CONCEPTUAL EVALUATION AND REPORT
WEST COMMERCE STREET BRIDGE OVER UPRR

Prepared for:

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TRANSPORTATION & CAPITAL IMPROVEMENTS

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1. INTRODUCTION

1.1 BACKGROUND

The Commerce Street Bridge over the Union Pacific Railroad (UPRR) was originally completed in1959, and was constructed to provide access across the railroad tracks during times that the at grade roadways were blocked by rail traffic. The former International and Great Northern (I&GN) Railway station is situated immediately west of span number fifteen (15) and railroad tracks pass under spans number thirteen (13) and fourteen (14). The original construction plans indicate that four railroad tracks passed under the bridge. It is likely that this bridge and the Buena Vista Street bridge were constructed to provide access across the railroad tracks at all times for all vehicles but especially for emergency vehicles.

The bridge cross section originally included three vehicular travel lanes, a four foot six inch (4'-6") wide raised sidewalk on both sides and a combination concrete/metal rail barrier on the exterior edges. Wrap-around cast-in-place concrete retaining walls were utilized at the abutments to contain the embankment fill material. One way surface roadways were constructed parallel to and immediately adjacent to the bridge on both sides.

In addition to the I&GN railway station, brief research into the area reveals that the area around the bridge was utilized for light manufacturing and warehousing with a few of the structures from that time period remaining. Being near the train station, it is also likely that restaurants and lodging facilities existed in the area around the bridge.

There are some single family homes located at the southern end of the bridge that appear to have pre-dated the bridge construction. The city blocks south of the bridge appear to be predominantly residential with some ice houses, grocery stores and restaurants.

1.2 PURPOSE AND NEED

The City of San Antonio desires to attract new development to the area around the Commerce Street Bridge to complement some re-development that has already occurred. To complement any new development in the area, and also to spur further redevelopment, there is a need to examine the condition of pedestrian features in the area and on the Commerce Street Bridge. Pedestrian friendly areas often attract new restaurants, shops, vendors and other commercial/retail development.

This evaluation and report is intended to review the current pedestrian features of the Commerce Street Bridge, and provide potential methodologies for improving the pedestrian pathways on the bridge, or other methodologies for improving pedestrian access across the UPRR tracks.

1.3 REVIEW OF CURRENT ADJACENT DEVELOPMENT

The current Bexar County Jail complex exists immediately west of the middle of the bridge and encompasses approximately four city blocks. Immediately south of the jail complex are four new parking garages to provide parking for visitors and others who have business with the Bexar County Sheriff's office or at the jail itself.

Figure 1 - Bexar County Jail & Parking Garages

The former I&GN Railway Station has also been renovated and now serves as a component part of VIA Metropolitan Transit's new Westside Multi-Modal Transit Center. The main transit canopy is currently under construction on one city block bounded by Medina, Houston and Frio streets. Also, an older structure at the corner of Commerce and Medina streets is under renovation for what appears to be a hotel including restaurants at street level. This new development in the area appears to be restricted to areas west of the Commerce Street Bridge.

Figure 2 - I&GN Railway Station and Transit Terminal Canopy

1.4 OTHER ADJACENT PROPERTIES

The city blocks east of the bridge are vacant, occupied by old buildings being torn down or by bail bond company offices also located in older structures. The areas to the southeast of the bridge remain predominantly residential.

Only two active railroad tracks remain under the Commerce Street Bridge with significant linear properties both east and west of the bridge being vacant UPRR company property.

Most of the area underneath the Commerce Street Bridge is utilized for parking. Some appears to be free parking, but most is posted as being parking for the adjacent bail bond companies. The area under the bridge, north of the UPRR tracks is fenced parking for VIA Metropolitan Transit administrative vehicles.

Figure 3 - Bail Bond Company Buildings (East Side)

Figure 4 - Old Vacant Buildings (East Side)

Figure 5 - Vacant Land (East Side)

Figure 6 - Residential Properties (East Side)

2. EXISTING BRIDGE CONDITION DESCRIPTION

2.1 BRIDGE SIDEWALK

The existing sidewalks on both sides of the bridge are in fair condition with some minor spalls on both sides of the bridge. The clear width of each sidewalk is only 4'-6" wide, which is not considered adequate for two way traffic. This width is also uncomfortable for two persons walking abreast, especially since there is not a traffic barrier between the travel lanes and the sidewalk. Some of the sidewalk joints are wide enough to present hazards for some types of footwear.

2.2 BRIDGE RAILING

The combination railing on the exterior edges of the bridge deck are in fair condition. Many of the steel rail elements have been repaired and in general are rusty. The lower concrete portion of the rails are also in poor condition with spalling, cracking and missing pieces located throughout the length of the bridge and on both sides. The existing combination rail does not meet current traffic rail standards, nor does it meet current handrail standards.

2.3 BRIDGE ROADWAY SURFACE

The existing bridge roadway surface is not visible due to existing asphalt overlay. The underside or soffit of the bridge slab generally appears to be in good condition. The existing asphalt overlay is in good condition with only minor cracking and some minor spalls. There are definite transverse cracks in the overlay over every interior bent. The bridge deck drains are all inoperable and are filled with asphalt material.

2.4 BRIDGE JOINTS

The bridge was constructed as a simple span structure with expansion joints located at approximately every other bent. Construction joints were utilized at all other bents. The expansion joints appear to be the old plate type armor and no seals remain in place. The gaps at the expansion joints appear to have closed over time and all storm water released onto the interior bent caps via the expansion joints. Some of the construction joints have opened slightly over time and storm water also appears to be passing through the construction joints onto the interior bent caps below. We would rate both types of joints as being in fair condition.

2.5 BRIDGE BEAMS

The beams appear to be in satisfactory condition. The "As Built" drawings provided indicate that the beams are TxDOT Type C beams, and that they were post-tensioned. The beam ends have a thickened web at the beam ends, as was typical for the period when post-tensioning was utilized. Cast-in-place concrete diaphragms were utilized at the ends and center of every span. Quite a few of the beam ends are spalled, likely due to movement and contact with a longitudinally adjacent beam. Beam lengths include two at 56'-6", eleven at 60'-0", six at 67'-6" and one at 80'-0" over the UPRR tracks. No impact damage was observed even though the bridge crosses multiple cross streets.

