


FINAL
SECTION 4(f) EVALUATION


Fourth Street Bridge over the Arkansas River
Project No. BR 0961-008 (13141)


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By the:
United States Department of Transportation
Federal Highway Administration
&
Colorado Department of Transportation, Region 2

Submitted Pursuant to
23 U.S.C. 138 and 49 U.S.C. 303


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Final Section 4(f) Evaluation
CDOT Project BR 0961-008, SH 96A Fourth Street Bridge Over the Arkansas
River, Pueblo County, SA 13141

A. Proposed Action

The project involves replacing the historic Fourth Street Bridge, Structure K-18-Z, on State Highway 96 over the Arkansas River and the historic Pueblo Rail Yard in Pueblo, Colorado. In addition to the replacement of the bridge, the project will reconstruct the bridge approaches and Fourth Street (State Highway 96) from Abriendo Avenue (MP 54.8) to Midtown Circle (MP 55.6) [Figure 1]. The roadway and bridge will be realigned slightly to the north to improve the horizontal and vertical geometry of Fourth Street. This project is being done under a categorical exclusion.

The work will also include acceleration, deceleration and turn lanes, sidewalks and on-street bicycle lanes, and improve intersections. The new bridge will provide higher bridge loads consistent with the standards for urban highways and improve horizontal and vertical clearances in the Pueblo Rail Yard. The new bridge will bring the roadway geometry up to current standards. CDOT will complete this work in coordination with the BNSF and UP Railroads.

The purpose of the project is to bring the bridge structure up to existing operational and safety standards. Pertinent project needs include improving safety for motorists, pedestrians, and bicyclists on the bridge, improve horizontal and vertical clearances in the rail yard, and increase load carrying capacity on Fourth Street. The existing the Fourth Street Bridge is 45-years old, narrow and deteriorating. This bridge structure has been classified as structurally deficient and functionally obsolete. Recent inspections and events support removal and replacement of the bridge. The bridge has a sufficiency rating of 24 out of a possible 100 based on the poor structure and pier conditions and the substandard horizontal and vertical clearance in the rail yard with respect to the tracks. The poor under-clearance is due to the proximity of the railroad tracks to the bridge piers and the east abutment toe of slope, which is less than five feet from the Loop Ramp roadway. The horizontal clearance between the center line of track and pier faces is typically 11 feet and 8 feet 3 inches of which is much less than the 18 feet required by the American Association of State Highway and Transportation Officials (AASHTO) and the American Railway Engineering and Maintenance Right-of-Way Association (AREMA) and the railroads. A 2002 minor train derailment resulted in the train striking one of the bridge piers located on BNSF property.

Additional concerns regarding the bridge include its substandard load carrying capacity. The Fourth Street Bridge was originally designed to carry the equivalent of a 36-ton truck. Design standards for today's bridges require they carry the equivalent of a 45-ton truck. The existing bridge deck rates at 23.3 tons or 65% of the original design criteria and 52 % of current design practice.

The geometry of the Fourth Street Bridge is substandard and has been blamed for unsafe driving conditions and traffic accidents. The eastern end of the bridge features a steep down grade combined with tight curvature. Finally, the bridge's shoulders and four lanes of traffic are narrow and do not meet current design standards. The existing 4-foot wide sidewalks for pedestrian and bicycle traffic do not provide adequate width for bi-directional pedestrian and bike traffic, nor ADA clearance for two wheel chairs to pass each other.

The proposed action would require the use of three historic properties as defined by 23 USC 138 and 49 USC 303. The properties are the Fourth Street Bridge, the Pueblo Rail Yard and the Arkansas River Levee.

B. Section 4(f) Legislation

Section 4(f) has been part of Federal law in some form since 1966. It was enacted in an effort to set forth guidelines by which to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

In January 1983, Section 4(f) of the Department of Transportation (DOT) Act (49 USC 303) was amended as part of an overall recodification of the DOT Act. The wording in Section 303 currently reads as follows:

- (a) It is the policy of the United States Government that special effort is made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.
- (b) The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.
- (c) The Secretary may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, recreation area, refuge or site) only if –
 - (1) there is no prudent and feasible alternative to using that land; and
 - (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) applies to all historic sites, publicly-owned public parks, recreational areas, and wildlife and waterfowl refuges.

FHWA regulations state that Section 4(f) applies to significant publicly owned park, recreation area, or wildlife and waterfowl refuge or any significant historic site. A significant historic site is a historic property that has been officially determined to be eligible for or listed on the National Register of Historic Places (NRHP), or contributing to a historic district that is eligible for or listed on the National Register. Historic resources are eligible to the National Register if they meet one or more of the following criteria:

- a) Are associated with events or have made a significant contribution to the broad patterns of our history
- b) Are associated with lives of persons significant in our past
- c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- d) Have yielded, or may be likely to yield information important to prehistory or history.

National Register eligible and listed sites are also protected by Section 106 of the National Historic Preservation Act, as set forth in the Advisory Council on Historic Preservation regulations 36 CFR 800. Federal agencies must consult with the State Historic Preservation Office (SHPO) and the Advisory Council regarding the effect of their undertaking on historic properties. Section 4(f) is related to Section 106 in that the determinations regarding eligibility and effect are taken into account when determining impacts to Section 4(f) properties. The Keeper of the National Register makes the final, binding determination of eligibility for the Section 106 process. FHWA has the final determination of use for the 4(f) determination.

Section 106 of the National Historic Preservation Act specifically requires that a Federal agency involved in a proposed project or activity is responsible for initiating and completing the review of potential effects that the action may have on properties listed in the NRHP, or eligible for such listing.

This Section 4(f) evaluation summarizes and incorporates the results of this consultation process. The FHWA Division Administrator for Colorado is responsible for determining that this project meets the criteria and procedures set forth in the federal regulations. Application of 4(f) requires a determination of whether there are feasible and prudent alternatives that avoid the use of the 4(f) resource. An alternative may be rejected as not being feasible and prudent for any of the following reasons:

- (1) not meeting the project purpose and need,

- (2) excessive cost of construction,
- (3) severe operational or safety problems,
- (4) unacceptable adverse social, economic or environmental impacts,
- (5) serious community disruption,
- (6) an accumulation of a lesser magnitude of the foregoing types of factors.

A determination must be made whether one or more of the alternatives to avoid the use of land from Section 4(f) property is feasible and prudent. If such avoidance alternatives exist, one of them must be selected. If all the remaining and feasible and prudent alternatives use land from the Section 4(f) properties, then a least harm analysis must be performed to determine which alternative does the least overall harm to the Section 4(f) properties. In performing this analysis, the net harm (after mitigation) to the properties is the governing factor.

Section 4(f) Resources

Within the Fourth Street Bridge project area there are no existing public parks, recreation areas, or wildlife or waterfowl refuges that will be impacted by the project.

Three historic properties exist within the project study area and are either listed on the NRHP or are considered eligible for listing. These include the Fourth Street Bridge (5PE3943), the Pueblo Rail Yard (5PE4247), and the Arkansas River Levee (5PE4245).

