Feasibility Study Report

Prepared for

City of Sacramento
Department of Transportation
November, 2009

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City College Light Rail Station Pedestrian/Bicycle Crossing Project

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Executive Summary

Project Title - City College Light Rail Station Pedestrian/Bicycle Crossing Project

Project Description - The City of Sacramento (City), in cooperation with the Sacramento Regional Transit, Los Rios Community College District, and Petrovich Development Company, proposes to construct a new pedestrian/bicycle crossing that will extend from the Light Rail Transit (LRT) Station at Sacramento City College to the existing and proposed new neighborhoods east of the Union Pacific railroad (UPRR) tracks. The new crossing will provide a safe and convenient traverse between the LRT Station and the proposed Curtis Park Village residential/commercial development project and existing Curtis Park neighborhood. See Location Map and Vicinity map (Figure 1)

Purpose of Crossing - The fundamental design goals of this project are to:

- Provide safe and pleasant access for pedestrians, bicycles, joggers, wheelchairs, parents pushing strollers, in-line skaters, and other non-motorized travelers across the UPRR right of way;
- Provide convenient access to Light Rail;
- Provide neighborhood connectivity;
- Provide safe and convenient access for the disabled community

The importance of providing this safe route is underscored by the number of tracks within the right-of-way: two UPRR main lines, maintenance yard with seven UPRR spur tracks, two LRT lines and potential for a future UPRR third main line track. Long desired by the local community, this project is now being moved forward by the City of Sacramento.

Purpose of This Study - This Feasibility Study Report provides estimated costs, benefits and concerns of alternative methods of providing safe pedestrian and bicycle access across the multiple UPRR and LRT tracks, provides environmental documentation, public outreach to inform and gain consensus, and preliminary design for the proposed alternative including construction cost estimate.
The preliminary engineering performed as part of this study provides the necessary documentation to support the proposed sighting (location of crossing along the tracks) and geometry of the proposed alternative and planning level evaluation of each alternative considered and conclusions reached.

The Key components of the preliminary engineering include:

- **Initial environmental studies.**

  The extent and accomplishments of the environmental effort exceed the level usually required at this stage of a project. Not only were the technical studies performed and the environmental document been completed, but the following key milestones have been, or are in the process of being, met:

  - Technical studies required for the National Environmental Policy Act (NEPA) submitted to Caltrans for review. Reviews have been completed.
  - The draft CEQA document (an Initial Study Mitigated Negative Declaration, or IS/MND) circulated for thirty day public review. Review period was completed on September 10, 2009.
  - Caltrans, as delegated by FHWA, will issue a Categorical Exclusion pursuant to NEPA for the proposed project. It is anticipated that Caltrans will issue the Categorical Exclusion in February or March 2010.

- **Public Outreach.**

  All major stakeholders (property owners directly affected by the project), and community groups have been involved with the study process.
  Three primary groups of stakeholders have been identified for this project:
  1. Land Owners
     - ✓ Sacramento Regional Transit Authority (LRT)
     - ✓ Union Pacific Railroad (UPRR)
     - ✓ Los Rios Community College District - Sacramento City College campus
     - ✓ Petrovich Development - developers of Curtis Park Village
     - ✓ City of Sacramento – in regards to Sutterville Rd. Overcrossing Widening alternative only

2. Local Community
   - ✓ Sierra Curtis Neighborhood Association (SCNA)
   - ✓ College Plaza Neighborhood Association
   - ✓ Land Park Neighborhood Association (LPNA)
   - ✓ Sacramento Area Bicycle Advocates (SABA)
   - ✓ Sacramento City/County Bicycle Advisory Committee (SacBAC)
   - ✓ WALKSacramento

3. Utilities
   - ✓ See the "Utilities" section of the report for a complete summary and discussion of the utilities.

The success of the public outreach effort is reflected in the following:

- ➢ Consensus for the proposed crossing alternative, location and alignment was reached with the four major stakeholders.
- ➢ Surrounding neighborhoods were informed of the project with mailers, newsletters and an interactive website. Meetings were held with several neighborhood and activist groups.

- **Preliminary Design.**

  A 30% level design of the proposed alternative crossing was performed. Its major components include:

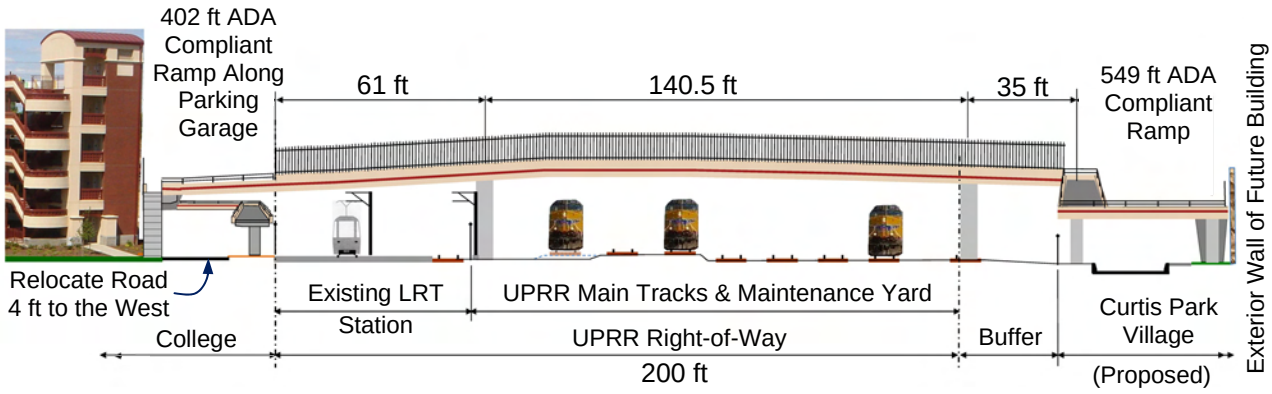
  - ➢ Advanced planning level detail plan sheets including bridge layout and profile, and structure type.
  - ➢ Preliminary calculations to verify the geometry and section dimensions developed.
  - ➢ Preliminary estimate of probable project construction cost.
  - ➢ Impact on adjacent utilities

Types of crossings considered – The following crossing types were considered to be reasonable options and have been evaluated by the study:

- Bridges with ramp approaches, including:
  - o Conventional reinforced concrete and prestressed concrete bridges
  - o "Signature" type steel pipe through arch bridge (deck suspended from arch)
- Bridges with elevators and stairway approaches.
- Widening of the existing Sutterville Road bridge at the southern edge of the study area
- Below ground crossings including, tunnels and carrying the railroad tracks on bridges over a trenched bike path.
- At grade crossing

Proposed Alternative, First -

Of these crossing alternatives evaluated, the proposed alternative is the conventional cast-in-place prestressed concrete bridge with reinforced concrete ramp approaches.



Alternative 1: CIP / Prestressed Bridge Alternative with Ramps

Alternative 1	Design Engineering	Construction Management	* Probable Construction Cost
Probable Cost	$463,000	$ 370,000	$4,375,000
Estimated Schedule	12 months	Concurrent with construction	18 months

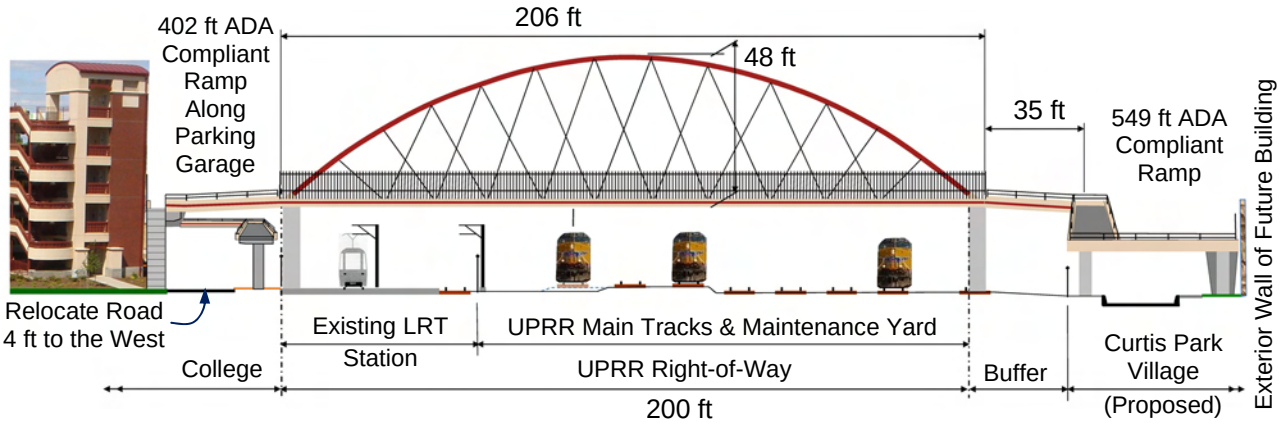
* Includes Easements and Right of Entry Acquisitions, utility relocations, and secure bicycle parking

Proposed Alternative, Second -

A second proposed alternative was selected as a result of public input. The alternative would be considered a "signature" bridge and subject to the availability of the greater funds required for design and construction. It is the through pipe arch bridge with conventional reinforced concrete ramp approaches.

The great advantages of which are:

- Greatly enhanced aesthetics
- Reduced impact to railroad clearance zones, hence, easier railroad approval



Alternative 2: Tied-Arch Alternative, Looking North

Alternative 2	Design Engineering	Construction Management	* Probable Construction Cost
Probable Cost	$695,000	$ 555,000	$6,205,000
Estimated Schedule	16 months	Concurrent with construction	18 months

* Includes Easements and Right of Entry Acquisitions, utility relocations, and secure bicycle parking

Introduction

Project Title

City College Light Rail Station Pedestrian/Bicycle Crossing Project

Project Description - Summary

The City of Sacramento (City), in cooperation with the Sacramento Regional Transit, Los Rios Community College District, and Petrovich Development Company, proposes to construct a new pedestrian/bicycle crossing that would extend from the Light Rail Transit (LRT) Station at Sacramento City College to the existing and proposed new neighborhoods east of the Union Pacific railroad (UPRR) tracks. The new crossing would provide a safe and convenient traverse between the LRT Station and the proposed Curtis Park Village residential/commercial development project and existing Curtis Park neighborhood. See Location Map and Vicinity map (Figure 1 at the end of this section).

Purpose of Crossing

- The fundamental design goals of this project are to:

- Provide safe and pleasant access for pedestrians, bicycles, joggers, wheelchairs, parents pushing strollers, in-line skaters, and other non-motorized travelers across the UPRR right of way;
- Provide convenient access to Light Rail;
- Provide neighborhood connectivity;
- Provide safe and convenient access for the disabled community

The importance of providing this safe route is underscored by the number of tracks within the right-of-way: two UPRR main lines, maintenance yard with seven UPRR spur tracks, two LRT lines and potential for a future UPRR third main line track. Long desired by the local community, this project is now being moved forward by the City of Sacramento.

Construction of a new crossing will also address the issues involved with pedestrians trespassing on UPRR right-of-way to cross the wide and busy rail corridor. LRT officials have noted that improving the safety of this area is critical due to the numerous pedestrians that cross the tracks on a daily basis.

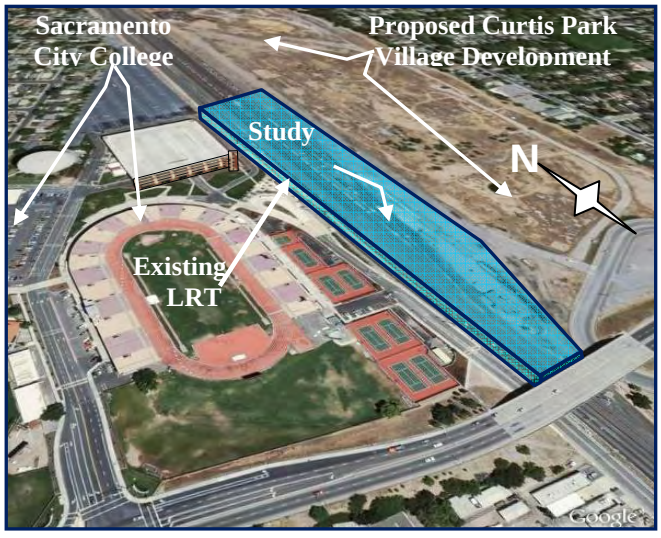
Secondary goals include creating a facility which will actively attract use. In addition to meeting high structural safety standards, the elements of a successful solution to this design challenge include:

- sensitive accommodation of the unique needs of numerous user groups,
- attention to proportions, shapes, surfaces, colors, and other aesthetic features,
- adequate lighting and visual openness,
- attention to other details which encourage or facilitate safety, and
- a landmark character

Project Limits

Based on the City's defined purpose of this crossing, limits of the study area were developed. The limits of the three dimensional study area are designated as the Study Prism in the above photo. This three dimensional prism has the following boundaries:

- The existing Sutterville Road Overhead structure to the south.
- The new Sacramento City College parking garage to the north.



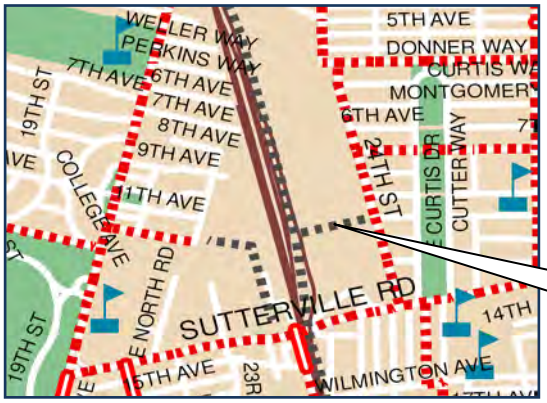
Project Site, Looking North-East
Feasibility Study Prism

- The proposed future Curtis Park Village development to the east.
- City College to the west.

The height of the prism is dictated by bridge type options and by required vertical clearances over the LRT and UPRR tracks as well as by consideration for overhead utilities. The prism also extends below ground for the undercrossing options such as tunnel and rail bridge(s) over a depressed pedestrian/bicycle path.

Existing Conditions

The existing route for pedestrian and cyclists to cross these tracks, the Sutterville Road Overcrossing, does not meet accessibility standards as required by the Americans with Disabilities Act (ADA) and is widely viewed as being unpleasant to use, and has limited functionality - it cannot accommodate wheelchairs. Future development within the eastern portion of the rail yard, the proposed Curtis Park Village project, will increase the need for a new pedestrian and bicycle crossing of the rail yard. Moreover, developing better options for walking and bicycling in new developments is one of the expressed goals of the City's General Plan.



2010 Sacramento City/County Bikeway Master Plan
Existing and Proposed Bikeway Map

This project will provide an important link in the City of Sacramento's Bike Master Plan by connecting Sacramento City College, the LRT station and neighborhoods to the west with existing and proposed future neighborhoods to the east as shown in the adjacent figure.

Proposed Improvements

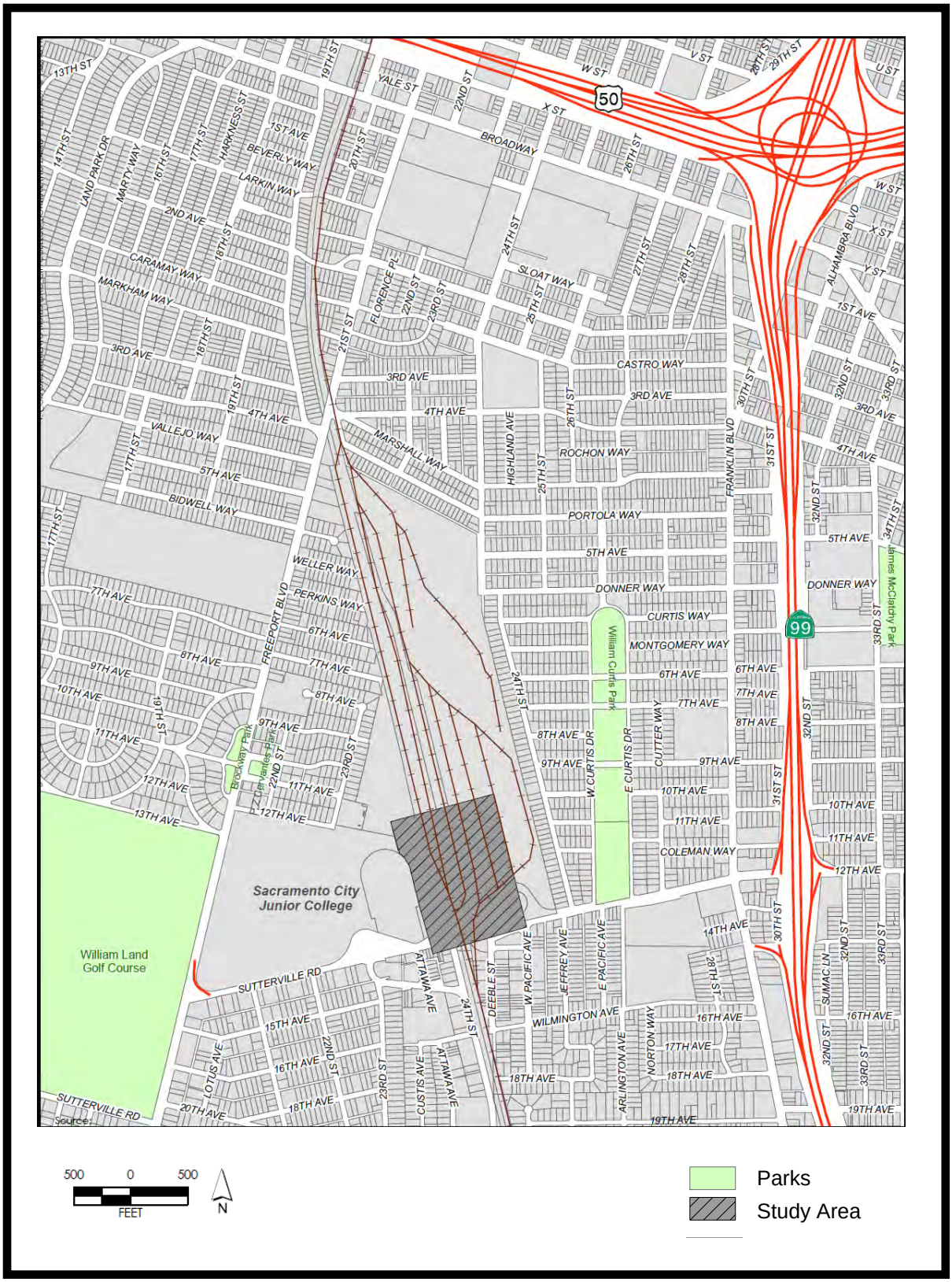
The proposed project evaluated by this Feasibility Study is an alternative modes route that will provide safe crossing of the LRT and UPRR tracks. Alternatives evaluated for this study include both above ground (bridge including an option to widen the existing Sutterville Road Overhead) and below ground (tunnel or rail undercrossing) structures.

An at-grade crossing (south of the UPRR spur lines and maintenance yard) is also discussed.

The City is also proposing to include secured bicycle parking for this project to promote greater use of this crossing to access the LRT station and for greater use of LRT in general.

Project Site, Looking North From Sutterville Road Overhead
Highlighting Width of LRT Station and UPRR Yard to be Crossed

Figure 1 – Location Map



Purpose of This Study

This Feasibility Study Report provides estimated costs, benefits and concerns of alternative methods of providing safe pedestrian and bicycle access across the multiple UPRR and LRT tracks.

The preliminary engineering performed as part of this study provides the necessary documentation to support the proposed sighting (location of crossing along the tracks) and geometry of the proposed alternative and planning level evaluation of each alternative considered and conclusions reached.

Preliminary engineering performed includes:

Initial environmental studies; surveying, preliminary geotechnical issues assessment, an assessment of drainage and potential for hazardous materials at the site; development of vertical profiles to balance the conflicting needs of American's with Disabilities Act (ADA) compliant grades with railroad vertical clearance requirements, lighting and safety concerns; construction staging, disruption to rail traffic; coordination with major stakeholders comprised of the agencies and landowners directly affected by this project, public outreach efforts designed to inform the local community and gain their support; and coordination with resource agencies to ensure that the proposed project is consistent with environmental requirements. In addition to providing the basis for this Feasibility Study Report, the preliminary engineering was used to develop an estimate of probable project cost, benefits and drawbacks for each alternative, and to support the environmental document, as well as to facilitate future final design.

Project Description

Background

To the east of the rail crossing is the proposed Curtis Park Village project. Development of this site will bring new activity to the area; therefore it is considered one of the catalysts for this project. This study will assume to include this master planned residential and commercial future project as a given. Since the Village is in conceptual stages, the City has the opportunity to work with the developer for a crossing that best meets the needs of the user rather than "forcing" a best fit into an already developed area.

Existing Conditions Around Crossing

Legend:

1. Proposed Bicycle / Pedestrian Crossing (per City Bicycle Master Plan)
2. Proposed Curtis Park Village Development
3. UPRR Maintenance Yard and Main Lines (red lines represent UPRR and LRT tracks)
4. Sacramento LRT Station (the two LRT tracks are to the left)
5. Sacramento City College
6. Parking Garage
7. Sutterville Road Overcrossing (Bridge)

Along the west edge of the project are the Light Rail Station and Sacramento City College. Providing a direct link to the station and safe route for students are key objectives of this project.

Safety

The primary concern for this study is to develop a safe crossing of the UP mainline tracks. Although trespassing through the adjacent UPRR yard and accessing the LRT station from the east side is prohibited, the "draw" of both City College and the LRT station result in numerous trespasses through the UPRR yard and the unprotected LRT tracks outside the limits of the station. With an average of up to ten LRT trains an hour and numerous trains using the two UPRR tracks, including diversions to the five spur lines, crossing this site is considered very risky.

Senior LRT staff and LRT station security personnel have noted that this location is a significant safety concern, even without the increase in pedestrian traffic that will occur once the Curtis Park Village Development is constructed.

Once the Curtis Park Village project construction is built, access to the rail yard will be much easier and the temptation to cut-through rather than to take the longer path over the existing Sutterville Rd. Overhead will be even greater. Most entities, ranging from local community groups to City officials, SACOG and the Environmental Council of Sacramento (ECOS) have expressed this concern. Even though SACOG and ECOS heavily endorse the Curtis Park Village project based on its adherence to the Blueprint principles of in-fill residential projects, they highly recommend the inclusion of a safe pedestrian/bicycle crossing.

The following main safety goals will be accomplished by this project:

- ✓ Provide a safe crossing of tracks.
- ✓ Provide safety to the user of the crossing, including sight distance, railings, and ADA requirements.
- ✓ Provide safety to the local community, LRT users, City College students and all others during construction.

To ensure that the above goals are met, this study evaluates the following safety aspects of the alternatives:

- ✓ Evaluate end of structure access alternatives including ramps, stairs and elevators.
- ✓ On site secured bicycle parking.
- ✓ Evaluate each alternative regarding exposure of user to crime, including sight distance, lighting, and visibility of user from outside of the facility.
- ✓ Construction staging to protect users of the LRT station, other campus pedestrians and bicyclists, and vehicles and busses using the adjacent streets.
- ✓ Protection from exposure during the possible removal of hazardous waste during excavation and grading for the crossing.

