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**DEPARTMENT OF
PUBLIC WORKS**

ENGINEERING DIVISION

THOMAS M. FINLEY
ENGINEERING DIVISION MANAGER

May 14, 1991

Joint Budget and Finance/Transportation
and Community Development Committee
Sacramento, California

Honorable Members In Session:

SUBJECT: Truxel Interchange - LRT Alignment Review

SUMMARY

Staff representing Regional Transit, CalTrans, and the City have reviewed the Regional Transit staff proposal to use the median of the Truxel Interchange for future light rail transit. After reviewing alignments on the easterly, median, and westerly locations, staff have found that the median alignment is technically feasible. Staff has also determined that there are technical, environmental, timing, and fiscal issues which need further consideration.

This report provides an evaluation of the issues and presents a recommended plan for proceeding with delivery of the Truxel Interchange.

BACKGROUND

On July 30, 1986, Capitol Gateway Associates retained the firm of Dokken Engineering to plan and design the Truxel Road Interchange across Interstate 80. Funds were deposited with the City for the retention of consultants to prepare the necessary State and Federal environmental documentation.

On November 28, 1989, the Council approved a Negative Declaration for the construction of the Truxel Road Interchange. The Council approval added a condition at the request of Regional Transit (RT) stating:

"In the event that the Systems Planning Study, currently being undertaken by Regional Transit, recommends a Light Rail alignment between downtown and North Natomas by way of the Truxel Road/I-80 Corridor, the City agrees to facilitate a study of the structural and operational feasibility of retrofitting a single track, Light Rail line onto the proposed Truxel Road/I-80 Interchange or a separate crossing structure. Any crossing of I-80 is subject to the approval of CalTrans and the Federal Highway Administration. The City will include acquisition and construction costs of either a retrofit or a separate structure crossing of I-80 (if required) as part of the North Natomas Financing Plan or some other appropriate funding source."

927 TENTH STREET
ROOM 200
SACRAMENTO, CA
95814-2705

916-449-8220

CONSTRUCTION SECTION
640 BERECUT DRIVE
SUITE B
SACRAMENTO, CA
95814-0131

916-449-5282

Joint Budget and Finance/Transportation and Community Development Committee
Truxel Interchange - LRT Alignment Review
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The environmental evaluation was based upon the interchange configuration prepared by Dokken and approved by CalTrans and FHWA.

Specific provision for Light Rail Transit (LRT) on the structure could not be provided because its specific impacts on freeway operations had not been evaluated. Subsequently, a Finding of No Significant Impact (FONSI) was approved by CalTrans and FHWA on January 22, 1990.

With the FONSI approval, design proceeded recognizing a single track facility would need to be provided in the future. A mechanism for funding a rail single track facility on a separate structure was included in the Mello Roos proposal. This proposal was shared with, and accepted by, the North Natomas property owners.

During the past several months, it has been the City's and CalTrans' understanding that the FONSI would be valid for three years (December 1992). If the interchange was not under construction by that time, additional environmental work might be required. Recently, however, FHWA officials have advised there is no specific deadline for the interchange with respect to the approved FONSI.

On January 8, 1991, the City Council agreed, as part of the Coca Cola/Raley development approval, that:

- A. The City will discontinue design work on the Truxel/I-80 Interchange for a period of 90 days, through March 11, 1991. During this time frame, the District will identify a preferred rail line alignment in this area, and the District and the City will work together to evaluate the options for a rail line crossing.
- B. During the 90-day period, both the City and Regional Transit will meet with CalTrans and FHWA, and the City will utilize its best efforts to secure CalTrans/FHWA approval for a median rail alignment on the interchange structure.
- C. The District's current objective is to maintain several options for a future rail crossing at Truxel/I-80. If a median crossing is determined to be the preferred option, and to be feasible and acceptable to CalTrans and FHWA, and if the project can be designed, financed, and the construction contract awarded without loss of current environmental approvals, then the City will undertake a revision to the project to accommodate a median alignment.

As of that date, the property owners had committed about \$600,000 in their efforts to construct the Truxel Interchange.

Since January 8, the following actions have taken place:

1. All project design work has been suspended.
2. Regional Transit staff have requested all options for LRT alignment be left open for future consideration until the route refinement study and related environmental documentation are completed and approved, and that the interchange structure be redesigned and constructed to separate the structure 30 feet to specifically allow a double track LRT to be constructed in the median at a future date.

