

TO: James L. App, City Manager
FROM: Joseph M. Deakin, Public Works Director
SUBJECT: 4th Street Underpass Alternative Alignments
DATE: April 15, 2003

NEEDS: For the City Council to consider a recommendation from the Streets and Utilities Committee regarding the re-configuration of the 4th Street Underpass.

FACTS:

1. The 4th Street Underpass at the Union Railroad tracks was constructed in 1926. It is 15 feet wide and provides a vertical clearance of 10'-8." These dimensions accommodate only one passenger car or small truck at a time.
2. The underpass is located at the southerly end of both Pine Street and Riverside Avenue, providing access to the southbound on and southbound off "hook ramps" at Highway 101.
3. Estimated Average Daily Traffic Volume at the underpass is 1,220 trips.
4. City Council adopted a General Plan Circulation Element in October 2000 which identifies the need to improve the 4th Street Underpass to:
 - achieve additional on/off ramp access to Highway 101
 - improve traffic flow into the Downtown Business District
5. On March 19, 2002, the City Council directed staff to engage the services of URS Corporation to prepare options to re-configure the underpass. The Council also approved a \$120,000 appropriation from Measure D Funds to support the Project.
6. This item was continued from March 18, 2003. The City Council directed staff to meet with Pat Conley who presented another alternative for consideration at the March 18th meeting. In addition, staff received another comment asking the City to consider abandoning the subway and eliminating the connection between Pine Street and Riverside Avenue, and eliminating the on-ramp southbound freeway access from Pine Street.

**ANALYSIS
AND**

CONCLUSION: URS Corporation developed three (3) alternative alignments to re-configure the 4th Street Underpass. These alternatives were presented to the Streets and Utilities Committee on February 28, 2003. Attached is the Detailed Technical Memorandum and Analysis submitted to the Committee. The Committee concluded that Alternative No. 2 should be adopted as the official "plan line" for the 4th Street Underpass.

Conley Proposal

At the March 18th meeting, Pat Conley spoke from the podium and requested that the City Council consider another alternate design for the 4th Street Underpass (see attached). URS Corporation has submitted the attached memo with regards to Mr. Conley's proposal. In summary, Mr. Conley's proposal is to:

- Delete the on-ramp to Highway 101 at Spring Street
- Delete the off-ramp at 4th Street/Riverside Avenue
- Widen the 4th Street underpass to accommodate larger volume of traffic

Mr. Conley has also included a cost estimate of approximately \$5 million dollars for the alternative. This estimate does not include cost for right-of-way acquisition. Further, it appears that the design would require more property to be required at the southwest corner of 4th and Pine Streets than needed for Alternative 2 of URS' proposal.

Deletion of Underpass

URS has prepared the attached detailed analysis addressing the need to improve the underpass. The following highlights summarize their conclusions:

The City recently completed the Downtown Parking and Circulation Analysis and Action Plan, Kimley –Horn Associates, September 2002. Improving 4th Street and the 4th Street undercrossing at the UPRR is key to circulation system modifications recommended in the action plan.

The plan identifies ways to divert through traffic from the downtown in order to eliminate the need to widen Spring Street and 13th Street to 4 lanes. The action plan addresses short, medium, and long-range modifications to respond to increases in traffic without widening Spring Street or otherwise negatively impacting the Downtown. The short-term modifications include changing Spring Street lane configurations to channel a lane of traffic east on 4th Street and north on Pine Street when development occurs at the NE and SE corners of 4th and Spring Streets. The mid-term modifications include closing 13th Street between Railroad and Park Streets and installing directional controls designed to channel traffic to Riverside and Creston Roads (to be first test for negative impacts). The long-term modifications include measures to direct Spring Street traffic east to the Riverside Avenue corridor, based on a new rail underpass or overpass being constructed at 4th Street and Pine/Riverside.

There are three ramps connecting the central portion of Paso Robles to or from southbound Highway 101: one is an exit ramp only at 16th Street to the north of the underpass, the second is at Spring Street to the south and west of the existing underpass, and the third is at Pine St.-Riverside Ave. ramps located just east of the 4th Street undercrossing. The undercrossing connects the southern portion of Downtown with southbound Highway 101. Approximately 1,800 vehicles per day (VPD) currently use the 4th Street undercrossing. Growth in the surrounding area will increase traffic at the freeway connections, including at the 4th Street undercrossing. This assessment is a qualitative and not "modeled" study, based on review of existing information approximately 2,700 vehicles per day (VPD) are forecasted to use the 4th Street undercrossing in Years 2025 (assuming that it remains as is). Approximately 4,700 vpd are forecasted to use the 4th Street undercrossing in Year 2025 assuming that it is improved as shown in Alternative 2 of the preliminary alignments.

Funding

Since the early 1990's, staff has applied for State Grants to fund a Feasibility Project Study Report (PSR), the first official step towards upgrading and improving the Underpass. In 2000, SLOCOG approved \$30,000 to fund a portion of the cost to prepare the 4th Street Underpass PSR. In January 2002, the City Council appropriated an additional \$124,000 to allow the City to proceed with preparing the PSR. The City Council is being asked to consider adopting the attached Resolution to clarify funding for this project.

POLICY

REFERENCE: General Plan Circulation Element

FISCAL

IMPACT: Appropriation for this project is included in the Measure 'D' Project Budget.

OPTIONS:

- a. That the City Council adopt Resolution No. 03-xx:
 - 1) accepting the Streets and Utilities Committee's recommendation that Alternative No. 2 be adopted as the favored "plan line" for the reconfiguration of the 4th Street Underpass; and
 - 2) appropriating a budget of \$154,000 under Budget Account No. 120.910.5452.676 by combining a \$30,000 SLOCOG Grant and \$124,000 from Measure 'D.'

b. Amend, modify or reject the above option.

Attachments (2)

- 1) Resolution
- 2) Technical Memorandum to Streets and Utilities Committee
- 3) URS Memo/Conley Proposal
- 4) URS Memo Regarding Need for Project

RESOLUTION NO. 03-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES
ADOPTING ALTERNRATIVE NO. 2 AS THE FORMAL "PLAN LINE" FOR
RE-CONFIGURATION OF THE 4TH STREET UNDERPASS AND
APPROPRIATING \$154,000 TO BUDGET ACCOUNT NO. 120.910.5452.676

WHEREAS, the 4th Street Underpass at the Union Railroad tracks was constructed in 1926; it is 15-feet wide and provides a vertical clearance of 10'-8"; and

WHEREAS, the 4th Street Underpass is located at the southerly end of Riverside Avenue, serving westerly access to the southbound on and southbound off "hook ramps" at Highway 101; and

WHEREAS, City Council adopted a General Plan Circulation Element in October 2000 which identifies the need to improve the 4th Street Underpass to achieve additional on/off ramp access to Highway 101 and improve traffic flow into the Downtown Business District; and

WHEREAS, on March 19, 2002, the City Council directed staff to engage the services of URS Corporation to prepare several options for the re-configuration of the underpass; and

WHEREAS, URS Corporation developed (3) alternative alignments to re-configure the 4th Street Underpass and these alternatives were presented to the Streets and Utilities Committee on February 28, 2003; and

WHEREAS, the Streets and Utilities Committee concluded that Alternative No. 2 should be adopted as the official "plan line" for the 4th Street Underpass.

THEREFORE, BE IT RESOLVED AS FOLLOWS:

SECTION 1. The City Council of the City of Paso Robles does hereby adopt Alternative No. 2 as the favored "plan line" for reconfiguration of the 4th Street Underpass.

SECTION 2. The City Council of the City of Paso Robles does hereby appropriate a budget of \$154,000 under Budget Account No. 120.910.5452.676 by combining a \$30,000 SLOCOG Grant and \$124,000 from Measure 'D'.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 15th day of April 2003 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

Frank R. Mecham, Mayor

ATTEST:

Sharilyn M. Ryan, Deputy City Clerk

TO: Streets & Utilities Committee
FROM: Ditas Esperanza *DE*
SUBJECT: 4th Street Underpass Alternatives
DATE: February 28, 2003

At the January Committee meeting, staff was directed to:

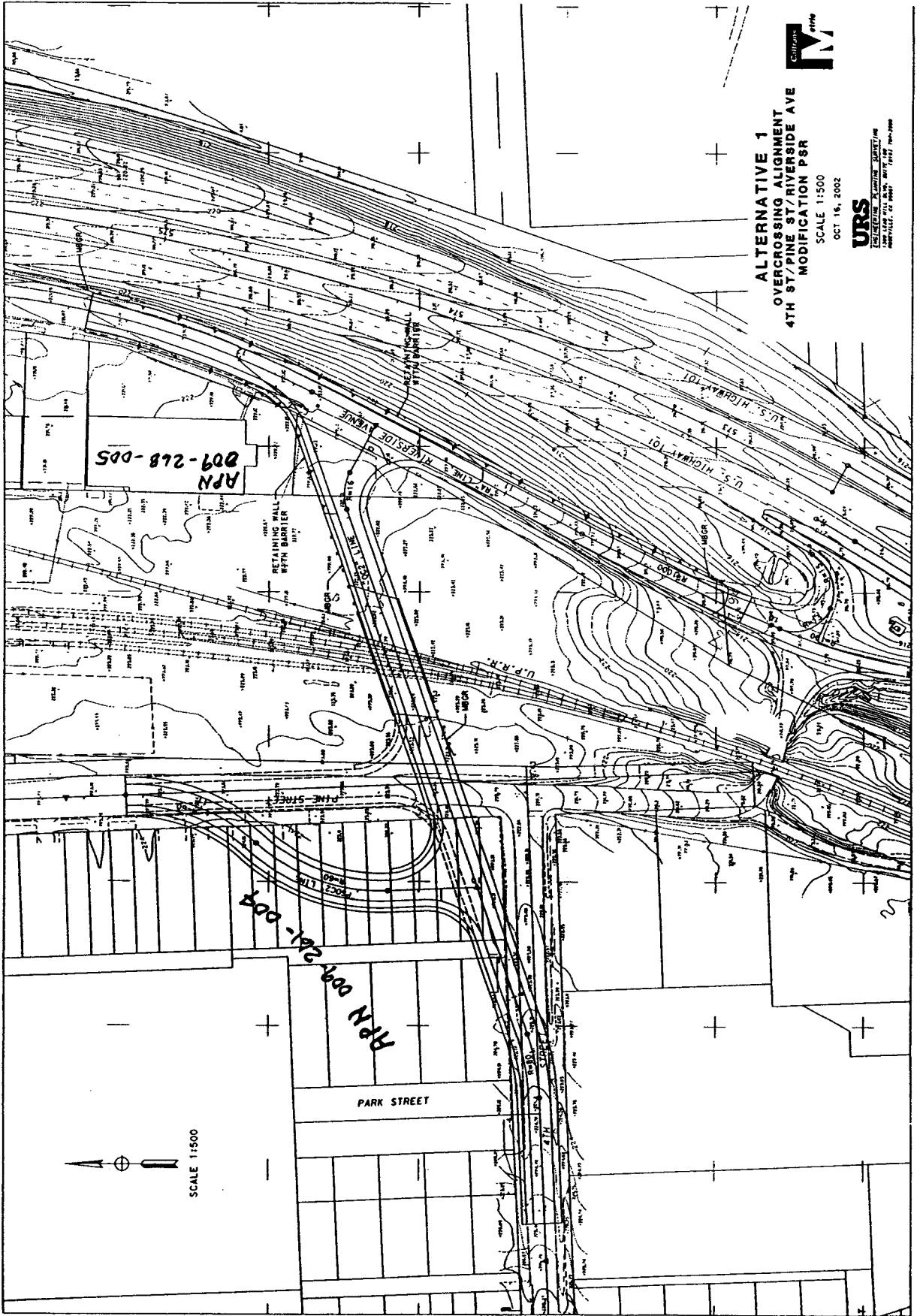
- 1.) Obtain "order of magnitude" costs for each alternative:

	<u>Alternative #1</u>	<u>Alternative #2</u>	<u>Alternative #3</u>
Construction Cost	\$10,500,000	\$ 6,500,000	\$ 9,500,000
<u>Right-of-Way</u>	<u>\$ 3,500,000</u>	<u>\$ 2,000,000</u>	<u>\$ 3,000,000</u>
TOTAL:	\$14,000,000	\$ 8,500,000	\$12,500,000

(Note: These estimates do no include costs for design, environmental, other engineering fees or estimates.)

- 2.) Investigate the possibility of "just widening" the existing underpass:

The existing underpass structure is sub-standard. Once the City performs work on it, we will be required to bring it to current design standards. The vertical clearance on the existing underpass is less than the required 20-foot vertical clearance. Enlarging the underpass will require the roadway to be lowered having an adverse impact to the freeway ramp and may even require that it be re-aligned, and replacing the existing structure at a higher elevation may prove a challenge in the need to raise the railroad tracks.



**ALTERNATIVE 1
OVERCROSSING ALIGNMENT
4TH ST/PINE ST/RIVERSIDE AVE
MODIFICATION P&R**

SCALE 1:1500
OCT 16, 2002

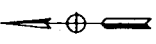


URS
INCORPORATED
A DIVISION OF
ARUP GROUP LIMITED
300 SOUTH ZEEB ROAD
ANN ARBOR, MI 48106

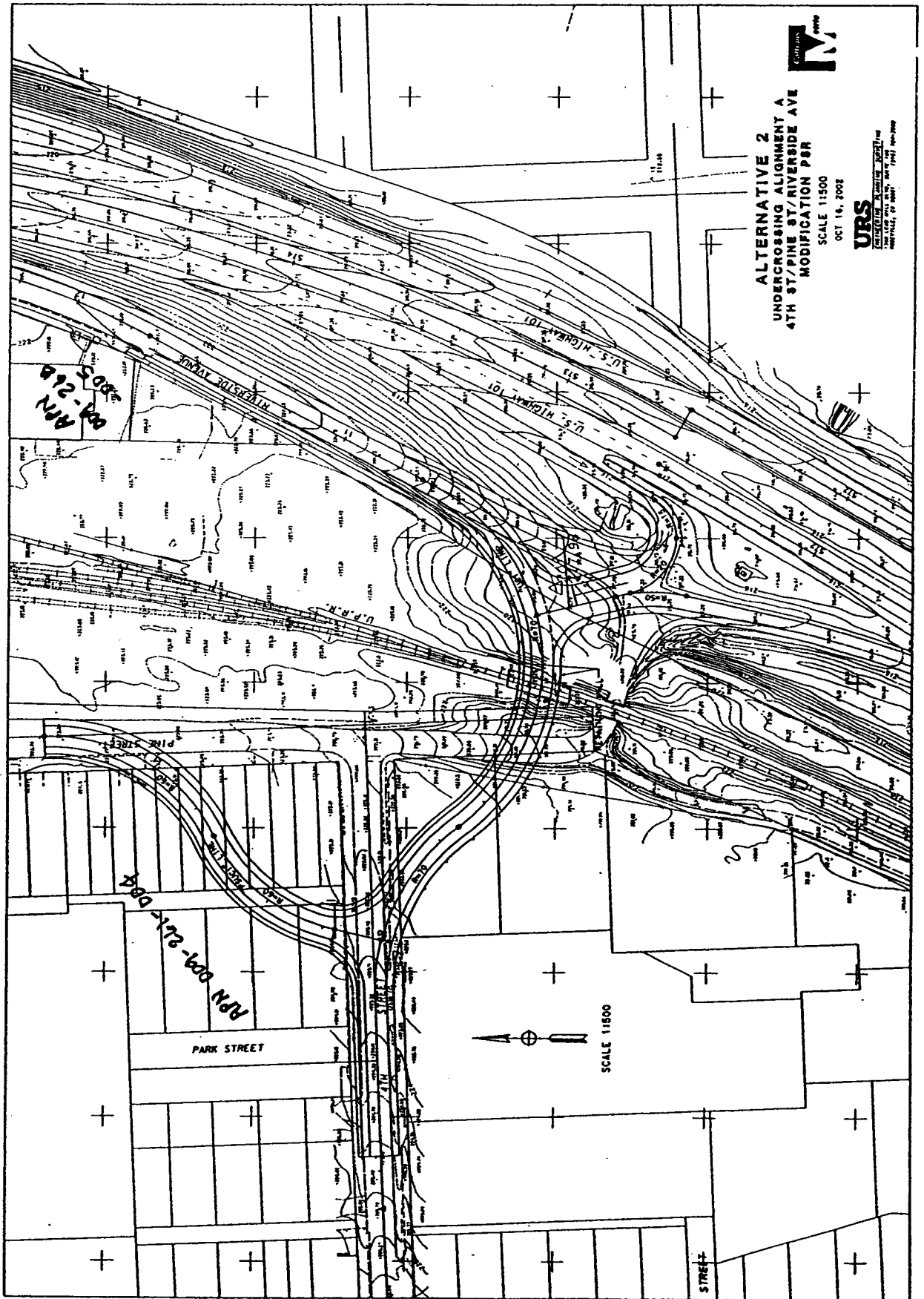
APN 009-268-005

APN 009-261-004

PARK STREET



SCALE 1:1500



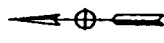
ALTERNATIVE 2
UNDERCROSSING ALIGNMENT A
4TH ST/PINE ST/RIVERSIDE AVE
MODIFICATION PBR