Fourth Street Bridge (5PE3943)

Property Description

This bridge was found eligible to the NRHP under criteria (a) and (c). Under criterion (a), the bridge was deemed historically important as a major ancillary element of the Pueblo Freeway and a principal crossing of the Arkansas River in Pueblo. The project that spawned this new bridge – the Pueblo Freeway – was considered an important component in the economic foundation of the city of Pueblo. The bridge was also evaluated as eligible under criterion (c) for being an extremely long-span example of a steel deck girder type bridge. The Fourth Street Bridge is also considered technologically significant because of its multiplicity and length of spans.

Description of Use of the Fourth Street Bridge (5PE3943)

The bridge will be replaced with a conventional bridge structure built according to present design standards. The new bridge will address safety, load, and roadway geometry issues as well as vertical and horizontal clearances in the rail yard. The bridge would reflect current design standards that would result in a service life of 75 to 100 years. The width of the new bridge would be such that standard lane and shoulder widths and multi-use pedestrian and bicycle lanes on both sides are included.

During the Section 106 process, the SHPO concurred with FHWA's finding of *Adverse Effect* for this bridge in correspondence dated October 4, 2002. A Memorandum of Agreement (MOA) between FHWA and SHPO was executed on February 11, 2003 to resolve the adverse effects to the bridge.

Pueblo Rail Yard (5PE4247)

Property Description

The Pueblo Rail Yard (5PE4247) was determined eligible to the NRHP under criterion (a) as an integral and major element of Pueblo's rail yard facilities and for its contribution to Pueblo's status as a major rail transportation hub. The rail yard is located on the north side of the Arkansas River and was constructed in 1924-25 in the aftermath of the 1921 flood. It has 28 parallel standard gauge tracks installed on a ballasted roadbed at ground level. It is an operational yard used by the Burlington Northern Santa Fe and Union Pacific Railroads.

A total of 12 nearly identical steel lattice light towers are located within the Pueblo Rail Yard -- three adjacent to the Fourth Street Bridge, six clustered approximately one-quarter to one-half mile northwest of the highway bridge, and another 3 towers placed at various, relatively distant locations southeast of the bridge. Each light tower is mounted on a square concrete base or foundation. Built of bolted sections of galvanized steel angle, the towers are tapering 124-foot tall structures with a cross-braced framework. Each tower culminates in a wider "light cage" with horizontal steel elements serving as supports for numerous downcast lights. Metal ladders are affixed to each tower, permitting access to the lights at the top. Two of the towers near the bridge in the inventoried portion of the rail yard section are fitted with what appear to be lightning rods, while one light tower supports an orange windsock.

According to the Burlington Northern and Santa Fe Railway (BNSF), these towers were constructed in the early 1950s when the predecessor of the BNSF, the Atchison, Topeka & Santa Fe Railway (ATSF), completed a major reconstruction of the Pueblo Rail Yard. The configuration of the existing rail yard appears to be relatively unchanged since the early 1950s. Similar light towers were installed by the ATSF at about the same time in a number of major urban rail yards, including those at Kansas City, Missouri; Emporia and Hutchinson, Kansas; Amarillo, Texas; Belen and Clovis, New Mexico and La Junta, Colorado.

FHWA has determined that the light towers in the Pueblo Rail Yard contribute to qualities that make the entire rail yard site eligible to the NRHP. These towers are visually prominent, utilitarian structures that enable the safe assembly and disassembly of trains at all hours of the day. They are operationally important features that testify to the high volume and frequency of railroad traffic through Pueblo and the importance of the Pueblo Rail Yard. These particular towers were

built sometime in the early 1950s, which fits within the two periods of significance identified for the Pueblo Rail Yard: 1924-25 and 1951-52. And finally, although many rail yards have lighting features or towers, the design of these towers is somewhat unique to a handful of rail yards in Kansas, Texas, Colorado, and New Mexico.

The light towers in the rail yard were determined to be contributing features of the Pueblo Rail Yard as outlined in correspondence from SHPO dated October 10, 2003.

Description of Use of the Pueblo Rail Yard (5PE4247)

The project removes two light towers in the historic Pueblo Rail Yard that are located to the northwest of the Fourth Street Bridge. These towers will be removed to accommodate the construction of a new bridge structure. The project replaces these towers with two new towers at a new location within the rail yard. See **Figure 3** showing the impacts to the towers and projected location of the new towers. The work to remove and replace these towers will be conducted in coordination with the BNSF and UP railroad.

FWHA initially determined that the removal of the light towers would result in no adverse effect, but the SHPO disagreed with this finding and FHWA then determined that the removal of the light towers would result in an *adverse effect* to the eligible Pueblo Rail Yard. A Memorandum of Agreement to resolve adverse effects to the light towers was executed on March 25, 2004.

One bridge bent from the proposed alternative is planned to be placed on the land separating the Union Pacific Railroad tracks from the Burlington Northern Santa Fe Railroad tracks within the historic boundary of the Pueblo Rail Yard. This is the only space in the yard where there is adequate clearance between tracks for pier locations.

Arkansas River Levee (5PE4245):

Property Description

The Arkansas River Levee is eligible to the NRHP under criteria (a) and (c). Relative to criterion (a), the levee is significant as a key element in the engineered solution to the 1921 flooding of the Arkansas River. It is eligible under criterion (c) as a key feat in flood control engineering, and as a fundamental structural component in the project involved in the realignment and containment of the Arkansas River.

Description of Use of the Arkansas River Levee (5PE4245):

The proposed alternative pier layout plan requires one set of piers to be constructed within the Arkansas River Levee, and placed near the locations of the piers from the 1924 Arkansas River Bridge (the

original Fourth Street Bridge preceding the existing bridge) at the toe of the levee's eastern slope resulting in a use of a portion of the levee. The foundation for the new piers will be placed under the levee's eastern slope, and the slope will be restored to its current condition.

Extensive construction activities beyond the construction of the new piers are not planned on or near the slopes of the levee because its structural integrity could be compromised. The temporary occupation of the levee will only be during the construction of the piers which is less than the time needed for construction of the project. The levee is a long linear historic resource and temporary construction impacts are only expected for a short portion of the resource. The scope of the work is minor especially considering the length of the entire levee.

There are no anticipated permanent adverse physical impacts, the slopes will be regraded to their current conditions, and extensive construction activities are not planned on or near the slopes of the levee. The SHPO concurred with FHWA's finding of *No Adverse Effect* in correspondence dated October 4, 2002.

Avoidance Alternatives

Because the Arkansas River Levee and the Pueblo Rail Yard, 4(f) resources, are in close proximity to the Fourth Street Bridge, true avoidance alternatives avoid the use of any of the three 4(f) resources. There are three avoidance alternatives that were considered in this 4(f) evaluation: 1) the No Action alternative, 2) Close Fourth Street, and 3) Rehabilitate the existing bridge. All of these alternatives avoid the use of 4(f) resources. The following discussion demonstrates why these alternatives are not feasible and prudent.

