**	**Replace with 24' wide deck & new appr.**
New N approach(includes bents, slab and beams)	Replace Bent 10 N. approach	Replace all S. Approach Bents	New N & S Approaches (includes bents, slab and beams)
New deck -truss	New deck truss and n. approach	Replace Bent 10 N. approach	New deck -truss
Concrete repair to main span bents	Concrete repair to main span bents	New deck entire structure	Concrete repair to main span bents
Elastomeric Bearings	Elastomeric Bearings	Concrete repair to main span bents	Elastomeric Bearings
Clean and paint- truss	Clean and paint- truss	Elastomeric Bearings	Clean and paint- truss
Pedestrian rail rehabilitation	Clean and paint - approaches	Clean and paint- truss	Pedestrian rail rehabilitation
New deck joints	Pedestrian rail rehabilitation	Clean and paint - approaches	New deck joints
Removal of approaches	New deck joints	Bridge rail rehabilitation	Removal of approaches
Removal of deck - truss	Raise existing structure	New deck joints	Removal of deck - truss
Adjust bearings	Removal of south approaches	Raise existing structure	Adjust bearings
Structural steel repairs	Removal of deck - truss	Removal of south approach bents	Structural steel repairs
	Removal of deck - north appr.	Removal of deck - truss	
	Adjust bearings	Adjust bearings	
	Structural steel repairs	Structural steel repairs	
Estimated costs for rehabilitating truss for pedestrian use (excluded cost of bridge widening):			
$3,576,705	**$3,596,551.20**	**$3,693,536**	**$3,868,645**

3b. Widen Southbound Bridge and Rehabilitate Truss as a Monument

Widen Southbound Bridge work items		Cost	
Widen southbound bridge	$	2,445,794.00	
Realign roadway	$	972,535.00	
Mobilization and barricades	$	370,000.00	
Incidentals	$	134,254.00	
Subtotal	$	3,922,583.00	Federally reimbursable
Rehabilitate Truss work items		**Cost**	
Minor concrete repair to bents	$	20,150.00	
Clean and paint (full containment) truss	$	2,180,000.00	
Remove approaches	$	125,000.00	Demolition costs must be covered by federal funding*
Remove deck - truss	$	120,000.00	Demolition costs must be covered by federal funding*
Adjust bearings	$	7,200.00	
Structural steel repairs	$	30,000.00	
Mobilization costs	$	248,235.00	
Subtotal	$	2,730,585.00	Federally reimbursable within funding constraints
TOTAL COST		**$6,653,168.00**	
Demolition costs applied to truss rehab		**$550,000.00**	**Federally reimbursable**
Additional Funding Required	**$**	**2,180,585.00**	

*Federal funding for a bridge taken out of service is capped by the estimated demolitions funds available ($550,000). Once the two demolition items applicable in this instance are covered, remaining demolition funds ($305,000) may be applied to any other truss rehabilitation costs until the cap is reached. The balance $2.18 million must be provided by State of Texas.

4. Remove and Replace Truss

Remove Truss work items		Cost	
Removal of approaches	$	125,000.00	
Removal of deck - truss	$	120,000.00	
Removal of truss systems	$	305,000.00	
Subtotal	$	550,000.00	Federally reimbursable
Construct New Northbound Bridge work items		**Cost**	
Construct replacement facility	$	2,152,209.00	
Construct approach roadway	$	392,051.00	
Mobilization and barricades	$	370,000.00	
Incidentals	$	229,112.00	
Subtotal	$	3,143,372.00	Federally reimbursable
Mitigation		**Cost**	
Kiosk		$20,000	
Subtotal		$20,000	Federally reimbursable
TOTAL COST	**$**	**3,713,372.00**	
Federal funding applied to 80% of costs	**$**	**2,970,697.60**	**Federally reimbursable**
Additional Funding Required	**$**	**742,674.40**	

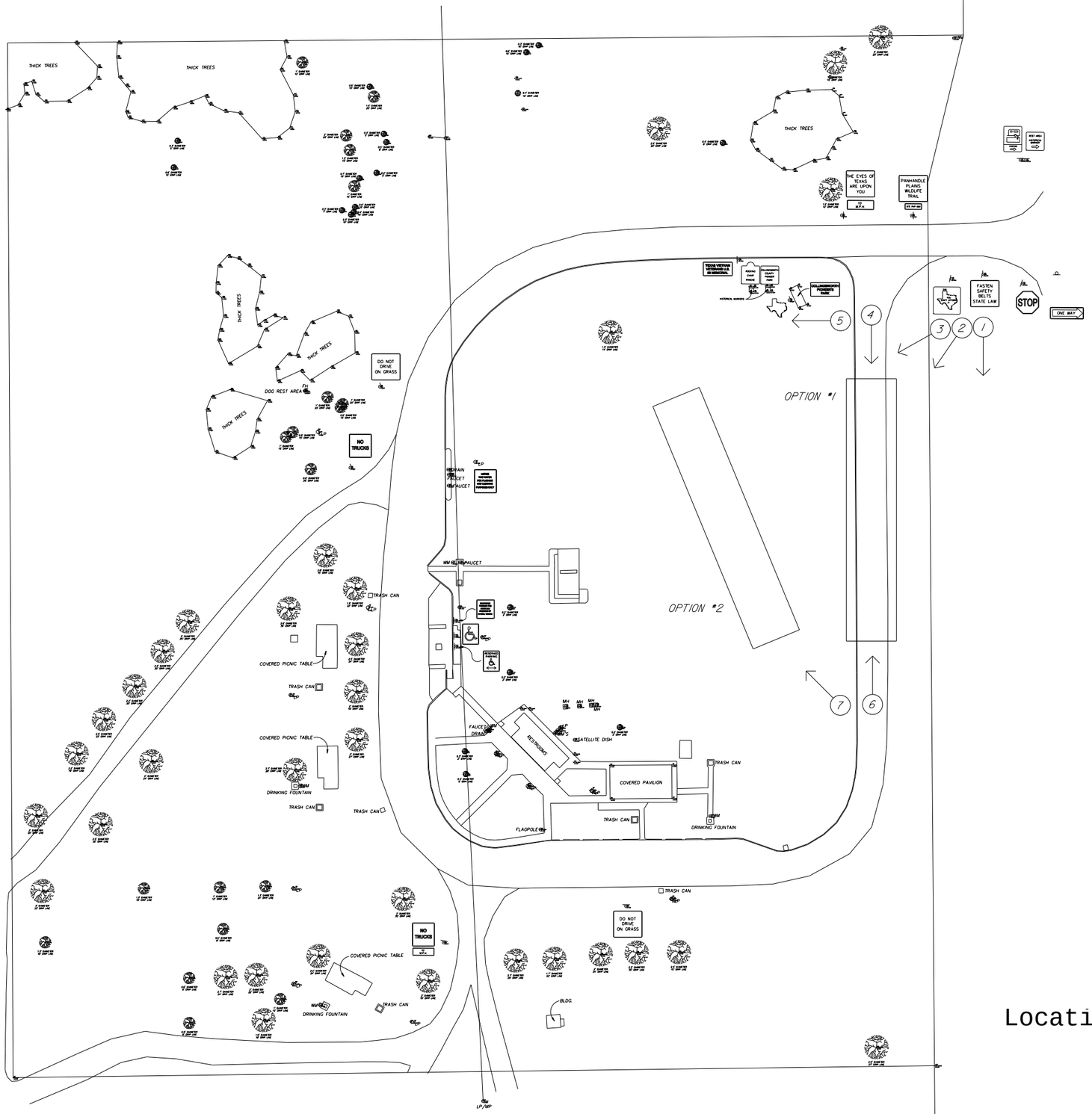
Federal regulations mandate that 20% of costs must be provided by State of Texas for this project.

Rehabilitation as a Monument in Park

Item	Cost		
New Abutments	$ 60,000.00		
New Deck on one truss	$ 40,000.00		
Elastomeric Bearings	$ 8,000.00		
Clean and paint (full containement) one truss	$ 726,667.00		
Removal of approaches	$ 125,000.00	↔	$ 125,000.00
Removal of deck - truss	$ 120,000.00	↔	$ 120,000.00
Removal of two trusses	$ 36,667.00	↔	$ 203,333.00
Relocation of one truss to park	$ 150,000.00		
Structural steel repairs	$ 30,000.00		
Pedestrian Railling	$ 29,000.00		
Approach Work	$ 50,000.00		
		Remaining Demolition Funds	**$ 101,667.00**
Subtotal	$ 1,375,334.00		
Mobilization (10%)	$ 137,533.40		
Total	**$ 1,512,867.40**		

Estimated Demolition $ 550,000.00

Additional Funding Required $ 1,411,200.40



Location Options of Truss Span in Pioneer Park

Appendix G: Consultation

SHPO Coordination
-March 2005
-February 22, 2010
-March 24, 2010
OTHM Relocation Coordination
Table 4 Consulting Party Comment Tracking Table
October 2010

Texas Department of Transportation
DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

3 March 2005

SECTION 106: DETERMINATION OF NO ADVERSE EFFECT
CHS Collingsworth County
CSJ# 0031-03-029

RECEIVED
MAR 07 2005
Texas Historical Commission

US 83 at the Salt Fork of the Red River

Ms. Adrienne Campbell
History Programs Division
Texas Historical Commission
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with 36 CFR 800 and the Statewide Programmatic Agreement for Cultural Resources, we are continuing Section 106 consultation for the above referenced project, which will be carried out with federal funding. The proposed work would convert the 1939 Parker through truss bridge on United States Highway (US) 83 at the Salt Fork of the Red River into a scenic bypass connecting the northbound lanes of US 83 to Collingsworth County Pioneer Park. The bridge is **listed** in the National Register of Historic Places (NRHP). In order to adaptively reuse the structure, repairs to damaged and deteriorated structural members and materials must be addressed.

The following work would be carried out to rehabilitate the bridge:

- The roller bearings that were part of the retrofit on Bent 11 would be replaced with a better bearing system, such as neoprene.
- The buckling I-beams of the retrofit on Bent 10 would be strengthened with stiffener plates. The other side of Bent 10, which is also spalled, would be retrofitted with a similar detail.
- The entire deck on the truss spans would be removed and replaced.
- Floor Beam 6, East Truss, Span 1, and Floor Beams 5 and 6, East Truss, Span 3 would be removed and replaced with new members.
- All other floor beams would be cleaned and repainted to slow the corrosion process.
- The connection plates on the lower chord members that are corroded through would be sand blasted and repainted. A 5/16 inch plate would be welded on to the sound material in order to reestablish the original section.
- The gusset plate at Floor Beam 8, East Truss, Span 3 would be removed and replaced with a new plate.
- The rocker bearings of the truss spans would be reset.
- The joints of the approach spans would be cleaned, repaired and sealed.
- The diaphragms and corbels of the approach spans would be repaired.
- Bearing/stringer connections on the approach spans would be cleaned and replaced.
- The deck of the approach spans would be removed and replaced.
- Due to budgetary constraints and drainage concerns, T101 traffic rails would be installed along the length of the bridge in place of the existing "safety curbs."

Additionally, a new bridge carrying the northbound lanes of US 83 would be constructed approximately 70 feet east of the metal truss bridge. The new bridge would be of a similar design to the one carrying the southbound facility. Therefore, its height and scale would not detract from the character or setting of the metal truss bridge.

The proposed rehabilitation work would utilize similar materials and maintain the overall character defining features of the historic bridge. Likewise, the construction of the new bridge would not diminish the integrity of the historic truss bridge. We have applied the criteria of adverse effect, and based on the scope of the proposed work, we have found that the proposed rehabilitation work would have **no adverse effect** to the metal truss bridge on US 83 at the Salt Fork of the Red River.

In accordance with 36 CFR 800 4 and the Programmatic Agreement, I hereby request your signed concurrence with this determination of no adverse effect. If you have any questions or comments concerning this determination, please call me at 416-2555.

Sincerely,

Ryan Fennell

Ryan Fennell
Historic Preservation Planner
Environmental Affairs Division

attachments

CONCUR: NO ADVERSE EFFECT

NAME: Cedric Cox DATE: 3-25-05

For F. Lawerence Oaks, State Historic Preservation Officer

Texas Department of Transportation
DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

February 22, 2010

SECTION 106: ASSESSMENT OF ELIGIBILITY
SECTION 106: DETERMINATION OF EFFECT ON NRHP-ELIGIBLE PROPERTIES
23 CFR 774 (Section 4(f)): REVIEW

Received @ 2:33 pm
Sarah McCleskey

Collingsworth County / Childress District
CSJ#: 0031-03-029
US Highway 83 at Salt Fork of the Red River
Structure Number: 250440003103002

RECEIVED
FEB 22 2010
History Programs Division

Ms. Adrienne Campbell
History Programs
Texas Historical Commission
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with 36 CFR 800 and the First Amended Programmatic Agreement for Transportation Undertakings (PA-TU), we are *reopening* Section 106 consultation that closed on March 25, 2005 for the above referenced project, which will be carried out with federal funding. The Childress District revisited the previously coordinated design based on information derived from the public meeting on May 10, 2005, public comments received after the meeting, and meetings with county officials. There is no longer strong public support to retain and maintain the historic truss bridge due to the estimated cost of rehabilitation or relocation. There is also lack of local support to the acquisition of new right-of-way (ROW) from landowners in the bridge project area. On February 19, 2010 TxDOT engineers moved to close and by-pass the bridge in response to a new 4 foot diameter hole in the deck. Consequently, we request agency review regarding the effect the proposed project will have on the National Register-listed three-span Parker through-truss bridge located within the project limits. We request concurrent review with the Historic Bridge Foundation (HBF), a consulting party under 36 CFR 800.2(c)(5), with a 30 day review period instead of the usual 20 day period to facilitate consultations between your office and the HBF.

In addition to Section 106 review, we also request comment on the attached alternative analysis conducted under 23 CFR 774.

INTRODUCTION

The Texas Department of Transportation (TxDOT) Childress District is proposing to replace the existing National Register Listed United States Highway (US) 83 Bridge over the Salt Fork of the Red River (see Figure 1 and 2 in Appendix A and Figures 1 through 18 in Appendix B). The preferred alternative would not require any new right-of-way or easements.

Description of the Bridge

The US 83 bridge at Salt Fork of the Red River is a complex structure built in 1939 by the Texas Highway Department (THD). The bridge is comprised of three main components: the main spans and the south and north approach spans. The main spans of the bridge are three riveted steel, Parker through-truss spans, each measuring 179.67 feet. The superstructure of both approach spans are steel I-beams. The five south approach spans are each 28.50 feet in length with a timber piling substructure and steel channel bent caps. The south approaches pre-date the rest of the structure by approximately seven years. The three north approach spans (40.00-foot, 60.00-foot, and 40.00-foot) feature a substructure of steel pilings with concrete bent caps. Reconstruction of the north approach spans occurred after a fire in 1949 that destroyed the original timber bents. The substructure of the main truss spans are concrete pier walls. The horizontal clearance at the trusses is 27.00 feet and the vertical clearance at the center of the north bound portal is 15.50 feet.