SCALE 1:1800
OCT 16, 2002



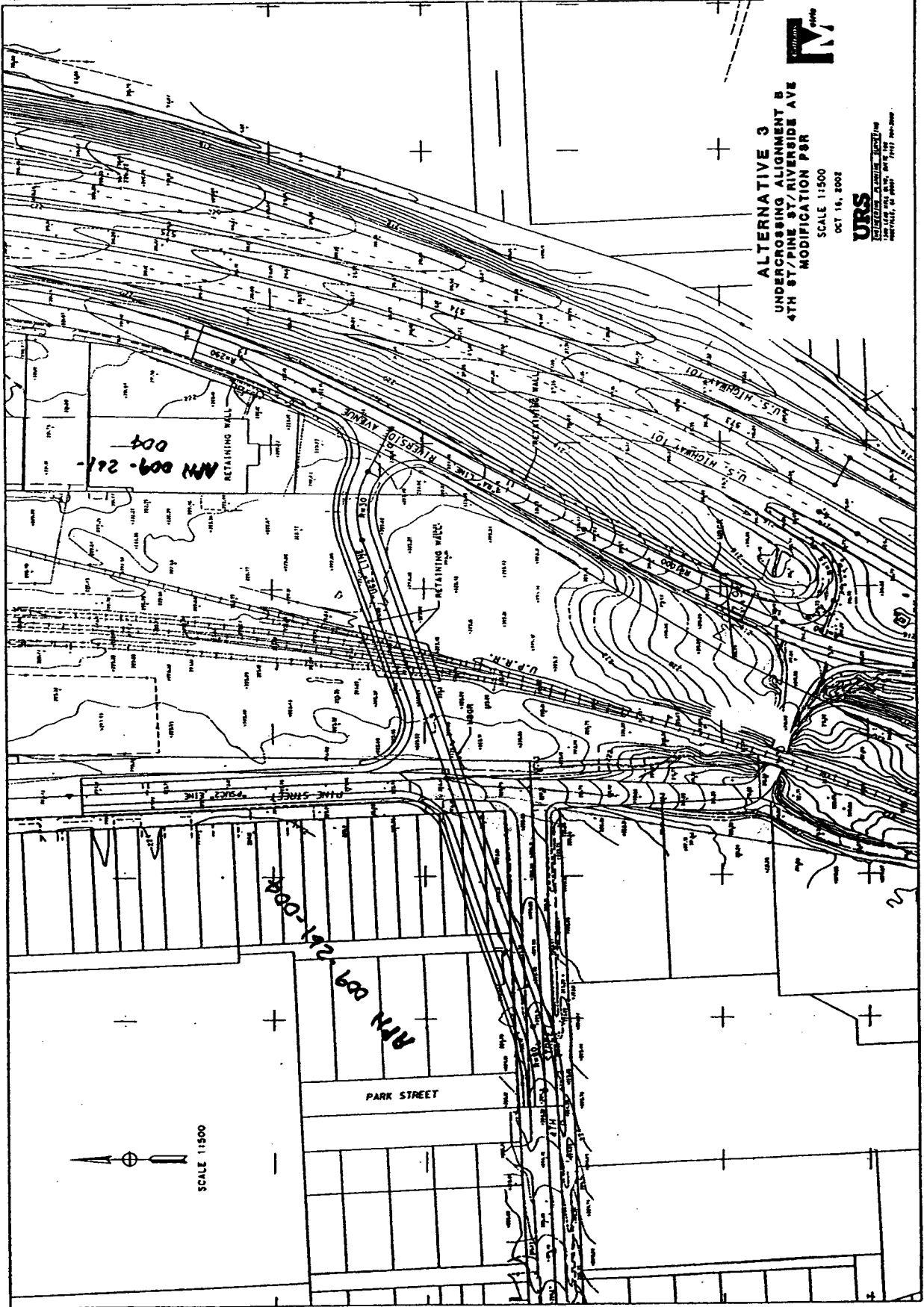
URS CORPORATION
1000 WEST 10TH AVENUE, SUITE 1000
DENVER, CO 80202

SCALE 1:1800



PARK STREET

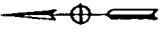
STREET



ALTERNATIVE 3
UNDERCROSSING ALIGNMENT B
4TH ST/PINE ST/RIVERSIDE AVE
MODIFICATION P9R
SCALE 1:1500
OCT 16, 2002




SCALE 1:1500



MEMORANDUM

TO: Streets and Utilities Committee

FROM: Ditas Esperanza 

DATE: January 14, 2003

SUBJECT: 4TH Street Underpass
Alternatives for Reconfiguration

The 4th Street Underpass at the railroad tracks was constructed in 1926, is 15-feet wide and provides a vertical clearance of 10-feet, 8-inches. These sub-standard dimensions will accommodate only one passenger vehicle or a small truck at a time. The City Council in October 2000 adopted an Update to the Circulation Element which identified the need to improve the underpass. The goal for this improvement is to:

- Achieve additional and safer on/off ramp access to Highway 101
- Improve traffic flow into the Downtown Business District

URS Corporation has developed three alternatives to re-align/improve the underpass. Attached are exhibits illustrating these alternatives along with a detailed analysis (pro/con) of each:

Alternative 1

This alternative proposes to re-align 4th Street to the north by constructing a bridge over the railroad tracks. The most significant benefit to this alternative is that the existing railroad tracks would remain with minimum impact to the operations of Union Pacific. However, there is a need to retain portions of the City's property at 4th Street and Pine Street for this alternative.

Alternative 2

This alternative would require the installation of an undercrossing structure beneath the railroad tracks. Temporary tracks would need to be installed for trains to use during construction which could add significant costs to the project. This alternative would also impact the existing ramps at Highway 101 and would require Caltrans' review and approval of the construction plans. As in Alternative 1, there would be a need to retain portions of the City's property at 4th and Pine Streets in order to construct this undercrossing. In addition, there would be a need to acquire property at the southwest corner of Pine and 4th Streets.

Alternative 3

As in Alternative 2, this alignment would require installation of an undercrossing at the railroad tracks and temporary tracks would need to be installed during construction. However, Alternative 3 would not require the City to acquire property at the southwest corner of Pine and 4th Streets.

Date: October 16, 2002

27560365.00010 File 3-B

To: Ditas Esperanza - City of Paso Robles

From: Matt Brogan, PE

Subject: *4th Street PSR-PDS – Preliminary Alternatives Discussion*

The following sections describe the preliminary alternatives that have been generated for the 4th Street PSR-PDS. These alternatives can also be seen in the attached exhibits and have been developed through discussions with the project design team and City staff. Please let me know if you have any questions or suggestions regarding these alternatives.

Alternative 1 – Overhead

This alternative consists of an overhead crossing of the UPRR tracks. The new 4th Street alignment begins at its intersection with Park Street, skews to the northeast, and begins its ascent over the UPRR yard. The grade along 4th Street in this location is 5%. A 1.2m (4 ft) structure depth has been assumed, and the minimum vertical clearance over the UPRR tracks is 7.01m (23 ft), which meets the UPRR minimum standard. Once the overhead passes over the minimum vertical clearance point, it begins a 7% downgrade that continues until the "T" intersection with Riverside Avenue. The typical roadway section for 4th Street will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk on the north side of the road.

The horizontal alignment of Riverside Avenue will remain the same, but its vertical alignment will have to be raised in order to meet the proposed intersection with the 4th Street Overhead. The new vertical alignment will begin approximately 10m (33 ft) north of the existing Caltrans ramps with a 30m (100 ft) vertical curve followed by a positive 7% grade. This 7% grade leads into a 50m (165 ft) vertical curve, which brings the roadway up to its required elevation at the 4th Street/Riverside Avenue intersection; the profile grade at this point is approximately 4m (13 ft) above the existing roadway. The 50m (165 ft) vertical curve is followed by a 7% downgrade and another 30m (100 ft) vertical curve to the conform point with the existing roadway. The new alignment will end approximately 5m (16 ft) from the existing driveway to the business located at APN 009-268-005. The modification of the vertical alignment will require a series of retaining walls, which are located along the east and west sides of Riverside Avenue. The typical roadway section for Riverside Avenue will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk on the west side of the road. The new roadway section will require Riverside Avenue to be widened slightly to the west.

One alternative shows the Pine Street/4th Street intersection to be realigned to a point approximately 30m (100 ft) west of its current location. This new alignment will go through the existing property located at APN 009-261-004. The new profile will begin at the new intersection point, which is approximately 7m (23 ft) above the existing grade. It will then proceed down a 30m (100 ft) vertical curve, a 6% downgrade, and another 30m (100 ft) vertical curve until it reaches its conform point with the existing Pine Street alignment. This alignment will not require the use of retaining walls to make its profile grade; it is assumed that sufficient right of way will be required to meet the desired profile.

A second alternative alignment for Pine Street that utilizes the existing right of way has also been shown. This alignment will require a significant rise in the profile along Pine Street, which will entail a series of retaining walls to ensure that no right of way acquisition will be required.

The typical roadway section for Pine Street will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk on the west side of the road.

The following is a list of pros and cons for this alternative (this listing does not differentiate issues with regard to the location of the Pine Street/4th Street intersection):

Pros

- An overhead minimizes impacts to UPRR and does not require a shoofly detour of UPRR tracks
- Minimizes impacts to Caltrans facilities (essentially no impact)
- Zero impacts to developable property located at the southwest corner of 4th Street/Pine Street
- Minimal drainage impacts
- Able to utilize existing alignment/right of way along Riverside Avenue
- Able to allow for pedestrian access along the 4th Street Overcrossing from Riverside Avenue to Pine Street

Cons

- Significant right of way impacts to APN 009-261-004 or significant retaining wall costs
- Large retaining wall adjacent to parking lot for business at APN 009-268-005
- Large retaining wall along Caltrans right of way

Alternative 2 – Underpass Alignment “A”

This alternative consists of an underpass of the UPRR tracks located approximately 25m (82 ft) north of the existing 4th Street Underpass. The horizontal alignment begins along the existing 4th Street alignment and then swings southeast with a 70m (230 ft) radius through the existing parcels at the southwest corner of 4th Street and Pine Street. The roadway will then follow a reversing curve with a radius of 70m (230 ft) underneath the UPRR property to conform with Riverside Avenue. The profile along 4th Street would begin approximately 40m (130 ft) from the Park Street intersection with a 30m (100 ft) vertical curve and then continue along a 5% downgrade to reach the necessary elevation at the underpass. Retaining walls will be used in this area to minimize the impacts to the adjacent properties. The roadway then continues along a 30m (100 ft) vertical curve underneath the UPRR tracks and up a 5% ascent to meet the existing profile of Riverside Avenue. The typical roadway section for 4th Street and Riverside Avenue will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk adjacent to the westbound lane. The new roadway section will require Riverside Avenue to be widened slightly to the west.