3. Meetings have been held with CalTrans, Regional Transit and the City to review the issues related to the RT proposal. CalTrans has represented FHWA.
4. CalTrans, and FHWA through CalTrans, has requested a detailed traffic operations study to evaluate the potential impacts on ramp and freeway operations of the median alignment proposal. CalTrans also recommends a detailed LRT operations study be made by Regional Transit to determine the alignment with the best operational characteristics.
5. Regional Transit staff have proposed that redesign begin immediately before the Traffic Operations Study or technical evaluation of the LRT alternatives is performed, and before CalTrans and FHWA approval of the proposal is obtained in order to avoid precluding use of the median alignment.
6. Staff have met with property owners who have expressed a desire to create a transit oriented development on the northwest quadrant of the interchange.
7. Regional Transit staff anticipate that the LRT alignment will probably be in the median south of San Juan Road and will be in a separate right-of-way to the west of Truxel Road after the Loop Road intersection.

LRT Alternative Alignments

The three LRT alignments which Regional Transit staff would prefer to be left open for future decision-making are: Alignment 1, easterly of Truxel Road, Alignment 2, Median Alignment, and Alignment 3, westerly of Truxel Road. Schematic versions of these alignments are shown on Attachment A.

The construction timing of the Natomas LRT extension from Downtown, across the American River and through South and North Natomas to the airport, is uncertain. It is not expected to occur within the next 15 years.

Traffic Operations Study

CalTrans and FHWA have summarized the issues they wish reviewed in a letter dated March 14 (Attachment B). Of these issues, the most significant is the Traffic Operations Study. Their concern is that the Truxel Interchange is unusual in that it serves the Arco Arena complex with major events accessed from Interstate 80.

Of the five signalized intersections related to the Truxel Interchange, the proposed median LRT alignment will impact the three northerly intersections. These are the intersections most affected by Arco events. This may, in turn, adversely affect Interstate 80 operations. Further, congestion at the intersections may delay LRT operations.

Cursory review indicates that Alignment 3, westerly alignment, will not impact the three critical intersections, resulting in fewer delays for traffic and for LRT.

A Traffic Operations Study with active Regional Transit staff participation will provide factual information on which to make an informed decision as to which alternative will have the least adverse impacts on transit and on motorists, and will, in turn, most favorably provide for movement of people in Natomas.

Alignment 1, Easterly Alignment

The draft Regional Transit alignment study shows a possible LRT Alignment on the east side of Truxel Road. LRT is in the median at San Juan Road, swings easterly out of the right-of-way to a station, proceeds over the freeway on a separate structure, and then switches to the westerly side after the Loop Road intersection.

This alignment passes through one traffic signal. Additional right-of-way would be needed in the future, probably in conjunction with development approvals.

Alternatively, the easterly alignment could cross Truxel Road at the Loop Road intersection. This would impact one signalized intersection heavily affected by Arco Arena events.

This alignment does not affect the current interchange design or the FONSI, the Federally approved environmental document. Future environmental evaluation would be needed by Regional Transit.

Alignment 2, Median Alignment

Attachment A shows the median alignment. LRT is in the median at San Juan Road, continues in the median through the Rosin Blvd. intersection, across the interchange, through the eastbound off ramp intersection and the westbound off ramp intersection, and then switches to the westerly alignment at the Loop Road intersection.

This is the alignment preferred by Regional Transit staff.

This alignment passes through five traffic signals, including the three traffic signals affected by Arco Arena events (eastbound off ramp, westbound off ramp, and Loop Road).

Regional Transit staff have indicated they would prefer signal preemption for LRT, but that they understand and accept that this would not be allowed at peak traffic periods because of probable adverse impacts of off ramp traffic congestion which could affect Interstate 80 operation.

Two interchange configurations allow LRT to use the median alignment. Option 1 would use the current interchange configuration to allow a double track LRT facility to be built in the future. Option 2 would modify the current interchange configuration by splitting the interchange structures along the median of the bridge and widening the entire interchange by 30 feet.

Option 1 -- Existing Interchange Configuration, would allow future construction of a double track LRT facility. It would require the current project to design a stronger bridge to handle the higher structural loading. (LRT loads are greater than truck loads). It would also require revising the vertical road alignment to account for the thicker bridge deck and the depth of the rails. These modifications are estimated to be \$181,000, in addition to the current project cost.