2.6 BRIDGE INTERIOR BENTS

The interior bent caps of the bridge appear to be satisfactory condition with only minor spalling at the ends. Some of the columns have spalls likely caused by parked cars, and some vertical cracking can be seen. Some under bridge lighting has been mounted on the sides of the bent caps. Most of the caps, and many of the columns are stained due to storm water runoff through the deck joints.

2.7 BRIDGE ABUTMENTS

The exposed portions of the bridge abutments appear to be in satisfactory condition. The abutments also serve as a retaining wall as well as an abutment. There is some minor spalling and cracking visible.

2.8 RETAINING WALLS & APPROACHES

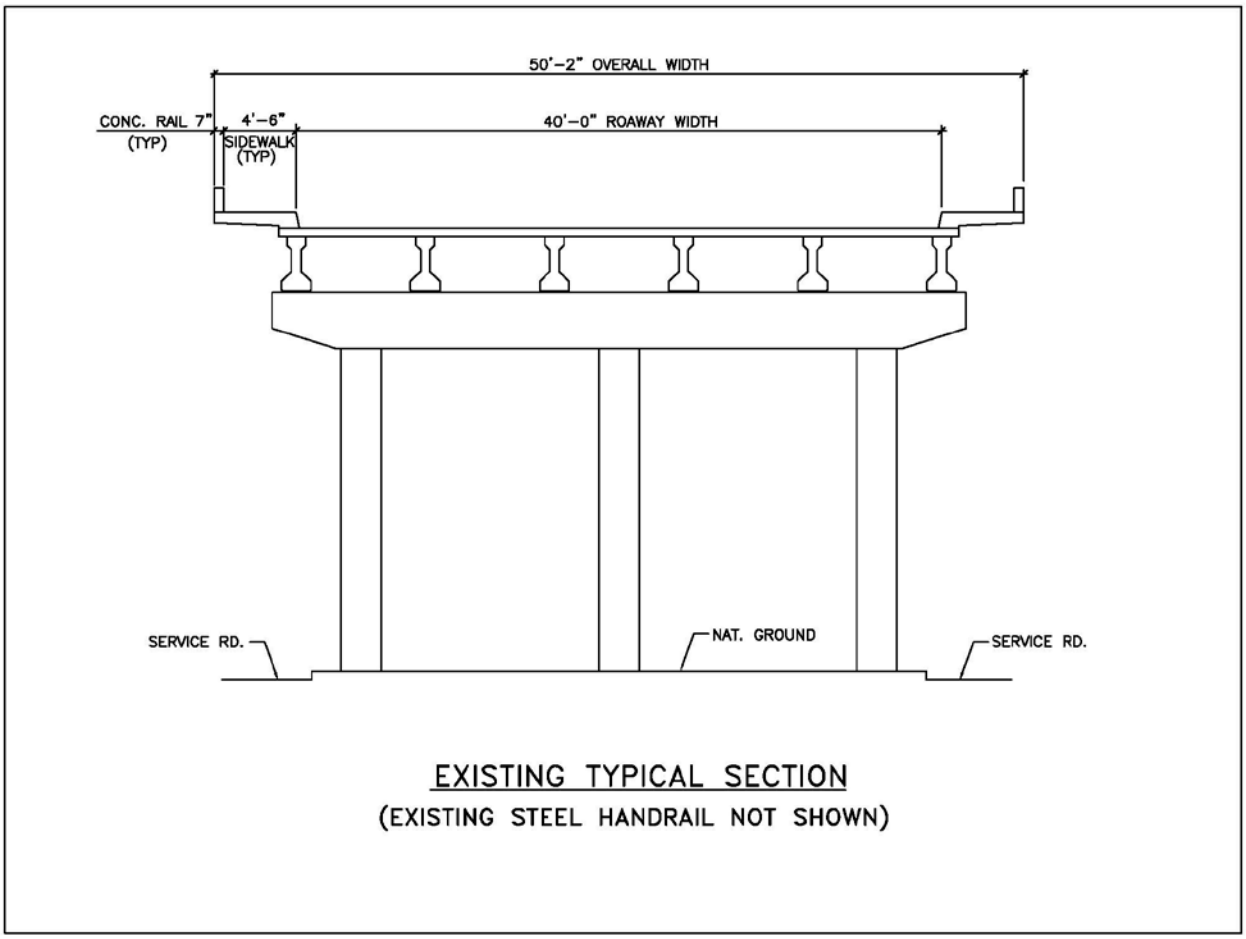
The retaining walls appear to be the cast-in-place cantilever style. There was some minor spalling and cracking visible, but the construction and expansion joints appeared to be in satisfactory condition. The sidewalks behind the retaining walls also appear to be in satisfactory condition, and the combination rail appears to be in a similar condition as that on the bridge.

There is some riprap between curbs on all four corners of the bridge which are supposed to be utilized as sidewalks. This riprap/sidewalk is in good condition, but does present hazards to handicapped pedestrians due to severe cross slopes and steep gradients.

3. IDENTIFICATION OF POTENTIAL PEDESTRIAN IMPROVEMENTS

The existing sidewalks on the bridge do not meet current Texas Accessibility Standards (TAS), and the railing can be considered functionally obsolete as well as not meeting current crash test standards. The current existing raised bridge sidewalks are only four feet six inches (4'-6") wide and do not include a barrier between the roadway lanes and the raised sidewalk (See Existing Typical Section). This width is not conducive for two persons to walk side by side, and is the bare minimum width for one way handicapped access.

As such we have developed four potential alternatives to improve pedestrian access on the bridge.