The existing Route 101 SB ramp terminus will have to be realigned and extended in order to “T” into the new underpass alignment. The new horizontal alignments will slightly modify the existing radii on the ramps and will extend a tangent from the existing radii to the “T” intersection with the underpass. The vertical alignment of the ramps will not significantly change with these modifications.

The new underpass will also require Pine Street to be realigned. As in the realignment of Pine Street shown in Alternative 1, the horizontal alignment will swing from the existing Pine Street alignment through the property located at APN 009-261-004 until it intersects the 4th Street underpass at a perpendicular angle. The vertical alignment will require an excavation of approximately 2m (6.5 ft) at the new Pine Street/4th Street intersection. The alignment will extend from the new intersection to the northeast along a positive grade of 4%. A 50m (165 ft) vertical curve will then be used to match the existing Pine Street grade of approximately -0.25%. The typical

roadway section for Pine Street will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk on the west side of the road.

Pros and cons identified for this alternative are as follows:

Pros

- Minimal impacts to existing businesses; i.e. APN 009-268-005 not affected
- Minimal drainage impacts; may be able to utilize existing facilities
- Allows for possible development in area immediately east of new 4th Street/Pine Street intersection
- Allows for pedestrian access along 4th Street from Riverside Avenue to Pine Street
- Increases storage capacity for Route 101 SB ramps

Cons

- Significant UPRR impacts (including lengthy shoofly)
- Impacts to existing Caltrans ramps
- Significant right of way impacts to parcels on both north and south sides of 4th Street
- Significant retaining wall costs

Alternative 3 – Underpass Alignment “B”

This alignment is another alternative that crosses the UPRR property with an underpass. The horizontal alignment is very similar to the one used for the overhead in Alternative 1; it leaves the existing 4th Street alignment at its intersection with Park Street and skews to the northeast. The roadway will then turn to the southeast with a 30m (100 ft) radius to “T” into Riverside Avenue. The profile will begin with a 50m (165 ft) vertical curve between the existing 4th Street grade and a 5% downgrade. The 5% downgrade will continue underneath the UPRR tracks until it reaches a 30m (100 ft) vertical curve. This vertical curve is followed by a positive 5% grade and another 30m (100 ft) vertical curve. The terminus of the underpass alignment at Riverside Avenue is approximately 3m (10 ft) below the existing pavement elevation of Riverside Avenue. The typical roadway section for 4th Street will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk on the north side of the road

Riverside Avenue will remain along its existing horizontal alignment, but its vertical alignment will have to be modified to match the new underpass alignment. The profile will begin approximately 10m (33 ft) north of the existing Route 101 SB ramp terminus with a 30m (100 ft) vertical curve followed by slight upgrade of 0.50%. A 30m (100 ft) vertical curve will then connect the 0.50% grade with a 5% grade. Finally, a 30m (100 ft) vertical curve will raise the profile up to the existing grade of Riverside Avenue. A series of retaining walls will be needed to keep from encroaching onto Caltrans right of way and the business located at APN 009-268-005. The typical roadway section for Riverside Avenue will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk on the west side of the road. The new roadway section will require Riverside Avenue to be widened slightly to west.

The horizontal alignment of Pine Street will remain essentially the same, but its profile will also have to be modified. The profile will begin at the new intersection of Pine Street and 4th Street will be approximately 5m (16 ft) below the existing roadway grade. The roadway will then travel along a 30m (100 ft) vertical curve followed by a positive 6% grade. This 6% grade will continue until it meets another 30m (100 ft) vertical curve, which will

bring Pine Street up to its existing grade. The typical roadway section for Pine Street will consist of two 3.6m (12 ft) lanes, 2.4m (8 ft) shoulders, and a 1.5m (5 ft) sidewalk on the west side of the road.

Some pros and cons of this alternative are as follows:

Pros

- Zero impacts to developable property on southwest corner of 4th Street/Pine Street.
- Minimal impacts to SR101 ramps
- Able to utilize existing alignments and right of way along Riverside Avenue and Pine Street
- Allows for pedestrian access along 4th Street from Riverside Avenue to Pine Street
- Improvement in function of Route 101 exit ramps (i.e. additional of ramp storage)

Cons

- Significant UPRR impacts, including lengthy shoofly over multiple tracks
- Significant drainage impacts, including possible pump plant (to be determined)
- Right of way impacts to APN 009-261-004
- Significant retaining wall costs
- Large retaining wall adjacent to parking lot for business at APN 009-268-005
- Large retaining wall along Catrans right of way

CC: Jorge Aguilar – URS

Enclosures

Date: March 21, 2003
To: Ms Ditas Esperanza
From: Jorge Aguilar
Subject: *4th St PSR-PDS, Alternative Public Proposal Review*

Ditas,

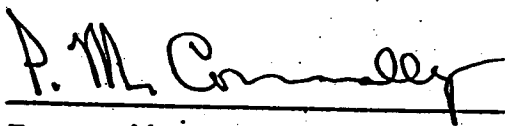
As requested we reviewed the document entitled "Proposal to Change Freeway Access From The Spring/Niblick Intersection to Fourth Street" dated February 1999 that was provided by Mr. Patrick Connally at the City Council Meeting of 03/18/03. It should be noted that it is evident Mr. Connally applied his experience at Caltrans to prepare a logical and well written report that was volunteered to the City for consideration. This is a tribute to the community values honored by the City and its residents.

The report was compared to the City's General Plan and the Circulation Element of that plan as well as with the goals of the City that were expressed at previous scoping and kickoff meetings and was found to have compatible and conflicting elements. While the proposal includes redirection of traffic along Spring Street and specifically at the Spring St/Niblick St intersection, it proposes to close the Spring Street on-ramp to southbound Route 101 and the Pine Street off-ramp from southbound Route 101 and reroute southbound Rte 101 traffic to the Pine St on-ramp to increase capacity at the Spring St/Niblick St intersection. This redirection of Rte 101 access would reduce turn movements at the Spring St/Niblick St intersection and therefore increase intersection capacity. The redirection includes the street and underpass improvements at UPRR that were also included in the PSR-PDS Alternative 2, previously recommended by City staff.

The City desires to increase the number of access points from the local street system to Route 101 and increase efficient options to local system users interface with Rte 101. The City's Circulation Element and traffic model updates include the operation of the ramps that are to be closed in the proposal presented by Mr. Connally. It is therefore our opinion that this proposal would not be consistent with current City and regional planning and therefore would not be compatible with future study for this specific PSR-PDS.

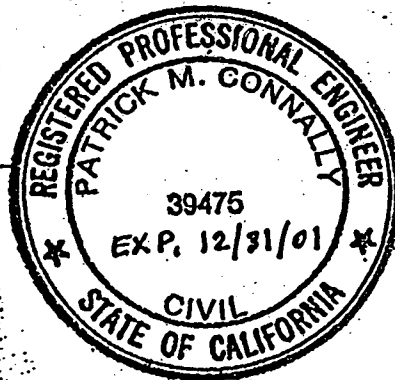
**PROPOSAL TO CHANGE FREEWAY ACCESS
FROM THE SPRING/NIBLICK INTERSECTION
TO FOURTH STREET**

FEBRUARY 1999



Prepared by:

Patrick Connally, P.E.
Civil Engineer



REDIRECT FREEWAY ACCESS

FEBRUARY, 1999

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INTRODUCTION

It is proposed to modify the Spring/Niblick Street intersection and redirect all freeway-bound traffic from this intersection to the Fourth/Spring Street intersection. A new railroad Underpass and improved two-lane freeway on ramp would be constructed as part of this proposal. This proposal would eliminate the existing on ramp to southbound Highway 101 at the Spring/Niblick intersection, and also would eliminate the existing southbound off ramp at Riverside Avenue. The proposed modifications would allow for continuous, free flowing traffic from the Niblick Bridge to the improved freeway on ramp, and would increase the capacity of the improved Spring/Niblick intersection. Traffic destined for the freeway would be removed from the signal operations at this busy intersection, and would either have a free right turn, or would turn left at a new signal proposed at Fourth Street. Finally, this proposal would provide better access and traffic circulation between Riverside Avenue and Spring Street (currently served by a narrow subway), as well as improve circulation between the city streets and the freeway system.

Funding for these improvements would be possible from a variety of sources, including the City of Paso Robles, SLOCOG (regional transportation funds), Caltrans, and the Federal Highway Administration (FHWA). Total cost for all improvements associated with this proposal is estimated at \$5,000,000.

BACKGROUND

The existing Niblick Bridge, constructed in 1986, is scheduled to be widened in the spring of 1999 and will take about one year to complete construction. Currently, the Niblick Bridge provides one lane of traffic in each direction with no provisions for bicyclists or pedestrians. The current project to widen Niblick Bridge will provide for two lanes of traffic in each direction, a two-way bikeway, and a sidewalk for pedestrians. As planned at this time, the project to widen Niblick Bridge will provide dual-left turn lanes, a through-lane, and dual-right turn lanes going westbound at the Spring/Niblick intersection.