Project Constraints

The new rail crossing must conform to the existing conditions as much as possible to both limit costs associated with modifications to such existing elements as roadways, fences, utilities, etc. and to minimize or eliminate disruption to existing railroad operations and to City College. As noted above, this project is being studied at the optimum time in regards to the east approach at the proposed Cutis Park Village where its integration into the final Village plans can be accomplished. However, the west approach at the City College LRT Station is more challenging due to existing constraints, such as the roads, tennis courts, College parking garage, desire of City College to preserve the open spaces (lawns) in that area, and the LRT station.

All leading sites were evaluated and a crossing as close to the LRT station as possible was found to be the best suited and most feasible. Therefore, the most promising locations for the approach are near the grassy area to the north-west of the station entrance and "behind" the parking garage (between the east side of the garage and the LRT tracks). (See photo below).

Likely Location of West Approach Ramp
Looking North-East from Eastern Edge of Sacramento City College

Although these areas would be considered tight to accommodate the approach for some of the crossing alternatives, the approach can be designed to conform to the geometry of these areas.

Additional constraints are limitations imposed by the UPRR for construction within their maintenance yard and adjacent to their main lines, as well as permanent obstructions such as bridge columns. The proposed alternative is sensitive to railroad requirements such as vertical and horizontal clearances, limits on falsework, staging and scheduling to minimize or eliminate disruption to railroad operations.

Right of Way

The primary land owners affected by this project are the Sacramento Regional Transit Authority (LRT), Union Pacific Railroad (UPRR), Los Rios Community College District - Sacramento City College, developers of Curtis Park Village (CPV) and the City of Sacramento (for widening of existing Sutterville Road Overhead alternative). All of these parties have an interest in seeing a positive outcome from this project and will benefit from its completion.

- ✓ The UPRR, which may express concerns as described above in Project Constraints, will benefit by a reduction in liability from the current high rate of trespassers looking for a shortcut across their property to the LRT station and City College.
- ✓ LRT will also benefit due to a reduction in trespassers across their tracks in terms of both liability and the cost of assigning security guards to this location. They will also benefit by having a safe crossing to their station that will better serve their riders and likely increase the number of riders.
- ✓ Sacramento City College will benefit through a safer, more direct route, to their campus for communities to the east, which may also result in an increase in their enrollment.
- ✓ CPV Developer will benefit due to improved access to their new commercial development.
- ✓ The City of Sacramento will benefit by providing this safer crossing for its residents.

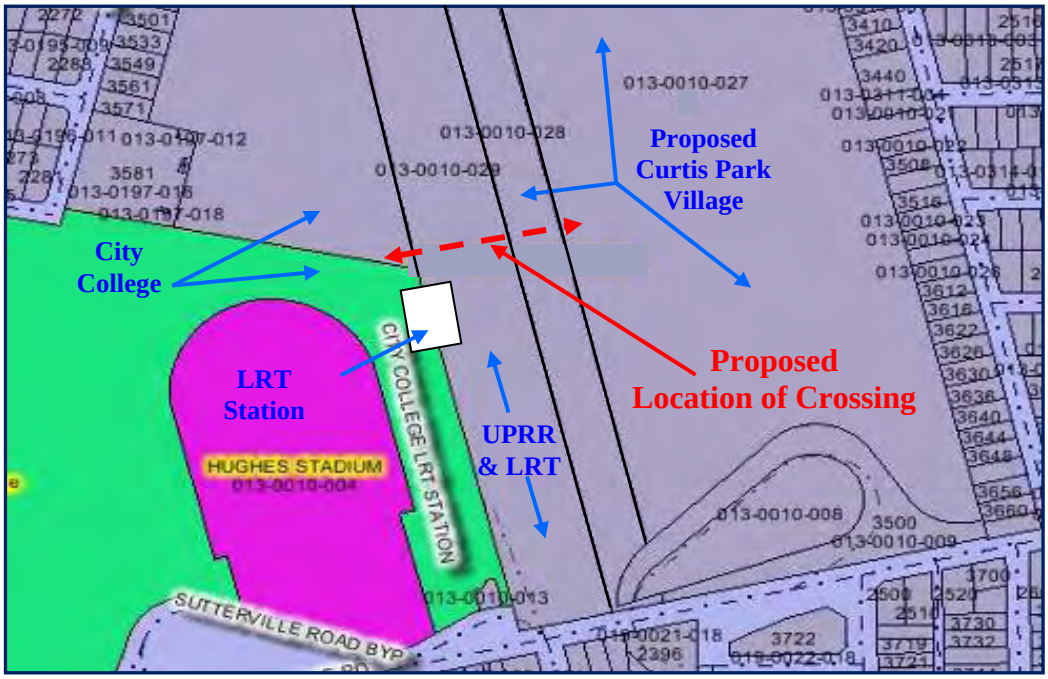
Through the process of developing this Feasibility Study, numerous meetings have taken place with these stakeholders. The focus has been to work with the property owners to show the benefit this project brings them.

Temporary Construction Easements (TCE) from the Sacramento City College, the UPRR, the LRT (who leases from the UPRR) and the developer of the proposed Curtis Park Village (Petrovich Development) will be required for the duration of construction.

The cost for obtaining these easements and rights of entry is estimated to be $75,000. Acquisition of land is not anticipated to be required; therefore, such costs have not been included in the cost estimates for this study.

Although the three main landowners involved, the UPRR, Los Rios Community College District and Petrovich Development Company have all provided tentative agreement for the proposed crossing, the project will still be contingent upon obtaining easements and agreements from each of these entities.

See additional discussion under the following section Public Outreach/Stakeholders.



County Assessor's Parcel Map
Showing Parcel Numbers & Right-of Way Lines

Hazardous Materials/Waste

The Initial Site Assessment (ISA) for this project site has been completed. The ISA is critical at this site as the general area of the railroad maintenance yard has previously been identified to contain hazardous materials. The ISA further identified the potential for the presence of hazardous material/waste at the specific location of the crossing.

Additional discussion of Hazardous Materials/Waste issues is provided in Appendix E.

In preparation for the Curtis Park Village Project, a very large volume of contaminated soil has been removed.

Environmental Issues

The proposed project is a City of Sacramento project. Caltrans has NEPA approval responsibility as delegated by FHWA, and the project is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The City of Sacramento is the lead agency under CEQA. Caltrans, as delegated by FHWA, is the federal lead agency under NEPA.

Caltrans, as delegated by FHWA, and will issue a Categorical Exclusion pursuant to NEPA for the proposed project. It is anticipated that Caltrans will issue the Categorical Exclusion in February or March 2010.

An initial study (IS) was prepared with supporting environmental studies, which provides justification for a Mitigated Negative Declaration (MND) pursuant to the California Environmental Quality Act (CEQA) for the proposed project. The Draft IS/MND was circulated to the public for 30 days beginning August 10, 2009. One comment was received on the document and was responded to in the Staff Report prepared for the project for City Council review. A Mitigation Monitoring and Reporting Program prepared for the project will also adopted by the Sacramento City Council concurrently with certification of the MND.

The IS identified potentially significant impacts from the project in the areas of Aesthetics, Hazardous Materials, and Construction Noise. A draft report and technical studies have been prepared and are available for review. [See Reference C.]
Additional discussion of environmental issues is provided in Appendix D.

Utilities

Based upon research and field visits, relocation of some utilities in the proposed project area is required. It is important to ensure that utility location and coordination begins at the earliest possible stage. Therefore, in preparation for the following design stage, each utility company with facilities in the project area has been notified of this project.

As part of this notification, the utility has been asked to provide record information and identify the locations of all existing facilities. The utility companies with facilities in the project area include Pacific Gas and Electric (PG&E), Regional Transit, Sacramento Municipal Utility District (SMUD), SureWest TeleVideo, Comcast, Level 3 Communications, MCI Worldcom, Sprint, and Teleport Communications.

Of these responses, it is anticipated that only one utility will be of a critical concern regarding the proposed alternative (bridge crossing). This utility is a set of high power lines along the west edge of the UPRR and LRT right-of-way belonging to SMUD. The City provided SMUD with a copy of the General Plan, location & geometry, and other pertinent information on the proposed alternative, and SMUD is agreeable to relocating the lines. The relocation of the lines would be to a higher elevation along the same current alignment. This raise will involve several new poles in addition to the line work. SMUD has provided a preliminary estimate of the cost to perform this work as being between $100,000 and $200,000. The upper limit cost of $200,000 is being assumed for budget purposes in this report.

For a complete table of identified utilities, their description, location, owner, and relocation requirements, as well as for copies of the Utility Letters, see Appendix C.

Design Guidelines

A summary of design guidelines for the City College Light Rail Station Pedestrian/Bicycle Crossing Project are provided in Appendix G. Because the proposed alternative for this crossing has been selected, as will be discussed in the following section, "Proposed Alternative," including horizontal and vertical alignment for the proposed bridge and approach ramps, the discussions and guidelines contained in the appendix primarily relate specifically to that alignment.

Aesthetics

The proposed project has the potential to become a significant architectural element for the area. The development of appropriate architectural features, such as approach, entry monumentation, bridge barriers/railings, and lighting to create a unique and attractive "experience" should the project ultimately incorporate these treatments.

It is anticipated that during the final design phase, architectural requirements will be further defined by the City and key stakeholders.

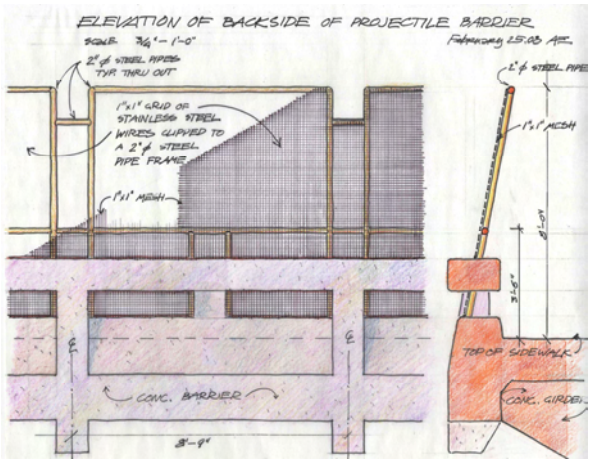
Fencing along PUC near Folsom, CA

One of the challenges to the aesthetics of the project and for the user experience will be the BNSF railroad requirement of an 8'-3" tall, with 3'-0" inward overhang, fence over their right-of-way. The photo to the left shows the pedestrian overcrossing over Hwy. 50 near Folsom, CA. Caltrans has similar fencing requirements over state highways.

Aesthetically pleasing alternatives to the basic chain-link fence option have been proposed on recent projects. The rendering to the right shows one such alternative.

The major goals to be addressed at that time will likely include:

- An architectural enhancement program to develop appropriate crossing features to create a unique and attractive crossing "experience".
- Provide continuity between City College, the LRT station and the future Curtis Park Village.



Elevation of backside of projectile barrier
Courtesy of MacDonald Architects

Where feasible, the following options should be studied and implemented:

- Incorporating planting as a component of project design;
- Using stamped concrete or other aesthetics treatments on hard structures.
- The trail entry monuments, railing, fencing, and lighting design for the project should be chosen to incorporate features that are consistent with City policies and that meet the desired visual character of the area.

The purpose of these improvements is to enhance the perception of the new crossing to the visitor, when viewing from afar, or when traversing the bridge.

Detailed Considerations

Lighting

For accident safety and security reasons lighting of the traveled way surface shall be a high priority in lighting design. Sightline issues, as noted above, become of greater concern before and after daylight hours. Lighting shall be used to mitigate these concerns to the extent possible. However, this must be balanced with preventing stray light and glare into adjacent neighborhoods.

Graffiti

Graffiti is a concern for this project. Because graffiti removal programs which do not result in immediate removal often prove ineffective, graffiti deterrence, through design, is preferred. During the final design phase of this project, particular attention should be paid to the avoidance of large flat surfaces, and to avoid lighting which highlights flat surfaces. Architectural textured surfaces with irregular surfaces that would not show the intent of the graffiti well should be considered for the lower ramp levels. In addition, screens in conjunction with higher fences, along any portion of a bridge crossing adjacent to a building, such as the west ramp along the City College parking garage and east ramp along retail/commercial buildings in the proposed Curtis Park village development.

Construction Staging and Issues

The LRT station must remain open during construction and only minimal to no impact on railroad operations will be acceptable to UPRR. Construction staging and techniques that minimize disruption to rail traffic and safety for the LRT station users during construction must be addressed, as well as limiting noise impacts on the local community.

The project site has adequate clearances and access roads for construction of the various types of structures. Potential staging areas have been identified. These staging areas include a portion of the City College parking lot north of the parking garage, UPRR maintenance yard areas outside of the LRT UPRR main line and UPRR spur track corridor, and areas of the proposed Curtis Park Village depending on the phasing/status of that project at the time the crossing is constructed.

During the final design stage, negotiations will be required with these entities to exactly define those areas that will be available for the contractors use.

Falsework

This section pertains primarily to the bridge alternatives. For this project, the main concern regarding falsework is the potential impacts on railroad operations during erection and tear down, as well as safety of users of the LRT station.

Cast-in-place / Prestressed Concrete (CIP/PS) Box Girder Alternative –

For the CIP/PS Box Girder alternative, falsework would need to be erected along the entire length of the crossing. The construction of the main spans will require close coordination with the UPRR and LRT for falsework opening clearances and work windows for erecting the falsework. Additional negotiations with the UPRR will be required to place falsework bents within the maintenance yard spur tracks. It is anticipated that at least one of the spur tracks will be temporarily obstructed. At the LRT station, providing protection for pedestrians by erecting shields for debris or restricting pedestrians from the work areas will be a high priority.

The west approach ramp will require a falsework opening over the existing Sacramento City College access road along the east side of the parking garage and the east approach ramp may require a falsework opening over the proposed access road (currently designated as Road “C” by the developer) that runs along the back southern edge of the project, adjacent to the UPRR right-of-way line, depending on the phasing/status of that project at the time the crossing is constructed.

Precast Girder Alternative –

For the precast girder option, only the main spans over the UPRR and LRT tracks would be precast. However, due to the length of the longest span, a splice will be required. This would be best facilitated by using a temporary bent to support the two ends of the girders during initial erection, prior to splicing (with continuity post tensioning tendons. This operation will require close coordination with the UPRR and LRT as well as negotiations with the UPRR for location of the temporary bent as it will obstruct a spur line.

The approaches, due to sharp radii and adequate available space for falsework, will be cast in place similar to the CIP/PS Box Girder alternative.

Underground options –

Although openings for falsework are not a concern for the underground (tunnel) options, construction staging is complicated due to requirements that railroad operations not be impacted. Construction of the crossing under the two LRT tracks, two UPRR main line tracks and UPRR spur tracks will require multiple stages to ensure that rail traffic can continue unimpeded. Options to meet this goal may include providing spur tracks for the LRT and main lines or jacking of precast tunnel segments under the active tracks.

Public Outreach / Stakeholders

Overview

Understanding the importance of community outreach and stakeholder involvement, the City conducted a comprehensive public outreach program. The two-phase approach involved initial stakeholder meetings to assist in developing a preferred alternative and obtaining input about community outreach. The second phase, implementation, involved reaching out to stakeholders and the community around the project area to inform them about the project and preferred alternative. Phase two activities included distribution of fact sheets, newsletters, postcards, e-communications, an interactive Web site and presentations to stakeholder groups as outlined in the following report.

The project team considered the suggestions and input from all stakeholders and incorporated them as much as possible into the preferred alternative.

Public Outreach Goal

The public outreach goal was to proactively inform the public and stakeholders about the Sacramento City College Light Rail Pedestrian/Bicycle Crossing Project's purpose, benefits, design and potential impacts. The goal focused on building support among those in the community with a desire to see alternate transportation grow through proactive and informed public outreach. Resident and business concerns were addressed and input was solicited regarding various alternatives.

Outreach Objectives

Key objectives of the public outreach program were developed after initial research was conducted. The objectives included:

- Communicate project status and progress clearly and consistently with the community and stakeholders.
- Assist the project team in soliciting community and stakeholder input and feedback about project elements and design alternatives.

Through inclusive stakeholder and community outreach, the City of Sacramento Department of Transportation accomplished the outreach objectives.

Stakeholders

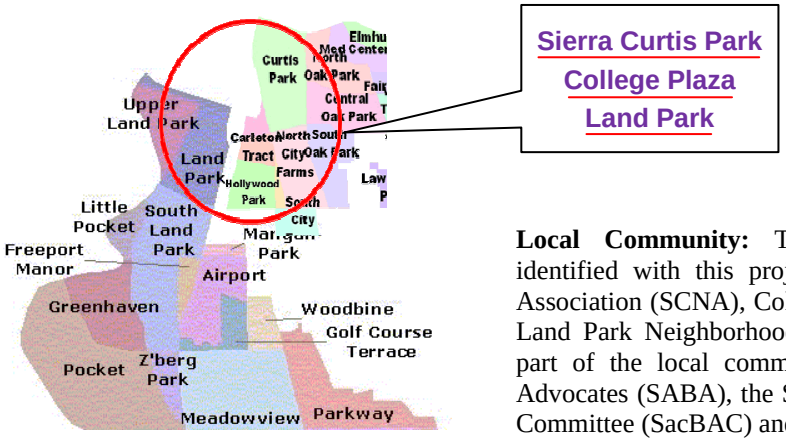
Three primary groups of stakeholders have been identified for this project:

1. Land Owners
2. Local Community
3. Utilities

Land Owners: The primary land owners affected by this project are the Sacramento Regional Transit Authority (LRT), Union Pacific Railroad (UPRR), Los Rios Community College District - Sacramento City College campus, Petrovich Development - developers of Curtis Park Village and the City of Sacramento – in regards to Sutterville Rd. Overcrossing Widening alternative only. All of these parties have an interest in seeing a positive outcome from this project and will benefit from its completion. Through the process of developing this Feasibility Study, numerous meetings have taken place with these stakeholders. The focus has been to work with the property owners to show the benefit this project brings them.

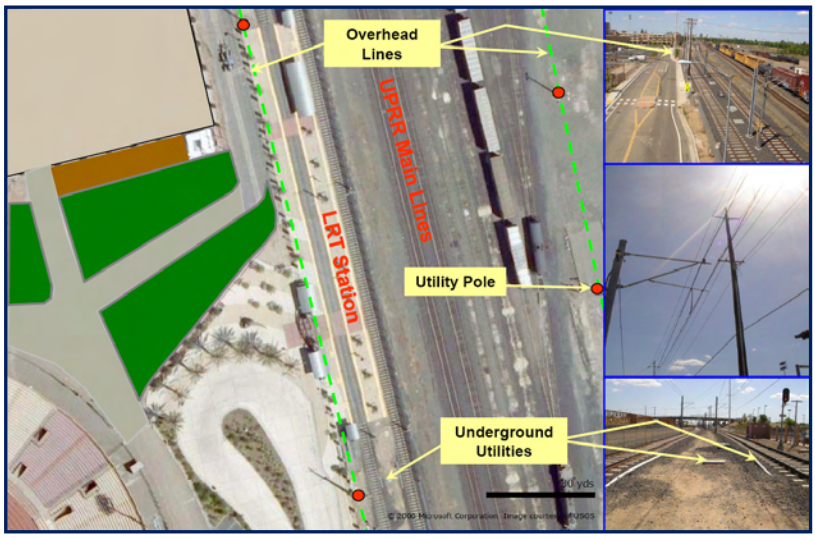
The basis for the type of structure and geometry for the selected alternative (discussed below) includes the results of these meetings. Each of the above stakeholders has provided the City of Sacramento with verbal approval of the selected alternative. The common theme expressed by all stakeholders is that the project should improve the safety of those residents, including LRT users and City College students, who must travel between points east and west of the railroad maintenance yard. Specifically, the UPRR will benefit by a reduction in liability from the current high

rate of trespassers looking for a shortcut across their property to and from the LRT station and City College.



Neighborhood Associations

Local Community: The primary local community groups identified with this project are the Sierra Curtis Neighborhood Association (SCNA), College Plaza Neighborhood Association and Land Park Neighborhood Association (LPNA). Also included as part of the local community are the Sacramento Area Bicycle Advocates (SABA), the Sacramento City/County Bicycle Advisory Committee (SacBAC) and WALKSacramento.



Utility Locations

Utilities: Utilities are a special group of stakeholders as they are generally located on land owned by other entities and are governed by the requirements of the easements they have been granted. Especially for those utilities which must be modified or relocated, it is important that the owners of the utility be notified as soon as possible. Refer to "Utilities" above for more information.