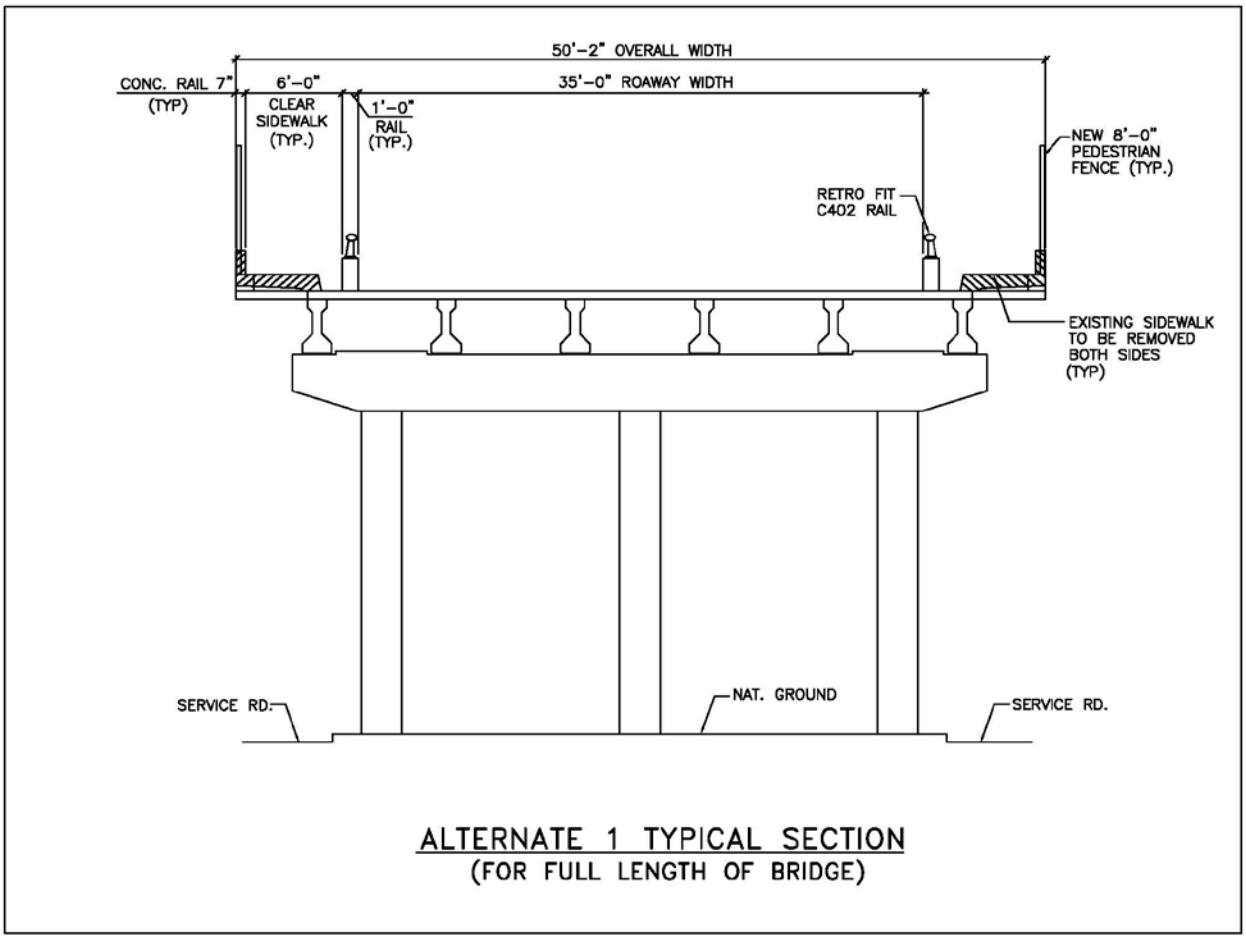
3.1 WIDEN BOTH SIDEWALKS (NO OVERALL BRIDGE WIDENING)

Likely the least expensive alternative for improving the pedestrian access on the bridge would be to remove the existing bridge overhang/sidewalk from both sides and re-constructing them back to the same overall bridge width, but at the same level as the current bridge slab. A current standard combination concrete/steel rail could be retrofitted on the bridge slab and a modern pedestrian fence could be installed on the exterior edge of the new bridge sidewalks (See Alternative 1).

It is anticipated that this alternative would have a construction cost between $ 1,500,000 and $ 2,000,000 at current 2015 construction cost averages. This range for opinion of probable cost is based on minimal information and zero design. Construction costs in the San Antonio region have been increasing at an approximate rate of between three and five percent per year over the last five year period, and is it recommended that similar cost escalations be considered and projected into the anticipated year for construction should this alternative be considered for implementation. This cost is only an opinion of potential construction cost and does not include the cost for design, environmental clearance, bridge repair costs, bridge painting at roadway level or under bridge, new lighting under bridge, Texas Accessibility Standards (TAS) review and approval, any other permitting activities that might be required, or any right-of-way acquisition.

The main benefit for this alternative is that it is likely the least expensive alternative. One other positive issue is the replacement of the bridge barriers to bring them up to current standards, and provide a positive barrier between the vehicular traffic and the pedestrians. Additional lighting could be added to the exterior edge of the bridge as well as under bridge areas that are currently used for parking.

It would be extremely difficult, if not impossible to provide an adequate design for this alternative, that would meet TAS requirements. Each end of the bridge profile was originally constructed at a seven percent (7 %) rise which would require ten feet long landings to be constructed at two hundred feet intervals along the sidewalk on the ends of the bridge. While this methodology can be accommodated in new construction it is extremely expensive to accommodate in retrofit construction. Also, this alternative would reduce the deck width available for the two travel lanes and one bike lane to 35 feet clear width.



ALTERNATE 1 TYPICAL SECTION
(FOR FULL LENGTH OF BRIDGE)