It has been widely recognized that the capacity of the Niblick Bridge will ultimately be constrained by the signal operations at the West End of the bridge. Continued growth in traffic volumes in the next 20 years is expected to meet or exceed the capacity of the improved Spring/Niblick intersection. As an alternate to the project to widen the Niblick Bridge the City Council entertained the possibility of constructing a roundabout at this intersection in July 1997. Although the roundabout alternative was generally discarded in favor of the project to widen Niblick Bridge, the Council left open the possibility of constructing a roundabout in the future at this intersection, if the improved signalized intersection became congested. This roundabout, if needed, would be constructed as a 2-lane roundabout and would be retrofitted into the on-going Niblick Bridge widening project at Spring Street.

As new commercial, retail and residential development occurs on the East Side of Paso Robles, the capacity of the Niblick Bridge and intersections nearby will become more and more taxed. There is a need to have a systematic review of the circulation and operations between the city streets and the freeway system. Moving large volumes of traffic between the freeway and the city, and vice versa, in a logical orderly fashion must be taken into consideration given the growth that is expected in the next 20 years in Paso Robles.

This report proposes improvements that begin to take a systematic approach to improving circulation and operations on both the city streets and the freeway. The cost of the improvements is estimated at \$4,000,000 excluding the cost of the Paso Robles Overhead widened freeway structure (see below).

It should be noted that this proposal would include improvements at the Paso Robles Overhead at southbound Highway 101. It is proposed that the two-lane southbound bridge at Highway 101

REDIRECT FREEWAY ACCESS

FEBRUARY, 1999

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over the railroad tracks be replaced and widened to three lanes. Caltrans has scheduled this Paso Robles Overhead Bridge to be replaced as part of the Bridge Restoration and Replacement program in the 2001-02 fiscal year. This proposal would recommend that Caltrans replace the two-lane southbound structure with a three-lane bridge. This would cost about \$1,000,000 more than the current estimate for the Caltrans project. Total cost of all improvements necessary for this proposal is estimated at \$5,000,000 (See attached cost estimate).

PROBLEM DEFINITION

Paso Robles is a growing city seeking a balance of employment opportunities, housing, and retail services for both residents and visitors to the area. Between 1980 and 1990, the city population increased from 9,163 to 18,583. And between 1990 and today population grew from 18,583 to approximately 23,000 currently. It is expected that the population will increase to approximately 37,000 by 2015. Much of this growth is planned to occur on the East Side of Paso Robles.

Along with the expected growth in population will be a corresponding growth in traffic volumes. The improved Spring/Niblick intersection proposed with the current project to widen Niblick Bridge is estimated to reach capacity for the afternoon peak hour traffic by the 2002-year. The problem is all incoming and outgoing traffic at the freeway ramps, peak commute traffic to and from work and school, traffic destined for the Woodland Plaza, and traffic destined for downtown must all enter this intersection to reach their destination. There are simply too many sources of traffic generators drawing traffic to this location. The on-going improvements planned at the Spring/Niblick intersection will help, but the bottom line is the City is putting too much traffic into one intersection. There is a need to focus some of this traffic away from the Spring/Niblick intersection and move it to another location.

The improvements proposed by this report will reduce the traffic entering the signal operations at the Spring/Niblick intersection by 40-percent in the morning peak, and reduce traffic entering this intersection by 25-percent in the afternoon peak. The traffic that would otherwise use this intersection would be directed to an improved Fourth/Spring Street intersection instead. By removing 25 to 40-percent of the traffic from the Spring/Niblick intersection, additional capacity is gained to keep traffic moving at a higher level of service.

ALTERNATIVES

The alternatives outlined in this report are cursory, and need farther study to be more conclusive. Traffic studies and Level of Service analysis have not been completed and it is recommended that more time and resources be provided to do a more complete study.

The alternatives briefly discussed here include: "Planned Improvements" at Spring/Niblick, a two-lane "Roundabout" at Spring/Niblick, and "Redirect Freeway Access to Fourth Street" (the recommended proposal).

A. "PLANNED IMPROVEMENTS"

This alternative is simply the intersection improvements currently under construction at the Spring/Niblick intersection included with the widening of Niblick Bridge to four lanes. Since the costs of these improvements are already included in the project, no additional cost would be incurred by the City to provide these improvements.

The current project will provide two, 12-foot left turn lanes (otherwise known as dual-left turn lanes); one, 12-foot through lane; and two, 12-foot right turn lanes at the westbound approach to the Spring/Niblick intersection.

The Caltrans Highway Design Manual (Chapter 400) defines traffic flow conditions at intersections at various levels of operation. This is expressed by counting the intersecting lane vehicles per hour. Peak hourly traffic volumes are divided by the number of lanes provided for in each approach, and each approach that must have separate "green" time in the signal operation is added to the total. The result is the intersecting lane vehicles per hour (ILV/hr). An intersection with 1200 ILV/hr is stable, 1200-1500 is unstable flow and 1500 is operating at capacity. The amount of congestion that can be expected depends on how much the ILV/hr value exceeds 1500. Since actual rates rarely exceed 1500 ILV/hr excess demand results in traffic delayed in a queue, at which time you have congestion. Using the 1200 to 1500 ILV/hr as a criterion is not ideal, as this is unstable flow with considerable delay possible. The threshold used to calculate capacity of the Spring/Niblick intersection of 1500 ILV/hr means that some vehicles may occasionally wait two or more cycles to pass through the intersection.

Using the ILV/hr concept and traffic volumes interpolated from the July 1993, "Niblick Road Bridge Phase II, Project Development Report" prepared by Moffatt & Nichol, a cursory analysis can be made to see when the planned improvements for the Spring/Niblick intersection approach capacity (1500 ILV/hr). The volumes used in this analysis were based on the above report. Actual volumes in the future may be greater or less than that that was estimated by Moffatt & Nichol.

Using current volumes (1999) interpolated and the intersection configuration planned for the Spring/Niblick intersection, the first week this intersection operates, the morning (a.m.) peak will be at 1205 ILV/hr and the afternoon peak (p.m.) will be at 1415 ILV/hr. These volumes are within the stable range for the morning, and unstable for the afternoon peaks at the year of completion. Although the first year flows are within the 1500 ILV/hr capacity, after three years (2002) the improved Spring/Niblick intersection will exceed 1500 ILV/hr capacity.

Using 2015-year volumes (estimated in the Moffatt & Nichol report) and the same intersection configuration planned, the subject intersection would have a morning (a.m.) peak of 1570 ILV/hr and an afternoon peak (p.m.) of 1810 ILV/hr. At these volumes, the morning will generate considerable delay for a short time, while the afternoon peaks will generate considerable congestion and delay extending the peak hour to a longer period of time along Spring and Niblick. It is my opinion that the Moffatt & Nichol report was overly optimistic in reporting the Level of Service (stating a LOS of "B" and "C" in the a.m./p.m. peak) that the planned improvements would provide in the 2015-year. By the ILV/hr concept, the planned improvements at the Spring/Niblick would not meet the demand of the traffic expected in the morning beyond 2012 and would not meet traffic expected in the afternoon beyond 2002 at which time considerable congestion can be expected.

In short, the planned improvements at the Spring/Niblick intersection should be sufficient initially, and may keep unstable traffic flowing (1200-1500 ILV/hr) for three years in the busier afternoons. After that time, changes to the intersection to provide more turn lanes on one or more approaches would be necessary in order to avoid congestion. Adding more turn lanes will require additional right-of-way and widening of the road approaches some distance in each direction. Benefits of modifying the intersection in the future would only add about 5-years after which time congestion would become a problem again.

B. "ROUNDAABOUT"

As stated earlier, in July and August of 1997, the City Council left open the possibility of retrofitting a roundabout at the Spring/Niblick intersection in the future if the planned improvements at this intersection failed. My rough analysis of this alternative is based on a 1998 Transportation Research Board (TRB) document titled, "Modern Roundabout Practice in the United States (NCHRP Synthesis 264)".

The main reasons cited by various transportation and local agencies for considering roundabouts

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are: 1) greater safety, 2) shorter delays (increased capacity), 3) lower costs, and 4) aesthetic and urban design reasons. The modern roundabout has been less popular in the United States than abroad, in part because of this country's experience with the traffic circles and rotaries built in the first half of the 20th century. Recently, however, there has been an emergence of modern roundabouts in some parts of the United States.

Again, major reasons given for building roundabouts in general include: greater safety, shorter delays, lower costs, aesthetic design, lower speeds and traffic calming, higher capacity, geometric configuration (right-of-way), and requested by local officials or jurisdictions. To the extent that these benefits would apply to the Spring/Niblick intersection, would be subject to more detailed studies.

Problems and disadvantages encountered by agencies considering or constructing a roundabout include the following: unequal approach volumes gives an advantage to the low-volume approach, lack of clear right-of-way control for pedestrians and bicyclist, construction complications caused by the need to grade a larger-level surface, turning radius needed for larger vehicles in a roundabout, and driveways located near the roundabout approach legs. Again, to the extent that these problems apply to the Spring/Niblick intersection would be subject to further evaluation.