[See Appendix A for additional Public Outreach information]

Alternatives Study

Crossing Alternatives - Considered

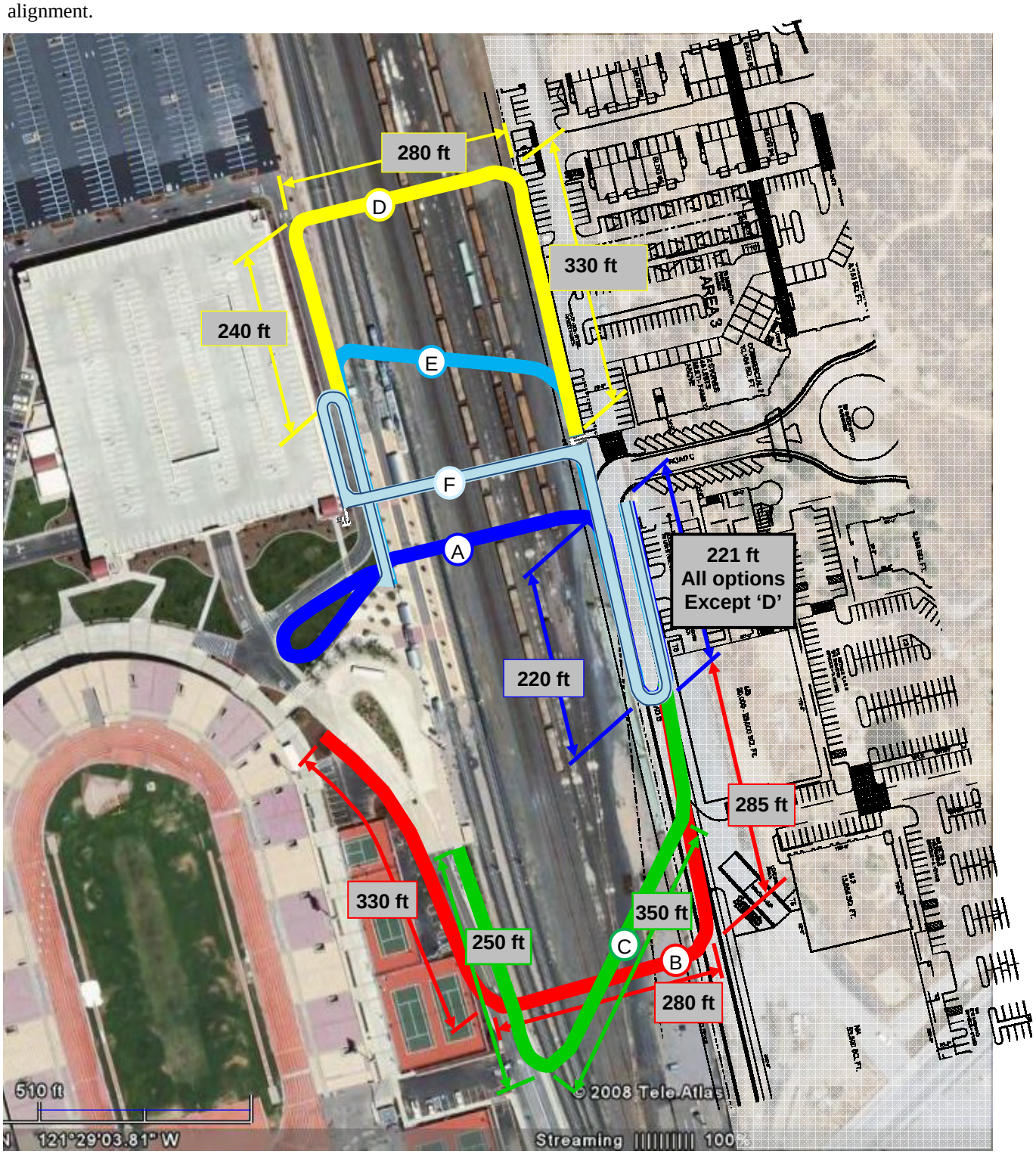
Alternatives	Crossing Type	Clear Width	Length	Comments
1A (Preferred Alternative)	Bridge W/ ramps	10’	1,164’ measured along CL of the PUC, including ramps	3-Span CIP/PS Box Girder w/ CIP/RC ramp approaches
1B	Bridge W/ ramps	10’	1,164’ measured along CL of the PUC, including ramps	3-Span PC/PS Girder w/ CIP/RC ramp approaches
1C	Bridge W/ ramps	10’	1,230’ measured along CL of the PUC, including ramps	1-Span Tied-Arch w/ CIP/RC ramp approaches
2	Bridge W/ elevator	10’	290’ measured along CL of the PUC	3-Span CIP/PS Box Girder w/ elevator and stairway approaches
3	Tunnel – cut and cover	12’	830’ measured along CL of the P)C, including ramps	Continuous culvert with open approach ramps
4	Tunnel – rails on bridges	12’	830’ measured along CL of the POC, including ramps	Continuous open channel w/ rails carried over on simple spans with open approach ramps
5	Widen Sutterville Road UC	12’	400’ measured along CL of Sutterville Road Undercrossing	Widening of existing bridge with ramps on widened approach embankments
6	At Grade crossing	10’	230’ measured along CL of the crossing	Signaled and gated at grade crossing of UPRR and LRT tracks

Abbreviations:

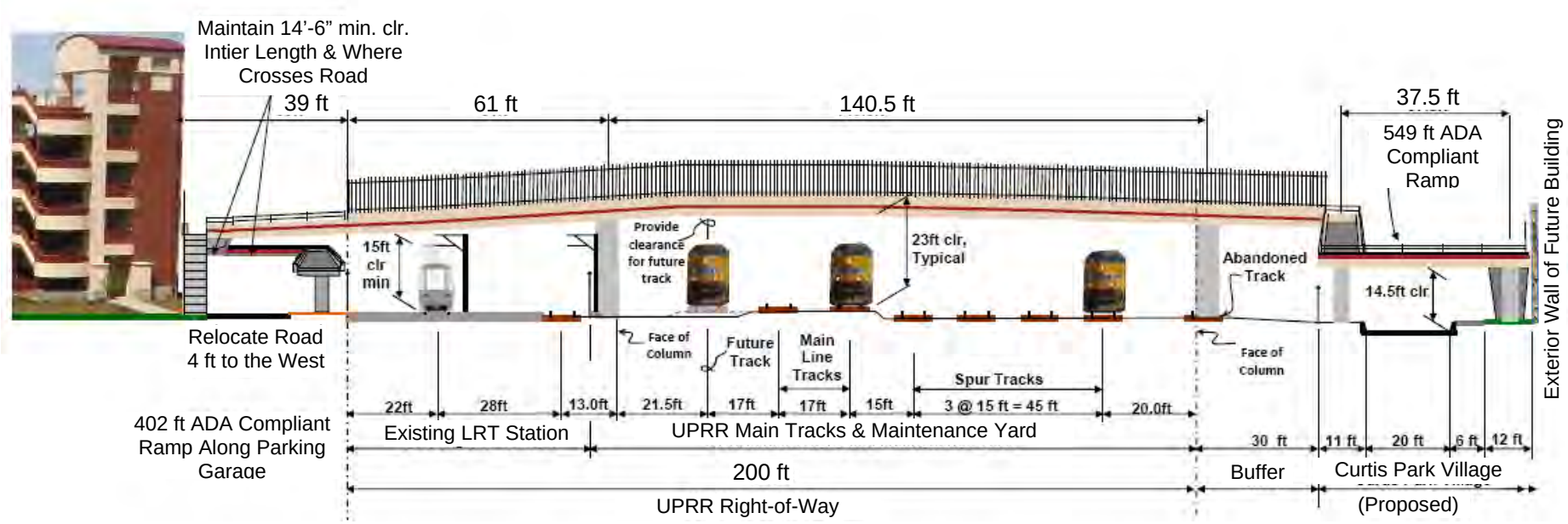
CL center line
PUC Pedestrian under crossing (crossing that allows the facility being crossed such as a road or railroad to pass below the crossing)
POC Pedestrian over crossing (crossing that allows the facility being crossed such as a road or railroad to pass over the crossing)
CIP/PS Cast-in-place / Prestressed Concrete
CIP/RC Cast-in-place / Reinforced concrete

Bridge Options For Alternative 1 (1A & 1B)

The aerial image below shows the various alignments evaluated for Alternative 1 (1A & 1B). These alignments were discussed with the major landowner stakeholders where alignment "F" was ultimately adopted as the preferred alignment.



Alternative 1A –CIP/PS and
Alternative 1B –Precast Girder



Option 1: CIP or PC Bridge Alternative with Ramps

Crossing Type	Benefits	Concerns
Alternative 1A (Preferred Alternative)		
CIP Bridge W/ ramps	• CIP offers the greatest opportunity to meet the tight geometry. • It is likely the most cost effective alternative that fully meets the goals of the project. • Foundation types limit the amount of excavation into the potentially contaminated soil.	• Due to the necessity of maintaining minimum clearances over the access roads, and maintain ADA standards, the ramps will be very long. • Potential impact to rail traffic during construction due to falsework.
Alternative 1B		
Precast Bridge W/ ramps	• Limits disruption to the UPRR and LRT traffic. • Foundation types limit the amount of excavation into the potentially contaminated soil.	• Due to the necessity of maintaining minimum clearances over the access roads, and maintain ADA standards, the ramps will be very long. • Potential impact to rail traffic during construction due to erection of girders and possible temporary falsework bent to splice the long main span girder.

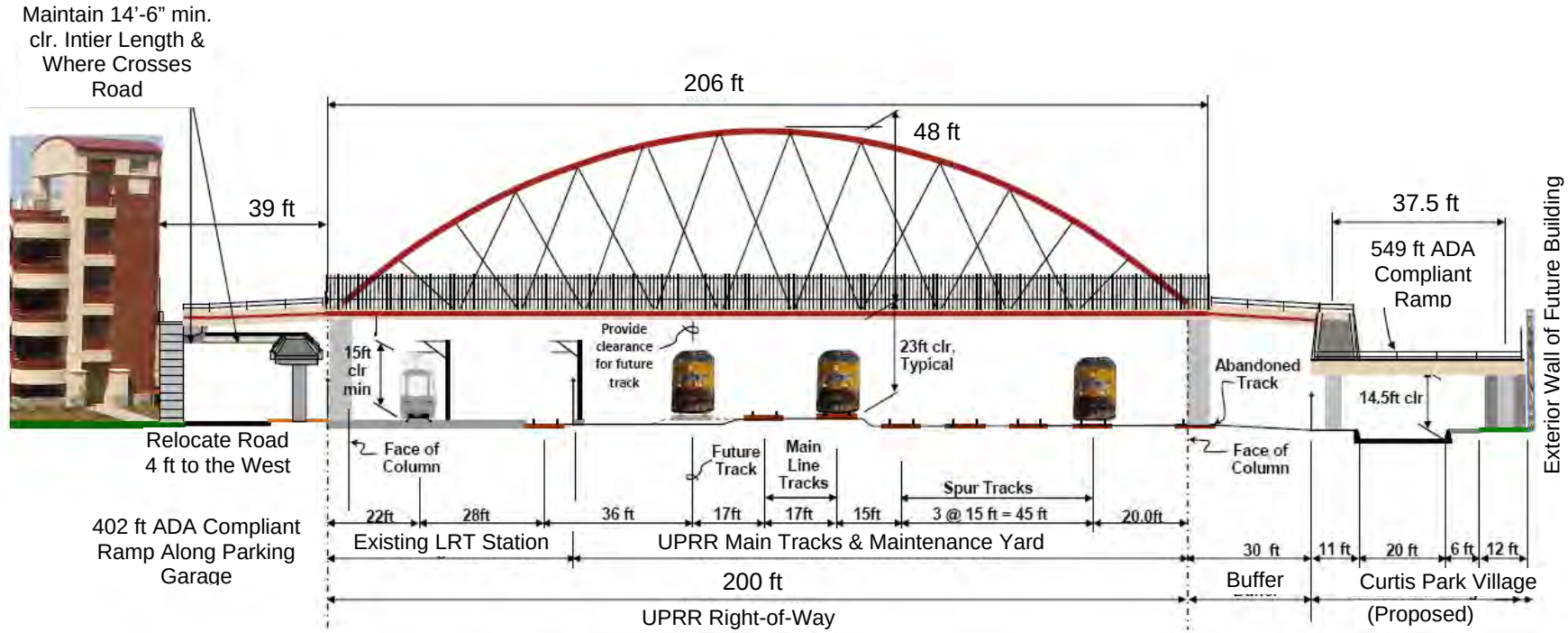
Photo Rendering of Alternatives 1A and 1B

CIP/PS or Precast Girder Alternative
Photo Rendering

Example of Stairs With Open Railing for Visibility:

In addition to providing a shorter path for pedestrians, placing stairways at the ends of the main span crossing offers an opportunity to create an inviting entrance to the crossing. High priority for stairways include ease of maintenance (such as eliminating areas for trash and debris to accumulate, and minimal to no painting), open railing to eliminate areas that are out of few from the user and from those nearby (for safety reasons), durability against vandalism, and pleasing appearance.

Alternative 1C –Tied- Arch



Tied-Arch Alternative
Looking North

Crossing Type	Benefits	Concerns
	Alternative 1C	
Tied - Arch W/ ramps	• Limits disruption to the UPRR and LRT traffic with nearly a complete span of the UPRR right-of-way. • Foundation types limit the amount of excavation into the potentially contaminated soil.	• Much higher cost than Alternatives 1A and 1B. • Requires tangent deck section for tie, resulting in higher ends, which will require longer ramps than those for Alternatives 1A and 1B. • Potential for greater impact to rail traffic during construction, than for Alternatives 1A and 1B, during erection of arch and hangers. • Existing SMUD high power lines along west edge of LRT corridor must be raised with any bridge alternative. However, the tied arch may require the lines to be moved higher than the other bridge alternatives.

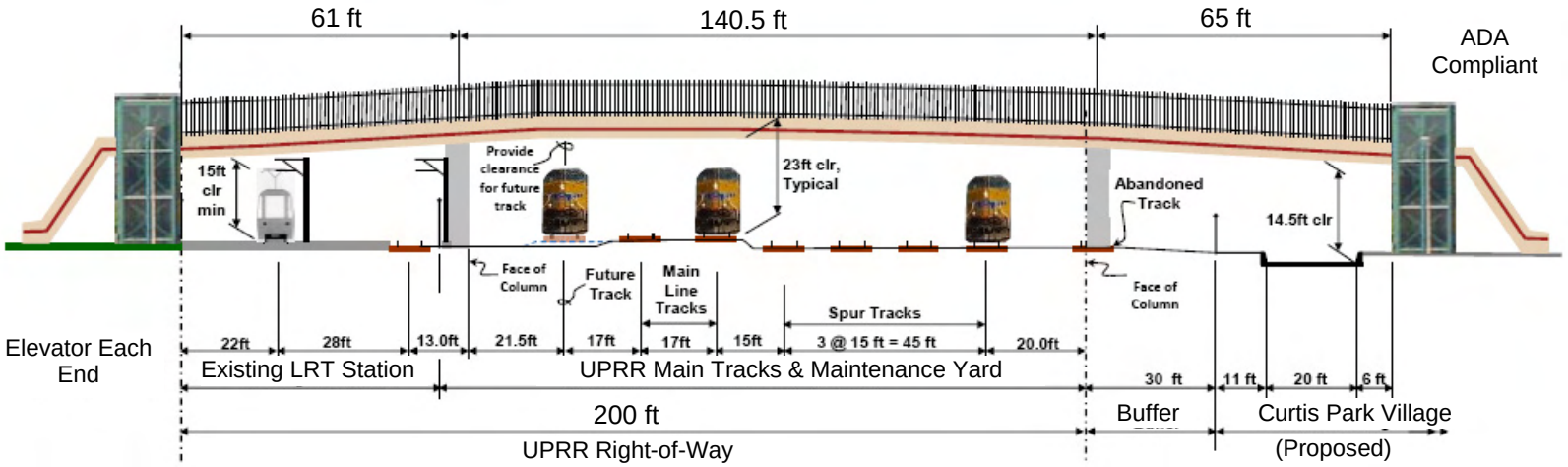
Example of a similar Project:

Example of Arch Alternative
San Diego State University

Photo Rendering of Alternative 1C

Tied-Arch Alternative
Photo Rendering

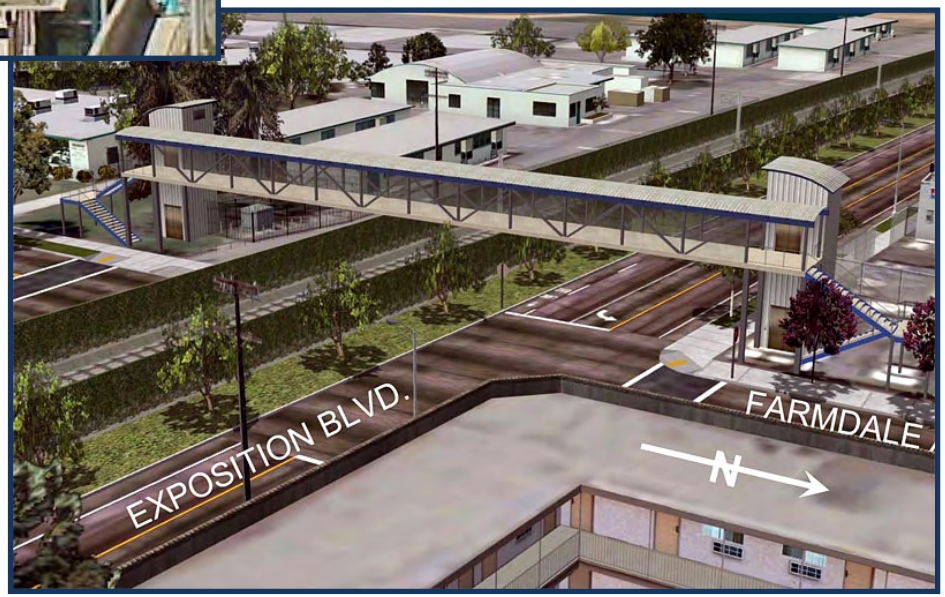
Alternative 2 –CIP/PS or Precast Girder w/ Elevators



Option 2: Bridge Alternative with Elevators and Stairs

Crossing Type	Benefits	Concerns
Alternative 2		
CIP Bridge W/ elevator	• The smaller footprint of the elevators is an advantage in terms of right of way required. • The elevators will reduce the length, and usually time, required to complete the crossing.	• Maintenance of the elevators. • Safety during night hours. • Not preferred by most bicyclists.

Examples of a similar Project:



Due to the high cost of operating and maintain elevators, and the concern of safety and vandalism, elevators are generally reserved for locations with no other options, or where operating and maintenance budget is available.

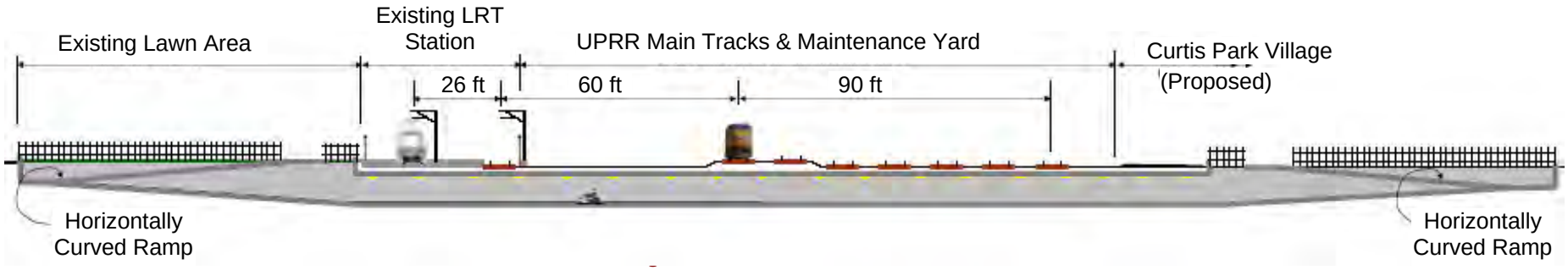
In the photo above, elevators were required to access the rail station located at the bottom of the steep sided rail corridor depressed section.

The photo to the right is a rendering of a proposed project located in an existing neighborhood where space for long ramps are not available.

Examples of Bicycle / Pedestrian Bridge with Elevator Access

Below Ground Options

Alternative 3 – Tunnel – cut and cover



Precast Segmental Tunnel Sections - Jacking Under the Rail Lines May Also be an Option

Crossing Type	Benefits	Concerns
Alternative 3		
Tunnel – cut and cover	• Avoids visual impacts associated with the bridge options. • Elevation change (between ground surface and bottom of tunnel) would be less than for the bridge options resulting in shorter approach ramps.	• Will require extensive excavation of contaminated soil. • Construction will have to be phased to provide for rail traffic. • Depressed approaches will require a larger impact on permanent right of way. • Due to impact to City College property, not supported by the Los Rios Community College District. • Safety of users due to long confined area. • Introduces new structures over which heavy rail must operate. Will be opposed by UPRR.

Layout of Ramp to West Portal:

These renderings are show for discussion purposes only. The tunnel portal shown is at the west end of the crossing on City College property. As previously noted, the school district has decided that this open space is not available for the crossing approach structures.

In addition, the developer of the Curtis Park Village project on the east end of the crossing has also determined that they would not accept a crossing alternative that required such a large area of exclusive use for the crossing on their property.

Example of a similar Project:

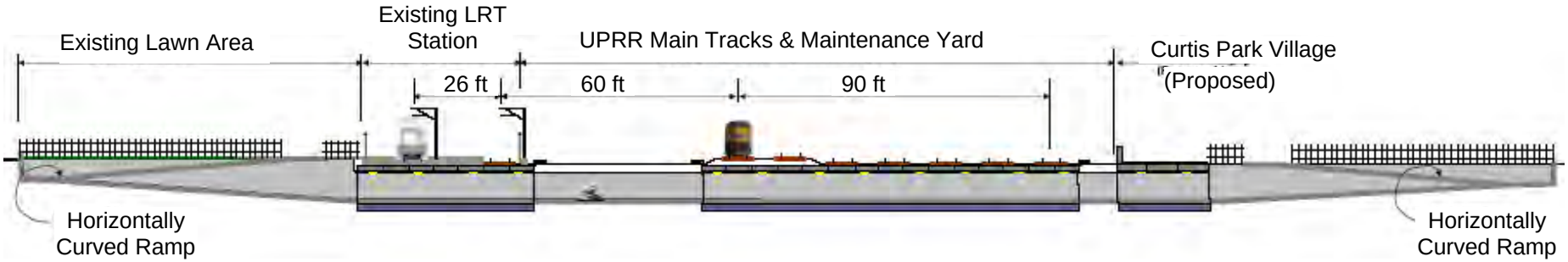
Broadstone Pkwy Undercrossing, Folsom, CA
Satellite Image During Construction

The project shown in the photos is the Broadstone Pkwy Undercrossing. It is similar in length to this project; however, there are a few dissimilarities that made it feasible:

- The tunnel was constructed in an area of new development before the roadway, under which it crosses, was completed.
- The north end (left end in above photo) exits in the side of the raised roadway embankment and an approach portal is not required as the tunnel exits at the same elevation as the continuing bike path.
- The south end portal wraps around a detention pond where adequate open space was available without altering the adjacent infrastructure for a new high school.
- High use periods are monitored by school staff for safety.

Broadstone Pkwy Undercrossing, Folsom, CA
South Portal

Alternative 4 – Tunnel – Rails



Underground Alternative – Undercrossing
Open Cut Pedestrian/Bicycle Path with Rails Supported on Bridge structures

Carried by Bridge Spans

Crossing Type	Benefits	Concerns
Alternative 4		
Tunnel – rails on bridges	• Avoids visual impacts associated with the bridge options. • Elevation change (between ground surface and bottom of tunnel) would be less than for the bridge options resulting in shorter approach ramps.	• Will require extensive excavation of contaminated soil. • Construction will have to be phased to provide for rail traffic. • Depressed approaches will require a larger impact on permanent right of way. • Due to impact to City College property, not supported by the Los Rios Community College District. • Safety of users due to long confined area. • Introduces new structures over which heavy rail must operate. Will be opposed by UPRR.

Examples of a similar Project:

Placer Kills RR Undercrossing
Auburn-Colfax Road - Part of Grass Valley-Colfax

Undercrossing consisting of bridges to carry the rail tracks over the undercrossing fall into two main categories:

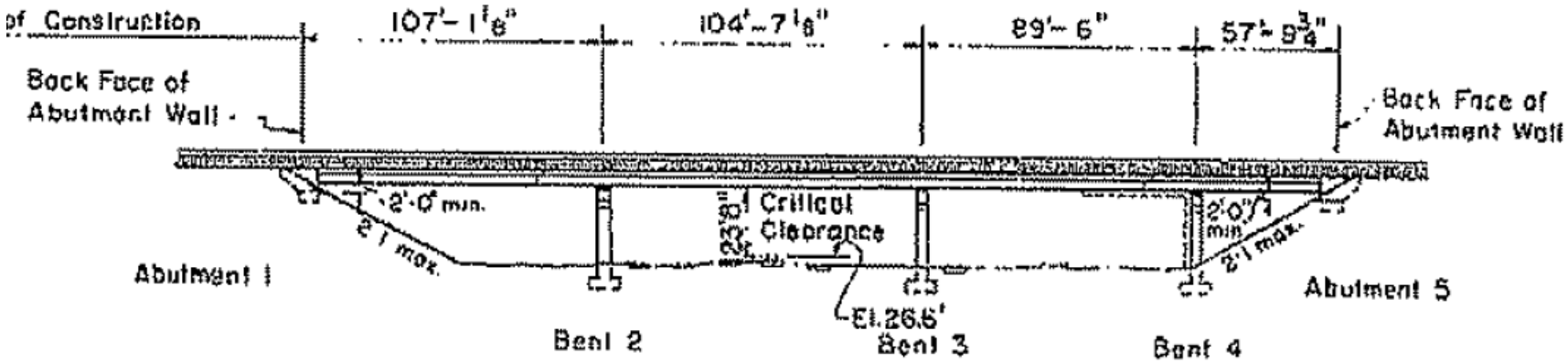
1. The undercrossing walls form abutments to support the bridge(s). (see photo above)
2. The undercrossing consists of a cut section through the earth with sloped sides where the bridge(s) must be supported by separate abutments. (see photo to the right)

In either case for this project, bridge structures for eight tracks would be required. Most of these lines are very close together and it is assumed that the UPRR would require access between the tracks for their maintenance operations. It is likely that the result would be a solid "lid" type structure (continuous bridge along the entire length of the crossing).