Alternative	Rail Yard	Arkansas River Levee	4th Street Bridge	Feasible and Prudent
1) No -Action	Avoids	Avoids	Avoids	No (a,b,c,d,e)
2) Close 4 th Street between Abriendo Avenue (MP 54.8) to Midtown Circle (MP 55.6)	Avoids	Avoids	Avoids	No (a, b, e, f)
3) Rehabilitate existing bridge	Avoids	Avoids	Avoids	No (a,b,c,d)

- a) Does not meet the project *purpose and need* because it does not improve the clearances in the rail road yard
- b) Does not meet the project *purpose and need* and has *severe operational and safety problems* because it does not address the poor roadway geometry that has contributed to accidents
- c) Does not meet the *purpose and need* because structure capacity would still be less than required by current standards
- d) *Excessive cost of construction* and or maintenance
- e) Does not address structure deterioration
- f) Can not maintain traffic resulting in *unacceptable adverse social, economic impacts*

1. No Action: This alternative maintains the existing bridge in place. This alternative has high costs associated with maintenance and improvements that would be required. This alternative does not address the CDOT, FHWA, and railroad safety criteria that require a minimum of 18-foot horizontal clear zone between the railroad tracks and the face of the piers. In addition, this alternative does not address the bridge's structural deterioration, safety deficiencies, or substandard load capacity and does not improve the conditions for pedestrians or bicyclists. Therefore, this alternative is not feasible and prudent.

2) Close Fourth Street between Abriendo Avenue (MP 54.8) to Midtown Circle (MP 55.6): The Fourth Street is also State Highway 96 and is a main thoroughfare through Pueblo that provides access across the Arkansas River and the rail yard. The city of Pueblo depends on this thoroughfare for connectivity among its communities. Closing this road would have impacts of extraordinary magnitude to downtown businesses, cause unacceptable interruption and detour on a state highway, and would not meet the project purpose and need. By leaving the bridge in place, the railroad yard would still have unacceptable clearances for the tracks. Therefore, this alternative is not feasible and prudent.

3) Rehabilitate Existing Structure: This alternative involves the rehabilitation and modification of the existing bridge for vehicular traffic only. This alternative would involve removing the sidewalks from the existing bridge, and the associated travel-lane barriers to accommodate improvements in the lanes and shoulder widths.

This alternative does not address the clearance needs within the rail yard. In addition, the trail connectivity for pedestrians and bicyclists would be interrupted. Shoulder widths for vehicular traffic would be increased, but would still remain below current design standards. There would still be the associated safety hazards due to the horizontal and vertical geometry of the road. The service life of the rehabilitated bridge would only be 20 to 25 years. Therefore, this alternative is not feasible and prudent.

Minimization of Harm Analysis

Because no alternative that completely avoids the use of 4(f) property has been found that is feasible and prudent, a least harm analysis is required. The following alternatives use

property associated with one or more of the 4(f) resources. The alternatives were studied as to whether or not they were feasible and prudent, and then additional means of minimizing harm were considered.

Alternative	Rail Yard	Arkansas River Levee	4 th Street Bridge	Feasible and Prudent
1) Widen existing Structure	Use	Avoids	Avoids	No (a,b,c,e)
2) Keep existing bridge, build new bridge for cars adjacent to existing bridge There are a couple variations of this alternative in the discussion.	Use	Use	Avoids	No (a, d)
3) New bridge spanning rail yard and Arkansas River Levee	Avoids	Avoids	Use	No (b,e)
4) Remove old bridge and build new bridge to the north with pier placement that avoids levee(match existing spans, moderate span layout)	Use	Avoids	Use	No (a,d)
5) Reconstruct existing structure on same location	Use	Avoids	Use	No (a,b,f)
6) Remove old bridge build new structure to the south of existing bridge	Use	Use	Use	No (b)
7) Remove old bridge and build new bridge to the north, long span option	Use	Use	Use	Yes

- a) Does not meet the *project purpose and need* because it does not improve the clearances in the rail road yard
- b) Does not meet the *project purpose and need* and has *severe operational and safety problems* because it does not address the poor roadway geometry that has contributed to accidents
- c) Does not meet the project purpose and need because structure capacity would still be less than required by current standards
- d) *Excessive cost of construction* and or maintenance.
- e) Does not address structure deterioration

- f) Can not maintain traffic resulting in *unacceptable adverse social, economic impacts*.

The following two alternatives minimize harm to the Fourth Street Bridge:

1) Widen the existing structure from center line on both sides

This alternative involves widening the existing bridge from the center line on both sides. This would involve the removal of the bridge's concrete deck and lead paint abatement. It would also require new girders on both sides of the bridge and the extension in both directions of the supporting pier bents, new columns, and new footings and foundation elements. The existing substructure would need to be rehabilitated to correct deterioration and existing bearings replaced.

This alternative would preserve the bridge, require minor amounts of land within the rail yard for the associated foundation improvements, and avoid the levee.

The rehabilitated bridge structure would only have a service life of 20 to 25 years. Although widening the existing structure improves lane widths, shoulders, and pedestrian/bicycle access, this alternative does not address the poor roadway geometry that has contributed to accidents. Widening both sides results in the narrowest cross-section and minimizes the effects to the railroad yard, but does not improve the clearances in the rail road yard. It is anticipated that CDOT would require load rating modifications since the structure capacity would still be less than required by current standards. Therefore, this alternative is not feasible and prudent.

2(a). Build a new 4-lane structure to the north/use existing structure for bikes and pedestrians only

This alternative involves the construction of a new bridge for vehicle use, and use of the existing bridge for pedestrians and bicyclists. The new structure would be wide enough for four lanes of traffic, a median barrier, and outside shoulders adequate for breakdowns on shoulders. The new bridge would be constructed on the north side of the existing bridge. The existing bridge is 68 feet wide, so it is more than adequate for a multi-use pedestrian and bicycle facility.

This alternative would preserve the bridge, require land for additional piers within the rail yard, require the use of two light towers, and require land for piers in the levee.

This alternative does not address the under-clearance issues related to the railroad operations. In addition, rehabilitation of the bridge would be required to provide the necessary capacity and preferred layout of the sidewalks and bike lanes. New railings would be required by the railroads to prevent foreign objects from entering the yard, and new expansion joints are recommended to alleviate leakage of runoff onto the deteriorated substructure. Substructure rehabilitation of the old

bridge would be needed to stop the progression of deterioration and for safety purposes.

Rehabilitating the old bridge and building the new bridge will not meet the purpose and need because it does not address the clearances in the rail yard. Therefore, this alternative is not feasible and prudent.