The possible design of a roundabout at the Spring/Niblick intersection is unknown at this time, but assuming that two-lane approaches and a two-lane roundabout is considered to be the retrofit configuration (which was proposed by Peter Doctors in July 1997) some cursory analysis can be made. Assuming the inscribed circle diameter needed for a two-lane roundabout is somewhere between 120 to 150 feet, little to no additional right-of-way would be needed to construct a roundabout at this location. Additional grading along Spring Street would be necessary in order to flatten and level the approaches at this intersection for improved capacity and operations. Due to this grading and a potential for structure modification at the West end of the Niblick Bridge, cost for the two-lane "roundabout" retrofit alternative is estimated at \$1,200,000 to \$2,000,000, depending on the extent of structure involvement.

The operations of the roundabout would be hindered somewhat by the unequal approach volumes this location will have during peak hours. Three primary approaches: Spring, Niblick and the Freeway ramps range from 20 to 45 percent of the total traffic volumes each (with Niblick and the Freeway ramps being the higher percentages); while the First Street approach represents only 3 to 9 percent of the total volumes entering the roundabout. This unequal leg volume would tend to reduce the capacity of a roundabout at this location.

Capacity and delay calculations for roundabouts are done a few different ways. The different methods of calculating capacities of various roundabout configurations are given in the TRB document referenced earlier. The various methods use different criteria to develop the capacity of a roundabout. Unfortunately, there is not enough information regarding the potential design of this roundabout to apply one of the documented methods of determining the capacity of this "roundabout" alternative. However, given the information available, the ILV/hr capacity of 1500 per lane would be very close to many of the examples given in the TRB report. Since the ILV/hr concept explained earlier indicates that an intersection can only provide 1500 intersecting lanes per hour of volume, it is likely that a roundabout cannot provide much more total capacity per lane than the capacity of an intersection. Therefore, a two-lane "roundabout" alternative can provide a total capacity of no more than 3000 vehicles per hour at the Spring/Niblick intersection. This is particularly true since the Highway Capacity Manual states that a doubling of the entry width of a roundabout does not produce a doubling of the entry capacity. It should be noted that the capacity of a roundabout appears to be double that of the signal analysis, however, total volumes entering the roundabout are counted, while only the conflicting moves of the signal analysis are counted.

Using current volumes (1999) interpolated from the Moffatt & Nichol report and the 3000 vehicles

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per hour (assumed) capacity of this roundabout, the first week the intersection operates, a total of 2480 vehicles would be entering the proposed roundabout in the morning (a.m. peak); and a total of 3190 vehicles entering in the afternoon. The afternoon peak of 3190 vph is already 190 over the assumed capacity of this roundabout. This indicates the "roundabout" alternative would be provide no more capacity than the "planned improvements" will upon completion of the project to widen the bridge.

The 2015 volumes found in the Moffatt & Nichol report indicates a morning peak of 3280 vph entering the roundabout and 4412 vph in the afternoon peak. These numbers far exceed the average capacity of a roundabout. The proponents of roundabouts may say that a two-lane roundabout will have plenty of capacity for these volumes, but the highest capacity example given in the TRB Syntheses indicate that 3700 vph is the practical limit of a two-lane approach roundabout. Therefore, the "roundabout" alternative is a toss up on whether it would have more capacity than the "planned improvements" (conventional signals). It is my opinion that the "roundabout" alternative is not a worth the \$1.2 to \$2 million dollars for questionable, unknown and minor benefits.

C. "REDIRECT FREEWAY ACCESS TO FOURTH STREET"

This alternative "redirects" traffic destined for southbound Highway 101 to Fourth Street. The first major benefit is the westbound Niblick traffic is generally removed from the signal and intersection operations at Spring/Niblick by the use of two, free right-turn lanes. The other major benefit is the southbound Spring Street traffic destined for southbound Highway 101 never enters this intersection, but would turn left at Fourth and Spring through a new signalized intersection. All southbound Highway 101 traffic would enter the freeway through an improved Undercrossing and standard Caltrans two-lane entrance ramp at Riverside Avenue. The redirection of traffic away from the Spring/Niblick intersection allows for greater capacity than the other alternatives can provide. This proposal would also provide better circulation between Spring Street and Riverside Avenue. This in turn would provide better access to 13th Street and the northbound Highway 101 on ramp. The total cost for this proposal is \$5,000,000. It is recommended that Caltrans fund the wider bridge (3-lanes instead of two) at the Paso Robles Overhead and Highway 101 for the benefits discussed below. The remaining costs would then be \$4,000,000 for this proposal.

Caltrans and the Federal Highway Administration tend to look favorably on the closing of redundant on and off ramps, as proposed with this alternative. There are nearly no adverse impacts by closing the southbound on ramp at the Spring/Niblick intersection. The only advantage a motorist would have to using the existing on ramp as opposed to the proposed two-lane on ramp at Fourth, is in the rare case where traffic is light and the signal by chance happens to be "green" upon entering the existing Spring/Niblick intersection. In most cases, traffic must presently stop for this signal and wait for at least one cycle. If traffic must wait for one or more cycles, this proposal to redirect traffic to Fourth Street would get traffic on the freeway faster due to the free flowing, dedicated lanes provided for freeway access. This proposal would also place most of the traffic entering the freeway on a tangent section, where sight distance for merging is much better than it is at the existing merge location. Moving freeway traffic to Fourth Street and an improved on ramp is expected to reduce merging accidents onto the freeway.

The disadvantage of this alternative is that freeway bound traffic would have to change their driving habits of which ramps to use and how to get them. The closing of the seldom used southbound off ramp at Riverside Avenue will mean the primary point to exit the freeway from southbound Highway 101 will move to the 16th Street off ramp. The southbound Spring Street traffic destined for southbound Highway 101 will need to turn left at Fourth Street instead of traveling straight, and the westbound Niblick Bridge traffic destined for southbound Highway 101 will turn right at Spring Street, instead of left. But these changes in human behavior are generally quickly made and this proposal will add more convenience than is taken away for most of the traffic accessing the freeway. It is anticipated that general acceptance of these changes will be afforded by Paso Robles as they use the modified local streets and freeway ramps.

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Using the ILV/hr concept and traffic volumes interpolated from the Moffatt & Nichol report, this alternative does better than the other alternatives. However, one thing to keep in mind regardless of how this intersection functions in the future: 25 to 40-percent of the traffic approaching this intersection now destined for the freeway will avoid any signal altogether. Traffic will for the most part be unaffected by signal operations. This traffic either has free right-turns lanes that operate outside the signal operations, or has a left-turn lane at Fourth Street. The Fourth/Spring Street intersection is not analyzed in this report, but it should have plenty of capacity for the left-turn demand now and in the future. Fourth and Spring must be signalized as a part of this proposal.

Using current volumes (1999) interpolated and the "redirected" intersection configuration proposed, the first week the Niblick/Spring Street intersection operates, the morning (a.m.) peak will be at 807 ILV/hr and the afternoon peak (p.m.) will be at 1280 ILV/hr. The morning volumes are well within stable flow, while the afternoon is slightly higher than desirable for stable flow.

Using 2015-year volumes (estimated in the Moffatt & Nichol report) and the proposed "redirected" intersection configuration, the subject intersection would have a morning (a.m.) peak of 1026 ILV/hr and an afternoon peak (p.m.) of 1641 ILV/hr. At these volumes, the morning peak is still well within stable flow while the afternoon peak is slightly higher than the 1500 ILV/hr capacity. It is estimated that the afternoon peak capacity of 1500 ILV/hr will be exceeded in 2010-year with this analysis, while the morning peak will remain within stable flows (< 1200 ILV/hr) well beyond the 2020-year.

It should be noted that this proposal will have minimum impacts to right-of-way (property) along Spring Street, however, additional right-of-way (property) will need to be acquired along Fourth Street between Riverside Avenue and Spring Street. These costs were not evaluated. Railroad agreements will also be required during the construction of this alternative.

In summary, no other alternative discussed to date would provide the capacity and circulation that is offered by this alternative to redirect freeway-bound traffic to Fourth Street.

SUMMARY OF ALTERNATIVES: ILV/hr

ALT.	CAPACITY	1999	2015	2020
PLANNED	1500	1207 (1415)	1568 (1809)	1691 (1914)
ROUNDBOUT	3000 TOTAL	2478 (3189)	3279 (4412)	Not Calc.
REDIRECT	1500	807 (1284)	1026 (1641)	1104 (1732)

NOTE: a.m.(p.m.) peak demand

RECOMMENDATION

It is recommended that the City Counsel for the City of Paso Robles do a more in-depth study of the cost and benefits of redirecting traffic to an improved railroad Undercrossing and freeway on ramp at Fourth Street. As indicated by this rough study, this proposal would keep the morning peak hour traffic flowing freely beyond the 2020-year, and would keep afternoon traffic flowing at capacity to beyond the 2010-year.