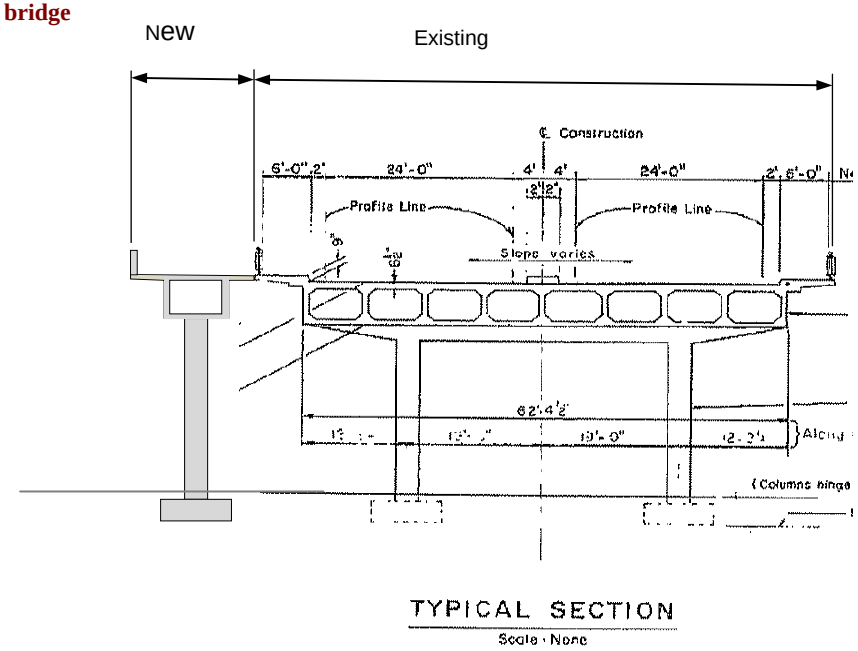
I-80 Undercrossing, Davis, Calif.

Other Options

Alternative 5 – Sutterville Road Overhead Widening Option

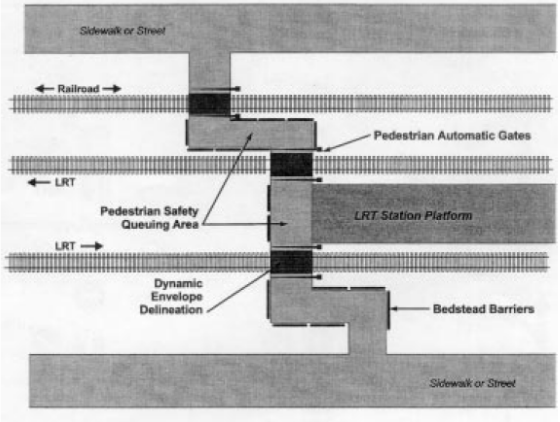


Sutterville Road Overhead Widening
Parallel structure abutted along the north edge of the existing bridge



Crossing Type	Alternative 5
	Benefits
Widen Sutter Street UC	• This alternative has many merits including likely lower construction costs, less right-of-way issues, additional area for the west approach to accommodate ADA requirements, and avoidance of disruption to the users of the LRT station.
	Concerns
Widen Sutter Street UC	• May not draw many additional users than the current sidewalk across the existing bridge. • Would remain a more circuitous route between the existing and future neighborhoods to the east and the LRT station and center of City College.

Alternative 6 – At Grade Crossing Option



At Grade Crossing Schematic of Concept

This schematic was taken from the Transit Cooperative Research Program (TCRP) Report No. 17 - Integration of Light Rail Transit into City Streets (Part C).

Crossing Type	Benefits	Concerns
Alternative 6		
At Grade crossing	• At grade crossings are used extensively for both light and heavy rail locations to increase the safety of pedestrians and bicyclists. • Lowest construction cost alternative.	• Although for completeness this alternative has been evaluated in this Feasibility Study, its limitations are many for this location. Such an at-grade crossing could not be installed through the multiple spur tracks of the maintenance yard and it would have to be moved south to where only a crossing of the main lines would be required. • For safety and liability reasons it is strongly opposed by the UPRR and LRT who would not allow such a use within their right-of-way. • During several sight visits, it was observed that long trains are often "parked" on one of the main lines for extended periods making this option likely impossible. • It does not meet the project goals for providing a safe crossing.

Possible Layout for This Project:

A suitable layout of an at-grade crossing for this project was not identified.

Example of a similar Project:

At grade crossings provide cost effective means of increasing the safety for bicyclists and pedestrians. As shown in the photos, the use of signage and barriers to attract the attention of those about to cross the tracks may be all that is required to ensure the user carefully looks before crossing.

However, for this project, there are several major obstacles that preclude an at-grade crossing from being a viable alternative:

- There are too many tracks to be crossed at the ideal location for the crossing (Two LRT tracks, two UPRR main line tracks, and up to five spur tracks.)
- The UPRR often stores long trains on the side tracks that can reach well past (south of) the Sutterville Road Overhead bridge, effectively blocking any at-grade crossing.

Alternatives – Comparison Summary

Alternatives	Crossing Type	Cost	Benefits	Concerns
1A (Preferred Alternative)	CIP Bridge W/ CIP ramps	$4,362,000 Includes: • $200,000 for raising SMUD high voltage lines • $50,000 for secured bicycle parking	• CIP offers the greatest opportunity to meet the tight geometry. • It is likely the most cost effective alternative that fully meets the goals of the project. • Foundation types limit the amount of excavation into the potentially contaminated soil.	• Due to the necessity of maintaining minimum clearances over the access roads, and maintain ADA standards, the ramps will be very long. • Potential impact to rail traffic during construction due to falsework. • Requires costly raise of high voltage SMUD lines.
1B	Precast Girder Bridge W/ CIP ramps	$4,762,000 Includes: • $200,000 for raising SMUD high voltage lines • $50,000 for secured bicycle parking	• Limits disruption to the UPRR and LRT traffic. • Foundation types limit the amount of excavation into the potentially contaminated soil.	• Due to the necessity of maintaining minimum clearances over the access roads, and maintain ADA standards, the ramps will be very long. • Potential impact to rail traffic during construction due to erection of girders and possible temporary falsework bent to splice the long main span girder. • Requires costly raise of high voltage SMUD lines.
1C	Tied Arch Bridge W/ CIP ramps	$6,205,000 Includes: • $200,000 for raising SMUD high voltage lines • $50,000 for secured bicycle parking	• Limits disruption to the UPRR and LRT traffic with nearly a complete span of the UPRR right-of-way. • Foundation types limit the amount of excavation into the potentially contaminated soil.	• Much higher cost than Alternatives 1A and 1B. • Requires tangent deck section for tie, resulting in higher ends, which will require longer ramps. • Due to the necessity of maintaining minimum clearances over the access roads, and maintain ADA standards, the ramps will be longer than for Alt. 1A and 1B. • Potential impact to rail traffic. • Requires costly raise of high voltage SMUD lines.
2	CIP Bridge W/ elevator	$2,400,000 Includes: • $200,000 for raising SMUD high voltage lines • $50,000 for secured bicycle parking	• The smaller footprint of the elevators is an advantage in terms of right of way required. • The elevators will reduce the length, and usually time, required to complete the crossing.	• Maintenance cost of the elevators. • Safety during night hours. • Requires costly raise of high voltage SMUD lines.

Alternatives	Crossing Type	Cost	Benefits	Concerns
3	Tunnel – cut and cover	$1,800,000 May be much higher if jacking precast segments under rails is required Includes: • $50,000 for secured bicycle parking	• Avoids visual impacts associated with the bridge options. • Elevation change (between ground surface and bottom of tunnel) would be less than for the bridge options resulting in shorter approach ramps.	• Will require extensive excavation of contaminated soil. • Construction will have to be phased to provide for rail traffic. • Depressed approaches will require a larger impact on permanent right of way. • Safety of users due to long confined area.
4	Tunnel – rails on bridges	$2,250,000 Includes: • $50,000 for secured bicycle parking	• Avoids visual impacts associated with the bridge options. • Elevation change (between ground surface and bottom of tunnel) would be less than for the bridge options resulting in shorter approach ramps.	• Will require extensive excavation of contaminated soil. • Construction will have to be phased to provide for rail traffic. • Depressed approaches will require a larger impact on permanent right of way. • Safety of users due to long confined area.
5	Widen Sutterville Road UC	$2,200,000 Includes: • widening approach embankments • $50,000 for secured bicycle parking	• This alternative has many merits including likely lower construction costs, less right-of-way issues, additional area for the west approach to accommodate ADA requirements, and avoidance of disruption to the users of the LRT station.	• May not draw many additional users than the current sidewalk across the existing bridge. • Would remain a more circuitous route between the existing and future neighborhoods to the east and the LRT station and center of City College.

Alternatives	Crossing Type	Cost	Benefits	Concerns
6	At Grade crossing	$500,000 assumes two automated gates Includes: • $50,000 for secured bicycle parking	• At grade crossings are used extensively for both light and heavy rail locations to increase the safety of pedestrians and bicyclists. • Lowest construction cost alternative.	• Although for completeness this alternative has been evaluated in this Feasibility Study, its limitations are many for this location. Obviously such an at-grade crossing could not be installed through the multiple spur tracks of the maintenance yard and it would have to be moved south to where only a crossing of the main lines would be required. • For safety and liability reasons it is strongly opposed by the UPRR and LRT who would not allow such a use within their right-of-way. • During several sight visits, it was observed that long trains are often "parked" on one of the main lines for extended periods making this option likely impossible. • It does not meet the project goals for providing a safe crossing.

Costs are estimates of the probable cost of construction. They include:

- Base cost of the construction
- Time Related Overhead of 5%
- Mobilization of 10%
- Contingency of 25%
- Design engineering of 15%
- Construction management of 12%

Preferred Alternative

Alternative 1A, cast-in-place (CIP) bridge with approach ramps has been selected as the preferred alternative. As noted above, the other categories of crossings were not selected due to concerns that could not be adequately mitigated:

- Undercrossing (tunnel type construction under the tracks): Known presence of extensive ground contamination would make this type of construction very expensive due to the large volume of excavated material that would require transport to a special landfill. In addition, there would be the on-going concern of vapors from the contaminants collecting in the tunnel sections and seepage of contaminated groundwater creating a health hazard. Pumping would be required to handle rain and potential ground water, creating the additional concern of disposing contaminated water. Lastly, the enclosed sections would be lengthy; creating the personal safety hazard of a confined area, especially after sunset.
- Overcrossing with elevators: Although the use of elevators may reduce the initial cost of construction, it may become the more costly alternative in the long term due to required continuing operation and maintenance. The use of elevators on such bicycle/pedestrian projects is generally reserved for situations where space is not available for ramps, or where operating and maintenance budget is available.
- Widening the existing Sutterville Road Overhead: This alternative would not meet the project goals of attracting more users as it would be adjacent to the existing route (bridge sidewalk), would not follow the City of Sacramento's Master Bikeway Plan to directly link the heart of City College and the LRT station with neighborhoods to the east, and would retain the current circuitous routes between these destinations leaving the illegal and dangerous trespassing across the tracks as a continued enticing alternative.
- At Grade Crossing: Due to the high volume of UPRR traffic and the LRT traffic, along with long UPRR trains often being parked on one of the main lines or spur tracks, makes this alternative infeasible.

In contrast, the more conventional bridge alternative stood out for meeting all the prime objectives of the crossing project. The cast-in-place (CIP) option of Alternative 1 (Alternative 1A) was selected over the precast girder option (Alternative 1B) due to the length of the main span. Precast girders typically have an upper limit length of about 120'. Beyond this, the girder must be fabricated in shorter sections and then spliced together in the field adding both cost and time. Even so, this would still be a viable option. However, several factors moved the CIP option well ahead:

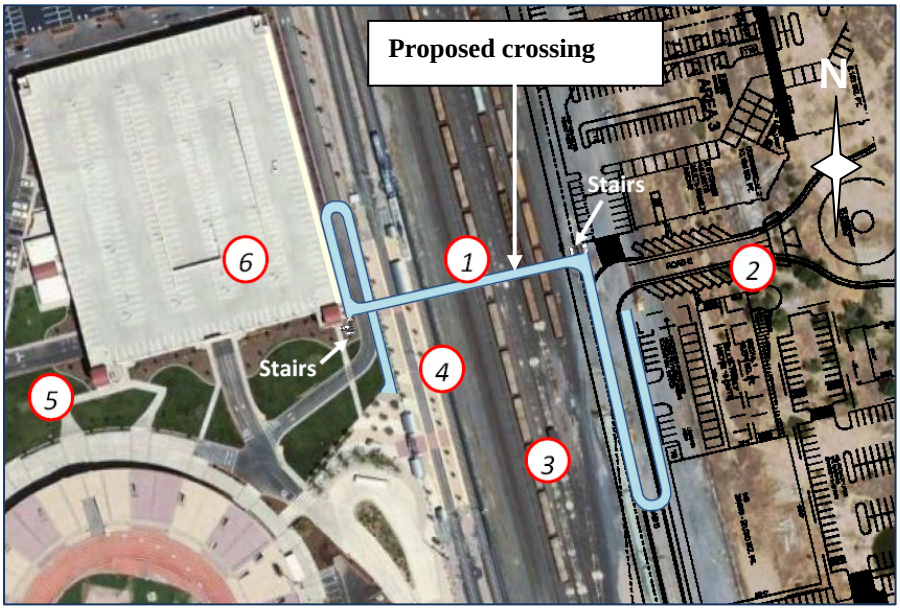
	CIP/PS Box Girder	PC/PS Girders or Continuous Steel Plate Girders
Falsework Requirement	Falsework required. Construction of the superstructure has to accommodate rail traffic at all times.	No falsework required. Placement of girders can be coordinated with periods of light rail traffic.
Transportation Requirement	None	Girder lengths are 140.5' max, and cannot be transported without special permitting. It is likely that shorter lengths would be fabricated and shipped, and field spliced.
Seismic Performance	Excellent.	Special detailing is required for seismic design for continuous structures.
Conflict With Rail Uses	Extensive system of falsework openings required. Considerable construction over LRT station	Falsework eliminated. Deck can be constructed with forms supported by girders. Less impact to station.
Construction Schedule	Substructure must be complete prior to construction of falsework for superstructure.	Since the girders can be fabricated when the substructure is being constructed, the schedule can be expedited.
Construction Cost (Including Mobilization and Contingency)	$\$180/ft^2$ - $\$220/ft^2$, depending upon the substructure system used.	Higher cost than CIP/PS Concrete Box Girder. Ranging from $\$225/ft^2$ - $\$300/ft^2$.

Additional benefits of the CIP option:

- From our stakeholders meeting with the UPRR and subsequent discussions, they indicated that they would not be opposed to temporary falsework, for the CIP option, over their tracks during construction as long as the main line rail traffic was not hindered or impeded.

- CIP construction is generally the most cost effective alternative for most bridges.
- Due to the geometry and location (as negotiated with City College on the west end and developer of the future Curtis Park Village on the east end), of both the east and west approaches, segments of each are not at the maximum ADA slope limit. Therefore, the elevation of the main spans over the tracks can be raised if necessary to provide the vertical clearance through the falsework as required by the UPRR and LRT.

Alignment



1. Proposed Bicycle / Pedestrian Crossing
2. Proposed Curtis Park Village Development
3. UPRR Maintenance Yard and Main Lines
4. Sacramento LRT Station
5. Sacramento City College
6. Parking Garage

Aerial View of Proposed Bridge Crossing Alignment With Overlay of Proposed Curtis Park Village to the Right

Profile

The following are the major considerations in setting the trail/bridge profile:

- Meet ADA ramp slope requirements (5% max constant slope to 8%max with level rest areas at 50 ft intervals).
  - Minimizing the total length of the approach ramps is key to providing a cost effective crossing. As noted above under "Alignment" the location of the ramps was determined as a result of meetings and discussions with the key stakeholders. The resulting plan geometry requires hairpin turns in both approach ramps. The location of the hairpins is dictated by the agreed upon landing location and ADA ramp slope requirements As a result, the second segment, between the hairpin turn and main crossing spans are well below the maximum allowed slope, creating unnecessary length and cost to the project. This has been mitigated to the extent possible by using the second ADA slope requirement of 8% max with the

Photo Rendering of Proposed Bridge Crossing Looking North-East from City College

intermittent level rest areas for the first segments. This shortens both the first and second ramp segments for a total reduction in the length of ramps of about 440 feet.

- Maintain minimum vertical clearances of 23 feet over the UPRR tracks, 15 feet over the LRT tracks, and 14.5 feet over adjacent streets to the final completed structure.
  - These minimum vertical clearances may require an increase based on the type of construction. Typically, for precast girder structures, falsework is not required and the minimums may be used. However, for this CIP preferred alternative, falsework will be required. The depth of the falsework must be considered as noted below.
- Provide minimum falsework openings as required by UPRR and LRT during construction
  - The UPRR requirements will control as there will already be access clearance over the LRT lines due to the 8 feet of greater final clearance required by the UPRR over that of the LRT.
  - Minimum falsework clearances are specified in the joint UPRR/BNSF Guidelines. The vertical clearance requirements for UPRR are 21.5feet for temporary construction conditions and 23.5feet for the permanent final bridge structure. The horizontal clearance requirement is 12.0 feet, which will result in a minimum falsework clear span over the dual UPRR mainline tracks of 41 feet. Caltrans Bridge Design Aids (BDA), Table 10-2, Falsework Depth Requirements, suggest a minimum falsework depth of 3'0" for this span length.

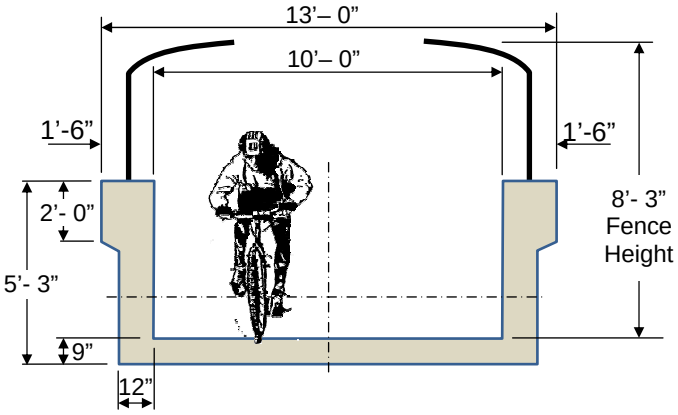
    However, due to the narrow width of this bridge, the main falsework beams may be placed parallel to the face of the bridge girders and smaller depth stringers placed between these girders to form a "tub" section. It is assumed, then, that the overall increase in thickness for the falsework can be limited to the 2 feet difference between the permanent and temporary conditions. Therefore, the resulting final clearance would not have to be increased above the minimum 23.5 feet.

    As noted in the above discussion on ADA slope requirements, the returning ramp sections beyond the hairpin turns are below the maximum ADA slope requirements. To meet the higher elevation of the main spans over the tracks, these ramp sections can be steepened without requiring additional length.
  - In addition, special conditions for falsework construction and protection, as required by the American Railway Engineering and Maintenance-of-Way Association, (AREMA), must be followed.
  - It is assumed that vehicular traffic will not have to be accommodated on the two local streets crossed by this bridge. At the west approach, the parking lot to the north of the parking structure can also be accessed by several other routes. Therefore, it is assumed that this street may be closed during construction. As noted above under "Geometry", a temporary closure will be required regardless, in order to realign the street to accommodate the ramp touchdown.
- Maintain minimum horizontal offsets to UPRR and LRT rails
  - The proposed column locations meet the requirements of the UPRR for a 20 foot clearance from center line of track to face of column. Closer clearances may be allowed if the columns are sized to meet "heavy construction requirements" by providing a cross-sectional area of at least 30 square feet, or if crash walls are provided to protect the columns.
  - Minimum horizontal clearances to components of the bridge structure along the local streets are not required. However, columns and approach landings may be protected by concrete barriers or guard railing.

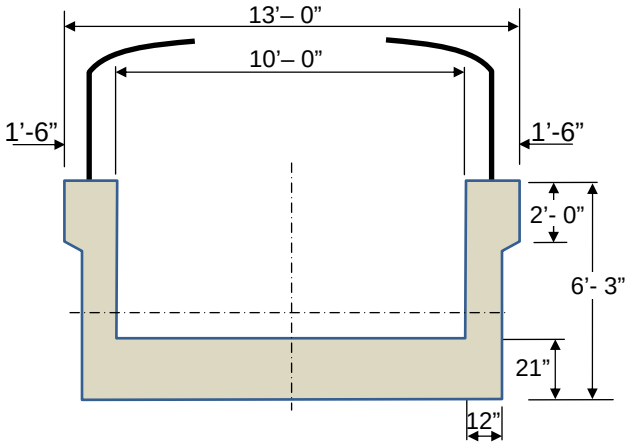
For profile of proposed alternative see Appendix I, Proposed Alternative, 30% Design

Superstructure Type

Following are graphics of the cast in place (CIP) "U" Girder bridge cross sections at key locations Also, see Bridge General Plan, Foundation Plan and Typical Section sheets [See APPENDIX I] for additional details of the proposed alternative:

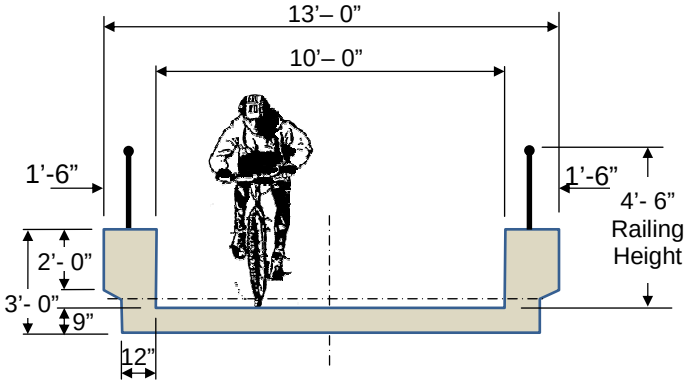


Typical Section

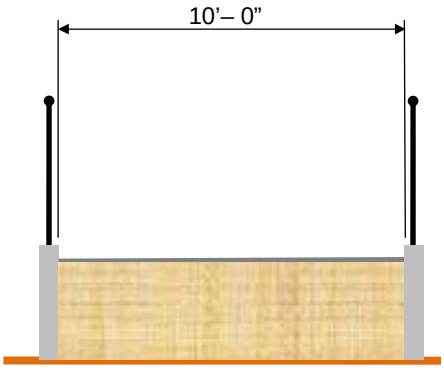


Haunched Section

Superstructure Cross Sections -Main Bridge Crossing, Prestressed Concrete



Superstructure Cross Sections
Approach Ramps, Reinforced Concrete



Approach Embankment Cross Sections
Approach Ramps, Retained Earth

The primary objective in selecting the "U" girder is to lower the peak deck elevation as much as possible. As noted above, it is the deck elevation that drives that length of the ADA compliant approach ramps. Every foot in height of the deck elevation results in as much as 40 feet of additional ramp at each end. However, for the proposed geometry, the upper length of the east ramp is below the ADA slope limit, so some additional height in deck elevation can be accommodated without lengthening the ramp on that end.