Site Conditions

US 83 is classified as a Rural Minor Arterial on the Texas Highway Trunk System (43 TAC Chapter 15, Subchapter D and TXDOT Transportation Planning and Programming [TP&P] Statewide Planning Map). The Trunk System is a network of rural divided highways that both complements and includes elements of the Interstate Highway System that adhere to the minimum design criteria specifying that each highway should be at least a four-lane divided facility. US 83 runs from the Texas/Oklahoma border near Perryton, Texas south to the Gateway International Bridge that crosses the Rio Grande in Brownsville, Texas. Within the proposed project area in Collingsworth County, US 83 is a four-lane divided facility with a 38.00-foot wide paved surface on both the northbound (NB) and southbound (SB) lanes with a 75.00 foot median (see Figures 1 and 2 in Appendix B). The exception to that design is on the northbound lanes at the existing historic bridge over the Salt Fork of the Red River, where the roadway narrows to a single 14.00-foot lane with a 6.00-foot outside shoulder and a 4-foot inside shoulder as it enters the truss bridge. According to the TxDOT 2008 Childress Traffic Analysis, the facility carries an average daily traffic (ADT) volume of 1,800 vehicles per day, with 39.3% truck traffic. It is projected to increase to 2,400 vehicles per day by 2024 and to 2,500 vehicles by 2028. The existing Parker through-truss bridge is located approximately six miles north of Wellington, Texas, in a rural area where the crossing is routinely used for large agricultural equipment. The bridge is owned and maintained by TxDOT.

North of Wellington, US 83 begins a gradual, 234 foot, decent over the course of two and a half miles to the bottom of the Salt Fork valley. The highway emerges from a

broad curve approximately 0.52 miles south the river to make its final approach to the bridge. After the curve, there are two existing median crossovers, at 0.38 and 0.08 miles south of the bridge. Almost immediately (0.06) miles north of the truss bridge is a median crossover that provides access to a joint TxDOT rest stop / county park. Two additional crossovers are located north of the bridge at 0.31 and 0.46 miles. The curve, the decent into the valley, the number and locations of the crossovers, traffic conditions, and the location of the park entrance represent multiple factors that combine with the historic truss bridge to create unique problems.

TxDOT proposes to demolish the existing truss bridge and construct an 840.00-foot long bridge on the existing NB alignment. It would feature eight central 90.00-foot spans with a 60.00-foot span at each end formed by Type C pre-stressed concrete beams resting on pairs of 36-inch concrete piers. The overall width of the proposed bridge would be 40.00 feet, with a 38.00-foot roadway surface of two 12.00-foot travel lanes, a 10.00-foot outside shoulder and a 4-foot inside shoulder. The deck would be concrete cast-in-place with a Type T202 (SPL) rail.

DETERMINATION OF NATIONAL REGISTER ELIGIBILITY

A review of the National Register of Historic Places (NRHP), the list of State Archeological Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL) indicated that no historically significant resources have been previously documented within the area of potential effects (APE). It has been determined through consultation with the State Historic Preservation Officer (SHPO) that the APE for the proposed project is the existing right-of-way. A site visit revealed that there is one historic-age resource (built prior to1965) located within the project area of potential effects. TxDOT historians determined that the US 83 at the Salt Fork of the Red River Bridge is NRHP eligible. There are two Official Texas Historical Markers (OTHMS) in the APE. The marker commemorating "Rocking Chair "Ranche'" would not need relocation as proposed and would not be affected during construction of the project. See Figures 19 and 20 in Appendix B. The marker commemorating "The Red River Plunge of Bonnie and Clyde" would need to be relocated for the project as proposed. The Childress District proposes to relocate this OTHM to a location in Pioneer Park near the north abutment of the bridge from which Bonnie and Clyde plunged. Since the current text contains a geographic reference that would be invalid at the proposed location, the Childress District would purchase a new OTHM with the reference removed from the text. The relocation would be coordinated with the Collingsworth County Historical Commission and the THC's Marker Program. See Figures 21 and 22 in Appendix B.

The 827.00-foot, three-span Parker through-truss on US 83 at the Salt Fork of the Red River was built in 1939. The THD designed the bridge and contracted its construction through the Pittsburgh-Des Moines Steel Company. The bridge's defining characteristics are its embodiment of a THD-designed truss bridge that include its multiple truss spans and open steel railing, incorporated with approach spans from an earlier bridge (including its original timber bents) that was erected in the same location. The bridge is significant under Criterion C for embodying the defining characteristics of a

THD truss bridge and as an example of a bridge employing "technically complex, advanced or innovative designs or construction methods." As such the bridge meets National Register Criterion C in the area of Engineering at a state level of significance. It was listed on the National Register of Historic Places in 1996 (See Appendix C for summary National Register of Historic Place data and nomination).

PURPOSE AND NEED

The purpose and need of this project is to provide a safe and efficient crossing over the Salt Fork of the Red River along US 83 that meets current and future traffic needs. The existing NB truss bridge is considered structurally deficient and has a sufficiency rating of 21.20. In addition to the reduced structural capacity, the truss spans geometrically constrict the roadway. The geometry of the trusses limits the structure's use to one-lane and is striped accordingly. The bridge features a horizontal roadway clearance of 24.00 feet and a vertical clearance of 15.50 feet at the centerline and 14.25 feet at each end of the bridge portals with a 38.00-foot roadway approach width. Current design criteria referenced in the Texas Highway Trunk System section of the Transportation Planning Manual (Section 6), dictates the need for a two-lane bridge. Current TxDOT design manuals recommend a minimum 30.00-foot horizontal clearance. Due to the below-standard horizontal clearance, large vehicles (such as farming equipment) and oversized loads traveling north routinely cross the median to the south bound lanes to travel north, creating a safety issue. US 83 is a major route for the wheat harvest. Crews travel from Nebraska, Kansas, Oklahoma, and Texas cutting wheat passing through Collingsworth County en route. The combines are very wide and they have difficulty making it through the truss structure. With each crew there will be up to 5 or 6 combines plus travel trailers and grain hauling trucks. A specific example of the larger farm equipment that utilizes this crossing can be seen in the lower left hand corner of Figure 1 in Appendix B. That particular type of equipment is a swather (also known as a windrower) that is a self-propelled harvester with a fixed cutting header. Case IH manufactures swathers with headers that range from 18.00 feet wide to 35.00 feet wide. Widths 24.00 to 35.00 feet would not be able to transverse the existing bridge. This situation, in the past, has led to similar equipment crossing the median and using the SB bridge for NB travel.[1] Although there is no documentation for the number and frequency of such equipment utilizing the project roadway, the photograph in Appendix B illustrates that similar equipment uses the crossing. The detour route for oversized loads from Wellington to Shamrock would be approximately 44 miles. Normally, following US 83, it would take 26 miles. The detour route would be: US 83 out of Wellington, west on SH 203, north on FM 1547, and east on IH 40 to Shamrock. Wind power components generally only require 14.40 feet of clearance and would not require roadway width. For continued use, the bridge would require extensive rehabilitation and still fail to meet the current design criteria.

Located on the north bank of the river and west of the travel lanes is Pioneer Park, a Collingsworth County maintained recreational area. Adjoining the park is a rest area

[1] Eyewitness accounts from a former maintenance supervisor suggest that on average 2 times per month an oversize vehicle would detour onto the southbound bridge to by pass the truss structure. Sometimes this happens legally (with proper traffic control) and sometimes illegally.

constructed and maintained by TxDOT (see Figures 1, 2a, and 15 in Appendix A and 19 through 21 in Appendix B). The rest area is provided by TxDOT as a customer service for the traveling public and the park is utilized by campers with recreational vehicles and trailers. The TxDOT Childress District office has observed a substantial usage of the rest area and park by the general public, and maintaining access is essential for the continued service to the traveling public. Currently, NB traffic accesses the park by using the existing crossover just north of the two existing bridges. The proposed project should continue to allow for northbound traffic to utilize the TxDOT rest area and the county park on the northwest side of the highway at the river crossing in a safe manner.

Structural Deficiencies

The bridge is considered to be structurally deficient with a sufficiency rating of 21.20 and is load posted for a gross 18,000 pounds single/tandem axle. The truss bridge has an inventory load rating of HS 10.05, which is below the HS 20.00 criteria for on-system bridges. The controlling members of the truss are the floor beams, which require significant rehabilitation or replacement. Four of the floor beams (as well as two stringers) are in need of immediate attention, as these members have areas of 100% section loss. The section loss in the shear region is as great as 65%. Floor beam repair is a labor-intensive process and would require selective demolition of the concrete deck as well as partial dismantling of the truss. Because the floor beams, stringers and concrete deck are not a composite structure, they do not act as a single element. If a floor beam were to fail, sections of the concrete deck would fall into the river. The new 4 foot hole in the bridge's road surface demonstrates the seriousness of this issue.

Although the floor beams control the load rating, a considerable amount of deterioration of the truss has also occurred. Cracks developed in the channel of the bottom chords over the bearings and the bearings throughout the structure are non-functional. The batten plates and lower gusset plates, which are used to attach the truss members to one another, experienced severe rusting and paint failure. Although not done in many years, salting of icy roads to protect the traveling public was done in the area surrounding the structure in the past. The steel members were exposed to this corrosive substance, causing the lead paint to break down and subsequently fail entirely. With no protective coating, rust developed on the metal surfaces causing moisture retention. Members throughout the structure experienced some level of deterioration because of the corrosion. All joints are leaking at and/or through the curb. These issues caused the structure to lock up, preventing it from normal thermal expansion and contraction. For example, the north approaches have been retrofitted as a result of bent cap spalling (see Figure 13 and 15 in Appendix B).

The timber substructure of the south approach shows approximately 50% section loss. The timber bents typically predate TxDOT records; as a result, there are no existing plans showing pile lengths and foundation depths. In-depth analysis is impossible without these records. Additional repair work is needed on the approach span diaphragms and concrete corbels where spalling is exposing the reinforcement causing

severe corrosion. The following is a condensed list of work required for all alternatives (2, 3a, 3b, 4, 5) that would retain the truss bridge in some manner:

- Replacing the floor beams and stringers that have significant section loss
- Repairing the truss gusset plates
- Cleaning, repairing and sealing all open joints on the approach and truss spans
- Replacing truss bearings
- Replacing all missing rivets with A325 dome-headed bolts of the same diameter
- Sand-blasting the surface steel of the approach and bridge members to remove corrosion (replacing any and all members found to have a section loss greater than 50%) and deteriorated paint (which would require a containment system, even for spot cleaning, because of its lead content)
- Applying a new paint system to the bridge after sand blasting to protect from further deterioration
- Repairing approach span bents
- Repairing, possibly, replacing, roadway surface.

Functional Deficiencies

The purpose of the project is to provide a safe and efficient flow of traffic at the Salt Fork of the Red River along northbound US 83 by meeting all design standards with respect to lane width, and load carrying capacity. A proposed project would need to eliminate the rerouting of legal sized and weight permitted loads. In addition the project would need to allow for essential vehicles in the area, such as large farm equipment, to utilize the crossing.

The bridge is located on a roadway designated as part of the Texas Highway Trunk System, which mandates minimum design criteria for facilities designated as such. Since this section of US 83 is a four-lane divided highway, except at the NB bridge crossing of the river, the design criteria set forth in the Texas Highway Trunk System section of the Transportation Planning Manual (Section 6) dictates the need for a two-lane bridge, measuring 30.00 feet in width. Currently the NB two-lane section converges at the existing historic bridge into a single 14.00-foot lane with a 6.00-foot outside shoulder and a 4.00-foot inside shoulder.

Finally, the upper lateral bracing of the historic truss combines with the sloping approach to the NB bridge, the vehicular speeds, and the high percentage of truck traffic to create an undesirable safety issue. The top bracing obscures the brake lights of vehicles decelerating on the one-lane truss bridge in order to turn into the park from high speed vehicles descending US 83 to the truss. In this case, the higher elevation of a semi-trailer's cab atypically hinders a truck driver's ability to see slowing traffic on the bridge. Numerous skid marks on the pavement in the area of the truss testify to the resulting sudden breaking actions (see Figure 2a in Appendix B). A new multi-lane bridge without top bracing would reduce the safety risks associated with traffic decelerating to enter the park.

ALTERNATIVES ANALYSIS

Overview

The bridge meets the necessary criteria for replacement using federal funds based on its Sufficiency Rating of 21.20 (a rating under 50.00 qualifies) and its classification as structurally deficient.

Alternatives considered for this analysis are: 1) No-build, 2) Rehabilitation for Continued Vehicular Use, 3a) Preservation as Scenic By-Pass - new bridge to the west, 3b) Preservation as Scenic By-Pass - new bridge to the east, 4) Preservation for Pedestrian Use, 5) Rehabilitation as a Monument, 6a) New Structure on Current Alignment with Demolition of the Truss Bridge, and 6b) New Structure with Relocation for Non-Vehicular Use.

1. No-Build

The "No-Build" alternative calls for leaving the structure in situ with no maintenance work to be performed. No work would be done to remove the structural and functional deficiencies. There would be no bypass constructed, no rehabilitation work, and a new structure would not be built.

This alternative would not address the structural deficiencies or functional inadequacies of the existing bridge and would not bring the crossing up to the minimum standards set forth in the Texas Highway Trunk System guidelines. The needed repairs to the structure are beyond the scope of routine maintenance. Due to the restricted horizontal as well as the HS 10.05 load carrying capacity, large vehicles such as farming equipment and oversized loads traveling would still be forced to travel north on US 83 by crossing the median to the southbound lanes hence causing safety hazards.

An example of the large farm equipment that utilizes this crossing can be seen in the lower left hand corner of Figure 1 in Appendix B. That particular type of equipment is a swather (also known as a windrower) that is a self-propelled harvester with a fixed cutting header. Case IH manufactures swathers with headers that range from 18.00 feet wide to 35.00 feet wide. The widths ranging from 24.00 to 35.00 feet would not be able to cross the existing bridge. In the past, this situation has led to such large-size equipment crossing the median and using the SB bridge for NB travel at great danger to the traveling public.

Structural Deficiencies

The "No-Build" alternative does not address the structural deficiencies affecting this structure. Shear is present throughout the floor beam with the highest concentration located at the ends where the floor beam connects to the bottom chord of the truss. This is where the loads from the deck and stringers are transferred to the truss and/or bearings. If a beam were to fail at this location, shear is the most likely mode. At a minimum, four floor beams and two stringers need to be replaced and several other members require extensive rehabilitation. Portions of the deck would need to be removed to accomplish these repairs, and this work is outside the scope of general

maintenance. TxDOT engineers have concluded that the recently developed hole in the deck surface is outside the scope of general maintenance and have closed the bridge. There are several truss floor beams that have up to 65% section loss in the shear region. The structure's inventory load rating has, over the last several years, decreased from HS 16.60 to HS 10.05 which translates to a posted load carrying capacity of 18,000 pounds axle/tandem axle, because of the floor beams. Minor maintenance efforts will not correct this issue because generalized section loss cannot be restored.