2(b) Rehabilitate the existing bridge for 2-lanes of traffic plus pedestrians (eastbound)/build a new 2-lane bridge (westbound)

This alternative involves the construction of one-way pairs, or a roadway couplet, for the bridge crossing. The existing bridge would be rehabilitated and modified to carry 2 lanes of vehicular traffic, pedestrians, and bicyclists. A new bridge would be constructed to the north of the existing one and carry two lanes of vehicular traffic. All pedestrians and bicyclists would be placed on the south side of the existing bridge, which would create a 20-foot wide multi-use facility. This facility would tie into the existing trail currently on the west side and the Fourth Street shoulder and loop ramp on the east side.

This alternative would preserve the bridge, require land for piers in the rail yard, use at least one of the light towers, and place piers in the levee.

This alternative only improves the alignment and profile for the westbound traffic. Although shoulder widths and pedestrian access would be improved, the horizontal clearance to the railway would be improved only at the new structure. The clearances in the rail yard with the existing bridge would not be improved and will not address the under-clearance issues related to the railroad operations. In addition, the existing bridge would require extensive rehabilitation and modifications that would necessitate load rating improvements and deck replacement. After rehabilitation, the service life of the bridge would only be 20 to 25 years. Therefore, this alternative is not feasible and prudent.

The following alternative minimizes harm to the Pueblo Rail Yard and the Arkansas River Levee:

3) New Bridge Spanning Rail Yard and Levee

This alternative involves the construction of a single span cable stay bridge that spans over the Arkansas River Levee and the rail yard. The bridge would be constructed to the width required and provide for all the clearances required by the Railroads. The bridge would have a center span length of 1100 feet and includes one or two support towers ranging from 250 feet to 350 feet tall. Extensive realignment of Fourth Street at each end would be required to allow for the counterbalancing of the support towers.

This alternative would replace the existing bridge, avoid the rail yard and avoid the levee.

The construction impacts of this alternative extend beyond the current study area and into the neighborhoods. Because of its span length and the extensive counterbalancing required for the towers the approaches will become more circuitous and making the approaches worse than they are today. Thus, it does not address the poor roadway geometry that has contributed to accidents. Additionally, it would also require heavy construction equipment in the rail yard to facilitate girder erection creating additional impacts and cause delays to the rail yard and mainline railroad operations. The cost is extraordinarily high because the impacted area extends well beyond the bridge for counter weight measures required for the supporting towers and this type of structure is a much more costly structure. The Zakim bridge in Boston is the closest type most recently built in the US with a main span of 745 feet and total length 1432 feet and a cost of \$105 million dollars compared to the proposed action which is estimated to be in the \$25 million dollar range. Therefore, this alternative is not feasible and prudent.

The following two alternatives minimize harm to the Arkansas River Levee.

4) Remove old bridge and build new bridge with the width required to the north with pier placements that avoid the levee (match existing spans with a moderate span layout)

This alternative involves replacing the historic bridge with new bridge approaches that are realigned slightly to the north along the original alignment of the 1924 Fourth Street Bridge to correct the current poor roadway geometry. In addition, this layout provides bridge spans that would not impact the Levee. The bridge could be constructed from Spliced Post-tensioned Bulb T girders, Spliced Post-tensioned U girders, Steel Plate girders, or Steel Box girders.

This alternative would replace the historic bridge, require land from the rail yard for piers, require the use of at least one light tower, and avoid the levee.

This alternative does not address the horizontal clearance problems within the rail yard. It would require the use of heavy construction equipment in the rail yard to facilitate girder erection that would create additional impacts and cause delays to the rail yard and mainline railroad operations. Therefore, this alternative is not feasible and prudent.

5) Reconstruct existing structure on same location

This alternative involves reconstructing the bridge to the required width on the existing alignment and new piers placed in their current location.

This alternative would replace the historic bridge, require land from the rail yard, avoid use of the light towers and avoid the levee.

This alternative does not address the horizontal clearance to the railroad tracks and does not address the poor roadway geometry that has contributed to accidents. This alternative would require heavy construction equipment in the railroad yard to facilitate girder erection, which would create additional impacts and cause delays to the rail yard and mainline railroad operations. Therefore, this alternative is not feasible and prudent.

The following two alternatives have a use of each of the three 4(f) resources.

6) Remove old bridge build new structure to the south of current location

This alternative removes the existing Fourth Street Bridge and constructs a new bridge south of the existing at the width required and with a design that provides for the horizontal and vertical clearances required by the railroads.

This alternative replaces the bridge, places piers in the rail yard, avoids the two light towers and places piers in the levee.

This alternative does not address the poor roadway geometry that has contributed to accidents. It will make the horizontal roadway geometry worse than existing conditions. Therefore, this alternative is not feasible and prudent.

7) Remove old bridge and build new bridge to the north, long span option (proposed action)

This alternative removes the existing Fourth Street Bridge and constructs a new bridge slightly north of the existing with the required width and with design that provides for acceptable horizontal and vertical clearances required by the railroads. The alignment of the bridge would be along the historic alignment of the previous Fourth Street Bridge. The placement of the piers allows for a bridge that is cast-in-place concrete built from above with form travelers progressing away from the piers in a balanced cantilever fashion. Therefore, the only activities in the rail yard would be the construction of the piers and pier tables. Delivery of materials could be from the existing rail yard access roads or the existing bridge.

The new pier locations would be in the space between the Union Pacific lines and the BNSF within the historic rail yard and where adequate clearance requirements can be achieved. This alternative would also require the use of two light towers within the rail yard.

Piers would be placed within the Arkansas River Levee near the location of the piers from the 1924 Arkansas River Bridge. The historic bridge would be demolished after the new bridge is built. This alternative is feasible and prudent.

The following measures were considered for the feasible and prudent alternative to ensure that all possible planning to minimize harm to the historic resources is included in the project.

Measures to Minimize Harm to the Pueblo Rail Yard

There are no prudent and feasible alternatives to the removal of the light towers or the placement of piers within the historic Pueblo Rail Yard. The following discussions represent efforts made for all possible planning to minimize harm. The following considerations were explored for the relocation and reuse of the light towers:

Relocation alternatives: Alternatives that preserve the light towers by relocating them in the Pueblo Rail Yard were investigated with the BNSF. Because of the layout of the rail yard, the height and structural size of the towers, the inefficiency of the old light fixtures mounted on the towers, and the problems in maintaining the lights, the BNSF determined that the two towers could not be relocated within the rail yard. They could not be positioned in the yard to provide proper illumination for yard operations, and maintaining the lights is difficult and dangerous. Maintenance requires climbing the steel ladder attached to the tower and servicing the lights from the tower platform. The work is dangerous, and recently, a worker was electrocuted while working on one of the light towers. The lights are not energy efficient and do not meet the state's current "Dark Skies" law, which requires light to be focused downward, rather than illuminating the sky. For these reasons, the BNSF will require replacement lights that will meet their operations and maintenance needs as well as the new state lighting requirements.

Reuse alternatives: Alternatives that reuse the towers by disassembling them and erecting them on a different location for functional and interpretive purposes is not considered practical. The towers are 124 feet tall and 50 feet wide at the base and moving them is not practical. They would not be suitable for parks, schools, or other public purposes, and would not be practical for industrial uses for the same reasons that they are no longer suitable to the BNSF Railway.