The depth and cross section of the superstructure has been refined to meet the following conditions:

- Meet cost effective depth to span ratio for the CIP/PS main crossing spans.
- Meet cost effective depth to span ratio for the CIP/ RC approach spans.
- Provide required height of 8'-10"and type of railing/fencing for the main crossing spans over the railroad tracks as required by joint UPRR/BNSF Guidelines. This is higher than the 4'-4" required for pedestrian and bicyclists.
- Reduce the height of the edge girders above the deck of the approach spans to provide better sight distance

at locations of curves, where open metal railing is then used to achieve the final bike railing height.

- Provide opportunity for cost effective architecture.

Substructure Type

The approaches to the abutments will be embankment fill contained be a pair of retaining walls. A concrete deck will cap the fill to match the adjoining bridge deck. The intent is for the bridge to begin at such a height (8 feet clear to ground) that the area below the bridge is easily visible for security reasons by eliminating hiding places, as well as for reducing the potential for collection of debris. The abutments shall be designed for service loads and seismic active force. The abutment seat-width shall be set to provide adequate room to prevent unseating of the bridge superstructure during a maximum credible earthquake (MCE) event.

The superstructure will be supported on cantilever seat-type abutments and single column bents. The single column bents along the City College parking garage will be "C" bents to provide for realignment of the adjacent roadway. According to the geotechnical engineer, spread footings, driven piles or drilled shafts are feasible. The final design phase shall evaluate each bridge type for the different portions of the bridge. The following shall be considered:

- Structural suitability.
- Volume, cost and safety of removing contaminated soil.
- Adjacent foundations such as the existing City College parking garage and proposed Curtis Park Village (CPV) structures. Foundation plans for these structures could not be obtained for the feasibility study phase, but must be obtained for final design. It is anticipated that the foundations along the proposed CPV structures will have to accommodate several alternative building foundations if the construction of this project precedes it.
- Railroad operations both during construction and for the final in-place foundation.
- Noise to adjacent residents and students during construction.

At the top of the bridge columns, there will be an integral connection with the superstructure. The superstructure bending moment capacity shall be designed to be higher than the column over strength moment in the longitudinal direction to prevent potential plastic hinging in the superstructure. The joint shear design at the superstructure/column interface shall also be taken into consideration. In addition, the column design will conform to all the requirements of latest Caltrans Seismic Design Criteria.

Project Costs

The estimated cost for the overall project is as follows:

Structure Items	$1,975,045
Civil Items	$204,450
Time Related Overhead (5%)	$108,975
Mobilization (10 %)	$254,274
Contingencies (25%)	$635,686
Engineering (15%)	$476,765
CE (12%)	$381,412
Easements and Right of Entry Acquisitions	$75,000
Utility relocation	$200,000
Provide secure bicycle parking	$50,000
Total	**$4,361,607**

For a detailed cost estimate, see Appendix H, "Detailed Estimates of Probable Construction Costs – Backup Data"

Summary– Preferred Alternative

Name	City College Light Rail Station Pedestrian/Bicycle Over Crossing
Structure Type	Main span crossing of UPRR maintenance yard: CIP/PS Concrete Haunched "U" Girder Approaches Ramps: CIP/Reinforced Concrete "U" Girder
Spans	Main span crossing of UPRR maintenance yard: 72'-141'-15', total length = 228' Approaches, Ramps: Spans Vary: 50' to 59', total length of west approach = 271' total length of west approach = 451' Approach, Embankment: 107' each end, total length of both embankments = 214' Total length of crossing = 1,164'
Structure Depth	Main span crossing of UPRR maintenance yard: 5'-3" varies to 6'-3" at haunch deck slab – 9", varies to 21" at haunch Approach Ramps: 3'-0", deck slab - 9" typical
West Abutment	Cantilever seat type abutment founded on spread footing.
East Abutment	Cantilever seat type abutment founded on spread footing.
Bents	Single column bents founded on drilled shafts or driven pile group. "C" column bent founded on driven pile group where required adjacent to existing or future buildings
Construction Sequence	Construction will be performed primarily in two phases: 1. Approach ramps, 2. Main spans crossing tracks. See "Typical Section" sheet in APPENDIX I. 1. Relocate and/or protect utilities. 2. Relocate access road along east side of parking garage. 3. Construct abutment retaining walls and place fill for east approach. 4. Construct abutment retaining walls and place fill for west approach. 5. Construct reinforced concrete ramp on approach fills. 6. Construct both west and east approach ramp foundations. 7. Begin construction of CIP/RC approach ramp structures. 8. Construct main span bridge foundations in UPRR right-of-way / continue completion of approach ramps. 9. Construct CIP/PS main span bridge structure. 10. Install bridge railing along approach ramp edge girders. 11. Install fencing along main span edge girders over UPRR right-of-way. 12. Install lighting and place speed limit and curve warning signs. 13. Open to public traffic.
Vertical Clearance	Will meet or exceed minimum permanent vertical clearance requirements by the BNSF over their tracks (23'4"), LRT tracks (15'-0"), and by the City of Sacramento over local streets (14'-6").
Temporary Vertical Clearance	As required to meet minimum vertical clearance requirements through false work by the BNSF and LRT over their tracks and by the City of Sacramento over local streets.
Barriers	Main spans crossing of UPRR maintenance yard: Edge girders of "U" section to height required for bicycle railing. Approaches: Lower edge girders to facilitate site distance w/ metal railing to meet height

	required for bicycle railing.
Deck Protection	The proposed structure is located in Environmental Area No. 1. No special deck protection is required.
Drains	Deck drains may be required.
Temperature Range	20^{o}F to 110^{o}F
Joints	Joint Seal (MR=1/2")
Utilities	Utility conduits will be embedded in the barrier for bridge lighting only. Due to the long ramps with hair-pin turns, accommodation for other major utilities (waterline, gas line etc) is not feasible.
Future Widening	N/A
Seismic Analysis	For this Feasibility Study, a static analysis was performed for the express purpose of developing realistic foundation sizes for cost. A full seismic analysis will be performed in final design according to Caltrans Seismic Design Criteria (SDC June 2006- Version 1.4, or latest version) and response spectra to be provided in the final Foundation Report.

References:

A. Survey –
   - Topographical Survey

B. Geotechnical –
   - Preliminary Geotechnical/Geology Memorandum
   - Initial Site Assessment (ISA)

C. Environmental –
   - Administrative Draft Initial Study/Mitigated Negative Declaration (IS/MND)
   - Technical Studies –
     - Biological Resources:
       Natural Environment Study, Minimal Impact (MINES)
     - Cultural Resources Report:
       Historic Property Survey Report & Archaeological Survey Report (HPSR/ASR)
     - Visual Impact Assessment Memo (VIA)

D. Public Outreach –
   - Project website: www.cityofsacramento.org/transportation/engineering/sccbikeped

Appendices:

A. Public Outreach information

B. Letters of Support

C. Utility Table & Letters

D. Environmental Issues

E. Hazardous Materials/Waste

F. Geotechnical Issues

G. Design Guidelines

H. Estimates of Probable Construction Costs – Backup Data

I. Proposed Alternative, 30% Design plan sheets:

- General Plan
- Foundation Plan
- Typical Section

Appendix A
Public Outreach information

Overview

In 2007, the city of Sacramento Department of Transportation initiated a feasibility study to examine possible pedestrian and bicycle crossing options between Sacramento City College Light Rail Station and the Curtis Park neighborhoods. The study examined possible alternatives, cost and environmental ramifications for the crossing. It is also an important component of the city's sustainability goals of encouraging pedestrian and bicycle trips, promoting the use of transit and reducing dependence on private automobiles.

In addition to providing a more direct link between the neighborhood to the east and the light rail station to the west, the proposed crossing would also provide safe and convenient access over several lines of rail road and light rail tracks. Currently, pedestrians and bicyclists must use the multi-lane, high-speed Sutterville Road to reach a destination located east or west of the rail lines.

Understanding the importance of community outreach and stakeholder involvement, the city conducted a comprehensive public outreach program. The two-phase approach involved initial stakeholder meetings to assist in developing a preferred alternative and obtaining input about community outreach. The second phase, implementation, involved reaching out to stakeholders and the community around the project area to inform them about the project and preferred alternative. Phase two activities included distribution of fact sheets, newsletters, postcards, e-communications, an interactive Web site and presentations to stakeholder groups as outlined in the following report.

The project team considered the suggestions and input from all stakeholders and incorporated them as much as possible into the preferred alternative.

Public Outreach Goal

The public outreach goal was to proactively inform the public and stakeholders about the Sacramento City College Light Rail Pedestrian/Bicycle Crossing Project's purpose, benefits, design and potential impacts. The goal focused on building support among those in the community with a desire to see alternate transportation grow through proactive and informed public outreach. Resident and business concerns were addressed and input was solicited regarding various alternatives.

Outreach Objectives

Key objectives of the public outreach program were developed after initial research was conducted.
The objectives included:

- Communicate project status and progress clearly and consistently with the community and stakeholders.
- Assist the project team in soliciting community and stakeholder input and feedback about project elements and design alternatives.

Through inclusive stakeholder and community outreach, the city of Sacramento Department of Transportation staff, with assistance from the consulting firm LucyCo Communications, accomplished the outreach objectives.

Public Outreach Plan & Ongoing Project Communication

Following initial small group meetings with key stakeholders, an outreach goal was identified and a proactive program approach was developed to help the city reach stakeholders, businesses and residents in a clear, effective and memorable manner.

Throughout the duration of the project, the city and consultant team members communicated to ensure activities were cohesively progressing and that outreach and engineering tasks moved at the same pace.

Database

The goal of the database was to identify interested parties in the project area such as developers, the local college district, regional transit organizations, as well as other stakeholders with a vested interested such as

walking, bicycling and other similar groups. The database was used for project update communications, gathering concerns and soliciting letters of support. It also served as a component of the distribution list used for mailed outreach pieces.

The customized stakeholder database of nearly 100 included:

- Community college district representatives
- Developers
- Neighborhood association leaders
- Project team members
- Regional private and public transit organizations
- Media contacts
- Public utilities commissioners
- Other relevant government agencies
- Community members who submitted contact information via the project Web site

Additionally, a parcel mailing list was purchased and used to reach a broader audience that included all 5,500 homes, businesses and apartments in the project area. The parcel mailing list was used to send outreach materials (postcard and newsletter), ensuring that all area residents and businesses were informed of the study.

Stakeholder Meetings

The purpose of the stakeholders meetings was to share project information and obtain stakeholders' input about their concerns and ideas and to answer questions. The meetings also helped identify key information that may be useful in later phases of the project.

The stakeholder meetings provided a forum for city staff and the project team to meet face-to-face with stakeholders and community members to hear input and suggestions. Initial key stakeholder meetings were held with Los Rios Community College District representatives, Petrovich Development Company, Union Pacific Rail Road, and Regional Transit employees early in the study to determine levels of support and identify opportunities and challenges. The information obtained from the stakeholder meetings was used to identify the preferred alignment.
Through the stakeholder meetings, the city and project team were able to develop a preferred alignment that met the needs of the property owners, which included:

- Union Pacific Railroad (UPRR)
- Sacramento Regional Transit Authority (LRT)
- Los Rios Community College District - Sacramento City College campus
- Petrovich Development - developers of Curtis Park Village
- City of Sacramento – in regards to Sutterville Rd. Overcrossing Widening alternative

Association/Organization Meetings

Following the key stakeholder meetings, local neighborhood and community associations were contacted to share project information and request the opportunity to present the preferred alignment to their members.

On many occasions contact was made to present the project to the following groups:

- College Plaza Neighborhood Association
- Curtis Park Neighborhood Association
- Land Park Community Association
- Sacramento Area Bicycle Advocates
- Sacramento City/County Bicycle Advisory Committee (SAC BAC)
- Sierra Curtis Neighborhood Association
- WALKSacramento

The city and project team met with the following:

- January 29, 2009 – Sierra Curtis Neighborhood Association

- February 10, 2009 – Sacramento City/County Bicycle Advisory Committee (SAC BAC)
- March 23, 2009 – Sacramento Area Bicycle Advocates (SABA) and WALKSacramento

While the project was conceptually supported by a large number of community and association meeting attendees, many had differing opinions about the aesthetic and usability features of the proposed bridge. The feedback received most often related to safety and esthetic features, including the need for stairs and a ramp, and ensuring the ramp would be wide enough for bicyclist passing in either direction. Attendees also requested that the on and off ramps include flat landings located at each switchback. Safety was a major point of interest and included requests for effective lighting and side walls that allowed for users to be seen (i.e. not solid).

Information collected during the neighborhood and organization meetings, including questions and answers, was summarized in meeting recaps, posted to the project Web page and attendees were added to the stakeholder database.

Media Relations

A media release was developed and disseminated to local media outlets announcing study details and opportunities for public input, including the Web site and meeting dates. The following media outlets were sent the media release:

- The Land Park News, both print and electronic versions
- Land Park Community Association newsletter
- Sierra Curtis Neighborhood Association newsletter
- South Land Park Neighborhood Association newsletter
- YourStreet.com – regional Web site that features Land Park news

Outreach Materials

A consistent graphical identity was developed to help distinguish print and electronic project outreach materials. The project logo is located at right.

The project team developed a postcard, newsletter, e-newsletter and email blasts. All materials were designed to share up-to-date information about the project and provide information about opportunities to providing input. Specific content about city's sustainability goals and dedication to alternative transportation, background information, project schedule, contact information and the project's Web address was also included.

Additionally, a project fact sheet and full-color presentation boards were produced to assist stakeholder and community members identify the proposed project area and project details during stakeholder meetings.

Outreach Materials

Date	Outreach Material	Purpose	Distribution
January 2009	Postcard	Promoted the project Web site and Sierra Curtis Neighborhood Association meeting.	1,450 residents, businesses and stakeholders
April 2009	Newsletter	Updated residents, businesses and stakeholders about the proposed alignment, project funding, crossing renderings and promoted the project Web site.	5,600 residents, businesses and stakeholders
April 2009	E-newsletter	Highlighted the project's feasibility and environmental study, proposed alignment, vidcast and interactive project map.	100 residents businesses and stakeholders

Project Duration	Fact Sheet	Highlighted keep project components and the project Web site.	Distributed at stakeholder meetings and posted to the project Web site

Web Site
The city of Sacramento Web site contains information about each of its active projects, including the Sacramento City College Light Rail Pedestrian/Bicycle Crossing project. The project team developed user-friendly and interactive Web pages that were hosted on the city's site. The project Web pages became a central feature of the outreach program as it was continuously updated with the timeliest information, allowing visitors access to all project details.

The Web pages were continuously updated throughout the project and included:

- Meeting Recaps & Project Images – All meeting recaps, project renderings, and location and alignment maps were posted to the Web site.
- Frequently Asked Questions – Many questions were submitted to the city's project manager and project team; all questions were answered and when applicable added to the frequently asked questions section of the Web pages. Additionally, following stakeholder meetings, the frequently asked questions page was updated to reflect questions asked during the meeting.

In an effort to reach stakeholders and residents who do not rely on traditional media, the following multimedia materials were developed:

- Interactive Project Map – An interactive location map was developed using scroll over and pop-up features to provide additional project details and engage users.
- Vidcast – The city and project team filmed and produced a 90-second project overview video that included footage of the project area and proposed alternative crossing details. Three city of Sacramento Department of Transportation team members were included in the video. Upon completion, the video was edits and posted to the project Web pages.

Result of Public Outreach

The impact of the public outreach on the results of this study is important to note. The main stakeholder groups provided key input as to their requirements regarding impact to their existing facilities and operations. In particular, the location and configuration of the proposed alternative is a direct result of meeting each of these stakeholders' requirements while still maintaining the objectives of the project.
To compliment the impact of the stakeholders, the community groups provided a clearer understanding of the user's needs and desires from usability of the crossing, to aesthetics from the perspective of one crossing the bridge as well as from those viewing it from a distance, to incorporating the entrances into the existing and proposed surrounding facilities.

Appendix B
Letters of Support

Sacramento Area Bicycle Advocates
SABA
Making Sacramento a cycling capital

909 12th Street Ste 114 Sacramento, CA 95814 (916) 444-6600 www.sacbike.org

2009 MAR 31 PM 3 01
RECEIVED
CITY OF SACRAMENTO
DOT
ENGINEERING SVCS DIV

March 30, 2009

Ryan Moore
Department of Transportation
City of Sacramento
915 I Street, Room 2000
Sacramento, CA 95814

RE: Sacramento City College Light Rail Pedestrian/Bicycle Crossing Project

Dear Mr. Moore:

Thank you for meeting with the DDRC on Monday, March 23, to discuss the subject project. SABA fully supports the construction of a crossing between the Sacramento City College Light-Rail Station and Curtis Park for use of bicyclists and pedestrians. SABA still has concerns about the convenience and cost-effectiveness of the proposed design for a crossing.

We hereby request the following considerations as you go forward with the planning and design of the project:

- Because the primary objective of the project is for users to efficiently access the light-rail station at Sacramento City College, both the pedestrian stairs and the crossing ramp should deliver users as directly as possible to the light-rail station platform.
- The width of the travel surface on the crossing should be at least 12' to ensure comfortable use by two-way traffic of both pedestrians and bicyclists (see Caltrans Highway Design Manual Chapter 1000 Topic 1003 – Design Criteria for horizontal clearance to vertical obstruction at www.dot.ca.gov/hq/oppd/hdm/pdf/chp1000.pdf).
- The radii of the turns on the ramps between the crossing span and the ground level must be large enough for safe and comfortable bicycle use.
- The crossing-span structure should be visually porous (i.e. not solid concrete) to allow views of approaching users at turns in the ramps, to allow views of users and activities on the crossing from other viewpoints, and to allow views of the tracks and crossing vicinity below.
- The entire project of crossing span and ramps should, by their appearance and placement, welcome and encourage use. It should be visually appealing and attractive to viewers from surrounding areas.
- The pedestrian stairs and the ramp on the eastside of the crossing should be integrated with the retail block in the Curtis Park Village project.

Appendix C
Utility Table & Letters

Utility Description	Location	Utility Owner	Relocation – for:		Comments
			Bridges	Tunnels	
Storm Drain Inlets	At Grade: Multiple locations within & near LRT station	City of Sacramento	No	Protect in place	Drainage structures (pipes) leading from inlets require further identification.
Storm Drain inlets	At Grade: Gutter drain east edge of access road along east side of garage	**City of Sacramento**	**Relocate**	Protect in place	Drainage structures (pipes) leading from inlets require further identification.
Storm Drain inlet	Buried: East edge of UPRR right-of-way	City of Sacramento	No	Protect in place	For bridge option, do not obstruct flow path to inlet.
Water/ fire hydrant	Buried: Parallel to tracks, just west of UPRR	**City of Sacramento**	**Yes.**	Protect in place	Relocate fire hydrant located within limits of proposed ramp approach fill.
Irrigation System	Buried: Landscaped areas adjacent to parking garage	**Sacramento City College**	**Yes.**	Yes	Required for bridge option, relocation of access road east side of garage & tunnel option for portal.
Sewers	NA	County of Sacramento	NA	NA	The County responded that they have no facilities in the project area.
Gas	Buried: Parallel to tracks, near west edge of UPRR. Terminates south of LRT station w/ spur to stadium.	Pacific Gas & Electric (PGE)	No.	No.	Per map provided by PG&E, nearest line terminates to the south of the proposed crossing
Power	Aerial cables: Along east edge of LRT.	**Sacramento Municipal Utility District** (SMUD)	**Yes.** Lines will have to be raised.	No	Lines will have to be raised to provide minimum clearance above bridge deck. This is a high dollar item. See discussion in utility section of report.
Station Lighting	Posts: Along west edge, and within station	**Regional Transit**	**Protect in place**	Anticipate protect in place	May require temporary remove and replace for tunnel option.
Power Junction Box	At Grade: North end of LRT station within UPRR.	Regional Transit	No	No	Must confirm location and direction of underground conduits leading to box.
Catenary power cables	Aerial cables: Parallel to the LRT tracks, east side of each track @ station, single centered poles beyond	**Regional Transit**	**Protect in place / Reset** To be determined based on final soffit height	No	Cables will run below a bridge soffit and may have to be lowered and attached to bridge

Utility Description	Location	Utility Owner	Relocation – for:		Comments
			Bridges	Tunnels	
Commun-ications	Buried: Parallel to, and between, the two LRT tracks	Regional Transit	No	Protect in place	Utilities are likely shallow enough to run above tunnel options.
Cable	To be Confirmed	Comcast	Not anticipated	Anticipate protecting in place.	
Fiber Optic	Aerial cables: along east edge of UPRR on SMUD poles	**SureWest** TeleVideo	**Yes.**	No	Will be relocated to either below the bridge soffit or to a suitable height above the bridge deck based on final bridge height
Fiber Optic	Buried: parallel to the tracks, about 50ft east of the RR right-of-way.	Verizon	Not anticipated	Anticipate protecting in place.	Appears to be carried by an MCI facility
Fiber Optic	To be Confirmed	Level 3 Commun-ications	Not anticipated	Anticipate protecting in place.	
Fiber Optic	To be Confirmed	MCI Worldcom	Not anticipated	Anticipate protecting in place.	
Fiber Optic	NA	AT&T	NA	NA	AT&T responded that they have no facilities in the project area.
Fiber Optic	To be Confirmed	Sprint	Not anticipated	Anticipate protecting in place.	
Fiber Optic	Not known	TelePacific Communi-cations	No Conflict	No Conflict	TPAC responded that there will be no conflicts, but did not provide location.
Fiber Optic	NA	Kinder Morgan	NA	NA	Kinder Morgan responded that they have no facilities in the project area.

Utility Letter Responses:

- SureWest
- Sacramento County Sanitation District
- Qwest
- TelePacific Communications (TPAC)
- Pacific, Gas & Electric (PG&E)
- Kinder Morgan
- Verizon
- Sacramento Regional Transit District
- Sacramento Municipal Utility District (SMUD)
- AT&T

See the following pages for copies of the responses.

Utility Letter – SureWest, 1 of 2:

SureWest®

2009 DEC 16 PM 2:37
CITY OF SACRAMENTO
DOT
ENGINEERING SVCS DIV

April 15, 2009

Ryan Moore
City of Sacramento
915 I Street Room 2000
Sacramento CA. 95814-2604

RE: City College Pedestrian Overcrossing

Ryan,

We have reviewed your Utility letter A for the above-mentioned project and have determined that we have fiber attached to the utility poles as identified on the attachment. We see no conflict with what is being proposed. This however does not release you from calling in a USA request prior to start of construction.

