Meeting Date: **8/8/2013**

Report Type: Staff/Discussion

Report ID: 2013-00416

10

City of SACRAMENTO

City Council Report
915 I Street, 1st Floor
www.CityofSacramento.org

Title: American River Crossing Alternatives Study

Location: Districts 3 and 4

Issue: Council action is being sought to endorse the process used to develop the recommendations of the American River Crossing Alternatives Study and to adopt those recommendations as the focus for additional planning, design, and construction.

Recommendation: Pass a Resolution 1) accepting the American River Crossing Alternatives Study Report as the City's guide for future crossings of the American River between I-5 and State Route 160; 2) directing the City Manager to amend the appropriate local and regional plans to reflect the recommendation of the American River Crossing Alternatives Study Report; and 3) directing the City Manager to seek funding for further analysis of the recommendation of the American River Crossing Alternatives Study Report.

Contact: Fedolia "Sparky" Harris, Senior Planner, (916) 808-2996; Hector Barron, City Traffic Engineer, (916) 808 2669, Department of Public Works

Presenter: Fedolia "Sparky" Harris, Senior Planner, (916) 808-2996, Department of Public Works

Department: Public Works Department

Division: Transportation Division

Dept ID: 15001911

Attachments:

1-Description/Analysis
2-Background
3-Resolution
4-Exhibit A (Summary Report)
5-Exhibit B (Letters of Support 2)
6-Exhibit C (Final Technical Report

City Attorney Review

Approved as to Form
Gerald Hicks
7/9/2013 9:00:52 AM

City Treasurer Review

Reviewed for Impact on Cash and Debt
Russell Fehr
6/24/2013 1:41:21 PM

Approvals/Acknowledgements

Department Director or Designee: Jerry Way - 7/2/2013 12:03:56 PM

James Sanchez, City Attorney Shirley Concolino, City Clerk Russell Fehr, City Treasurer
John F. Shirey, City Manager

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Description/Analysis

Policy Considerations: The following Sacramento 2030 General Plan policies support the analysis proposed to be completed by the recommendation:

M 1.3.3(a) Eliminate Gaps – The City shall construct new multi-modal crossings of the Sacramento and American Rivers.

Economic Impacts: None.

Environmental Considerations:

California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA): This activity is not considered a project as defined by Section 15378 of the CEQA guidelines. The activity does not involve physical construction and has no potential to cause a significant impact on the environment (CEQA Section 15061(b)(3)).

Future American River crossing projects will be subject to environmental evaluation under CEQA guidelines and federal NEPA requirements. The purpose and need statement developed through this study will support the NEPA environmental process. The stakeholder and public engagement process also fulfills some NEPA outreach requirements.

Sustainability Considerations: The recommended actions support Climate Action Plan Measure 2.6 directing the City of Sacramento to strive to remove and minimize the effect of natural and man-made barriers and obstacles between and within existing neighborhoods, corridors, and centers to ensure that the transportation network is continuous.

Other: None.

Committee/Commission Action: None.

Rationale for Recommendation: Staff has completed the American River Crossing Alternatives Study utilizing the professional services contract with Fehr & Peers as authorized by Council on February 21, 2012. The Study recommendations were developed transparently and objectively with ongoing input from a diverse group of dedicated stakeholders. Council support for the Study recommendations will allow staff to focus resources to seek additional funding to implement desired improvements in the most effective manner.

Financial Considerations: The recommendations in this report will have no immediate financial impacts. Further implementation of the Study recommendations following

adoption will require funding that has yet to be identified. Federal, state, and local sources will be sought to fund additional feasibility analysis, environmental analysis, design, right-of-way acquisition, and construction of any project identified in the Study.

Emerging Small Business Development (ESBD): The professional services contract for the American River Crossing Alternatives Study included an Underutilized Disadvantaged Business Enterprise (UDBE) goal of 11.71%. The actually UDBE expenditure for this project amounted to 20%.

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Background

On February 21, 2012, the City Council authorized staff to enter into a professional services agreement with Fehr & Peers to complete the American River Crossing Alternatives Study (T15125300). The Study's main component was engaging interested parties in the planning process of the study. This was achieved through stakeholder group meetings, a survey instrument, and a public open house. The stakeholders represented environmental groups, property owners, community groups, neighborhood associations, developers, business interests, public transportation agencies, fishing advocates, as well as advocates for walking and biking.

The study process began by defining the need and purpose of new or improved crossings of the American River. The final Need and Purpose Statement was the result of multiple revisions throughout the study process with the help of continuous feedback from the stakeholders. The project team developed an initial map of all crossing locations that appeared to be feasible. Next, a constraints and opportunities analysis was conducted to refine the potential crossing locations. The stakeholders were taken on a field tour along both sides of the American River to observe many of the constraints and opportunities and to help visualize the potential crossing locations. Evaluation criteria were then developed based on the need and purpose statement, public feedback from an online survey, and thoughtful consideration from the stakeholders. An alternatives analysis was conducted to apply the evaluation criteria to the crossing alternatives relative transportation performance, environmental screening, and estimated cost.

While each of the alternatives had merits, Alternatives 2, 3, and 8 stood out as being the best candidates to consider for implementation. This conclusion was based on the purpose and need statement, alternatives analysis findings, and potential funding opportunities.

The summary report describes each of the eight alternatives analyzed as well as their relative performance. A brief description of the three alternatives that comprise the final recommendation follows:

1. Alternative 2 is a Pedestrian/Bike expansion added to the west side of the existing I-5 bridge over the American River. The existing two parallel bridges are fixed Caltrans-type concrete box girder bridges that would be expanded to provide adequate pedestrian/bike facilities. The I-5 bridges are 2,700 feet long with an approach of 800 feet on the south end and would need a ramp of 500 feet to tie into the existing path along Garden Highway for a total path length of 4,000 feet on the side of the existing bridge.

Alternatives 1 and 2 both serve bicyclists and pedestrians in the western edge of the study area and are unique in this respect. Only Alternative 2, though, provides an all-weather connection across the River, which elevated its performance above that of Alternative 1. These two alternatives can also be viewed as separate from the other alternatives when considering future funding. Active transportation modes are attracting greater shares of federal, state, and regional transportation funding due to their positive effects on health, air quality, Greenhouse Gas (GHG) reduction, energy use, and travel choices. Alternative 2 is a candidate for any future funding programs dedicated to active transportation because it eliminates a significant barrier to bicycle and pedestrian travel between land uses that are physically close.

2. Alternative 3 is a multi-modal bridge that includes vehicles, Light Rail Train (LRT), bikes, and pedestrians and would have a span of about 2,300 feet. This alternative differs from the "no project" Regional Transit (RT) bridge in that cars and buses are accommodated in two mixed-flow lanes (with shoulders) and more generous paths are provided for bicyclists and pedestrians on both sides of the bridge.

   Alternative 3 had a peer group that consisted of Alternatives 4-6 in terms of serving the direct South Natomas and Central City market areas. This was a key purpose objective. Since transportation funding is competitive, especially at the federal and state level, Alternative 3 offers a unique combination of benefits across multiple categories compared to alternatives 4-6. Alternative 3 is centrally located within the study area and shares the alignment already selected by RT for the Green Line crossing of the River. This central location contributed to serving the largest number of people within a half-mile walk and a five-minute drive. Alternative 3 proposes to accommodate all modes (private vehicles, buses, LRT, bicyclists, and pedestrians). It also provides the largest reduction in daily traffic on I-5, and it has the largest expansion in emergency vehicle response coverage area. With future transportation funds being both competitive and limited, Alternative 3 has the best opportunity to secure competitive funds because it achieves multiple objectives at the federal, state, regional, and local levesl and leverages investments already being planned by RT.

3. Alternative 8 includes elevating Northgate Boulevard, connecting it to SR-160 with a full access at-grade intersection, and replacing the State Route 160 (SR-160) bridges over the American River and the American River Parkway. No new lanes are added with this alternative

although stakeholders recommended consideration of reducing the number of vehicle lanes on SR-160.

Alternatives 7 and 8 are at the eastern edge of the study area and both have a variety of merits but serve travel markets beyond just the South Natomas to Central City study area. This was revealed in the graphical displays of market area served by each alternative. As such, these alternatives did not perform as well in the transportation analysis compared to Alternative 3-6. Alternative 8, though, has separate merits that make it worthy of further consideration.

According to Caltrans, the existing SR-160 bridge structures over the American River require rehabilitation or replacement to bring them up to current design requirements. This status qualifies these bridge structures for special federal funding. If significant rehabilitation or even replacement is required, then it may be possible to create a different type of crossing that not only better accommodates bicyclists and pedestrians but also improves accessibility by creating a full access intersection or interchange between Northgate Boulevard and SR-160. Today, access is limited to an eastbound off-ramp from SR-160 to Northgate Boulevard and a westbound on-ramp from Northgate Boulevard/Del Paso Boulevard to SR-160. Alternative 8 not only expands accessibility in the Northgate Boulevard, Del Paso Boulevard, and SR-160 corridors, it also provides an enhanced bicycle and pedestrian crossing of the American River while eliminating safety concerns associated with the existing SR-160 bridge structures.

Should Council approve the recommendations contained in this report, the next step for staff would be to amend the appropriate local and regional plans including, but not limited to, the City of Sacramento General Plan, the American River Parkway Plan, and the Metropolitan Transportation Plan. Subsequent steps will include developing a conceptual scope of work for additional public outreach, alternatives analysis, preliminary engineering, environmental analysis, traffic analysis, and an estimate of construction costs for each of the three alternatives.

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RESOLUTION NO.

Adopted by the Sacramento City Council

AMERICAN RIVER CROSSING ALTERNATIVES STUDY

BACKGROUND

A. The City Council of Sacramento directed staff to proceed with a planning process to study the purpose of new crossings of the American River, evaluate what is needed to meet that purpose, and develop alternatives that meet the purpose and need.

B. A diverse group of stakeholders was engaged representing environmental groups, property owners, community groups, neighborhood associations, developers, business interests, public transportation agencies, fishing advocates, as well as advocates for walking and biking.

C. A purpose and need statement was developed after multiple revisions throughout the study process with the help of continuous feedback from the stakeholders.

D. The project team developed an initial map of all crossing locations.

E. A constraints and opportunities analysis was conducted to refine the potential crossing locations.

F. Evaluation criteria were developed based on the need and purpose statement, public feedback from an online survey, and thoughtful consideration from the stakeholders.

G. An alternatives analysis was conducted to apply the evaluation criteria to the crossing alternatives relative transportation performance, environmental screening, and estimated cost.

H. Alternatives 2, 3, and 8 stood out as being the best candidates to consider for implementation based on the purpose and need statement, alternatives analysis findings, and potential funding opportunities.

BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:

Section 1. The American River Crossing Alternatives Study Report is accepted as the City's guide for future crossings of the American River between I-5 and State Route 160.

Section 2. The City Manager is directed to amend the appropriate local and regional plans to reflect the recommendation of the American River Crossing Alternatives Study Report.

Section 3. The City Manager is directed to seek funding to implement the three preferred crossing alternatives identified.

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Exhibit B. Letters of Support
Exhibit C. Final Technical Report

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SUMMARY REPORT

AMERICAN RIVER CROSSING
Alternatives Study

DRAFT

April 2013

Prepared by FEHR PEERS
ICF
Dokken
AIM Consulting

ACKNOWLEDGEMENTS

Project Team

Sparky Harris, *City of Sacramento*
Samar Hajeer, *City of Sacramento*
Ryan Moore, *City of Sacramento*

Consultants

Project Lead - *Fehr & Peers*
Stakeholder and Public Outreach - *AIM Consulting*
Engineering and Cost Estimates - *Dokken Engineering*
Environmental - *ICF International*

Stakeholders

Alkali and Mansion Flats Neighborhood Association – Luis Sumpter
American River Flood Control District – Tim Kerr
American River Natural Historic Association – David Wade
American River Parkway Foundation – Dianna Poggetto
California Fly Fishers Unlimited – John Coldiron, Earlene Coldiron
California State Parks - Capital District – Peter Larsen
Caltrans – Larry Brohman, Eric Fredericks
Department of General Services (DGS) – Cathy Buck
District 3 Councilmember – Steve Cohn
Downtown Sacramento Partnership – Kevin Greene
Environmental Council of Sacramento (ECOS) – Simeon Gant, John Deeter
Gardenland / Northgate Neighborhood Association – Efren Guttierrez, Neil Pople
Loaves and Fishes – Norm Fadness
Natomas Community Association – David Von Aspern, Kris Anderson
North Natomas Transportation Management Association – Abbey Harding, Becky Heieck
North Sacramento Chamber of Commerce – Rob Kerth
Parks Department – Jeff Leatherman, Liz Bellas
River District – Patty Kleinknecht
River Oaks Neighborhood Association – David Brady
Sacramento Area Bicycle Advocates (SABA) – Jordan Lang, Jim Brown
Sacramento Area Council of Governments (SACOG) – Clint Holtzen
Sacramento Area Flood Control Agency (SAFCA) – Tim Washburn
Sacramento Metro Chamber of Commerce – Johnnise Foster-Downs
Sacramento Metropolitan Air Quality Management District (SMAQMD)
Sacramento Old City Association – Sean de Courcy, William Burg
Sacramento Regional Transit (RT) – Jeff Damon, RoseMary Covington
Sacramento Valley Conservancy – Aimee Rutledge
Save the American River Association (SARA) – Betsy Weiland, John Whelan
Sierra Club – Rick Bettis
South Natomas – Ted Link-Oberstar
Township 9 – Noah Lane, Steve Goodwin
Twin Rivers Housing Complex – Jaire Punch
WALK Sacramento – Chris Holm
Woodlake Improvement Club – Bill Farrell

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Summary Report

INTRODUCTION

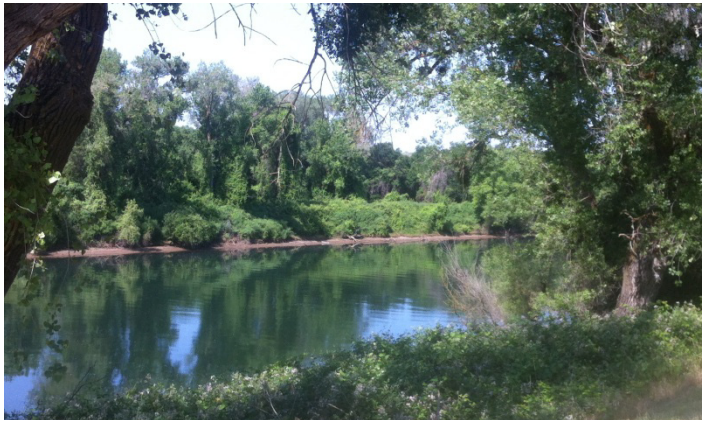
The American River Crossing Alternatives Study was prepared to evaluate alternatives for connecting South Natomas and Sacramento's Central City within the study area shown in Figure 1. The need for an additional multi-modal crossing of the American River (and associated Parkway) was established in the *Sacramento 2030 General Plan*, City of Sacramento, 2009 and recognized in the *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035*, Sacramento Area Council of Governments, 2012. Regional Transit (RT) also has plans for a new crossing within the study area as part of the Green Line light rail transit (LRT) extension to North Natomas and the Airport. The range of alternatives considered in the study are listed below.

- **No project** – This option presumes the bridge planned by RT to serve the Green Line light rail transit (LRT) extention to the Airport will be constructed. This bridge includes a bicycle and pedestrian facility but excludes vehicles. This alternative is also included in the *American River Parkway Plan 2008*, Sacramento County, 2008.

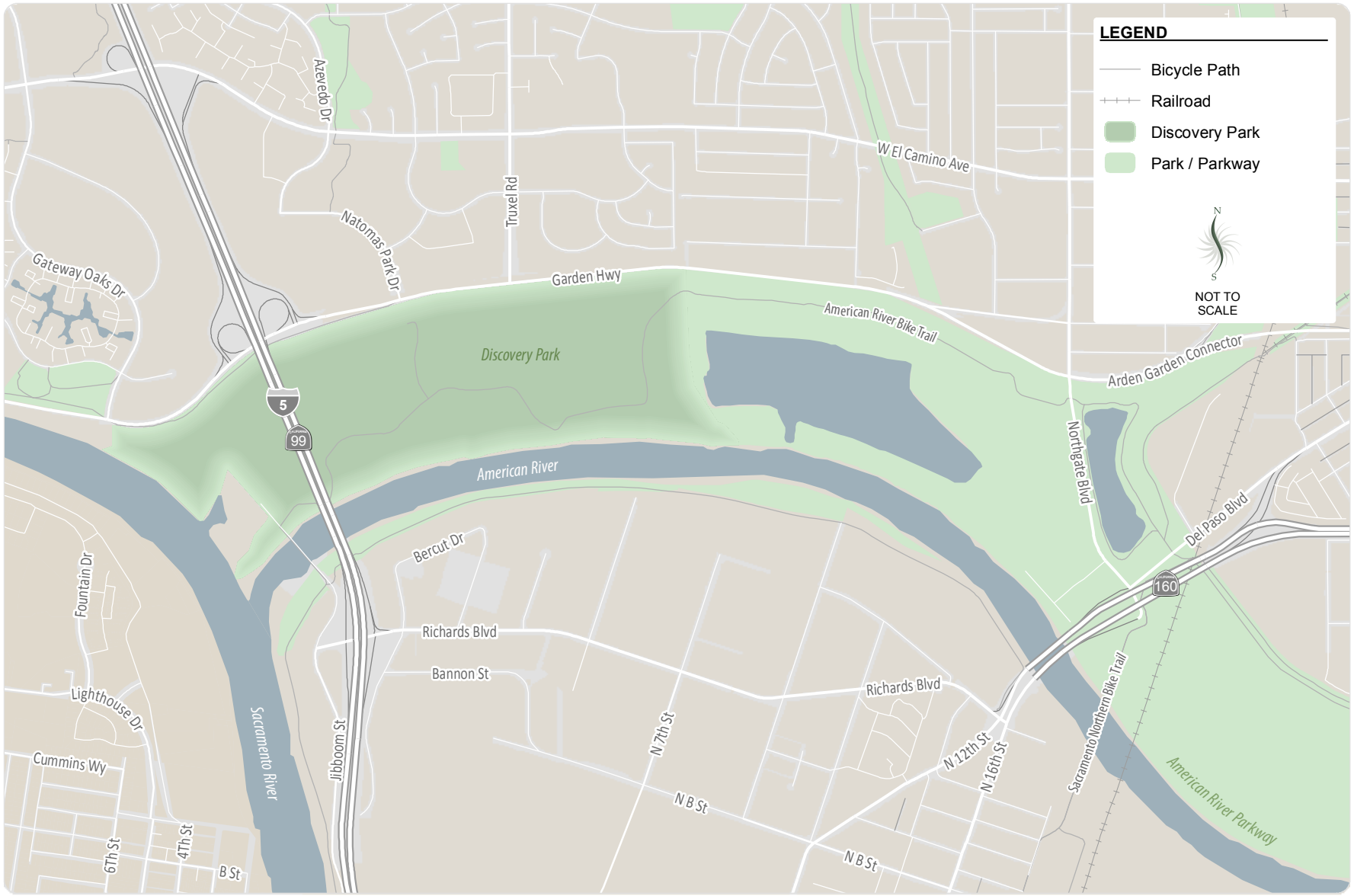
- **Modifications of existing bridges** – These options would be focused on enhancing existing crossing opportunities.

- **New multi-modal bridge** – This option would include one or more new multi-modal bridges accessible by pedestrians, bicyclists, cars, buses, trucks, and LRT.

Looking towards downtown from the American River Levee



Looking towards South Natomas from from the American River Levee



AMERICAN RIVER CROSSING
Alternatives Study

STUDY AREA
FIGURE 1

To inform the development and analysis of potential alternatives, the study relied on stakeholders and the public as direct participants in the study process. The process started with defining the purpose and need for a new crossing, which directly responds to the fundamental question of why a new crossing is needed and what objectives it should achieve. The purpose and need statement was refined throughout the study based on stakeholder and public input and the final version is contained in Figure 2. This final statement is grounded in community values expressed through the General Plan and other adopted plans plus input expressed by stakeholders and the public during the planning process.

Based on this statement, **the clear need for a new crossing stems from limited accessibility for all modes between South Natomas and the Central City that requires most trips to use Interstate 5 (I-5) or State Route 160 (SR-160) to complete a trip between these locations.** Further, existing facilities do not meet acceptable standards for bicycles and pedestrians and the use of state highways for local trips contributes to existing peak period congestion. Constructing a new crossing would respond to the need but also be expected to accomplish additional objectives listed under the project purpose.

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Existing Narrow Sidewalk on SR- 160 (looking towards downtown)

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NEED The proposed action is needed for the reasons listed below.	PURPOSE The proposed action will achieve the following objectives.
1) Limited connectivity across the American River creates a barrier to economic activity, land use development, social exchanges, and access to jobs within the Central City and South Natomas. The barrier causes longer trip lengths between origins and destinations that are physically close, which discourages walking and bicycling, reduces public health, creates inefficient transit routing, consumes more fuel, and generates higher levels of air pollutants and Greenhouse gas (GHG) emissions due to the reliance on automobiles.	*1A) Add bridge capacity across the American River between the Central City and South Natomas that serves multiple modes and minimizes the growth in vehicle miles of travel (VMT), air pollutants, and GHG emissions.* *1B) Minimize the growth in vehicle traffic on nearby residential streets caused by trips with either origins or destinations outside of the Central City and South Natomas accessing any new or modified bridge of the American River.*
2) Limited connectivity across the American River contributes to peak period travel delays on I-5.	*2) Add bridge capacity with the primary function of providing local connectivity between the Central City and South Natomas to reduce the overall reliance of local trips on state facilities.*
3) Limited connectivity across the American River contributes to longer emergency response times and limits evacuation alternatives.	*3) Add bridge capacity that increases options for evacuations and emergency/disaster response for the Central City and South Natomas.*
4) Limited connectivity across the American River creates a barrier to recreational opportunities within the American River Parkway.	*4) Improve recreational access to the American River Parkway as part of any bridge capacity improvements.*

The other key components of the study included a constraints and opportunities analysis to identify potential crossing locations. This was followed by an alternatives analysis that evaluated each crossing location in terms of modal options, transportation performance, environmental impacts, and construction costs. This information was synthesized and reviewed against the need and purpose statement to develop the final study recommendations. Key elements of the study are described in this executive summary while the Technical Report and the project study website below contain the detailed information developed during the study and presented to the stakeholders and the public.

http://www.cityofsacramento.org/transportation/planning-policy/AmericanRiverCrossingStudy.html

OPPORTUNITIES AND CONSTRAINTS

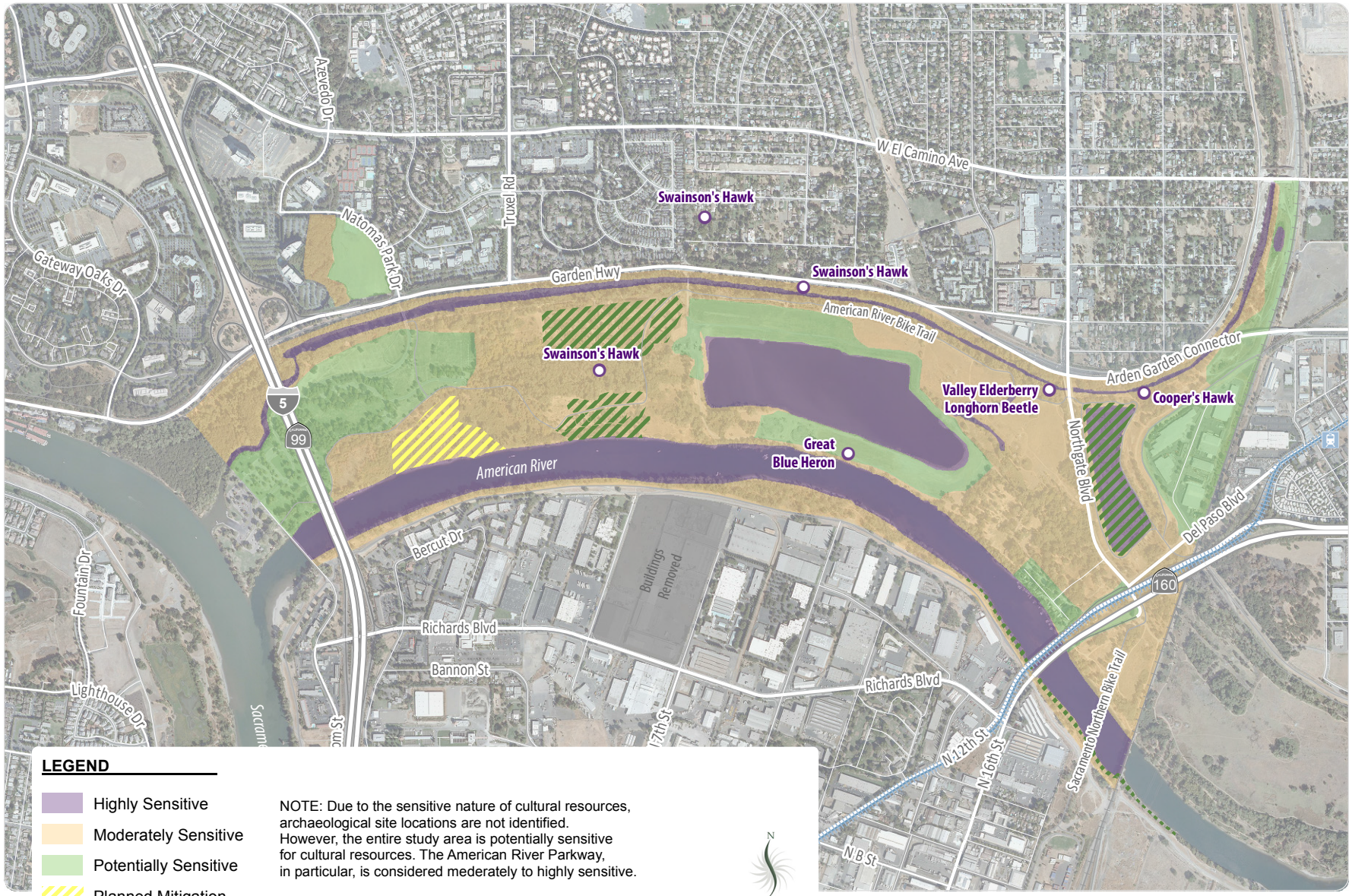
The opportunities and constraints analysis was designed to avoid or minimize potential environmental impacts while also finding the best locations for providing a multimodal crossing. The main constraints included the following types.

- Environmental – These constraints include biological (i.e., plants, animals, water, and air quality) and cultural resources that are regulated by federal, state, and regional agencies.

- Physical – These constraints include natural and man-made physical features that would influence the feasibility or cost of constructing a new crossing.

- Land Use – These constraints include land uses that have a special status or sensitivity that would influence the feasibility or cost of constructing a new crossing. The constraints were based on the project team's review of available information and input from the stakeholder advisory committee.

Opportunity crossing locations were identified by reviewing the constraints, adopted land use and transportation plans, and stakeholder input during their September 13, 2012 and October 30, 2012 meetings. The Technical Report contains the detailed opportunity and constraints analysis while Figure 3 shows the extent of key environmental constraints throughout the study area due to the sensitive habitat and cultural history of the American River Parkway.



LEGEND

- Highly Sensitive
- Moderately Sensitive
- Potentially Sensitive
- Planned Mitigation
- Existing Mitigation

NOTE: Due to the sensitive nature of cultural resources, archaeological site locations are not identified. However, the entire study area is potentially sensitive for cultural resources. The American River Parkway, in particular, is considered mederately to highly sensitive.

The mitigation areas contain one or more of the following habitats: Mixed Riparian Forest, Shaded Riverine Aquatic, Riparian Woodland, Oak Woodland, Elderberry, Riparian, and Native Grass.

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NOT TO SCALE

ENVIRONMENTAL CONSTRAINTS (BIOLOGICAL AND CULTURAL RESOURCES)

AMERICAN RIVER CROSSING
Alternatives Study

FIGURE 3

ALTERNATIVES DEVELOPMENT

The opportunities and constraints analysis along with the following information helped to narrow the potential opportunities for new or modified bridge crossings of the American River to the eight alternatives shown in Figure 4.

- Purpose and Need Statement
- Community Values
- Stakeholder Input

Each of these items is described in more detail below followed by a discussion of the alternatives.

Purpose and Need Statement

The pupose and need statement in Figure 2 includes specific objectives that helped guide the alternatives development. For example, an objective such as 'reducing the growth in vehicle miles of travel (VMT)' meant that an alternative would need to increase walking and bicycling or reduce travel distrances for drivers. Alternatives in this early planning phase were not required to meet all objectives but an alternative's performance did influence the final recommendations in this study.

Community Values

Community values from adopted plans and expressed by stakeholders provided a framework for developing potential alternatives. Several adopted plans are relevant to a new or modified crossing of the American River within the study area.

- *Sacramento 2030 General Plan*. City of Sacramento, 2009.
- *River District Specific Plan*. City of Sacramento, 2011.
- *Sacramento Railyards Specific Plan*. Design, Community & Environment and City of Sacramento. 2007.
- *The 2010 Sacramento City/County Bikeway Master Plan*. County of Sacramento and City of Sacramento. 1995.
- *Pedestrian Master Plan*. City of Sacramento. 2006.
- *American River Parkway Plan*. County of Sacramento. 2008.
- *Metropolitan Transportation Plan/Sustainable Communities Strategy*. Sacramento Area Council of Governments. 2012.

Each of these plans includes goals, principles, objectives, or policies that reflect community values. The main values expressed by these policies related to a new or modified crossing of the American River are summarized below.

- An accessible riverfront that preserves open space, protects the natual environment, provides opportunities for recreation, and integrates with the Central City environment.

- An efficient, multimodal transportation system that offers residents and visitors transportation choices and provides efficient access to destinations.

LEGEND
Alternative Crossing Location
NOT TO SCALE
W El Camino Ave
Truxel Rd
Natomas Park Dr
Gateway Oaks Dr
Garden Hwy
Arden G
Del Paso Blvd
Fountain Dr
Bercut Dr
Park Blvd
Vine St
New Street D
Signature St
Sequoia Pacific Blvd
N 10th St
Dos Rios St
Richards Blvd
Bannon St
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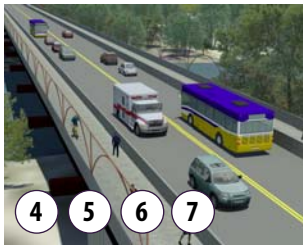
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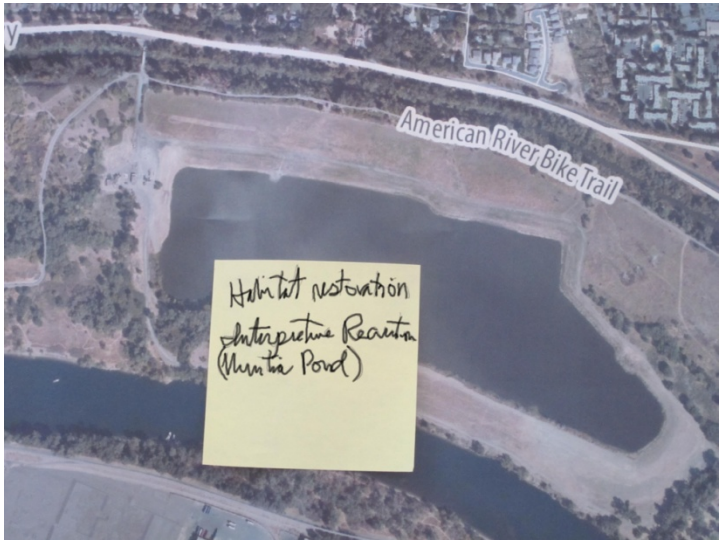
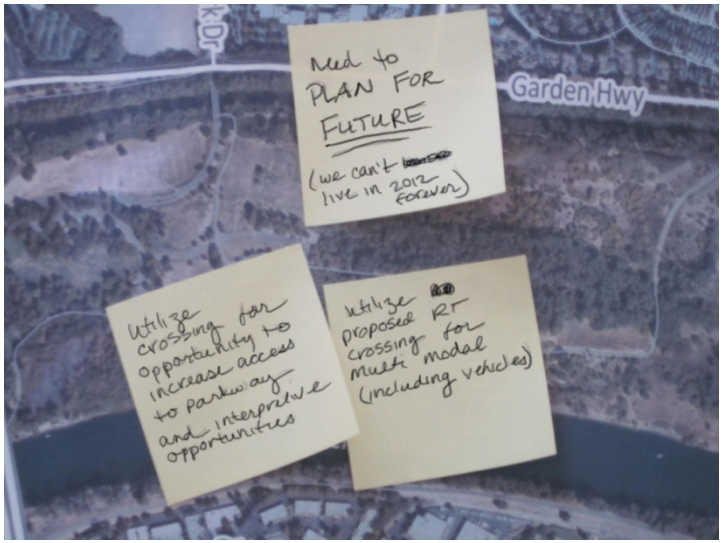
Stakeholder Input

Stakeholder input on community values and crossing opportunities was obtained at multiple meetings. The stakeholder discussions generally reinforced the values already contained in the adopted plans noted above although there was a strong desire from multiple stakeholders to elevate the importance of environmental protection given the unique recreational and habitat resources contained within the American River Parkway. It was also noted, that the *American River Parkway Plan 2008* only contained the No Project alternative described above and that the Plan may require an update to allow for other alternatives.



Comment About Habitat Restoration



Comments Related to a New Bridge

Alternatives Descriptions

This study considered the No Project alternative plus the eight alternatives shown in Figure 4, which offer opportunities to modify existing bridges, construct a new bridge, or modify a planned bridge as explained below.

- **No Project** - Regional Transit has proposed a new bridge between Truxel Road and Sequoia Boulevard to serve the Green Line LRT extension to the Airport. The initial concept for this bridge is to have a single set of LRT tracks on one side of the bridge and the other side would have a sidewalk and a bi-directional bike facility.

- **Alternative 1** widens the Jibboom Street Bridge to provide enhanced bicycle and pedestrian facilities that connect into the existing Parkway bike network and trails.

- **Alternative 2** includes the addition of a bike/pedestrian facility adjacent to I-5; the facility will be separated from the freeway and will connect into the existing bike network and trails. It will also provide an all-weather connection for cyclists.

- **Alternative 3** adds vehicles to the No Project Regional Transit Green Line bridge and includes bicycle and pedestrian facilities on both sides of the bridge that would connect to Parkway trails and paths. The proposed alternative for this study does not reflect any specific input from Regional Transit.

- **Alternative 4** connects into Garden Highway at a "T" intersection on the north side and connects into 7th Street on the south. This alternative accommodates all modes and connects into the existing bike facilities on both sides of the river and within the Parkway.

- **Alternative 5** connects to West El Camino Avenue on the north side and 10th Street on the south side; it also connects to an existing bike path as well as to Parkway trails and paths. This alternative projected a different distribution of trips during initial traffic modeling because of the landing at West El Camino; it also provides capacity for all modes.

- **Alternative 6** provides an extension of Northgate Boulevard on the north side connects into 10th Street on the south side and provides capacity for all modes. Similar to Alternatives 3-5, it would also include connections to Parkway trails and paths.

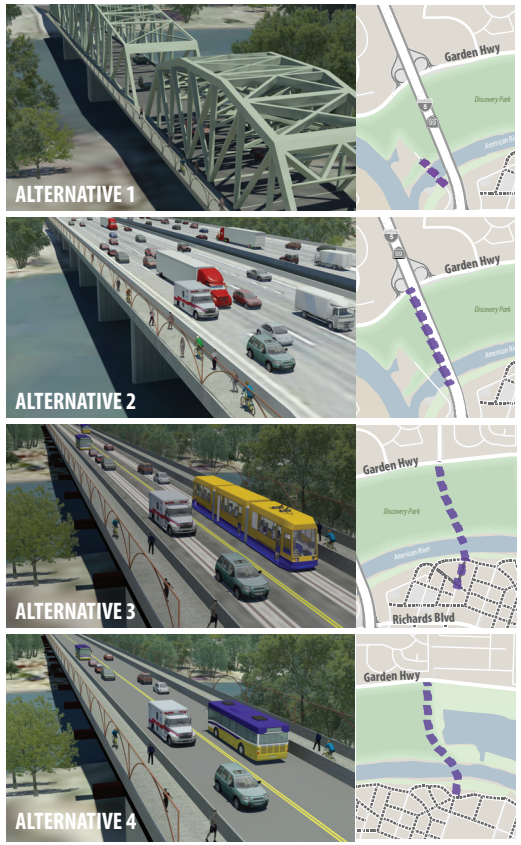
- **Alternative 7** connects into Northgate Boulevard on the north side and Street W in the River District Specific Plan on the south side. This would allow the portion of Northgate Boulevard between the Arden Garden Connector and the Riverdale Resort access to be closed to vehicles and used as a bike/pedestrian facility only.