Disassembling the towers and providing them to the BNSF for use in the repair of the other ten towers is an alternative that has been raised with the BNSF. CDOT will make the disassembled tower parts available to the BNSF because they own the towers. BNSF could reuse the tower parts if they want. The ultimate destination of the towers will be determined in an agreement between CDOT and the railroads.

The SHPO was consulted on the impacts of the project. Because the light towers would be disassembled, the SHPO recommended the following mitigation measure:

The Pueblo Rail Yard light towers will be recorded prior to construction so that there will be a permanent record of their present appearance and history. Recordation shall consist of Level II documentation as determined in consultation with the SHPO and according to the standards established in Office of Archaeology and Historic Preservation Form #1595. All documentation will be accepted by the SHPO prior to the start of construction. Copies of the documentation also will be sent to a local archive designated by the SHPO.

Measures to Minimize Harm to the Fourth Street Bridge

In accordance with the Memorandum of Agreement, the Fourth Street Bridge will be recorded prior to construction so that there will be a permanent record of its present appearance and history. Recordation shall consist of Level II Documentation as determined in consultation with the Colorado State Historic Preservation Officer (SHPO) and according to the standards established in Office of Archaeology and Historic Preservation Form #1595. All documentation must be accepted by the SHPO prior to the start of construction. Copies of the documentation also will be sent to a local archive designated by SHPO.

Measures to Minimize Harm to the Arkansas River Levee

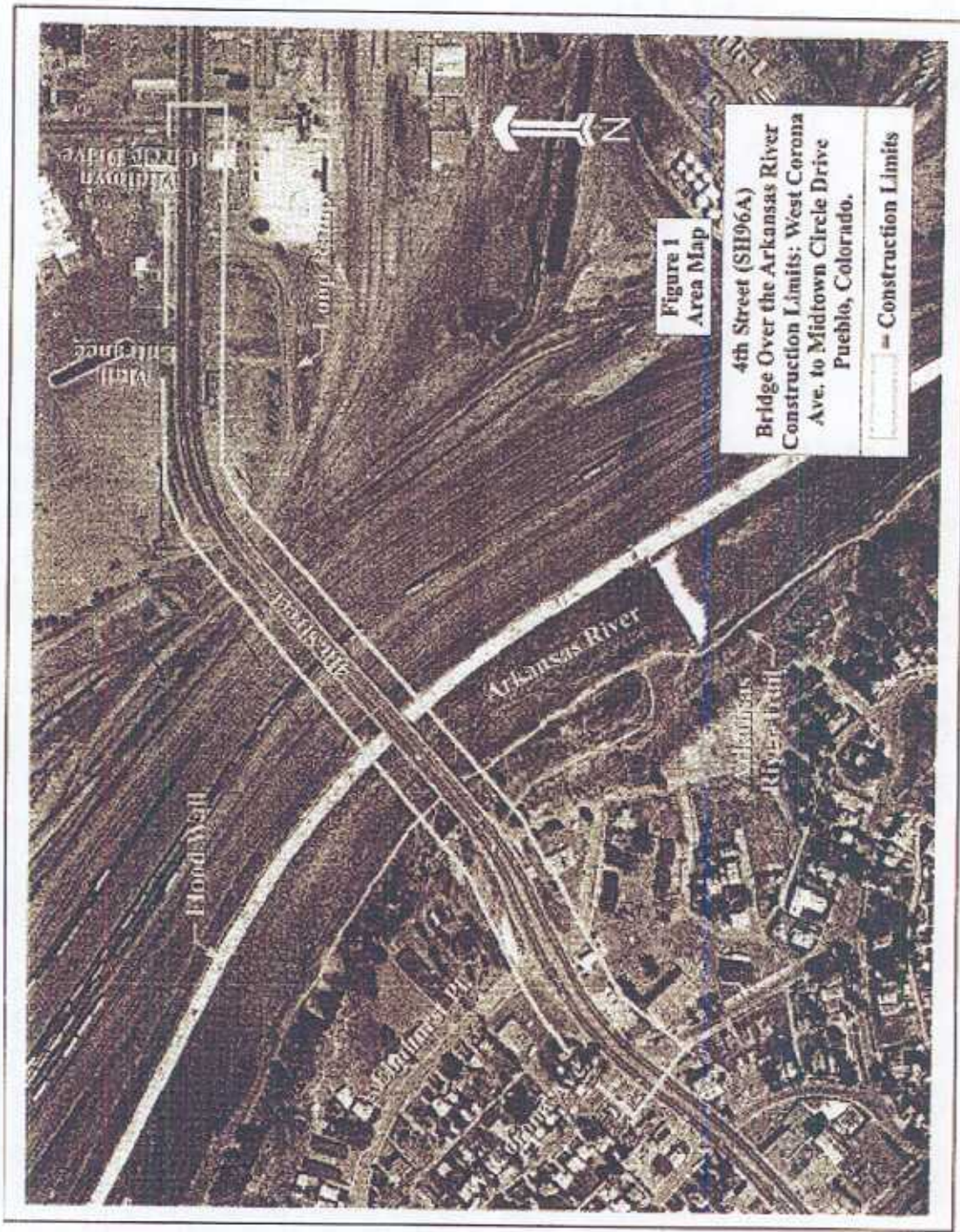
The pier locations in the levee are such that they will not interfere with the structural integrity of the levee and the concrete liner. They will be placed at a location low on the slope in the earth-side section of the levee. The earth-side slopes of the Arkansas River Levee will be restored to their original condition. Extensive construction activities are not planned on or near the slopes or concrete lining of the levee because its structural integrity could be compromised. The levee is a long linear historic resource and temporary construction impacts are only expected for a short portion of the resource. Temporary construction impacts from cranes and other construction vehicles will be avoided. The SHPO concurred with a *no adverse effect* determination on October 4, 2002. The South Eastern Water Conservancy District is the owner of the levee and has also concurred that the structural integrity of the levee will not be compromised.