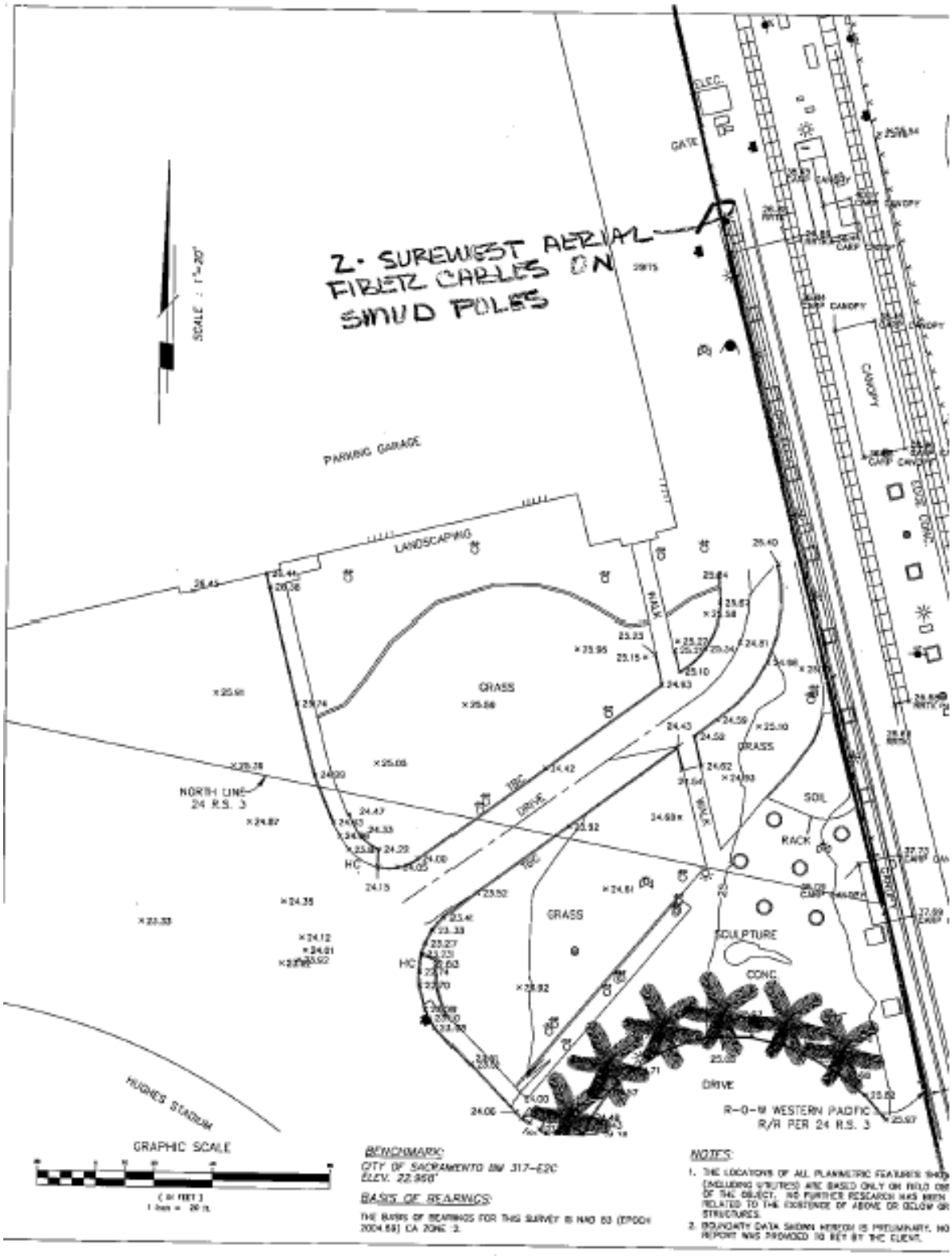
Please call if you have any questions.

Respectfully,

Gretchen Hildebrand
SureWest Communications
Right of Way
916.786.1513

SureWest Communications
8150 Industrial Ave. Building B
Roseville CA. 95678

Utility Letter – SureWest, 2 of 2:



Utility Letter – Sacramento County Sanitation District:

CSD-1
COUNTY SANITATION DISTRICT 1

2009 MAR 20 AM 8 35
RECEIVED
CITY OF SACRAMENTO
DOT
ENGINEERING SVCS DIV

LETTER OF TRANSMITTAL

TO: **City of Sacramento**

DATE: March 13, 2009

ATTENTION: Ryan Moore
PROJECT: Sacramento City College area
REFERENCE #: Letter "A"

WE ARE SENDING YOU: ☒ ENCLOSED ☐ UNDER SEPARATE COVER VIA

The following items:

Copies	Description

THESE ARE TRANSMITTED as checked below:

☐ For Approval
☐ For Your Use
☐ As Requested
☐ For Review and Comment
☐ Approved as submitted
☐ Approved as noted
☐ Returned for corrections
☐ copies retained for our files
☐ Reviewed no additional comments
☐ Reviewed see additional comments
☐ Return 2 corrected prints
☐ Sign and return copies
☐ Please respond by:

REMARKS: **There is no SASD (Sewer) facility within this project area.**

SIGNED: **Ray Vasseli**
Principal. Engr. Tech

Sacramento Area Sewer District
Collection Systems Division
10545 Armstrong Avenue, Suite 101
Mather, CA 95655
876-6140

cc:

Utility Letter – Qwest:

NNS Field Office
1009 Enterprise Way, Suite 300
Roseville, CA 95678

2009 MAR 11 PM 1 23

RECEIVED
CITY OF SACRAMENTO
DOT
ENGINEERING SVCS DIV

Qwest
Spirit of Service®

March 10, 2009

Inves # N/A

Ryan Moore
City of Sacramento
Department of Transportation
Engineering Services Division
915 I Street, Room 2000
Sacramento, CA 95814-2604

Re: Sacramento City College Pedestrian Overcrossing Project - Utility Letter "A"

Dear Mr. Moore:

I have reviewed your project prints for the above mentioned request. Qwest Communications does not own, or have plans to install, any facilities within your project location.

If you need further assistance, please do not hesitate to contact me.

Sincerely,

Brett Hankins
Lead Technical Project Manager
(916) 788-1041
brett.hankins@qwest.com

Utility Letter – TelePacific Communications (TPAC):

03/24/2009 06:08 9256865993 STAR DANCE PAGE 02

DEPARTMENT OF TRANSPORTATION

ENGINEERING SERVICES DIVISION

CITY OF SACRAMENTO
CALIFORNIA

915 I STREET, ROOM 2000
SACRAMENTO, CA
95814-2804

PH. (916) 808-8300
FAX (916) 808-8281

March 5, 2009

NOT conflicting WITH TPAC comms

Mr. Curt Heley-Manager
Outside Plant Engineering
ICG c/o TelePacific Communications
190 Park Center Plaza, Suite 100
San Jose, CA 95113

Utility Letter "A"

Dear Mr. Curt Heley,

For your information, enclosed are two sets of preliminary prints showing the improvements to be constructed as part of the Sacramento City College Pedestrian Overcrossing project.

On one of the copies of the enclosed plans, please verify the location, size and depth, if underground, of any of your Company's existing facilities that may be affected by the proposed work. Please indicate any pending new facilities that are expected to be installed within the next year. Also, please advise if you maintain an easement for your facilities and provide documentation to that effect.

Within 15 days of receiving this letter, please return the marked up copy to this office.

Thank you for your prompt assistance in this matter. If you desire further information concerning the proposed work, please call me at 808-8279.

Sincerely,

Ryan Moore
Project Manager

RM/wp

PN: T15065700/TK81

Enclosure

Utility Letter – Pacific, Gas & Electric (PG&E):

PG&E File # 09-062 Plat # 2586-C5 TBM #

Date Customer Plans Received 3-10-09

2009 MAR 20 PM 2 07

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ENGINEERING SVCS DIV

NOTE: Please incorporate the gas and/or electric facilities from the attached plat maps into your plans. Check your plans for conflicts. It is the responsibility of the agency or developer to pothole existing facilities if needed to determine if there are any conflicts. An Application for Gas Service is required and you must allow 6 to 8 weeks to remedy any conflicts. If any pipe coating is damaged during excavation, please contact Gas Maintenance & Operations in your County and we will send someone to repair the damaged pipe wrap.

Sacramento County	(916) 386-5153
Solano County	(707) 440-5759
Yolo County	(530) 661-5157

_____ NOTE: No gas facilities within your project site.

X NOTE: No PG&E electric facilities within your project site.

_____ If you have any questions regarding conflicts with our existing facilities or regarding new service to your project, you can contact me at

Name	Address	Phone
Larry Schlaht	5555 Florin-Perkins Rd. Sacramento 95826	916-386-5371

✓ If you have any mapping questions you can contact

Pete Miskovich	5555 Florin-Perkins Rd. Sacramento 95826	916-386-5429

_____ It appears that highlighted gas facilities located within your project may require special construction equipment weight limits when working over or near these facilities. Please contact our office to review these equipment weight restrictions.

_____ PG&E has overhead electric transmission facilities, which are covered by easements within the project boundaries. Land use is restricted within the easements. Please contact our Land Department at (530) 889-3162 and provide a complete set of plans so we may consider a consent agreement.

Utility Letter – Kinder Morgan:

KINDER MORGAN
ENERGY PARTNERS, L.P.
SFPP, L.P.

SFPP, L.P.
Operating Partnership

2009 MAY 12 PM 4 14

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DOT
ENGINEERING SVCS DIV

May 6, 2009

ENG 4-2-1 (930)
Reference #09-248

Ryan Moore
Project Manager
City of Sacramento
Room 2000
915 I Street
Sacramento CA 95814-2604

Re: Sacramento City College pedestrian overcrossing project

Dear Mr. Moore:

This letter is in response to your letter dated March 5, 2009, concerning the above referenced project.

Based on the information you have provided, Kinder Morgan has no facilities within the project area and therefore has no conflict with the proposed project.

In the event the project scope changes, please resubmit your request.

Sincerely,

D. Sidorewicz

A. Dianne Sidorewicz CPS
Administrator
Engineering

T: Quinn/letters/421(930)/09-248

1100 Town & Country Road Orange, California 92868 714/560-4400 714/560-4601 Fax

Utility Letter – Verizon, 1 of 2:

verizon

2009 MAR 24 AM 8 22

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DOT
ENGINEERING SVCS DIV

OSP National Support / Investigations
Dept 42864 Loc 107
2400 North Glenville
Richardson, TX 75082

Verizon Business, Network Services.

03/18/2009

CITY OF SACRAMENTO
Ryan Moore
915 "I" Street, Room 2000
Sacramento, CA 95814-2604

RE: PN: T15065700/TK81
- **PEDESTRIAN OVERCROSSING PROJECT –**
- **SACRAMENTO CITY COLLEGE LIGHT RAIL –**
  Sacramento, Sacramento, California

Verizon Business ID: 1461-2009

Dear Sir or Madam:

Verizon Business has been notified by your office regarding the above referenced project. For your records, in reviewing the design prints received from your office, it has been determined that Verizon Business does have facilities within your construction area and a conflict may exist. In order to avoid this potential conflict, it will be nesessary for your construction to maintain a minimum of twenty-four (24) inches vertical clearance when crossing Verizon Business facilities and sixty (60) inches horizontal clearance when your running line is parallel to our facilities.
The as-built drawings for this area are enclosed and are for information purposes only. **You must contact your local One Call System number at least 48 hours prior to any construction.** During construction it will necessary for us to monitor our facilities.

You should address future correspondence concerning the project to the attention of **OSP National Support/Investigations** at the above address. Please include the above **Verizon Business ID number.**

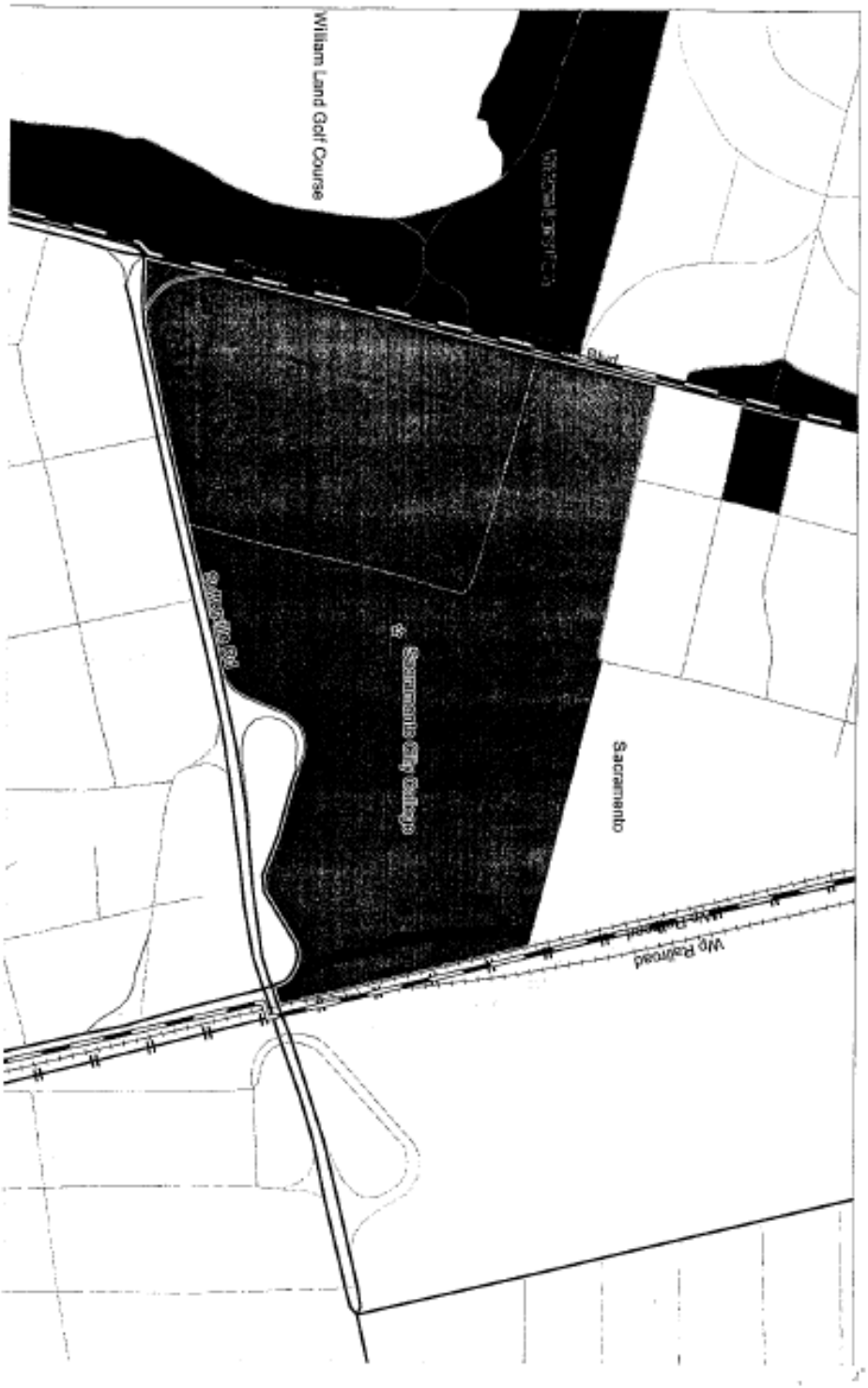
If you need further assistance with this project, please do not hesitate to **call our field representative Rebecca Daniels at 925-951-2711**.

Sincerely,

John Bachelder
OSP National Support / Investigations
(972) 729-6016

24x60 Clearance-asbuilts.doc

Utility Letter – Verizon, 2 of 2:



Utility Letter – Sacramento Regional Transit District, 1 of 2:

Regional Transit

Sacramento Regional Transit District
A Public Transit Agency and Equal Opportunity Employer

Mailing Address:
P.O. Box 2110
Sacramento, CA 95812-2110

Administrative Office:
1400 29th Street
Sacramento, CA 95816
(916) 321-2800
(29th St. Light Rail Station/ Bus 30,38,58,67,68)

Light Rail Office:
2700 Academy Way
Sacramento, CA 95815
(916) 648-8400

Public Transit Since 1973

www.sacrt.com

2009 APR 8 AM 8 36

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CITY OF SACRAMENTO

April 2, 2009

Ryan Moore
Project Manager
Department of Transportation
City of Sacramento
915 I Street, Suite 2000
Sacramento, CA 95814

Subject: Utility Letter "A" – Sacramento City College Pedestrian Overcrossing Project (PN: T15065700/TK8)

Dear Mr. Moore:

The following information is in response to your letter dated March 5, 2009:

- Regional Transit (RT) does have underground utilities within your project area. For your reference, we are enclosing as-built plans for South Sacramento Corridor Project 1's Light Rail and Station areas. The areas included in these plans are: civil, signal, Overhead Contact System (OCS), traction power, utility, electrical, architectural, and irrigation. Please note that these as-built plans are still under review by our engineers.

  We are also enclosing RT ROW information for the area. Please note that the bus driveway was modified by a subsequent project by LRCCD for which RT does not have final plans. Please contact Glenn Kaneyuki of LRCCD Facilities Maintenance at (916) 856-3419 or kaneyukig@losrios.edu concerning these final plans.

- The tracks and station must remain active during construction. Light rail service cannot be impacted and pedestrian access to and through the station must remain unobstructed. Therefore, RT needs to review final plans to confirm that the light rail operations will not be impacted.

- The contractor must obtain a Track Warrant through RT Metro when working near RT light rail tracks. Please contact Sharon Fultz in RT's Real Estate Department at (916) 556-0308 for details.

Utility Letter – Sacramento Regional Transit District, 2 of 2:

Ryan Moore 2 April 2, 2009

- The contractor will need to obtain a Red Tag to turn off RT's traction power when erecting scaffolding (or falsework) over the OCS, and will be required to protect the OCS. The fee for the Red Tag is $700. Red Tags allow for construction only during light rail non-revenue hours, and require 7 days notice to RT.

- Because, it is anticipated that the pedestrian bridge will be constructed within the light rail station area, RT must ensure that the pedestrian access to and from the station is well designed. Therefore, please contact David Solomon at (916) 557-4682 to discuss the final design.

- RT has bus routes within your construction project area. Therefore, RT would like to attend the pre-construction meeting to address bus service that may be disrupted during the course of construction. Please coordinate directly with Robert Hendrix at (916) 649-2759 concerning this matter.

Please call me at (916) 321-5340 if you have any questions.

Sincerely,

Desi Lopez
Senior Engineering Technician
Engineering and Construction Division

c: Darryl Abansado, Director of Civil & Track Design
Robert Hendrix, Facilities Supervisor
David Solomon, Senior Architect

Utility Letter – Sacramento Municipal Utility District (SMUD), 1 of 3:

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT
The Power To Do More.®

P.O. Box 15830, Sacramento, CA 95852-1830; 1-888-742-SMUD (7683)

2009 APR 2 PM 1 43

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CITY OF SACRAMENTO

March 31, 2009

CITY OF SACRAMENTO – DEPARTMENT OF TRANSPORTATION
ATTN: RYAN MOORE
915 I STREET, ROOM 2000
SACRAMENTO, CA 95814

SUBJECT: "A" PLANS – SACRAMENTO CITY COLLEGE PEDESTRIAN OVERCROSSING PROJECT

*****PLEASE REFERENCE SMUD FILE # 2009019, AND/OR SMUD NOTIFICATION # 30333537, WITH ALL CORRESPONDENCE *****

Attached are prints of the SMUD Geographical Information System (GIS) Map Drawings. The GIS Map Drawing is a guide showing the approximate location of SMUD facilities. SMUD accepts no responsibility for its complete accuracy or for recent changes. Measurements and scale are approximate. Actual depth is unknown. If conflicts with District facilities do exist, the typical schedule for relocation or removal is as follows:

Time needed to prepare and schedule work estimate after receipt of **"B"** plans:	**60** days
Time needed to complete work after receipt of **"C"** plans:	**60** days
Total time needed for **SMUD** to relocate facilities:	**120** days

Please call me if you have any further comments or questions.

Sincerely,

Rod Baer 4/1/09

Rod Baer
Engineering Designer IV
Distribution Services
(916) 732-7035

FILE #: 2009019
SMUD Notification #: 30333537

NEW SERVICES • 1708 59th Street, Sacramento, CA 95819-4628; (916) 732-5700

Utility Letter – Sacramento Municipal Utility District (SMUD), 2 of 3:

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT
The Power To Do More.®

P.O. Box 15830, Sacramento, CA 95852-1830; 1-888-742-SMUD (7683)

Apil 3, 2009

Ryan Moore
Engineering Services – DOT
City of Sacramento
915 I Street – Room 2000
Sacramento, CA 95814-2604

Dear Ryan,

Thank you for contacting the Sacramento Municipal Utilities District (SMUD) with your planned project called the Sacramento City College Pedestrian Overcrossing Project. SMUD has reviewed the scope of work that you sent for this project and we have found that there will be a conflict with an Overhead Electric Transmission Line that SMUD has located in that area.

Please send a detailed set of construction plans; being sure to include any plans for grading, digging vegetation, or building/structure/fencing plans. SMUD will review the detailed set of plans that you send and will contact you if any further action is necessary. Thank you for notifying SMUD of your planned project and we look forward to working with you in the future.

Sincerely,

Rachel V. Del Rio
Land Agent
SMUD - Real Estate Services
PO Box 15830 – MS B304
Sacramento, CA 95852-1830

R DELRIO @ SMUD. ORG

DISTRICT HEADQUARTERS • *6201 S Street, Sacramento CA 95817-1899*

Utility Letter – Sacramento Municipal Utility District (SMUD), 3 of 3:

Email Copy:

Fish, Bob

From: Rachel Del Rio [RDelrio@smud.org]
Sent: Friday, October 30, 2009 4:11 PM
To: Fish, Bob
Subject: FW: Sac City College Pedestrian Crossing

Bob! I just got this in this afternoon! Hope this helps, if you need anything else, let me know.

Rachel V. Del Rio
Land Agent
SMUD Real Estate Services
PO Box 15830 MS B304
Sacramento, CA 95852-1830
(916) 732-5997

From: Timothy Talbert
Sent: Friday, October 30, 2009 2:39 PM
To: Rachel Del Rio
Subject: RE: Sac City College Pedestrian Crossing

Rachel,

Based on a quick assessment of the information provided, this project will require raising the transmission, distribution and communication lines to provide adequate clearance to the pedestrian crossing. At a minimum, this will require replacement of two (2) poles and, depending on structural impacts to adjacent poles, possibly two (2) additional poles will require replacement. Recent cost estimates to replace poles of similar size and configuration totaled $52,000 per pole. Given that, my rough estimate for this project is between $100,000 and $200,000.

Also, please note that poles of this type have a 4- to 6-month lead time for fabrication.

Thanks,

Tim

Utility Letter – AT&T:

Bob Fish

From: Ryan Moore [rtMoore@cityofsacramento.org]
Sent: Wednesday, June 10, 2009 8:23 AM
To: Bob Fish
Subject: utility letter

Hey Bob,

I got a response from AT&T. Its short & sweet - they have nothing in the area. Please incorporate in the report with the rest of the utility information.

Ryan

Appendix D
Environmental Issues

Environmental Issues

The proposed project is a joint project by the City of Sacramento and Caltrans as delegated by FHWA, and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The City of Sacramento is the lead agency under CEQA. Caltrans, as delegated by FHWA, is the federal lead agency under NEPA.