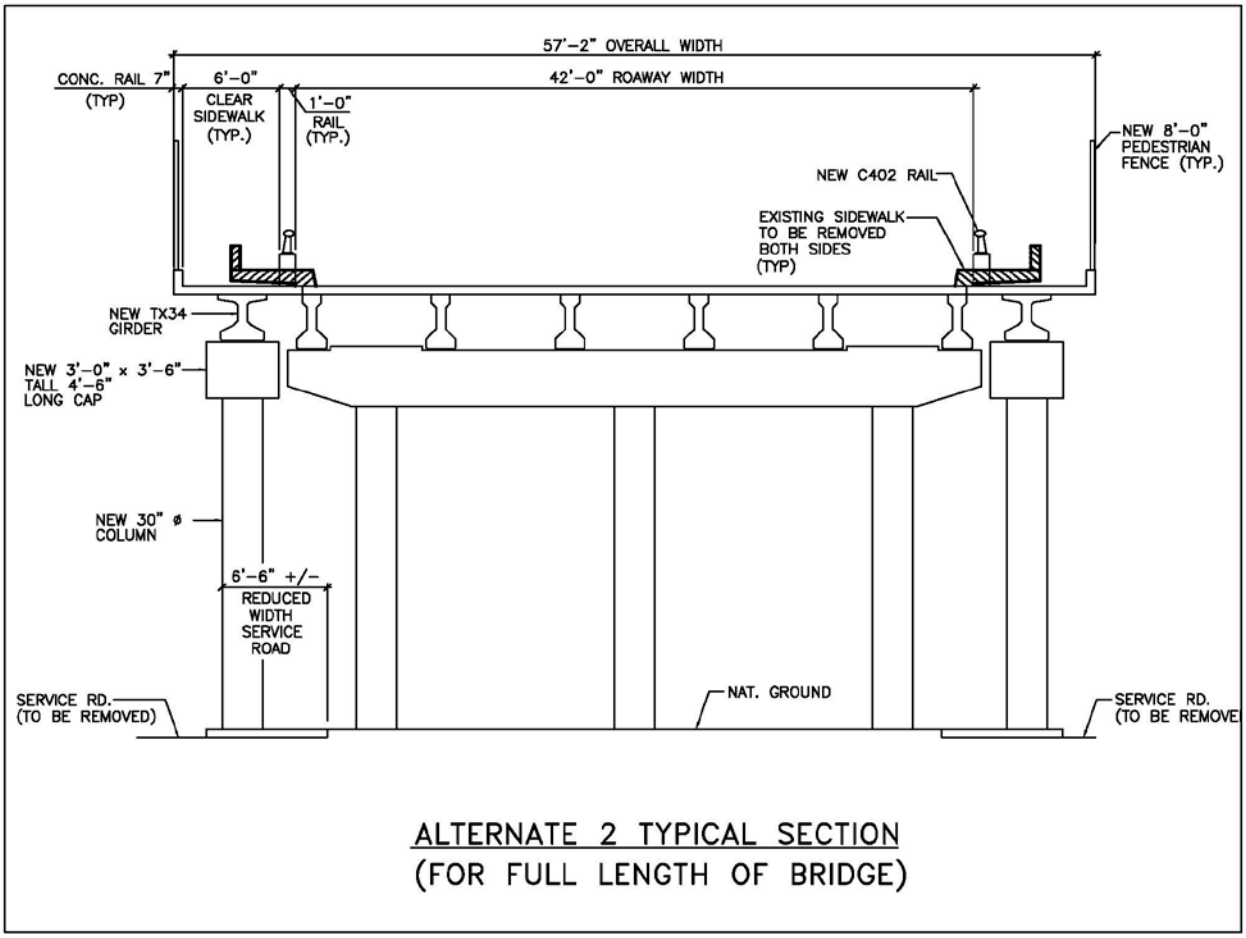
3.2 WIDEN BOTH SIDEWALKS (OVERALL BRIDGE WIDENING)

A second alternative for improving the pedestrian access on the bridge, without reducing the travel lane widths would be to remove the existing overhangs on both sides, construct new single column bents on both sides in line with the existing bents, add one new Tx34 Girder, and recast the slab connecting the widened section to the existing bridge. A current standard combination concrete/steel barrier could be cast into the new portion of the slab and a modern pedestrian fence could be installed on the exterior edge of the new bridge sidewalks (See Alternative 2).

It is anticipated that this alternative would have a construction cost between $ 3,750,000 and $ 4,250,000 at current 2015 construction cost averages. This range for opinion of probable cost is based on minimal information and zero design. Construction costs in the San Antonio region have been increasing at an approximate rate of between three and five percent per year over the last five year period, and it is recommended that similar cost escalations be considered and projected into the anticipated year for construction should this alternative be considered for implementation. This cost is only an opinion of potential construction cost and does not include the cost for design, geotechnical engineering, environmental clearance, bridge repair costs, bridge painting at roadway level or under bridge, new lighting under bridge, Texas Accessibility Standards (TAS) review and approval, any other permitting activities that might be required, or any right-of-way acquisition. The construction cost to adjust the at-grade service road on both sides of the bridge are also not included.

The main benefit of for this alternative is that it will replace the bridge sidewalks in their entirety with new 6 foot wide sidewalks, and it would replace the current bridge barrier with a combination rail between the travel lanes and the bridge sidewalk. The new combination traffic barrier would meet current standards and the new exterior pedestrian fence would do the same. The clear width of the travel lanes would be increased slightly with this alternative. Additional lighting could be added to the exterior edge of the bridge as well as under bridge areas that are currently used for parking.

It would be extremely difficult to provide an adequate design for this alternative, that would meet TAS requirements. Each end of the bridge profile was originally constructed at a seven percent (7 %) rise which would require ten feet long landings to be constructed at two hundred feet intervals along the sidewalk on the ends of the bridge since this alternative remains attached to the existing bridge. While this methodology can be accommodated in new construction it is extremely expensive to accommodate in retrofit construction. This alternative would also require that the at grade service roads parallel to the bridge be narrowed to accommodate the new columns/bent caps, while still providing adequate under bridge clearance.


57'-2" OVERALL WIDTH
CONC. RAIL 7" (TYP)
6'-0" CLEAR SIDEWALK (TYP.)
1'-0" RAIL (TYP.)
42'-0" ROAWAY WIDTH
NEW 8'-0" PEDESTRIAN FENCE (TYP.)
NEW C402 RAIL
EXISTING SIDEWALK TO BE REMOVED BOTH SIDES (TYP)
NEW TX34 GIRDER
NEW 3'-0" x 3'-6" TALL 4'-6" LONG CAP
NEW 30" ø COLUMN
6'-6" +/- REDUCED WIDTH SERVICE ROAD
SERVICE RD. (TO BE REMOVED)
NAT. GROUND
SERVICE RD. (TO BE REMOVE
ALTERNATE 2 TYPICAL SECTION
(FOR FULL LENGTH OF BRIDGE)