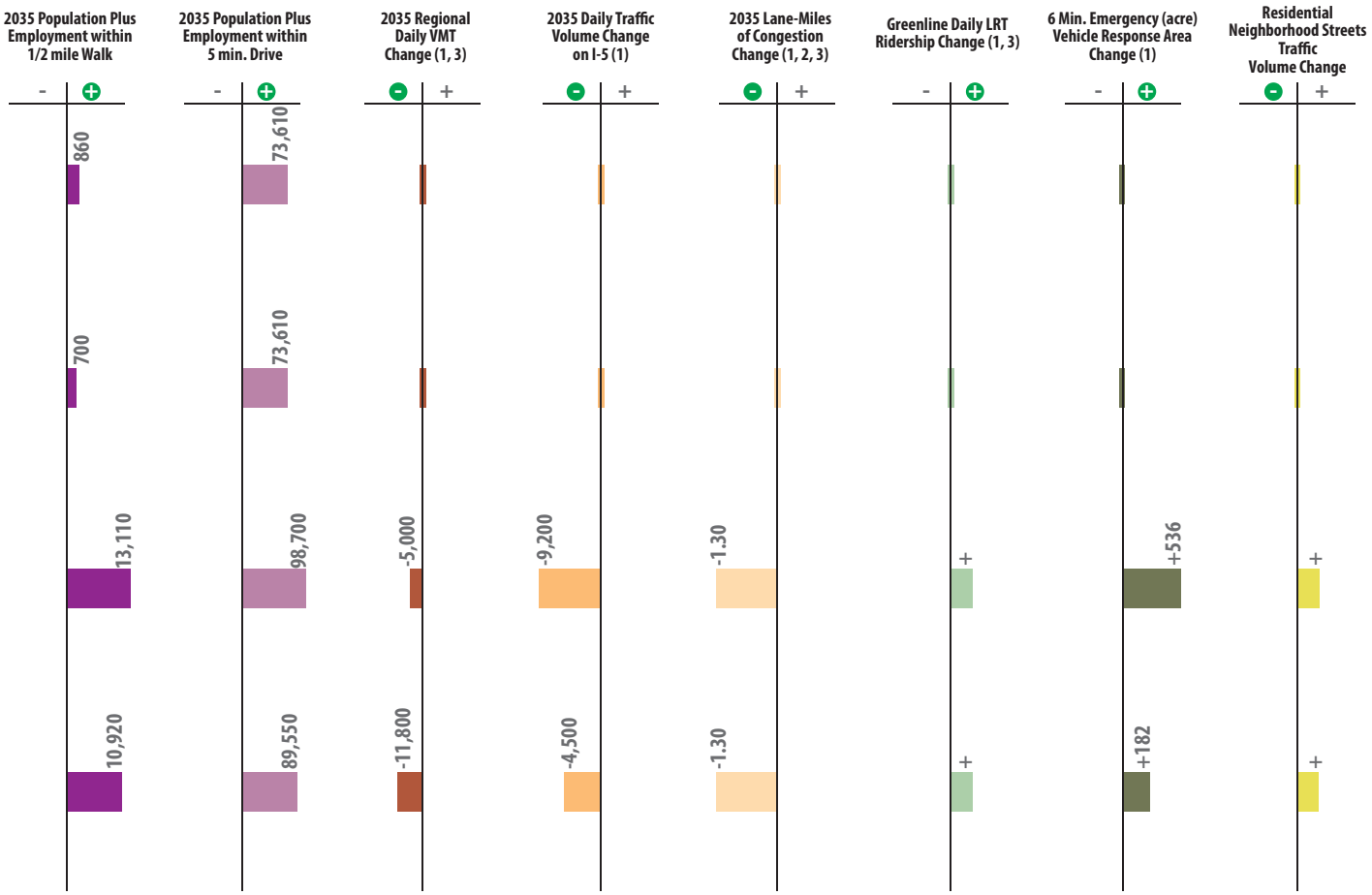
- **Alternative 8** provides an all-weather Northgate Boulevard (viaduct structure) that would be out of the flood plain and connect to a new SR-160 bridge at grade with full access to both directions on SR-160. This alternative would provide capacity for all modes, as well as an all-weather crossing. This also presents an opportunity to create a "gateway entrance" into the City as recommended by stakeholders.

ALTERNATIVES ANALYSIS

The alternatives analysis included a transportation evaluation, environmental assessment, and cost estimates. The transportation evaluation compares network performance, accessibility effects, and potential traffic impacts to neighborhoods. Figure 5 summarizes the results while the Technical Report contains more detailed information.

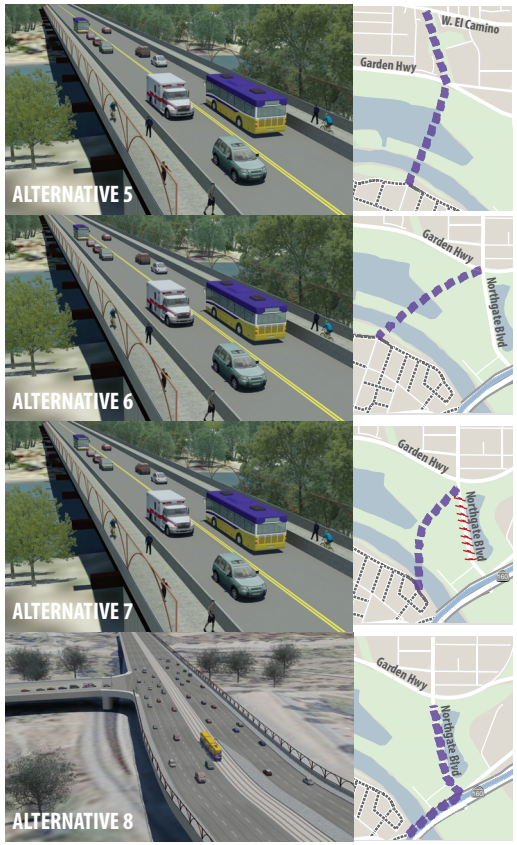
Alternatives / Modal Options

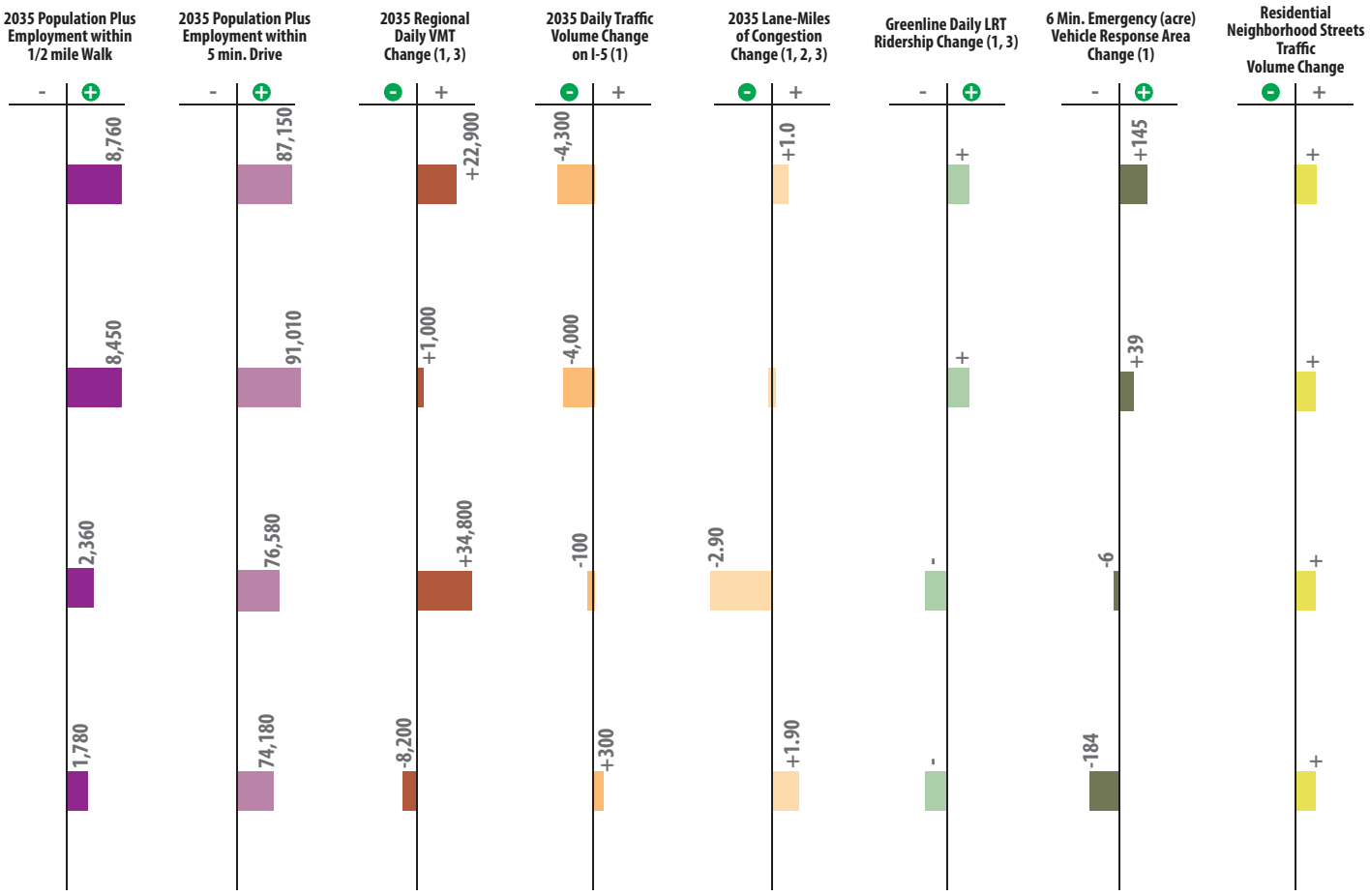




Notes: Shaded cells denote highest value.
(1) [2035 with new bridge] - [2035 no project]
(2) Change within study area during PM peak period.
(3) Some results are within the margin of forecasting error.
⊕/⊖ Desired direction of change based on purpose and need statement.

Alternatives / Modal Options





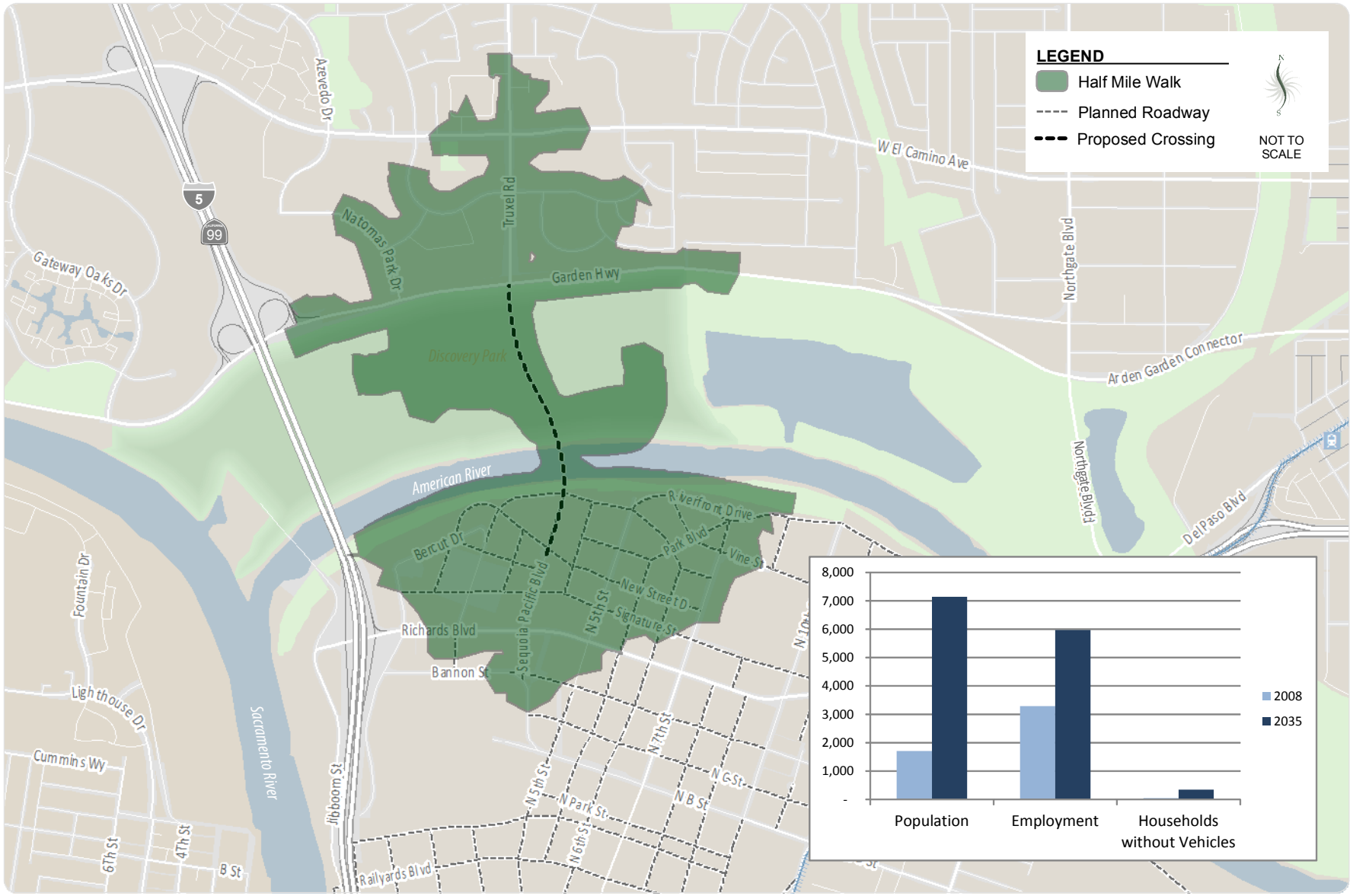
Notes: Shaded cells denote highest value.
(1) [2035 with new bridge] - [2035 no project]
(2) Change within study area during PM peak period.
(3) Some results are within the margin of forecasting error.
⊕/⊖ Desired direction of change based on purpose and need statement.

The transportation analysis revealed that the location of the bridge and the modes it accommodates had a substantial effect on the selected performance measures shown in Figure 5. The analysis measures were selected in consultation with the stakeholder advisory committee and were specifically designed to help evaluate the objectives contained in the purpose and need statement (Figure 2). Hence, there is a direct connection between the purpose objectives and the alternative analysis.

The first set of measures focus on accessibility by measuring how many people are projected to live or work within ½-mile walk and a 5 minute drive. Figure 6 displays an example of how this type of analysis was prepared and shared with the stakeholders (a complete set of analysis data and mapping is available in the Technical Report). Utilization of a new bridge is directly related to these measures and high values indicate the potential for substantial use. Alternative 3 scored the highest on these measures and the other centrally located alternatives also performed well.

The next set of measures included the change in 2035 conditions compared to the no project alternative for regional daily vehicle miles of travel (VMT), daily traffic volume on I-5, and lane-miles of congestion. Some changes were too small to register especially for the bicycle and pedestrian only bridge alternatives given the vehicle focus of these measures. Alternative 4 performed the best for VMT reduction, Alternative 3 for volume change on I-5, and Alternative 7 for the reduction in lane-miles of congestion.

The last three measures are not directly related but convey information that was of importance to stakeholders. The introduction of vehicles as part of the multi-modal bridge alternatives was viewed as potential competition for Green Line LRT ridership. The analysis showed the opposite for Alternatives 3-6 as they increased accessibility to the Central City and South Natomas, which had small positive effects on future ridership. Alternatives 7 and 8 did show a small negative effect on Green Line ridership, but all of the ridership changes were small (i.e., less than 3 percent of daily ridership), which is within the margin of error for 2035 forecasts. Alternatives 3-6 also shared positive effects for the emergency vehicle response area by increasing the coverage area within a 6-minute travel time from the South Natomas Fire Station. Alternatives 7 and 8 reduced the coverage area largely due to being at the extreme eastern edge of the study area. Alternative 7 also eliminates a portion of Northgate Boulevard, which shrinks the potential coverage area, and Alternative 8 creates a full access intersection at Northgate Boulevard and SR-160 that would have slower speeds, which also effectively reduces the coverage area since it is based on travel time. The final measure was daily traffic volume changes on residential neighborhood streets. All the alternatives are projected to increase traffic on residential neighborhood streets in South Natomas and the Central City by attracting more trips into these areas. This effect is expected to be greatest for the Alternatives 3-8 that include vehicles. The City of Sacramento has a history of addressing these types of impacts effectively through neighborhood traffic calming programs and that would likely be required as part of implementing any of these alternatives.



2008 AND 2035 POPULATION AND EMPLOYMENT WITHIN HALF MILE WALK

FIGURE 6

Environmental Assessment

In addition to the transportation analysis, a preliminary environmental assessment was conducted to gauge the potential level of impact for each alternative. The following areas were identified as potential issue areas that should be considered in future environmental analysis.

Noise

Any bridge that includes new or increased volumes of automobiles or LRT would increase noise levels. New bridges that connect near residential areas to the north and/or south have the greatest potential for substantial impacts (Alternatives 3, 4, 5). Alternative 3 adds both LRT and automobile noise near residential areas so would likely generate the most noise. Connections that are further away from residential land uses would have less effect on those uses, though would still affect users of the American River Parkway (Alternatives 6, 7).

Visual

New bridges over the American River and through the American River Parkway would have substantial visual effects (Alternatives 3, 4, 5, 6, 7) for recreational users and for users of the land uses to the north and south of the Parkway. Widening or modifying existing infrastructure and creating new bicycle and pedestrian connections would cause less of an effect, though changes in views, especially from recreational area viewpoints (parks and trails), would still occur (Alternatives 1, 2, 8).

Biological

New crossings of the American River and the American River Parkway (Alternatives 3, 4, 5, 6, 7) have the potential to result in substantial impacts on biological resources. Crossings that would modify existing structures (Alternatives 1, 2, 8) have less of a potential for effects, though Alternative 8 would require construction of a viaduct along Northgate Boulevard adjacent to open space and biological resources.

Cultural

The entire study area is located adjacent to a waterway and therefore is potentially sensitive for cultural resources. Any alternative that causes ground disturbance has the potential to impact cultural resources. The American River Parkway, in particular, is highly sensitive for prehistoric and historic resources. Alternatives requiring the least amount of excavation would have the least potential for effects (Alternative1). Because there would be limited ground disturbance and the area is highly sensitive, the impacts for Alternative 2 would be greater than Alternative 1. Alternatives 3-8 have the potential to cause substantial effects on cultural resources due to anticipated construction activity.

Recreation

Alternatives 3-7 would disrupt recreational land within the American River Parkway and would have the greatest adverse effect on recreational resources. Alternative 5 would also affect Ninos Parkway and Alternative 4 would affect a proposed park in the River District. Alternatives 1 and 2 may require some Parkway land conversion but the area would be very small. Alternative 8 would affect bicycle paths, connections and access near Northgate Blvd/SR-160 so would have a greater effect on recreation than Alternatives 1 and 2.

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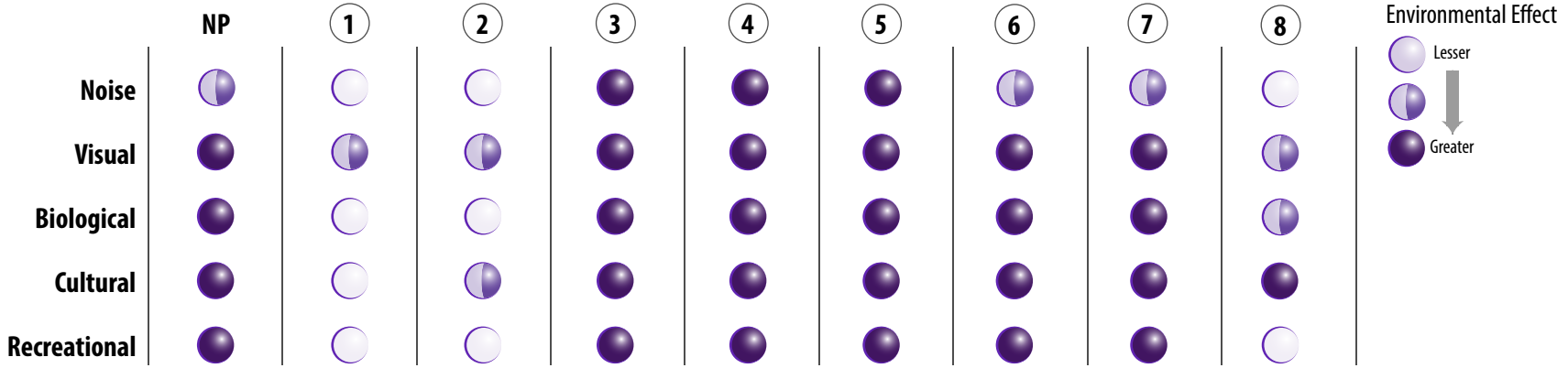


Alternative 7 includes closure of this portion of Northgate Blvd.

Alternative 8 includes new at-grade intersection with full access to both directions of SR 160.

No Project (NP) Alignment

ALTERNATIVE CROSSING LOCATIONS - POTENTIAL ENVIRONMENTAL EFFECTS

AMERICAN RIVER CROSSING Alternatives Study

FIGURE 7

Cost Estimates

A final component of the alternatives analysis was to evaluate cost estimates for each alternative. The table below summarizes total project costs for 2013 and 2023. The 2013 estimates is what the bridge would cost to design and construct in today's dollars while the 2023 estimate includes an escalation factor of 3 percent per year assuming a construction year of 2023.

ALTERNATIVE	TOTAL PROJECT COST	
	Year 2013(a)	Year 2023 (a,b)
1	$10 M	$13 M
2	$16 M	$21 M
3 (c)	$54 M	$70 M
4-7 (c)	$58-$68 M	$74-$86 M
8	$188 M	$240 M

Notes:

(a) Includes construction cost plus 25% for preliminary engineering and construction administration.

(b) Includes escalation costs of 3% per year for 10 years.

(c) Estimate reflects a 70-foot cross section for two mixed-flow lanes, shoulders, and bicycle/pedestrian facilities on both sides of the bridge.

Key components of the cost estimates for each alternative are described below.

- **Alternative 1** consists of a Pedestrian/Bike expansion added to both sides of the existing Jibboom Street Bridge over the American River. The existing bridge is a swing-type steel truss movable structure that would be expanded on each side to provide adequate pedestrian/bike facilities. The main two spans in the middle of the river are the movable spans and a pedestrian/bike path that hangs off each side of the bridge would need to accommodate the movement. The Jibboom Street bridge is 500 feet long with approaches of 300 and 200 feet for a total path length of 1,000 feet on each side of the existing bridge.

- **Alternative 2** is a Pedestrian/Bike expansion added to the west side of the existing I-5 bridge over the American River. The existing two parallel bridges are fixed Caltrans-type concrete box girder bridges that would be expanded to provide adequate pedestrian/bike facilities. The I-5 bridges are 2,700 feet long with an approach of 800 feet on the south end and would need a ramp of 500 feet to tie into the existing path along Garden Highway for a total path length of 4,000 feet on the side of the existing bridge.

- **Alternative 3** is a multi-modal bridge that includes vehicles, LRT, bikes, and pedestrians and would have a span of about 2,300 feet. This alternative differs from the "no project" RT bridge in that cars and buses are accommodated in two mixed-flow lanes (with shoulders) and more generous paths are provided for bicyclists and pedestrians on both sides of the

bridge. This estimate is a complete cost of a new bridge that would accommodate all of these modes, which would require a wider cross-section than proposed for the "no project" bridge.

- **Alternatives 4 through 7** are stand-alone two-lane multi-modal bridges spanning across the Parkway at four locations. They include provisions for busses in two mixed-flow lanes, but not LRT. The range of bridge lengths at the four locations are 2,700 to 3,200 feet. Alternative 5 has an additional 1,900 feet of approach roadway included.

- **Alternative 8** includes elevating Northgate Boulevard, connecting it to SR-160 with a full access at-grade intersection, and replacing the SR-160 bridges over the river and parkway. No new lanes are added with this alternative although stakeholders recommended consideration of reducing the number of vehicle lanes on SR-160.

These cost estimates do not include right-of-way, environmental mitigation, or enhanced aesthetic designs, but are a reasonable basis to understand the differences between the alternatives.

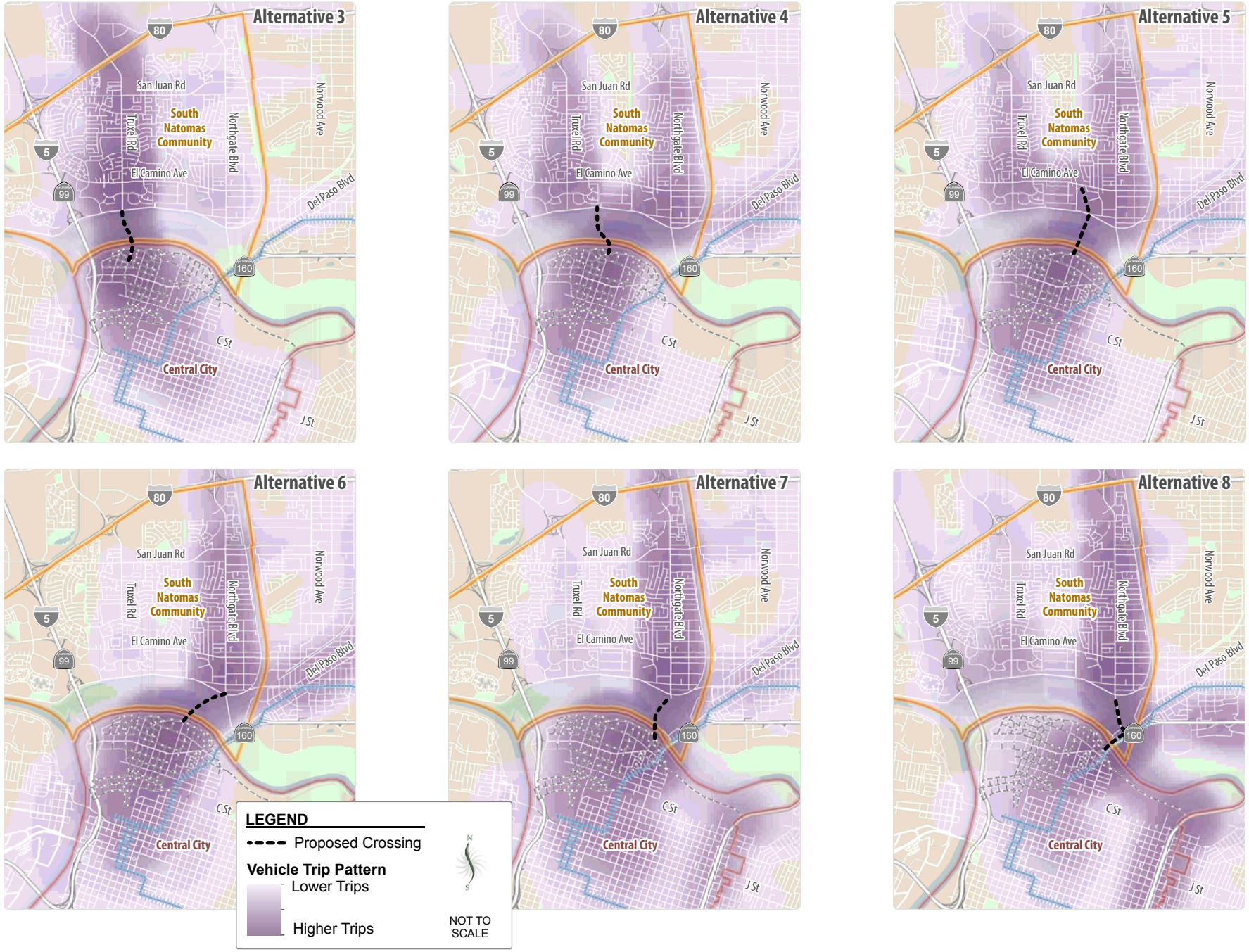
RECOMMENDATIONS

While each of the alternatives had merits, Alternatives 2, 3, and 8 stood out as being the best candidates to consider for implementation. This conclusion is based on the purpose and need statement, alternatives analysis findings, and potential funding opportunities.

The following information provides supporting evidence for the recommendation.

- Alternatives 1 and 2 serve bicyclists and pedestrians in the western edge of the study area and are unique in this respect. **Only Alternative 2, though, provides an all-weather connection across the River, which elevated its performance above that of Alternative 1**. These two alternatives can also be viewed as separate from the other alternatives when considering future funding. Active transportation modes are attracting greater shares of federal, state, and regional transportation funding due to their positive effects on health, air quality, GHG reduction, energy use, and travel choices. Alternative 2 is a candidate for any future funding programs dedicated to active transportation because it eliminates a significant barrier to bicycle and pedestrian travel between land uses that are physically close.

- Alternative 3 had a peer group that consisted of Alternatives 4-6 in terms of serving the direct South Natomas and Central City market areas. This was a key purpose objective and Figure 8 displays how the alternative bridge locations influenced travel patterns of those projected to use each bridge.



AMERICAN RIVER CROSSING
Alternatives Study

MARKET AREA SERVED

FIGURE 8

Since transportation funding is competitive, especially at the federal and state level, Alternative 3 offers a unique combination of benefits across multiple categories. First, Alternative 3 is centrally located within the study area and shares the alignment already selected by RT for the Green Line crossing of the River. This central location contributed to serving the largest number of people within a half-mile walk and a five-minute drive. Second, Alternative 3 proposes to accommodate all modes (private vehicles, buses, LRT, bicyclists, and pedestrians). Third, it provides the largest reduction in daily traffic on I-5 and fourth, it has the largest expansion in emergency vehicle response coverage area. With future transportation funds being both competitive and limited, **Alternative 3 has the best opportunity to secure competitive funds because it achieves multiple objectives at the federal, state, regional, and local level and leverages investments already being planned by RT**.

- Alternatives 7 and 8 are at the eastern edge of the study area and both have a variety of merits but serve travel markets beyond just the South Natomas to Central City study area. This was revealed in the graphical displays of market area in Figure 8. As such, these alternatives did not perform as well in the transportation analysis compared to Alternative 3-6. **Alternative 8, though, has separate merits that make it worthy of further consideration**. According to Caltrans, the existing SR-160 bridge structures over the American River require rehabilitation or replacement to bring them up to current design requirements. This status qualifies these bridge structures for special federal funding. If significant rehabilitation or even replacement is required, then it may be possible to create a different type of crossing that not only better accommodates bicyclists and pedestrians but also improves accessibility by creating a full access intersection or interchange between Northgate Boulevard and SR-160. Today, access is limited to an eastbound off-ramp from SR-160 to Northgate Boulevard and a westbound on-ramp from Northgate Boulevard/Del Paso Boulevard to SR-160. **Alternative 8 not only expands accessibility in the Northgate Boulevard, Del Paso Boulevard, and SR-160 corridors, it also provides an enhanced bicycle and pedestrian crossing of the American River while eliminating safety concerns associated with the existing SR-160 bridge structures**.

As to ultimately constructing one or more of these alternatives, the City should be opportunistic about funding opportunities. Federal, state, and regional funding programs can change annually. To prepare for funding opportunities, each alternative should be accurately reflected in relevant plans including the City of Sacramento General Plan, the American River Parkway Plan 2008, the RT Green Line Project Level Environmental Analysis, and the MTP/SCS. The next step would then be to prepare preliminary engineering and environmental analysis so that specific projects are ready to advance to final design and construction.

Resources

Resources cited in this report are listed below.

- *American River Parkway Plan*, Sacrameto County, 2008
- *Downtown/Natomas/Airport (DNA) Green Line to the Airport, Draft Transitional Analysis Report*, RT, 2010
- *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035*, SACOG, 2012
- *River District Specific Plan*, City of Sacramento, 2010
- *Sacramento Railyards Specific Plan*, City of Sacramento, 2007
- *Sacramento 2030 General Plan*, City of Sacramento, 2009

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NATOMAS COMMUNITY ASSOCIATION

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Curtis Vandermolen
David Von Aspern

June 5, 2013

Mr. Jerry Way, Director
Department of Transportation
City of Sacramento
915 I Street
Sacramento, California 95814

Dear Mr. Way:

The Natomas Community Association (NCA) has been examining your excellent work on developing alternatives for a new American River crossing to connect South Natomas with Downtown Sacramento. We strongly urge your department to elevate this project to your highest priority due to the economic and environmental impact savings it will achieve and the overall benefit to families living and working in Natomas.

As you are well aware, a lack of surface street connections has required Natomas' 100,000 residents to use Interstate 5 and Highway 160 to reach downtown – which adds unnecessary congestion to long-distance modes of travel, and increases travel times for Sacramento residents and others traveling through one of the largest economic corridors in the United States.

NCA was established around 1980 as Sacramento developed northward along Interstate 5. Co-founded by former Sacramento Mayor Heather Fargo, NCA has been a staple in the development and representation of residents, businesses, and organizations for the greater Natomas region. NCA currently represents an area of approximately 20 square miles, which is home to more than 100,000 residents, approximately 2,500 businesses, $700 million in total annual sales, and 35,884 jobs.

If NCA can be of any assistance as you move forward with this project, please do not hesitate to contact us. Thank you for moving forward on this project with all expedience.