Caltrans, as delegated by FHWA, will issue a Categorical Exclusion pursuant to NEPA for the proposed project. It is anticipated that Caltrans will issue the Categorical Exclusion in February or March 2010...

PMC, on behalf of the City of Sacramento Department of Transportation, completed an initial study (IS) with supporting environmental studies, which provides justification for a Mitigated Negative Declaration (MND) pursuant to the California Environmental Quality Act (CEQA) for the proposed project. The Draft IS/MND was circulated to the public for 30 days beginning August 10, 2009. One comment was received on the document and was responded to in the Staff Report prepared for the project for City Council review. A Mitigation Monitoring and Reporting Program prepared for the project will also adopted by the Sacramento City Council concurrently with certification of the MND.

The IS identified potentially significant impacts from the project in the areas of Aesthetics, Hazardous Materials, and Construction Noise. The following mitigation measures were identified to reduce all impacts to less than significant levels under CEQA. A draft report and technical studies have been prepared and are available for review. [See REFERENCE C.]

Visual Site Assessment (also, refer to the Aesthetics section below)

Wherever feasible, construction materials and debris should be stored away from highly visible areas, which shall include, but not be limited to, the highly-traveled Sacramento City College campus facilities, such as Hughes Stadium.

Construction lighting should be faced downward and away from traffic lanes and areas where lighting could disturb passing drivers and/or pedestrians.

Lighting poles and signs should be designed to minimize reflection to the extent feasible. All surfaces should be painted with an anti-reflective coating or otherwise treated to reduce light reflection.

Hazardous Materials (also, refer to the Hazardous Materials/Waste section above)

Prior to start of construction, the construction contractor shall designate staging areas where fueling and oil-changing activities will take place. The staging area(s) shall be reviewed and approved by City of Sacramento's Resident Engineer for the project and the Storm Water Pollution and Prevention Manager prior to the start of construction. No fueling and oil-changing activities shall be permitted outside the designated staging areas. The staging areas, as much as practicable, shall be located on level terrain and away from sensitive land uses such as residences, day care facilities, and schools. The proposed staging areas shall be identified in the Storm Water Pollution Prevention Plan (SWPPP).

Prior to the start of construction, the depth and location of gas pipelines shall be determined and mapped by the appropriate agency and provided to the City to insure that project construction activities would not disrupt or damage the natural gas pipelines.

Should pole removal or relocation be necessary for the project, the City shall obtain from the utility owner data warranting that these transformers are free of PCB contaminated oil. If transformers contain PCBs, they shall be handled and disposed of in accordance with applicable hazardous materials regulations.

For any areas of construction proposed within the Active Union Pacific Yard, a site-specific surface and subsurface investigation for Constituents of Concern shall be completed prior to start of construction. Investigation, construction, and remediation activities shall be conducted pursuant to DTSC protocols, including DTSC review and concurrence with comprehensive work plans, soil management plans, and health and safety plans. Any reports generated from the investigations shall be submitted to DTSC.

For construction activities in the area of the former U.S. Cold Storage property, a further search of available existing environmental documentation (including work that may have been performed prior to construction of the Sacramento City College parking structure) is recommended to better define the status of site investigation and remediation activities. If documentation is insufficient to determine the presence or absence of hazardous levels of constituents of concern, then a targeted investigation shall be conducted to determine the presence or absence of hazardous levels of constituents of concern.

Throughout the project construction area, site specific Phase II soil sampling for hazardous materials shall be conducted in areas where ground disturbing activities would take place as part of project construction. If constituents of concern are identified, applicable regulatory requirements regarding disposal or reuse of contaminated materials shall be followed.

Noise (from Project Construction)

Site preparation and construction activities along the light rail and UPRR tacks (i.e., construction areas closest to sensitive receptors) shall be limited to between the hours of 7:00 a.m. to 6:00 p.m. Monday through Saturday, and 9:00 a.m. to 6:00 p.m. on Sunday. Noise-generating construction equipment maintenance activities shall be limited to the same hours (City of Sacramento, Noise Control

Construction equipment shall be equipped with mufflers, in accordance with manufacturers' specifications. Additionally, equipment staging areas shall be located at the furthest distance possible from nearby residential land uses.

With implementation of the above mitigation measures, all potential environmental impacts from the construction and operation of the project are considered less than significant under CEQA.
With certification of the Final IS/MND and adoption of the Mitigation Monitoring and Reporting Program by the Sacramento City Council, and with issuance of a Categorical Exclusion by Caltrans, all CEQA and NEPA documentation and approvals are complete.

Appendix E
Hazardous Materials/Waste

Hazardous Materials/Waste

The Initial Site Assessment (ISA) for this project site has been completed. The ISA is critical at this site as it has already been identified to contain hazardous materials. The ISA further identified the presence of hazardous material/waste at the crossing site. A draft report has been prepared and is available for review. [See REFERENCE B at the end of this document.]

Sites with Potential Contamination/Hazardous Materials Issues

Following is a list of parcels within the general project area that were identified as having potential contamination and/or hazardous material issues that could impact project land acquisition and/or construction. Parcel numbers are based on the Sacramento County Assessor's Office parcel viewer website. For further description of the issues associated with each parcel, refer to the report.

- Curtis Park Village - APN # 013-1010-027
- Additional Parcel- APN # 013-0010-028
- Western Pacific Loop - APN # 013-0010-008/009
- Active Up Yard/Light Rail Corridor - APN # 013-0010-029
- Former Us Cold Storage Property (Sacramento City College Parking Facilities)- APN # 013-0010-002
- Sacramento City College - APN # 013-0010-014

General Contamination/Hazardous Materials Issues

Following is a list of general contamination and potential hazardous materials issues that may impact proposed improvements within the project area. Many of these issues prevail across existing parcel and property boundaries, and are not confined to any one, single parcel.

Active Rail Operations

Normal active railroad operations within the Active UP Yard are not generally subject to mandatory environmental assessment, therefore relatively limited existing information regarding subsurface conditions is available for this portion of the project area. In addition to contaminants known to exist in the railroad right-of-way such as lead and arsenic (associated with slag ballast), there may exist a variety of potential contaminants resulting from day to day operations over many decades, and if present, may become an issue for both worker safety and property acquisition. Therefore it is recommended that a surface and subsurface assessment be performed for any proposed acquisition of property within the Active UP yard. The City of Sacramento must make an assessment of their risk in acquiring potentially impacted property. The DTSC has indicated that investigation/construction/remediation activities within the Active Yard would be subject to their review and protocols, particularly in the preparation of soil management and health and safety plans.

Sites Currently Undergoing or Scheduled For Future Remediation

The report identifies several parcels on which remediation has been performed or will be performed in the near future under the direction of the DTSC. The remediation consists predominantly of shallow soil excavation (generally within the upper five feet; deeper in some locations) in areas identified as exceeding the Remedial Action Objectives (RAOs). It should be noted that although these parcels are being remediated to the standards approved by the DTSC for future residential development, this does not preclude encountering an undiscovered zone exceeding the RAOs. In addition it should be understood that soil meeting the RAOs may still be subject to regulatory requirements regarding disposal or reuse. A table listing the RAO's is included as Appendix A of the ISA report.

One site, the former US Cold Storage facility, is listed on the DTSC Envirostore Database as "Inactive-Action Required". The status of this site investigation/remediation is unclear and will need to be confirmed if the project includes a portion of this parcel.

Transformers

The scope of this assessment did not include an inventory of past and present transformers on parcels identified within the project area. During site reconnaissance, several pole- mounted electrical transformers within the proposed project area were noted. It is recommended that the utility owners provide data to the City, warranting that these transformers are free of PCB contaminated oil, should pole removal or relocation be necessary for the project. If PCBs are present, they are the responsibility of the

transformer owner, and should be disposed of in accordance with current regulations.

The former UP maintenance yard contained a transformer along the east property line which was removed and tested for PCBs as part of the overall site remediation.

Underground Product Distribution Lines

Natural gas pipeline warning signs were observed within the active UP corridor just south of the proposed project area (below the Sutterville Road overpass). It is assumed that the buried pipelines follow the Union Pacific Railroad right-of-way through the project area. No record of contamination resulting from these lines was discovered in our assessment; however, there is always the potential for unidentified leaks along the pipes.

Appendix F
Geotechnical Issues

Geotechnical Issues

A Preliminary Geotechnical/Geology Memorandum has been completed. The report also includes foundation recommendations for the bridge and overcrossing alternatives, Seismic Data, Liquefaction Potential, and Corrosion Evaluation. The Preliminary Geotechnical/Geology Memorandum is available for review. [See REFERENCE B]

New boring or test pits were not conducted for this Feasibility Study. The following discussion of subsurface soil conditions is based on review of the Log of Test Borings (LOTB) for the Sutterville Road Overhead and the boring logs from the Geotechnical Report for the Sacramento City College Parking Structure.

Subsurface Soil Conditions

The logs indicate that the near surface soil (upper 5 to 9 feet) consists of very stiff to hard, reddish brown to strong brown, sandy silt and sandy clay. Underlying the near surface soil at depths ranging from about 5 to 12 feet below the surface, the logs show a variably cemented, hard to very hard, sandy silt and sandy clay. Below 12 ft, the subsurface soil consists of interbedded layers of stiff to hard, sandy silt and sandy clay, and medium dense to dense, silty/clayey sand to the depths explored.

Copies of the existing LOTBs are included in the Preliminary Geotechnical/Geology Memorandum.

Foundation Recommendations

Based on review and analysis, the site is conducive to spread footings, driven piling, precast prestressed concrete piles, HP piles, or Cast-in-drilled-holes (CIDH).

Driven piles will likely require pre-drilling due to the hard soil layers encountered within the upper 5 to 15 ft of the surface. Standard HP section piles will have deeper tip elevations than Standard driven concrete piles for the same lateral and vertical load combinations, and vertical Standard HP section piles will generally have 2 to 3 times less lateral capacity than vertical Standard driven concrete piles.

Cast-in-drilled-hole (CIDH) piles are technically feasible for structural support, however CIDH piles that extend below the ground water table may require temporary casing, slurry drilling or tremie concrete placement during construction.

It is anticipated that 45 ton piles (CIDH, HP, and concrete piles) will extend about 25 to 50 ft below original grade. Spread footings were used for the design and construction of the Sutterville Road Overhead Bridge and are considered a feasible alternative for this project. Specified dimensions of the spread footings will depend on area available, the vertical loading requirements, and the subsurface soil conditions including liquefaction potential (if present). It is anticipated that Bottom-of-footing elevations would be 4 to 9 ft below original grade with an estimated allowable bearing capacity of 3 to 4 ksf.

Seismic Data

The Coast Ranges Sierran Block Fault is the nearest known active fault to the proposed project site and is located approximately 25.5 miles to the west (Figures 2 in the Preliminary Geotechnical/Geology Memorandum). At this distance the fault poses no ground rupture threat to the proposed crossing.

Groundwater

Groundwater was detected in borings the Sutterville Road Overhead LOTB at approximately 30 to 40 feet, with corresponding elevations ranging from -5 to -15 feet mean sea level (MSL). Other historical data on groundwater depths at the site include the hydrograph from the Department of Water Resources indicating a ground water depth of 28 feet (-3ft MSL) and boring logs for the Sacramento City College Parking Structure indicating a ground water depth of 15feet below original ground (0 MSL).

Liquefaction Potential

Liquefaction can occur when loose to medium dense, granular, saturated soils (generally within 50 feet of the surface) are subjected to ground shaking. Existing subsurface information near the project site indicates generally stiff soil conditions within the upper 50 feet of original grade. Current ground water levels are likely between 25 to

30 feet below original grade within the project area. Based on the subsurface conditions and the peak ground acceleration of 0.28g, the potential for detrimental liquefaction is considered to be very low.

A liquefaction analysis should be performed during preparation of the design-level Foundation Report, including mitigation recommendations if deemed necessary.

Corrosion Potential

Testing for corrosion potential was not performed for this Feasibility Study. Soil corrosion testing should be performed on future samples obtained for the Foundation Report used in final design of the crossing. In the event that the site is considered corrosive, corrosion mitigation recommendations should be presented in the Foundation Report according to Caltrans Corrosion Guidelines, Version 1.0, dated September 2003.

Geology

Upper Layers	Lower Layer	Foundation Type	Corrosion Potential	Max EQ/ Accel	Caltrans SDC Curve	Max ARS
1) very stiff to hard, sandy silt and sandy clay 2) variably cemented, hard to very hard, sandy silt and sandy clay	3) interbedded layers of stiff to hard, sandy silt and sandy clay, and medium dense to dense, silty/clayey sand	Driven steel HP or concrete piles, cast-in-drilled hole (CIDH and spread footings are all considered feasible.	It is recommended that soil corrosion testing be performed based on Caltrans Corrosion Guidelines as part of the Foundation Report for final design.	MCE Magnitude 7.25 Max. Bedrock Acceleration 0.28g	Figure B.8 @ 0.2g and Soil Type D	0.80

Notes:
A Preliminary Geotechnical/Geology Memorandum has been completed. The report also includes foundation recommendations for the bridge and overcrossing alternatives, Seismic Data, Liquefaction Potential, and Corrosion Evaluation. The Preliminary Geotechnical/Geology Memorandum is available for review. [See REFERENCE B at the end of this document.]

1. The Coast Ranges Sierran Block Fault is the nearest known active fault to the proposed project site and is located approximately 25.5 miles to the west (Figures 2 in the Preliminary Geotechnical/Geology Memorandum). At this distance the fault poses no ground rupture threat to the proposed crossing.
2. Logs of Test Borings (LOTB) are available for the nearby Sutterville Road Overhead Bridge, located at the southern end of this projects study limits. Boring logs and test pit logs are presented in the Preliminary Geotechnical/Geology Memorandum.
3. The near surface soils (upper 5 to 9 feet) consists of very stiff to hard, sandy silt and sandy clay. Underlying this is a variably cemented, hard to very hard, sandy silt and sandy clay. At depths below 12ft, soil consists of interbedded layers of stiff to hard, sandy silt and sandy clay, and medium dense to dense, silty/clayey sand. Liquefaction potential at the site is therefore low.
4. Groundwater was detected in borings the Sutterville Road Overhead LOTB at approximately 30 to 40 feet, with corresponding elevations ranging from -5 to -15 feet mean sea level (MSL). Other historical data on groundwater depths at the site include the hydrograph from the Department of Water Resources indicating a ground water depth of 28 feet (-3ft MSL) and boring logs for the Sacramento City College Parking Structure indicating a ground water depth of 15feet below original ground (0 MSL).

Appendix G
Design Guidelines

Design Guidelines

This section provides design guidelines for the City College Light Rail Station Pedestrian/Bicycle Crossing Project. Since the proposed alternative for this crossing has been selected, as will be discussed in the following section, "Proposed Alternative," including horizontal and vertical alignment for the proposed bridge and approach ramps, some of the following discussions and guidelines relate specifically to this alignment.

The following discussion and the design guidelines provided here are intended to supplement rather than supersede relevant codes, regulations, and good design judgment.

General

Design of this bicycle/ pedestrian crossing shall conform to the requirements of the 2010 Sacramento City / County Bikeway Mater Plan, Chapter Nine - Design Standards, which refer to Caltrans Bikeway Design Standards (Section 1000 of the Highway Design Manual), 2001.

Structural Design of Overcrossings (bridge) and Undercrossings (tunnel)

Bridge and tunnel design shall conform to the requirements for pedestrian and bicycle bridges within the latest edition of the California Department of Transportation (Caltrans) Bridge Design Specifications.

Traveled-Way Geometry

Surface of Traveled Way and Adjacent Areas

A smooth riding surface is important to all wheeled users; however, skid resistant qualities must not be sacrificed. Coarse broom or burlap drag finishes on concrete surfaces can present a hazard to in-line skaters and other small-wheeled users and are therefore unacceptable. A highly troweled finish is equally unacceptable because it can become slippery under wet conditions.

Ramp Slope and Resting Spots

A 1:20 (5%) slope is the steepest rise which meets ADA criteria for a sidewalk. Steeper slopes shall not exceed 8% and require flat landing spots every 50 horizontal feet. The proposed alternative bridge crossing for this project uses an 8% slope with landings for the first sections of each approach ramp and 5% or less elsewhere.

Vertical Clearance for Bicycles

The minimum vertical clearance to any structure below which the bike trail passes shall be 8'-0" per Caltrans Bikeway Design Standards (Section 1000 of the Highway Design Manual), 2001. This shall include the clear height for any underground (tunnel) alternatives, approach ramp that loops back under itself, and end span of approach ramp approaching ground level unless traffic is restricted from crossing under a lower height by the use of railing.

The minimum vertical clearance to any overhead utility shall be 14'.

Stairways

This study anticipates that stairways will be included in the final design to provide for a shorter total crossing length for the able bodied. Stairways would be located at the turns at both ends of the main crossing spans where they will land in close proximity to the beginning of the ramps. Community comments have been very positive for their inclusion in this project.

Width and User Separation

Multi-use trail guidelines are generally consistent regarding appropriate two-way trail widths. For bikes, guidelines state that 10-12 feet are needed for overall width, and that 8 feet may suffice only when warranted by special circumstances such as:

- very little use by pedestrians
- gentle grades
- excellent sightlines

When guardrails are placed at the immediate edge of a pathway, the effective usable width is reduced by an amount called the "shy" distance. Logic would therefore dictate that the width of multi-use trails be increased by shy distances whenever fencing or guardrails are needed. The shy distance from continuous objects like fences or walls may be as little as one foot, according to the Caltrans Highway Design Manual, "If a wide path is paved contiguous with a continuous fixed object (e.g. block wall), a 100 mm (4") white edge stripe, 0.3 m (one foot) from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it."

ADA requires a minimum of five feet for two-way traffic, wheelchair passing or turnaround, or side-by-side wheelchair use, but 5'-6" is preferred.

Based on the above considerations, the total minimum width of the traveled way, inside barrier to inside barrier, shall be a minimum of 10 feet and the two directions should be separated by a solid yellow stripe. The minimum is based on the tight constraints of the west approach ramp for the preferred alternative bridge crossing. A wider traveled way would force the opposing ramp lengths (either side of the hairpin turn) inward and result in a higher risk of truck impact. Final design should further evaluate this geometry with the goal to increase the minimum width to up to 12 feet.

Railing and Fencing

There are three fundamental cross-section conditions for the traveled way affecting guardrail and fencing geometry:

1. paved open pathway with no guardrails
2. free-span with guardrails only
3. free-span with guardrails and missile-proof fencing

Additionally, curves or a steep grade may have some affect on how guardrails and fencing should be configured.

Railing:
Railing requirements differ according to the location of the pathway (height above the ground and whether roadways run below), the type of user (pedestrians and people with wheelchairs as opposed to bicyclists), and the slope of the pathway. According to the Caltrans Memo to Bridge Designers, the rail must extend all the way to the bottom of the ramp. The accepted minimum guardrail height for pedestrians and wheelchairs is 42 inches above the pathway surface. The recommended bicycle guardrail height is 4'-6", which controls and shall be used for this project.

Missile-proof fencing:
The Union Pacific Railroad requires a type 3 missile-proof fencing configuration on the portion of the pedestrian structure directly above the tracks. This enclosure must be at least 8'-3" high and extend 3 feet inward at the top.

While missile-proof fencing will only be required on approximately 250 feet out of a total of approximately 1200 feet of bridge and approaches, it will be a prominent visual element on the most visible portion of the facility. Public meeting feedback indicates that typical chain link fencing will not be acceptable. In any case, high transparency has been identified as a key design criterion for both safety and aesthetics.

Design Speed

For grades steeper than 4%, Caltrans has established 25 mph as the minimum design speed for class 1 bike paths. However, due to the restricted geometry for this project requiring tight radius turns, the design speed for the bicycle/pedestrian bridge alternative and approaches shall be 10 mph on the approach ramps and 15mph on the main crossing. At the hairpin turns, signs shall be posted warning of the tight radius;

design speed shall be 5mph. The term “design speed” does not denote the speed at which most users are expected to travel. Design speed instead denotes the speed for which a facility must be designed to result in safe use under most conditions.

Formula for Radius Calculation - The minimum design radius of curvature shall be based upon the following formula:

$$R = \frac{V^2}{15(e/100 + f)}$$

where:

R = Minimum radius of curvature (ft.)
V = Design speed (Mph)
e = Rate of bikeway super elevation (assume 2%, which is minimum for drainage at curves)
f = Coefficient of friction (assume 0.31 for slower curve speeds)

Therefore, as an example, for bridge alternative with hairpin center line radius of 13.5 feet to center, the turn should be posted for a maximum speed of 7mph, based on inside radius of 11.0 feet to center line of lane. However, as noted above, 5mph is recommended.

Cross-Slope or Superelevation

A minimum cross-slope of 1% should be provided on all paved surfaces to ensure adequate drainage. 2% is recommended at curves, which shall slope inward. Sloping in one direction should be used instead of crowning unless required in local areas for drainage. While steeper cross-slopes would assist bicyclists and other faster moving users, cross-slopes in excess of 2% are reportedly disconcerting and potentially unsafe for wheelchairs.

Curves

Caltrans bikeway design criteria establish minimum radii of curvature, with a 250 foot radius being desired for a 15mph design speed However, the site geometry and structural feasibility constraints on this project make these radii impossible, other measures shall be used to ensure safety and functionality.

Specifically, for the hairpin turns of the approaches as noted above under design speed, geometric constraints make it difficult to achieve a curve with a radius that will enable a bicyclist to maintain the design speed of the tangent portions of the ramps. Therefore, to ensure an adequate level of safety special attention should be given to accident-related safety features such as signage, striping, sightlines, pathway pavement surface texture and color, maintaining a level (zero slope) throughout the turn, possible widening of the traveled way, and possible use of a steeper superelevation.

Sightlines

Caltrans bikeway guidelines provide sight stopping distance guidelines, which should be further evaluated in final design.

Sightlines in general:

Because train traffic noise on the LRT and UPRR tracks will generally exceed levels adequate to hear approaching cyclists clear sightlines are of primary importance to ensure safety.

Maximum visibility by one bridge user of other bridge users should be established as a design goal. The design viewing and viewed object height is usually considered to be 54” above the traveled way surface.

Sightlines on approach ramps:

At a point near the first turn from the bottom of a ramp, another bridge user anywhere on the lower ramp and plaza area shall be visible to a descending bridge user. A descending bridge user at the top of the ramp (at the point where the alignment turns toward crossing the UPRR right-of-way), shall be able to see a bridge user anywhere on the upper half of the approach ramp, as well as on the main bridge crossing.

This guideline is not intended to prevent tree or shrub planting in the approach areas. However, to achieve

the intent of the guideline, special attention should be given to the selection, maintenance, and locations of trees and shrubs.

Sightlines within the UPRR right-of-way (main bridge crossing spans):

Where the bridge passes through the UPRR right-of-way, required missile-proof fencing will create a condition where the open path becomes similar to an enclosed corridor, and sight distances will be affected.

Visibility issues are very important from both a crime- and accident-safety point of view, and will have a strong impact on the success of the architectural space created.

On a straight, fenced pathway the angle of incidence of the viewer's sightline with the fencing becomes increasingly acute with increasing distance from the viewer. When the angle of incidence becomes sufficiently acute, the view through the fencing becomes completely obscured and a tunnel effect is created. This effect must be considered for both views form and of the main crossing spans.