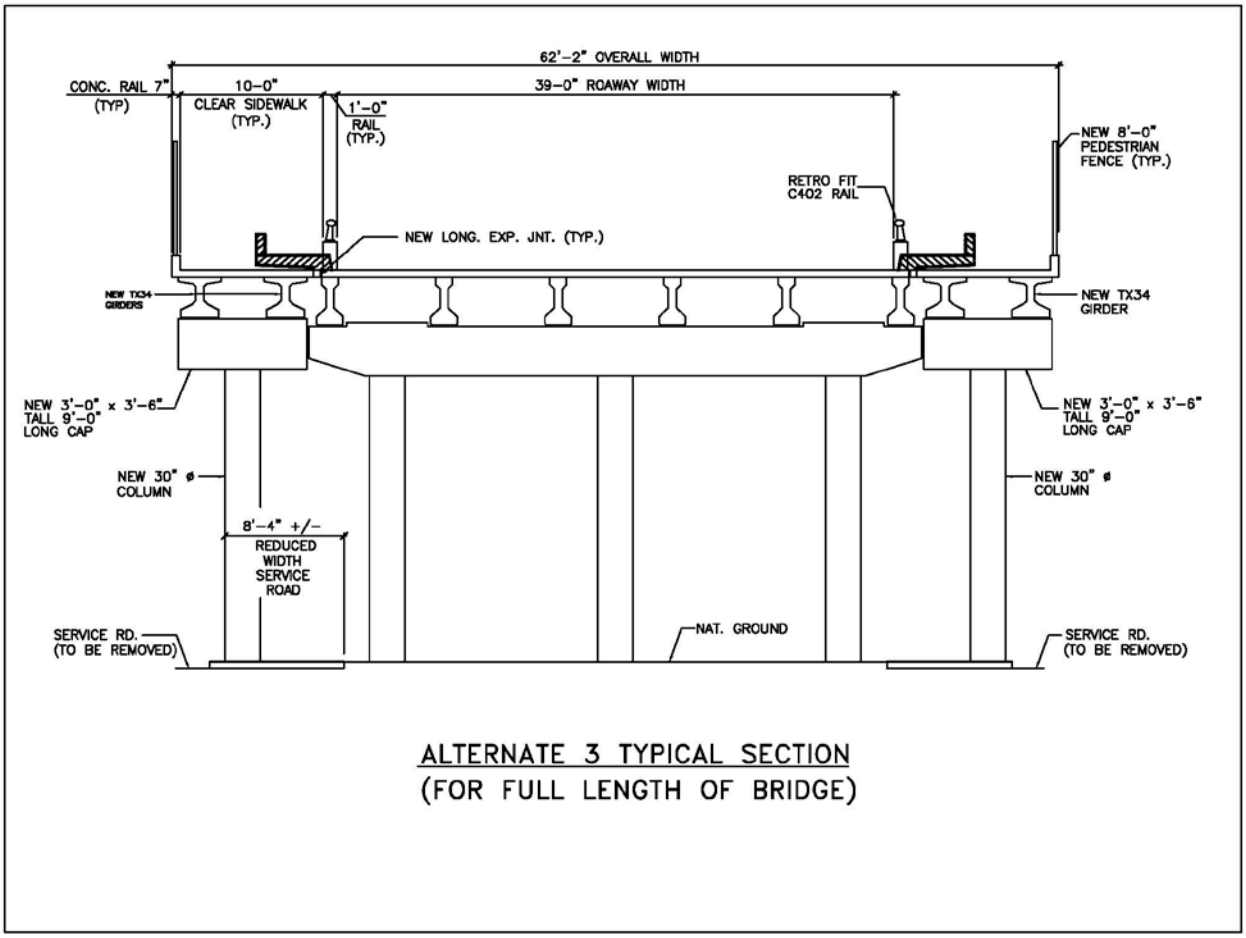
3.3 INDEPENDENT PEDESTRIAN BRIDGES (SAME LENGTH AS EXISTING BRIDGE)

A third alternative for improving the pedestrian access on the bridge, that would have a good chance of meeting current TAS standards, would be to remove the existing overhangs on both sides, and constructing new independent pedestrian bridges immediately adjacent to the existing bridge. New single column bents with two new Tx34 Girders would be required on each side, and depending on the gap between the old and new pedestrian bridges, two new pedestrian fences would be necessary. The old bridge could be retroftted with a C402 rail (See Alternative 3).

It is anticipated that this alternative would have a construction cost between $ 5,500,000 and $ 6,000,000 at current 2015 construction cost averages. This range for opinion of probable cost is based on minimal information and zero design. Construction costs in the San Antonio region have been increasing at an approximate rate of between three and five percent per year over the last five year period, and it is recommended that similar cost escalations be considered and projected into the anticipated year for construction should this alternative be considered for implementation. This cost is only an opinion of potential construction cost and does not include the cost for design, geotechnical engineering, environmental clearance, bridge repair costs, bridge painting at roadway level or under bridge, new lighting under bridge, Texas Accessibility Standards (TAS) review and approval, any other permitting activities that might be required, or any right-of-way acquisition. The construction cost to adjust the at-grade service road on both sides of the bridge are also not included. This opinion of probable cost does include new retaining walls required at the bridge approaches.

The main benefit of for this alternative is that it will replace the bridge sidewalks in their entirety with new 6 foot wide sidewalks, and it would replace the current bridge barrier with a combination rail between the travel lanes and the bridge sidewalk. The new combination traffic barrier would meet current standards and the new exterior pedestrian fence would do the same. The clear width of the travel lanes would be decreased slightly with this alternative. Additional lighting could be added to the exterior edge of the bridge as well as under bridge areas that are currently used for parking.

This alternative creates some opportunities for the new independent pedestrian bridge to meet TAS requirements, since the pedestrian bridge is independent of the existing bridge. While it is more expensive per square foot than standard bridge sidewalk construction, the TAS requirements can be met with regard to maximum profile gradient, constructing new landings at appropriate intervals, and etc. This alternative would also require that the at grade service roads parallel to the bridge be narrowed to accommodate the new columns/bent caps, while still providing adequate under bridge clearance.



ALTERNATE 3 TYPICAL SECTION
(FOR FULL LENGTH OF BRIDGE)

3.4 INDEPENDENT PEDESTRIAN BRIDGE (OVER UPRR ONLY) (DON'T REMOVE (EXISTING OVERHANG, BUT CONSTRUCT NEW BRIDGE ON NEW R.O.W. - TAS) (COMPLIANT RAMPS ON BOTH ENDS OF THE INDEPENDENT BRIDGE)

A fourth alternative for improving pedestrian access across the UPRR tracks, that could definitely be designed to meet current TAS standards would be to construct new completely independent pedestrian bridges outside of the current Commerce Street right-of-way limits, parallel to the existing bridge, but only as needed to cross the UPRR property. Each independent bridge would require the construction of TAS compliant and commonly utilized up/down ramps at each end, again on new right-of-way. The existing bridge would not be altered in any way except for any rehabilitation work deemed needed (See Alternative 4).