Sincerely,

Lynn N. Lenzi, President
Natomas Community Association
www.natomascommunity.com

CC: Vice Mayor Angelique Ashby, District 1
City Council Member Steve Cohn, District 3
City Council Member Steve Hansen, District 4
Kome Ajise, Deputy Director, California Department of Transportation

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TECHNICAL REPORT

AMERICAN RIVER CROSSING
Alternatives Study

FINAL

May 2013

Prepared by FEHR PEERS
ICF
Dokken
AIM Consulting

ACKNOWLEDGEMENTS

Project Team

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Consultants

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Stakeholder and Public Outreach - *AIM Consulting*
Engineering and Cost Estimates - *Dokken Engineering*
Environmental - *ICF International*

Stakeholders

Alkali and Mansion Flats Neighborhood Association – Luis Sumpter
American River Flood Control District – Tim Kerr
American River Natural Historic Association – David Wade
American River Parkway Foundation – Dianna Poggetto
California Fly Fishers Unlimited – John Coldiron, Earlene Coldiron
California State Parks - Capital District – Peter Larsen
Caltrans – Larry Brohman, Eric Fredericks
Department of General Services (DGS) – Cathy Buck
District 3 Councilmember – Steve Cohn
Downtown Sacramento Partnership – Kevin Greene
Environmental Council of Sacramento (ECOS) – Simeon Gant, John Deeter
Gardenland / Northgate Neighborhood Association – Efren Guttierrez, Neil Pople
Loaves and Fishes – Norm Fadness
Natomas Community Association – David Von Aspern, Kris Anderson
North Natomas Transportation Management Association – Abbey Harding, Becky Heieck
North Sacramento Chamber of Commerce – Rob Kerth
Parks Department – Jeff Leatherman, Liz Bellas
River District – Patty Kleinknecht
River Oaks Neighborhood Association – David Brady
Sacramento Area Bicycle Advocates (SABA) – Jordan Lang, Jim Brown
Sacramento Area Council of Governments (SACOG) – Clint Holtzen
Sacramento Area Flood Control Agency (SAFCA) – Tim Washburn
Sacramento Metro Chamber of Commerce – Johnnise Foster-Downs
Sacramento Metropolitan Air Quality Management District (SMAQMD)
Sacramento Old City Association – Sean de Courcy, William Burg
Sacramento Regional Transit (RT) – Jeff Damon, RoseMary Covington
Sacramento Valley Conservancy – Aimee Rutledge
Save the American River Association (SARA) – Betsy Weiland, John Whelan
Sierra Club – Rick Bettis
South Natomas – Ted Link-Oberstar
Township 9 – Noah Lane, Steve Goodwin
Twin Rivers Housing Complex – Jaire Punch
WALK Sacramento – Chris Holm
Woodlake Improvement Club – Bill Farrell

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Section A: Purpose and Need

NEED: The proposed action is needed for the reasons listed below.	**PURPOSE: The proposed action is intended to achieve the following objectives.**	**Consistency with Adopted Plans: The purpose objective is consistent with adopted plans.**					
		GP	**RD**	**RY**	**MTP**	**RT DNA**	**ARPP**
1) Limited connectivity across the American River creates a barrier to economic activity, land use development, social exchanges, and access to jobs within the Central City and South Natomas. The barrier causes longer trip lengths between origins and destinations that are physically close, which discourages walking and bicycling, reduces public health, creates inefficient transit routing, consumes more fuel, and generates higher levels of air pollutants and Greenhouse gas (GHG) emissions due to the reliance on automobiles.	1A) Add bridge capacity across the American River between the Central City and South Natomas that serves multiple modes and minimizes the growth in vehicle miles of travel (VMT), air pollutants, and GHG emissions. 1B) Minimize the growth in vehicle traffic on nearby residential streets caused by trips with either origins or destinations outside of the Central City and South Natomas accessing any new or modified bridge of the American River.	Yes	Yes	Yes	Yes	Maybe	Maybe
2) Limited connectivity across the American River contributes to peak period travel delays on I-5.	2) Add bridge capacity with the primary function of providing local connectivity between the Central City and South Natomas to reduce the overall reliance of local trips on state facilities.	Yes	Yes	Yes	Yes	Yes	Yes
3) Limited connectivity across the American River contributes to longer emergency response times and limits evacuation alternatives.	3) Add bridge capacity that increases options for evacuations and emergency/disaster response for the Central City and South Natomas.	Yes	Yes	Yes	Yes	Yes	Yes
4) Limited connectivity across the American River creates a barrier to recreational opportunities within the American River Parkway.	4) Improve recreational access to the American River Parkway as part of any bridge capacity improvements.	Yes	Yes	Yes	Yes	Yes	Yes

Acronym Definitions

GP = *Sacramento 2030 General Plan*, City of Sacramento, 2009
RD = *River District Specific Plan*, City of Sacramento, 2010
RY = Sacramento Railyards Specific Plan, City of Sacramento 2007
MTP = *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035*, SACOG, 2012
RT DNA = *Downtown/Natomas/Airport (DNA) Green Line to the Airport, Draft Transitional Analysis Report*, RT, 2010
ARPP = American River Parkway Plan, Sacrameto County, 2008

Section B: Constraints and Opportunities

CONSTRAINTS AND OPPORTUNITIES

AMERICAN RIVER CROSSING
Alternatives Study

DRAFT
October 2012

Prepared by FEHR PEERS
ICF
Dokken
AIM Consulting

Constraints and Opportunities

INTRODUCTION

The American River Crossing Alternatives Study includes an evaluation of multiple alternatives. These alternatives will be developed considering a full range of options as listed below.

- No project – This option presumes the new bridge planned by Regional Transit (RT) to serve the light rail transit (LRT) extention to the Airport will be constructed. This bridge includes facilities for bicycles and pedestrians and excludes vehicles.

- Modifications of existing bridges – These options would be focused on enhancing existing crossing opportunities.

- New multi-modal bridge – This option would include one or more new multi-modal bridges accessible by pedestrians, bicyclists, cars, buses, trucks, and LRT.

To inform the development of potential alternatives, the project team evaluated existing constraints and opportunities within the study area shown in Figure 1. Following are the specific constraints considered in this evaluation.

- Environmental – These constraints include biological (i.e., plants, animals, water, and air quality) and cultural resources that are regulated by federal, state, and regional agencies.

- Physical – These constraints include natural and man-made physical features that would influence the feasibility or cost of constructing a new crossing.

- Land Use – These constraints include land uses that have a special status or sensitivity that would influence the feasibility or cost of constructing a new crossing.

The constraints were based on the project team's review of available information and input from the stakeholder advisory committee. Opportunity crossing locations were identified by reviewing the constraints and the following information:

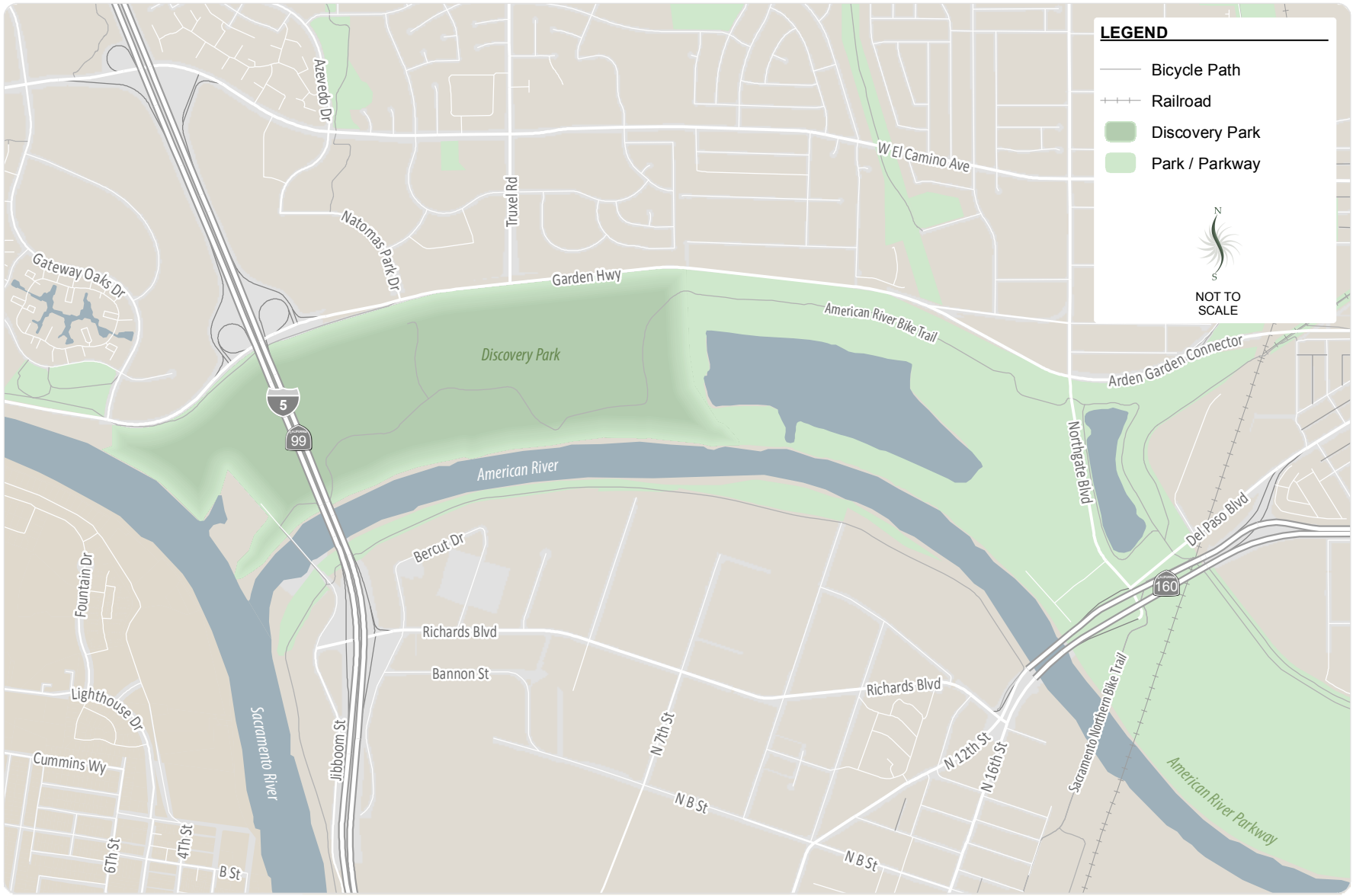
- Planned development and redevelopment areas (also known as opportunity development sites).

- Existing and planned transportation network, including roadways, rail lines, bikeways, and pedestrian facilities.

- Community values from adopted plans.

- Initial Stakeholder input during their June 28, 2012 stakeholder meeting and July 25, 2012 site tour.

The remainder of this memo summarizes the identified constraints and then concludes with recommended opportunities for new or improved crossings.



AMERICAN RIVER CROSSING
Alternatives Study

STUDY AREA
FIGURE 1

Constraints and Opportunities

ENVIRONMENTAL CONSTRAINTS

The American River originates in the Sierra Nevada mountain range just west of Lake Tahoe. The river flows from the mountains to the Sierra foothills through the eastern Sacramento metropolitan area and into Folsom Lake and Lake Natoma, before joining the Sacramento River just northwest of downtown Sacramento. The 23-mile reach of the river downstream of Lake Natoma is known as the lower American River and is classified as a "Recreation" river within the State and Federal Wild and Scenic River Systems (American River Parkway Plan, 2008). This portion of the river is also the distinct feature of the 29-mile American River Parkway that extends from Folsom Dam to the Sacramento River.

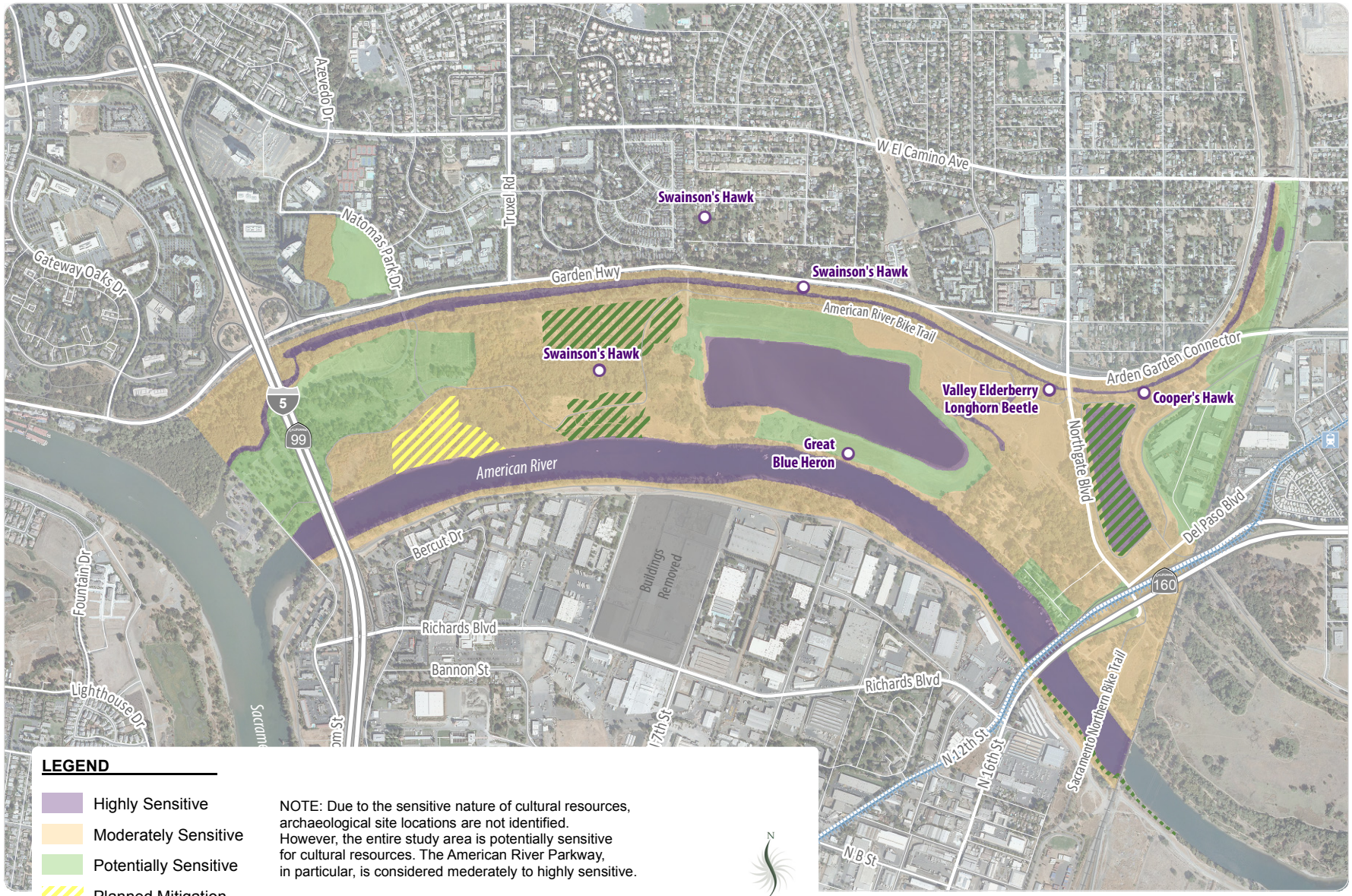
The American River Parkway is recognized as a significant recreational, flood protection, and wildlife asset to the Sacramento region. The Parkway's trail system has been designated a "National Recreational Trail" (Lower American River Task Force 2002) and the entire Parkway provides important habitat for fish, plants, and wildlife. In addition, the American River is a high-quality water source.

The biological and cultural resources within the Parkway and larger study area are protected as part of the public trust, and any activities affecting these resources are subject to the requirements of federal and state laws; therefore, this environmental constraints study focuses on the constraints these resources would pose to any new crossing of the American River.

Key highlights of the environmental constraints are summarized in this section while a detailed technical memorandum is available in Appendix A.

Biological Resources

Key biological species that could be constraints for a crossing include salmonid species (Chinook and steelhead), green sturgeon, valley elderberry longhorn beetle, Swainson's hawk, and bats. Several sensitive natural communities also occur within the American River Parkway portion of the study area. Some of these natural communities are considered sensitive, in particular wetlands, riverine habitat, and riparian habitat. Areas supporting biological resources within the study area were classified into three sensitivity categories, as shown on Figure 2, as a means to convey preliminary constraints. The locations of known biological constraints are also indicated on the figure. Alignments that avoid or minimize effects on sensitive species and natural communities would have reduced mitigation costs. Options for mitigation would include specific avoidance and minimization measures and possibly compensation for the loss of habitat and would need to be developed in consultation with resource agencies.



LEGEND

- Highly Sensitive
- Moderately Sensitive
- Potentially Sensitive
- Planned Mitigation
- Existing Mitigation

NOTE: Due to the sensitive nature of cultural resources, archaeological site locations are not identified. However, the entire study area is potentially sensitive for cultural resources. The American River Parkway, in particular, is considered mederately to highly sensitive.

The mitigation areas contain one or more of the following habitats: Mixed Riparian Forest, Shaded Riverine Aquatic, Riparian Woodland, Oak Woodland, Elderberry, Riparian, and Native Grass.

N
S
NOT TO SCALE

ENVIRONMENTAL CONSTRAINTS (BIOLOGICAL AND CULTURAL RESOURCES)

AMERICAN RIVER CROSSING
Alternatives Study

FIGURE 2

Constraints and Opportunities

Cultural Resources

The entire length of the study area is potentially sensitive for cultural resources. The American River Parkway, in particular, is highly sensitive for prehistoric and historic resources. Constraints relating to cultural resources include the known cultural sites (which cannot be made public), unknown buried archaeological deposits, and built environment resources (e.g., historic buildings) that have not yet been evaluated for eligibility on historic registers. Alignments that avoid or minimize effects on known cultural resources would have reduced mitigation costs. For unknown resources, measures can be implemented to minimize the potential for encountering buried cultural deposits including inventories, historical research, pedestrian surveys, and subsurface investigations prior to construction.

Recreational Resources

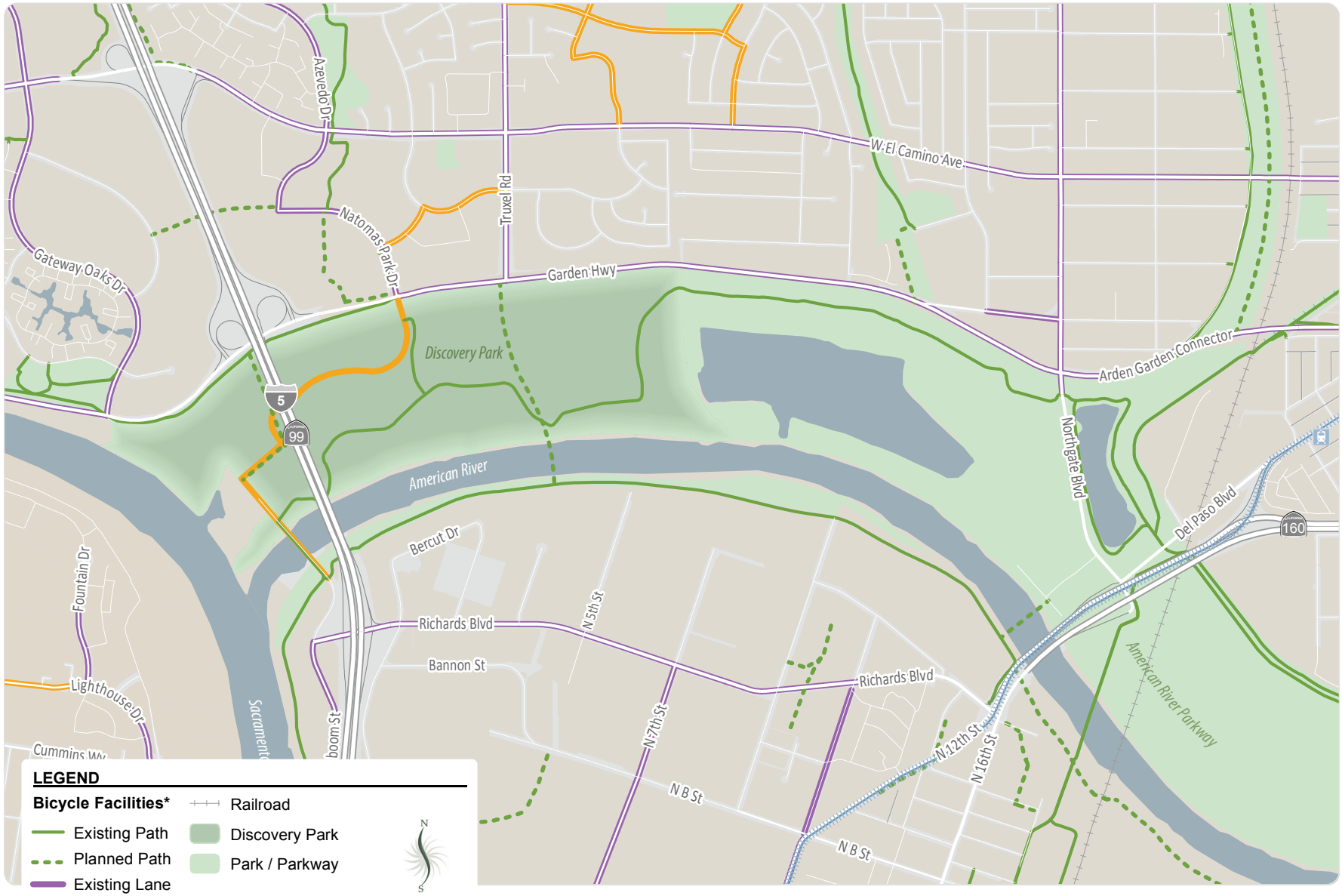
The study area includes several public recreational areas, trails and parkways and smaller parks, and school playgrounds (Figure 3). Any new crossing would bisect the American River Parkway and could convert recreational land to non-recreational use, change access to existing recreational areas, and add a source of noise to the Parkway. Although complete avoidance of recreational resources in the American River Parkway is not feasible, these effects can be minimized by selecting alignments and project design options that reduce the conversion of recreational land to non-recreational uses or that provide additional opportunities for improved public access to the Parkway as well as alternate and more local access routes to parks and other recreational sites north and south of the river.

Noise

Noise-sensitive land uses within the study area primarily include residential and recreational areas north of the American River. Several commercial lodging facilities located along Bercut Drive and a school and residential area at the east end of Richards Boulevard are located south of the river.

Noise impacts and the need for abatement or mitigation would occur with any new bridge and possibly with the modification of an existing bridge. Impacts can be minimized by locating any new bridge as far as possible from noise-sensitive uses. Bridge connections extending from Sequoia Pacific Boulevard, North 5th Street, North 7th Street, and North 10th Street would minimize impacts on noise-sensitive land uses south of the river. North of the river, connections made to the Garden Highway west of Truxel Road would have less potential for affecting residential uses. All potential crossings would have noise effects on Discovery Park and the river users (i.e., there would be no optimal location for minimizing these types of noise effects).

Besides locating the new bridge as far as possible from noise-sensitive uses, the most common approach to reducing bridge-related noise impacts is to construct a solid barrier between the source and adjacent noise-sensitive uses. Other options for noise reduction include the use of "open-graded asphalt or rubberized asphalt. If the project includes light rail on the new bridge, there are also measures available for reducing light rail train noise at the source and include the use of resilient or damped wheels, vehicle skirts, undercar absorption, wheel truing, and rail grinding.



* All planned roadways will feature either a bicycle lane or route.

AMERICAN RIVER CROSSING
Alternatives Study

PUBLIC RECREATIONAL RESOURCES

FIGURE 5

Visual Resources

A new bridge (or modification of an existing bridge) of the American River would involve permanent visual changes such as aerial structures. Additional visual changes related to the bridge approaches, lighting, and features may also occur. Aerial structures would represent the greatest visual change, especially for scenic views from the American River Parkway, including the Jedediah Smith Memorial Bicycle Trail, pedestrian and equestrian trails on both the north and south sides of the river, and boaters. The structure would also be a source of new shade and shadows that could adversely affect existing vegetation. On the other hand, a new bridge would provide new aerial views of the Parkway and river for pedestrian and bicycle users using the new bridge.

Options for mitigation include reducing the overall bridge structure width through shared lanes, using treatments for the final design of retaining walls, bridges, barriers, and other hardscape or landscape elements. Daytime glare reduction design techniques and reduction of nighttime light glare and intrusion by using downward-directed and fully-shielded lighting would also help reduce visual effects.

PHYSICAL CONSTRAINTS

Physical constraints typically include natural and man-made features that could influence the design and construction of a new bridge or modifications to an existing bridge. For this study, engineering design standards have similar effects so they are also included as potential physical constraints. After reviewing various physical constraints, four categories stood out as having the greatest potential influence on project alternatives. These include design standards, levees, existing utilities, and the existing and planned transportation network.

Design Standards

Numerous design standards will govern the construction of a new bridge or modification of an existing bridge. The key design standards for this alternatives study includes grades, vertical elevation, and bridge parameters as summarized below (for more detailed information see Appendix B).

Grades

Maximum and desired grades that would apply for a new or modified bridge include the following.

- Vehicle Approaches - Caltrans' Highway Design Manual allows a maximum grade of 6% for Urban Highways and 3% for Expressways. AASHTO allows between 7% and 12% for a 30 mph design speed of a roadway.

- LRT or Streetcar Approaches - Sacramento Regional Transit's (RT) Sacramento Light Rail Design Criteria (1993 with 2009 revisions), Section 4.2, lists desirable max grade for mainline track at 3.5%, with max of 5.0% not to be exceeded without RT PM permission, and an absolute max of 7.0%.

- ADA Standards - The Americans with Disabilities Act (ADA) provides design standards to ensure pedestrians and people with disabilities can safely access facilities open to the public.

The maximum grade allowed for a sidewalk or path is 8.33% for a distance of 30 feet. This accommodates a rise of 30 inches at the maximum grade. For every 30 inches of rise, a 5-foot long level landing is required.

- California Building Code (Title 24) as interpreted for roadway design by Caltrans in Design Information Bulletin 82-04 includes accessibility requirements applicable in California. One such additional requirement is that a sustained running grade exceeding 2% requires a level landing every 400 feet.

- Bicycle/Pedestrian Approaches - There are a number of resources that provide guidelines for pedestrian and bicycle facilities, including the Caltrans Highway Design Manual and the AASHTO Guide for the Development of Bicycle Facilities (both substantially updated in 2012) and Caltrans Design Information Bulletin 82-04. The current consensus for the design of bike/pedestrian facilities is the maximum slope should be 5% with level landings every 400 feet.

- Pedestrian Access Route- According to the Proposed Guidelines for Public Rights of Way (US Access Board, 2011), for a pedestrian access route contained within a street or highway right-of-way, its grade shall not exceed the general grade established for the adjacent street or highway. This standard applies to a crossing where the walkway is part of the bridge.

- Sidewalk Profile- City of Sacramento design standards provide guidelines for the design of sidewalks and the maximum grade for a sidewalk is 5%, except as noted above for sidewalks attached to overcrossings.

Based on this information, the study will use 5 percent maximum grades with level landings every 400 feet to assess alternatives.

Elevations

One of the more significant design standards will be the minimum vertical height elevation to avoid high American River flows. At a minimum, bridge heights would be similar to the Jibboom and I-5 bridges shown in the picture below.

Source: Parnoramic @mykaero

Constraints and Opportunities

The final bridge height will be determined based on the following information.

- The existing I-5 Bridge is a fixed bridge and is the first fixed obstacle upstream of the mouth of the American River. The low chord of the bridge is 39 feet above the mean high water level and should be the minimum height of any proposed crossing over the American River. The minimum elevation of a crossing over the American River was discussed with the U.S. Coast Guard who indicated that the existing conditions or openings must be maintained or exceeded with new crossings. Since the I-5 Bridge is the first crossing of the American River, all proposed crossings will at least match the I-5 Bridge's minimum clearance above the mean high water level.

- Many changes have occurred in the freeboard requirements for rivers and streams regulated by the U.S. Army Corps of Engineers (USACE) over the past few years. Freeboard is the distance measured between the lowest member of the bridge span and the design water surface elevation.

    - USACE freeboard requirements: 3 feet above the 200-year water surface elevation.

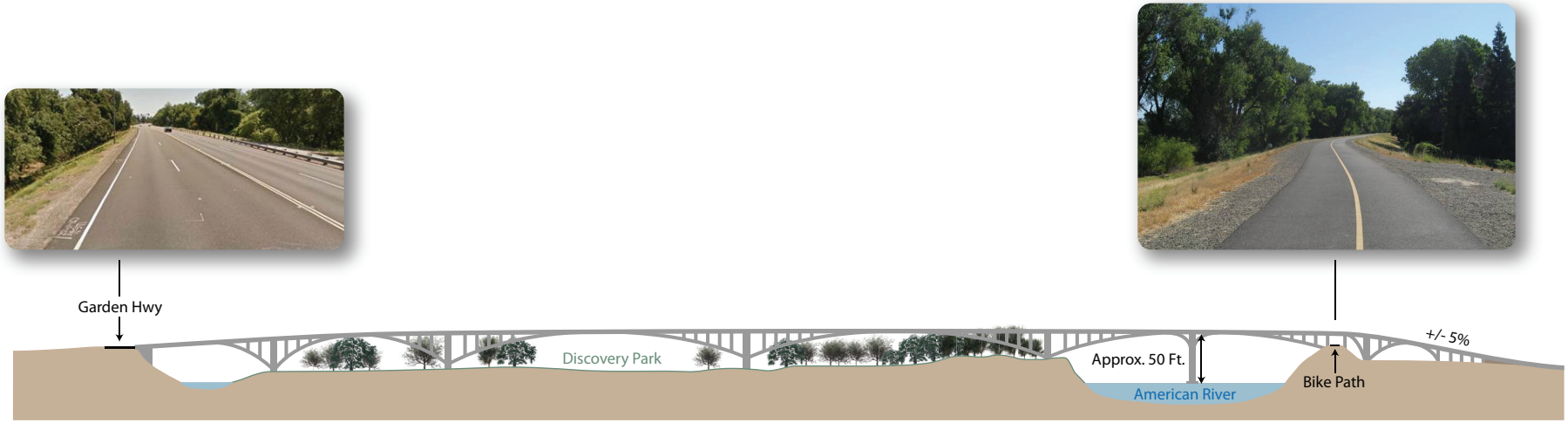
The USACE requirements will be used to evaluate the study alternatives.

Bridge Design Parameters

One other bridge design parameter that is important for the alternatives evaluation will be the number and placement of columns supporting the bridge. To maintain an adequate height across the river and through the Parkway will likely require the construction of multiple columns in the river and within the Parkway An example is shown in the picture below of the I-5 bridge across the American River.

Both the I-5 Viaduct and the Jibboom Street Bridge use piers in the American River

Figure 4 also shows a sample sketch profile for a bridge crossing through the Parkway to help visualize the extent of potential columns.



OPTION 1

OPTION 2

BRIDGE PROFILE AND LEVEE CROSSINGS

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Alternatives Study

Constraints and Opportunities

Levees

On the north side of the River, a new crossing would connect to Garden Highway, which is directly on top of the levee (see Figure 4). Levees on both sides of the river are federal levees and the Parkway itself is a designated floodway. Any disturbance of the levee or Parkway could be a significant issue and special care and coordination with responsible federal, state, and regional flood control agencies will be necessary.

The connection on the south side of the River may need to pass over the top of the levee given the existing bike path, which would require a minimum vertical separation of 10 feet. This separation would increase the bridge approach length before reaching the grade of existing connecting roadways. Figure 4 also shows this effect and provides an example of an alternative treatment that could help lower the vertical height thereby reducing the distance it takes for the bridge approach to reach grade. This treatment would be similar to how the current bike path crosses under I-5.

Existing Utilities

Construction in built environments is often complicated by existing utilities such as under- or above-ground pipes, telecommunications lines, and electric lines. Within the study area, numerous above-ground and underground utilities exist, as shown in Figure 5, that could influence construction of a new bridge or modification of existing bridge. Both above-ground and underground utilities can pose significant construction constraints due to the disruption involved with their modification or movement, especially larger transmission towers such as that shown below.

Existing and Planned Transportation Network

Figure 6 displays the existing and planned roadway network in the study area. The network limits the potential crossing locations because of the lack of logical connections to existing or planned roadways that would be appropriate for conveying traffic (cars, buses, trucks, bicyclists, and pedestrians) to and from a new bridge. For example, many existing roadways in the study area were not planned or designed in anticipation of a future bridge.

Transmission Tower

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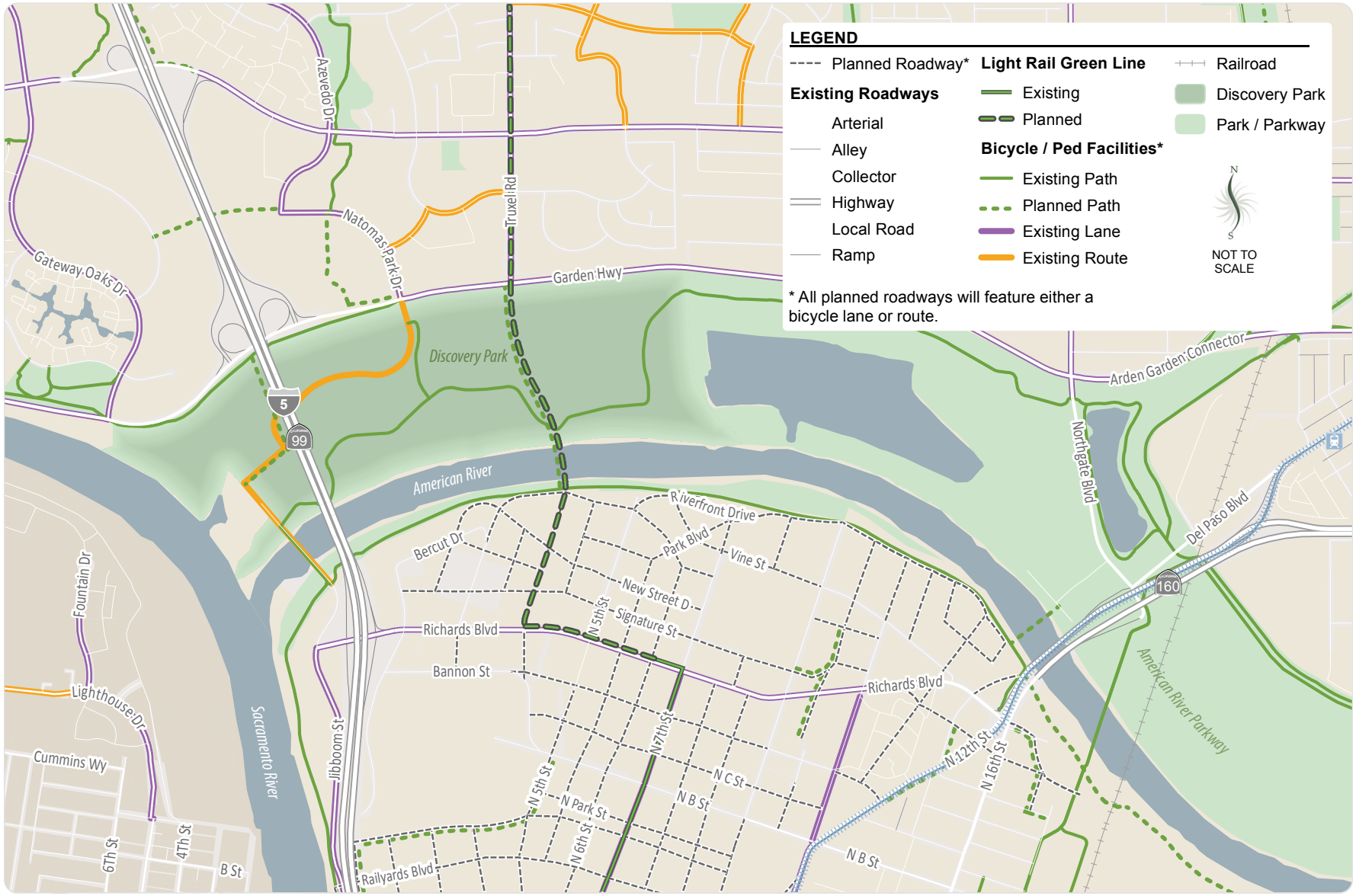
EXISTING UTILITIES

FIGURE 5



EXISTING AND PLANNED TRANSPORTATION SYSTEM

FIGURE 6

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LAND USE CONSTRAINTS

Land uses present constraints when the use is regulated by government agencies, involves sensitive populations, contains significant infrastructure, or involves activities that could be disrupted or adversely affected by a new bridge or modification of an existing bridge. Figure 7 shows land uses within the study area that fall into these categories, which are also discussed below.