G. Coordination

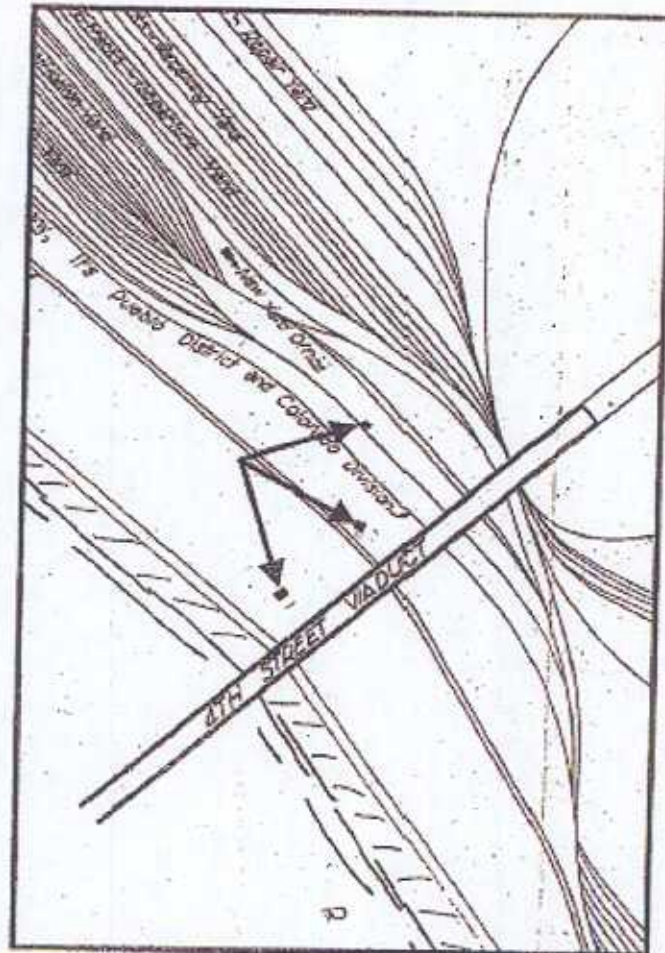
In consultation with the SHPO, The FHWA has determined that this project will have adverse effects on the Fourth Street Bridge and the Pueblo Rail Yard. FHWA and the SHPO agreed that this project will have *no adverse effect* to the Arkansas River Levee on October 4, 2002. The SHPO and FHWA have agreed through the Section 106 process of the National Historic Preservation Act on two separate Memoranda of Agreement, which were signed by all parties involved on February 11, 2003 (Fourth Street Bridge) and March 25, 2004 (Pueblo Rail Yard/Light Towers). Please see the attached MOAs. These agreements outline mitigation for these resources.

H. Determination

Based on the above considerations, there is no feasible and prudent alternative to the use of the Fourth Street Bridge, or the use of land from the Pueblo Rail Yard and the Arkansas River Levee and the proposed action includes all possible planning to minimize harm to the aforementioned properties resulting from such use.



Evaluation of Light Towers in the Pueblo Rail Yard (SPE4247)



Approximate locations of three light towers in the Pueblo Rail Yard, close to the existing 4th Street Bridge.

Figure 2 – The two towers parallel to the 4th Street Viaduct require removal.

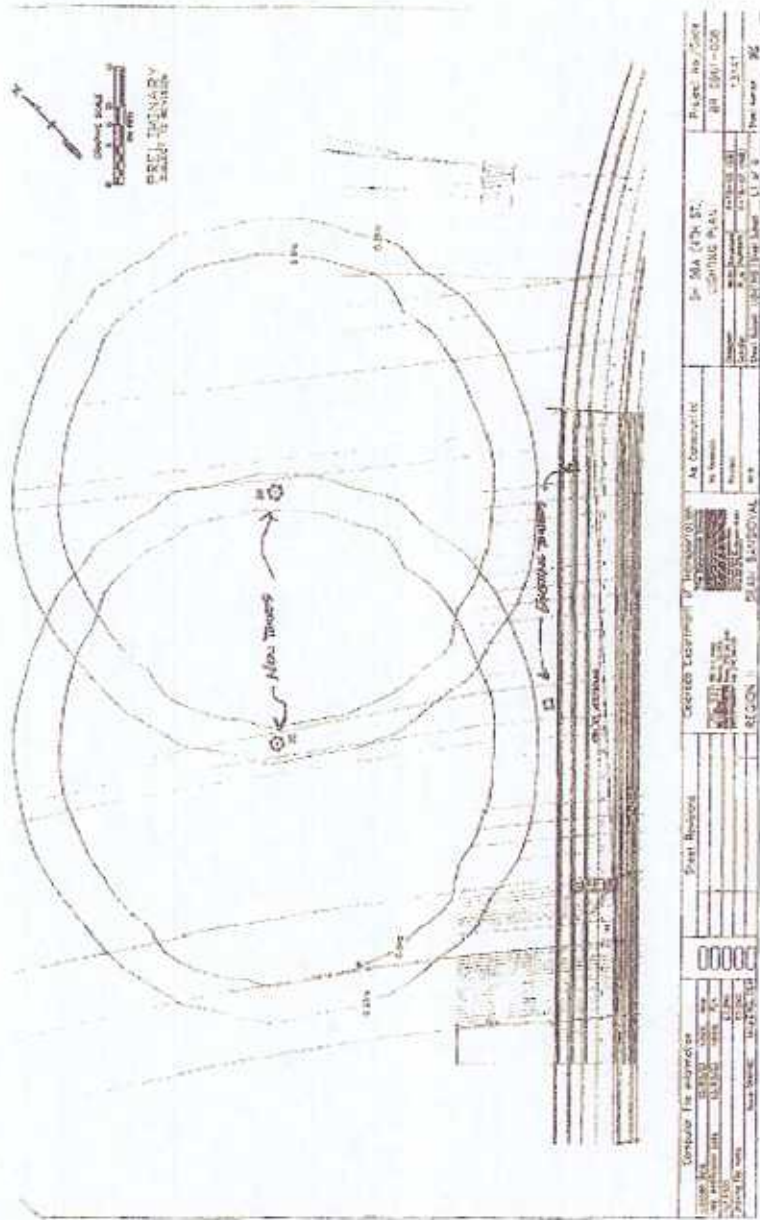


Figure 3 – Plan indicating placement of old light towers in relation to proposed new towers.



U.S. Department
Of Transportation
Federal Highway
Administration

Colorado Federal Aid Division
555 Zang Street, Room 250
Lakewood, CO 80228-1040

March 30, 2004

File: 13141

Mr. Don Klima
Advisory Council on Historic Preservation
12136 West Bayaud Avenue, Suite 330
Lakewood, CO 80226

SUBJECT: Memorandum of Agreement, Colorado Department of Transportation
Project BR 0961-008, Fourth Street Bridge Replacement, Pueblo, Colorado

Dear Mr. Klima:

Transmitted herewith is the fully executed Memorandum of Agreement (MOA) for the Colorado Department of Transportation (CDOT) project referenced above. The Federal Highway Administration (FHWA) and Colorado State Historic Preservation Officer (SHPO) have agreed that the proposed bridge replacement will have an Adverse Effect on two historic light towers associated with the Pueblo Rail Yard (5PE4247). CDOT is a participant in this agreement as an invited signatory.

In accordance with the process set forth in the Council regulations, Section 800.6(b)(1)(iv), mitigation measures and measures considered to avoid or minimize the undertaking's adverse effects have been agreed upon with the SHPO, and are outlined in the MOA. There have been no substantive revisions or additions to the documentation previously provided to the Council, nor additional views expressed by the public concerning this project.

If you have questions, please contact CDOT Acting Staff Historian Mr. Robert Autobee at (303) 757-9758.