The bridges bearings have also failed. They allow loads to transfer from the superstructure to the substructure as well as help the structure expand and contract in hot and cold weather. The bearings are in need of extensive rehabilitation to "unlock" the structure and allow it to expand and contract as it was designed.

Another structural deficiency facing this bridge is apparent in the condition of the approach spans. It is TxDOT policy to replace timber substructures with unknown capacities. Timber structures typically predate TxDOT records, so the state cannot determine if they can adequately carry today's legal loads. The south approach spans all have such timber supports. They currently show signs of up to 50% section loss in some locations. All bent caps are in need of some type of repair. Several locations are experiencing concrete spalling which has exposed the reinforcing steel. Corrosion at this site has reduced the capacity of the bents.

Functional Deficiencies
The controlling functional inadequacies at this location are the restrictive horizontal clearances. The bridge can only accommodate a single 14.00-foot travel lane with a 6.00-foot outside shoulder and a 4-foot inside shoulder. US 83 has been designated as part of the Texas Highway Trunk System, and as such, is subject to specific guidelines mandating minimum design criteria. TxDOT's Roadway Design Manual recommends a minimum 30.00-foot horizontal clearance. Due to the below-standard horizontal clearance, large vehicles (such as farming equipment) and oversized loads traveling north routinely cross the median to the SB lanes to travel north, creating a safety issue.

Summary
The "No-Build" alternative does not meet the purpose and need for the project. This option does not address the conditions which render the bridge structurally deficient, the functional obsolescence of the structure, or the safety hazards created by large vehicles crossing over to the SB lanes to travel north. As this option does not address issues listed above, it is not a feasible or prudent alternative.

2. Rehabilitation for Continued Vehicular Use
This alternative would consist of using Federal Highway Bridge Program funds for the rehabilitation of the structure for continued vehicular use which would attempt to correct the structural and functional deficiencies of the bridge. The overall condition of this structure is poor with an inventory load carrying capacity of HS 10.05, a value controlled by the floor beams. The additional work proposed in this alternative would affect the integrity of the existing bridge by removing and replacing some of the original historic

fabric. The estimated cost of preserving the bridge for continued vehicular use is estimated at $9,269,000.

Structural Deficiencies
As previously mentioned in the "No-Build" alternative the condition of the floor beams require significant rehabilitation or replacement. The batten plates and lower gusset plates on the trusses have experienced section loss as well and are in need of repair or replacement. Deterioration of the truss can also be attributed to bearing failure which has resulted in cracks in the bottom chord channels. The bearings have locked up and do not allow the proper transfer of the loads from the superstructure to the substructure. In addition, the failed bearings do not allow the structure to expand and contract as needed with the changing temperatures. Retrofitting of the north approach spans with temporary supports has also been necessary due to the failed bearing and failed joints. TxDOT engineers have concluded that the recently developed hole in the deck surface is outside the scope of general maintenance and have closed the bridge.

The entire structure is in need of extensive repair work. In order to properly rehabilitate the bridge for continued vehicular use, all floor beams and stringers would need to be replaced. Replacement of all approach spans would be considered, with particular focus on the south approach. It is current TxDOT policy to replace all timber substructure elements on on-system bridges due to their unknown capacity. If these and additional repairs were made to the structure, the truss would still not meet current load capacity standards for an on-system structure with full service traffic. This is because the trusses have experienced general section loss, which cannot be repaired or rehabilitated. The bridge's capacity cannot be increase without replacing the numerous affected members.

Functional Deficiencies
It is apparent that the historic bridge does not meet existing and proposed criteria and a design exception is not a viable option due to the need for a wider horizontal clearance to accommodate larger farm vehicles and oversized loads, indicated in the "No-Build" alternative above. More importantly there is a need for two travel lanes that would allow for the smooth flow of traffic on the NB lanes and meet the guidelines of a four-lane divided facility under the Texas Highway Trunk System as outlined in the TxDOT Transportation Planning Manual. The historic bridge is currently part of a one-way pair that was sufficient when the newer bridge to the west (SB lanes) was constructed. The cost of preserving the historic truss bridge for continued vehicular use is estimated at $9,269,000.

Summary
The "Rehabilitate for Continued Vehicular Use" alternative does not address the functional deficiencies affecting this structure. Vehicles traveling NB that are wider, taller, and/or heavier would continue to create unsafe situations by crossing the median to cross the river northward in the SB lanes. The minimum standards set forth for the Texas Highway Trunk System would not be met. Therefore, this option does not present itself as a feasible or prudent alternative.

3a. Preservation as a Scenic By-Pass (Reduced Level of Service), new bridge to west

The "Preservation as a Scenic By-pass" alternative is based on the construction of a new NB bridge over the river and the realignment of the NB travel lanes. This alternative would construct a new NB bridge between the existing SB bridge and the historic truss bridge (current NB travel lanes). Under this proposal, the by-passed section of NB US 83, which would include the historic bridge, would serve as a scenic by-pass. All NB traffic wishing to access the rest area/park would continue north until the new lanes merge into the existing main lanes and then crossover to travel south back to the existing park entrance just north of the SB bridge. Upon exiting the park, all traffic wishing to travel north would exit and travel south until the median returns to a 75.00 foot width, then use a crossover to return to the NB lanes. See Figures 5 and 18 in Appendix A.

The historic bridge would be restricted to passenger and small recreation vehicles. Larger recreation vehicles (RVs) and buses would need to be prevented from gaining access to the structure. Although signage would instruct trucks not to use the structure, individuals driving larger RVs and busses may not be aware that their vehicle may exceed the legal loading limits posted for the structure. It is these individuals that are most likely to travel across the historic bridge. All rehabilitation efforts would be for the purpose of preservation, primarily to arrest the deterioration of the bridge, and would not to add capacity. The estimated cost for preserving the bridge as a scenic by-pass is $4,615,000 and the total estimated cost for preserving the structure and building a new bridge is $8,715,000.

Structural Deficiencies

The "Preservation as a Scenic By-pass" alternative would address some of the structural issues associated with the historic bridge. Replacement of at least four floor beams and two stringers is necessary. Repairs of the other truss floor beams would be needed to alleviate and prevent further section loss. TxDOT engineers have concluded that the recently developed hole in the deck surface is outside the scope of general maintenance and have closed the bridge. The bearings would be replaced to allow better transfer of loads from the superstructure to the substructure and to accommodate the movement associated with temperature changes, thus reducing stress on many of the members. Damaged gusset plates would be repaired and all missing rivets would be replaced. The surface steel of the approaches spans and the truss bridge members would be sand-blasted to remove all corrosion and deteriorated lead paint then re-painted. If a member were found to have section loss greater than 50% after blasting, it would then be replaced.

With the previously mentioned repairs, the structure's inventory rating might increase to HS 16 with an associated load posting of 24,000 pounds. To increase the life span of the structure, additional modifications may be necessary to keep large recreation vehicles and buses from using it. The loads these vehicles tend to be greater than what would be allowed on the structure and the operators of such vehicles may not be aware that their weight exceeds the posted maximum amount.

Functional Deficiencies
Geometric and safety issues associated with the bridge would still be a hazard with the merging of NB traffic from the bypass alignment and the new main lanes. Under this alternative, the design speed for the by-pass would be lowered to at most 45 miles per hour (mph), and the merging by-pass traffic would be required to stop prior to re-entering the main lanes. NB traffic on the main lanes would be traveling at 70 mph. Using the TxDOT's Roadway Design Manual, the stopping site distance for a vehicle traveling 70 mph is 730-feet. The distance from the end of the proposed bridge to the merge point would be approximately 250.00 feet, and would therefore be inadequate should mainlane traffic be forced into an emergency stop due to traffic from the scenic bypass. The existing site conditions create further undesirable safety concerns at the two existing crossovers north of the park entrance. The southernmost crossover is too close to the NB merge point to serve as a crossover for NB drivers seeking to enter the park. Together, these crossovers are too close to each other to provide the desired deceleration distance for left hand turns. Adding to the site complexities is the difficulty of closing a crossover currently in use by local residents. Thus many NB drivers heading for the park will take the first crossover and use the left lane to decelerate despite the safety risk to themselves and high-speed northbound traffic. Once through the crossover, vehicles heading to the park must negotiate both a series of lane changes and high speed southbound traffic in an undesirably short distance. Thus Alternative 3a, as well as Alternatives 4 and 5, would create a series of undesirable, and cumulative, safety issues.

Summary
The "Preservation as a Scenic By-pass" alternative addresses some of the geometric and structural deficiencies through rehabilitation and repairs. At $8,715,000, the estimated cost of by-pass rehabilitation far exceeds the estimated demolition funds of $375,000 allowed by the Federal Highway Bridge Program and set by FHWA. There are significant safety issues associated with new traffic patterns created by the proposed scenic by-pass. For these reasons, this alternative is not a prudent option for alleviating the functional deficiencies of the current crossing.

3b. Preservation as a Scenic By-Pass (Reduced Level of Service), new bridge to east
This alternative was proposed and recommended as the preferred alternative in a September 2004 Programmatic Section 4(f) Evaluation (See Appendix E). The document was submitted to the State Historic Preservation Officer (SHPO) on March 3, 2005 for review and SHPO concurred on March 25, 2005 that the alternative would have no adverse effect to the historic truss bridge. The proposed project called for constructing a new bridge 70.00 feet to the east of the historic truss bridge and rehabilitating the truss bridge for use as a scenic by-pass (See Figure 16, Appendix A). The realignment of US 83 to the east also allows adequate distance to meet design criteria for minimum median width that the proposed interior alignment would not. The proposed structure would be 840.00 foot long and 40.00 foot wide with drill shafts, concrete columns, concrete caps, Type-C beams, and a concrete deck. The by-passed

section of US 83 would serve as a scenic by-pass and as an alternative entrance to the rest area/park, alleviating the safety concerns caused by slower vehicles entering and exiting the flow of traffic on US 83.

Structural Deficiencies
The "Preservation as a Scenic By-pass" alternative would address some of the structural issues associated with the historic bridge. Since the time of original SHPO approval, the bridge has deteriorated significantly, meaning more repairs would be required for the bridge to successfully function as a scenic bypass. Repairs to the floor beams would be made to alleviate some of the section loss. The bearings would be replaced to allow better transfer of loads from the superstructure to the substructure and to accommodate the movement associated with temperature changes, thus reducing stress on many of the members. Damaged gusset plates would be repaired and all missing rivets would be replaced. The surface steel of the approaches spans and the truss bridge members would be sand-blasted to remove all corrosion and deteriorated paint, then re-painted. If a member were found to have section loss greater than 50% after blasting, it would then be replaced.

With the repairs mentioned immediately above, the structure's inventory rating might increase to HS 16.00 with an associated load posting of 24,000 lbs. To increase the life span of the structure, additional modifications may be necessary to keep large recreation vehicles and buses from using it. The loads these vehicles tend to be greater than what would be allowed on the structure and the operators of such vehicles may not be aware that their weight exceeds the posted maximum amount.

Functional Deficiencies
According to the US 83 Bridge Schematic prepared in 2004 (See Figure 16, Appendix A), traffic would exit the proposed realigned main lanes south of the bridge, cross the truss bridge and come to a T-intersection. Here, the scenic by-pass traffic could either turn west to enter the park or turn east and re-enter the new NB main lanes.

Leaving the bridge in place and constructing a bridge to the east would require extensive modification of the horizontal alignment outside TxDOT ROW, requiring the acquisition of new ROW. A change of alignment introduces reverse horizontal curves north and south of the truss bridge to tie into the existing roadway.

The proposed NB bridge would be constructed 70.00 feet to the east. The estimated cost for preserving the bridge as a scenic by-pass is now $4,615,000. Approximately 11.43 acres of additional ROW would be required for this alternative at an estimated cost of $13,200. The total estimated cost of building a new bridge, acquiring new ROW and rehabilitating the historic bridge for use as a scenic by-pass is $8,728,200.

Summary
The "Preservation as a Scenic By-pass" alternative addresses some of the geometric and structural deficiencies through rehabilitation and repairs. At $4,615,000, the estimated cost of by-pass rehabilitation far exceeds the estimated demolition funds of

$375,000 allowed by the Federal Highway Bridge Program and set by FHWA. A significant issue to be addressed is that only NB traffic can use the scenic by-pass since the truss bridge would be limited to one-way traffic. The load-posting of the truss bridge creates an additional safety concern. There is no provision for a turn-around should over-limit buses and recreational vehicles exit the main NB lanes by mistake. They would need to use the scenic by-pass, to its detriment. This alternative has been re-evaluated and found to be neither reasonable nor prudent. Updated estimates exceed the allowable federal funds and local public sentiment has changed (see Appendix D that shows the community's responses and the Collingsworth County Historical Commission's position) and is no longer supportive of this alternative. There is also a safety concern with oversized/weight vehicles, such as recreational vehicles, traveling over the load posted structure without realizing their weight exceeds the posted limit.

4. Preservation for Pedestrian Use

The "Preservation for Pedestrian Use" alternative is similar to the previous alternative "Preservation as a Scenic By-Pass." The new alignment would be located to the west (up-stream) side of the historic structure (similar to Figures 5, 11, and 12 in Appendix A). The realignment would require a concrete barrier between the NB and SB lanes because of their proximity to each other which would then prohibit direct access to the park from the NB lanes. This alternative would utilize the 2.25 mile detour for NB traffic to access the rest area/park discussed in Alternative 3a. Visitors at the park wishing to access the historic bridge would have to travel underneath US 83 in the river channel on foot to one of the bridge ends, and ascend the embankment. High water conditions and flash flooding could make this unsafe or completely inaccessible as they would for most of the park and rest stop. Once on the bridge, visitors would be restricted to a 20.00-foot center walkway down entire length in order to adhere to loading restrictions for a pedestrian structure. The estimated cost for rehabilitating the historic structure for pedestrian use is $4,043,000. This does not include the estimated cost of providing ADA access to bridge. The total estimated cost of building a new bridge and rehabilitating the historic bridge for pedestrian use is $8,143,000.

Structural Deficiencies

The structural repairs outlined on page 6 of this letter are the minimum required to increase the load carrying capacity of the structure. All structural rehabilitation would be for preservation purposes (to arrest the deterioration of the bridge), not to add capacity. To accommodate pedestrian loads, the walkway would have to be reduced from 24.00 feet to 20.00 feet. A railing would be added two feet inside the current traffic barrier on both sides of the structure. The new NB structure would be designed to Texas Trunk System Guidelines and be able to carry legal loads.

Functional Deficiencies

This alternative would resolve the height and width restrictions currently facing the existing structure. The safety issues surrounding the previous vehicular alternatives would not be present. The historic bridge would be limited to pedestrian use and a new NB structure would be constructed in between the existing bridges. Pedestrians using the historic bridge would be required to travel under the existing bridges and the new

bridge and climb the embankment to access the pedestrian bridge. This would eliminate the safety issues of merging traffic.