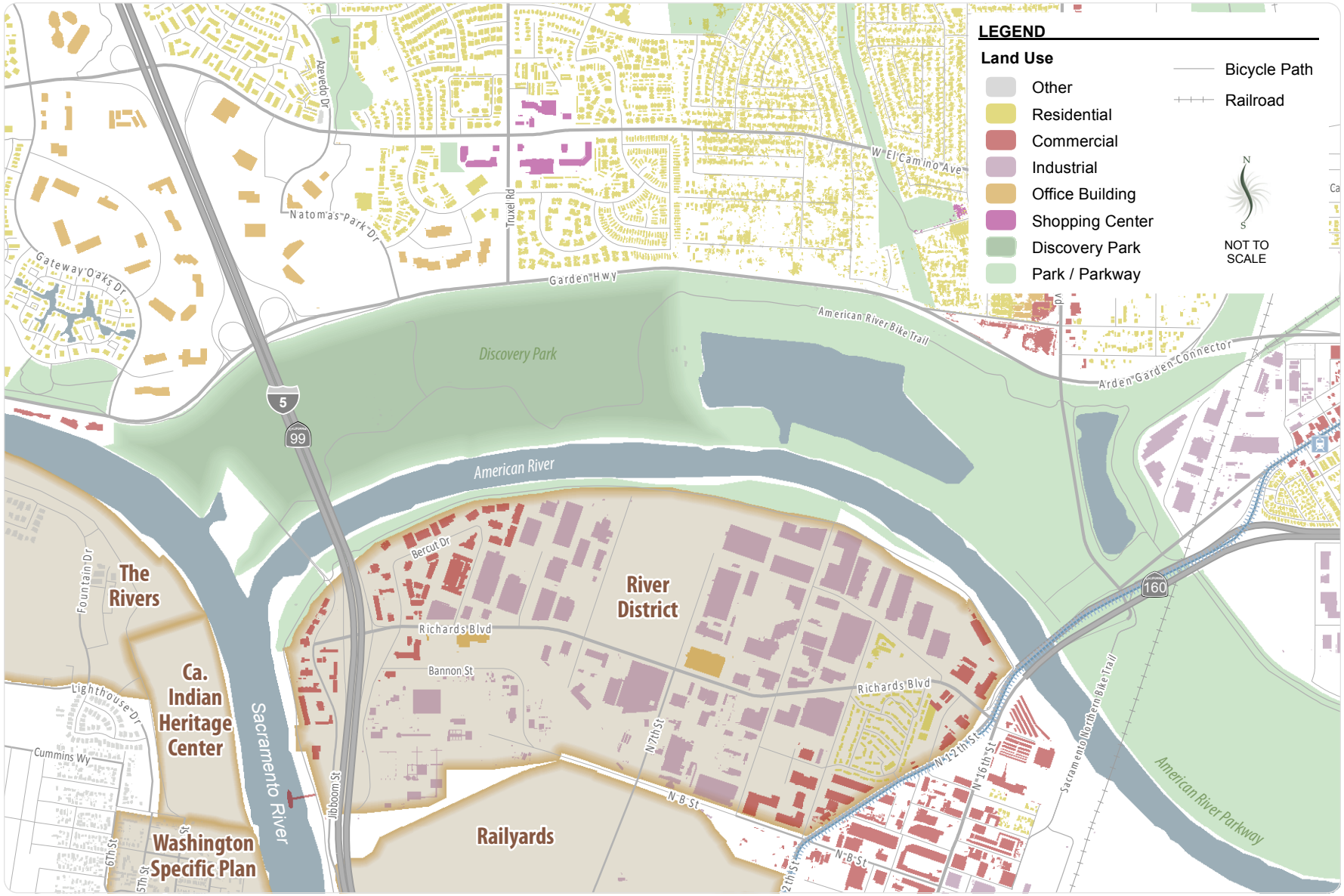
- Commercial/office/industrial land uses – Includes established businesses with significant infrastructure, such as large multi-story buildings.

- Recreational parks and facilities – Includes State and local parks or parkways such as the American River Parkway, Discovery Park, the American River Bike Trail, and the Two Rivers Bike Trail. The American River Parkway is a particular constraint because any modification of the *American River Parkway Plan* (2008) to accommodate new or modified crossings of the River will require approval by the City of Sacramento, County of Sacramento, and the State legislature.

- Residential communities and neighborhoods such as South Natomas – Includes single family and multiple family households, which tend to be sensitive to traffic pattern changes.

- Approved development projects including the Railyards, the River District, and Township Nine – Includes entitled but not yet completed development projects that could be affected by a new bridge directly (i.e., right-of-way take) or indirectly due to traffic pattern changes.

Additional land use constraints occur in the form of the extensive existing built environment on both sides of the river. Limited vacant land exists through much of the study area as shown in the aerial photograph in Figure 8.



LAND USE CONSTRAINTS

FIGURE 7

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Alternatives Study

AERIAL IMAGE

FIGURE 8

OPPORTUNITIES

The constraints presented in this technical memorandum along with the following information helped to narrow the potential opportunities for new or modified bridge crossings of American River within the study area.

- Draft Purpose and Need Statement
- Community Values
- Stakeholder Input

Each of these items is described in more detail below followed by a summary of the potential crossing opportunities that emerged from the preliminary screening.

Draft Purpose and Need Statement

The draft pupose and need statement is contained in Table 1 on the following page. This statement has already been modified multiple times during the study process and will continue to be refined through the study as the stakeholders and project team work through key issues. This version reflects key changes based on project team and stakeholder input. Potential crossing improvement options are required to be consistent with this statement. Included with this statement is a consistency evaluation of the purpose objectives with adopted plans. The adopted plans are listed below.

- **GP** = *Sacramento 2030 General Plan*, City of Sacramento, 2009
- **MTP** = *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035*, SACOG, 2012
- **RD** = *River District Specific Plan*, City of Sacramento, 2010
- **RT DNA** = *Downtown/Natomas/Airport (DNA) Green Line to the Airport, Draft Transitional Analysis Report*, RT, 2010
- **RY** = *Sacramento Railyards Specific Plan*, City of Sacramento 2007
- **ARPP** = *American River Parkway Plan*, Sacrameto County, 2008

Determining consistency is not an exact science since each plan contains numerous goals, policies, and plan elements. Further, formal consistency determinations for the City of Sacramento can only be made by the City Council. So the consistency evaluation for the purposes of this study used a 'yes' designation to indicate that the purpose objectives are largely consistent with the adopted plan and no changes to the plan are likely. The 'no' designation indicates there is a clear inconsistency that would require a plan amendment while a 'maybe' designation indicates the possibility that a plan modification or amendment could be necessary.

TABLE 1

DRAFT PURPOSE AND NEED STATEMENT

NEED: The proposed action is needed for the reasons listed below.	**PURPOSE: The proposed action is intended to achieve the following objectives.**	**Consistency with Adopted Plans: The purpose objective is consistent with adopted plans.**					
		GP	**RD**	**RY**	**MTP**	**RT DNA**	**ARPP**
1) Limited connectivity across the American River creates a barrier to economic activity, land use development, social exchanges, and access to jobs within the Central City and South Natomas. The barrier causes longer trip lengths between origins and destinations that are physically close, which discourages walking and bicycling, reduces public health, creates inefficient transit routing, consumes more fuel, and generates higher levels of air pollutants and Greenhouse gas (GHG) emissions due to the reliance on automobiles.	1A) Add bridge capacity across the American River that reduces travel distances for motorists, bicyclists, pedestrians, and public transit between the Central City and South Natomas to minimize the growth in vehicle miles of travel (VMT), air pollutants, and GHG emissions. 1B) Minimize the growth in vehicle traffic on nearby residential streets caused by trips with either origins or destinations outside of the Central City and South Natomas accessing any new or modified bridge of the American River.	Yes	Yes	Yes	Yes	Maybe	No
2) Limited connectivity across the American River contributes to peak period travel delays on I-5.	2) Add bridge capacity with the primary function of providing local connectivity between the Central City and South Natomas to reduce the overall reliance of local trips on state facilities.	Yes	Yes	Yes	Yes	Yes	Yes
3) Limited connectivity across the American River contributes to longer emergency response times and limits evacuation alternatives.	3) Add bridge capacity that increases options for evacuations and emergency/disaster response for the Central City and South Natomas.	Yes	Yes	Yes	Yes	Yes	Yes
4) Limited connectivity across the American River creates a barrier to recreational opportunities within the American River Parkway.	4) Improve recreational access to the American River Parkway as part of any bridge capacity improvements.	Yes	Yes	Yes	Yes	Yes	Yes

Constraints and Opportunities

Community Values

Community values from adopted plans and expressed by stakeholders provide a framework for developing potential alternatives. Several adopted plans are relevant to a new or modified crossing of the American River within the study area.

- *Sacramento 2030 General Plan*. City of Sacramento, 2009.
- *River District Specific Plan*. City of Sacramento, 2011.
- *Sacramento Railyards Specific Plan*. Design, Community & Environment and City of Sacramento. 2007.
- *The 2010 Sacramento City/County Bikeway Master Plan*. County of Sacramento and City of Sacramento. 1995.
- *Pedestrian Master Plan*. City of Sacramento. 2006.
- *American River Parkway Plan*. County of Sacramento. 2008.
- *Metropolitan Transportation Plan/Sustainable Communities Strategy*. Sacramento Area Council of Governments. 2012.

Note: In April 2011, Sacramento County adopted a new Bicycle Master Plan. The 2010 Sacramento City/County Bikeway Master Plan still serves as the adopted Bikeway Master Plan for the City.

Each of these plans includes goals, principles, objectives, or policies that reflect community values. Appendix C includes policy language the project team identified as relevant to new or modified crossings of the American River within the study area. In general, the following community values are expressed by these policies:

- An accessible riverfront that preserves open space, provides opportunities for recreation, and integrates with the Central City environment.
- The preservation of visual resources and the creation of views that complement the natural environment.
- A high-quality built environment, created by development that minimizes negative environmental impacts.
- Well-connected corridors that complement the grid network of the Central City.
- An efficient, multimodal transportation system that offers residents and visitors transportation choices and provides access to destinations.
    - A redundant transportation network that eliminates barriers and reduces gaps for all modes of transportation, including vehicles, transit, walking, and bicycling.
    - Transportation infrastructure that appropriately accommodates walking and biking.
    - High-quality transit, including the extension of light rail to Sacramento International Airport.
    - Transportation infrastructure that supports infill and economic development.

During the first Stakeholder meeting on June 28, 2012, shareholder representatives were asked to share their community values. This input was obtained during an exercise where the participants identified their values based on what they wanted to create, preserve, or avoid as part of the project.

A complete listing of the stakeholder input is contained in Appendix D while the following summarizes key themes taken from this input.

Create

- Easy access between South Natomas and the Central City
- Connections for multiple modes
- Aesthetically pleasing bridge
- Parkway access
- Educational opportunities

Preserve

- Parkway habitat, open space, natural resources,and recreational facilities
- Parkway visual quality
- Flood protection

Avoid

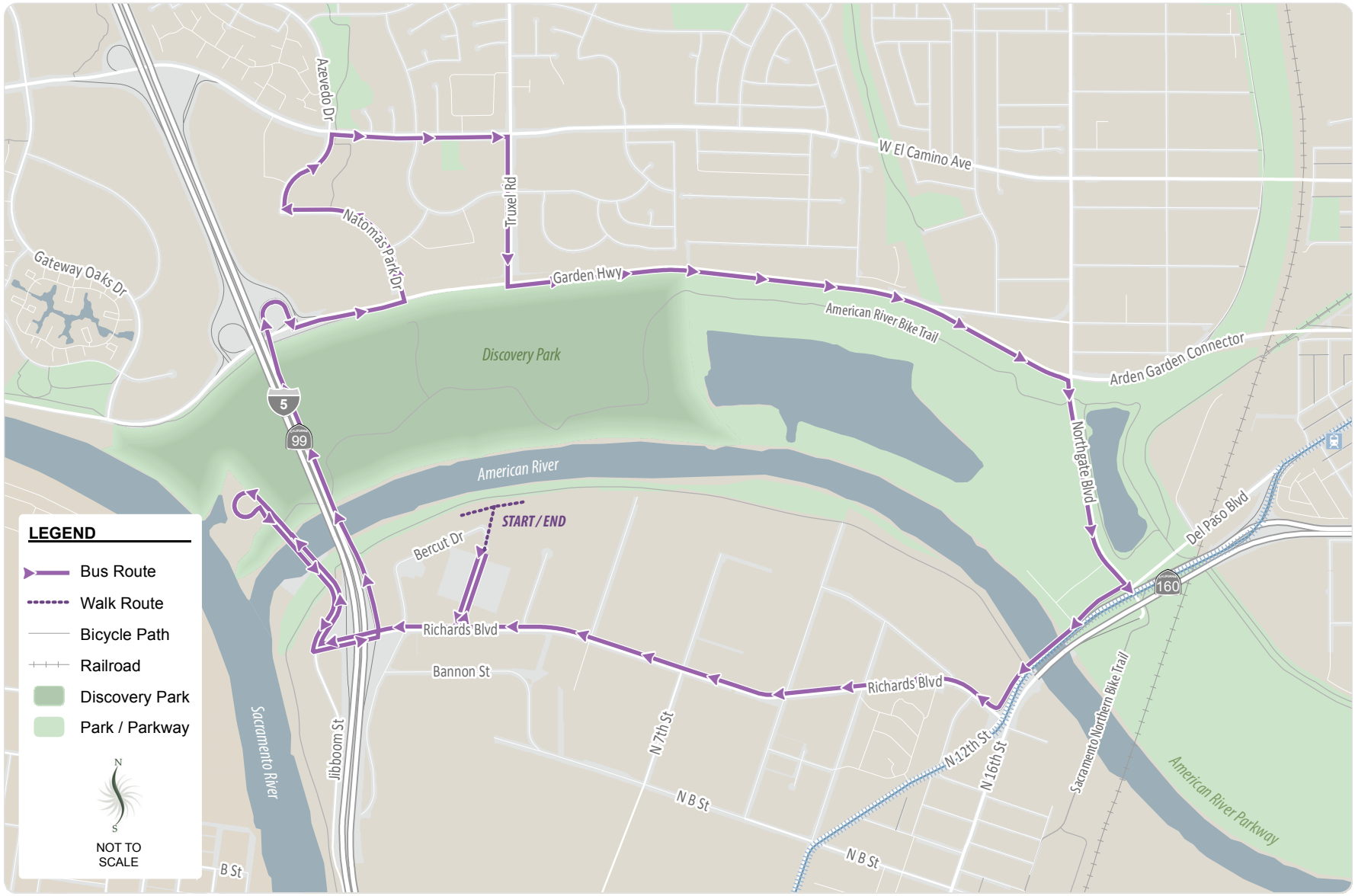
- Environmental /natural resource impacts
- Disrupting neighborhoods
- Ugly bridges
- Undesirable traffic conditions (too much traffic on local streets)
- Ineffective project development process

Input from the Stakeholder Site Tour

On July 25th, 29 stakeholder representatives attended a site tour (see route map in Figure 9) that included a bus ride around the study area and a walking trip onto a portion of the south levee. The following are the key themes from initial stakeholder input from the site tour related to constraints and opportunities.

Constraints

- Desire by some stakeholders to preserve the Parkway in its current form without any disruption or degradation.
- Environmental and cultural resources of the Parkway.
- Visual impact sensitivity in the Parkway.
- Sensitive land uses such as homes and apartments.
- Potential need to displace businesses.
- Crossing the south levee without disrupting the American River bike trail, which is the "spine" of the bike trail system.
- Requirement to amend the American River Parkway Plan and Discovery Park.



AMERICAN RIVER CROSSING
Alternatives Study

SITE TOUR ROUTE

FIGURE 9

Opportunities

- A new crossing could reduce traffic delays on I-5 by either diverting local trips off the freeway and onto the new bridge or making it viable to walk or bicycle between South Natomas and the Central City. This also aids in emergency responses or evacuations.

- Crossing the American River would be improved by eliminating the flooding of Northgate Boulevard at SR 160 that occurs during winter months.[1]

- A new crossing could improve access to the American River Parkway, which would make it a less desirable area for illegal activities due to the presence of more people.

- Sequoia Pacific Boulevard (on the south side of the American River) is one option for connecting a new bridge with Truxel Road on the north.

- A new crossing could be an iconic destination.

- A new crossing could improve American River Parkway bicycle and pedestrian access on the north side of the river while increasing activity in the study area that would benefit local businesses.

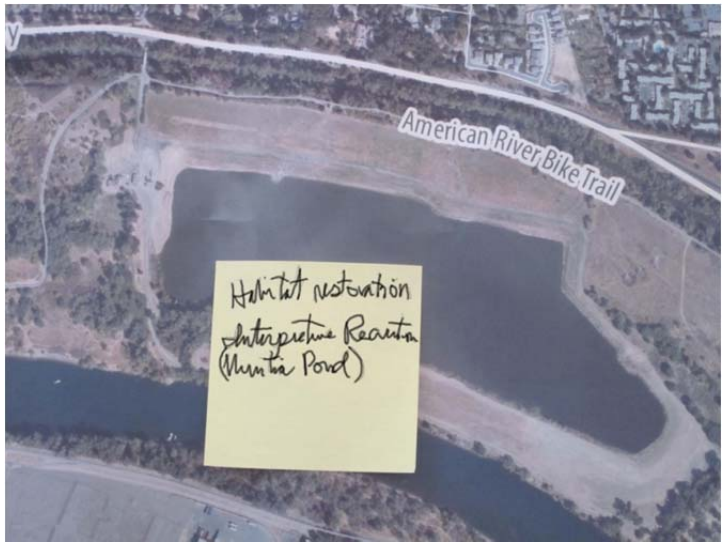
- A new crossing would benefit the planned development in the River District and Railyards by improving the existing accessibility of this area.

[1] The City of Sacramento has conducted multiple studies for an all-weather Northgate Boulevard. These studies will be re-evaluated as part of this study for feasibility. The previous studies will also be posted to the project website.

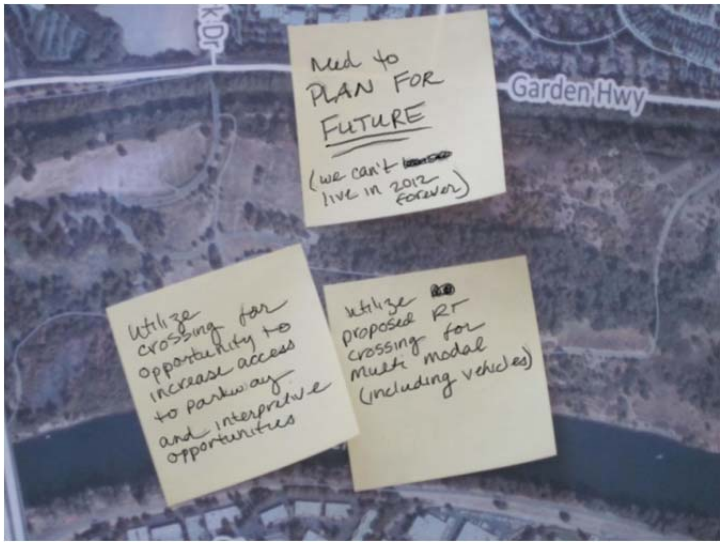
Constraints and Opportunities

Input from the Second Stakeholder Meeting

On September 13th, 2012, the stakeholder representatives attended their second formal meeting. They provided comments on the purpose and need statement, constraints, and opportunities. Comments on the constraints and opportunities were noted directly on drafts of the maps contained in this memorandum. Samples of the types of comments that were provided are shown on this page. Comments covered a wide range of topics including environmental issues or concerns, infrastructure, flood control, bikeway plans, and crossing opportunities. This input was used by the project team to finalize the contents of this technical memorandum and to help determine the location of potential crossing alternatives discussed in the next section.



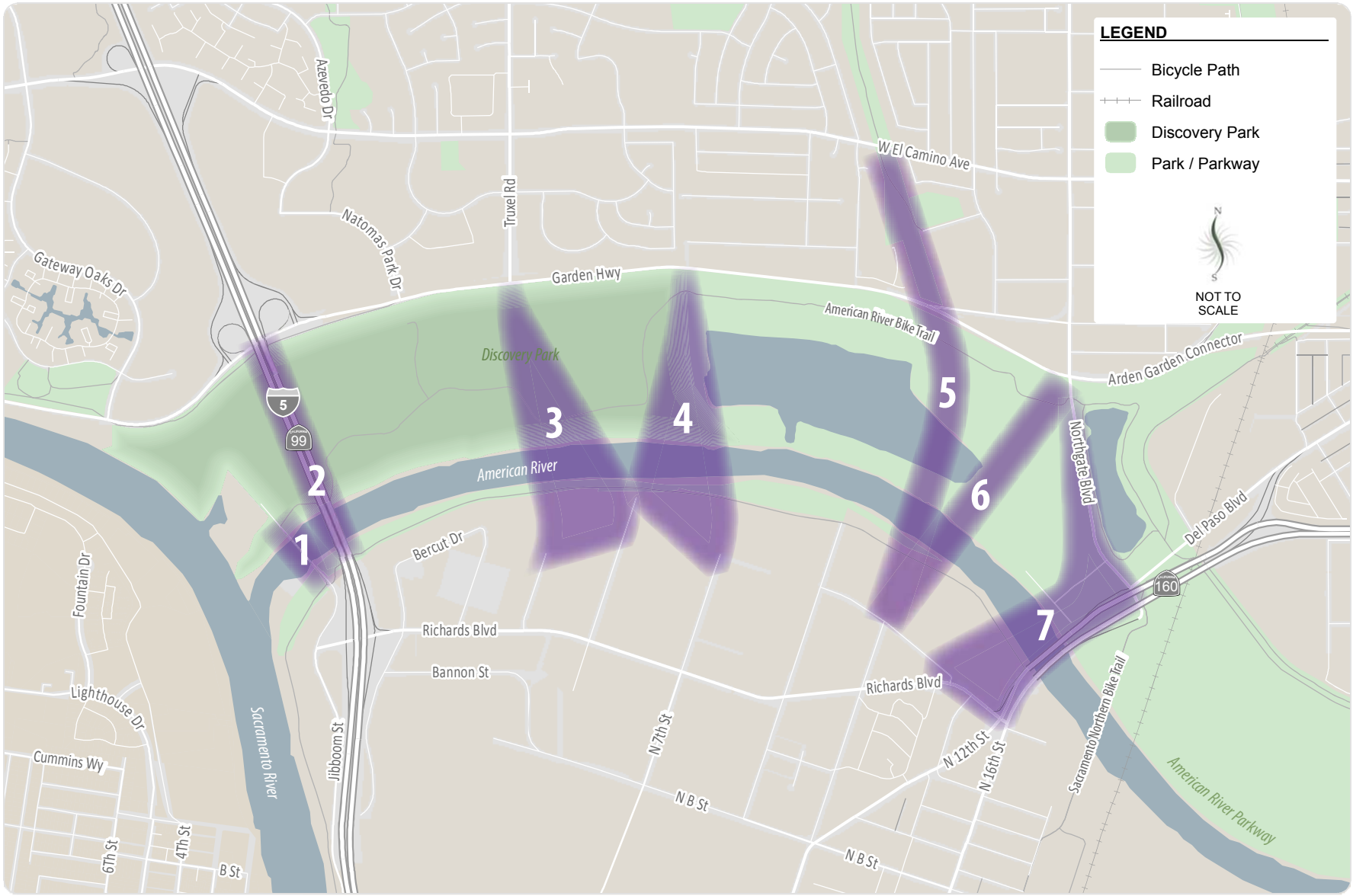
Constraint Comment About Habitat Restoration



Opportunity Comments Related to a New Bridge

Potential Crossing Alternatives

Based on the information presented in this technical memorandum, the project team was able to identify the following seven crossing alternatives within the study area as shown in Figure 10. These locations offer opportunities to modify existing bridges, construct a new bridge, or modify a planned bridge.


LEGEND
Bicycle Path
Railroad
Discovery Park
Park / Parkway
N
S
NOT TO SCALE
Azevedo Dr
Truxel Rd
W El Camino Ave
Natomas Park Dr
Gateway Oaks Dr
Garden Hwy
American River Bike Trail
Discovery Park
Arden Garden Connector
5
99
3
4
5
American River
2
6
Northgate Blvd
1
Bercut Dr
Del Paso Blvd
160
Fountain Dr
7
Richards Blvd
Bannon St
Richards Blvd
Lighthouse Dr
Sacramento Northern Bike Trail
Sacramento River
Jibboom St
N 7th St
N 12th St
N 16th St
Cummins Wy
N B St
American River Parkway
6Th St
4Th St
B St
N B St

Constraints and Opportunities

- Location 1 – This location focuses on improving the existing Jibboom Street bridge to provide complete facilities for pedestrians and bicyclists. The current bridge has narrow sidewalks and travel lanes. Bicyclists must either share the sidewalk or vehicle travel lane and there is little room to pass. Further, the southbound sidewalk on the bridge is closed to pedestrians and in need of repair. Being on the western edge of the study area, this bridge is closest to recreational activity at Discovery Park but would not directly connect significant residential or business activity centers.

- Location 2 – This location focuses on modifying the existing I-5 bridge to add bicycle and pedestrian facilities if possible. This improvement would would provide an all-weather connection across the American River wtihin the study area. This location is similar to Location 1 in terms of surrouding land uses and activity centers although locating the new facility on the east side of the I-5 northbound bridge would be somewhat closer to activity generators in the River District and major office buildings in south Natomas.

- Location 3 – This location focuses on creating a new multi-modal bridge between Truxel Road and roadways such as Sequoia Pacific Boulevard or 5th Street on the south side of the River. RT has already identified a locally preferred route for the Green Line extension to the Airport that would require a new bridge between Truxel Road and Sequoia Pacific Boulevard. This bridge is already included in the RTP/SCS and would include a single LRT track on half of the bridge and a bicycle and pedestrian path on the other half of the bridge. The opportunity at this location would be to add vehicles to this bridge. The current Green Line terminal station is located just west of the 7th Street intersection with Richards Boulevard. Truxel Road is a major roadway through South and North Natomas with numerous activity generators located along it. Sequoia Pacific Boulevard and 5th Street provide access into the central River District area and further into the Railyards and the Central City.

- Location 4 – This location focuses on creating a new multi-modal bridge about 1,500 feet east of Truxel Road that would 'tee' into Garden Higway and then connect to 5th or 7th Street. This is one of the more central locations within the study area connecting both existing and planned activity centers south of the River in the River District, Railyards, and the Central City. On the north side of the River, the intersection with Garden Highway would occur near existing homes while major activity generators are located more than a ½ mile away.

- Location 5 – This location focuses on creating a new multi-modal bridge that would connect 10th Street and Garden Highway plus an extension of a new roadway north to W. El Camino Avenue or possibly to San Juan Road. The alignment would follow the Ueda Parkway Bike Trail, which runs north-south within a utility transmission line right-of-way. Any new roadway in this section would try to avoid the transmission line towers and include reconstruction of the bike path if it was disrupted by the road construction. The northern terminus of the new roadway approach to the bridge would be determined based on transportation analysis and the goal to balance traffic distribution of bridge users.

- Location 6 – This location focuses on creating a new multi-modal bridge that would connect 10th Street and Northgate Boulevard or the Arden Garden Connector. This bridge would alleviate the problem of Northgate flooding while also providing relatively direct access between activity generators on both sides of the river.

- Location 7 –This location focuses on upgrading Northgate Boulevard and SR 160 such that it would no longer be subject to seasonal flooding. Improvements would be for vehicles, pedestrians, and bicyclists and would likely require a complete reconstruction of the Northgate Boulevard/SR 160 interchange. The SR 160 bridge would also be upgraded to better accommodate pedestrians and bicyclists. Currently, a narrow sidewalk on the southbound bridge is the only facility for pedestrians and bicyclists (see photo below).

Existing Sidewalk on SB SR 160

After review by the stakeholders, these crossing location opportunities will go through additional review and refinement by the project team to identify specific crossing connections and types to be carried forward into the evaluation phase of the study.

Appendix A – Environmental Constraints Memo

Memorandum

Date:	August 16, 2012
To:	Ronald Milam Fehr & Peers 2990 Lava Ridge Court, Suite 200 Roseville, CA 95661
From:	Claire Bromund Project Manager
Subject:	**City of Sacramento American River Crossing Environmental Constraints and Opportunities**

Introduction

The purpose of this memorandum is to provide a description of environmental constraints and opportunities for new crossings of the American River between Interstate 5 (I-5) and State Route (SR) 160 north of downtown Sacramento. This memorandum will be incorporated into the American River Crossings Alternatives Study for the City of Sacramento to assist with the evaluation of alternatives.

Study Area

The study area for the environmental constraints and opportunities identified in this memorandum is the area between I-5 and SR 160, and approximately north of Richards Boulevard and south of West El Camino Avenue (Figure 1**{** TC "Figure 1" \f F \l "1" **}**). Within this area are residential neighborhoods; commercial and industrial properties; a former sand and gravel mine (now a pond); recreational resources such as a segment of the American River Parkway that includes Discovery Park, an archery range, picnic areas, boat ramps for river access, and bicycle, pedestrian and equestrian trails; and Camp Pollock, a camp operated by the Boy Scouts of America. The most prominent and substantial environmental features in the study area are the American River and the riparian habitat associated with it.

Background

The American River originates in the Sierra Nevada mountain range just west of Lake Tahoe, in the Tahoe and El Dorado National Forests. The river flows from the mountains to the Sierra foothills, through the eastern Sacramento metropolitan area, and into the Sacramento River just northwest of downtown Sacramento. The Sacramento River joins the San Joaquin River, creating the Sacramento River Delta, which empties into the Pacific Ocean through San Francisco Bay.

The American River's three main forks—the South, Middle and North—converge east of Sacramento. The confluence of the North and the Middle Forks is near Auburn; the combined fork then flows into Folsom Lake. The South Fork also flows into Folsom Lake. A short distance downstream of Folsom Dam, Nimbus Dam forms Lake Natoma. Lake Natoma is a regulating reservoir for releases from Folsom Lake.

The 23-mile lower reach of the river downstream of Nimbus Dam (near Hazel Avenue) is known as the lower American River. The lower American River corridor provides important habitat for resident and migratory fish and wildlife species, a high-quality water source for the local community and the region, a critical floodway for the Sacramento area, and a spectacular regional recreation parkway (Lower American River Task Force 2002).

The lower American River is the most heavily used recreation river in California (National Wild and Scenic Rivers System 2012). Because of the parkway's natural beauty, proximity to an urban population, and recreational values, the American River has been designated as "recreational river" in both the federal and state wild and scenic river systems, and the Parkway's trail system has been designated a "National Recreational Trail" (Lower American River Task Force 2002).

The beneficial uses of the lower American River—particularly its support of fish and wildlife resources—have suffered as a result of historical modifications to the American River watershed and the physical and operational constraints currently imposed on the river. (Lower American River Task Force 2002.) The American River historically supported numerous fish species, including spring- and fall-run Chinook salmon, with annual runs possibly exceeding 100,000 fish, and summer-, fall-, and winter-run steelhead. These species had access to more than 125 miles of habitat in the upper reaches of the American River Basin (Lower American River Task Force 2002).

Before 1800 and the advent of settlement of the area by nonindigenous peoples, the Nisenan, Southern Maidu, and Patwin were the only human inhabitants of the lower American River floodplain. The native inhabitants occupied the floodplain seasonally, relying on its abundant resources for their survival, but their use of the river and its resources did not result in significant changes to the physical environment (Lower American River Task Force 2002).

Before 1850, riparian vegetation formed extensive, continuous forests in the lower American River's floodplain, which in some places was 4 miles wide. The area supported an abundance of native vegetation and wildlife. Grizzly bear and black bear were common because of the abundance of food sources (Lower American River Task Force 2002).

Since 1850, settlement of the floodplain by nonindigenous peoples, and the resulting modifications of the physical processes shaping the river and its floodplain, have drastically altered the habitats along the lower American River. Modifications included the removal of trees for

construction and firewood, conversion of riparian areas to agricultural fields, the effects on the river from hydraulic gold mining in the North and Middle Forks, moving the mouth of the river 0.5 mile north to its present location, and construction of several dams upstream (Lower American River Task Force 2002).

Environmental Constraints

The biological and cultural resources within the study area are protected as part of the public trust, and any activities affecting these resources are subject to the requirements of federal and state laws; therefore, this environmental constraints study focuses on the constraints these resources would pose to any new crossing of the American River.

This study also discusses constraints and opportunities related to potential changes in noise levels, effects on recreational resources, and visual changes that could result from a new crossing of the river.

Regulatory Environment

Tables 1 through 3 outline the primary federal, state, and regional laws, regulations, and plans protecting resources that occur in the study area. Attachment A contains brief discussions of key regulations. Additional protections not listed here may be afforded by local laws and regulations, such as tree preservation ordinances or local heritage programs.

Noted separately in Table 1 are regulations included because the new river crossing could be implemented using funding from a federal source, such as the Federal Highway Administration.

Table 1. Potential Federal Regulatory Requirements

Regulation	Regulatory Agency	Permit/Agreement/Authorization
Clean Water Act Section 404 (33 USC 1344)*	U.S. Army Corps of Engineers (USACE), Sacramento District	Section 404 permit for discharges of dredged or fill material into waters of the United States, including wetlands—Surface area of fill material (e.g., bridge columns and scour protection) below the ordinary high water mark [OHWM] must be under a 1/3 acre to meet Nationwide Permit (NWP) conditions, or under 1 acre to potentially qualify for a letter of permission from USACE—Project must demonstrate avoidance and minimization of impacts on waters of the U.S. to extent feasible.

Regulation	Regulatory Agency	Permit/Agreement/Authorization
Clean Water Act Section 402 (33 USC 1311,1342)*	Central Valley Regional Water Quality Control Board (CVRWQCB)	National Pollutant Discharge Elimination System (NPDES) permit (General Construction Activity Storm Water permit) Section 402 NPDES permit for general construction activities affecting greater than 1 acre—BMPs must be incorporated into a SWPPP to protect surface waters from stormwater runoff.
Clean Water Act Section 401*	California State Water Resources Control Board, CVRWQCB	Water Quality Certification or Waiver for discharge of dredged or fill material into waters of the United States Section 401 Water Quality Certification—Best Management Practices (BMPs) must be incorporated to protect water quality pre and post construction
Rivers and Harbors Act, Section 10 (33 CFR 329.4)*	USACE, Sacramento District	Section 10 permit for construction of structures in, over, or under; excavation of material from; or deposition of material into navigable waters of the United States
Rivers and Harbors Act, Section 9, General Bridge Act (33 U.S.C. 401, 403, 406, 502)	U.S. Coast Guard	Section 9 bridge permit for construction of any bridge across navigable waters of the United States (includes American River) —Project cannot impede river navigation or boat traffic—Issuance of a permit is dependent on the project meeting Clean Water Act, Endangered Species Act (ESA), and National Environmental Policy Act (NEPA) requirements
Endangered Species Act (ESA) (16 USC 1531 et seq.)*	U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS)	Section 7 consultation and take authorization with Biological Opinion on valley elderberry longhorn beetle (VELB), Chinook salmon, Central Valley steelhead, and green sturgeon

Regulation	Regulatory Agency	Permit/Agreement/Authorization
Magnuson-Stevens Fishery Conservation and Management Act*	NMFS	Consultation with NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). Under the Magnuson-Stevens Act, effects on habitat managed under the Pacific Salmon Fishery Management Plan must also be considered.
Migratory Bird Treaty Act (MBTA)*	USFWS	Avoidance of take for unlisted migratory bird species, and take authorization for federally listed species via the federal ESA
National Historic Preservation Act Section 106 (16 USC 470 et seq.)	State Historic Preservation Officer (SHPO), Native American Heritage Commission	Consultation regarding findings of effect on listed resources/properties, or resources/properties eligible for listing in the National Register of Historic Places
Federal Executive Order 11988: Floodplain Management*	NEPA lead agency	Requires federal agencies to take action to reduce the risk of flood loss and restore and preserve the values of floodplains
Wild and Scenic Rivers Act (Public Law 90-542; 16 U.S.C. 1271 et seq.)	California Resources Agency	Consistency determination regarding whether the proposed project could have an adverse effect on the free-flowing characteristics of the river and whether the action could have the potential to alter the river segment's ability to meet the criteria that classify it as "recreational"
Land and Water Conservation Act, Section 6(f) (16 USC 460l-4 to 460l-11)	Department of the Interior–National Park Service	Requires that the conversion of lands or facilities acquired with Land and Water Conservation Act funds be coordinated with the Department of Interior. Usually replacement in kind is required. Discovery Park and the American River Parkway have used grants procured under the Act.

Regulation	Regulatory Agency	Permit/Agreement/Authorization
Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772)#	NEPA Lead Agency	The regulation specifies noise abatement criteria for a variety of land use types
Department of Transportation Act, Section 4(f) (23 CFR 774)#	Department of Transportation NEPA Lead Agency	Department of Transportation agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply: -There is no feasible and prudent alternative to the use of land. -The action includes all possible planning to minimize harm to the property resulting from use.

* Applicability depends on the location of project features in relationship to the American River, its ordinary high water mark, and/or specific habitat or other regulated features.

\# Applicability depends on whether funding from the Federal Department of Transportation is used.