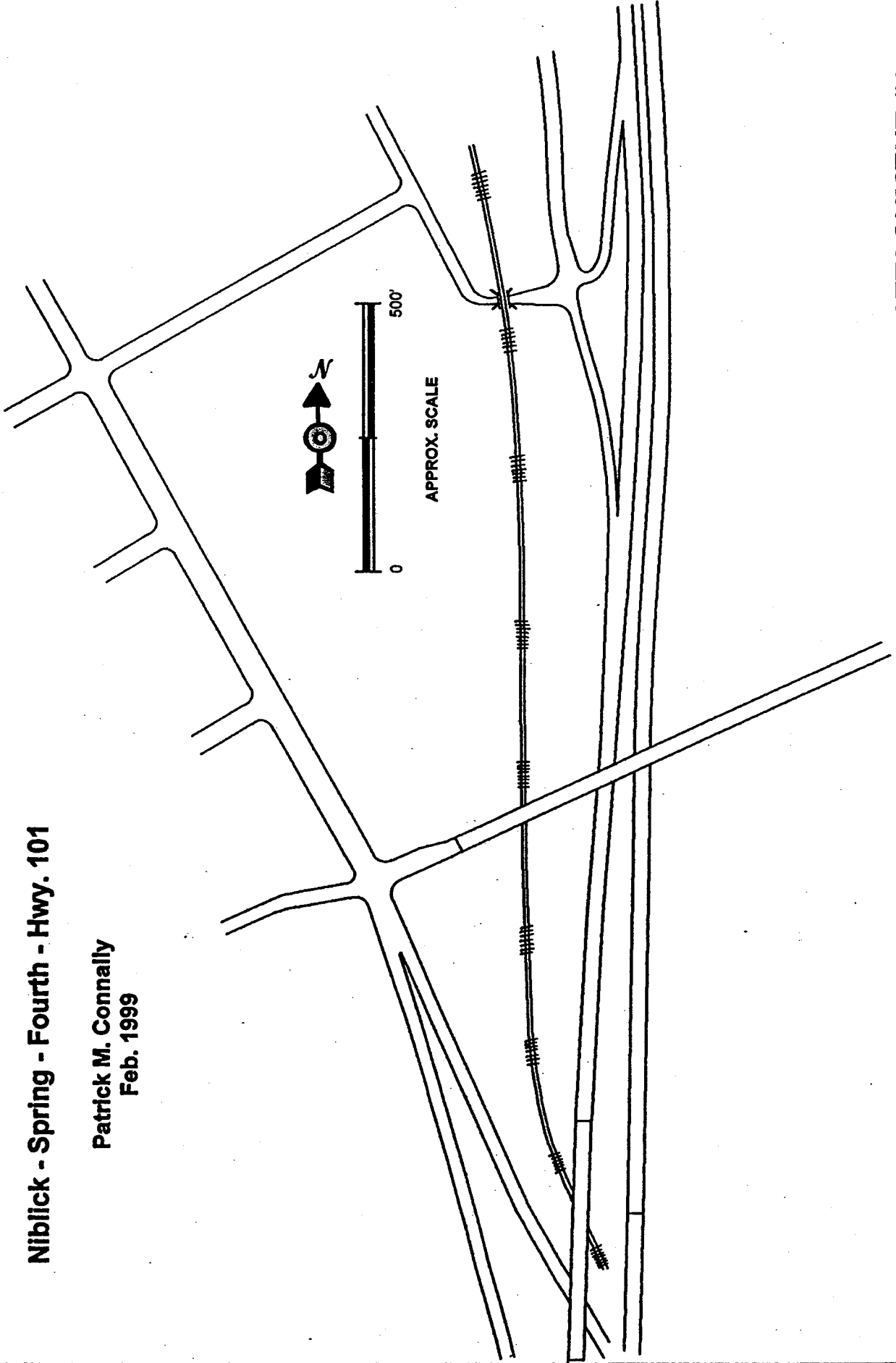
ATTACHMENTS

1. Existing Conditions
2. Proposal
3. Proposal Features
4. Cost Estimate

EXISTING CONDITIONS

Niblick - Spring - Fourth - Hwy. 101

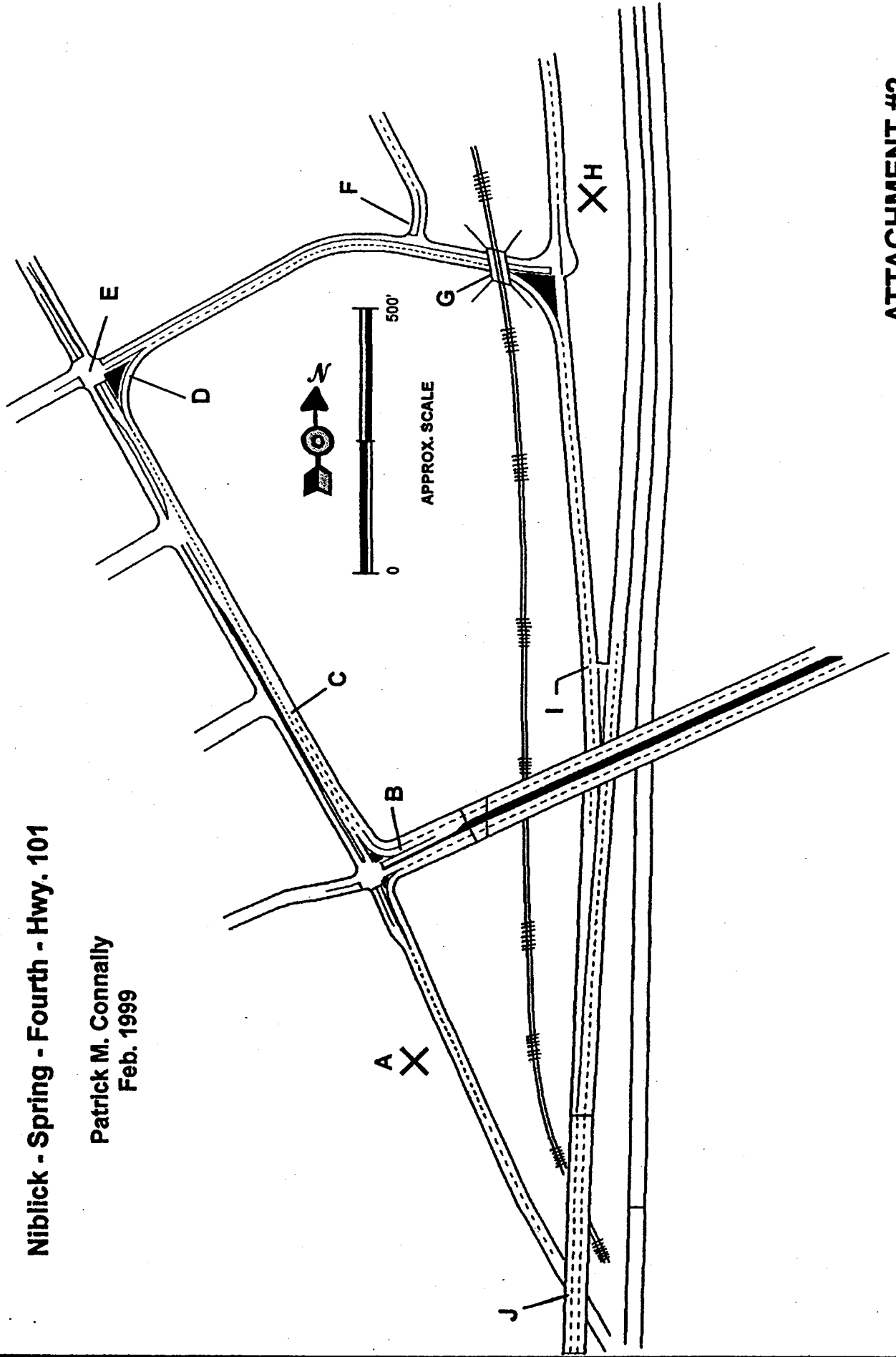
**Patrick M. Connally
Feb. 1999**



PROPOSED IMPROVEMENTS

Niblick - Spring - Fourth - Hwy. 101

**Patrick M. Connally
Feb. 1999**



PROPOSAL FEATURES

Niblick – Spring – Fourth – Hwy. 101
Patrick M. Connally - Feb. 1999

(Refer to Attachment #2 for general location)

- A** Close the existing southbound on ramp to the freeway. This will provide more "green" time for the other moves on the Spring/Niblick Street intersection.
- B** Provides two "free right" turn lanes where traffic would not stop for the signal. This provides the downtown and freeway-bound traffic faster access to those points. Also provides a single through lane to First Street. Note: "No left-turn" would be posted at this (Westbound) approach leg.
- C** The two "free right" lanes merge into one at Spring Street. This allows for downtown bound traffic to merge to the inside lane, while freeway bound traffic is funneled to the outside lane. While continuing three lanes from Niblick to Fourth Street would be more desirable, additional right of way and a more complex Fourth Street configuration would result.
- D** A "free right" lane is provided for freeway bound traffic. Again, this traffic would not stop for the signal at Fourth.
- E** Provides a new signal and longer left turn lane for southbound Spring Street traffic destined for the freeway.
- F** Realigns Pine Street to intersect a realigned Fourth Street at right angles.
- G** New railroad Undercrossing that would replace the narrow subway. This would provide two eastbound lanes and one westbound lane. One of the eastbound lanes would be dedicated for traffic entering the freeway. This new Undercrossing would "open up" access between Riverside and Spring for better local circulation.
- H** Close the existing southbound freeway off ramp. It is seldom used and keeping it would only complicate this intersection.
- I** A new standard Caltrans two lane on ramp allows for greater capacity to move more vehicles per hour onto the freeway.
- J** A new, wider freeway Overhead. Since this bridge is scheduled to be replaced for structural reasons, it can be replaced with three lanes instead of two. This allows for better freeway operations. This third lane could tie into the existing taper where the existing on ramp conforms.