Summary
The "Preservation for Pedestrian Use" alternative would resolve the structural and functional deficiencies of the existing crossing. The historic bridge would be limited to pedestrian use and a new NB structure would be constructed in between the existing bridges. The estimated cost for preserving the bridge for pedestrian use is $4,043,000. This does not include the estimated cost of providing ADA access to bridge. The total estimated cost of building a new bridge and rehabilitating the historic bridge for pedestrian use is $8,413,000. The estimated cost of $4,043,000 for preserving the historic bridge for pedestrian use exceeds the allowance of $375,000 authorized by FHWA. Alternative 4 meets the purpose and need of the project (with the 2.25 miles detour for NB traffic as detailed in Alternative 3a), the lack of funding and the safety issues associated with the detour compromises it to an unreasonable degree. Thus while this alternative is feasible, it is not prudent because of multiple factors.

5. Rehabilitation as a Monument
The "Rehabilitation as a Monument" alternative consists of realigning US 83 to the west between the existing structures (requiring no new ROW) and providing limited rehabilitation to the historic NB bridge. Rehabilitation would be restricted to activities that would stabilize the structure and prevent vehicles and pedestrians from gaining access. The estimated cost for rehabilitating the structure as a monument is $910,000, for which $375,000 of federal funding is available. The total estimated cost (including the new structure) is $5,010,000. This alternative would utilize the 2.25 mile detour for NB traffic to access the rest area/park discussed in greater detail in Alternative 3a.

Structural Deficiencies
The rehabilitation would be limited to those activities that would stabilize the bridge. Approach spans 1 and 11 would be removed, and other active deterrents, such as fencing or bollards, would be put in place. To ensure longevity of the monument, the floor beams, stringers, gusset plates and other members with severe deterioration would be replaced. Other steel members would require repair, as would the deck. All joints would need to be sealed and the bearing repaired. To slow down deterioration, areas of the structure would require cleaning and repainting.

Functional Deficiencies
This alternative would remove the width restrictions currently facing the existing structure, as it would no longer be functioning as a trunk system bridge. The safety issues associated with exiting the scenic bypass would not be present, but those safety issues associated with the crossovers north of the bridge and with the weaving of vehicles between lanes just north of the park entrance would remain.

Summary
The proposed realignment with the concrete barrier between the NB and SB travel lanes does not allow for direct access to the rest area and park as it now exists. All NB traffic

would use the detour described above. However, TxDOT engineers concluded that the detour would create several undesirable safety issues given the unique circumstances at this crossing. The structure experienced significant general section loss, most evident in the condition of the floor beams. It is likely that when work begins, additional members will be found to be in need of replacement because more than 50% of the original section has been removed. This would increase the cost and could result in a greater loss of historic fabric of the bridge. If enough of the floor beams and stringers require replacement, the deck and rail may need to be removed as well.

This alternative would create an adverse effect to the historic bridge by removing the contributing approach spans, adding deterrent devices, removing or replacing some of the original materials and changing the structure's function. No new ROW is required, which would satisfy the public objections to its acquisition. This alternative would allow the historic bridge to be used until the new bridge is complete, causing little disruption of traffic. With its total estimated cost of $5,010,000, this alternative is feasible but not prudent for the numerous undesirable safety issues associated with the detour required to ensure NB access to the park.

6a. New Structure on Current Alignment with Demolition of the Truss Bridge
The "New Structure on Current Alignment" alternative has several elements making it a viable option. This alternative would address the structural, functional, and safety issues associated with the historic bridge, without the added safety concerns associated with the NB detour required by Alternatives 3a (Scenic By-pass to the west), 4 (Pedestrian Use), and 5 (Monument). It would also provide a bridge that meets current and future transportation needs with the least social, economic, environmental, and safety consequences, given the unique site problems. However this alternative does create an adverse effect by the removal of the historic truss bridge as the proposed bridge would be built on its location. The estimated cost of this alternative would be $4,775,000, with $4,400,000 for a new bridge and $375,000 set aside for demolition of the truss bridge.

Summary
Under this alternative, the proposed NB bridge would be constructed on the current alignment and the historic truss bridge would be demolished. This alternative adheres to the purpose and need of the project, resolves numerous safety issues, does not create any additional hazards, and is both feasible and prudent given the unique problems at this crossing. The historic bridge would need to be removed prior to the construction of the new NB bridge, causing some disruption of traffic flow. This alternative is preferred, however, because there are no other feasible and prudent alternatives that cause less overall disruption.

6b. New Structure on Current Alignment with Relocation for Non-Vehicular Use
This alternative would provide a bridge that meets current and future transportation needs with the least adverse economic, social and environmental consequences. Replacing the bridge would improve traffic safety and would eliminate the need for large agricultural equipment to use the SB bridge for NB travel (see Figure 1 in Appendix B). The historic truss bridge could be rehabilitated for use as a pedestrian bridge in another

location. Due to the size of the trusses it is expected that it would be cost-effective to move only one span. A single truss span could be moved to a new location without disassembly depending on the condition of the roadway and the distance to the alternative site. The relocation to the adjacent county park would not allow the span to function as a bridge. Therefore the removal of the truss would require an interested party to move and preserve a portion of the historic bridge.

The marketing of historic bridges to a responsible party is required under Title 23, U.S. Code, Section 144 of the Department of Transportation Act (DOT). This marketing requirement applies to both truss and non-truss bridges, when TxDOT cannot leave a bridge in place and is unsuccessful in giving the bridge to a county or local government. Per FHWA policy, current procedures and processes for marketing these bridges can be streamlined to more adequately reflect the difficulties of relocation and still comply with these federal obligations. The $375,000 allowance for demolition most likely would not cover the estimated cost of relocating the entire truss system or a single truss span, the bulk of the cost would have to be borne by the recipient. TxDOT has implemented a marketing plan in accordance Title 23, U.S. Code, Section 144 to make the bridge available to a responsible party that would agree to preserve and maintain the bridge. The availability of the bridge was published in four local newspapers between December 17, 2009 and December 31, 2009. Copies of the marketing activities are included in Appendix G. Since no party inquired about the bridge during the marketing period or since then, this alternative would demolish the bridge, as moving and storing the structure would be prohibitively expensive, given its size and current condition.

Summary
Based on the scope of the project, a new structure on the current alignment is both feasible and prudent. A new bridge on the current alignment would address structural and functional issues including a structure that meets the proposed Purpose and Need and meet the required HS 20.00 criteria for an "on-system" structure. However, the removal of the historic truss bridge would constitute an adverse effect. Estimated costs for this alternative would be $6,400,000, including the cost of the proposed bridge and the relocation cost of the historic bridge. The "New Structure on Current Alignment with Relocation for Non-Vehicular Use" alternative would meet the purpose and need of the project and is feasible if the historic truss can be successfully marketed and relocated. Yet it is not recommended as a prudent alternative because the estimated cost of relocating the structure makes it very unlikely, which would result in its demolition as in the alternative above.

DESCRIPTION OF PROPOSED ACTION

The proposed action is to construct a new bridge on existing alignment. The preferred alternative would require demolition of the existing trusses and two-way traffic on the existing SB bridge during construction of the proposed bridge.

MEASURES TO MINIMIZE HARM

Efforts to minimize harm to the historic bridge have been an integral part of the project planning and development process. During the course of this Programmatic Section 4(f) Evaluation two options were explored to minimize harm by leaving the historic bridge in place and still maintaining access to the rest area/park by NB traffic. One plan proposed a turn-around under the bridges. After trenching tests under the bridges, the proposal was discounted due to the evacuation depth required to provide a safe clearance under the bridges and the current water table level. Water seeped into the trench after reaching a depth of 4 feet, which meant that going deeper, as would be required, was not possible.

Another proposal put forth was to relocate the existing crossover currently used to access the rest area and park farther north of the bridges (See Figure 17, Appendix A). From the new crossover, a two-lane road would be constructed on the west side of the highway to allow both SB and NB traffic to enter and exit the park. This proposal was discounted for several reasons. First, it would place the proposed park access road in a location that might require the acquisition of new ROW. Secondly, TxDOT's Design Division commented that although the proposed road was not considered a frontage road, it could be expanded in the future to become such a road. Two-way frontage roads are no longer within current design guidelines.

Using the historic bridge as a pedestrian structure would require extensive replacement of the historic fabric of the structure, as would rehabilitation as a monument. Removing the historic truss and constructing the new bridge on current alignment would cause the greatest adverse effect to the historic bridge. Giving consideration to the current condition of the bridge and the high estimated costs of maintaining it in place for any use, all proposed preservation-in-place alternatives are not prudent.

MITIGATION FOR ADVERSE EFFECTS

As mitigation for the adverse effects to the historic resource, TxDOT proposes to document the bridge using medium-format black and white photography under HABS/HAER guidelines.

CONSULTATION EFFORTS

Previous coordination efforts with the SHPO were undertaken in March 2005 (see Appendix F). The proposal put forth in 2005 for the US 83 crossing was reviewed and the recommended alternative for the historic bridge was "Rehabilitation as a Scenic By-Pass" with a new bridge built east (downriver) from the historic bridge. The district did not proceed with the project at this time because of perceived public objection to the expenditure of funds and land owners' objection to selling land for the new ROW required under this alternative. Since that time, the bridge has continued to deteriorate and estimated costs for various alternatives have risen, which prompted a new Section 4(f) evaluation. The most recent alternatives evaluation revealed the importance of including full north bound access to the rest stop / park in the project purpose and need.

Ensuring full access to the rest stop identified a series of geometric constraints, not heretofore articulated, that create a series of undesirable and cumulative safety issues.

The Childress District reviewed these new circumstances with the Collingsworth County Historical Commission and with the Collingsworth County Commissioner's Court in December 2009. Both endorsed replacing the existing bridge on the current alignment. See documentation in Appendix D.

Determination of Effects

The proposed project would remove the bridge and replace it with a new structure to meet current roadway design standards. After applying the criteria of *Adverse Effects* as stipulated in 36 CFR 800.4, I have determined that the proposed action to replace the US 83 at Clear Fork of the Red River Bridge constitutes an **adverse effect**.

Conclusion

In accordance with 36 CFR 800 and the PA-TU, I hereby request your signed concurrence with this Determination of **Adverse Effect** and the **proposed mitigation**.

As the official with jurisdiction over the Section 4(f) resource, per 23 CFR 774.5, FHWA will consider this the formal coordination and review in approving the Section 4(f) evaluation.

Thank you for your assistance with the federal review process. If you need further information, please call me at 416-2600.

Sincerely,

Mark M. Brown, Ph.D.
Architectural Historian
Environmental Affairs Division

CONCUR:
ADVERSE EFFECT WITH MITIGATION;
NO COMMENTS TO FINAL DRAFT, SECTION 4(f) EVALUATION

NAME: _____ DATE: _____
for Mark Wolfe, State Historic Preservation Officer

Distribution
Signed original: Margaret Canty, ENV-PD
Cc w/attachment: ENV-CRM file

Cc w/o attachment: Clay Churchill, Childress District; scan
Warren Grannis, Historic Resources Inventory Manager

Alternative	Meets Purpose and Need for the Project?	Does the project address the following deficiencies? 1) Geometric 2) Structural	Estimated Costs			Social, Economic or Environmental Impacts?	Constructability/ Safety/Design Issues?
			Construction ($)	ROW ($)	Total cost ($)		
1. No-Build	No	1) No 2) No	$0	0 acre $ 0	$0	No	Yes – Bridge is structurally and functional deficient and prevents large agricultural equipment from using the NB bridge
2. Rehabilitate existing bridge for continued use	No	1) No 2) Yes	$9,269,000	0 acre $0	$9,269,000	Yes - construction cost is a constraint	Yes – Bridge would remain functionally deficient and still prevent large agricultural equipment from using the NB bridge
3a. Rehabilitate existing bridge for limited vehicular use (scenic by-pass) (new bridge to the west)	No	1) Yes 2) Yes	New bridge $4,052,474 Historic bridge $4,615,000	0 acre $0	$8,667,474	Yes - construction cost is a constraint	Yes – Unusual conditions creates a series of undesirable and cumulative safety issues
3b. Rehabilitate existing bridge for limited vehicular use (scenic by-pass) (new bridge to the east)	Yes	1) Yes 2) Yes	New bridge $4,052,474 Historic bridge $4,615,000	11.43 acres $13,200	$8,680,674	Yes - construction cost is a constraint; local objection to the acquisition of new ROW	No
4. Rehabilitate existing bridge for use as a pedestrian facility (new bridge to the west)	Yes	1) Yes 2) Yes	New bridge $4,052,474 Historic bridge $4,043,000	0 acre $0	$8,095,474	Yes - construction cost is a constraint	Yes – Unusual conditions creates a series of undesirable and cumulative safety issues, results in an unnecessarily complex solution to resolve a situation that will is estimated to only last 10 years
5. Rehabilitate existing bridge as a monument (new bridge to the west)	Yes	1) Yes 2) Yes	New bridge $4,052,474 Cost for bridge rehabilitation $1,079,000	0 acre $0	$5,131,474	Yes - removal of contributing features	Yes – Unusual conditions creates a series of undesirable and cumulative safety issues, results in an unnecessarily complex solution to resolve a situation that will is estimated to only last 10 years
6a. Replace the existing bridge on current alignment	Yes	1) Yes 2) Yes	New bridge $4,000,000 Allowance for bridge demolition $375,000	0 acre $0	$4,375,000	Yes - removal of historic bridge	No
6b. Relocation for non-vehicular use	Yes	1) Yes 2) Yes	New bridge $4,000,000 Cost of bridge relocation $2,000,000	0 acre $0	$6,400,000	Yes - cost of historic bridge relocation	Yes – Physically difficult to relocate entire or partial truss sections

March 24, 2010

Mark M. Brown
Architectural Historian
Environmental Affairs Division
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Re: Project review under Section 106 of the National Historic Preservation Act of 1966,
US 83@ Salt Fork of the Red River, Collingsworth County (FHWA)
TxDOT CSJ # 0031-03-029
Structure #:250440003103002

Dear Dr. Brown:

Thank you for your correspondence of February 22, 2010 describing the above-referenced project and the additional information you provided in our March 9th meeting and subsequent emails. This letter serves as a comment on the proposed undertaking from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

THC staff has completed a review of the information submitted by applying state and federal criteria for adverse effect. At your request, we have also informally consulted with Historic Bridge Foundation (HBF), during our review period, in order to provide concurrent review of the proposed federal undertaking. Based on our review of the materials you have supplied, we cannot concur with your determination of adverse effect at this time. While it is clear that the demolition and replacement of the bridge on US 83 at the Salt Fork of the Red River would be an adverse effect to this structure, which is listed in the National Register of Historic Places, we are concerned that TxDOT has not adequately considered measures to avoid, minimize and mitigate the adverse effect to the bridge. As a result, we have several questions and comments to advise and assist you in carrying out your section 106 responsibilities. Many of our comments also pertain to the programmatic 4(f) evaluation that you have provided for our review.