Table 2. Potential State Regulatory Requirements

Regulation	Regulatory Agency	Permit/Agreement/Authorization
California Department of Fish and Game (DFG) Code Section 1601*	DFG -Sacramento Valley, Central Sierra Region (Region 2)	Streambed Alteration Agreement—work in stream zone restricted to May 1 to October 1
California Endangered Species Act (California Fish and Game Code Section 2080 et seq.)*	California Department of Fish and Game—Sacramento Valley–Central Sierra Region (Region 2)	Consultation, take authorization pursuant to Section 2081 and/or Section 2080.1 consistency determination (with USFWS consultation), avoidance of "fully protected" species
California Water Code Section 8590 et seq.*	Central Valley Flood Protection Board (CVFPB)	Encroachment Permit—must demonstrate that the bridge will not adversely affect river hydraulics or levee stability. Seasonal constraint: no work on levees or in floodway November 1 to April 15 without written authorization USACE Operations: Endorsement of Encroachment Permit—may require 200 year flood freeboard, cannot impede levee maintenance or flood fighting abilities Levee Maintaining agencies: Endorsement of Encroachment Permit—cannot impede levee maintenance or flood fighting abilities
Calif. Code of Regulations, Title 2, Div. 3, Sect. 1900 et seq. and Pub Res Code Section 6000 et seq.*	California State Lands Commission	Land Use Lease—most likely will require an annual lease fee (land underlying the State's navigable and tidal waterways—including the American River—are known as "Sovereign Lands" and are managed by the Commission)

Regulation	Regulatory Agency	Permit/Agreement/Authorization
California Wild and Scenic Rivers Act (Public Resources Code Sec. 5093.50 et seq.)	California Resources Agency	Consistency determination regarding whether the proposed project could have an adverse effect on the free-flowing characteristics of the river and whether the action could have the potential to alter the river segment's ability to meet the criteria that classify it as "recreational"
*Applicability depends on the location of project features in relationship to the American River, its ordinary high water mark, and/or specific habitat or other regulated features.		

Table 3. Potential Regional Regulatory Requirements

Regulation	Regulatory Agency	Permit/Agreement/Authorization
City of Sacramento General Plan	City of Sacramento	Consistency with goals and policies
American River Parkway Plan	County of Sacramento	Consistency with goals and policies; Approval of Area Plan Map Amendment to allow new river crossing

Biological Resources within the Study Area

Numerous sources were reviewed, including the DFG's California Natural Diversity Database (CNDDB), the USFWS species list for the Sacramento East USGS topographic quadrangle, the USFWS' National Wetlands Inventory (NWI), DFG and Caltrans' California Essential Habitat Connectivity Project, and ICF file data. The study area includes developed areas (residential, commercial, industrial, and recreational) and areas of natural habitat. The natural habitats in the study area include riparian forest, riparian woodland, grassland, wetlands, a manmade pond, and riverine habitat (the American River and the Natomas East Main Drainage Canal). Some of these natural habitats are sensitive natural communities (e.g., wetlands, riparian, and riverine habitat) and they provide habitat for several special-status species. The American River has been identified as critical habitat for Central Valley spring-run Chinook salmon (70 FR 52600 September 2, 2005) and Central Valley steelhead (70 FR 52616 September 2, 2005).

"Critical Habitat" is formal designation of an area as crucial to the survival of a species and essential for its conservation. As defined in ESA Section 3, Critical Habitat is:

> "…the specific area within the geographic area occupied by a species, at the time it is listed in accordance with ESA, on which are found those biological features essential to the conservation of the species, and that may require special management considerations or protection; and specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species."

Special-Status Species

Based on a search of the CNDDB (California Department of Fish and Game 2012a) and the USFWS species list (U.S. Fish and Wildlife Service 2012), several special-status plant and wildlife species are known to, or have a potential to, occur within the study area. Some of these species are especially sensitive to disturbance and/or subject to more regulatory scrutiny due to their rarity and thus considered to be a constraint to any project that would result in impacts to these species. Table 4 list those species considered to be a biological constraint to constructing a crossing over the American River because of their sensitivity and/or because they are known to occur in the study area.

No special-status plant species are included in Table 4, because the potential is low for suitable habitat to support species-status plants in the study area. Special-status plants documented within approximately 5 miles of the study area occur primarily in vernal pool, marsh, or tidal flat habitats. Of these habitat types, the study area might support marsh, but is unlikely to include vernal pools or tidal flats. Additionally, due to the level of disturbance and recreational use of habitats in the study area, there is low potential for special-status plants to be present. However, the absence of special-status plants could only be confirmed by conducting blooming-period surveys in spring and summer.

Additional species may be encountered during project level surveys that are not identified here and it should be noted that other special-status species could occur in the study area and that, though they are not listed in Table 4, effects to these species and possible mitigation would have to be addressed in a project level CEQA analysis and possibly as part any further regulatory review (e.g., 404 Clean Water Act permit, Stream Bed Alteration Agreement). Some of these additional special-status species would include bank swallow, western pond turtle, white-tailed kite, yellow-breasted chat, yellow warbler, and black-crowned night heron (nesting colonies). If these species are identified within or adjacent to a proposed crossing site they could result in constraints to project construction. Nesting colonies of bank swallow, a California threatened species, are known to occur along the American River, with the nearest record being approximately 3.5 miles east of the study area along the south shore of the river (California Department of Fish and Game 2012a). Any identified nesting colonies within the study area would be considered highly sensitive areas.

Table 4. Biological Constraints: Special-Status Wildlife Species Known or Potentially Occurring in the Study Area

Species	Listing Status	Occurrence in Study Area
Chinook salmon species *Oncorhynchus tshawytscha*		
Sacramento River winter-run	Federally Endangered	Winter-run salmon could migrate into the American River due to the close connection with the Sacramento River in the study area.
Central Valley spring-run	Federally Threatened	Spring-run salmon could migrate into the American River due to the close connection with the Sacramento River in the study area.
Central Valley fall-run and late fall–run	California Species of Concern	Records within the study area.
Steelhead *Oncorhynchus mykiss*	Federally Threatened	Records within the study area.

Green sturgeon (Southern Distinct Population Segment [DPS]) *Acipenser medirostris*	Federally Threatened	Species could migrate into the American River due to the close connection with the Sacramento River in the study area.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	Federally Threatened	Records within the study area (California Department of Fish and Game 2012a) and suitable habitat (elderberry shrubs) are known to occur throughout the riparian habitat.
Great blue heron *Ardea herodias*	Protected under Migratory Bird Treaty Act and Fish and Game Code while nesting.	Small rookery (nest colony) known to occur in the study area along the north shore of the American River (California Department of Fish and Game 2012a).
Cooper's hawk *Accipiter cooperii*	Protected under Migratory Bird Treaty Act and Fish and Game Code while nesting.	Species is known to nest within the study area (California Department of Fish and Game 2012a).
Swainson's hawk *Buteo swainsoni*	California Threatened	Nesting habitat in riparian along both sides of river and in some developed areas with suitable nest trees. Three nest occurrences in the study area (California Department of Fish and Game 2012a).
Bat species	Species of Special Concern (state listed)	May occur in park and garden settings in urban areas; roosts on structures and in trees.

Chinook Salmon

Chinook salmon are anadromous fish, meaning that adults live in marine environments and return to their natal freshwater streams to spawn. Juveniles rear in freshwater for a period of up to one year until smoltification (i.e., a physiological preparation for survival in marine environs) and subsequent ocean residence. Only fall-run Chinook salmon occur in the American River system, however, winter-run, spring-run, and late fall–run could also occur due to its close connection with the Sacramento River. The runs are named after the season of adult migration, with each run having a distinct combination of adult migration, spawning, juvenile residency, and smolt migration periods. In

general, fall-run and late fall–run Chinook salmon spawn soon after entering their natal streams, while spring- and winter-run Chinook salmon typically hold in their natal streams for up to several months before spawning. The American River is designated critical habitat for spring-run Chinook salmon and Central Valley steelhead.

- **Winter-Run:** Both the ESA and CESA list the winter-run Chinook salmon evolutionary significant units (ESU) as an endangered species. Adult winter-run Chinook salmon immigration (upstream migration) through the Delta and into the Sacramento River occurs from December through July, with peak immigration from January through April. The peak period of juvenile emigration (downstream migration) through the lower Sacramento River into the Delta generally occurs between January and April (see Table 5).
- **Spring-Run:** The Central Valley spring-run Chinook salmon ESU, which includes populations spawning in the Sacramento River and its tributaries, is listed as threatened under ESA and CESA. Critical habitat is designated for spring-run Chinook salmon in the American River. The only streams in the Central Valley with remaining wild spring-run Chinook salmon populations are the Sacramento River and its tributaries. Spring-run Chinook salmon enter the Sacramento River from late March through September, but peak abundance of immigrating adults in the Delta and lower Sacramento River occurs from April through June. The timing of juvenile emigration from the spawning and rearing reaches can vary depending on tributary of origin and can occur from November through June.
- **Fall-Run and Late Fall–Run:** The Central Valley fall-run and late fall–run Chinook salmon ESUs are federal species of concern. Adult immigration of fall–run Chinook salmon into the American River is generally from mid-September through January. The majority of migration occurs from mid-October through December (Williams 2001). Juveniles emigrate through the lower Sacramento River primarily from October through April.

Steelhead

Central Valley steelhead is listed as threatened under the ESA, and critical habitat is designated for steelhead in the American River. Steelhead, an anadromous variant of rainbow trout, is closely related to Pacific salmon. Immigration of adult steelhead into the American River occurs from November to April (McEwan and Jackson 1996). Juveniles rear in fresh water from one to four years (usually two years), then migrate to the ocean as smolts in the spring (December through June).

Green Sturgeon

NMFS has divided sturgeon into two DPSs: the southern and northern DPS. The northern DPS comprises sturgeon from the Eel River northward; the southern DPS comprises populations below the Eel, specifically the Sacramento River population. The southern DPS, which could occur in the study area, is federally listed as threatened. Spawning populations have been identified in the Sacramento River. The preferred spawning substrate is thought to be large cobble, although the substrate type may range from clean sand to bedrock. Because of the close connection of the Sacramento River and the American River in the study area, green sturgeon could stray into the study area and would need to be addressed in environmental documents.

Table 5. Life Stage Timing and Distribution of Key Fish Species in the Study Area

Species/Life Stage	Distribution	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Winter-Run Chinook Salmon													
Adult migration and holding	S.F. Bay to Upper Sacramento River												
Juvenile rearing (natal stream)	Upper Sacramento River to S.F. Bay												
Juvenile movement and rearing	Upper Sacramento River to S.F. Bay												
Spring-Run Chinook Salmon													
Adult migration	S.F. Bay to Upper Sacramento River and Tributaries												
Juvenile movement	Upper Sacramento River and Tributaries to S.F. Bay												
Late Fall–Run Chinook Salmon													
Adult migration	S.F. Bay to Upper Sacramento River and Tributaries												
Juvenile movement and rearing	Upper Sacramento River and Tributaries												
Fall-Run Chinook Salmon													
Adult migration and holding	S.F. Bay to American River and Tributaries												
Juvenile movement	Upper Sacramento River and Tributaries to S.F. Bay												
Steelhead													
Adult migration	S.F. Bay to American Sacramento River and Tributaries												
Juvenile and smolt movement	Upper Sacramento River and Tributaries to S.F. Bay												
Green Sturgeon													
Adult migration and holding	S.F. Bay to Upper Sacramento River												
Juvenile rearing (natal stream to estuary)	Upper Sacramento River to S.F. Bay												
Juvenile movement and rearing	Upper Sacramento River to S.F. Bay												

Valley Elderberry Longhorn Beetle

Valley elderberry longhorn beetle (VELB) is listed as threatened under the federal ESA. The range of the beetle extends throughout the Central Valley of California and associated foothills, from the 3,000-foot high contour in the east foothills, through the valley floor, to the watershed of the Central Valley in the west foothills. Elderberry shrubs (*Sambucus* sp.) are the host plant for VELB. Studies of the spatial distribution of occupied shrubs suggest that the beetle is a poor disperser (Talley et al. 2006).

VELB has potential to occur wherever elderberry shrubs with stems sized 1 inch or greater at ground level occur, and the CNDDB (California Department of Fish and Game 2012a) has records of VELB in the study area.

Great Blue Heron

Great blue heron is fairly common all year throughout most of California in shallow estuaries and fresh and saline emergent wetlands. They feed mostly of fish but are also known to eat small rodents, amphibians, snakes, lizards, insects, crustaceans, and occasionally small birds. They utilize secluded tall trees for perches and roosts. Their nesting colonies are considered sensitive habitats and can be abandoned if disturbed. Nest colonies are typically in the tops of secluded large snags (dead trees) or live trees, usually among the tallest available. Nesting can begin as early as February and typically young fledge by June or July. (California Department of Fish and Game 2012b.)

There is a CNDDB record for a great blue heron nest colony from 2008 on the north side of the American River within the study area (California Department of Fish and Game 2012a). Great blue herons are protected under the Migratory Bird Treaty Act (MBTA) and Fish and Game Code, Section 3503 and 3513.

Cooper's Hawk

Cooper's hawk is considered a species vulnerable to extirpation in California and is on the DFG watch list for birds. Cooper's hawk occurs in dense stands of live oak, riparian deciduous, or other forest habitats near water. They prey primarily prey on small birds and mammals, but will also take reptiles and amphibians. Nests are typically constructed in second-growth conifer stands, or in deciduous riparian areas, usually near streams. Breeding is typically between March and August, with peak activity May through July. (California Department of Fish and Game 2012b.)

A Cooper's hawk was documented nesting within the northern portion of the study area in 1996 (California Department of Fish and Game 2012a) and there is potential for this species to nest throughout the American River Parkway. Cooper's hawks are protected under the MBTA and the Fish and Game Code, Sections 3503, 3503.5, 3505 and 3513.

Swainson's Hawk

Swainson's hawks are state listed as threatened and are protected under the MBTA. Swainson's hawks inhabit grasslands, sage-steppe plains, and agricultural regions of western North America during the breeding season, and grassland and agricultural regions from central

Mexico to southern South America during the winter. In California, Swainson's hawk habitat generally consists of large, flat, open, undeveloped landscapes that include suitable grassland or agricultural foraging habitat. Foraging habitat includes open fields and pastures. Preferred foraging habitats for Swainson's hawk include alfalfa fields, fallow fields, low-growing row or field crops, rice fields during the non-flooded period, and cereal grain crops. In California prey species include California ground squirrels (*Otospermophilus beecheyi*), various voles (Muridae), pocket gophers (*Thomomys bottae*), deer mice (*Peromyscus spp.*), reptiles, and insects. Swainson's hawks nests are usually found in riparian woodlands and farm shelterbelts, as well as in urban/suburban areas with large tree adjacent to suitable foraging habitat. Nests are usually in large native trees such as valley oak (*Quercus lobata*), cottonwood (*Populus fremontii*), and willows (*Salix* spp.), although they occasionally use non-native trees such as eucalyptus (*Eucalyptus* spp.). Nests may be located in riparian woodlands, roadside trees, trees along field borders, isolated trees and small groves, trees in windbreaks, and trees on the edges of remnant oak woodlands. In some locales, urban nest sites have been recorded. The breeding season is typically March to August. (California Department of Fish and Game 2012b.)

CNDDB records indicate that Swainson's hawks are known to nest within and adjacent to the study area (California Department of Fish and Game 2012a). Large trees located in and adjacent to the study area provide suitable nesting habitat.

Other Nesting Birds and Raptors

Because the American River Parkway within the study area supports natural habitat ranging from grassland to dense riparian forests it undoubtedly provides nesting habitat for a variety of birds, most of which are protected while nesting under the MBTA and Fish and Game Code.

Sensitive Natural Communities

Several natural communities occur within the American River Parkway portion of the study area. Some of these natural communities are considered sensitive, in particular wetlands, riverine habitat, and riparian habitat. These communities have become rare in California and are known to support habitat for several threatened and endangered plants and animals, and thus are subject to regulation by various local state, and federal agencies. These sensitive natural communities occur throughout the American River Parkway. Except for those features that were identifiable from aerial photographs (e.g., American River, large wetlands, a pond), the exact locations of some of these resources (e.g., smaller wetlands not identifiable from aerial photos or not found in other data sets, heritage trees, oak trees) is not known at this time. Further studies would be required to document the extent of natural communities within any proposed project area (e.g., wetland delineation, vegetation mapping, arborist survey).

Constraints/Opportunities

The biological constraints (known and potential) identified from available sources are summarized in Figure 2**{** TC "Figure 2" \f F \l "1" **}**. Except for CNDDB data, all other biological information presented here was produced by ICF using photo interpretation using GIS mapping

software and does not necessarily represent accurate on the ground conditions. Other data sources were evaluated to inform this mapping, including NWI maps and previous studies within the study area.

As depicted in Figure 2**{** TC "Figure 2" \f F \l "1" **}**, areas supporting biological resources within the study area were classified into three sensitivity categories as a means to convey preliminary information on the biological constraints within the study area. These three categories are defined as follows:

- **Highly Sensitive** – Areas identified as highly sensitive include locations of known CNDDB records, areas of critical habitat (American River), and wetlands and waters. These areas are considered highly sensitive because they support a rare resource, in the case of the CNDDB records; because disturbance or loss of these areas could affect functions and values of the resource at the local and regional scale, in the case of wetlands and water; and these areas have legal protections that would require substantial regulatory oversight.
- **Moderately Sensitive** – Areas identified as moderately sensitive are those areas with natural vegetation that have a potential to support special-status species and other sensitive natural communities (e.g., wetlands). It is known that the American River Parkway within the study area supports large stands of elderberry shrubs, which may be occupied by VELB. In the study area, riparian habitat comprises the majority of the area mapped as moderately sensitive. Riparian habitat in general is a highly sensitive community that has become very rare in California.. For this analysis, it was classified as moderately sensitive only in the context of the other resources identified as highly sensitive (e.g., waters, wetlands, and known locations of special-status species) within the study area and, in general, is considered a very sensitive resource because of its rarity and the length of time is takes to replace mature riparian forests.
- **Potentially Sensitive** – Areas identified as potentially sensitive are those that either have had some form of recent disturbance that was identifiable from aerial photography, are areas that are adjacent to or within natural habitats and still support remnants of this adjacent habitat (e.g., mature oaks, elderberry shrubs), or landscaped recreational areas within the American River Parkway that may provide foraging and nesting opportunities for wildlife.

Mitigation Options and Strategies

Options for mitigation are generally species-specific. Options and strategies for the threatened and endangered species included in Table 4 are discussed below. Along with mitigation for impacts on sensitive natural communities, these are the primary mitigation challenges for a new crossing.

Mitigation strategies for effects on salmonid species would need to be developed in consultation with NMFS under the ESA and could include placing seasonal restrictions on when work can occur. The best work window is July 1 to September 15, but this may not be feasible if the crossing is a new bridge.

Mitigation strategies for effects on green sturgeon are complex and would need to be developed in consultation with NMFS under the federal ESA. Noise impacts from near-water or in-water pile driving can be lethal to fish if they are present in the area where the work is occurring. Because sturgeon can be present in the river at any time, adherence to seasonal restrictions would not constitute avoidance. Methods to

mitigate for noise impacts on sturgeon (and other fish) currently in use for similar projects along the Sacramento River and in the Bay include use of "bubble curtains" and similar devices to reduce the effects of noise/vibration sources (for more information consult the *Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish*, California Department of Transportation, February 2009).

Mitigation strategies for effects on VELB would need to be developed in consultation with USFWS under the ESA and could include establishing avoidance buffers or transplanting elderberry shrubs and compensating for effects. According to USFWS' *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*, complete avoidance (i.e., no adverse effects) may be assumed when a 100-foot (or wider) buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level. However, construction is allowed within 100 feet when ground disturbing impacts and any alterations to hydrology are more than 20 feet from the dripline of an elderberry shrub. Elderberry shrubs that would be directly impacted by construction must be transplanted and compensated as approved by USFWS (U.S. Fish and Wildlife Service 1999).

Mitigation strategies for effects on Swainson's hawk and other nesting birds would need to be developed in consultation with DFG and could include limiting construction activities (i.e., ground clearing and grading, including removal of trees or shrubs) outside of the breeding season (February 1 through August 31), to the extent possible. If construction activities are scheduled to occur during the breeding season and an active nest is present, DFG would require additional measures to avoid potential adverse effects (these measures would be similar for all nesting raptors and other migratory birds), which could include establishing no disturbance buffers around active raptor nests and nests of other special-status birds during the breeding season, or until it is determined that all young have fledged. The size of these buffer zones and types of construction activities restricted in these areas will depend on the species of bird, existing noise and human disturbance levels in the project site, and other factors, and will be developed in consultation with DFG. The "take" of any individuals will be prohibited. The removal of active Swainson's hawk nest trees is prohibited during the nesting season and requires DFG authorization for removal of known Swainson's hawk nest tree outside of the breeding season.

Mitigation strategies for effects on wetlands and waters would need to be developed during the permitting process with the USACE (404 Permit), Regional Water Quality Control Board (401 permit), and DFG (Streambed Alteration Agreement). It would have to be demonstrated that impacts to wetlands and waters were avoided to the maximum extent practicable and that were impacts are unavoidable mitigation would have to be developed such that there is no net loss of wetlands associated with the project and that impacts to these habitats would not result in the adverse modification of critical habitat (American River). Mitigation for impacts to wetlands and waters can be achieved through onsite restoration or creation of wetland habitat within the study area or the purchase of credits at a USACE-approved mitigation bank.

Mitigation strategies for effects on riparian trees would need to be developed during the permitting process with DFG (Streambed Alteration Agreement) and with the City of Sacramento for potential loss of individual protected trees. Mitigation for impacts to riparian habitat and protected trees could be achieved within the American River Parkway by funding a specific riparian restoration project within the Parkway. Replacement ratios for riparian habitat can be as high as 3 to 1 within the region.

Cultural Resources in the Study Area

The study area is located at the interface of two Native American groups: the Patwin (or Wintun), and the Nisenan. The banks of the Sacramento River and associated riparian and tule marshland habitats were inhabited by the River or Valley Patwin. The Nisenan (also called Southern Maidu), while primarily occupying territories east of the Sacramento River, used land west of the river as well. The Valley Nisenan lived in the Sacramento Valley from the Feather River north of Marysville to the Sacramento River just south of its confluence with the American River. Nearby the study area, there were three well-known villages that were part of the larger system of tribelets and tribelet centers. Pushune, also known as Pusune, was an important, influential village situated on the north bank of the American River; it exchanged labor and trade relations with the European settlers. The villages of Momol and Sacum'ne (also known as Sekumni) were located along the American River near the study area. Although they were not as influential as Pushune, these villages also had exchanges with European settlers (Kroeber 1925; Secrest 2003; Wilson and Towne 1978).

The Sacramento River was a convenient landmark for the early explorations that also facilitated reconnaissance of the Sacramento Valley. The Spanish, in 1817, were the first Europeans to traverse the portion of Sacramento River that passes next to the study area, having made an exploratory boat trip up the river as far as its confluence with the Feather River. This expedition was followed by a series of Spanish, Russian, British, and American land and water forays up the Sacramento River from the 1820s through the 1840s.

Both the Sacramento and American Rivers had different geographic positions relative to their current positions—the ancestral Sacramento River was generally situated in its present position, although it was considerably wider whereas in the ancestral American River was positioned farther south (immediately north of the railyards) (ERM 2002:Figure 1-5; Ray 1873). In 1862, the American River was rechanneled to the north to meet the Sacramento River

River traffic through the study area became more frequent between 1839 and 1848 with the establishment of John Sutter's fort at his New Helvetia Rancho, as well other settlements upriver. The 1848 gold discovery at Coloma, however, was responsible for the vast increase in population through the 1850s, as Sutter's embarcadero, at what is now Old Sacramento, served as the principal point of departure for persons and goods headed for the Sierra Nevada diggings.

Constraints/Opportunities

Cultural resource sites, particularly prehistoric archaeological sites, are commonly concentrated along natural waterways such as the American River. Excavations over the years have repeatedly uncovered prehistoric sites buried in deep sediments. For example, an archaeological deposit located along the American River near the study area was reported to possess a deep midden deposit ranging from 8 to 10 feet below the surface. As a result of the nature of archaeological deposits, it is impossible to predict exactly where these sites are; however, historical research and focused pedestrian surveys can help determine the potential for buried cultural deposits.

The entire American River Parkway is highly sensitive for prehistoric and historic resources. Therefore, constraints relating to cultural resources include the unknown nature of buried archaeological deposits and the potential for encountering built environment resources, such as historic buildings or linear resources that have not yet been evaluated for their eligibility for historic registers.

Records identifying the locations of known archaeological sites and studies conducted within the study area are contained in technical reports stored at the North Central Information Center (NCIC) at California State University, Sacramento. These reports contain information regarding known archaeological sites and other cultural resources (including built-environment) in the study area. NCIC records identified 11 previously recorded cultural resources in the study area. These consist primarily of prehistoric mound sites, including the Nisipowinan Village Site, also known as "Joe's Mound," located in Discovery Park. Due to the sensitive nature of cultural resources, archaeological site locations are not released publically.

The study area also contains architectural resources (buildings/structures or linear features) that are 45 years old or older. Six built environment (architectural resources) resources over 45 years old were identified in the study area. Only one of these resources has been evaluated; it was found not eligible for listing in the National Register of Historic Properties (NRHP) or the California Register of Historic Resources (CRHR). The remaining resources have not been formally evaluated for significance under NRHP criteria or CEQA guidelines. Given the age of these resources, it is possible they are historically significant and eligible for listing in the CRHR or the NRHP.

It should be noted that development is often what drives cultural resources surveys; some areas rich in cultural resources may not appear to exist simply because the resources have not been officially recorded. However, NCIC records indicate that approximately 80% of the American River Parkway within the study area has been previously surveyed for cultural resources.

Mitigation Options and Strategies

For any new crossing alternative, a cultural resources inventory must be conducted in order to relocate previously recorded resources and to identify any previously unknown resources. This inventory will include historic research, a literature review, consultation with local Native American representatives, an intensive pedestrian archaeological survey, and a built environment survey.

To help offset selection limitations and mitigation costs, certain measures can be employed to identify as many cultural resources sites as possible before alternative selection or project construction (if a preferred alternative has already been selected).

One approach could include preparation of a cultural resources constraints map (non-public) which shows known cultural resources sites to determine the location of archaeological sites. Pedestrian archaeological and built environment surveys could be conducted to help determine if any structures appear to be potentially eligible (i.e., over 45 years old) for evaluation as well as identifying any indicators of sub-surface archaeological deposits. Results of the inventory and survey could be used to determine which alternatives would have an impact on known potentially significant resources.

If an alternative is chosen that might impact a resource, subsurface investigations prior to construction may be necessary. These investigations can include hand excavation, exploratory mechanical trenching, mechanical auguring, or a combination of all three as

appropriate. Negative testing results for buried cultural resources might indicate a lower potential for buried cultural deposits. However, despite the best identification efforts, previously unknown buried cultural deposits can still be encountered during construction. Therefore, it is recommended that a qualified archaeological monitor be employed to monitor all ground-disturbing construction work within the American River Parkway or near any other previously identified cultural resource.

If known cultural deposits are identified during construction, protocol would be followed including, but not limited to, stopping construction work within 100 feet of the find and notifying the qualified archaeologist to investigate and determine the significance of the find. Depending on the nature of the find, the Native American Heritage Commission and/or Native American monitor may need to be consulted, as well.

Recreational Resources in the Study Area

The study area includes several large public recreational areas, trails and parkways, and smaller parks and school playgrounds. In the center of the study area is the American River and a portion of the American River Parkway; the parkway extends 29 miles from the American River's confluence with the Sacramento River to Folsom Dam. North of the river, the South Natomas neighborhood has parks, parkways, bicycle trails, open space areas and a community center.

The 385-acre Discovery Park is within the American River Parkway and provides developed river access, including a boat launch, recreation and picnic areas, protected natural area, and archaeological sites. The Garden Highway Bikeway is north of Discovery Park, parallel to Garden Highway. The Jedediah Smith Memorial Bicycle Trail, also known as the American River Bike Trail, starts in Discovery Park near the river's confluence with the Sacramento River and continues upstream for 23 miles to Beal's Point on Folsom Lake. In 1974 the Jedediah Smith Memorial Bicycle Trail was designated a "National Recreational Trail" by the Department of the Interior (National Recreation Trails 2012). Just west of I-5 on the south bank of the American River is Tiscornia Park, an area very popular for sunbathing, picnicking, and fishing. There are other several parks south of the American River, especially along the Sacramento River downstream of the American River confluence.

Figure 3**{** TC "Figure 3" \f F \l "1" **}** depicts the location of public recreational resources in the study area. These resources are listed in Table 6.

Table 6. Public Recreational Resources in the Study Area

North of the American River	South of the American River
American River Parkway	Off-street bike trail (levee trail)
Discovery Park	Dos Rios School Park
Jedediah Smith Memorial Bicycle Trail	Tiscornia Park
Garden Highway Bikeway	Matsui Waterfront Park
Creekside Oaks Park	
Bannon Creek Preserve	
Bannon Creek Park and Parkway	
South Natomas Community Center and Park	
Northgate Park	
American Lakes School Park	
Ninos Park	
Ninos Parkway	
Park Plaza	
Gardenland Park	
Ueda Parkway	
Redwood Park	

Source: City of Sacramento 2012

There are several regulations related to recreational resources that apply to a new crossing of the American River. These regulations are listed in the regulatory tables above. A summary of how they relate to recreational resources in the study area is included below.

- **American River Parkway Plan.** Prepared under the authority of the Urban American River Parkway Preservation Act (PRC Section 5840-5843), the American River Parkway Plan is the management plan for the American River Parkway (County of Sacramento 2008) and includes guidelines for the recreational use of the parkway. The goals and policies listed in the plan guide the implementation of the plan. Within the plan, the Discovery Park Area Plan provides area-specific policies and more detail than the general Parkway Plan land use map. The area plan includes a map of specific land use designations with Discovery Park that define allowable uses within each designated location. Because it is not identified as an approved future land use in the plan, a new automobile crossing of the parkway within the study area would require approval of a map amendment to the Discovery Park Area Plan.
- **Wild and Scenic Rivers Acts.** The American River has been designated as "recreational river" in both the federal and state wild and scenic river systems. The limits of protection under the act are the limits of the American River Parkway. The American River Parkway Plan acts as the management plan for the federal and state Wild and Scenic Rivers Acts (County of Sacramento 2008).

The extraordinary values of the lower American River are its recreational and anadromous fishery. These values were identified as outstandingly remarkable values by federal wild and scenic river managers in 1980, serving as the basis for the acceptance of the lower American River by the Secretary of the Interior into the National Wild and Scenic River System (County of Sacramento 2008).

Consistency determinations under Section 7(a) of the federal Wild and Scenic Rivers Act will consider the direct and indirect effects of projects, such as bridge construction, on the bike, hiking or equestrian trails, or other Parkway recreation areas. State departments and agencies, as well as local governments, must also ensure that their actions are consistent with their responsibilities under the State Wild and Scenic River Act.

- **Section 4(f) of the Department of Transportation Act of 1966.** If federal funding from the Department of Transportation is used, it will trigger compliance with Section 4(f) of the Department of Transportation Act. The act prohibits the use of publicly-owned parks, recreation areas, cultural resources, and wildlife or waterfowl refuges for federally funded projects unless it can be shown that there was no alternative to the use of the land and that the use was designed to minimize harm to the resource protected under Section 4(f). The public recreational resources and cultural resources within the study area are protected under Section 4(f).

  There are three possible ways in which a project could "use" a resource: (1) when land is permanently incorporated into a transportation facility; (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or (3) when there is a constructive use of land.

  Constructive use occurs when the project does not directly incorporate land from a Section 4(f) resource, but the project's impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished. Examples of way the resource could be substantially impaired are through visual changes or changes in noise levels.

- **Section 6(f) of the Land and Water Conservation Act of 1965.** Three parks within the study area, American River Parkway, Discovery Park, and Bannon Creek Parkway (along Azevedo Drive) have received grants from the Land and Water Conservation Fund. The Land and Water Conservation Act requires that the conversion of any property that has used investments from this fund to a non-recreational use must be replaced by property of equal value and usefulness. Conversion of land within the American River Parkway and Discovery Park is a likely result of the new river crossing.

Constraints/Opportunities

Recreational resources that could be directly affected by a new crossing are those in the American River Parkway, including picnic areas, an archery range, protected natural areas, trails, river access points, and the American River itself. A new crossing would bisect the American River Parkway and could convert recreational land to non-recreational use, change access to existing recreational areas, and add a source of noise and visual discord to the parkway. Though the American River Parkway, and recreational resources within it, cannot be completely avoided, alignments and project designs that minimize the conversion of recreational land to non-recreational uses and minimize effects on remaining resources are preferable. Conversion of recreational land within the American River Parkway that utilized Section 6(f) grant

funding would require replacement by property of equal value and usefulness, but would not require that the exact recreational use being converted be replaced. However, though the land could be replaced elsewhere, a resource such as the American River Bike Trail would have to be relocated within the Parkway so that the trail is still intact and functional. Also, conversion of recreational land that has less value in terms of other sensitive environmental resources would most likely have less mitigation cost than conversion of recreational land that contains other sensitive resources. As an example, conversion of a picnic area that also requires removal of large native riparian trees would be less preferred to conversion of a picnic area located on manicured grass devoid of trees.

While it would change the aesthetic nature of the location in which it is placed, a new multi-mode river crossing provides opportunities for improved access to the American River Parkway as well as alternate and more local access routes to parks and other recreational sites north and south of the river. Though any new above-ground crossing would add a built feature to the natural landscape of the parkway, aerial views of the parkway and river would be available from a bridge, especially for pedestrian and bicycle users.

Effects on recreational resources outside of the American River Parkway could be caused by changes in local traffic patterns. This could provide improved access for people living on the other side of the river from a recreational destination. In addition to considering logical roadway connections, new crossings could be designed to facilitate connections between one or more of the designated bicycle routes/trails and parkways in South Natomas (Ueda, Ninos, Bannon) and corridors along the Sacramento River and in downtown and midtown Sacramento.

Mitigation Options and Strategies

A new river crossing could result in both construction-related and operational impacts on recreational resources in the study area. Effects on recreation can be minimized during construction by maintaining access to, and adequate parking for, existing recreational facilities; minimizing disturbances caused by construction equipment during construction as well as equipment ingress and egress, including minimizing noise and dust; and maintaining continuous access to bicycle, pedestrian, and horse trails through the duration construction by avoiding the trails, or providing reasonable and easily accessible detours.

Any new crossing of the American River will cause a change to the American River Parkway. A new structure should minimize conversion of public parklands to non-recreational uses by minimizing the on-the-ground footprint of the crossing. The height, width, location, and physical design of a new bridge structure can all be utilized to minimize the impacts on recreational users of the parkway.

Because conversion of land use for recreation to non-recreation uses would be necessary, it should be investigated whether acquisition and improvement of the Gardenland Sand and Gravel Mine (Urrutia) property, a specific policy identified for the Discover Park Area in the American River Parkway Plan, would be appropriate as mitigation under Section 6(f) of the Land and Water Conservation Act. There are opportunities to create additional recreational resources, consistent with the policies in the Parkway Plan, at this site. This land is also being considered as part of the mitigation plan for the proposed light rail crossing in this area.

Noise

Noise Terminology

The decibel (dB) scale is used to quantify sound intensity. The human ear is not equally sensitive to all frequencies within the audible sound spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called "A-weighting." A-weighted sound levels are written as "dBA." Different types of metrics are used to characterize the time-varying nature of sound. The following are brief definitions of metrics used to describe and regulate noise.

- **Equivalent Sound Level (L_{eq}).** The average of sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period. L_{eq}[h] is the L_{eq} over a one hour period.
- **Day-Night Level (L_{dn})**. The energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.
- **Community Noise Equivalent Level (CNEL)**. The energy average of the A-weighted sound levels occurring during a 24-hour period with 5 dB added to the A-weighted sound levels occurring during the period from 7:00 p.m. to 10:00 p.m. and 10 dB added to the A-weighted sound levels occurring during the period from 10:00 p.m. to 7:00 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving sound level.

Noise Sensitive Land Uses

Noise sensitive land uses are primarily considered to be those areas where people reside. This includes single and multi-family residential areas, health care facilities, and lodging facilities. Recreational areas where quiet is an important part of the environment can also be considered sensitive to noise. Some commercial areas may be considered noise sensitive as well such as the outdoor restaurant seating areas. Schools are also sensitive to noise.