Sincerely yours,

William C. Jones
Division Administrator

Enclosures (copy of MOA for ACHIP files)

cc: Thomas E. Norton, CDOT Executive Director
Attn: Robert Autobee, CDOT Environmental Programs (w/original MOA)
Bob Torres, CDOT Region 2 Director
Attn: Dick Annand, CDOT Region 2 Env. Manager (w/copy MOA)



**MEMORANDUM OF AGREEMENT
BETWEEN THE FEDERAL HIGHWAY ADMINISTRATION,
THE COLORADO DEPARTMENT OF TRANSPORTATION
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER**

**REGARDING THE REMOVAL OF TWO LIGHT TOWERS FROM THE PUEBLO
RAIL YARD (SPE4247) IMPACTED BY THE FOURTH STREET BRIDGE
REPLACEMENT (SPE3943)**

**COLORADO DEPARTMENT OF TRANSPORTATION PROJECT BR 0961-008,
PUEBLO COUNTY, COLORADO**

WHEREAS, the Federal Highway Administration (FHWA) has determined that the Project BR 0961-008 may have an adverse effect on two historic light towers associated with the Pueblo Rail Yard (SPE4247) in Pueblo County, Colorado, which is eligible for the National Register of Historic Places, and has consulted with the Colorado State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. Section 470f); and

WHEREAS, the FHWA has consulted with the Colorado Department of Transportation (CDOT) regarding the effects of the undertaking on historic properties and has invited them to sign this MOA as an invited signatory;

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

WHEREAS, the historic properties that will be affected by the Memorandum of Agreement are:

Two Light Towers in the Pueblo Rail Yard (SPE4247) Impacted by the Fourth Street Bridge Replacement (SPE3943):

In September 2003, CDOT determined that the project to replace Pueblo's Fourth Street Bridge would result in impacts to the Pueblo Rail Yard. A portion of the yard was inventoried as part of the Cultural Resources Inventory prepared for the Fourth Street Bridge project. The inventoried portion of the rail yard, extending 200 feet on either side of the Fourth Street Bridge, was evaluated as a contributing portion of the overall NRHP-eligible site. Two of the rail yard light towers within the inventoried section were determined by the Colorado State Historic Preservation Office to be contributing features of the yard. The two metal lattice towers support lights that illuminate the yard at night. There are total of 12 similarly designed towers with in the

rail yard. The Pueblo Rail Yard was determined eligible to the National Register of Historic Places under Criterion A as an integral and major element of Pueblo's rail yard facilities and for its contribution to Pueblo's status as a major rail transportation hub.

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

STIPULATIONS

The FHWA shall ensure that the following measures are carried out:

I. MITIGATION

The two light towers within the Pueblo Rail Yard will be recorded prior to demolition so that there will be a permanent record of its present appearance and history. Recordation shall consist of Level II documentation as determined in consultation with the SHPO, and established in OAHF Form #1595, Historical Resource Documentation: Standards for Level I, II, III Documentation. All documentation must be accepted by the SHPO prior to the start of construction. Copies of the documentation will be provided to the SHPO and to a local archive designated by the SHPO. This will include historic research and documentation. Archival quality photographs of the two towers within the Pueblo Rail Yard (5PE4247) will be taken and provided to the SHPO. The photos will be printed on archival processed paper and attached to archival mount cards. The negatives will be placed in archival sleeves.

A) ARCHIVAL DOCUMENTATION

CDOT shall ensure that the Pueblo Rail Yard (5PE4247) light towers are documented in accordance with the guidance for Level II documentation found in OAHF form #1595, Historical Resource Documentation: Standards for Level I, II, III Documentation. CDOT shall consult with the SHPO to determine appropriate Level II recordation measures.

- 1.) CDOT shall ensure that all documentation activities will be performed or directly supervised by architects, historians, photographers, and/or other professionals meeting the qualification standards in their field in the Secretary of Interior's Professional Qualifications Standards, (36 CFR 61, Appendix A).
- 2.) CDOT shall provide originals of all documents resulting from the documentation to the SHPO and to a local library or archive.

II. DURATION

This agreement will be null and voided if its terms are not carried out within (5) years from the date of its execution. Prior to such time, FHWA may consult with the other signatories to

reconsider the terms of the agreement and amend in accordance with Stipulation IV below.

III. MONITORING AND REPORTING

Each year following the execution of this agreement until it expires or is terminated, FHWA shall provide all parties to this agreement a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in FHWA's efforts to carry out the terms of this agreement. Failure to provide such summary report may be considered noncompliance with the terms of this MOA pursuant to Stipulation VI, below.

IV. DISPUTE RESOLUTION

Should any party to this agreement object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FHWA shall consult with the objecting party(ies) to resolve the objection. If FHWA determines, within 30 days, that such objection(s) cannot be resolved, FHWA will:

A. Forward all documentation relevant to the dispute to the Council in accordance with 36 CFR Section 800.2(b)(2). Upon receipt of adequate documentation, the Council shall review and advise FHWA on the resolution of the objection within 30 days. Any comment provided by the Council, and all comments from the parties to the MOA, will be taken into account by FHWA in reaching a final decision regarding the dispute.

B. If the Council does not provide comments regarding the dispute within 30 days after receipt of adequate documentation, FHWA may render a decision regarding the dispute. In reaching its decision, FHWA will take into account all comments regarding the dispute from the parties to the MOA.

C. FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged. FHWA will notify all parties of its decision in writing before implementing that portion of the Undertaking subject to dispute under this stipulation. FHWA's decision will be final.

V. AMENDMENTS AND NONCOMPLIANCE

If any signatory to this MOA, including any invited signatory, determines that its terms will not or cannot be carried out or that an amendment to its terms must be made, that party shall immediately consult with the other parties to develop an amendment to this MOA pursuant to 36 CFR §§800.6(c)(7) and 800.6(c)(8). The amendment will be effective on the date a copy signed by all of the original signatories is filed with the Council. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with Stipulation VI, below.

VI. TERMINATION

If an MOA is not amended following the consultation set out in Stipulation IV above, it may be terminated by any signatory or invited signatory. Within 30 days following termination, the FHWA shall notify the signatories if it will initiate consultation to execute an MOA with the signatories under 36 CFR §800.6(c)(1) or request the comments of the Council under 36 CFR §800.7(a) and proceed accordingly.

Execution of this Memorandum of Agreement by FHWA and Colorado SHPO and the submission of documentation and filing of this Memorandum of Agreement with the Council pursuant to 36 CFR Section 800.6(b)(1)(iv) prior to FHWA's approval of this undertaking, and implementation of its terms evidence that FHWA has taken into account the effects of this undertaking on historic properties and afforded the Council an opportunity to comment.