Appendix H
Estimate of Probable Construction Costs – Backup Data

Proposed Alternative, First: PS/CIP

_	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: | IN EST: | OUT EST:

BRIDGE:	Sac City College/LRT Bike Bridge	BR. No.:		DISTRICT:	
TYPE:	PS/CIP and RC/CIP U Girder			RTE:	
	19 Span (141' main, and varies), D = 3'-0" approaches, 5'-3" main				
CU:				CO:	Sac
EA:				PM:	

LENGTH:	Structure	948.87	WIDTH:	12.00	AREA (SF)= 11,386
	Embankment Approaches	214.00		12.00	2,568

LIM AND NASCIMENTO ENGINEERING CORPORATION

# OF STRUCTURES IN PROJECT :		EST. NO.	1
PRICES BY :	Bob Fish	COST INDEX:	
PRICES CHECKED BY :		DATE:	
QUANTITIES BY:	Bob Fish	DATE:	6/8/2009

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
	STRUCTURAL ITEMS:					
1	STRUCTURE EXCAVATION (BRIDGE)		CY	179	$ 90.00	$16,110.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	469	$ 110.00	$51,590.00
3	FURNISH PILING	CLASS 90	LF	360	$ 20.00	$7,200.00
4	DRIVE PILE	CLASS 90	EA	12	$ 1,600.00	$19,200.00
5	36" CAST-IN-Drilled-Hole CONC. PILING	36"	LF	511	$ 350.00	$178,850.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LB	16,166	$ 4.50	$72,747.00
7	STRUCTURAL CONCRETE, FOOTING		CY	26	$ 650.00	$16,900.00
8	STRUCTURAL CONCRETE, BRIDGE		CY	870	$ 860.00	$748,200.00
9	MINOR CONCRETE (DRIVEWAY)		CY	40	$ 550.00	$22,000.00
10	JOINT SEAL (MR = 1/2")	A	LF	24	$ 23.00	$552.00
11	BAR REINFORCING STEEL (BRIDGE)		LB	224,650	$ 1.25	$280,812.50
12	PEDESTRIAN RAILING	architectural	LF	1,907	$ 200.00	$381,400.00
13	CHAIN LINK RAILING (TYPE 7)	architectural	LF	455	$ 75.00	$34,125.00
14	BRIDGE LIGHTING		LS	1	$ 145,358.75	$145,358.75
	CIVIL ITEMS:					
15	R0ADWAY REALIGNMENT		SF	11,280	$ 15.00	$169,200.00
16	LANDSCAPING AND IRRIGATION		LS	1	$ 35,250.00	$35,250.00

SUBTOTAL	$2,179,495.25
TIME RELATED OVERHEAD	$ 108,974.76
MOBILIZATION (@ 10 %)	$ 254,274.45
SUBTOTAL BRIDGE ITEMS	$ 2,542,744.46
CONTINGENCIES (@ 25%)	$ 635,686.11
BRIDGE TOTAL COST	$ 3,178,430.57
COST PER SQ. FOOT (embankment approaches included)	$ 227.77
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 3,178,430.57
BUDGET ESTIMATE AS OF	$ **3,178,000.00**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

Escalated Budget Estimate to Midpoint of Construction *

Escalation Rate per Year 4.0%

Years Beyond Midpoint	Escalated Budget Est.
1	$3,305,000
2	$3,437,000
3	$3,574,000

Years Beyond Midpoint	Escalated Budget Est.
4	$3,717,000
5	$3,866,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

Proposed Alternative, Second: Tied-Arch

_	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

Revised - December 3, 2007

RCVD BY: IN EST: OUT EST:

BRIDGE:	Sac City College/LRT Bike Bridge	**BR. No.:**	**DISTRICT:**
TYPE:	Tied Arch and RC/CIP U Girder		**RTE:**
	19 Span (206' main, and varies), D = 3'-0" approaches, 5'-3" main		
CU:			**CO:** Sac
EA:			**PM:**

LENGTH:	1,054.87	**WIDTH:**	12.00	**AREA (SF)=**	12,658
Embankment Approaches	214.00		12.00		2,568

LIM AND NASCIMENTO ENGINEERING CORPORATION

# OF STRUCTURES IN PROJECT :		**EST. NO.**	1
PRICES BY :	Bob Fish	**COST INDEX:**	
PRICES CHECKED BY :		**DATE:**	
QUANTITIES BY:	Bob Fish	**DATE:**	6/8/2009

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
	STRUCTURAL ITEMS:					
1	STRUCTURE EXCAVATION (BRIDGE)		CY	179	$ 90.00	$16,110.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	469	$ 110.00	$51,590.00
3	FURNISH PILING	CLASS 90	LF	360	$ 20.00	$7,200.00
4	DRIVE PILE	CLASS 90	EA	12	$ 1,600.00	$19,200.00
5	36" CAST-IN-Drilled-Hole CONC. PILING	36"	LF	540	$ 350.00	$189,000.00
6	PRESTRESSING CAST-IN-PLACE CONCRETE		LB	16,166	$ 4.50	$72,747.00
7	STRUCTURAL CONCRETE, FOOTING		CY	26	$ 650.00	$16,900.00
8	STRUCTURAL CONCRETE, BRIDGE		CY	898	$ 860.00	$772,280.00
9	MINOR CONCRETE (DRIVEWAY)		CY	40	$ 550.00	$22,000.00
10	JOINT SEAL (MR = 1/2")	A	LF	24	$ 23.00	$552.00
11	BAR REINFORCING STEEL (BRIDGE)		LB	239,818	$ 1.25	$299,772.50
12	FURNISH STRUCTURAL STEEL (BRIDGE)		LB	46,042	$ 10.25	$471,930.50
13	ERECT STRUCTURAL STEEL (BRIDGE)		LB	46,042	$ 7.50	$345,315.00
14	MISCELLANEOUS METAL (TIE ROD)		FT	1,155	$ 55.00	$63,525.00
15	PEDESTRIAN RAILING	architectural	LF	2,162	$ 200.00	$432,400.00
16	CHAIN LINK RAILING (TYPE 7)	architectural	LF	412	$ 75.00	$30,900.00
17	BRIDGE LIGHTING		LS	1	$ 158,608.75	$158,608.75
	CIVIL ITEMS:					
18	R0ADWAY REALIGNMENT		SF	11,280	$ 15.00	$169,200.00
19	LANDSCAPING AND IRRIGATION		LS	1	$ 35,250.00	$35,250.00

SUBTOTAL	$3,174,480.75
TIME RELATED OVERHEAD	$ 158,724.04
MOBILIZATION (@ 10 %)	$ 370,356.09
SUBTOTAL BRIDGE ITEMS	$ 3,703,560.88
CONTINGENCIES (@ 25%)	$ 925,890.22
BRIDGE TOTAL COST	$ 4,629,451.09
COST PER SQ. FOOT (embankment approaches included)	$ 304.04
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	$ 4,629,451.09
BUDGET ESTIMATE AS OF	**$ 4,629,000.00**

ROUTING

1. DES SECTION
2. OFFICE OF BRIDGE DESIGN - NORTH
3. OFFICE OF BRIDGE DESIGN - CENTRAL
4. OFFICE OF BRIDGE DESIGN - SOUTH
5. OFFICE OF BRIDGE DESIGN - WEST
6. OFFICE OF BRIDGE DESIGN SOUTHERN CALIFORNIA

COMMENTS:

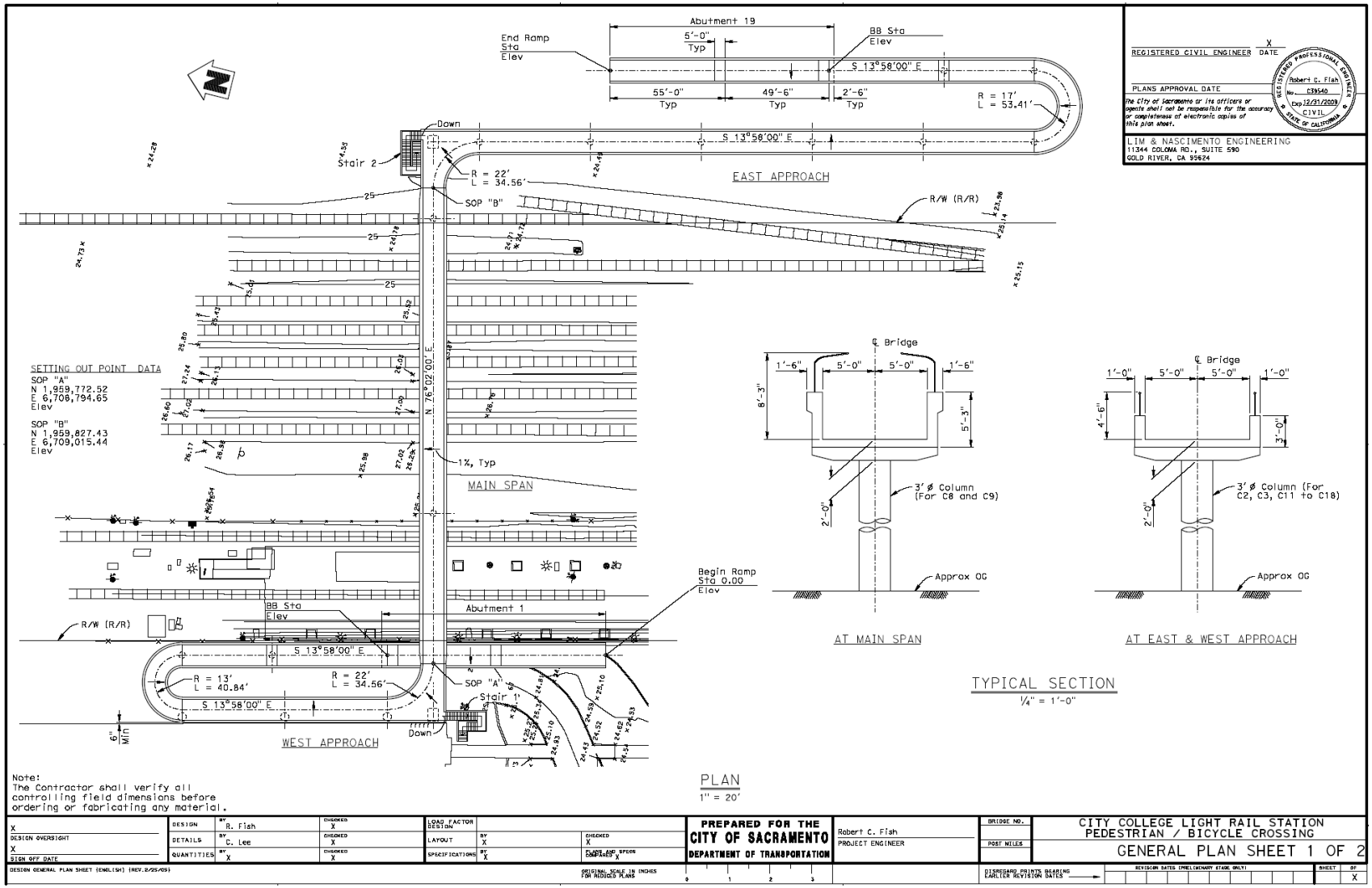
Escalated Budget Estimate to Midpoint of Construction *

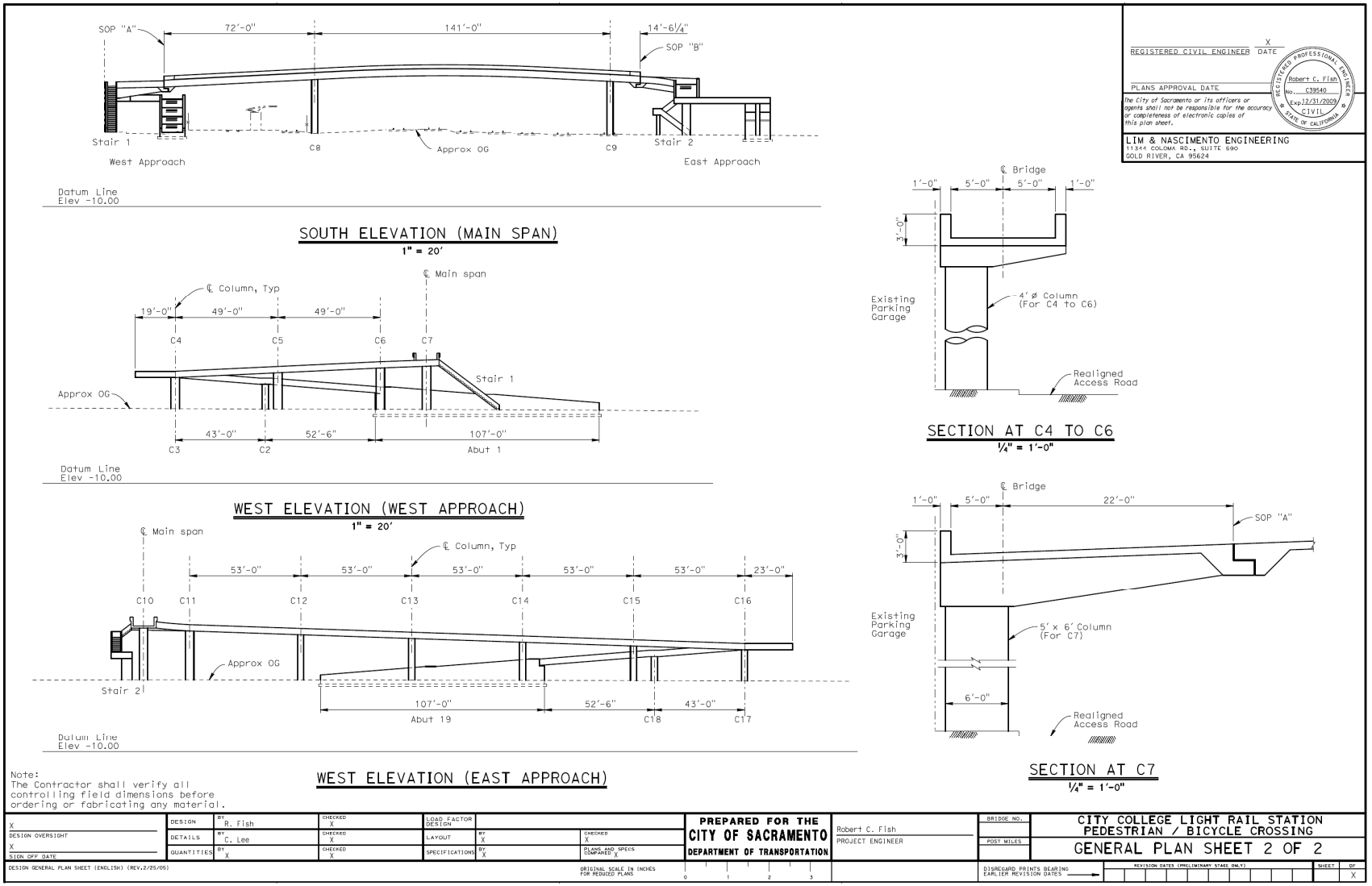
Escalation Rate per Year 4.0%

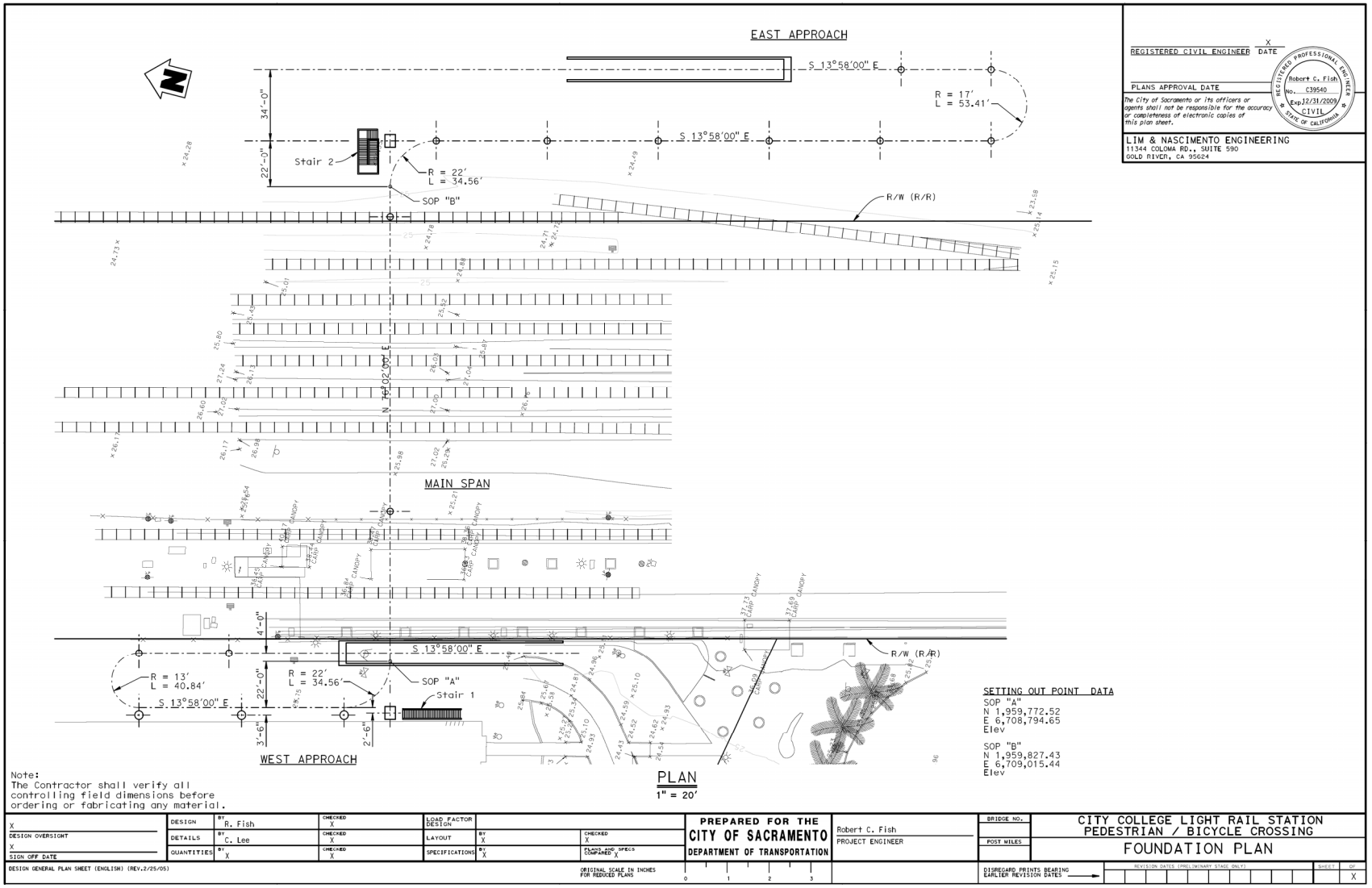
Years Beyond Midpoint	Escalated Budget Est.
1	$4,814,000
2	$5,007,000
3	$5,207,000
4	$5,415,000
5	$5,632,000

* Escalated budget estimate is provided for information only, actual construction costs may vary. Escalated budget estimates provided do not replace Departmental policy to update cost estimates annually.

Appendix I
Proposed Alternative, 30% Design
plan sheets




SOP "A"
72'-0"
141'-0"
14'-6¼"
SOP "B"
Stair 1
West Approach
C8
Approx OG
C9
Stair 2
East Approach
Datum Line
Elev -10.00
SOUTH ELEVATION (MAIN SPAN)
1" = 20'
℄ Main span
℄ Column, Typ
19'-0"
49'-0"
49'-0"
C4
C5
C6
C7
Stair 1
Approx OG
43'-0"
52'-6"
107'-0"
C3
C2
Abut 1
Datum Line
Elev -10.00
WEST ELEVATION (WEST APPROACH)
1" = 20'
℄ Main span
℄ Column, Typ
53'-0"
53'-0"
53'-0"
53'-0"
53'-0"
23'-0"
C10
C11
C12
C13
C14
C15
C16
Approx OG
Stair 2
107'-0"
52'-6"
43'-0"
Abut 19
C18
C17
Datum Line
Elev -10.00
WEST ELEVATION (EAST APPROACH)
Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
℄ Bridge
1'-0"
5'-0"
5'-0"
1'-0"
3'-0"
Existing Parking Garage
4' ø Column (For C4 to C6)
Realigned Access Road
SECTION AT C4 TO C6
¼" = 1'-0"
℄ Bridge
1'-0"
5'-0"
22'-0"
SOP "A"
3'-0"
Existing Parking Garage
5' x 6' Column (For C7)
6'-0"
Realigned Access Road
SECTION AT C7
¼" = 1'-0"
REGISTERED CIVIL ENGINEER
X
DATE
PLANS APPROVAL DATE
Robert C. Fish
No. C39540
Exp 12/31/2009
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
The City of Sacramento or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
LIM & NASCIMENTO ENGINEERING
11344 COLOMA RD., SUITE 690
GOLD RIVER, CA 95624
DESIGN
R. Fish
DETAILS
C. Lee
QUANTITIES
X
LOAD FACTOR DESIGN
LAYOUT
SPECIFICATIONS
PLANS AND SPECS COMPARED
PREPARED FOR THE
CITY OF SACRAMENTO
DEPARTMENT OF TRANSPORTATION
Robert C. Fish
PROJECT ENGINEER
BRIDGE NO.
POST MILES
CITY COLLEGE LIGHT RAIL STATION
PEDESTRIAN / BICYCLE CROSSING
GENERAL PLAN SHEET 2 OF 2
DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.2/25/05)
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
0 1 2 3
DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES (PRELIMINARY STAGE ONLY)
SHEET
OF


EAST APPROACH
S 13°58'00" E
R = 17'
L = 53.41'
34'-0"
22'-0"
Stair 2
R = 22'
L = 34.56'
SOP "B"
S 13°58'00" E
R/W (R/R)
N 76°02'00" E
MAIN SPAN
4'-0"
S 13°58'00" E
R = 13'
L = 40.84'
S 13°58'00" E
22'-0"
R = 22'
L = 34.56'
SOP "A"
Stair 1
3'-6"
2'-6"
WEST APPROACH
R/W (R/R)
PLAN
1" = 20'
SETTING OUT POINT DATA
SOP "A"
N 1,959,772.52
E 6,708,794.65
Elev
SOP "B"
N 1,959,827.43
E 6,709,015.44
Elev
REGISTERED CIVIL ENGINEER
DATE
PLANS APPROVAL DATE
The City of Sacramento or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
Robert C. Fish
No. C39540
Exp 12/31/2009
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
LIM & NASCIMENTO ENGINEERING
11344 COLOMA RD., SUITE 590
GOLD RIVER, CA 95624
Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
DESIGN
R. Fish
DETAILS
C. Lee
QUANTITIES
LOAD FACTOR DESIGN
LAYOUT
SPECIFICATIONS
DESIGN OVERSIGHT
SIGN OFF DATE
PREPARED FOR THE
CITY OF SACRAMENTO
DEPARTMENT OF TRANSPORTATION
Robert C. Fish
PROJECT ENGINEER
BRIDGE NO.
POST MILES
CITY COLLEGE LIGHT RAIL STATION
PEDESTRIAN / BICYCLE CROSSING
FOUNDATION PLAN
DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.2/25/05)
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS
DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES (PRELIMINARY STAGE ONLY)
SHEET
OF