Within the study area, residential areas are primarily located north of the American River between the Garden Highway and West El Camino Avenue. Discovery Park, the American River Parkway, and the American River are recreational areas. Most of the uses south of the river are non-sensitive commercial, industrial, and office uses. There are, however, several commercial lodging facilities located along Bercut Drive and a school and residential area located at the east end of Richards Boulevard.

Existing Noise Sources

Traffic on I-5, SR-160, Richards Boulevard, the Garden Highway, and West El Camino Avenue are the primary sources of noise in the study area. Aircraft from Sacramento International Airport are also a source of noise in the area. However, the 60 CNEL contour from the airport does not extend to the study area.

Regulatory Background

Because there is a possibility that the new crossing will use federal funding from an agency of the Department of Transportation, federal regulations, specifically noise regulations from the Federal Highway Administration (FHWA), are included below. These regulations would not apply if only state and/or local funds are used.

Federal

23 CFR 772 specifies noise analysis and abatement requirements for federal-aid highway projects. Projects that comply with the requirements of 23 CFR 772 satisfy NEPA noise analysis requirements. The regulation specifies noise abatement criteria for a variety of land use types and includes lands use types that currently exist in the study area (Table 7).

Table 7. Activity Categories and Noise Abatement Criteria (23 CFR 772){ TC "Table 1. Activity Categories and Noise Abatement Criteria (23 CFR 772)" \f T \l "1" }

Activity Category	Activity $L_{eq}[h]$[1]	Evaluation Location	Description of Activities
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[2]	67	Exterior	Residential.
C[2]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries,

			medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

[1] The $L_{eq}(h)$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

[2] Includes undeveloped lands permitted for this activity category.

If a project is predicted to result in traffic noise impacts, noise abatement must be considered. Noise abatement that is reasonable and feasible must be identified in the final environmental document. Traffic noise impacts occur if a predicted traffic noise level in the design year approaches or exceeds a noise abatement criterion or if the predicted noise level substantially exceeds the existing noise level.

Part 771.135 - Section 4(f) of 23 CFR 771 states that the FHWA may not approve the use of land from a significant publicly owned public park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that:

(i) there is no feasible and prudent alternative to the use of land from the property; and

(ii) the action includes all possible planning to minimize harm to the property resulting from such use.

Constructive use occurs under Section 4(f) when the transportation project does not incorporate land from a section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the resource are substantially diminished.

With regard to traffic noise, FHWA has determined that a constructive use does not occur when:

- the projected traffic noise levels of the proposed highway project do not exceed the FHWA noise abatement criteria (Table 1)

- when the projected noise levels exceed the relevant threshold because of high existing noise, but the increase in the projected noise levels if the proposed project is constructed, when compared with the projected noise levels if the project is not built, is barely perceptible (3 dBA or less).

State

There are no specific state noise regulations that relate to the proposed project. However, the Caltrans Traffic Noise Analysis Protocol (Protocol) defines Caltrans policy for applying 23 CFR 772 in California. The Protocol states that a predicted design year noise level "approaches or exceeds" a noise abatement criterion if it is within 1 dB of the criterion. So 66 dBA approaches the 67 dBA noise abatement criterion but 65 dBA does not. The Protocol also defines a substantial noise increase as a 12 dB increase between existing noise levels and predicted design year project noise levels. The Protocol also provides a quantitative method for evaluating reasonableness and feasibility of noise abatement.

Local

Chapter 8.68 of the City of Sacramento City Code sets standards for noise levels generated by non-transportation sources within the City. These standards would apply to project-related construction noise but not operational noise. Construction activity that occurs during daytime hours is exempt from the noise ordinance standards.

The Environmental Constraints section of the City of Sacramento General Plan specifies land use compatibility standards for exterior noise based on land use type. Table 8 summarizes these standards.

Table 8. Exterior Noise Compatibility Standards for Various Land Uses

Land Use Type	L_{dn} or CNEL
Residential—Low Density Single Family, Duplex, Mobile Homes	60 dBA
Residential—Multi-family	65 dBA
Urban Residential Infill and Mixed-Use Projects	70 dBA
Transient Lodging—Motels, Hotels	65 dBA
Schools, Libraries, Churches, Hospitals, Nursing Homes	70 dBA
Playgrounds, Neighborhood Parks	70 dBA
Golf Courses, Riding Stables, Water Recreation, Cemeteries	75 dBA
Office Buildings—Business, Commercial and Professional	70 dBA
Industrial, Manufacturing, Utilities, Agriculture	75 dBA

The section also specifies exterior incremental noise impact standards for noise-sensitive uses. These standards are summarized in Table 9.

Table 9. Exterior Incremental Noise Impact Standards for Noise-Sensitive Uses

Residences and Buildings Where People Normally Sleep[a]		**Institutional Land Uses with Primarily Daytime and Evening Uses[b]**	
Existing L_{dn}	Allowable Noise Increment (dB)	Existing Peak Hour L_{eq}	Allowable Noise Increment (dB)
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

[a] This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

[b] This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

Constraints/Opportunities

Operation of heavy equipment associated with construction of a bridge or modification of an existing bridge would generate noise that could affect nearby noise sensitive land uses. The amount of construction noise generated would generally be independent of bridge location. Construction noise will be subject to the noise ordinance but is exempt during daytime hours. Construction noise decreases at a rate of about 6 dB for every doubling of distance from the source. As such, locating the bridge as far as possible from noise sensitive uses would minimize construction noise affects.

Users of a new or modified bridge would also generate noise. Bicycles and pedestrians typically do not generate significant noise, but other modes such as vehicles and light rail trains would. Vehicle traffic traveling on a new bridge would generate noise that is the result of the tire/pavement interaction and engine noise. Light rail trains generate noise from steel wheels on steel tracks and through the overhead catenary connection providing electricity to the train.

Traffic noise is continuous but varies throughout the day depending on the volume of traffic. As such traffic noise is generally the loudest during commute hours and less loud during non-commute hours and at night. Noise from light rail trains is much different in that the noise from single train passbys only lasts for a matter of seconds and then the tracks are quiet.

If vehicles and light rail track are on the same bridge or are on separate bridges in close proximity, traffic noise will tend to mask light rail train noise and make it less noticeable. Light rail train noise on the other hand does not affect the perceptibility of traffic noise because the noise is intermittent.

The following are some general guidelines regarding vehicle traffic noise to be considered for the location and design of a new crossing:

- Traffic noise increases with increased traffic volume. A doubling of traffic volume increases traffic noise by 3 dB. This is generally considered to be a barely perceptible increase.
- Traffic noise increases with increased traffic speed.
- Traffic noise increases as the percentage of heavy trucks within the vehicle mix increases.
- Traffic noise decreases with distance from the roadway at a rate of about 3 to 4 dB for every doubling of distance from the roadway.

Light rail noise is somewhat similar in that the daily average noise level will increase by 3 dB for every doubling of daily light rail trains. Light rail noise increases with speed and decreases with distance from the track roadway at a rate of about 3 to 4 dB for every doubling of distance from the track.

Vehicle traffic or light rail transit t on a new bridge will be a new source of noise in the area. With the new connection, vehicle traffic on approach roadways connecting to either end of the bridge may increase which would increase traffic noise on those roadways as well. FHWA noise requirements (23 CFR 772 and Section 4[f]), City of Sacramento general plan noise standards, and FTA noise standards will place noise constraints on the project which may trigger the need for noise abatement and noise mitigation.

Vehicle traffic or light rail transit noise impacts and the need for abatement or mitigation can be minimized by locating the new bridge as far as possible from noise sensitive uses. Bridge connections extending from Sequoia Pacific Boulevard, North 5th Street, North 7th Street, and North 10th Street would minimize noise impacts to noise sensitive use on the south side of the river. All connections on the north side would connect to the Garden Highway. Land uses east of Truxel Road are primarily residential while land uses west of Truxel Road are primarily commercial. As such connections made to the Garden Highway west of Truxel Road would have less potential for affecting residential uses. All potential crossings would have noise effects on the Discovery Park and the river with no optimal location for minimizing noise effects.

The extent to which vehicle traffic noise impacts will occur will depend on the traffic volume, speed, and truck percentage on a new bridge and its approaches. Light rail transit noise impacts will depend on specific equipment type, speed, frequency of trains, and approach alignments. In both cases, the proximity of any new crossing to sensitive uses will also be a factor. It appears likely that traffic noise impacts under 23 CFR 772, FTA noise standards, and constructive use under Section 4(f) will occur at Discovery Park. Federal requirements generally do not extend to the approach roadways unless capacity increasing improvements are made to the roadways. If the capacity of

approach roadways is increased as part of the project, traffic noise impacts could occur along those roadways as well. Significant CEQA noise impacts could occur along the bridge and approach roadways as well but federal noise abatement requirements will often mitigate those potential noise impacts.

Mitigation Options and Strategies

After locating the new bridge as far as possible from noise sensitive uses the most common approach to reducing traffic and light rail noise impacts is to construct a solid barrier between the roadway or track and adjacent noise sensitive uses. A barrier can reduce noise at receiver locations by 5 to 15 dB depending on the site geometry. Depressing a roadway or track into the ground can have a similar effect where the top edges of the cut create a barrier between the noise source and adjacent receivers. However, noise barriers or a depressed roadway or track may not be feasible or desirable.

The use of "quieter" pavements such as open-graded asphalt and rubberized asphalt is emerging as a method to reduce traffic noise. These types of pavements can initially reduce noise by about 3 to 8 dB. However, the use of quiet pavement is not a fundable form of noise abatement under 23 CFR 772. This is primarily because of concerns about the longevity of the noise reducing effects of the pavement.

There are also measures available for reducing light rail train noise at the source and include the use of resilient or damped wheels, vehicle skirts, undercar absorption, wheel truing, and rail grinding.

Visual Resources

Visual resources are the landscape features that the public values based on aesthetic and cultural ideals. Special attention is focused on scenic vistas and other aesthetic resources such as historic buildings, landscaping, waterways, and scenic highways. The visual character of an area is usually defined by identifying its landscape components (e.g., water, vegetation, and human development) that form distinct visual units (areas). Any change in visual character cannot be described as positive or negative until the viewer's response to the change is taken into account. For example, if the public prefers the established visual character of an area's landscape, any change that would affect the character of that landscape can be evaluated as negative.

The natural landscape of the aesthetics of the study area, including the American River Parkway, has been modified by human-made elements including residential and commercial development, transportation facilities (roads, trails, and highways), and mining activities, which has resulted in a diverse visual quality and character.

North of Garden Highway, in the South Natomas neighborhood, visual quality is defined by the perception of the residents in the area; residential sensitivity is usually considered moderate. South of the Garden Highway, the American River Parkway, including the American River itself, is the primary sensitive visual resource; the river is also designated a Wild and Scenic River. Recreational viewers, including those on the trail system within view of the bridge, would be most sensitive to change because the nature of their viewing experience is often focused on their visual surroundings. In the study area, recreational viewers typically include boaters, pedestrians and cyclists.

Sensitive visual resources in the southern portion of the study area include the historic Sacramento Valley Station (Railyards) and historic homes along 7th Street. However, in the Railyards and Richards Boulevard areas, some elements of a bridge crossing would be consistent with the urban land use and the existing transit system in other areas of the city.

Existing roadways in the study area north of the American River are predominately residential in character (two-lane roadways); however, I-5 and SR 160 are important nearby highways that serve the Sacramento region. West El Camino Avenue is a four lane road that consists primarily of residential and light commercial development. Garden Highway is a two-lane roadway situated on a levee with views altering between residential, light commercial land uses, and riparian habitat. Richards Boulevard, south of the river, is a 3-4 lane road lined by commercial and industrial land uses.

Because most vehicular, transit, pedestrian and bicycle movement occurs along transportation corridors, the location of the corridor largely determines what parts of the project area will be seen. Even for people using the American River Parkway (primarily recreationists) and not using the transportation system at a particular time, or who never use certain modes of travel, transportation systems are a dominant element of the visual environment.

Constraints/Opportunities

Any new crossing of the American River would result in permanent visual changes in the viewshed, regardless of where it is located. A new crossing (or modification of an existing crossing) would involve permanent visual changes such as aerial structures. Depending on the transportation modes served by the new or modified crossings, additional visual changes may occur. These changes could include features such as, but not limited to, those listed below.

- Light rail transit catenary
- Street widening
- Bridge approaches and associated road improvements including lighting

Aerial structures (i.e., a bridge over the American River) would represent the greatest visual change. Visual impacts would be high especially for scenic views from the American River Parkway, including the Jedediah Smith Memorial Bicycle Trail, pedestrian and equestrian trails on both the north and south sides of the American River, as well as boaters. A new bridge would represent a high visual intrusion into the natural aesthetics of the park. In addition, the structure would be a source of new shade and shadows, possibly affecting vegetation underneath. To minimize this intrusion, a multi-modal bridge that includes pedestrians, bicyclists, light rail transit, and vehicles should have the light rail transit vehicles sharing the vehicle lanes. Under this configuration, the cross-section of the bridge is minimized.

Though the aesthetics of the location in which a new crossing is placed would be permanently altered and views would be disrupted, a new multi-mode river crossing could provide new vantage points of the parkway and river, especially for pedestrian and bicycle users.

Mitigation Options and Strategies

The aerial aspect of a new river crossing has the greatest potential to alter views from the American River Parkway and elsewhere. Some common approaches for reducing visual impacts follow.

For temporary construction impacts, limiting construction activities to weekdays and daylight hours would help reduce temporary construction visual impacts experienced by most viewer groups because most construction activities will occur during business hours (when most viewer groups are likely at work), and it will eliminate the need to introduce high-wattage lighting sources to operate in the dark. In addition, construction staging areas should be fenced and screened with staging areas re-vegetated, if needed.

Selecting locally-appropriate aesthetic treatments for the final design of retaining walls, bridges, barriers, and other hardscape elements would help reduce visual impacts. To reduce the potential for glare, retaining walls and bridge components should be constructed using low-sheen and non-reflective surface materials. Any associated lighting should be downward-directed and fully-shielded to reduce nighttime light glare and intrusion.

Where possible, the new crossing should match nearby existing bridge profiles, employ graffiti-resistant surfaces, and incorporate landscaping to soften and screen hardscaping. Landscaping, such as trees lining bridge approaches, can be used to provide additional visual enhancement for pedestrians and/or vehicles. This would also serve to screen and soften structures from stationary viewer groups (i.e. workers, residents, recreationists). Additional design elements could include sound walls, tree and ground cover.

For any approaches near historic buildings (e.g. Railyards), consultation with an architectural historian for the final crossing design is suggested. This would help ensure that the crossing structure reflects the historic character of the building and its uses.

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Attachment A. Summary of Key Environmental Regulations

Federal Endangered Species Act

The Federal Endangered Species Act (federal ESA) of 1973 and subsequent amendments provide for the conservation of listed endangered or threatened species or candidates for listing and the ecosystems on which they depend. The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over federally listed plants, wildlife, and resident fish, and the National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish and marine fish and mammals.

- Section 7: Federal ESA Authorization Process for Federal Actions: Section 7 of the federal ESA provides a means for authorizing take of threatened and endangered species by federal agencies. It applies to actions that are conducted, permitted, or funded by a federal agency. Under ESA Section 7, the lead federal agency conducting, funding, or permitting an action must consult with USFWS or NMFS, as appropriate, to ensure that the proposed action will not jeopardize the continued existence of an endangered or threatened species or destroy or adversely modify designated critical habitat. If a proposed action may affect a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment (BA) evaluating the nature and severity of the expected effect. In response, USFWS or NMFS issues a biological opinion (BO), with a determination that the proposed action either:
    - may jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding), or
    - will not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

  The BO issued by USFWS or NMFS may stipulate discretionary "reasonable and prudent" conservation measures. If it is determined an action would not jeopardize the continued existence of a listed species, USFWS or NMFS would issue an incidental take statement to authorize the proposed activity.

- Section 9: ESA Prohibitions: Section 9 of federal ESA prohibits the take of any fish or wildlife species listed under the federal ESA as endangered. Take, as defined by federal ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the species, including significant habitat modification." Take of threatened species also is prohibited under Section 9 unless otherwise authorized by federal regulations. Additionally, Section 9 prohibits removing, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes hunting seasons and capture limits for game species and protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 CFR 21, 50 CFR 10).

Executive Order 13186 (January 10, 2001) directs each federal agency taking actions that have or may have a negative effect on migratory bird populations to work with USFWS to develop a memorandum of understanding (MOU) that will promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities:

- avoid and minimize, to the extent practicable, adverse effects on migratory bird resources when conducting agency actions;
- restore and enhance migratory bird habitats, as practicable; and
- prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The executive order is designed to assist federal agencies in their efforts to comply with the MBTA, and does not constitute any legal authorization to take migratory birds.

Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act, as amended in1946, requires consultation with USFWS and the state fish and wildlife agencies where the waters of any stream or other body of water are proposed, authorized, permitted, or licensed to be impounded, diverted, or otherwise controlled or modified under a federal permit or license. Consultation is undertaken for the purpose of preventing loss of and damage to wildlife resources.

California Endangered Species Act

California implemented the California Endangered Species Act (CESA) in 1984. The act prohibits the take of listed endangered and threatened species. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. DFG administers the act and authorizes take through Section 2081 agreements (except for species designated as fully protected).

California Fish and Game Code

Section 1602 of the California Fish and Game Code (CFGC) requires project proponents to notify the California Department of Fish and Game (DFG) before undertaking any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or

lake. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, DFG is required to propose reasonable changes to the project to protect the resources. These modifications are formalized in a streambed alteration agreement that becomes part of the plans, specifications, and bid documents for the project.

The CFGC provides protection from take for a variety of species, referred to as fully protected species. CFGC 5050 lists protected amphibians and reptiles. CFGC 5515 prohibits take of fully protected fish species. CFGC 3511 prohibits take of fully protected bird species. Fully protected mammals are protected under CFGC 4700. The CFGC defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited. CFGC 3503 prohibits the killing of birds or the destruction of bird nests. CFGC 3503.5 prohibits the killing of raptor species and destruction of raptor nests. Many bird species could potentially nest in the study area or vicinity. These nests would be protected under these sections of the CFGC.

Clean Water Act

The Clean Water Act (CWA) was enacted as an amendment to the Federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations and includes programs addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in storm water runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The U.S. Army Corps of Engineers (USACE) and EPA regulate the discharge of dredged and fill material into waters of the United States under Section 404 of the CWA. USACE jurisdiction over non-tidal waters of the United States extends to the ordinary high water mark (OHWM), provided the jurisdiction is not extended by the presence of wetlands (33 CFR Part 328, Section 328.4). The OHWM is defined in the federal regulations to mean:

> [T]hat line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328, Section 328.3[e]).

USACE typically will exert jurisdiction over that portion of the project site that contains waters of the United States and adjacent or isolated wetlands. This jurisdiction equals approximately the bank-to-bank portion of a creek along its entire length up to the OHWM and adjacent wetland areas that will either be directly or indirectly adversely affected by a proposed project.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) establishes a management system for national marine and estuarine fishery resources. This legislation requires all federal agencies to consult with NMFS regarding all actions or proposed actions permitted, funded, or undertaken that may adversely affect essential fish habitat (EFH). EFH is defined as "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The legislation states that migratory routes to and from anadromous fish spawning grounds should also be considered EFH. The phrase "adversely affect" refers to the creation of any effects that reduce the quality or quantity of EFH. Federal activities that occur outside an EFH but that may, nonetheless, have an effect on EFH waters and substrate must also be considered in the consultation process. Under the Magnuson-Stevens Act, effects on habitat managed under the Pacific Salmon Fishery Management Plan must also be considered.

California Fish and Game Code Section 1600: Streambed Alteration Agreements

DFG has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under Sections 1600–1607 of the CFGC. DFG has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. In practice, DFG marks its jurisdictional limit at the top of the stream or lake bank, or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by CWA Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under Section 1600 may encompass a greater area than those regulated under CWA Section 404. DFG enters into a streambed alteration agreement with an applicant and can impose conditions on the agreement to ensure that no net loss of wetland values or acreage will be incurred. The streambed or lakebed alteration agreement is not a permit, but a mutual agreement between DFG and the applicant.

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to evaluate the effects of their undertakings on historic properties, which are those properties listed or eligible for listing on the National Register of Historic Places (NRHP). Implementing regulations at 36 CFR Part 800 require that federal agencies, in consultation with the State Historic Preservation Officer (SHPO), identify historic properties within the area of potential effect (APE) of the proposed project and make an assessment of adverse effects if any are identified. If the project is determined to have an adverse effect on historic properties, the federal agency is required to consult further with SHPO and the Advisory Council on Historic Preservation (ACHP) to develop methods to resolve the adverse effects.

The Section 106 process has five basic steps.

1. Initiate the Section 106 process, including the identification of consulting parties, such as Native American tribes.

2. Identify and evaluate cultural resources to determine whether they are historic properties.
3. Assess the effects of the undertaking on historic properties within the APE.
4. If historic properties may be subject to an adverse effect, the federal agency, the SHPO, and any other consulting parties (including Native American tribes and the ACHP) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A Memorandum of Agreement is usually developed to document the measures agreed upon to resolve adverse effects. Alternatively, the federal agency may prepare and execute a Programmatic Agreement with the aforementioned parties to comply with 36 CFR 800, particularly in the context of complex undertakings that entail years of implementation actions or where the undertaking's effects on historic properties cannot be well characterized during the planning phase.

   Proceed in accordance with the terms of the MOA or PA.

Appendix B – Physical Constraints Memo

PHYSICAL CONSTRAINTS MEMO

August 17, 2012

Prepared by:
Richard Liptak, Dokken Engineering

Dokken Engineering prepared the following constraints memo to outline the guidelines that will be followed in preparing the alternatives and estimates for the proposed crossings of the American River.

Grades

- Maximum and Desired Grades
  - Vehicle Approaches - Caltrans' Highway Design Manual allows a maximum grade of 6% for an Urban Highways and 3% for Expressways. AASHTO allows between 7% and 12% for a 30 mph design speed of a roadway.
  - LRT or Streetcar Approaches - Sacramento Regional Transit's (RT) Sacramento Light Rail Design Criteria (1993 with 2009 revisions), Section 4.2, lists desirable max grade for mainline track at 3.5%, with max of 5.0% not to be exceeded without RT PM permission, and an absolute max of 7.0%.
  - ADA Standards - The Americans with Disabilities Act (ADA) provides design standards to ensure pedestrians and people with disabilities can safely access facilities open to the general public. The maximum grade allowed for a sidewalk or path is 8.33% for a distance of 30 feet. This accommodates a rise of 30 inches at the maximum grade. For every 30 inches of rise, a 5-foot long level landing is required.
  - California Building Code (Title 24) as interpreted for roadway design by Caltrans in Design Information Bulletin 82-04, includes additional accessibility requirements applicable in California. One such additional requirement is that a sustained running grade exceeding 2% requires a level landing every 400 feet.

- Bicycle/Pedestrian Approaches - There are a number of resources that provide guidelines for pedestrian and bicycle facilities, including the Caltrans Highway Design Manual and the AASHTO Guide for the Development of Bicycle Facilities (both substantially updated in 2012) and Caltrans Design Information Bulletin 82-04. The current consensus for the design of bike/ped facilities is the maximum slope should be 5% with level landings every 400 feet (ideally off-line for bike paths).

- Pedestrian Access Route- According to the Proposed Guidelines for Public Rights of Way (US Access Board, 2011), for a pedestrian access route contained within a street or highway right-of-way, its grade shall not exceed the general grade established for the adjacent street or highway. This standard applies to a crossing where the walkway is part of the bridge and explains why sidewalks on a Caltrans overcrossing do not include the reduced profile grade or the level landings required on a stand-alone pedestrian facility.

- Sidewalk Profile- City of Sacramento design standards provide guidelines for the design of sidewalks and the maximum grade for a sidewalk is 5%, except as noted above for sidewalks attached to overcrossings.

<u>The study will use 5% max grades with level landings every 400 feet</u>

Elevations

- The existing Jibboom Street Bridge is a movable swing bridge that provides a clear horizontal opening width of approximately 100 feet and an unlimited vertical clearance when the bridge is open. The bridge in its closed position provides 35 feet clearance above the mean high water level. However, the bridge is 100 feet downstream of the I-5 Bridge, which is fixed. See below for the I-5 Bridge clearances.

- The existing I-5 Bridge is a fixed bridge and is the first fixed obstacle upstream of the mouth of the American River. The low chord of the bridge is 39 feet above the mean high water level and should be the minimum height of any proposed crossing over the American River.

  The minimum elevation of a crossing over the American River was discussed with the U.S. Coast Guard who indicated that the existing conditions or openings must be maintained or exceeded with new crossings. Since the I-5 Bridge is the first crossing of the American River, all proposed crossings will at least match the I-5 Bridge's minimum clearance above the mean high water level.

- The existing Highway 160 Bridge is a fixed bridge and is the next fixed obstacle upstream of the I-5 Bridge. The low chord of the bridge is 34 feet above the mean high water level.

- Many changes have occurred in the freeboard requirements for rivers and streams regulated by the U.S. Army Corps of Engineers (USACE) over the past few years. Freeboard is the distance measured between the lowest member of the bridge span and the design water surface

elevation. Caltrans has remained fairly constant in their freeboard requirements. The USACE requirements result in a significantly higher bridge, with substantial freeboard above the river level.

– USACE freeboard requirements: 3 feet above the 200-year water surface elevation

– Caltrans freeboard requirements: Zero above the 100-year water surface elevation and 2 feet above the 50-year or flood of record water surface elevation (but must be high enough to pass anticipated drift for this event).

The study will use a freeboard of 3 feet above the 200-year water surface elevation

Bridge Design Parameters

- The depth of a bridge crossing the American River should be a minimum of 4% of its span length, a common industry standard depth for a bridge
- Columns to support the bridge should be placed to clear or minimize impacts to environmental resources as much as practical
- Bridge designs should accommodate passenger vehicles and legal trucks, as commonly used in industry practice
- Design for bridges that may carry Light Rail vehicles should use light rail design loading, which is significantly higher than truck loading

Connectivity

- Alternative bridge crossing locations shall provide connectivity to existing local roads on each side of the American River
- Variations on each alternative bridge crossing location may provide connectivity to different existing local roads or to different local road intersections

Community Values in Adopted Plans

Sacramento General Plan Goals & Policies

Land Use and Urban Design

Goal LU 2.2 – City of Rivers. Preserve and enhance Sacramento's riverfronts as signature features and destinations within the city and maximize riverfront access from adjoining neighborhoods to facilitate public enjoyment of this unique open space resource.

Policy LU 2.2.1 – World-Class Rivers. The City shall encourage development throughout the city to feature (e.g., access, building orientation, design) the Sacramento and American Rivers and shall develop a world-class system of riverfront parks and open spaces that provide a destination for visitors and respite from the urban setting for residents.

Goal LU 2.4 – City of Distinctive and Memorable Places. Promote community design that produces a distinctive, high-quality built environment whose forms and character reflect Sacramento's unique historic, environmental, and architectural context, and create memorable places that enrich community life.

Policy LU 2.4.3 – Enhanced City Gateways. The City shall ensure that public improvements and private development work together to enhance the sense of entry at key gateways to the city.

Goal LU 2.5 – City Connected and Accessible. Promote the development of an urban pattern of well-connected, integrated, and accessible neighborhoods, corridors, and centers.

Policy LU 2.5.2 – Overcoming Barriers to Accessibility. The City shall strive to remove and minimize the effect of natural and manmade barriers to accessibility between and within existing neighborhoods, corridors, and centers.

Goal LU 9.1 – Open Space, Parks, and Recreation. Protect open space for its recreational, agricultural, safety, and environmental value and provide adequate parks and open space areas throughout the city.

Policy LU 9.1.1 – Open Space Preservation. The City shall limit, to the extent feasible, the wasteful and inefficient conversion of open space to urban uses and place a high priority on acquiring and preserving open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water and agricultural resources protection, and overall community benefit.

Environmental Resources

Goal ER 2.1 – Natural and Open Space Protection. Protect and enhance open space, natural areas, and significant wildlife and vegetation in the city as integral parts of a sustainable environment within a larger regional ecosystem.

Policy ER 2.1.2 – Conservation of Open Space. The City shall continue to preserve, protect, and provide access to designated open space areas

along the American and Sacramento rivers, floodways, and undevelopable floodplains.

Goal ER 7.1 – Visual Resource Preservation. Maintain and protect significant visual resources and aesthetics that define Sacramento.

Policy ER 7.1.1 – Protect Scenic Views. The City shall seek to protect views from public places to the Sacramento and American rivers and adjacent greenways, landmarks, and urban views of the downtown skyline and the State Capitol along Capitol Mall.

Policy ER 7.1.2 – Visually Complimentary Development. The City shall require new development be located and designed to visually complement the natural environment/setting when near the Sacramento and American rivers, and along streams.

Mobility

Goal M 1.2 – Multimodal System. Provide expanded transportation choices to improve the ability to travel efficiently and safely to destinations throughout the city and region.

Policy M 1.2.1 – Multimodal Choices. The City shall promote development of an integrated, multi-modal transportation system that offers attractive choices among modes including pedestrian ways, public transportation, roadways, bikeways, rail, waterways, and aviation and reduces air pollution and greenhouse gas emissions.

Policy M.1.2.3 – Multimodal Access. The City shall promote the provision of multimodal access to activity centers such as commercial centers and corridors, employment centers, transit stops/stations, airports, schools, parks, recreation areas, and tourist attractions.

Goal M 1.3 – Barrier Removal. Improve system connectivity by removing barriers to travel.

Policy M 1.3.3 – Eliminate Gaps. The City shall eliminate "gaps" in roadways, bikeways, and pedestrian networks.

a. The City shall construct new multi-modal crossings of the Sacramento and American Rivers

Goal M 1.5 – Emerging Technologies and Services. Use emerging transportation technologies and services to increase transportation system efficiency.

Policy M 2.1 – Integrated Pedestrian System. Design a universally accessible, safe, convenient, and integrated pedestrian system that promotes walking.

Policy M 2.1.2 – Sidewalk Design. The City shall require that sidewalks wherever possible be developed at sufficient width to accommodate pedestrians including the disabled; a buffer separating pedestrians from the street and curbside parking; amenities; and allow for outdoor uses such as cafes.

Policy M 2.1.3 – Streetscape Design. The City shall require that pedestrian-oriented streets be designed to provide a pleasant

environment for walking including shade trees; plantings; well-designed benches; trash receptacles, news racks, and other furniture; pedestrian-scaled lighting fixtures; wayfinding signage; integrated transit shelters; public art; and other amenities.

Policy M 2.1.4 – Cohesive Network. The City shall develop a cohesive pedestrian network of public sidewalks and street crossings that makes walking a convenient and safe way to travel.

Goal M 3.1 – Safe, Comprehensive, and Integrated Transit System. Create and maintain a safe, comprehensive, and integrated transit system as an essential component of a vibrant transportation system.

Policy M 3.1.1 – Transit for All. The City shall support a well-designed transit system that meets the transportation needs of Sacramento residents and visitors including seniors, the disabled, and transit-dependent persons. The City shall enhance bicycle and pedestrian access to stations.

Policy M 3.1.3 – Variety of Transit Types. The City shall consider a variety of transit types including high speed rail, inter-city rail, regional rail, light rail transit, bus rapid transit, trolleys (streetcars), express buses, local buses, neighborhood shuttles, pedicabs, and jitneys to meet the needs of residents, workers, and visitors.

Policy M 3.1.7 – Transit Amenities. The City shall work with transit providers to incorporate features such as traffic signal priority, queue jumps, exclusive transit lanes to improve transit operations.

Policy M 3.1.10 – New Facilities. The City shall work with transit providers to incorporate transit facilities into new private development and City project designs including incorporation of transit infrastructure (i.e., electricity, fiber-optic cable, etc.), alignments for transit route extensions, and new station locations.

Policy M 3.1.13 – Light Rail Extensions and Enhancements. The City shall support the extension of light rail service to Sacramento International Airport, further extension in South Sacramento, and other improvements to facilities such as the 65th Streets, Royal Oaks, and Swanston stations.

Policy M 3.1.15 – Dedicated Bus Facilities. The City shall support the provision of dedicated bus lanes and related infrastructure as appropriate.

Goal M 4.1 – Roadway System. Create a roadway system that will ensure the safe and efficient movement of people, goods, and services that supports livable communities and reduces air pollution and greenhouse gas emissions.

Policy M 4.1.1 – Emergency Access. The City shall develop a roadway system that is redundant (i.e., includes multiple alternative routes) to the extent feasible to ensure mobility in the event of emergencies.

Policy M 4.1.2 – Balancing Community Impacts with Economic Development Goals. The City shall evaluate and strive to balance impacts to the community and the environment with economic development goals when adding or modifying roads and bridges.

Policy M 4.1.5 – Bridge Crossings. The City shall continue to work with adjacent jurisdictions to establish the appropriate responsibilities to fund, evaluate, plan, design, construct, and maintain new river crossings.

Goal M 4.2 – Complete Streets. Provide complete streets that balance the diverse needs of users of the public right-of-way.

Policy M 4.2.1 – Adequate Rights-of-Way. The City shall ensure that all new roadway projects and major reconstruction projects provide appropriate and adequate rights-of-way for all users including bicyclists, pedestrians, transit riders, and motorists except where pedestrians and bicyclists are prohibited by law from using a given facility.

Policy M 4.2.4 – Pedestrian and Bicycle Facilities on Bridges. The City shall identify existing and new bridges that can be built, widened, or restriped to add pedestrian and/or bicycle facilities.

Goal M 5.1 – Integrated Bicycle System. Create and maintain a safe, comprehensive, and integrated bicycle system and support facilities throughout the city that encourage bicycling that is accessible to all.

Policy M 5.1.2 – Appropriate Bikeway Facilities. The City shall provide bikeway facilities that are appropriate to the street classifications and type, traffic volume, and speed on all right-of-ways.

M 5.1.7 – Class II Bike Lane Requirements. The City shall require Class II bike lanes on all new arterial and collector streets.

River District Specific Plan

Guiding Principle I – The River District's unique character and design will provide a sense of place. The River District is a gateway to the Central City and the Sacramento and American Rivers. It will be known for its easy access to the Rivers, its economically vibrant mix of new developments and the adaptive reuse of industrial buildings. Operating commercial and light industrial businesses will provide an urban backdrop as many of those uses transition over time. A predominance of older brick buildings will help define an historic district along North 16th Street and will attract new life through a mixture of commercial, residential, and retail uses

Guiding Principle IV – The River District will maximize connectivity – north/south and east/west. A New street grid will connect the River District to surrounding neighborhoods by breaking through the current connectivity barriers. New and extended streets will connect the River District to the surrounding areas. New and improved river crossings will function smoothly and safely for all transportation modes. The natural and man-made barriers of the rivers, levees and the railroad tracks will be strategically traversed and become features of the District rather than obstacles to development.

Railyards Specific Plan

Guiding Principle 3 – …The Railyards Specific Plan also envisions extensions of 5th Street, 6th Street and 10th Street as complementary to the downtown street grid system. 7th Street will continue to be a transit-priority boulevard that will serve as the alignment for the future

Sacramento Downtown/Natomas/Airport (DNA) light rail line, provide a transit connection from the northern neighborhoods to downtown and the K Street Mall. Pedestrian and bicycle facilities are planned throughout the Railyards area, providing comprehensive nonmotorized access to the Riverfront, the SITF, and open space amenities…

Guiding Principle 6 - The Railyards site currently occupies an area equivalent to 60 downtown blocks; currently there is only one public street that extends through the site. This has forced the circulation system of the Central City to work its way around the Plan Area, causing congestion points along major corridors leading into the downtown. For instance, 12th and 16th Streets, which pass through the Alkali Flat neighborhood, experience significant congestion because they are the only north-south arterials connecting the downtown and the Richards Boulevard area with North Sacramento. The opening up of the Railyards area offers a major opportunity to improve the distribution of traffic within the downtown.

To this end, the Specific Plan calls for the extension of key Central City streets through the Plan Area. North from the downtown, 5th, 7th and 10th Streets will be extended to North B Street as major connectors between the Central City, the Railyards area, and providing access to the new Camille Lane that connects to the newly energized riverfront.