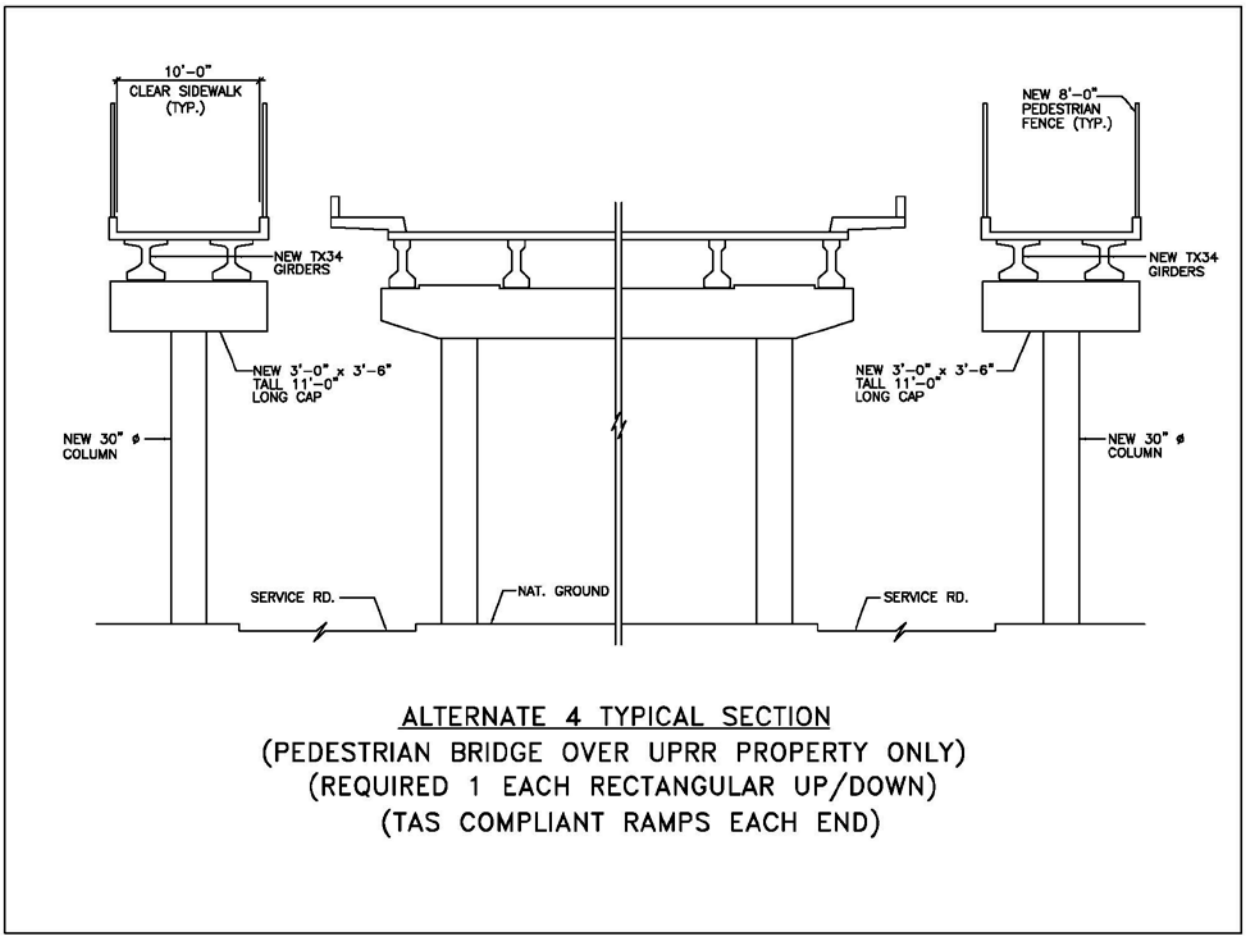
It is anticipated that this alternative would have a construction cost between $ 4,000,000 and $ 5,000,000 at current 2015 construction cost averages. This range for opinion of probable cost is based on minimal information and zero design. Construction costs in the San Antonio region have been increasing at an approximate rate of between three and five percent per year over the last five year period, and it is recommended that similar cost escalations be considered and projected into the anticipated year for construction should this alternative be considered for implementation. This cost is only an opinion of potential construction cost and does not include the cost for design, geotechnical engineering, environmental clearance, bridge repair costs, bridge painting at roadway level or under bridge, new lighting under bridge, Texas Accessibility Standards (TAS) review and approval, any other permitting activities that might be required, or any right-of-way acquisition.

The main benefit of this alternative is that the independent bridges, ramps and pedestrian fences would be up to current standards and completely TAS compliant. Being brand new and independent of the existing Commerce Street Bridge also means that these bridge should have a life span of approximately 30 to 50 years. Another benefit for this alternative is that pedestrians on at-grade sidewalks will not need to walk to the end of the Commerce Street Bridge, across the entire bridge and then back to the area along the bridge where they wanted to be, should a train be blocking the at-grade crossings.

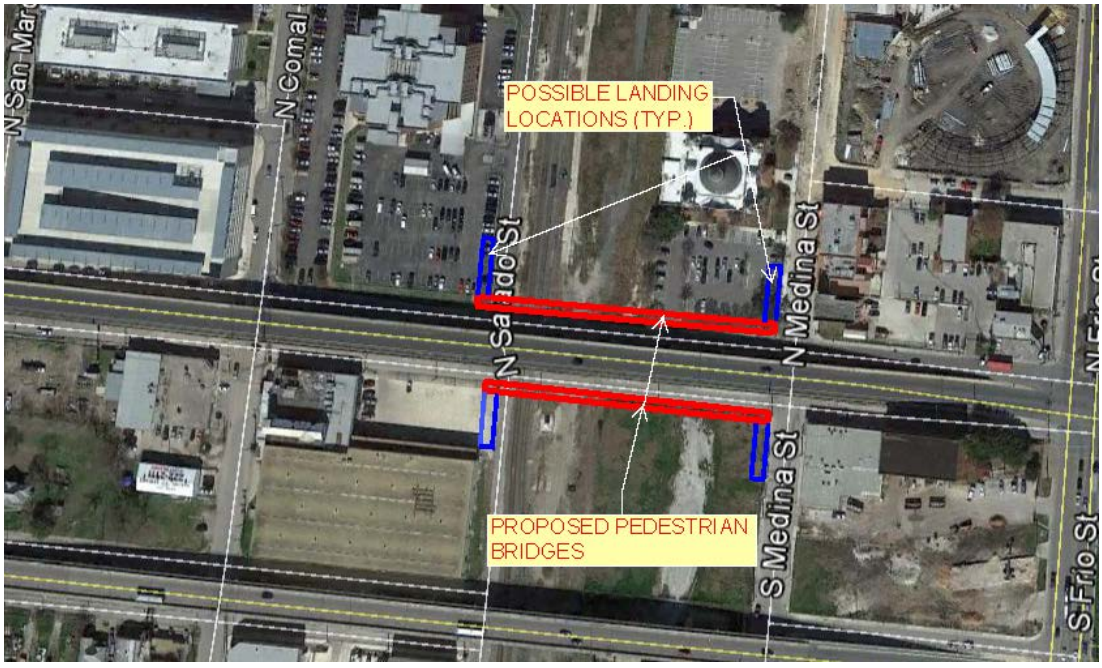
The current lanes and widths of the existing bridge will not be affected, and the current at-grade service roads parallel to the bridge would not be affected either. The ramps on each end could be constructed generally parallel to the existing bridge or could be constructed perpendicular to the new independent pedestrian bridge, possibly lessening the affects of purchasing additional right-of-way.