First, we are very concerned that this bridge has not received maintenance or repair in the last several years to the point that its preservation is no longer "prudent" due to the cost of rehabilitation today, even though the bridge was identified as eligible for replacement under the federal Highway Bridge Replacement and Rehabilitation Program in 1995 and TxDOT has been documenting its deterioration. This outcome is particularly concerning because this bridge was listed in the National Register in 1996 as part of a FHWA

program to fulfill their responsibilities under Section 110 of the National Historic Preservation Act to "establish…a preservation program for the identification, evaluation, and nomination to the National Register of Historic Places, and protection of historic properties." Since this bridge was listed in the National Register, TxDOT has been very slow to consider alternatives for the preservation of this resource. When an option was identified that would result in the preservation of the bridge in 2005, THC concurred with the determination of "no adverse effect" to historic resources, yet TxDOT decided to re-evaluate the alternatives despite the knowledge that the bridge was rapidly deteriorating. Preparing the re-evaluation and re-coordinating with THC then took an additional five years, even though the bridge was placed on a yearly inspection schedule due to its low sufficiency rating and potential for failure. In the March 9th meeting, TxDOT staff indicated that one of the reasons TxDOT had not undertaken any project to repair damaged elements of the bridge was that any expenditure of local, state, or federal funds on any work to the bridge outside of routine or emergency maintenance would prevent eligibility for funds from the federal Highway Bridge Replacement for 10 years. Staff attempted to identify this stipulation in U.S. code related to the Highway Bridge Program and the Highway Bridge Replacement and Rehabilitation Program (23 USC 144 and 23 CFR 650, subpart D), as well as other subsections of Title 23, but could not find language that supported this statement. Please identify the source of this limitation on the use of federal funds for bridge projects so that we can understand the unique factors that prevented TxDOT from stabilizing the deterioration of the bridge and/or repairing failing elements.

ALTERNATIVES ANALYSIS

We accept that alternatives 1 (no-build), 2 (rehabilitation for continued vehicular use) are not acceptable alternatives, as they do not meet the purpose and need or result in preservation of the structure.

Regarding alternative 3a, 3b, 4 and 5, we have a number of questions, as follows:

Alternative 3a. Regarding this alternative, you identify that the Roadway Design Manual indicates that the "stopping site distance" for a vehicle travelling at 70 mph is 730' and the distance from the end of the proposed bridge to the merge point is only 250'. Why is the end of the proposed bridge considered the starting point for this equation? Is the merge point not visible from deck of the bridge or the roadway approach to the bridge from the south side? If so, could this be resolved with a transparent railing?

Alternative 3b. In your evaluation of this alternative, you identify that constructing a new bridge to the east has two concerns in addition to the cost to rehabilitate the bridge: it would require additional right-of-way and would introduce "reverse horizontal curves north and south of the truss bridge to tie into the existing roadway. Regarding the acquisition of right-of-way, this was indicated in the original 4(f) evaluation and it was still selected as a prudent and feasible alternative to the demolition and replacement of the bridge. Regarding the reverse horizontal curves, the description of this condition is limited and does not indicate a specific safety concern. Therefore, it appears that this alternative is largely rejected based on the current condition of the bridge and the cost to

rehabilitate it, as well as a perceived change in public sentiment toward the bridge. You state that "updated estimates exceed the allowable federal funds," but we note that the estimates for this alternative exceeded the allowable federal funds in 2005, as well. We will address the issue of public sentiment in later paragraphs.

We will take this opportunity to comment that the utility of TxDOT's 2005 decision to revisit the coordination is unclear. According to the FHWA 4(f) policy paper, "if there is a feasible and prudent alternative that avoids the use of a 4(f) resource, among alternatives that use a 4(f) resource, the alternative that *must* be selected is the one that avoids the 4(f) resource." Alternative 3b (in the 2010 4(f) document) was the alternative selected in the 2004 4(f) document and was the only alternative identified as prudent and feasible that also avoided the resource. This alternative was coordinated under Section 106 with THC, resulting in a determination of "no adverse effect." The only new alternative identified in the 2010 evaluation that was not in the 2004-2005 evaluation is 6b, which consists of the rehabilitation of a segment of the bridge in a new location for non-vehicular use (the scenic-bypass option alternative in the 2004 document included both the west, 3a, and east, 3b, alternatives presented in the 2010 evaluation). This alternative results in a "use" of the historic bridge and, as a result, in 2005 could not have been selected as the preferred alternative through 4(f) evaluation. This should have been evident before TxDOT re-initiated 4(f) evaluation. TxDOT's decision to undertake a five-year re-evaluation allowed for the continued deterioration of the bridge, resulting in a condition that required such additional cost that the previously selected alternative is no longer prudent. We note that the difference in cost estimates for preserving the bridge for continued vehicular use jumped from $2,500,000 in 2004 to $4,615,000 in 2010.

Alternative 4. In the evaluation of alternative 4, you state that "pedestrians using the historic bridge would be required to travel under the existing bridges and the new bridge and climb the embankment to access the pedestrian bridge." This is a condition that can certainly be improved by TxDOT and/or the County as improvements to the County Park and TxDOT rest area.

Alternatives 3a, 4, and 5. In your discussion of measures to minimize harm (p. 17), you indicate other proposals that would allow alternatives 3a, and maybe 4 and 5 to access the park without the undesirable and cumulative safety issues posed by these alternatives, particularly a proposal to relocate the existing crossover used to access the rest area and park to an area further north of the bridges and construct a new two-lane road to allow both the northbound and southbound traffic to enter and exit the park. This suggestion would have resolved the safety issue related to the location of the southernmost crossover being too close to the northbound merge point. You state that TxDOT rejected this idea because it might require the acquisition of additional right-of-way. What would be the additional right-of-way required? Would it be significantly less than the right-of-way required for alternative 3b and therefore preferable to the landowners around the bridge? Regarding Design Division's comment that "although the proposed road was not considered a frontage road, it could be expanded in the future to become such a road," and two-way frontage roads are no longer within current design guidelines, it seems that this is premature. It would stand to reason that any potential expansion of US 83 that

would result in the addition of frontage roads would allow for that access road to be incorporated and restriped for one-way use. The *possible* acquisition of additional right-of-way does not constitute a "social, economic, or environmental impact of extraordinary magnitude" described in the FHWA 4(f) policy paper.

We also request clarification for the following general questions:

Your letter mentions that with the "repairs, the structure/s inventory rating might increase to HS 16 with an associated load posting of 24,000 pounds," and "all rehabilitation efforts would be for the purpose of preservation, primarily to arrest the deterioration of the bridge, and would not [be] to add capacity." What was the design load capacity of the bridge? What would it take to restore the bridge to that inventory rating?

Was an alternative for widening or replacing the 1975 bridge for two-way traffic considered? What is the sufficiency rating of the 35-year old southbound bridge?

It is our understanding that TxDOT has made several attempts to find a recipient for the bridge that could take over management and responsibility for maintenance. Although the Highway Bridge Program (23 USC 144) indicates that a federal agency should seek a recipient for a historic bridge if they plan to demolish it, it is not clear to THC staff if it requires the agency to seek a recipient for bridges that will be preserved for pedestrian use. What are the constraints that restrict TxDOT from maintaining ownership of the bridge under alternatives 3a, 3b, 4, 5, and 6?

What is the difference in available funding if the bridge is retained as a vehicular structure (scenic bypass) versus bypassing and leaving in place as a monument or rehabilitation as a pedestrian structure?

How many Parker through trusses were determined eligible for listing in the National Register at the state level of significance in TxDOT's 1989 to 1996 metal truss bridge survey? How many are extant today and where are these bridges located? Please provide comparative data for each bridge, including total length of bridge, length of main span, etc.

OTHER PARTIES TO INCLUDE IN SECTION 106 CONSULTATION

You have provided the transcript from the May 2005 public hearing to support your statement that the Childress District "revisited the previously coordinated design based on information derived from the public meeting on May 10, 2005, public comments received after the meeting, and meetings with county officials." We note that the May 10, 2005 public hearing transcript identifies a total of seven members of the public who provided comment at the hearing. Therefore, we anticipate that the comments received after the meeting and meetings with county officials must more directly pertain to the district's decision. Please provide the public comments received after the public hearing and any information related to meetings with county officials that better explain TxDOT's decision to revisit the previous coordination. Please also provide the transcript

from the earlier public meeting of February 10, 2004, where a large number of local citizens attended and commented on the project.

You note in your letter that there is now a lack of strong public support to retain and maintain the historic bridge, but provide no consultation other than that with the county judge and county historical commission, both of which supported demolition and replacement. With the county as the most likely recipient under alternatives 4, 5, and 6b, we understand the position of Collingsworth County government, considering that the county would potentially have to take on responsibility for a resource on which TxDOT has performed little maintenance and repair over the last 15 years. Our meeting on March 9th and subsequent review of TxDOT and THC files identified other interested groups that participated in Section 106 coordination and public comment in 2004 and 2005, including Historic Wellington, Inc. and the National Trust for Historic Preservation Southwest Office. We note that you have not sought comment from these parties before re-initiating coordination with THC, even though the outcome of the project has changed and five years has passed since the initial coordination and public outreach. As you know, Historic Bridge Foundation has identified another interested group; a Facebook page with over 700 fans identified as "Save the Historic Salt Fork of the Red River Truss Bridge." This group was created by Payton Kane, a local landowner who attended the public hearing in May 2005 and was one of the few people to provide comment at that hearing. Each of these groups has a "demonstrated interest in the undertaking" (36 CFR 800.2(c)(5)) and we advise you to seek their comments as consulting parties to this Section 106 process. We also suggest that you contact Preservation Texas to identify if they wish to be a consulting party for the Section 106 consultation for this undertaking. Below, please find the contact information we have for each of these parties:

National Trust for Historic Preservation
Southwest Office
500 Main Street, Suite 1030
Fort Worth, Texas 76102
Phone: 817-332-4398
Fax: 817-332-4512
swro@nthp.org
Jonathan Poston, Director

"Save the Historic Salt Fork of the Red River Truss Bridge" Facebook Page
savethebridge@live.com
Payton Kane, organizer

Preservation Texas
P.O. Box 12832
Austin, TX 78711
Phone: 512.472.0102
FAX: 512.472.0740
info@preservationtexas.org
Krista Gebbia, Executive Director

Historic Wellington, Inc.
c/o Wes Reeves
2117 S. Harrison St.
Amarillo, TX 79109.
Phone: (806) 679-7773

The comment in your letter that there is a lack of strong public support for the preservation of the bridge appears to be contradicted by the information provided by HBF and information THC staff has received from Mr. Reeves and Mr. Kane. This indicates to us that TxDOT has not sufficiently re-engaged the public and considered their views "in a manner that reflects the nature and complexity of the undertaking and its effects on historic properties" or "the likely interest of the public" (36 CFR 800.2(d)(1)). The last

time the views of the public were considered was May, 2005 when the bridge was going to be restored for use as a scenic bypass. Now TxDOT has identified an outcome that would result in complete demolition of the structure. We advise TxDOT to seek comments in a public forum, prior to the conclusion of Section 106 consultation, to give the public the opportunity to comment on the project and the THC the opportunity to observe and participate.

PROPOSED MITIGATION

Although we are not prepared to concur that the demolition of this bridge cannot be avoided at this time, we do wish to comment that if we should arrive at that conclusion, the proposed mitigation is not sufficient. The bridge is already documented by archival-quality photographs, on file in the National Park Service's National Register office and the Texas Historical Commission. Because the bridge's significance is not just engineering at the state level, but also is a local landmark that is important to the community, mitigation must be more meaningful and of more direct benefit to the public. If we are able, at a future date, to concur with your determination of adverse effect, THC staff will work with TxDOT staff to identify possible mitigation. However, you should certainly seek the input of the other consulting parties and the public to identify an ideal and meaningful mitigation option.

Thank you for your participation in this federal review process; we look forward to additional consultation regarding this project. Please note that staff is willing and eager to participate in meetings with TxDOT staff regarding these comments and questions; however, we request that each question and comment be addressed by written response. If you have any questions concerning this review or if we can be of further assistance, please contact Adrienne Campbell at (512) 936-7403.

Sincerely,

Mark Wolfe

Mark Wolfe
State Historic Preservation Officer

Cc: Kitty Henderson, Historic Bridge Foundation
Jonathan Poston, National Trust, Southwest Office
Krista Gebbia, Preservation Texas
Wes Reeves, Historic Wellington, Inc.
Payton Kane, "Save the Historic Salt Fork of the Red River Truss Bridge"

P.O. Box 66245
Austin, Texas 78766
512.407.8898 (phone)
512.472.0740 (fax)

http://historicbridgefoundation.com
kitty@historicbridgefoundation.com

March 24, 2010

Dr. Mark Brown
Environmental Affairs
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Dear Dr. Brown:

This letter serves as the official comment from the Historic Bridge Foundation regarding the bridge at US 83 at Salt Fork of the Red River in Collingsworth County, CSJ# 0031-03-029.

The Historic Bridge Foundation does not concur with the findings and proposed mitigation in the February 22, 2010 documents provided to our office. Our concerns are as follows:

1. In the first paragraph of the above referenced materials it states "There is no longer an overwhelming desire to retain and maintain the historic truss bridge due to the estimated cost of rehabilitation or relocation. There is also lack of support to the acquisition of new right-of-way (ROW) from landowners in the bridge project area." Since it has been five years since initial coordination and the proposed outcome has been changed during that time, we believe it is imperative that TXDOT identify additional consulting parties and provide an opportunity for public discussion regarding the future of the historic bridge. The quoted statements above, in our opinion, reflect the interest of district engineers and not the general public. At the May 9, 2010 meeting at the Austin TXDOT office regarding the US 83 bridge, HBF and THC were informed that no public support exists for the historic bridge. As HBF indicated at the meeting, we have been contacted by several interested groups. Of note, is a local support group that has created a Facebook page and will be developing a petition indicating local interest. The Southwest Office of the National Trust contacted us in early March to indicated their interest and it appears that Historic Wellington also wishes to participate. The materials provided in the above referenced documents suggest that assumptions about local support are based on a five year old transcript where 7 individuals commented, but it does not indicate if there were more people in attendance, nor do the materials report information from a 2004 meeting where we understand 75-100 people were in attendance. Therefore, we believe the public and other interested parties must be notified that consultation on this project has been re-opened and that agreements to use the bridge as part of a scenic bypass are no longer valid and that TXDOT wishes to demolish the historic bridge.

P.O. Box 66245
Austin, Texas 78766
512.407.8898 (phone)
512.472.0740 (fax)

http://historicbridgefoundation.com
kitty@historicbridgefoundation.com

2. It appears from information obtained by HBF and others that the US 83 @ Salt Fork of the Red River Bridge has not been regularly maintained and has now deteriorated to the point that TXDOT can argue that it is cost prohibitive to rehabiltate. Following are two quotes found in local newspaper articles that summarize the February 10, 2005 meetings:

   "District TXDOT officials acknowledged that maintenance of the old bridge has not been a top priority the last several years. District Engineer Terry Keener compared the bridge to an old car not worth extensive expenditures. 'We just didn't feel like it was worth it from our perspective, ' he said"

   "Keener followed her comments, making an indirect reference to his then yet-to-be- announced promotion to the district engineer's slot. He seemed to offer hope that the bridge may ultimately survive, but he indicated TXDOT won't take on the preservation burden alone. 'As of today the buck stops with me,' he said. 'I think this district had a snafu back in 1996 when we started this process. Because of what we found out six months ago, we're having to take a real had second look at this.'"