ATTACHMENT #3

COST ESTIMATE FOR PROPOSED IMPROVEMENTS

Item	Description	Unit	Unit Cost	Qty	Item Cost
1	Underpass Structure (Railroad)	LS	\$1,000,000	1	\$1,000,000
2	Repair Railroad Tracks	LF	\$60	400	\$24,000
3	Maintain RR, Inspection	LS	\$100,000	1	\$100,000
4	Shoo Fly	LF	\$200	2500	\$500,000
5	Rdwy Exc./Import Brw	CY	\$10	35000	\$350,000
6	Retaining Walls	LF	\$175	700	\$122,500
7	Curb & Gutter	LF	\$10	6000	\$60,000
8	Sidewalks	CY	\$200	200	\$40,000
9	Upgrade Signal at Spring	LS	\$100,000	1	\$100,000
10	New Signal at 4th	LS	\$250,000	1	\$250,000
11	Aggregate Base	Ton	\$15	5000	\$75,000
12	Asphalt Concrete Pavement	Ton	\$50	5000	\$250,000
13	Obliterate Pavement (ramps)	Sq Yds	\$10	8000	\$80,000
14	MBGR	LF	\$25	500	\$12,500
15	Landscaping & Erosion Control	LS	\$100,000	1	\$100,000
16	Signing and Pavement Striping	LS	\$50,000	1	\$50,000
17	Traffic Control	LS	\$100,000	1	\$100,000
18	Drainage Improvements	LS	\$80,000	1	\$80,000
	Sub-Total				\$3,294,000
	20-percent Contingencies	LS	20%		\$658,800
	Sub-Total				\$3,952,800
19	Caltrans additional Costs (wider OH)	LS	\$1,000,000	1	\$1,000,000
Total =					\$4,952,800

P M CONNALLY

2/6/99

ATTACHMENT #4

March 31, 2003

Ms. Merceditas Esperanza,
Capital Projects Engineer
City of Paso Robles
Public Works Department
1000 Spring Street
Paso Robles, CA 93446

Re: 4th Street PSR-PDS – Preliminary Purpose and Need Evaluation

Dear Ditas,

URS and Associated Transportation Engineers (ATE) are providing this preliminary traffic evaluation to assess the merits of the project prior to further study. The preliminary traffic analysis reviews the existing and future traffic at the undercrossing, the traffic affects in the area served by the undercrossing, and policy issues that could be applied to the project evaluation. The analysis compares the existing condition to the alignment depicted in Alternative 2 that has been reviewed and recommended for further study by City staff.

Introduction

The existing 4th Street undercrossing is located in the southern downtown area of the City of Paso Robles, west of Highway 101 at the southern terminus of Pine Street and Riverside Avenue. The undercrossing is a single lane crossing with about 10 feet of vertical clearance and is stop controlled for eastbound traffic. The roadway alignment restricts the sight distance for drivers using the undercrossing. The Union Pacific Railroad (UPRR) mainline alignment converges with the Highway 101 alignment near the site and splits into multiple track alignments just north of the underpass. The Riverside Avenue/Pine Street/Highway 101 SB Ramps intersection is located just east of the undercrossing. 4th Street is the first east-west street north of the undercrossing. 4th Street extends westerly from Pine Street to Spring Street (and farther to the west). Pine Street provides connectivity on the southern end of the grid street system serving the downtown area located north of 4th Street.

General Plan Policies

The General Plan subarea that is served by the 4th Street undercrossing is generally the southern portion of Subarea 2 between Highway 101 and Spring Street from about 10th Street on the north to Niblick Road on the south.

The Circulation Element of the General Plan is the planning element that guides decision-making in regards to the transportation system. The policies that we have identified that are applicable in the evaluation of the 4th Street Undercrossing are as follows:

- Policy CE-1.a. Provide safe, efficient, and effective traffic flow, both within the City and between the City and its environs;
- Policy CE-1.b. Improve access to Downtown Paso Robles;
- Policy CE-1.c. Provide adequate access, including access for emergency vehicles and evacuation, to all parcels;
- Policy CE-1.d. Eliminate, via public works projects, existing major circulation problems on a prioritized basis;
- Policy CE-1.g. Provide safe paths for pedestrians and bicycles, particularly for school children;

It is important to note that the Circulation Element of the General Plan also discusses deficient circulation corridors and potential mitigation actions. In that discussion, Spring Street from 1st Street/Niblick Road to 26th Street is identified as in need of either widening (by use of existing on street parking) or by diversion of traffic to parallel routes since the desire to maintain downtown parking is a priority. Alternative routes for traffic diversion mentioned in that report include Pine Street, Vine Street and or Riverside Avenue.

Downtown Parking and Circulation Plan

The City recently completed the *Downtown Parking and Circulation Analysis and Action Plan*, Kimley-Horn Associates, September 2002. Improving 4th Street and the 4th Street undercrossing at the UPRR is key to circulation system modifications recommended in the action plan.

The plan identifies ways to divert through traffic from the downtown in order to eliminate the need to widen Spring Street and 13th Street to 4 lanes. The action plan addresses short, medium, and long-range modifications to respond to increases in traffic without widening Spring Street or otherwise negatively impacting the Downtown. The short-term modifications include changing Spring Street lane configurations to channel a lane of traffic east on 4th Street and north on Pine Street when development occurs at the NE and SE corners of 4th and Spring Streets. The mid-term modifications include closing 13th Street between Railroad and Park Streets and installing directional controls designed to channel traffic to Riverside and Creston Roads (to be first test for negative impacts). The long-term modifications include measures to direct Spring Street traffic east to the Riverside Avenue corridor, based on a new rail underpass or overpass being constructed at 4th Street and Pine/Riverside.

The 4th Street improvements can be divided into two segments. The first would provide a connection to Pine Street along with the diversion from Spring Street. The second would be the connection to Riverside Avenue with an improved crossing of the railroad.

Land Use

The density and the type of development that would occur in the area between the railroad and Spring Street south of 10th Street will depend to a large part on the quality of the access to the area. Businesses that serve the travelers/motorists may be inclined to go into this area if there is good access to Highway 101. If the access to the downtown area is via the street grid system, businesses that serve the local area would be more likely. A connection between Riverside Avenue area and the Pine Street area would create a synergy between the businesses in both locations.

The alignment illustrated in Alternative 2 would provide the Spring Street-Pine Street-Riverside Avenue connection to attract traffic destined for these areas of the City from Spring Street.

Traffic Patterns

There are three ramps connecting the central portion of Paso Robles to or from southbound Highway 101: one is an exit ramp only at 16th Street to the north of the underpass, the second is at Spring Street to the south and west of the existing underpass, and the third is at Pine St-Riverside Ave ramps located just east of the 4th Street undercrossing. The undercrossing connects the southern portion of Downtown with southbound Highway 101. Approximately 1,800 vehicles per day (VPD) currently use the 4th Street undercrossing. Growth in the surrounding area will increase traffic at the freeway connections, including at the 4th Street undercrossing. This assessment is a qualitative and not "modeled" study, based on review of existing information approximately 2,700 vehicles per day (VPD) are forecasted to use the 4th Street undercrossing in Year 2025 (assuming that it remains as is). Approximately 4,700 vpd are forecasted to use the 4th Street undercrossing in Year 2025 assuming that it is improved as shown in Alternative 2 of the preliminary alignments.

If unimproved, the traffic that would have used the undercrossing will use other City streets. This traffic would divert to Spring Street and the local grid system in the area. It is estimated that a substantial number of that traffic would use Spring Street, which would in turn serve to increase the need to widen the facility to 4 lanes. The diverted traffic to/from southbound Highway 101 would use the other ramps to the north and south. The Riverside Drive/16th Street-Highway 101 intersection would need to accommodate the diverted traffic coming from southbound Highway 101 into the Downtown area and the Spring Street-Highway 101/1st Street-Niblick Road intersection would need to accommodate the diverted traffic going to southbound Highway 101.

Safety

The existing Pine Street undercrossing is quite narrow and the alignment of the roadway approaches are such that there is very little sight distance for users, requiring low speeds to traverse the crossing. The roadway condition is such that motorists are very cautious when using the crossing, thus the crash incident history is minimal but the potential is real. The roadway alignment and conditions are such that there is little capability to significantly divert traffic volume to this location unless there are significant modifications to the roadway alignment. The narrow undercrossing and low vertical clearance essentially prohibit trucks from using the crossing. For these reasons, pedestrian and bicycle traffic is likewise not motivated to use the existing underpass.

Summary

Improvements to the southerly area of the downtown circulation grid and diversion of currently concentrated traffic patterns will serve to alleviate the demand on the Spring Street corridor and promote economic development of the area. The City's Circulation element includes specific policies to promote traffic distribution, safety, community and business values. The project is consistent with those City goals.

We hope that this information is helpful and meets your current needs, of course, the information will be expanded upon and further refined as the project moves forward. Please feel free to call me at 916-784-3900 if you have any questions.

Sincerely,

URS Corporation


Jorge Aguilar

Transportation Services Manager

c: File 3-A

LTR-Cty 03-31-03.DOC