One other potential benefit for this alternative is that the independent pedestrian bridge with up/down ramps could be constructed in phases. The west side structure could be constructed now, for about 1/2 of the current anticipated construction cost, with the second structure on the east side constructed at a later date, once pedestrian traffic would warrant the increased capacity.

The major downside for this alternative is the need to purchase additional right-of-way, and the increased cost for environmental clearance activities when new right-of-way is to be purchased. It is not known how UPRR would consider the benefits of this alternative, and it is unknown if UPRR would consider selling some of their unused real estate in the area.



ALTERNATE 4 TYPICAL SECTION
(PEDESTRIAN BRIDGE OVER UPRR PROPERTY ONLY)
(REQUIRED 1 EACH RECTANGULAR UP/DOWN)
(TAS COMPLIANT RAMPS EACH END)



PLAN VIEW FOR ALTERNATIVE 4 BRIDGE/LANDING LOCATIONS.

4. OTHER POSSIBLE PEDESTRIAN ENHANCEMENT CONSIDERATIONS

4.1 PEDESTRIAN/VENDOR PLAZA UNDER EXISTING BRIDGE

As previously mentioned within this report, the areas under the existing Commerce Street bridge are being utilized for haphazard parking lots by bail bond companies and others. These parking lots are unimproved areas with standing water and contain no pedestrian friendly features whatsoever. While this land is clearly within the right-of-way for the existing Commerce Street Bridge, and while users may be paying some rental fees to the City of San Antonio, continued use of the property for parking does not promote pedestrian traffic or associated redevelopment of adjacent parcels.

As envisioned in Councilwoman Gonzales West Commerce Economic Corridor project, the area under the Commerce Street bridge, except the UPRR property could be reconstructed with curb and gutters, pervious pavers, easily delineated pedestrian pathways, and complete accessible curb/sidewalk ramps at the various cross streets. It is possible that once the area is reclaimed, street vendors may desire to operate under the bridge, and they could be licensed and regulated in the same manner as for other city owned venues. Even with the current mix of pedestrian traffic, food and beverage vendors may have enough sales to make this option viable.

If this pedestrian enhancement is implemented, we would recommend that the existing bridge drains be cleaned and a collection gutter system be installed to be able to collect any storm water run-off and put it directly into the storm drainage system under the existing parallel service roads. We would also recommend that all bridge joints be cleaned and sealed to prevent storm water penetration. With the bridge drainage functioning as planned the bridge columns and interior bent caps can be water blasted and re-painted for additional color and regional identification.

4.2 ENHANCED LIGHTING UNDER THE BRIDGE

To complement the improvement of a pedestrian mall under the bridge, additional area lighting and accent lighting could be installed under the existing bridge to light up the area during cloudy days and also into the evening hours. Increased area lighting could easily be supported by the bridge columns and interior bent caps. Accent lighting such as is currently installed under bridges of IH 37 across town could also be installed to add color to the pedestrian mall.

4.3 OTHER AT GRADE PEDESTRIAN ENHANCEMENT CONSIDERATIONS

For the most part, as properties on the west side of the Commerce Street bridge have been renovated or new development has been constructed, pedestrian features such as sidewalks, curb cuts, ramps and etc. have also been reconstructed to TAS compliant conditions. However, there are entire city blocks on the east side of the Commerce Street bridge and some blocks at each end of the west side of the bridge where sidewalks have been neglected, curb cuts do not exist, and ramps into existing structures are not TAS compliant. There is also a VIA stop at the southwest corner of the existing bridge for which the approaches are questionable at best. The stop and shelter are TAS compliant but concrete up to the area around the stop have some steep gradients.

To complement a possible pedestrian mall and other adjacent development, the City of San Antonio may be able to secure funding for replacement of old sidewalks and other pedestrian features throughout the length of the existing bridge, and possibly beyond.

Currently there are no sidewalks that cross the UPRR property, so currently pedestrians are required to walk on the pavement of the parallel service roads. It is unknown if UPRR would entertain the construction of sidewalks north-south across their property, but they could be contacted and this issue put on the table. Currently there are no features in place to prevent pedestrians from crossing the two remaining tracks, so a TAS compliant sidewalk on the sides of the service roads would at least keep some of the pedestrian traffic out of the at-grade travel lanes.

4.4 ENHANCED ROADWAY LIGHTING ALONG THE BRIDGE

Also, as a complementary effort to any improvements, new and energy efficient roadway light fixtures could be retrofitted onto the existing bridge. In addition to being much more energy efficient, these new style light fixtures would also provide greater lighting for the bridge roadway and existing bridge sidewalks.

5. RECOMMENDED REPAIR IDENTIFICATION

5.1 BRIDGE SIDEWALKS / OVERHANGS

There are multiple locations where the bridge overhang has been spalled and reinforcing steel is exposed. Recommend these areas be sand blasted to remove rust and laitance and then repaired with suitable non-sag repair mortar.

Figure 7 - Spalling at Edge of Overhang

Figure 8 - Spalling on Soffit of Overhang

5.2 BRIDGE RAIL

There are many places where the concrete bridge rail is spalled and rebar is visible. The pipe rail has also been repaired over time, and most of the repairs were not performed with galvanized steel. We recommend the spalled concrete areas be sand blasted to remove rust and laitance and then repaired with suitable non-sag repair mortar. The rusty rail posts and other elements should be sand blasted to remove rust and then re-painted with a silver paint designed for use on metal surfaces.