   From these comments, HBF infers that the district has willingly disregarded maintaining a National Register eligible property. A proposed plan for the bridge was approved and determined to have "no adverse effect" by THC, yet this plan has taken years to finalize and in that time the bridge has been left to deteriorate such that we are now faced with a new conclusion that it is no longer "prudent" to preserve. We find this unacceptable both in terms of the Section 106 process and Section 110 of the NHPA.

Please keep us informed of progress made to identify additional consulting parties and conduct additional public meetings now that consultation on this project has been reopended.

Sincerely yours,

K Henderson

Executive Director

cc: Adrienne Campbell, THC
Jonathan Poston, National Trust for Historic Preservation
Wes Reeves, Preservation Texas/Historic Wellington

From: "Bob Brinkman" <Bob.Brinkman@thc.state.tx.us>
To: BSHERRI@dot.state.tx.us
CC: bjwins20@cebridge.net; TKEENER@dot.state.tx.us
Date: 6/25/2010 1:27 PM
Subject: RE: Request to relocate an official historical marker
Attachments: Letter 6.25.2010.pdf

Hello Mr. Sherrill,

Attached is a scan of the permission letter for moving the Red River Plunge of Bonnie and Clyde historical marker in Collingsworth County. The original letter is in the mail. Please contact us if we can be of further assistance.

Bob Brinkman
Coordinator, Historical Markers Program
History Programs Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711-2276
512/463-8769
512/475-3122 fax
www.thc.state.tx.us

-----Original Message-----
From: Bart Sherrill [mailto:BSHERRI@dot.state.tx.us]
Sent: Wednesday, April 14, 2010 12:47 PM
To: Bob Brinkman
Cc: Darwin Lankford
Subject: Request to relocate an official historical marker

Mr. Brinkman, As per our phone conversation yesterday. Attached is a completed request to relocate an official historical marker in Collingsworth County.
If you need any further information please give me a call or email me.

thanks,

Bart Sherrill
Traffic Operations Manager
Childress District
940-937-7152 (Office)
940-585-8362 (Cell)
bsherri@dot.state.tx.us

==========
Please use caution when driving through work zones.
Find more information about work zone safety at
www.txdot.gov/safety/tips/work_zones.htm

TEXAS HISTORICAL COMMISSION
real places telling real stories

June 25, 2010

Terry Keener
Texas Department of Transportation
Childress District
7599 US 287
Childress, Texas 79201

Re: Request to relocate The Red River Plunge of Bonnie and Clyde historical marker, Wellington vicinity, Collingsworth County, Texas.

Dear Mr. Keener:

Thank you for your request to relocate the 1975 historical marker for The Red River Plunge of Bonnie and Clyde in Collingsworth County. We have reviewed your plans and approve moving the marker from its current location on the southeast side of the truss bridge crossing the Salt Fork of the Red River to a new site in the park next to the north bridge abutment of the actual bridge where Bonnie and Clyde took the plunge. Thank you for sending plans regarding the new location. We are pleased to learn that it will be moved to a more accessible place, and we will update our records accordingly. Please note that we cannot assume any liability for damages incurred during the marker's relocation.

We encourage you to refinish the marker once it has been relocated; guidelines can be found on the THC web site at http://www.thc.state.tx.us/markerdesigs/madrepair.html. Please contact me at 512/463-8769 or bob.brinkman@thc.state.tx.us if we can be of further assistance. Thank you for your interest and your good work in preserving the cultural heritage of Texas.

Sincerely,

Bob Brinkman
Coordinator, Historical Markers Program
History Programs Division

cc: Fred Squyres, Collingsworth County Historical Commission, P.O. Box 89, Wellington TX 79095

TEXAS HISTORICAL COMMISSION

REQUEST TO RELOCATE AN OFFICIAL TEXAS HISTORICAL MARKER

Marker Title: The Red River Plunge of Bonnie and Clyde

County: Collingsworth

Current location (including nearest city): Approximately 6.5 miles north of Wellington on US 83. The marker is located on the SE side of the truss bridge crossing the Salt Fork of the Red River

Proposed location: In the park next to the north bridge abutment of the actual bridge where Bonnie and Clyde took the plunge.

Reason for requesting relocation: The house mentioned on the marker has fallen down, and it is thought that the plunge happened on or at the truss bridge location. The actual location is to the west of the truss bridge approximately 160 yards. The abutments of the actual Bonnie and Clyde bridge are concrete and are still in good condition. The Childress District would like to move the marker near the north abutment located in the county park.

Who will be responsible for the relocation? (THC cannot assume liability for damages or injuries.)

Name: Terry Keener Signature: T. R. K.
Address: 7599 US 287
City: Childress State: TX Zip: 79201
Daytime phone: (940) 937-7145 Fax: Email: TKEENER@DOT.STATE.TX.US

Approval of county historical commission:

County chair or marker chair (name): FRED SQUYRES + HAROLD CALDWELL
Address: Box 89
City: WELLINGTON State: TX Zip: 79095
Daytime phone: 806.447.5561 Fax: Email: 806 447-5108
Signature: Fred Squyres Harold Caldwell
LEAVE AT LOCATION

Permission of property owner at proposed new location:

Name: John James Signature: John James Co. Judge
Address: 800 W Ave Rm 1 Fl 2
City: Wellington State: TX Zip: 79095
Daytime phone: 806 447 5408 Fax: 447 5418 Email: johnjames@co.collingsworth.tx.us

Please include the following:

1. A current photograph of the proposed marker location.
2. A city or county map denoting the current and proposed locations.
3. A current photograph of marker.

Texas Historical Commission
P.O. Box 12276, Austin, TX 78711-2276 Phone
512/463-5860 Fax 512/463-6095 www.thc.state.tx.us

RECEIVED
MAR 10 2010
Texas Department of Transportation
District 25 Mail Room

TEXAS HISTORICAL COMMISSION
The State Agency for Historic Preservation

THE RED RIVER PLUNGE OF BONNIE AND CLYDE

ON JUNE 10, 1933, MR. AND MRS. SAM PRITCHARD AND FAMILY SAW FROM THEIR HOME ON THE BLUFF (west) THE PLUNGE OF AN AUTO INTO RED RIVER. RESCUING THE VICTIMS, UNRECOGNIZED AS BONNIE PARKER AND CLYDE AND BUCK BARROW, THEY SENT FOR HELP. UPON THEIR ARRIVAL, THE LOCAL SHERIFF AND POLICE CHIEF WERE DISARMED BY BONNIE PARKER. BUCK BARROW SHOT PRITCHARD'S DAUGHTER WHILE CRIPPLING THE FAMILY CAR TO HALT PURSUIT. KIDNAPPING THE OFFICERS, THE GANGSTERS FLED. BONNIE AND CLYDE WERE FATED TO MEET DEATH IN 1934. IN THIS QUIET REGION, THE ESCAPADE IS NOW LEGEND.

(1975)

Table 4: Consulting Party Comment Tracking Table
October 2010[1]

US 83 at Salt Fork Red River, Collingsworth County
CSJ: 0031-03-029

	National Trust for Historic Preservation	Historic Wellington	Save the Bridge	Historic Bridge Foundation	TxDOT Response
	Rejecting Alternative 3b is Not Consistent With the Requirements of Section 4(f)				Consulting party comments were considered and integrated into the SHPO consultation process under 36 CFR 800 as appropriate.
	Evaluate Alternative 3b further. 3b rejected using incorrect standards.				TxDOT evaluated alternatives under the definition of feasible and prudent avoidance alternatives in the 2008 revisions to 23 CRF 774.17, including the notion of cumulative problems.
	Safety concerns cited are relatively minor. Standards are not uniformly applied to all alternatives.			While we note that 3b has safety issues, we are surprised to note that Alternative 4 shows no safety issues.	TxDOT's re-evaluation of the alternatives resulted in the recommendation that Alternative 4 provided a higher level of safety than 3b at a more prudent cost.
	Cost comparison should be between total cost of Alternative 3b and of Alternative 4.	Difference between *Alternatives 3b and 4 is $320,000*	Alternative 3a is only $320,000 more than Alternative 4.[2]	The total cost difference between Alternative 4 and Alternative 3b amounts to $321,479 and is well within prudent expenditure.	TxDOT engineers re-examined the cost estimates using the latest construction data. Because concrete construction costs are abating in the current economy, the overall costs declined somewhat. In addition, federal regulations preclude some reimbursable costs under Alternative 3b that are allowable under Alternative 4. TxDOT would be responsible for the $2,180,585 deficit posed by Alternative 3b under these rules.
	TXDOT's Own Neglect is Responsible for the Deteriorated Condition of the Historic Bridge	TxDOT has followed a demolition by neglect plan that runs counter to the National Historic Preservation Act	Our community should not suffer the loss of a local landmark because of your agency's negligence to maintain a proper plan of action.	HBF infers that the district has willingly disregarded maintaining a National Register eligible property.	The Texas SHPO participated in the On-System Task Force that acknowledged the trusses were not good candidates for rehabilitation and should be removed. Ongoing maintenance of the bridge since that report has been based on the findings of the regular inspection cycle. These efforts were consistent with statewide maintenance procedures. The maintenance expenditures also exceeded averages spent for on-system trusses once repainting costs are discounted.
				If this bridge was too deteriorated in 2005, why then was the decision to rehab made at that time? We find this unacceptable both in terms of the Section 106 process and Section 110 of the NHPA that the bridge has been left to deteriorate such that we are now faced with a new conclusion that it is no longer "prudent" to preserve.	TxDOT continued to seek viable preservation alternatives for the bridge as an outcome of the February 10, 2004 public meeting. After the May 10, 2005 public meeting, FHWA expressed safety concerns about the preservation alternative successfully coordinated with SHPO. FHWA also identified incorrect cost estimate assumptions. These post-coordination determinations prompted TxDOT to continue exploring solutions that avoided or minimized harm to the bridge, but the severity of deteriorating structural systems forced closure of the bridge and limited viable alternatives.

[1] Preservation Texas accepted an invitation to be a consulting party, but declined to comment.
[2] Author miss-read the table. Alternative 3**a** was (the cost estimates have been revised since October 2010) $1,472,499 - $1,764,439 more than Alternative 4. Alternatives 3**b** was about $320,000 more that Alternative 4.

	The Proposed Mitigation [Represented by Rehabilitation of] the SH 203 Bridge is Inadequate	TxDOT's track record with US 83 does not reassure Historic Wellington that the SH 203 Bridge will not be neglected.		Does the 2010 condition of the SH 203 bridge allow for its preservation?	TxDOT proposes construction of an interpretive kiosk in the adjacent rest area to tell the story of the bridge as mitigation for the adverse affect for the US 83 Bridge. We no longer propose preservation efforts for the SH 203 Bridge, although its rehab is programmed for FY 2012. Procedures used to plan the SH 203 Bridge rehab instead will serve as a statewide model and precedent for management of both on and off system truss bridges. Development of detailed conditions assessments and formal maintenance protocols are envisioned as components of the resultant treatment plans for selected metal on-system and off-system trusses.
	The Level of Public Support for Preservation of the Historic Bridge is Exceptional	Strongly support Alternative 3a, Pedestrian use.	Community, as demonstrated by Petition and Facebook membership, rises in favor of alternative 3A.		TxDOT's efforts to find a viable preservation alternative over a period of at least six years demonstrates its recognition of the level of public support for the historic bridge. While TxDOT would welcome sufficient financial support to realize a safe preservation alternative, no donor or fiscally responsible recipient has been identified through marketing efforts or the public involvement process. The refusal of county officials to assume liability for relocating the historic trusses to the adjacent public park further complicates the adequacy of such an initiative and also would increase costs.
		Alternative 3b, Preserve as Monument, would allow time to find a new use that would enhance the park.			TxDOT's experience suggests that pedestrian conversion or monumentalization are the only viable non-vehicular uses for a bridge located in the ROW. Public involvement and appropriate marketing efforts failed to establish a viable alternative location, funding to realize the move, or a fiscally responsible recipient.

Appendix H

Marketing Activities

MEMORANDUM

Texas Department of Transportation

TO: Mark Brown
Historical Studies
Environmental Affairs Division

DATE: November 9, 2009

FROM: Clay Churchill
Environmental Coordinator
Childress District

SUBJECT: 0031-03-029
US 83 Truss Bridge
Salt Fork of the Red River
Collingsworth County

Currently a "public" use for the truss bridge on US 83 at the Red River has not been found. The Childress District of TxDOT proposes to market the bridge to the general public through newspaper ads. The Historic Bridge Team concluded that demolition costs would be approximately $375,000 dollars. All information regarding the condition of the bridge would be available to the public as requested. The following public notice would be published in the Wellington Leader, Childress Index, County Star News (Shamrock), and the Wheeler Times.

Public Notice
Historic Bridge Available

The Federal Highway Administration and the Texas Department of Transportation (TxDOT) announces the availability of a historic metal Parker through truss bridge for relocation and preservation in compliance with the U.S. Secretary of Interior's Standards for Treatment of Historic Properties. The bridge is located on US 83 approximately six miles north of Wellington, Texas in Collingsworth County.

The bridge is a complex structure built in 1939 by the Texas Highway Department. The structure is a rare surviving example of a three-span, riveted steel, Parker through-truss. It has an overall width of 28.6 ft., a clear roadway width of 24 ft., and an overall length of 840 ft.; each truss is 179.7 ft. long. Technical difficulties and substantial costs associated with relocating and reconstructing the bridge should be anticipated. An assessment of the condition of the bridge and the findings of a Historic Bridge Team are available for review at the Childress District of TxDOT.

Limited financial assistance is available to help with relocation costs. The Childress District of TxDOT will be accepting reuse proposals until November 20, 2009. For more information, please contact Marty Smith at (940) 937-7250.

Marketing this historic bridge to a responsible party is required under Title 23, U.S. Code, Section 144.

Lead the way with the LEADER'S

CLASSIF

Help Wanted

The Collingsworth County Sheriff's Department is accepting applications for part-time dispatcher help. Call (806) 447-2588. 32-tfc

Help Wanted: The City of Wellington is now accepting applications for a position in the Water and Sewer Department. High School Diploma / GED, Texas Drivers License Class C required. Applications may be picked up at City Hall, 802 10th St., Wellington, Texas. For further information you may contact Jon Sessions at (806) 447-2544 or come by the City Hall. The City of Wellington is an Equal Opportunity Employer. 21-tfn

Accolade Home Care is currently seeking a full time RN, a full time, part time or contracted Physical Therapist and a full time or part time PTA, Please send your resume via e-mail to shelly.overturff@fmsregional.com, fax to 806-256-1101 or call 806-256-1100 for more information.

City of Estelline seeking full time Police Officer. Must be TCLEOSE certified, Available for employment immediately. Experience a plus salary negotiable. Call 806-888-1212 for further information

Come join the team at Collingsworth General Hospital.