This option assumes that the interchange will have sufficient operating capacity with six traffic lanes. A Traffic Operations Study would be required to approve this option; and, depending upon the findings of the study, additional environmental work may be required.

Option 2 -- Widening the Interchange 30 feet, does change the currently approved interchange configuration. The current interchange geometrics would need to be modified to separate the northbound and southbound lanes by 30 feet to allow a separate LRT median structure to be built in the future for the double track system proposed. This modification would move the easterly boundary of the complete interchange by 30 feet and would require about four acres of additional right-of-way. This option is estimated to cost \$1.2 - \$1.4 million.

Option 2 is expected to affect the current federally approved environmental document (FONSI). Wetlands (a drainage canal in the northeast interchange quadrant) are impacted to a minor degree. This can probably be resolved adequately. Traffic congestion would likely increase, and would likely increase co-emissions above the levels of the other two alignments. These would need to be evaluated. These issues are probably not significant, but depending upon the finding, may require FONSI re-approval. Federal approval of projects with air quality issues is currently unpredictable. Regional Transit staff believe all of the alignments improve air quality.

The most critical concern is the potential impact on traffic operations. The interchange operation is governed by the interaction of five traffic signals. The three northerly signals play major roles in any Arco Arena event. CalTrans and FHWA are concerned that traffic congestion at these signals may adversely affect the operation of Interstate 5.

Staff estimates the study to cost about \$20,000 and take 2-3 months to complete. The study results would take an additional 2-3 months for the City, Regional Transit, CalTrans, and FHWA to review any impacts on the proposed interchange geometrics. Depending upon the study results, the currently approved FONSI may or may not be found to be adequate.

Alignment 3, Westerly Alignment

Attachment A shows the westerly alignment. LRT is in the median at San Juan Road, continues in the median to the Rosin Boulevard intersection where it crosses to the westerly side at the Rosin Boulevard intersection, and then crosses the freeway on a separate structure.

This alignment passes through the southerly two traffic signals, but does not impact the three signals most heavily affected by Arco Arena events. Additional right-of-way would be needed in the future, probably in conjunction with development approvals.

This alignment does not affect the current interchange design or the FONSI.

Regional Transit is concerned that this alignment will increase the LRT noise to the residential neighborhoods and any potential future hotel, increase wheel wear because of the additional rail curves, and does not secure the right-of-way at this time.

The property owners on the northwest interchange quadrant, Centennial Community Developers, have reviewed this proposal. They have expressed strong interest in working with the City to provide a transit oriented development which secures for Regional Transit their right-of-way, and which recognizes that the LRT extension may not be provided in the next 15 years. No contact has been made with the property owners on the southwest quadrant. The previous purchase option owner also expressed interest in the proposal.

Right-of-way Considerations

Alignment 2, Option 1, Existing Interchange Configuration, does not require any additional right-of-way. All other alignments require additional right-of-way.

A secure right-of-way is a significant concern for Regional Transit staff. The Median Alignment, Option 2, Separated Structure, requires the funding and purchase of additional right-of-way if the project is to be constructed using this option.

The westerly alignment and the easterly alignment also require right-of-way. However the opportunity exists to obtain the right-of-way by dedications through the land use entitlement process. The opportunity also exists, particularly for the westerly alignment, for the City staff and Regional Transit staff to work in cooperation with the property owners to develop creative transit oriented land use proposals.

If the westerly or easterly alignments were chosen, it is important that all parties commit resources to assuring the rights-of-way are secured for the eventual LRT extensions.

TIMELINE ISSUES

For the current interchange configuration, it will require 11-12 months to have the project ready for construction. (This timeline includes 9 months to complete design and plan approval, and 2-3 months for advertising and award). Alignment 1, Easterly Alignment, and Alignment 3, Westerly Alignment, could meet this schedule. This time frame assumes that funding and right-of-way can be accomplished within 12 months.

Alignment 2, Median Alignment, Option 1, Existing Interchange Configuration, will require 14-18 months for construction to begin. (This timeline includes 3-6 months for the Traffic Operations Study, 9 months for redesign and plan approval, and 2-3 months for advertising and award, a total of 14-18 months).

Alignment 2, Median Alignment, Option 2, Separated Structure, will require 20-23 months for construction to begin. (This timeline includes 3-6 months for the Traffic Operations Study, 15 months for redesign and plan approval, and 2-3 months for advertising and award, a total of 20-24 months).