Railyards Boulevard will provide a major entry to the Railyards area from 12th Street, diverting traffic that currently flows through the Alkali Flat neighborhood. Railyards Boulevard will terminate just before the Sacramento River and connect to Interstate 5, northbound through Bercut Drive and southbound along Jibboom Street. This system of arterials will provide the basic framework for traffic movement within the Plan Area and serve to enhance overall distribution of traffic throughout the Central City.

Guiding Principle 8 - The most memorable cities of the world have established distinctive identities through a careful response to their natural settings. Sacramento enjoys a unique natural setting at the confluence of the Sacramento and American Rivers, where gold miners from around the world came up from San Francisco on their way to the gold fields, and where agricultural goods from the rich Central Valley were shipped to the Bay Area and the world beyond. Today, the rivers are highly valued recreational and habitat resources and the American River Parkway links the downtown with outlying communities through an extensive system of trails and open spaces.

With the construction of the railroad levees, and more recently the Interstate 5 freeway, downtown Sacramento has been cut off from both the Sacramento and American Rivers. The Railyards area is in a pivotal position between the downtown and these rivers; and its redevelopment offers the opportunity to overcome the barrier of these major transportation facilities and to create new linkages that will make the rivers a more integral part of the downtown experience.

In conjunction with the Richards Boulevard Area Plan to the north, the Railyards Specific Plan calls for new links to be created between downtown and the American River Parkway by way of 5th, 7th and 10th Streets. Through the realignment of the main line tracks and lowering

of Jibboom Street to ground level, the Specific Plan also calls for stronger linkages to the Sacramento River, beneath the Interstate 5 freeway viaducts. This linkage will create direct pedestrian connections between Old Sacramento and the historic Central Shops complex of the Railyards, and result in pedestrian and bicycle linkages to West Sacramento by way of the historic I Street Bridge. With these improvements, the riverfronts will provide a continuous system of pedestrian trails, linking key activity centers and destinations.

Goal C-1: Reinforce downtown Sacramento as the regional transportation hub with improved light rail, street car, intercity rail, commuter rail and intercity and local bus service.

Policy C-1.2: Promote the acceleration of the extension of the light rail system from the downtown to the airport in a manner that maximizes service to existing and future uses.

Goal C-3: Create a walkable street system that extends the unique qualities of downtown neighborhoods, gives structure and orientation to the downtown experience, and enhances the pedestrian environment.

Policy C-3.1: Extend the small block pattern of the downtown into the Plan Area while transitioning and blending it with the arterial system set forth in the Richards Boulevard area.

Policy C-3.4: Enhance the non-vehicular environment by developing streets at a scale that is suitable and attractive for pedestrians and bicyclists.

County of Sacramento Bikeway Master Plan

3. Design Objective. To provide adequate design consideration for bicycle facilities in all development plans and programs.

Needs and Issues (2) – Improve transitional access from on-street bikeways to off-street bikeway systems and from local to regional bikeways.

Policy (1) – Incorporate adequate street widths into street plans and development to ensure a reasonable level of safety for bicyclists and motorists.

5. Aesthetics Objective. To develop a bikeway system which incorporates aesthetics and the historical characteristics of the Sacramento area.

Policy (1) – Bikeways should take full advantage of the beauty and natural features of the Sacramento area by blending with the terrain and topography.

City of Sacramento Pedestrian Master Plan

Connectivity Goals:

Goal 1: Develop a cohesive pedestrian network of sidewalks and street crossings that make walking a realistic way to get around.

Goal 2: Provide a continuous pedestrian network that connects through blocks and sites, and connects buildings to each other, to the street, and to transit facilities.

Goal 3: Provide crossings that are convenient and comfortable for pedestrians to use.

American River Parkway Plan 2008

Goals:

- To provide, protect and enhance for public use a continuous open space greenbelt along the American River extending from the Sacramento River to Folsom Dam; and
- To provide appropriate access and facilities so that present and future generations can enjoy the amenities and resources of the Parkway which enhance the enjoyment of leisure activities; and
- To mitigate adverse effects of activities and facilities adjacent to the Parkway

Policy 3.1 – Any development of facilities within the Parkway, including but not limited to buildings, roads, turfed area, trails, bridges, tunnels, pipelines, overhead electrical lines, levees and parking areas, shall be designed and located such that any impact upon native vegetation is minimized and appropriate mitigation measures are incorporated into the project.

Policy 3.1.2 – Development of non-Parkway facilities must have a compelling regional need, meet all applicable statutory requirements and provide mitigation and enhancements to the Parkway's natural, recreational, or interpretive resources.

Policy 8.18 – If new bridge crossings are constructed, they shall be designed and located in such a manner as to minimize negative impact to the Parkway environment, aesthetic values, and natural resources. Any additional bridge crossings shall be located within Developed Recreation or Limited Recreation areas.

Policy 8.18.1 – The Downtown-Natomas-Airport (DNA-RT) light rail project alignment, as approved by the Regional Transit Board of Directors in December 2003, is recognized by this Plan.

Policy 8.19 – Bridge crossings should incorporate river themes and the Parkway context into its design and use muted, earth toned colors.

Policy 8.20 – If new automobile bridges are considered, expanding existing bridge capacity is preferred to constructing new bridges. If after careful study of all other alternatives, another crossing is required, a map amendment to the locally-adopted area plan(s) shall be required.

Policy 8.21 – If new automobile bridges are to be constructed over the American River or existing automobile bridges enlarged, these facilities should provide a path for bicycles and pedestrians that is separated from vehicle lanes and including viewing platforms where appropriate.

Policy 8.22 – New bridges for bikes, pedestrians, and equestrians may be considered when there is a need to improve Parkway connectivity, circulation and access, and shall require a map amendment to the locally-adopted area plan(s).

Policy 9.7 – Should new motor vehicle bridges be needed within the Parkway for interior use, these bridges should be constructed to meet the imposed load of emergency fire apparatus.

Policy 10.4 – Strengthen the Discovery Park Area's connections with the Sacramento Riverfront and with the surrounding urban neighborhoods in the Richards Boulevard and Natomas areas in ways that promote increase access and connectivity into the Parkway.

Policy 10.4.4 – Bike/pedestrian access shall be incorporated into future bridge construction or renovation projects affecting Interstate 5, Highway 160, and Regional Transit's Downtown Natomas Airport (DNA-RT) line.

Policy 10.4.5 – If the DNA-RT light rail is constructed, the associated bike/pedestrian bridge shall span the American River and Parkway, providing good access into the Parkway by connecting to its trail system at either levee side while minimizing impacts to Parkway resources.

Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) 2035

27. Policy: Support road, transit, and bridge expansion investments that are supportive of MTP/SCS land use patterns.

27.1. Strategy: Focus on ensuring transit and the arterial system perform well for the increase number of local trips, to support infill and compact development from smarter land uses without pushing growth outward because of overly congested conditions, and on providing a strong grid network (which offers alternative routes) wherever land uses allow.

30. Policy: SACOG also gives priority to selective roadway expansion, to support infill development and forestall midday congestion.

30.1. Strategy: Pursue strategic road expansion that reduces congestion and supports effective transit services, walking and bicycling.

30.3 Strategy: Pursue strategic road expansion that reduces congestion on access routes to areas with significant infill development.

Appendix D – Stakeholder Community Values

AMERICAN RIVER CROSSING
Alternatives Study

Community Values

Create Preserve Avoid	Comment	Topic
Create	Better access for recreation in American River Parkway-the study area has limited access now	Access
Create	Usable alternatives to I-5	Access
Create	Better access for public safety vehicles (first responders)	Access
Create	Access	Access
Create	Easy access to downtown	Access
Create	Access	Access
Create	Create access for environmental experiences and education	Access
Create	A sleek bridge, like new Watt Ave. crossing; include scenic overlook "bulb outs	Aesthetics
Create	Balance of open space/commerce	Aesthetics
Create	Attractive ped/bike connection	Aesthetics
Create	"Signature" structure	Aesthetics
Create	Attractive crossing; good architectural quality	Aesthetics
Create	Crossing that fits the environment it will be built in	Aesthetics
Create	Architecturally significant crossing	Aesthetics
Create	Bridge that blends into the environment	Aesthetics
Create	Large neighborhood impact (to improve)	Business
Create	Economic development opportunities	Business
Create	Community	Connectivity
Create	Opportunities for less/shorter car trips & mileage	Connectivity
Create	A connection that enhances economic growth to the River District	Connectivity
Create	Better circulation	Connectivity
Create	Time savings	Connectivity

AMERICAN RIVER CROSSING
Alternatives Study

Community Values

Create Preserve Avoid	Comment	Topic
Create	Additional connection between central city and north Sac	Connectivity
Create	A faster more efficient way to get from point A to B	Connectivity
Create	A natural flow from a major route north of the river to south of the river	Connectivity
Create	Connectivity	Connectivity
Create	Connectivity	Connectivity
Create	Transforming Northgate into the I-80 to downtown Sac "Gateway"	Connectivity
Create	New vehicular crossing	Connectivity
Create	Routes for cars around neighborhood	Connectivity
Create	Direct, efficient connection	Connectivity
Create	Toll Bridge	Economic Development
Create	Create additional bike-ped access	Multi-modal
Create	Transportation options	Multi-modal
Create	Multimodal access	Multi-modal
Create	More opportunities for walking between destinations and to just walk	Multi-modal
Create	One crossing that houses bus, transit, peds, autos and bikes	Multi-modal
Create	More travel opportunities/options	Multi-modal
Create	A transit, bike, ped only crossing	Multi-modal
Create	Signature project resulting in game changing human mobility behavior	Multi-modal
Create	Bike/ped trail on south side of American River	Multi-modal
Create	Connectivity to reduce vehicle miles traveled and emmission. Consider all modes of travel with major emphasis on transit, bike, ped.	Multi-modal

AMERICAN RIVER CROSSING
Alternatives Study

Community Values

Create Preserve Avoid	Comment	Topic
Create	A multi-modal crossing	Multi-modal
Create	A bike-friendly connection so that all ages of bicyclists have a safe, comfortable, & conveniant route between downtown/railyards & Natomas and north Sacramento	Multi-modal
Create	Pedestrian, bike, transit connection	Multi-modal
Create	Better rail, pedestrian, and public transit connection between this central city and neighborhoods across the American River	Multi-modal
Create	A bike and ped bridge	Multi-modal
Create	More bike/ped connectivity from downtown to north	Multi-modal
Create	Adequate bike/ped crossings which increase connectivity, especially keeping in mind possible regional bike/ped trail loops linking entire county	Multi-modal
Create	Strong rail transit linkage to Natomas	Multi-modal
Create	A multi-use bridge that accommodates Lt. Rail, vehicles, bikes + peds	Multi-modal
Create	Encourage transportation alternatives	Multi-modal
Create	Promote alternate modes of transportation	Multi-modal
Create	Improve public transit system	Multi-modal
Create	Education about the parkway through the bridge-on the bridge	Natural Resources / Environment
Create	Improving air quality & public health via opportunities for active transportation	Natural Resources / Environment
Create	The capability for those in the community to safely and freely travel and enjoy the natural scenes without complication	Natural Resources / Environment
Create	Decrease pollution	Natural Resources / Environment
Create	Create an environmental education center in the study area	Natural Resources / Environment

AMERICAN RIVER CROSSING
Alternatives Study

Community Values

Create Preserve Avoid	Comment	Topic
Preserve	American River Bike Trail	Access
Preserve	Enhance the public's sense of connection to the river as a link through the broader region	Access
Preserve	Recreational activities offered in the Parkway	Access
Preserve	Recreational value of Discovery Park	Access
Preserve	Connectivity for ped/cyclist/wildlife above and below crossing	Access
Preserve	To greatest extent possible the aesthetic and recreational values of parkway	Aesthetics
Preserve	Maintain a grid system	Business
Preserve	Opportunities for river front development	Economic Development
Preserve	Collaborative Relationship with proposed Downtown-Natomas-Airport crossing	Economic Development
Preserve	Nothing. Just get it built for multi-purpose uses, i.e. cars, light rail, bikes/peds	Multi-Modal
Preserve	American River Parkway plan procedures	Natural Resources / Environment
Preserve	Urban forest	Natural Resources / Environment
Preserve	Environmental systems	Natural Resources / Environment
Preserve	Preserve habitat and species	Natural Resources / Environment
Preserve	Nature	Natural Resources / Environment
Preserve	Riparian habitat	Natural Resources / Environment

AMERICAN RIVER CROSSING
Alternatives Study

Community Values

Create Preserve Avoid	Comment	Topic
Preserve	Environment, work toward low impact	Natural Resources / Environment
Preserve	Natural, environmental habitats	Natural Resources / Environment
Preserve	Natural habitat of the greatest civic amenity within Sacramento	Natural Resources / Environment
Preserve	The nature that is along the path	Natural Resources / Environment
Preserve	Open space	Natural Resources / Environment
Preserve	Natural habitat	Natural Resources / Environment
Preserve	A large urban center's up close and personal opportunity to access the natural world, people should not have to travel miles to touch nature.	Natural Resources / Environment
Preserve	Environmental and scenic quality of American River and it's Parkway	Natural Resources / Environment
Preserve	The current natural feel of the environment	Natural Resources / Environment
Preserve	Open space and trails	Natural Resources / Environment
Preserve	Natural habitat	Natural Resources / Environment
Preserve	The natural beauty of the Parkway	Natural Resources / Environment

Community Values

Create Preserve Avoid	Comment	Topic
Preserve	Natural areas	Natural Resources / Environment
Preserve	Recreational and environmental resources	Natural Resources / Environment
Preserve	Neighborhoods and communities	Neighborhood Vitality
Preserve	Flood protection given potential for more intense storms and flows due to climate change	Flood Protection
Preserve	Flood conveyance capacity	Flood Protection
Preserve	Strong levees	Flood Protection
Preserve	The structural integrity of the levee	Flood Protection
Preserve	Access for levee operations and maintenance	Flood Protection

Community Values

Create Preserve Avoid	Comment	Topic
Avoid	A crossing that ignores peds and bicycles	Access
Avoid	Impacts to recreational opportunities	Access
Avoid	Ugly bridge	Aesthetics
Avoid	Ugly bridge	Aesthetics
Avoid	Ugly	Aesthetics
Avoid	Eyesore	Aesthetics
Avoid	Something ugly (include colored concrete; large potted plants on bridge, etc.)	Aesthetics
Avoid	Major Impacts on communications on both sides of river due to traffic	Community
Avoid	Urrutia, Camp Pollock Properties	Land use
Avoid	Single-purpose facilities	Multi-modal
Avoid	As much natural habitat as possible	Natural Resources / Environment
Avoid	Air pollution	Natural Resources / Environment
Avoid	Impact to natural and cultural resources	Natural Resources / Environment
Avoid	Heavy environment impacts	Natural Resources / Environment
Avoid	Endangering and harming the natural areas and animals in them	Natural Resources / Environment
Avoid	Riparian habitat	Natural Resources / Environment
Avoid	Loss of environmental linkages between habitats	Natural Resources / Environment

Community Values

Create Preserve Avoid	Comment	Topic
Avoid	Significant environmental damage to Parkway	Natural Resources / Environment
Avoid	Increase emissions due to congestion or less than optimum vehicle miles traveled results	Natural Resources / Environment
Avoid	Destruction of nature	Natural Resources / Environment
Avoid	A major thoroughfare that separates Alkali Flat from the proposed Railyard development	Neighborhood
Avoid	Neighborhood quality erosion	Neighborhood Vitality
Avoid	Impacts to neighborhoods	Neighborhood Vitality
Avoid	Disrupting communities	Neighborhood Vitality
Avoid	Heavy increased traffic through local neighborhoods	Neighborhood Vitality
Avoid	Avoid reducing flood protection for Sacramento	Other
Avoid	A long, drawn-out approval/environmental process	Other
Avoid	Larger homeless camps	Other
Avoid	Wasting money	Process
Avoid	Nothing happening	Process
Avoid	Long drawn out construction phase	Process
Avoid	"Same old, same old" transportation planning solutions-the hamster wheel thinking we can build our way out of congestion	Process
Avoid	Narrow-mindedness	Process
Avoid	Additional crossing just for the sake of having an additional crossing	Process
Avoid	Turning true into I-80 to downtown Sacramento thruway	Traffic Circulation
Avoid	Conflicts between pedestrians and faster moving vehicles	Traffic Circulation

Community Values

Create Preserve Avoid	Comment	Topic
Avoid	Avoid creating additional highway to encourage additional vehicle traffic	Traffic Circulation
Avoid	Creating a "freeway crossing" (local traffic)	Traffic Circulation
Avoid	Traffic congestion	Traffic Circulation
Avoid	Unnecessary traffic congestion and delay	Traffic Circulation
Avoid	Increases in vehicle miles traveled and vehicle congestion in region	Traffic Circulation
Avoid	Turning I-5 into LOS "A" in the peak	Traffic Circulation
Avoid	Commuter delays	Traffic Circulation

Resources

Resources cited in this technical memorandum are listed below.

- *American River Parkway Plan*, Sacrameto County, 2008
- *Downtown/Natomas/Airport (DNA) Green Line to the Airport, Draft Transitional Analysis Report*, RT, 2010
- Lower American River Task Force 2002. *River Corridor Management Plan for the Lower American River.* January.
- *Metropolitan Transportation Plan/Sustainable Communities Strategy 2035*, SACOG, 2012
- *River District Specific Plan*, City of Sacramento, 2010
- *Sacramento Railyards Specific Plan*, City of Sacramento 2007
- *Sacramento 2030 General Plan*, City of Sacramento, 2009

Section C: All Weather Northgate

ALL WEATHER NORTHGATE BOULEVARD

November 29, 2012

Prepared by:
Richard Liptak, Dokken Engineering

Northgate and Del Paso Boulevards flood at the confluence of the American River and Steelhead Creek [formerly Natomas East Main Drainage Canal (NEMDC)] with a less than 10 year frequency. When the roads flood, they are closed and the City places stop logs in the roadway to contain the flood waters. In 1995, there were 28 days that the roads were closed.

The following previous studies were considered:

- All weather Northgate Boulevard and Del Paso Boulevard Engineering Feasibility Study, *Parsons De Leuw*, October 1992
- Raising Northgate Boulevard, *Ensign & Buckley*, March 1996
- Elevating Northgate Boulevard, Environmental Overview for the draft Technical Memorandum, *HDR Engineering*, May 2001

Exhibit 1 shows the existing conditions and highlights the roadways that are within the frequently flooded areas. The area within the flood zone includes Highway 160, Light Rail, UPR tracks and both Northgate and Del Paso Boulevards. Highway 160 and the Light Rail are built above the 100 year flood elevations and remain open during flooding. The UPR tracks are higher in elevation than the Northgate and Del Paso Boulevards, but are not high enough to be unaffected by severe flooding. In addition, the area contains large SMUD transmission lines supported by over 100 feet tall steel towers. The Highway 160 bridges are in poor condition and need to be replaced. Caltrans owns the bridges and currently lists the bridges as eligible for replacement or major rehabilitation. They are also narrow and do not provide for adequate bike or pedestrian use.

Exhibit 2 shows a new bridge layout which elevates Northgate Boulevard to provide a dry roadway for 100 year floods and includes the following:

- Northgate Boulevard – New structure, including 2 lanes, 2 shoulders, 2 bicycle/pedestrian paths
- Highway 160 – New structure including 6 lanes, 4 shoulders, 2 bicycle/pedestrian paths, LRT lane (in center)
- Highway 160 and Northgate Boulevard Intersection – includes signal and left turn pocket for EB Highway 160 to NB Northgate Boulevard
- Highway 160 Tie-ins (WB) – 1 lane from Del Paso, 2 lanes from Highway 160, including new bridge over EB ramp to Del Paso and Light Rail
- Highway 160 Tie-ins (EB) – 1 lane to Del Paso, 2 lanes to Highway 160, including new bridge over EB ramp to Del Paso
- Del Paso Boulevard – Truncate Del Paso east of levee and connect to Railroad Drive
- Levee – Eliminate stop log structures and reconstruct levee where Del Paso passed through

The total cost of the proposed All-Weather Northgate Boulevard is $240 million, including $125m construction, 20% contingencies, 3% escalation per year for 10 years and 25% for PE and construction administration.

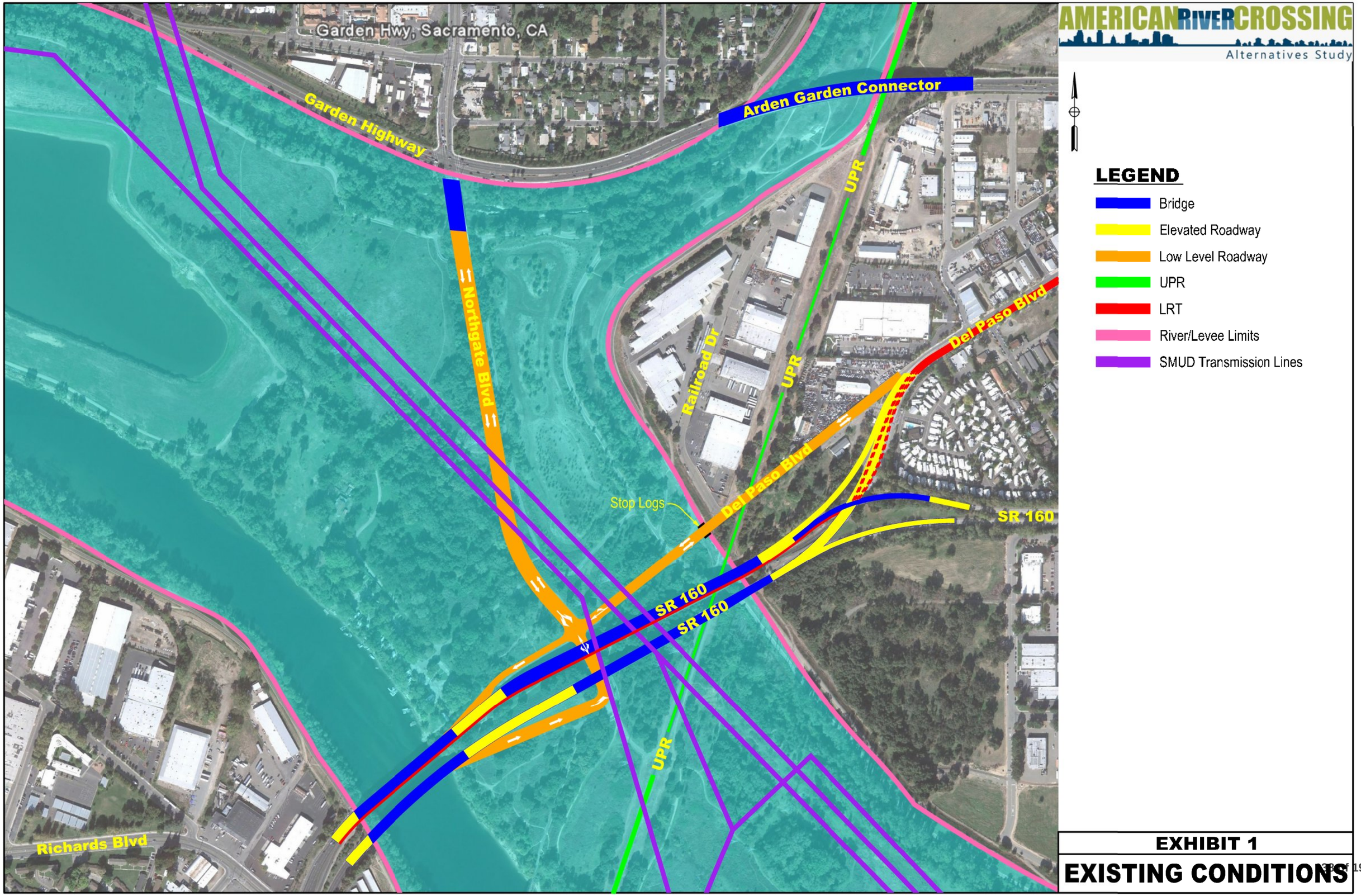
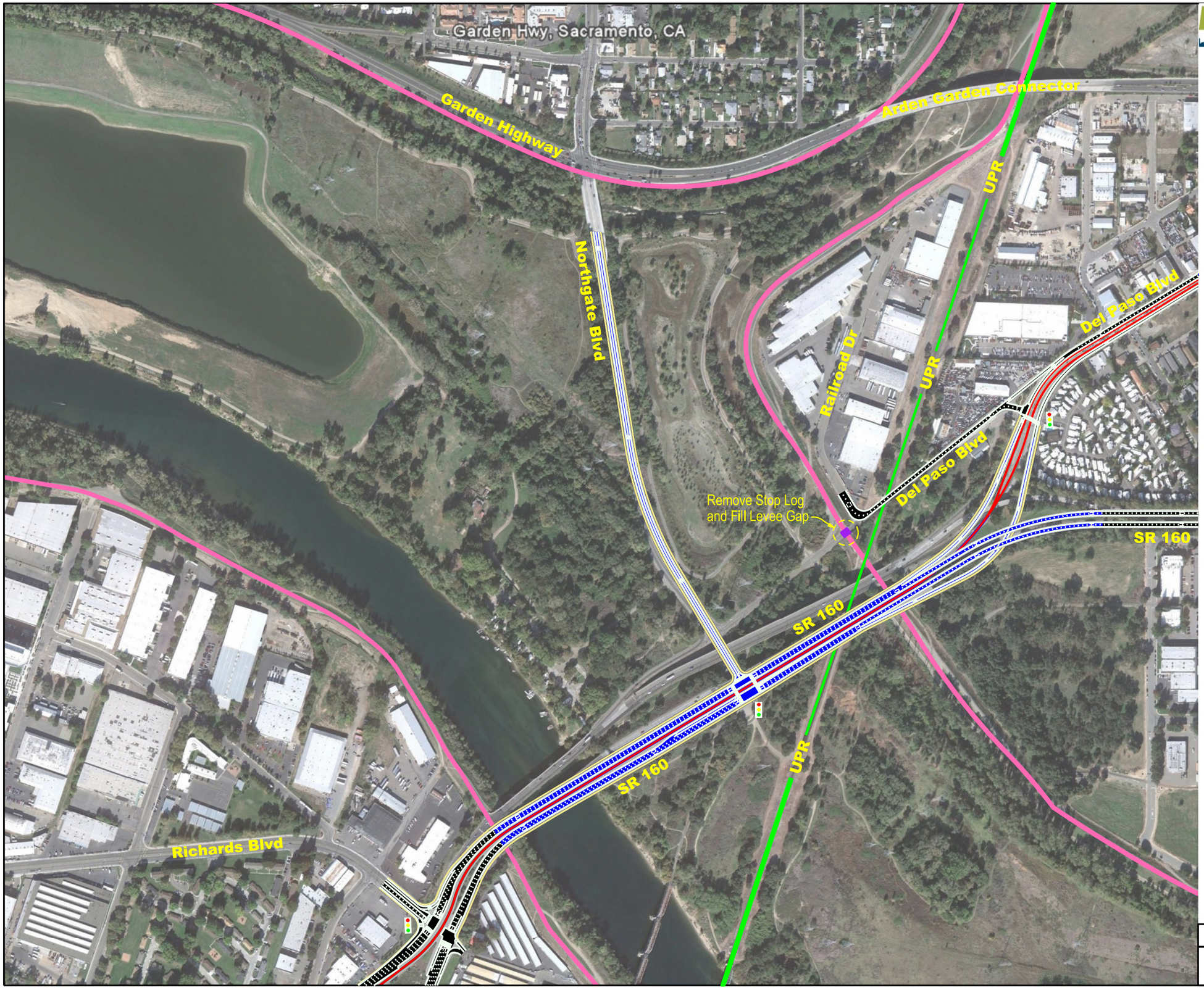


EXHIBIT 1

EXISTING CONDITIONS



AMERICAN RIVER CROSSING
Alternatives Study

LEGEND

- Bridge
- Road
- Shoulder
- Class 1 Bike Path
- Barrier
- UPR
- LRT
- River/Levee Limits

EXHIBIT 2

PROPOSED CONDITIONS

Section D: Evaluation Criteria

EVALUATION CRITERIA

The American River Crossing Alternatives Study involves an evaluation of multiple alternatives. To determine the appropriate criteria to include in this evaluation, the project team consulted a variety of sources but relied significantly on the following input and documents.

- American River Crossings Alternative Study Stakeholder Community Value Assessment (from Stakeholder Meeting #1, June 28, 2012) and Stakeholder Evaluation Criteria Review (from Stakeholder Meeting #3, October 30, 2012)
- *Sacramento 2030 General Plan*, City of Sacramento, March 3, 2009
- *River District Specific Plan*, City of Sacramento, February 15, 2011
- *Sacramento Railyards Specific Plan*, City of Sacramento, 2007
- *The 2010 Sacramento City/County Bikeway Master Plan*, County of Sacramento and City of Sacramento, 1995
- *Pedestrian Master Plan*. City of Sacramento, 2006
- *American River Parkway Plan*, County of Sacramento, 2008
- *Metropolitan Transportation Plan/Sustainable Communities Strategy*, Sacramento Area Council of Governments, 2012
- *Downtown Natomas Airport Green Line to the Airport Draft Transitional Analysis Report*, Sacramento Regional Transit District, 2010.

The intent of this study is to match community values (as expressed by the stakeholders and stated in current policy documents) with technical transportation objectives that can be measured or assessed. This approach will allow reviewers to understand how each alternative relates to these values and will provide a relative assessment of how alternatives perform in different contexts.

The evaluation criteria include both quantitative and qualitative performance measures. We have identified a list of performance measures based on the reference materials noted above and have associated the measures with the key community values and policies in Table 1. The measures respond to specific questions of interest to the stakeholders or identified in relevant policy documents. Stakeholders may recommend refinements to the questions and performance measures, but the intent of this review is to finalize the evaluation criteria for the alternatives evaluation.

TABLE 1
PROPOSED FINAL EVALUATION CRITERIA PERFORMANCE MEASURES

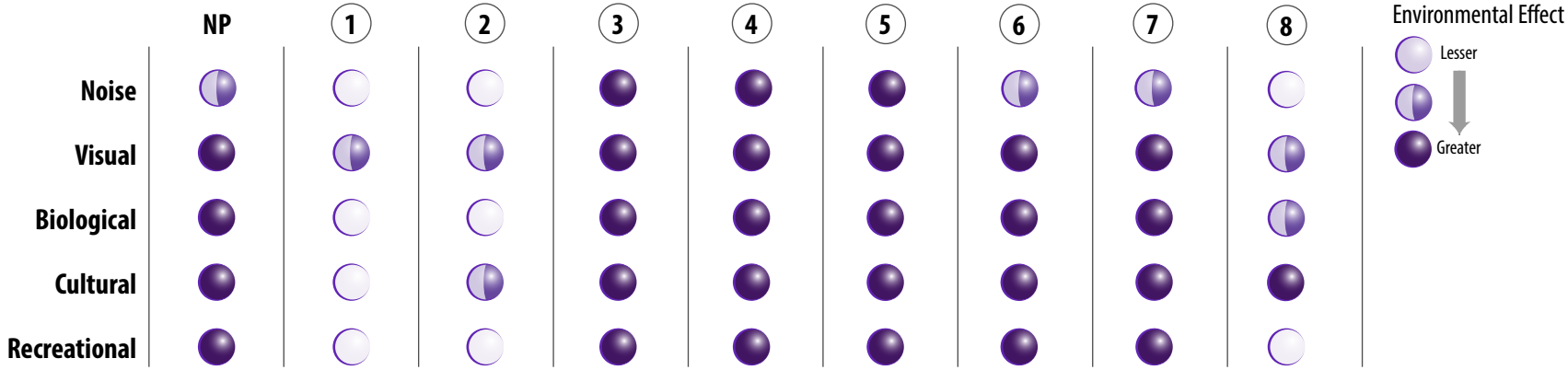
POLICIES AND COMMUNITY VALUES	QUANTITATIVE PERFORMANCE MEASURES	QUALITATIVE PERFORMANCE MEASURES
Accessibility • Increase accessibility to the Parkway • Increase accessibility to the Central City and South Natomas	• How many **people live and work within a ½ mile** route of the bridge location? • How many **households without autos are located within a ½ mile route of the bridge location**? • How many **people live and work within a 5-minute drive** of the bridge location? • How does the bridge location **increase the number of properties accessible from the nearest emergency rooms and fire stations based on adopted response time standards**?	• Where do the **vehicle trips using the bridge location start and end**?
Aesthetics • Maintain local character and identity		• Is the bridge location **compatible with existing or planned development**?

TABLE 1
PROPOSED FINAL EVALUATION CRITERIA PERFORMANCE MEASURES

POLICIES AND COMMUNITY VALUES	QUANTITATIVE PERFORMANCE MEASURES	QUALITATIVE PERFORMANCE MEASURES
Environment • Protect environmental and cultural resources • Protect and restore habitat • Reduce travel-related energy and emissions	• How much does the bridge location change the **number of miles driven** in the study area?[1] • How does the change in number of miles driven **affect fuel consumption, air pollution, and greenhouse gases**?	• What aspects of the **no project environmental setting are potentially disturbed by the crossing** (visual, noise etc.)? • Is the bridge location **compatible with existing habitat restoration plans**?
Mobility • Reduce the growth of future congestion • Reduce travel times to cross the river by all modes	• How much does the bridge location change the **number of miles of congested roadways**? (defined as roadways with p.m. peak period volumes above capacity) • How much does the bridge location **change travel times** for walking, bicycling, riding transit, and driving between select origin-destination pairs?	• How does the bridge location **affect existing and planned transit service**?
Neighborhoods/Community • Minimize regional cut-through traffic • Improve Parkway safety • Reduce Parkway litter	• How much does the bridge location **change traffic volumes on select neighborhood streets**?	• How does the bridge location **enhance recreational access to the Parkway**?

[1] Vehicle miles of travel (VMT) is the specific metric that will be used to assess this criterion.

Section E: Alternatives Analysis



Alternative 7 includes closure of this portion of Northgate Blvd.

Alternative 8 includes new at-grade intersection with full access to both directions of SR 160.

No Project (NP) Alignment

ALTERNATIVE CROSSING LOCATIONS - POTENTIAL ENVIRONMENTAL EFFECTS

AMERICAN RIVER CROSSING Alternatives Study

No Project

Regional Transit has proposed a new bridge between Truxel Road and Sequoia Boulevard to serve the Green Line light rail transit (LRT) extension to the Airport. The initial concept for this bridge is to have a single set of LRT tracks on one side of the bridge and the other side would have a sidewalk and a bi-directional bike facility.

Alternative 1

Alternative 1 will widen the Jibboom Street Bridge to provide enhanced bicycle and pedestrian facilities that connect into the existing Parkway bike network and trails.

Alternative 2

Alternative 2 includes the addition of a bike/pedestrian facility adjacent to I-5; the facility will be separated from the freeway and will connect into the existing bike network and trails. It will also provide an all-weather connection for cyclists.

Alternative 3

Alternative 3 would add vehicles to the No Project Regional Transit Green Line bridge and include bicycle and pedestrian facilities on both sides of the bridge. The proposed alternative for this study does not reflect any specific input from Regional Transit. Most of the environmental impacts would occur from construction of any type of bridge at this location (including the No Project Alternative), but the addition of vehicles and expanded bicycle and pedestrian facilities would exacerbate noise and visual impacts in particular.

Alternative 4

Alternative 4 connects into Garden Highway at a "T" intersection on the north side and connects into 7th Street on the south. This alternative will connect into the existing bike facilities on both sides and will accommodate all modes. This alternative also happens to be located in approximately the center of the study area.

Alternative 5

Alternative 5 connects to West El Camino Avenue on the north side and 10th Street on the south side; it also connects to an existing bike path. This alternative projected a different distribution of trips during initial traffic modeling because of the landing at West El Camino; it also provides capacity for all modes.

Alternative 6

Alternative 6 provides an extension of Northgate Boulevard on the north side connects into 10th Street on the south side and provides capacity for all modes. This alternative creates a 5-legged intersection near the Arden Garden Connector which can create traffic challenges.