Figure 9 - Broken Concrete Rail Post

Figure 10 - Spalled Concrete Rail

Figure 11 - Steel Rail Post Replaced

F igure 12 - Steel Rail Elements Rusty

5.3 BRIDGE ROADWAY SURFACE

Owing to the bridge deck overlay, the actual surface of the concrete bridge slab could not be observed. However, overall the overlay surface appears to be in good shape. No repairs are recommended at this time.

Figure 13 - ACP Overlay Looking West

Figure 14 - ACP Overlay Looking East

5.4 BRIDGE JOINTS

Open expansion joints are generally clean but the construction joints exhibit piled overlay due to continued movement. All joints are open with no seals and because the bridge drains are clogged, most of the storm water drainage goes through these open joints. For expansion joints it is recommended that the armor plates be blast cleaned, a new backer rod be squeezed and inserted into the open joint and the joint be sealed by a non-sag silicone joint sealant. The same process can be utilized for any open joints in the sidewalk, whether expansion or not. For the construction joints, we recommend they be routed clean of debris and sealed with a non-sag silicone sealant.

Figure 15 - Typical Slab Expansion Joint

Figure 16 - Typical Slab Const. Joint

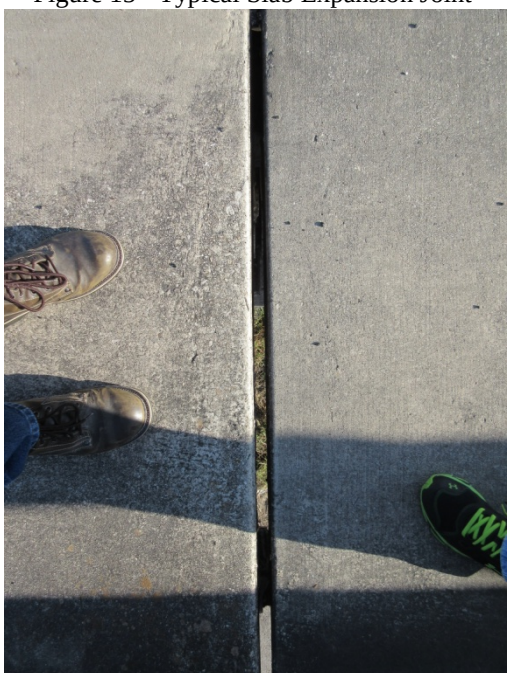


Figure 17 - Typical Sidewalk Exp. Joint

Figure 18 - Exp. Joint Full of ACP

5.5 BRIDGE BEAMS

In general the bridge beams are in relatively good condition considering their age. There are multiple ends of beams that have spalled off over the years and reinforcing bars are exposed. For the beams with spalled ends, we recommended thorough blast cleaning of the spalled area and then patch the beam end with an TxDOT approved epoxy repair mortar.

Figure 19 - Beam Bottom Flange Spalled

Figure 20 - Beams Bottom Flange Spall Both Beams

Figure 21 - Beam End Spalled

Figure 22 - Beam Ends Spalled Both Beams

5.6 BRIDGE LIGHTING

The bridge lighting was not checked during evening hours so we can not speak to the actual operations of the bridge luminaires, however in general the light poles, mast arms, and luminaires appear to be in fair condition. There is at least one rail junction box that the cover has been removed from. We recommend replacement of the junction box cover to prevent water intrusion into the electrical conduits.

Figure 23 - Electrical Junction Box Cover Missing

Figure 24 - Bridge Light Poles

5.7 BRIDGE SUBSTRUTURE

Several areas of the interior bent caps soffits were spalled. We recommend cleaning and repair with a non-sag repair mortar.

Figure 25 - Spalling on Soffit of Bent Cap

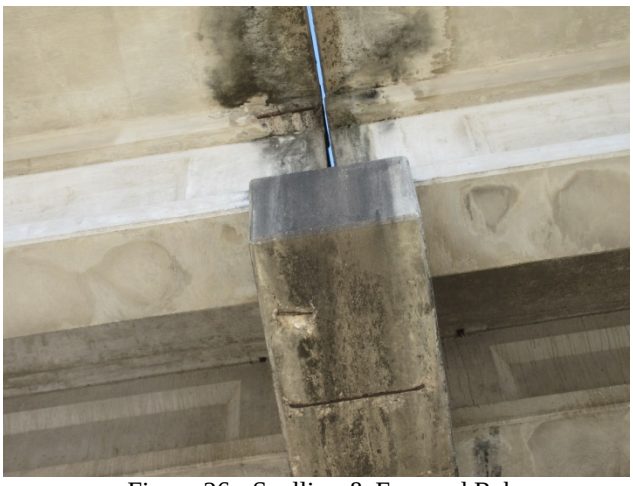


Figure 26 - Spalling & Exposed Rebar

5.8 MISCELLANEOUS BRIDGE COMPONENTS

As previously mentioned the bridge drains appeared to be clogged and inoperable. We recommend these bridge drains be cleaned and that down-spouts be installed to channel the stormwater runoff to areas adjacent to existing storm drain inlets. If other changes are made to the bridge structure itself, other than routine maintenance the bridge approach sidewalks will need to be re-built for TAS compliance.

Figure 27 - Bridge Deck Drain Clogged with ACP

Figure 28 - Bridge Deck Drain Plugged with Trash & ACP

Figure 29 - North End Approach Sidewalk

Figure 30 - North End Approach Sidewalk

None of the previously noted repairs are to be considered critical, but it is recommended that a rehabilitation plan be developed and repairs be implemented as time and funding allows. As described in Section 4.0 repairs to the substructure, sealing of the bridge joints, and cleaning the deck drains and collection of storm water runoff would be high priorities should the under bridge pedestrian/vendor mall concept be implemented.

6. NEXT STEPS

Owing to the distances involved required for pedestrians under the bridge or in nearby areas to walk to the end of the Commerce Street bridge, cross the UPRR tracks via traversing the entire bridge and then walking to the next area of interest, we believe that Alternative 4 provides the best use of taxpayers dollars. This alternative also ensures that current codes and standards would be adhered to, relative to pedestrian facilities, and would not require major alterations to the existing Commerce Street Bridge.

Alternative 4 provides a focused approach for pedestrian access across the UPRR property, when trains are blocking the at grade access, and could complement the redevelopment of the entire region through the use of decorative pedestrian fencing, signage, lighting, locations for informative banners. This alternative also specifically addresses the needs for pedestrians to cross the UPRR active tracks, for development of a pedestrian/vendor mall under the bridge.

This alternative could also be easily integrated into the surrounding redevelopment efforts for the West Commerce Street Economic Corridor project.