For Rent

SAGEBRUSH APARTMENTS
Two bedroom with heat & air.
Rent based on income.
Washer/dryer hookups.
Manager-Debbie Shaver.
Call 806-447-5064 or 447-2565

TDD # 1-800-735-2988

FOR RENT

1, 2 & 3 Bedroom Apts.
Rent ranges $45-$383
Central heat & air
Utilities furnished
Housing Authority
Office Hours:
9:00 to 12:00 - Mon. thru Fri.
1305 Haskell - 447-2772

1 year FREE Rent on a 2 bedroom, 1 bath house for repairs. Call Betty at (281) 984-7532 or Lucy at (806) 447-0041. **FREE RENT!**

House For Rent: Available 12-16 2 Bedrooms/ 1 Bath Deposit is required. Prefer to have references. If Interested please call 806-205-1912 or 205-0964

Legal Notice

LEASE NOTICE

Directors of Lakewood

Chad Holland
REAL ESTATE
CHAD HOLLAND, BROKER
(806) 205-0497
Camie Holland, Realtor • Bev Odom, Realtor
806-205-0352 806-205-1322
www.chadhollandrealestate.com
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REALTOR

Legal Notice

Public Notice
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Limited financial assistance is available to help with relocation costs. The Childress District of TxDOT will be accepting reuse proposals until December 31, 2009. For more information, please contact Marty Smith at (940) 937-7250.

Thursday, December 17, 2009

County Star-News Classifieds

PUBLIC NOTICE

Public Notice
Historic Bridge Available

The Federal Highway Administration and the Texas Department of Transportation (TxDOT) announces the availability of a historic metal Parker through truss bridge for relocation and preservation in compliance with the U.S. Secretary of Interior*s Standards for Treatment of Historic Properties. The bridge is located on US 83 approximately six miles north of Wellington, Texas in Collingsworth County.

The bridge is a complex structure built in 1939 by the Texas Highway Department. The structure is a rare surviving example of a three-span, riveted steel, Parker through-truss. It has an overall width of 28.6 ft., a clear roadway width of 24 ft., and an overall length of 840 ft.; each truss is 179.7 ft. long. Technical difficulties and substantial costs associated with relocating and reconstructing the bridge should be anticipated. An assessment of the condition of the bridge and the

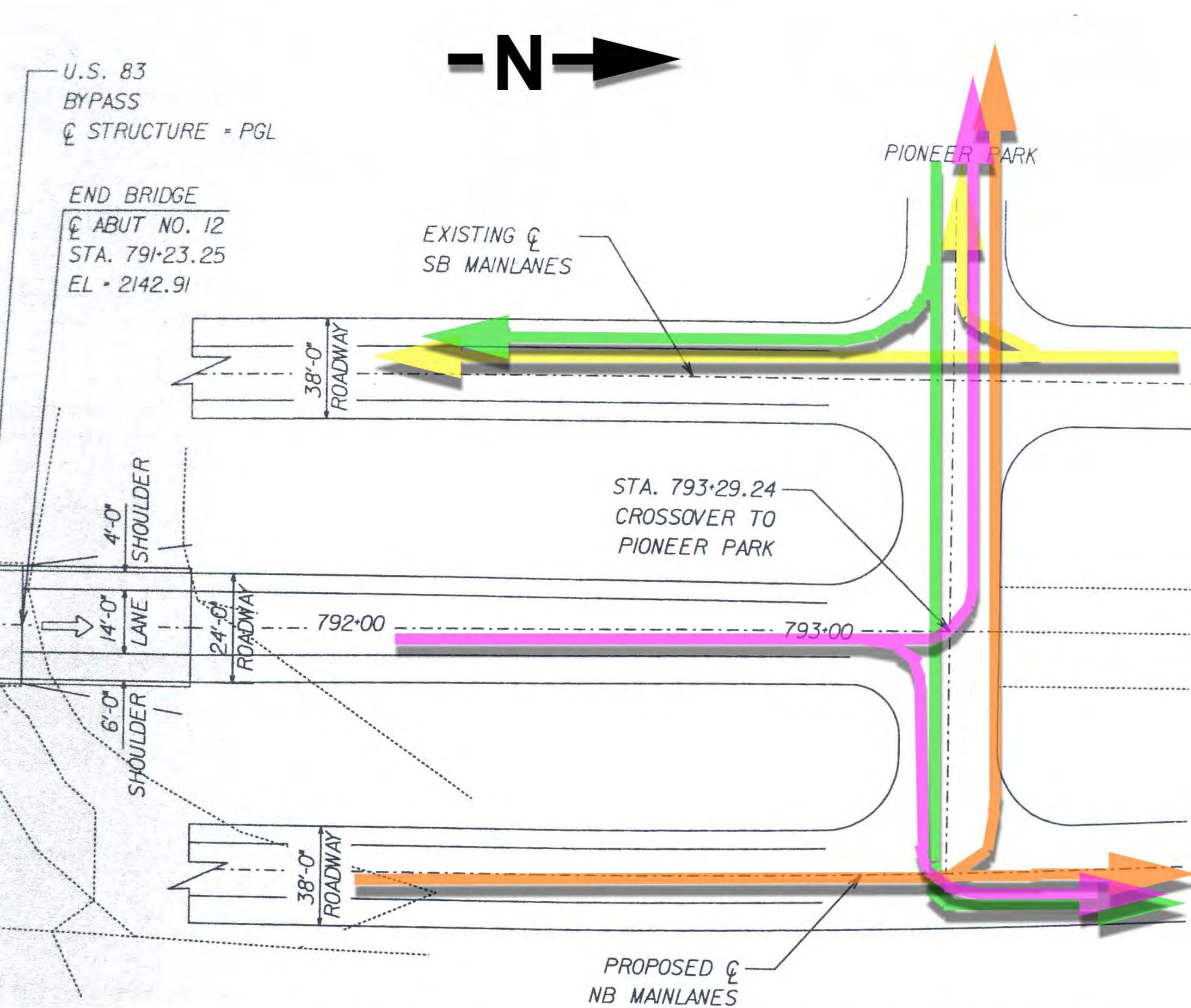
findings of a Historic Bridge Team are available for review at the Childress District of TxDOT.

Limited financial assistance is available to help with relocation costs. The Childress District of TxDOT will be accepting reuse proposals until December 31, 2009. For more information, please contact Marty Smith at (940) 937-7250. Marketing this historic bridge to a responsible party is required under Title 23, U.S. Code, Section 144.

38-1tc-TxDOT

Appendix I

Safety Conflicts: 2005 Scenic By-Pass Design graphic
US 83 Programmatic Section 4(f) Evaluation, September 2004



NB US 83 Traffic Flow
Scenic Bypass Traffic Flow
Outbound Park Traffic Flow
SB US 83 Traffic Flow

Safety Conflicts; 2005 Scenic Bypass

PROGRAMMATIC SECTION 4(f) EVALUATION

US 83 @ SALT FORK OF RED RIVER
COLLINGSWORTH COUNTY
NBI: 25-044-0031-03-002
CSJ: 0031-03-029

TEXAS DEPARTMENT OF TRANSPORTATION
CHILDRESS DISTRICT

SEPTEMBER 2004

TABLE OF CONTENTS

Chapter 1: Purpose and Need for Project

1.1 Proposed Project
1.2 Description
1.3 Condition
1.4 Significance
1.5 Purpose and Need
1.5.1 Geometric Deficiencies
1.5.2 Structural Deficiencies

Chapter 2: Alternative Analyses

2.1 Overview
2.1.1 No Build
2.1.2 Rehabilitation for Vehicular Use
2.1.3 Rehabilitation for Pedestrian Use
2.1.4 Construction of a By-Pass
2.1.5 Remove and Replace Existing Bridge
2.1.6 Rehabilitation as a Monument

Chapter 3: Description of Proposed Action

3.1 Proposed Action
3.2 Measures to Minimize Harm

Exhibits:

Exhibit A Location Map
Exhibit B Condition Evaluation
Exhibit C 1997 On-System Historic Metal Truss Bridge Task Force Report

Chapter 1: Purpose and Need for Project

1.1 Proposed Project

The Texas Department of Transportation (TxDOT) is proposing to build a new structure 100' east of the existing truss bridge crossing the Salt Fork of the Red River in Collingsworth County on United States Highway (US 83). The truss bridge is listed in the National Register of Historic Places (NRHP). US 83 is a major North-South, arterial route, extending from the Mexican border to the Oklahoma State Line. This Section 4(f) Evaluation provides the analysis for concluding that there is a feasible and prudent alternative to using the US 83 truss bridge and that the proposed action includes all possible planning to minimize harm to the historic truss bridge. The project location map is shown in Exhibit A.

1.2 Description

The US 83 truss bridge was constructed in 1939 by the Texas Highway Department. It is composed of three, Parker through-truss main spans and eight, I-beam approach spans. The truss spans have a 7.25" concrete slab, with a 2" asphalt overlay, and are supported by concrete pier walls. Each truss has 8 panels for a length of 178'-8". The five approach spans on the south end have a 7.5" concrete deck, with a 2" asphalt overlay, and are supported by steel channel bent caps with timber piles. The three approach spans on the north end have a 7.5" concrete deck, with a 2" asphalt overlay, and are supported by concrete bent caps with steel H-piles.

The clear roadway width of the truss is 24 feet, and carries one lane of northbound traffic. This section of US 83 is a four-lane divided highway; however, the two lanes of northbound traffic taper into one lane at the truss bridge.

1.3 Condition

Engineers from TxDOT's Bridge Division performed a condition evaluation of the US 83 truss bridge in October 2003. The truss bridge received a load rating of HS 16.6. This does not meet the current load-rating requirement of HS 20.

The truss bridge is at the end of its service life with multiple problems. The deck has numerous closed joints resulting in spalling of the concrete deck, diaphragms and corbels. In these areas, the reinforcing steel is exposed and corroded. Water has leaked through the joints causing corrosion, pack rust, and loss of section on the stringers and floor beams. The most significant damage is present in several of the truss floor beams, which have suffered 50-100% section loss. Severe corrosion and section loss has also occurred on the gusset plates, diagonal bottom braces and bottom chords. The paint system on each of the trusses has failed, and the concrete pier

walls exhibit flexural cracking.

The approach span I-beams have suffered severe corrosion, with 10-20% section loss of the stringers, as well as total paint failure. The steel H-piles of the north approach bents are in good shape; however, the majority of the concrete bent caps have suffered concrete spalling at the bearing areas. In these areas, the reinforcing steel is exposed and corroded. The timber piles of the south approach bents could not be evaluated as they are enclosed with timber planks. Soil erosion was noted at the south abutment. The erosion has caused the approach to settle.

The condition survey states that the truss bridge is not a candidate for widening or rehabilitation for vehicular use for the following reasons:

- All the floor beams have significant section loss and require replacement; this would also require removal and replacement of the concrete deck
- All the stringers require rehabilitation and/or replacement
- Bottom gusset plates at the floor beam connections require replacement
- Bottom cross braces require replacement and/or rehabilitation
- Bottom plates of the bottom chords require replacement and/or rehabilitation
- All bearings require replacement
- Locked rockers on the truss require rehabilitation
- All diaphragms and concrete corbels require repair
- All bearing channels on abutment 1 through bent 5 require replacement and/or rehabilitation
- All open joints require replacement
- Timber piles require further investigation and possible replacement
- Entire truss requires a new paint system

Exhibit B, Bridge Condition Survey (Exhibit B) provides more details on the structural deficiencies.

1.4 Significance

In accordance with Section 110 of the National Historic Preservation Act, the US 83 truss bridge was evaluated to establish its historical significance during a statewide inventory of historic bridges in 1997. The 1997 On-System Historic Metal Truss Bridge Task Force report of the US 83 Salt Fork of Red River Bridge is attached as Exhibit C. The truss bridge was found to be historically significant because of its "technically complex, advanced or innovative design or construction methods" and its incorporation of approach spans from an earlier bridge into its construction. The truss bridge contains the defining characteristics of a Texas Highway

Department bridge with a combination of typifying features including multiple truss spans and open steel railing. The truss bridge was determined to meet National Register eligibility under Criterion C in the Area of Engineering at the state level of significance. The bridge was listed on the NRHP in October 1996.

1.5 Purpose and Need

The existing facility (US 83) is in need of design upgrades to meet current highway standards. The purpose of this project is to improve the existing roadway and bridge conditions, mitigate geometric and structural deficiencies, and bring the route into conformance with current design standards in order to improve the safety for the traveling public. US 83 is a major north-south, arterial route through the Childress District. The section of US 83 crossing the Salt Fork of the Red River is a four-lane, divided, arterial route. The truss bridge and approach roadway exhibit a number of geometric and structural deficiencies, which severely limit its capacity to meet the needs of modern vehicular traffic. The truss bridge provides a 24' roadway while the approach roadway width is 38'. Traffic is reduced to one lane across the narrow bridge to prevent impacts from oversized vehicles. The bridge has a sufficiency rating of 48.8 out of a possible score of 100. The project is scheduled and authorized in the Unified Transportation Plan (UTP) for FY 2004, the Transportation Improvement Plan (TIP) for FY 2006, and the Childress District is letting schedule for FY 2006. The project will include 80% Federal Bridge Rehabilitation/Replacement funds under funding Category 6 for on-system projects, and 20% state funds.

1.5.1 Geometric Deficiencies

The truss bridge was constructed in 1939 and has an overall length of 826.5'. It is located on a four-lane divided highway; however, only one lane of traffic can cross the structure due to its narrow roadway width. The approach roadway width is 38', while the bridge roadway width is 24'. In addition to the narrow roadway width, the truss bridge has a height restriction of 15'-6".

Average daily traffic (ADT) projections are more than 2,000 vehicles per day. The truss bridge is currently classified as structurally deficient according to Federal Bridge Inspection Guidelines. This classification is unacceptable on a major arterial route and greatly enhances the purpose and need for this project.

The section of roadway near the truss bridge has experienced six accidents during the past ten years. Three of those accidents have directly involved the truss bridge and approaches. The bridge has received minor damage due to the vehicles striking the side of the structure. The

narrow roadway width has contributed to the truss being hit three times by passenger cars and suffering damage from May 1992 through December 1994. No injuries occurred due to the vehicles striking the truss bridge.

Currently, oversized vehicles and loads must be detoured around the bridge to prevent impacts and damage to the truss. Typically, southbound traffic is stopped; the oversized loads use the southbound lanes to cross the Salt Fork of Red River and return to the northbound lanes just north of the truss.

1.5.2 Structural Deficiencies

As discussed in Section 1.3 of this report, the truss bridge is suffering from numerous structural deficiencies. TxDOT bridge engineers performed a condition evaluation of the structure in October 2003, and noted the following deficiencies:

- All the floor beams have significant section loss and require replacement
- All the stringers require rehabilitation and/or replacement
- Bottom gusset plates at the floor beam connections require replacement
- Bottom cross braces require replacement and/or rehabilitation
- Bottom plates of the bottom chords require replacement and/or rehabilitation
- All bearings require replacement
- Locked rockers on the truss require rehabilitation
- All diaphragms and concrete corbels require repair
- All bearing channels on abutment 1 through bent 5 require replacement and/or rehabilitation
- All open joints require replacement
- Timber piles require further investigation and possible replacement

The US 83 truss has been load posted. No vehicles larger then 52,000 gross single or 79,000 gross combination may use the bridge until it has been rehabilitated or replaced. Although the method of rerouting traffic to the southbound lanes to cross the Salt Fork of Red River works for the occasional, oversized vehicle, it will not work for long-term traffic control. Posting flagmen around the clock to re-route traffic as needed is cost prohibitive; closing the northbound lanes and providing a detour is also not practical as the detour exceeds 30 miles.