An optional approach recommended by Regional Transit staff would be to proceed with redesign and the traffic operations study simultaneously. This would require 11-12 months. (This timeline includes 9 months for redesign and completion of the plans, 2-3 months for advertising and award, and assumes funding and right-of-way acquisition can be completed within a 12-month period.)

The two timelines above assume no additional time is required for environmental issues and that approval of the new design has no delays. These variables cannot be ruled out until the Traffic Operations Study has been completed.

The developer timelines for providing additional design funding and the construction funding is not known at this time. However, certain developers have expressed a desire to assist in expediting design of the interchange and have requested that the City prepare a specific funding proposal.

FINANCIAL DATA

The current alignment re-evaluation will cost approximately \$15,000 in staff and consultant expenses from the Truxel Road Extension project (PN:TG06).

To further examine Alignment 2, Median Alignment, \$30,000 will be required for consultant and staff time to perform the Traffic Operations Study. If Alignment 2, Median Alignment, is selected to be used, the environmental costs will need to be evaluated after the Traffic Operations Study is completed and the concepts approved. Costs could range from \$10,000 to a major expense.

If Alignment 2 were approved by FHWA and CalTrans, and if the FONSI did not need modification, redesign to implement Option 2 would cost \$300,000, additional right-of-way would cost \$600,000 - \$800,000. Interchange construction costs would increase \$300,000. Additional mitigation measure costs if any are not known. Total additional project costs are estimated to be \$1.2 - \$1.4 million.

Redesign to implement Alignment 2, Option 1 increasing bridge thickness would increase design cost by \$43,000, for a total cost to complete the design of the Truxel Road interchange being \$220,000. Interchange construction costs would increase \$181,000.

The Median Alignment (Option 1) would probably have the least cost of the three alignments if right-of-way is purchased for all three alignments. If right-of-way is dedicated for the Westerly or Easterly Alignments through the development process, their costs may be less. The Median Alignment (Option 2) separating the two structures has the largest current cost.

City and Regional Transit funding sources for the current and potential expenses have not been identified. Regional Transit expects that all LRT related costs for the Truxel Interchange would be paid by the City or the property owners, and that any initial expenditure by Regional Transit would be reimbursed. This is a policy issue to be evaluated later if necessary.

POLICY CONSIDERATIONS - DESIGN CONTRACT

Dokken Engineering has been retained by Capitol Gateway Associates to design the Truxel Interchange. To date they have provided about \$640,000 in consultant services, some of which is still unpaid. The City does not have a contractual relationship with Dokken Engineering and cannot direct the redesign of the improvement plans which are currently owned by Dokken and Capitol Gateway Associates. City assumption of the design process and work products may involve assumption of current liabilities and reimbursement of past expenses. This would be the subject of further negotiations and agreements with the parties involved.

MBE/WBE EFFORTS

Not applicable.

ALTERNATIVES

Three alternative actions are available:

Alternative 1 Retain a traffic consultant and proceed with the Traffic Operation Study required to evaluate Alignment 2, Option 1, and Option 2.

- Retain a consultant to analyze environmental and air quality issues and advise City of potential impacts.
- Retain Dokken Engineering to analyze design related issues raised by the Traffic Operations Study.
- Direct staff to prepare a letter for Council approval which requests Regional Transit commit staff, consultants, and fiscal resources to begin technical evaluations of the alternatives as requested by CalTrans.
- Develop funding proposals for additional transit related costs with Regional Transit.

Discussion - Traffic Operations Study will determine if congestion and co-emissions are higher for Alignment 2 than for Alignments 1 or 3. If congestion impacts are substantial, Caltrans and FHWA may not approve.

Alternative 2 Proceed with current interchange design when private funding is available.

- Direct Public Works and Planning staff to work with property owners and Regional Transit staff to create LRT oriented development and land use entitlements which facilitate transit and secure the future right-of-way.
- Direct staff to prepare a letter for Council approval which requests Regional Transit to commit staff, consultant, and fiscal resources to support the City process needed to develop transit oriented land uses.

Discussion - Least consultant and construction expense, avoids \$1.2-\$1.4 million initial construction and consultant expenses. Most likely to have lowest congestion and co-emissions. Requires additional effort by staff from Planning, Regional Transit, and Public Works to secure the future right-of-way and to encourage creative transit oriented land uses and development proposals.

Alternative 3 Proceed simultaneously with Traffic Operations Study and redesign of the interchange in accordance with Alignment 2, Option 1 (Median Alignment). Regional Transit, developer, and City funds to be advanced for this purpose.