SIGNATORIES:

Federal Highway Administration

William Jones

Date 2/20/04
for William Jones, Colorado Division Administrator

Colorado State Historic Preservation Officer

Georgianna Contiguglia

Date 2/20/04
for Georgianna Contiguglia, SHPO

INVITED SIGNATORIES:

Colorado Department of Transportation

Tom Norton

Date 2/20/04
Tom Norton, Executive Director

COLORADO
HISTORICAL
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

10 October 2003

Dan Jepson
Acting Environmental Program Manager
Colorado Department of Transportation
Project Development Branch
4201 East Arkansas Ave.
Denver, CO 80222

RE: Determination of Eligibility and Effect, CDOT Project BR 0961-008/13141, SH 96A (4th St.)
Bridge over the Arkansas River, Pueblo, Pueblo County

Dear Mr. Jepson:

Thank you for your recent correspondence dated 18 September 2003, concerning the proposed replacement of three light towers to make room for Pueblo's new 4th Street Bridge. The three light towers are among twelve such towers that serve the Pueblo Rail Yard (5PE.4247). The towers contribute to the significance of the rail yard, as they are more than 50 years old and play an essential role in the operation of the yard. Because the towers are contributing structures, their removal constitutes an Adverse Effect on a historic resource. Our office recommends Level II Documentation for the to-be-demolished light towers. Please refer to the "Model MOA" enclosed with this letter.

If you have any questions, please feel free to contact Joseph Saldibar, Architectural Services Coordinator, at (303) 866-3741. We look forward to hearing from you.

Sincerely,

For: m. cub. [signature]
Georgianna Contiguglia
State Historic Preservation Officer, and
President, Colorado Historical Society

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION

303-866-3392 * Fax 303-866-2711 * E-mail: oahp@chs.state.co.us * Internet: www.coloradahistory-oahp.org

F

STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch
4201 East Arkansas Avenue
Denver, Colorado 80222
(303) 757-9258
FAX (303) 757-9445



September 18, 2003

Ms. Georgianna Contiguglia
State Historic Preservation Officer
Colorado Historical Society
1300 Broadway
Denver, CO 80203

RE: Determination of Eligibility and Effect, CDOT Project BR 0961-008/13141, SH 96A (4th St.) Bridge Over the Arkansas River, Pueblo County

Dear Ms. Contiguglia:

This letter report and the attached materials constitute the request for concurrence on Determinations of Eligibility and Effect for the project referenced above, which involves the replacement of the 4th Street Bridge (SPW115). The goals of the 4th Street Bridge Project are to improve safety for motorists, pedestrians, and bicyclists on the bridge, increase roadway capacity, provide a higher level of service, improve horizontal and vertical clearances in the rail yard, and increase load carrying capacity. We initially coordinated with your office in August 2002 regarding eligibility and effects for this project, but since that time an additional historic resource has been identified in the project area.

A portion of the Pueblo Rail Yard (SPE4247), inventoried during the initial survey conducted for the 4th Street Bridge project, was evaluated as eligible for the National Register of Historic Places (NRHP) under criterion (a) as an integral and major element of Pueblo's rail yard facilities and for its contribution to Pueblo's status as a major rail transportation hub. You concurred with this finding in correspondence dated October 4, 2002. The inventoried portion of the rail yard, extending 200 feet on either side of the 4th Street bridge, was evaluated as a contributing portion of the overall NRHP-eligible site. Recently, CDOT and the Federal Highway Administration (FHWA) determined that there will be impacts to two of the metal light towers located on the northwest side of the bridge in the railyard. These towers were not evaluated in the initial survey, and as such Entranco (a consulting firm) was contracted by CDOT to evaluate the contributory status of these features to the railyard (see attached map).

A total of 12 similar metal lattice light towers are located within the Pueblo Rail Yard. Besides the three towers situated in the inventoried portion of the rail yard, six similar light towers are clustered approximately ¼ - ½ mile northwest of the highway bridge, while an additional three lights are at distant locations on the opposite (southeast) side of the bridge. Each light tower is mounted on a square concrete base or foundation. Built of bolted angle iron, the towers are tapering 124-foot tall structures with a cross-braced framework. Each tower culminates in a wider "light cage" with horizontal metal elements serving as supports for numerous downcast lights. Metal ladders are affixed to each tower, permitting access to the lights at the top. Two of the towers near the bridge in the inventoried portion of the rail yard section are fitted with what appear to be lightning rods, while one light tower supports an orange windsock.

According to Burlington Northern Santa Fe Railroad (BNSF) Supervisor of Facilities Lew Bird, these towers were constructed in the early 1950s when the BNSF's predecessor, the Atchison, Topeka & Santa

Fo Railway (ATSF), completed a major reconstruction of the Pueblo Rail Yard. The configuration of the existing rail yard appears to be relatively unchanged since the early 1950s. According to a personal communication with Mr. Bird on April 28, 2003 and again on September 11, 2003, similar light towers were installed by ATSF at about the same time in a number of major urban rail yards, including those at Kansas City, Missouri; Emporia and Hutchinson, Kansas; Amarillo, Texas; Belen and Clovis, New Mexico and La Junta, Colorado.

CDOT and FHWA have determined that the light towers in the Pueblo Rail Yard contribute to qualities that make the entire rail yard site eligible to the NRHP. These towers are visually prominent, utilitarian structures that enable the safe assembly and disassembly of trains at all hours of the day. They are operationally important features that testify to the high volume and frequency of railroad traffic through Pueblo. These particular towers were built sometime in the early 1950s, which fits within the period of significance identified for the Pueblo Rail Yard: 1924-25, and 1951-1952. And finally, although many rail yards have lighting features or towers, the design of these towers is somewhat unique to a handful of rail yards in Midwestern and Western states.

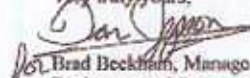
Effects Analysis

As part of this project two of the light towers to the northwest of the Fourth Street bridge will be removed and replaced to accommodate the new bridge structure. CDOT will complete this work in coordination with the railroad, and will pay for and construct the new light towers. CDOT and FHWA have determined that the removal of the two towers will result in *no adverse effect* to the qualities that make the Pueblo Rail Yard site eligible to the NRHP. The site will remain illuminated by both modern light fixtures and the ten remaining light towers. The continuation of lighting will convey the purpose and function of the towers that were removed, and the loss of only two (or 1/6) of the towers is not considered significant. The loss of these two towers and the replacement by modern light poles would not prevent a contemporary from recognizing the significance of the rail yard. Finally, the removal of the towers will not alter the historical associations that make the rail yard eligible to the NRHP under criterion (a).

CDOT and FHWA have also determined that the installation of the proposed replacement lighting will have *no adverse effect* on the eligibility of the Pueblo Rail Yard. It is likely that modifications to the rail yard have occurred numerous times in the past and the general historical character of the rail yard will not be altered by the installation of the replacement towers. Installation of the towers will also not affect the historical associations that make 5PE4247 eligible under NRHP criterion (a).

We hereby request your concurrence with these determinations of eligibility and effect. Your response is necessary for the Federal Highway Administration's compliance with Section 106 of the National Historic Preservation Act (as amended) and with the Advisory Council on Historic Preservation's regulations. If you require additional information, please contact CDOT Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,


Brad Beckham, Manager
Environmental Programs Branch

Enclosures

cc: Dick Annand/Judy DeHaven, CDOT Region 2
File/CF/RF