The truss bridge does not meet current TxDOT design standards with regard to loading and geometrics. Its fracture critical status also makes it undesirable for continued use.

Chapter 2: Alternative Analyses

2.1 Overview

Although this truss bridge is eligible for inclusion in the National Register of Historic Places, it must also perform as an integral part of a modern transportation system. It is not performing to current AASHTO or TxDOT design standards, thus jeopardizing the integrity and safety of a major arterial route through the Childress District.

AASHTO has established standards, policies, and guides for designing, building, and maintaining roadways and bridges. AASHTO standards, policies, and guides represent nationwide interests, and TxDOT complies with or exceeds AASHTO's minimum criteria in its projects. TxDOT has formulated its own design manuals to establish continuity in all projects across the state.

In order to provide a safe and efficient crossing over the Salt Fork of the Red River, six design alternatives were examined:

1. No Build
2. Rehabilitation for continued vehicular traffic
3. Preservation for pedestrian use
4. Preservation as a scenic by-pass
5. Remove and replace the existing bridge
6. Rehabilitation as a Monument

2.1.1 No Build

The No Build alternative implies that no project is necessary to upgrade the US 83 route. This alternative would consist of routine maintenance and inspection activities.

The No Build alternative does not address the basic transportation need of improving the route to meet current geometric and structural standards. The truss bridge is functionally obsolete and structurally deficient as discussed previously in Section 1.5, Purpose and Need. Routine inspection and maintenance is not considered adequate to address the deficiencies noted in the condition evaluation (Exhibit B).

Summary

Geometric and structural deficiencies as previously discussed would remain with this alternative. This alternative would have the least affect on the historical truss, but the noted deficiencies would continue to worsen, threatening the integrity of the truss. This alternative does not meet the purpose and need for this project, and has therefore been eliminated.

2.1.2 Rehabilitation for Continued Vehicular Use

This alternative would consist of using TxDOT sponsored Federal Bridge Funds for correcting the structural and geometric deficiencies of the truss bridge.

The US 83 historic truss requires significant structural rehabilitation to remain in service as a vehicular bridge. As noted in the condition evaluation, and summarized in section 1.5.2, it is necessary to remove the deck to repair and replace the floor beams and stringers that exhibit significant section loss. The gusset plates and cross bracing require rehabilitation or replacement as well. This work may result in disassembling the truss in places. Due to spalling, the concrete of the bent caps, diaphragms and corbels requires rehabilitation. All bearings need replacement, and all rockers need rehabilitation. The timber piling of some of the bents still needs examination and could require rehabilitation or replacement. In addition, it is necessary to remove the existing paint, with lead abatement procedures, and repaint all metal components of the bridge.

It is impossible to redress the geometric deficiencies of the truss. The vertical clearance required by current design standards is 16.5'. However, the existing minimum vertical clearance of the truss is 14.25', a result of diagonal portal bracing. If structural analysis proves no adverse effect would result from removing the bracing, the minimum vertical clearance could be raised to only 15.5'. Another geometric issue is the limited horizontal clearance of the truss. Current standards require 12' travel lanes, a 10' outside shoulder and a 4' inside shoulder. The maximum available roadway width on the truss is 24'. This is enough clearance for only two travel lanes; no shoulders could be accommodated.

Summary
As discussed previously, and included in TxDOT's condition evaluation, the truss bridge is not a candidate for widening or rehabilitation. The estimated cost of rehabilitating the truss spans is $2,500,000, while the estimated cost of a new, prestressed, concrete I-beam replacement structure is $2,700,000. However, even though the structural integrity of the truss bridge could be preserved, it would not be feasible or prudent to perform these upgrades while leaving the geometric deficiencies in place. The rehabilitation for continued vehicular use does not meet the purpose and need for this project and has, therefore, been eliminated.

2.1.3 Preservation for Pedestrian Use

This alternative would consist of using TxDOT sponsored Federal Bridge Funds to construct a new bridge and approach roadway to by-pass the existing bridge. Additional Federal funds, not to exceed the estimated cost of demolition of the historic truss, would be used to rehabilitate the truss bridge for pedestrian traffic.

As noted previously, and included in TxDOT's condition evaluation, the truss bridge is not considered a good candidate for widening or rehabilitation. The previously noted structural deficiencies require correction for pedestrian traffic as well. Pedestrian loads, particularly on long spans, can exert more stress to the structural elements than vehicular loads. Also, in order to expend Federal Bridge Funds to rehabilitate the truss bridge for pedestrian use requires another entity to take ownership of the bridge, participate in the rehabilitation costs, and maintain the bridge for its remaining life. TxDOT has yet to find an entity interested in taking ownership of the bridge. There are two primary reasons for this: (1) The paint system is in complete failure and would present a substantial cost to clean and repaint, (2) Rehabilitating the bridge would require financial resources beyond any local entity's fiscal budget. The current cost estimate for rehabilitating the truss spans is $2,500,000. Federal law limits the amount of HBRRP funds that can be used on rehabilitation of a historic structure for pedestrian use to the estimated demolition cost. The current estimate for the cost of demolition is $300,000. The difference, $2,200,000, is the amount a local entity must commit to the project. Collingsworth County Historical Commission and the Historical Wellington Committee have both been approached about acquiring ownership of the truss bridge, but these entities possess neither the initial resources to rehabilitate it, nor the long-term resources to maintain it.

Summary
As discussed previously, and included in TxDOT's condition evaluation, the truss bridge is not a candidate for widening or rehabilitation. Even though the structural integrity of the truss bridge could be preserved, the funding sources currently available do not provide adequate funding to perform the minimum rehabilitation required to make the truss safe for pedestrian use. The total cost of construction to rehabilitate the bridge for pedestrian use is 5.5 million dollars. The construction would consist of replacing floor beams, stringers, bottom gusset plats, bearings, open joints, timber piles, and bearing channels. The entire truss requires a new paint system. The rehabilitation for pedestrian use does not meet the purpose and need for this project and has therefore, been eliminated.

2.1.4 Preservation as a Scenic By-pass

This alternative (preferred) would consist of using TxDOT sponsored Federal Bridge Funds to

construct a new bridge and approach roadway to by-pass the existing bridge. A by-pass alignment between the existing northbound and southbound structures (to the west of the historic bridge), was considered. However a cross over and an entrance to the county park are located immediately north of the structures. An interior re-alignment of US 83 will cause a safety issue for traffic entering and exiting the park. Therefore, the by-pass alignment would be located 100' east of the historic structure. Realignment of US 83 to the east also allows adequate distance to meet design criteria for minimum median width that an interior alignment would not. The proposed structure would be an 840' long 40' wide structure with drill shafts, concrete columns, concrete caps, Type-C beams, and a concrete deck.

The by-passed section of NB US 83, which includes the historic structure, would serve as a scenic by-pas for the remainder of its service life. It would also serve as an alternative entrance to the park and safety rest area, alleviating the safety concern caused by slower vehicles entering and exiting the flow of traffic on US 83.

Under this option, the historic bridge would be restricted to passenger and recreational vehicles traffic. All rehabilitation would be for the purpose of preservation, primarily to arrest the deterioration of the bridge, not to add capacity to the structure. A design exception would be required for any geometric and structural criteria that are not met by the historic bridge. The Average Daily Travel (ADT) has no bearing on design criteria when vertical clearance does not meet design criteria. Although the historic bridge would remain load posted, the restriction is minimal. In its current condition the bridge is able to serve, passenger and recreational vehicles, which are expected to be primary types of vehicles using the structure.

Leaving the bridge in place would require extensive modification of the horizontal alignment, off TxDOT right-of-way. A change of roadway alignment requires introducing reverse horizontal curves north and south of the truss bridge to tie-in to the existing roadway. The existing alignment is currently straight, beginning approximately ½ mile south of the bridge and extending approximately 4 miles north. Rehabilitation would be limited to replacing floor beams, stringers, bottom cross braces, bottom plates, and diaphragms to stabilize the truss. The existing structure would remain in place as a scenic by-pass and would be used to make left turns into the Collingsworth County Park located west of the historic structure.

The "preserve as a scenic by-pass" option addresses the structural, functional and safety issues associated with the historic bridge. In addition, the residents of the are sufficiently interested in preserving the historic bridge that a by-pass alignment is an attractive alternative. Therefore, this option proves to be a reasonable course of action.

Summary

The alternative alignment would allow TxDOT to build a new structure that would meet all

structural and geometric guidelines, while allowing the old structure to remain in place. Therefore, this alternative would satisfy the local residents who feel a strong attachment to the historic bridge, as well as meet the purpose and need.

2.1.5 Remove and Replace the existing bridge

This alternative meets the purpose and need for the project by providing a structurally and functionally sufficient bridge that meets current and future transportation needs along a major arterial route. This alternative would improve the existing roadway and bridge conditions, mitigate geometric and structural deficiencies, and bring the route into conformance with current design standards in order to improve the safety for the traveling public. The truss bridge and approach roadway exhibit a number of geometric and structural deficiencies, which severely limit its capacity to meet needs of modern vehicular traffic. The truss bridge provides a 24' roadway while the approach roadway width is 38'. Traffic is reduced to one lane across the narrow bridge to prevent impacts from oversized vehicles. The bridge has a sufficiency rating of 48.8 out of a possible 100. The existing truss bridge would be properly documented and demolished. However removal and replacement of the existing bridge is not a prudent or feasible alternative, due to the negative public interest in preserving the structure.

A truss of the same era and design is located on SH 203 over Salt Fork of Red River, approximately 10 miles from US 83. That structure, while not currently National Register Eligible, will remain on the state system for some time, and is in much better condition than the US 83 truss. TxDOT has determined that the most prudent use of maintenance and rehabilitation funds would be to focus them on the structure that will remain open for use. The Historic Bridge Task Force Report of 1997 also recommended recording and removing the US 83 truss bridge, and pursuing eligibility for the SH 203 truss bridge as the next best remaining example of its type in the stat.

To implement this alternative the existing truss bridge would be removed and a new bridge constructed in its place on the existing alignment. The new construction would provide a 40' wide bridge meeting current AASHTO and TxDOT standards for new construction and loading (HS-20 loading). No new right of way will be required for this option. Vegetation removal would be limited to existing right of way and would be minimized. The bridge will be constructed while traffic is detoured to the southbound lanes via median detour crossings. Disturbance to traffic will be minimized.

Summary
This alternative alignment would allow TxDOT to build a new structure that would meet all

structural and geometric guidelines, but due to negative feedback from the Collingsworth County Historical Commission and Historic Wellington this is not a viable option.

2.2.6 Rehabilitation as a Monument

This option requires the realignment of US 83. As discussed previously, the new alignment must be located to the east of the historic structure.

Rehabilitation would be limited to those activities that would stabilize the truss. In addition, demolition of the approach spans would be required to prevent public access to the structure. Although less costly than the previous options, the funding for these activities is limited to the estimated cost of demolition.

Summary
Since it has been determined that the truss could be preserved for use as a vehicular or pedestrian structure, retaining a monument on TxDOT right of way does not present itself to be a reasonable course of action.

Chapter 3: Description of Proposed Action

3.1 Proposed Action

The purpose of this project is to improve the existing pavement, roadway geometry, and structural integrity of US 83, and bring the highway into conformance with current design standards to improve the safety of this major arterial.

Based on the previous alternatives analyzed, TxDOT proposes to leave in place the existing truss bridge located on US 83 at the Salt Fork of the Red River in Collingsworth County, and build a new structure 100' east of the existing structure. The existing structure would remain in place as a scenic by-pass.

3.2 Measures to Minimize Harm

The defining feature of US 83 at Salt Fork Red River is the 178'-8" historic truss bridge. TxDOT bridge engineers have evaluated the condition of the truss bridge and recommended that it is a candidate for rehabilitation a scenic by-pass. Rehabilitation would be limited to those activities that would stabilize the truss.

At this time a mitigation agreement has not been executed with the State Historical Preservation Office (SHPO). TxDOT is currently coordinating with SHPO and the local historic committee to ensure that the historic integrity of the truss bridge is being preserved to the greatest extent possible. The historic truss would remain open with a reduced speed limit of 45 miles per hour, and utilized by traffic that would be turning into Collingsworth County park located west of the two existing structures.

In accordance with Section 106 of the National Historic Preservation Act, and the Programmatic Agreement for Cultural Resources between the Texas Historical Commission, FHWA and the Advisory Council on Historic Preservation, TxDOT will consult with SHPO concerning the effects the project will have on the historic truss bridge.

ALTERNATIVE COMPARISION

	Alternative 1 (No Build)	Alternative 2 (Vehicular Rehabilitation)	Alternative 3 (Pedestrian Rehabilitation)	Alternative 4 (Scenic by-Pass)	Alternative 5 (Replace Bridge)	Alternative 6 (Rehabilitate as a Monument)
Historical Considerations	Impacts limited to normal wear and tear of traffic and weathering	Truss rehabilitation costs exceed allotted funds. Not recommended	Truss rehabilitation costs exceed allotted funds. No entity to take possession of truss bridge.	Normal weathering. Truss is in poor condition with lead based paint is complete failure	Local and Statewide marketing or Photograph and retain original THD plans	Rehabilitation would be limited to those activities that would stabilize the truss
Functional Considerations	Does not address problems with narrow roadway, structural deficiencies	Does not address the narrow roadway. Structure in very poor condition. Not recommended by bridge evaluation.	Truss rehabilitation costs exceed allotted funds. Not recommended by bridge evaluation	Would provide a new bridge meeting current standards	Would provide a new bridge meeting current standards. Would maintain existing roadway geometry	Truss rehabilitation costs exceed allotted funds. Not recommended by bridge evaluation
Structural Considerations	Does not address the structural repairs needed	Truss rehabilitation costs exceed allotted funds. Not recommended by bridge evaluation.	Truss rehabilitation costs exceed allotted funds. Not recommended by bridge evaluation	Would provide a new bridge meeting current standards	Would provide a new bridge meeting current standards	Truss rehabilitation costs exceed allotted funds. Not recommended by bridge evaluation
Right of Way Acquisition	None	None	None	Yes	None	None
Cost of Build New Bridge	None	None $2.5 million to rehabilitate existing truss bridge.	$5.5 million (two lane with shoulders and longer approaches)	$5.5 million (two lanes with shoulders plus longer approaches)	$3.8 million (two lanes with shoulders, maintaining existing alignment	$5.5 million (two lanes with shoulders plus longer approaches)
Vegetation Impacts	None	None	Existing Right of Way disturbed	Existing Right of Way disturbed	Existing Right of Way disturbed	None
General Impacts	None	One-Lane Truss Bridge	New alignment would introduce curves at each end and would not meet driver expectations	Historic Truss would remain in place	Historic Truss would be removed	Historic Truss would remain in place