Discussion - This alternative is preferred by Regional Transit.

If no environmental or other issues evolve during the Traffic Operations Study, and if Caltrans and FHWA approval are obtained, 17-18 months would be required to advertise and award the project.

Dokken Engineering has estimated that the cost to redesign the interchange to accommodate future Light Rail would be \$43,000. Regional Transit staff proposes that the redesign be funded equally by the City and RT. The total cost to complete the design of the Truxel Road interchange, under this alternative, would be \$220,000, plus any unpaid costs to date.

An agreement will need to be prepared and approved by the City, Regional Transit, Dokken Engineering, and Capitol Gateway to assume ownership of the current design work and assign fiscal responsibility for past and future expenses.

RECOMMENDATION

Staff recommends Alternative 3. It is requested that the Joint Committee direct staff to prepare a funding agreement between the City, developers, and Regional Transit for the Light Rail and completion of the interchange PS&E documents. Staff will present said agreement to full City Council for approval. A separate report on the results of the Traffic Operations Study will be presented in approximately three months when that study is completed.

Respectfully submitted,

Melvin H. Johnson

for THOMAS M. FINLEY
Engineering Division Manager

Recommendation Approved:

for *Jack R. Crist*
JACK R. CRIST
Deputy City Manager

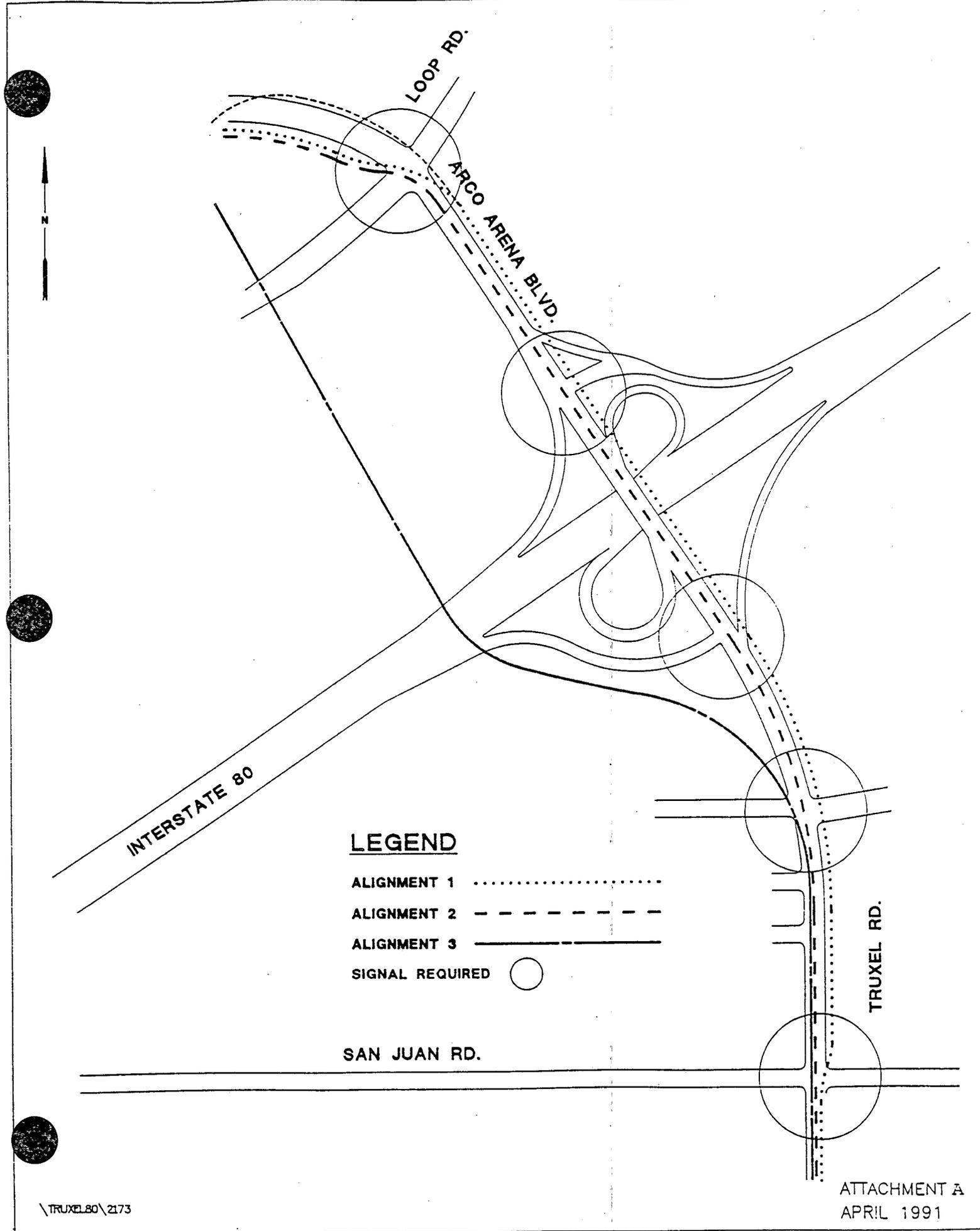
Approved:

Melvin H. Johnson
MELVIN H. JOHNSON
Director of Public Works

CONTACT PERSON

Thomas M. Finley, Engineering Division Manager
449-8220

May 14, 1991
District No. 1



INTERSTATE 80

LOOP RD.

ARCO ARENA BLVD.

TRUXEL RD.

SAN JUAN RD.

LEGEND

ALIGNMENT 1 (dotted line)

ALIGNMENT 2 - - - - - (dashed line)

ALIGNMENT 3 _____ (solid line)

SIGNAL REQUIRED ○ (circle)

DEPARTMENT OF TRANSPORTATION

DISTRICT 3

P.O. BOX 911, MARYSVILLE, CA 95901

TDD (916) 741-4309

(916) 741-4277

OFFICE OF THE DISTRICT DIRECTOR

MAR 18 1991



March 14, 1991

03-Sac-80 PM 4.1
03101 - 307801
Truxel Road IC

Mr. Mel Johnson
Director of Public Works
915 I Street, Room 207
Sacramento, CA 95814

03-Sac-05 PM 28.1
03101 - 316101
North Market St. IC

Attention Mr. Bob Lee

Dear Mr. Johnson:

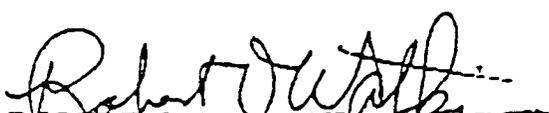
This letter is in response to the proposal by Regional Transit (RT) to cross Interstate 80 (I-80) with light rail transit in the median on the Truxel Road Interchange structure. While Caltrans actively supports providing a full range of transit opportunities to the Natomas area, we have serious concerns about this proposal.

As discussed in recent meetings with City of Sacramento and RT staff, our concerns pertain to the effects on traffic operations at the interchange and at adjacent signalized intersections. We are particularly concerned about traffic congestion during AM or PM peak hours or pre-event/post-event operations at the interchange.

We believe that an operations study which addresses the issues on the attached list will be necessary before the City can determine the advisability of proposing median tracks, and Caltrans and FHWA approved is sought. We also recommend that the City and RT include such a study in on-going light rail route selection studies, and that the relative advantages and disadvantages of crossing I-80 on a separate structure be examined. The results of these studies will allow the City to select the best feasible light rail alignment, which in turn will impact the future success of transit, vehicular and non-motorized access in South and North Natomas.

We are ready to assist you in designing and evaluating the operations analysis and environmental re-evaluation which may be necessary. Please contact Ernie Rinde at 327-3995, if we can be of further assistance.

Sincerely,


ROBERT O. WATKINS
District Director

Attachment

March 14, 1991
03-SAC-80 PM4.1
Truxel Rd. IC

SUMMARY OF CONCERNS

1. Will traffic back onto I-80 from congestion at the ramp intersections or will adjacent intersection congestion at Loop Road, Rosin Court and San Juan Avenue cause congestion at the ramp intersections, thus resulting in back up onto the freeway?
2. Will a significant increase in accidents in the interchange area and I-80 occur?
3. How much increased congestion will occur due to signal operation during AM and PM peak hours and pre-post events?
4. What is the increased maintenance cost and who will be responsible?
5. Environmental reevaluation of the additional Right of Way and increased noise impacts (and possible delay if a significant increase develops) will be necessary to reconcile this proposal with the original environmental clearance.
6. Transit signal pre-emption or priority. RT has indicated that only off-peak and non-event time periods would use transit priority.
7. Impacts on pedestrian and bicycle access to North Natomas.