Alternative 7

Alternative 7 connects into Northgate Boulevard on the north side and Street W in the River District Specific Plan on the south side. This would allow the portion of Northgate Boulevard between the Arden Garden Connector and the Riverdale Resort access to be closed to vehicles and used as a bike/pedestrian facility only.

Alternative 8

Alternative 8 provides an all-weather Northgate Boulevard (viaduct structure) that would be out of the flood plain and connect to a new SR 160 bridge at grade with full access to both directions on SR 160. This alternative would provide capacity for all modes, as well as an all-weather crossing. This also presents an opportunity to create a "gateway entrance" into the City as discussed at previous stakeholder meetings.

Noise

Any new or modified crossing that includes new or increased volumes of automobiles or light rail would increase noise levels. New crossings of the American River Parkway that connect near residential areas to the north and/or south have the greatest potential for substantial impacts (Alternatives 3, 4, 5). Alternative 3 adds both light rail and automobile noise near residential areas so would have a greater noise impact than alternatives that don't include light rail. Connections that are further away from residential land uses would have less of an effect on those uses, though would still affect users of the American River Parkway (Alternatives 6, 7). Alternatives 1, 2 and 8 would also improve or modify existing facilities, but do not include additional automobiles or changes to light rail, so therefore would have the least effect on noise levels.

Visual

New crossings of the American River and the American River Parkway would have substantial visual effects (Alternatives 3, 4, 5, 6, 7) for recreational users and for users of the land uses to the north and south of the Parkway. Widening or modifying existing infrastructure and creating new bicycle and pedestrian connections would cause less of an effect, though changes in views, especially from recreational area viewpoints (parks and trails), would still occur (Alternatives 1, 2, 8).

Biological

New crossings of the American River and the American River Parkway (Alternatives 3, 4, 5, 6, 7) have the potential to result in substantial impacts on biological resources. Crossings that would modify existing structures (Alternatives 1, 2, 8) have less of a potential for effects, though Alternative 8 would require construction of a viaduct along Northgate Boulevard adjacent to open space and could result in greater impacts on biological resources

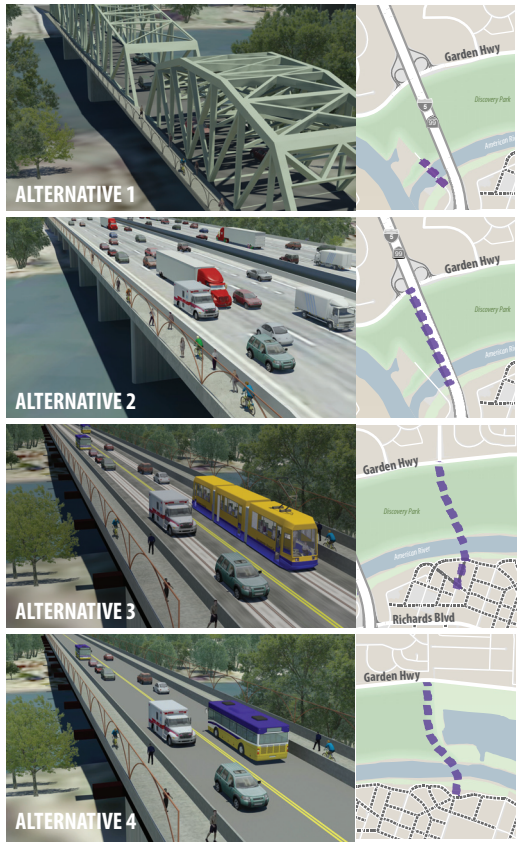
Cultural

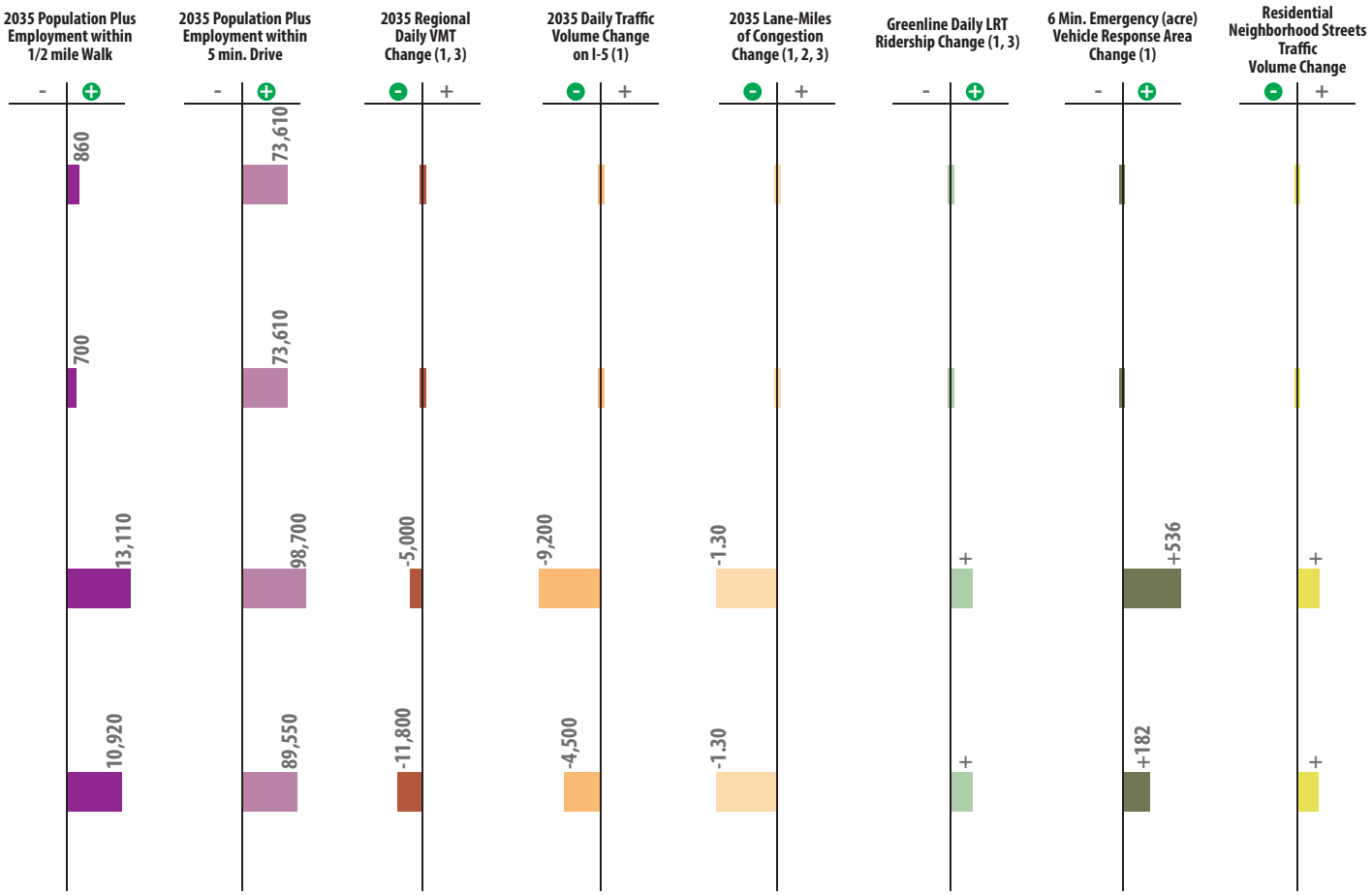
The entire study area is located adjacent to a waterway and therefore is potentially sensitive for cultural resources. Any alternative that causes ground disturbance has the potential to impact cultural resources. The American River Parkway, in particular, is highly sensitive for prehistoric and historic resources. Alternatives requiring the least amount of excavation would have the least potential for effects (Alternative 1). Because there would be limited ground disturbance and the area is highly sensitive, the impacts for Alternative 2 would be greater than Alternative 1. Alternatives 3, 4, 5, 6, 7, and 8 have the potential to cause substantial effects on cultural resources due to their location and the anticipated amount of ground disturbance.

Recreation

Crossings that require the conversion of large amounts of recreational land within the American River Parkway would have the greatest adverse effect on recreational resources (Alternatives 3, 4, 5, 6, 7). In addition to American River Parkway effects, Alternative 5 would affect Ninos Parkway and Alternative 4 would affect a proposed park in the River District. Alternative 1 and 2 may require some Parkway land conversion but the area would be very small. Alternative 8 would affect bicycle paths, connections and access near Northgate Blvd/SR 160 so would have a greater effect on recreation than Alternatives 1 and 2. All alternatives would result in recreational improvements through improved access via multiple travel modes.

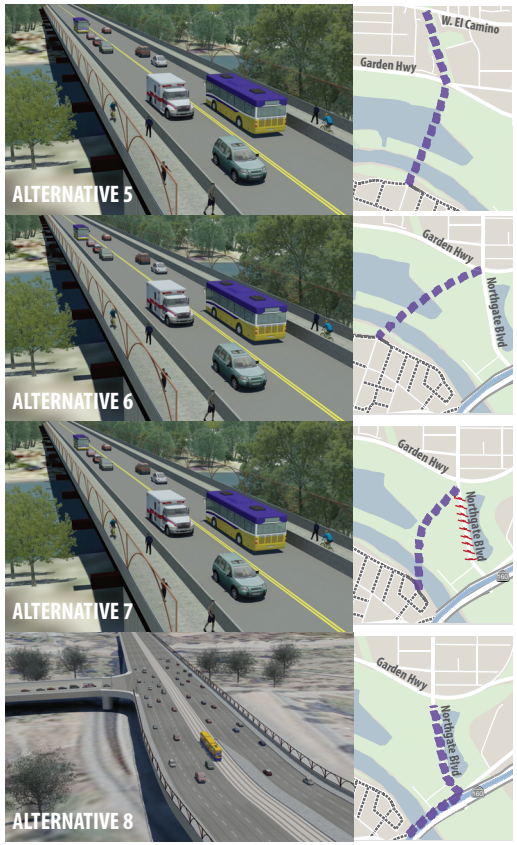
Alternatives / Modal Options

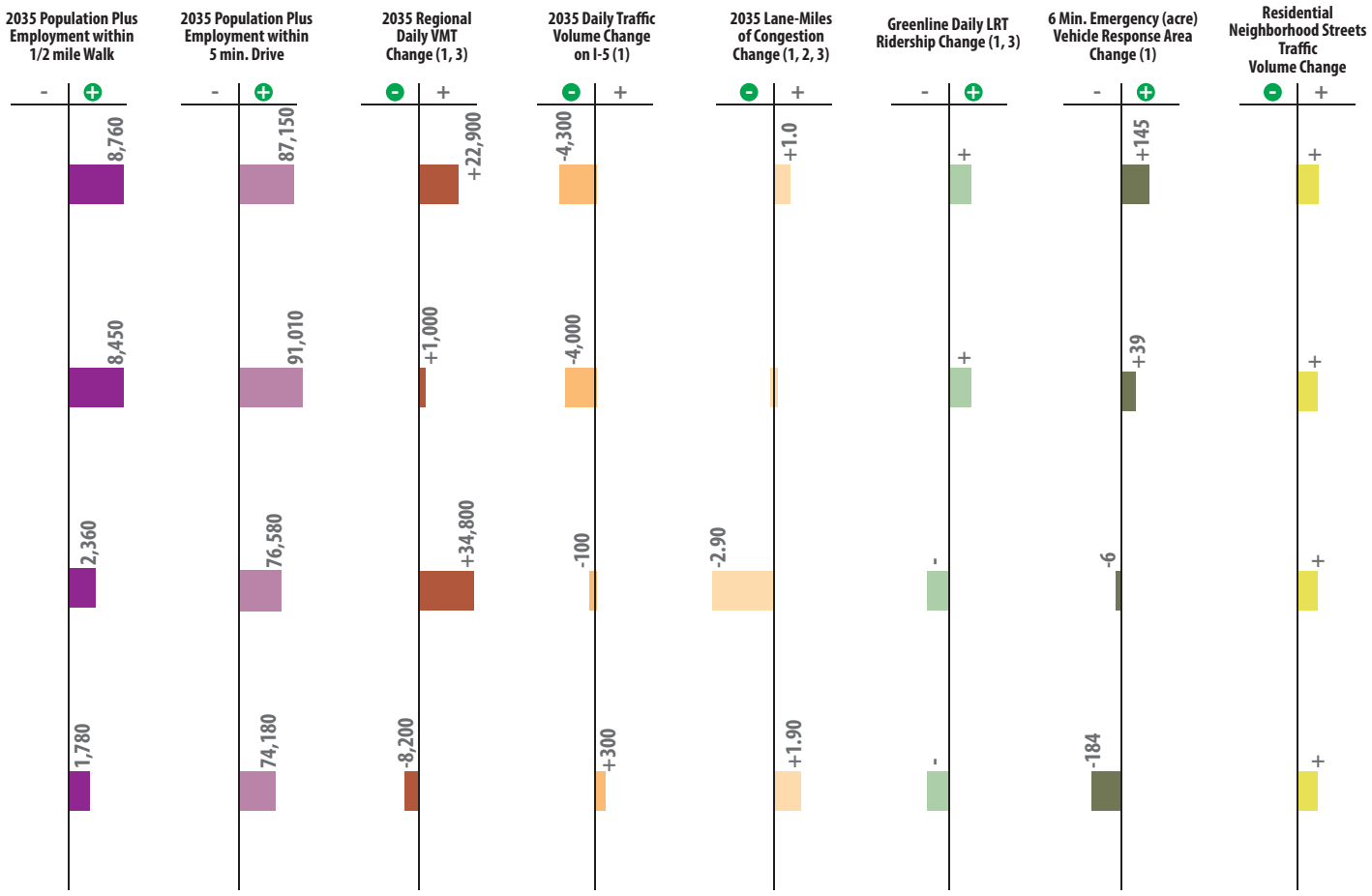




Notes: Shaded cells denote highest value.
(1) [2035 with new bridge] - [2035 no project]
(2) Change within study area during PM peak period.
(3) Some results are within the margin of forecasting error.
⊕/⊖ Desired direction of change based on purpose and need statement.

Alternatives / Modal Options





Notes: Shaded cells denote highest value.
(1) [2035 with new bridge] - [2035 no project]
(2) Change within study area during PM peak period.
(3) Some results are within the margin of forecasting error.
⊕/⊖ Desired direction of change based on purpose and need statement.

Section F: Survey

1. How important is it to have additional options for crossing the American River between I-5 and State Route 160?

	Response Percent	Response Count
Very important	**54.4%**	**326**
Important	24.0%	144
Neutral	9.0%	54
Unimportant	5.3%	32
Very unimportant	7.2%	43
	answered question	**599**
	skipped question	**0**

2. The study area would be best served by: (see map of study area above)

	Response Percent	Response Count
A new bridge that serves all modes (automobiles, public transit, bikes, and pedestrians) of transportation	**61.3%**	**367**
A new bridge that serves only bikes, pedestrians and public transit	22.0%	132
A new bridge that serves only bikes and pedestrians	5.2%	31
Modification of an existing bridge to improve biking and walking	5.5%	33
No change	6.0%	36
	answered question	**599**
	skipped question	**0**

3. When deciding on the location of a new bridge or improving an existing bridge, the City should: (pick one)

	Response Percent	Response Count
Evaluate how much the bridge location would reduce the number of miles driven by automobile between Central City and South Natomas only	17.7%	106
Evaluate how much the bridge location reduces the travel times for walking and bicycling only.	18.2%	109
Evaluate how much the bridge location would reduce the travel time for automobiles, pedestrians and cyclists.	**64.1%**	**384**
	answered question	**599**
	skipped question	**0**

4. Additional options for crossing the American River should achieve the following: (pick up to three)

	Response Percent	Response Count
Increased public transit options between Central City and South Natomas	**48.8%**	**287**
Easier crossing for walking or biking	48.1%	283
Better response times for police and fire	19.4%	114
Additional evacuation options during natural and manmade disasters	23.1%	136
Shorter trips between the Central City and South Natomas	24.8%	146
Reduced air pollution and greenhouse gas emissions	30.4%	179
Increased economic activity for the Central City and South Natomas	25.2%	148
Reduced congestion on I-5 from short trips between the Central City and South Natomas	39.1%	230
Improved access to the American River Parkway	22.8%	134
	answered question	**588**
	skipped question	**11**

5. I commute to work across the American River: (pick one)

	Response Percent	Response Count
Daily	**41.6%**	**249**
Weekly	11.2%	67
Monthly	6.8%	41
Rarely	10.9%	65
Never	29.5%	177
	answered question	**599**
	skipped question	**0**

6. For non-work purposes, I travel between South Natomas and the Central City:

	Response Percent	Response Count
Daily	10.2%	61
Weekly	**38.6%**	**231**
Monthly	24.4%	146
Rarely	20.9%	125
Never	6.0%	36
	answered question	**599**
	skipped question	**0**

7. I typically cross the American River by (check all that apply):

	Response Percent	Response Count
Public Transit	9.0%	54
Auto	**86.3%**	**517**
Bicycle	35.1%	210
Walk	5.0%	30
Other (please specify)	1.5%	9
	answered question	**599**
	skipped question	**0**

8. I live in (pick one):

	Response Percent	Response Count
Downtown	20.9%	125
South Natomas	14.0%	84
Other	**65.1%**	**390**
	answered question	**599**
	skipped question	**0**

9. I work in (pick one):

	Response Percent	Response Count
Downtown	**45.4%**	**272**
South Natomas	10.5%	63
Other	44.1%	264
	answered question	**599**
	skipped question	**0**

Page 1, Q7. I typically cross the American River by (check all that apply):		
1	North Natomas Flyer	Dec 14, 2012 7:55 AM
2	running	Dec 13, 2012 4:02 PM
3	scooter - 25 mph road needed	Nov 29, 2012 11:07 PM
4	question 6 above - actually more than monthly but < weekly	Nov 29, 2012 9:19 AM
5	unfortunately not light rail	Nov 28, 2012 8:25 AM
6	swim	Nov 28, 2012 5:45 AM
7	skateboarding	Nov 27, 2012 7:21 PM
8	Never cross it	Nov 27, 2012 6:09 PM
9	swimming	Nov 27, 2012 5:30 PM

COMMUNITY SURVEY SUMMARY

Nearly 600 community members completed the American River Crossing Alternatives Study online survey which was open between November 27, 2012 and December 14, 2012.

- Seventy-eight percent of survey respondents opined that additional river crossings between I-5 and State Route 160 were either important or very important.
- Over 61 percent of respondents agreed that a new "all modes" bridge to serve cars, public transit, bikes, and pedestrians was the best option.
- 22 percent of the respondents preferred a new bridge that served only bikes, pedestrians, and public transit but not cars.
- Advocates for only bicycle and pedestrian improvements on either a new or modified bridge accounted for nearly 6 percent of the respondents while 6 percent preferred no improvements at all.

The survey also asked respondents to provide input on what the City should consider when evaluating the potential location of a new and/or modified bridge. Over 64 percent stated that travel time reduction for cars, pedestrians, and cyclists should be a determining factor.

As for project goals, the survey respondents supported increased public transit options between the Central City and South Natomas, easier crossing for walking and biking, and reduced congestion on I-5 from short trips between the Central City and South Natomas as the top three outcomes to achieve.

Section G: Cost Estimates

COST ESTIMATES FOR ALTERNATIVES 1-8

March 11, 2013

Prepared by:
Richard Liptak, PE, Dokken Engineering

Following is a summary of the costs:

ALTERNATIVE	TOTAL PROJECT COST	
	Year 2013	Year 2023 including ESCALATION
1	$10 M	$13 M
2	$16 M	$21 M
3	$54 M	$70 M
4-7	$58-$68 M	$74-$86 M
8	$188 M	$240 M

ALTERNATIVE 1:

Alternative 1 is a Pedestrian/Bike expansion added to both sides of the existing Jibboom Street Bridge over the American River. The existing bridge is a swing-type steel truss movable structure that can be expanded on each side to provide adequate pedestrian/bike facilities. The main two spans in the middle of the river are the movable spans and a pedestrian/bike path that hangs off each side of the bridge would need to accommodate the movement.

The Jibboom Street bridge is 500 feet long with approaches of 300 and 200 feet for a total path length of 1000 feet on each side of the existing bridge.

The total project cost of the pedestrian/bike path added to the existing Jibboom Street bridge is $13 million, including construction, 3% escalation per year for 10 years and 25% for Preliminary Engineering (PE) and construction administration.

COST ESTIMATES FOR ALTERNATIVES 1-8

ALTERNATIVE 2:

Alternative 2 is a Pedestrian/Bike expansion added to the west side of the existing I-5 bridge over the American River. The existing two parallel bridges are fixed Caltrans-type concrete box girder bridges that can be expanded to provide adequate pedestrian/bike facilities.

The I-5 bridges are 2,700 feet long with an approach of 800 feet on the south end and would need a ramp of 500 feet to tie into the existing path along Garden Highway for a total path length of 4,000 feet on the side of the existing bridge.

The total project cost of the pedestrian/bike path added to the existing I-5 bridge is $21 million, including construction, 3% escalation per year for 10 years and 25% for PE and construction administration.

ALTERNATIVE 3:

Alternative 3 is a multi-modal bridge that includes vehicles, light-rail transit, bikes, and pedestrians. This alternative differs from the "no project" RT bridge in that cars and buses are accommodated in mixed-flow lanes and more generous paths are provided for bicyclists and pedestrians. This estimate is a complete cost of a new bridge that would accommodate all of these modes, which would require a wider cross-section than proposed for the "no project" bridge.

The proposed RT bridge is 2,300 feet long. Accommodating two traffic lanes (shared with LRT tracks), shoulders and pedestrian/bike paths would require a 70 feet wide bridge for this same length.

The total project cost of a bridge that includes infrastructure for LRT and can accommodate 2 lanes of vehicles (shared with LRT tracks) is $70 million, including construction, 3% escalation per year for 10 years and 20% for PE and construction administration (reduced from 25% since most of the environmental and preliminary design costs are included in the RT project and would not need to be started from scratch).

ALTERNATIVES 4 – 7:

Alternatives 4 through 7 are stand-alone two-lane multi-modal bridges spanning across the Parkway at four locations. They include provisions for busses in mixed-flow lanes, but not LRT.

The range of bridge lengths at the four locations are 2,700 to 3,200 feet. Alternative 5 has an additional 1,900 feet of approach roadway included.

The range of total project costs of the four proposed stand-alone bridges are $74 to $86 million, including construction, 3% escalation per year for 10 years and 25% for PE and construction administration.

ALTERNATIVE 8:

Alternative 8 is a combination of All-Weather Northgate, replacement of Highway 160 bridges over the river and parkway, and creating an at-grade full access intersection gateway.

Northgate and Del Paso Boulevards flood at the confluence of the American River and Steelhead Creek [formerly Natomas East Main Drainage Canal (NEMDC)] with a less than 10 year frequency. When the roads flood, they are closed and the City places stop logs in the roadway to contain the flood waters. In 1995, there were 28 days that the roads were closed.

The area within the flood zone includes Highway 160, Light Rail, UPR tracks and both Northgate and Del Paso Boulevards. Highway 160 and the Light Rail are built above the 100-year flood elevations and remain open during flooding. The UPR tracks are higher in elevation than the Northgate and Del Paso Boulevards, but are not high enough to be unaffected by severe flooding. In addition, the area contains large SMUD transmission lines supported by over 100-feet tall steel towers.

There are four Highway 160 bridges over the American River and American River Parkway. One of the bridges over the river is in poor condition and needs to be replaced. The Highway 160 bridges are also narrow and do not provide for adequate bike or pedestrian use. Caltrans owns the bridges and currently lists one of the bridges as eligible for replacement and the other three are eligible for major rehabilitation. Federal Highway Bridge Program (HBP) funding may be available to replace one of the Highway 160 bridges over the river and rehabilitate the other three. Each of those bridges would cost between $15 million and $40 million to replace, for a total of $95 million.

The new bridge layout elevates Northgate Boulevard to provide a dry roadway for 100-year floods and includes the following:

- Northgate Boulevard – New structure, including 2 lanes, 2 shoulders, 2 bicycle/pedestrian paths
- Highway 160 – New structure including 6 lanes, 4 shoulders, 2 bicycle/pedestrian paths, LRT lane (in center)
- Highway 160 and Northgate Boulevard Intersection – Includes signal and left turn pocket for EB Highway 160 to NB Northgate Boulevard
- Highway 160 Tie-ins (WB) – 1 lane from Del Paso, 2 lanes from Highway 160, including new bridge over EB ramp to Del Paso and Light Rail
- Highway 160 Tie-Ins (EB) – 1 lane to Del Paso, 2 lanes to Highway 160, including new bridge over EB ramp to Del Paso
- Del Paso Boulevard – Truncate Del Paso east of levee and connect to Railroad Drive
- Levee – Eliminate stop log structures and reconstruct levee where Del Paso passed through

The total project cost of Alternative 8 is $240 million, including construction, 3% escalation per year for 10 years and 25% for PE and construction administration.

Section H: Stakeholders

Stakeholders

The project study website below contains the detailed information developed during the study and presented to the stakeholders and the public. http://www.cityofsacramento.org/transportation/planning-policy/AmericanRiverCrossingStudy.html

City of Sacramento
Department of Transportation

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Home > Dept. of Transportation > Planning and Policy > American River Crossing Alternatives Study

Planning and Policy

American River Crossing Alternatives Study / 65th Street – Station Area Study / 65th Street – University Transit Village Plan / Florin and Meadowview Station Area Plans / Light Rail Station Ordinance and General Plan Amendment / Northeast Line Light Rail Stations Plan / Proposed Transportation Development Impact Fee / Sacramento River Crossings Alternatives Study / Sacramento Streetcar Planning Study / South 65th Street Area Plan / Swanston Station Transit Village Plan / TIGER

AMERICAN RIVER CROSSING
Alternatives Study

Community Workshop

The City of Sacramento is hosting a Community Workshop to share an overview of the American River Crossing Alternatives Study on Thursday, May 2. Join us to learn about the project and provide your input.

Thursday, May 2
5:30–7:30 pm
South Natomas Community Center
2921 Truxel Road

Click here for more information.

Community Survey

Nearly 600 respondents completed a non-scientific survey for the American River Crossing Alternatives Study conducted by the City of Sacramento to obtain public input on bridge crossing objectives and travel habits for a section of the American River between I-5 and State Route 160. Seventy-eight percent of survey respondents opined that additional river crossings between I-5 and State Route 160 were either important or very important and over 64 percent stated that travel time reduction for cars, pedestrians, and cyclists should be a determining factor.

Click here to view complete survey results.

What is the project?

The City of Sacramento is conducting an alternatives study for a new crossing of the American River between Interstate 5 (I-5) and the State Route 160 (SR 160) within the City of Sacramento that would connect the Central City and South Natomas. The study will examine alternatives types of crossings, alternative locations for a new crossing, the types of modes the new crossing should serve, potential construction costs, and environmental effects. The City of Sacramento is supported by a team of consultants with expertise in transportation analysis, environmental planning, engineering design, and public outreach.

Why is the project being conducted?

The American River Crossing Alternatives study is being conducted to develop a recommendation for a crossing of the American River between the Central City and South Natomas that best accomplishes the adopted goals and policies of the City of Sacramento. The limited connections across the American River today create longer trips, which discourage walking and bicycling and create a dependence on the automobile while reducing the potential to achieve planned urban development and re-development of opportunity sites in both areas.

Currently, local traffic uses State-owned facilities, either I-5 or SR 160, to travel between the Central City and South Natomas. This contributes to travel delays on I-5 and SR 160 during peak periods and reduces options for emergency response teams, evacuation, and non-motorized travel.

How is the project being funded?

The project is being funded by a Caltrans Partnership Planning grant and local funds.

What is the project timeline?

The alternatives study is scheduled for completion by April 2013.

How will stakeholder input be included?

The project team has assembled a Stakeholder Advisory Committee that includes representatives of the American River Parkway, environmental, pedestrian/bicycle interests, neighborhood and business organizations, to ensure diverse perspectives are considered throughout the planning process. SAC meetings are open to the public for observation. In addition, the project team will host two community workshops and conduct an informal web-based survey of needs and perspectives related to a new crossing in order to collect feedback from the general public.

Stakeholder Advisory Committee Materials

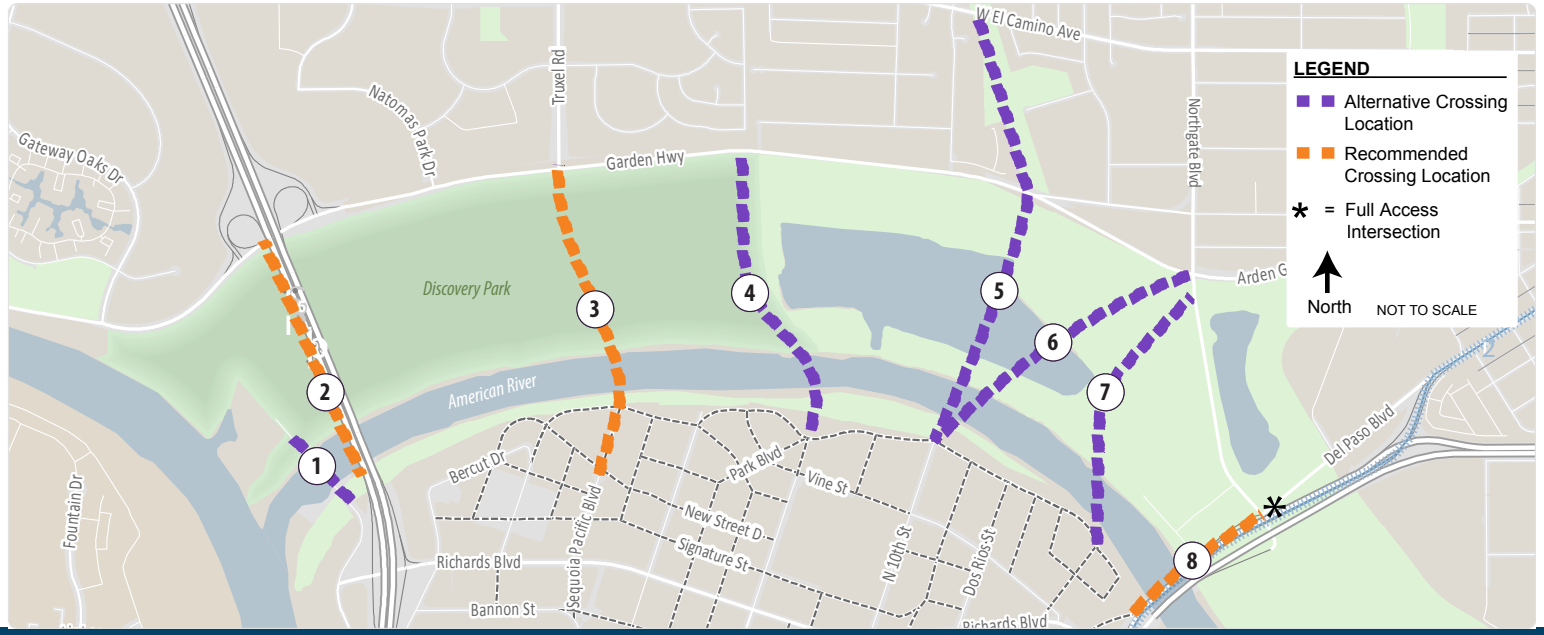
- SAC Meeting #1 Presentation
- SAC Meeting #1 Summary
- SAC Site Tour Summary
- SAC Meeting #2 Summary
- Draft Opportunities and Constraints Technical Memo
- SAC Meeting #3 Summary
- Draft Evaluation Criteria
- Draft Purpose and Need Statement
- SAC Meeting #4 Summary
- Final Evaluation Criteria
- Draft Purpose and Need Statement
- SAC Meeting #5 Summary
- Stakeholder Alternatives Feedback
- Community Survey Results
- Potential Environmental Effects
- Transportation Analysis

Additional Background and Resources

- American River Parkway Plan
- City of Sacramento Bikeway Master Plan
- City of Sacramento Pedestrian Master Plan
- City of Sacramento 2030 General Plan
- Green Line to the Airport Draft Transitional Analysis
- Merged Downtown Redevelopment Project Area Implementation Plan
- Northgate Blvd. — All Weather Feasibility Study
- Northgate Blvd. — Elevating Northgate Environmental Review
- Northgate Blvd. — Raising Northgate Study
- Railyards Specific Plan
- River District Specific Plan
- RT Short Range Transit Plan
- Sacramento River Crossing Alternatives Study

Section I: Community Meeting

Identified Potential Crossing Locations



Project Overview

The City of Sacramento is conducting an alternatives study for a new crossing of the American River between the Jibboom Street Bridge (immediately west of Interstate 5 (I-5) and the Sacramento Northern Bike Trail (immediately east of State Route 160 (SR 160) within the City of Sacramento that would connect the Central City and South Natomas.

The study is examining:

- alternative locations for a new crossing
- the types of modes the new crossing should serve
- potential construction costs
- environmental effects

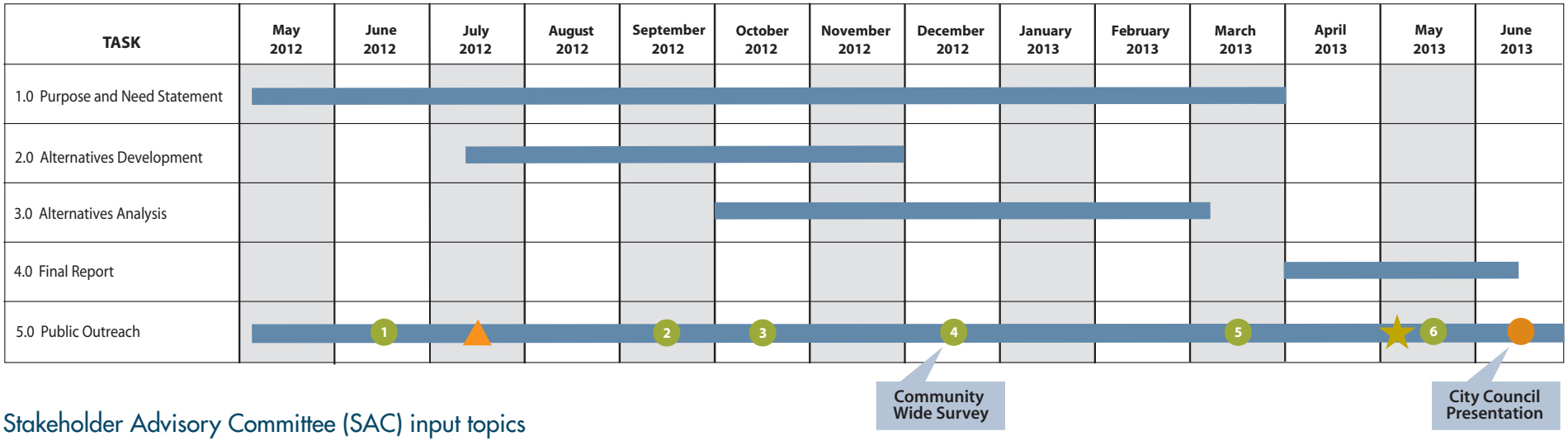
Project Goals

The City of Sacramento's goals for this project include:

- Developing better connections between Central City and South Natomas
- Assuring successful implementation of the General Plan, which includes the development of two important urban infill areas in the Central City; the Railyards and the River District
- Providing a multi-modal crossing that encourages travel by diverse users
- Minimizing the use of I-5 for local traffic

Stakeholder Advisory Committee Meeting

Project Schedule



Stakeholder Advisory Committee (SAC) input topics

1 Stakeholder Advisory Committee Meeting #1
- Dialogue of Land Use/Transit/Transportation Needs
- Objectives of Project
- Discussion of Key Community Values
- Draft Purpose and Need Statement

Stakeholder Site Tour
- Existing Conditions
- Opportunities & Constraints

2 Stakeholder Advisory Committee Meeting #2
- Opportunities and Constraints
- Planning Content
- Draft Final Purpose & Need Statement

3 Stakeholder Advisory Committee Meeting #3
- Opportunities and Constraints
- Review
- Evaluation Criteria
- Draft Final Purpose & Need Statement

4 Stakeholder Advisory Committee Meeting #4
- Evaluation Criteria
- Alternatives Discussion

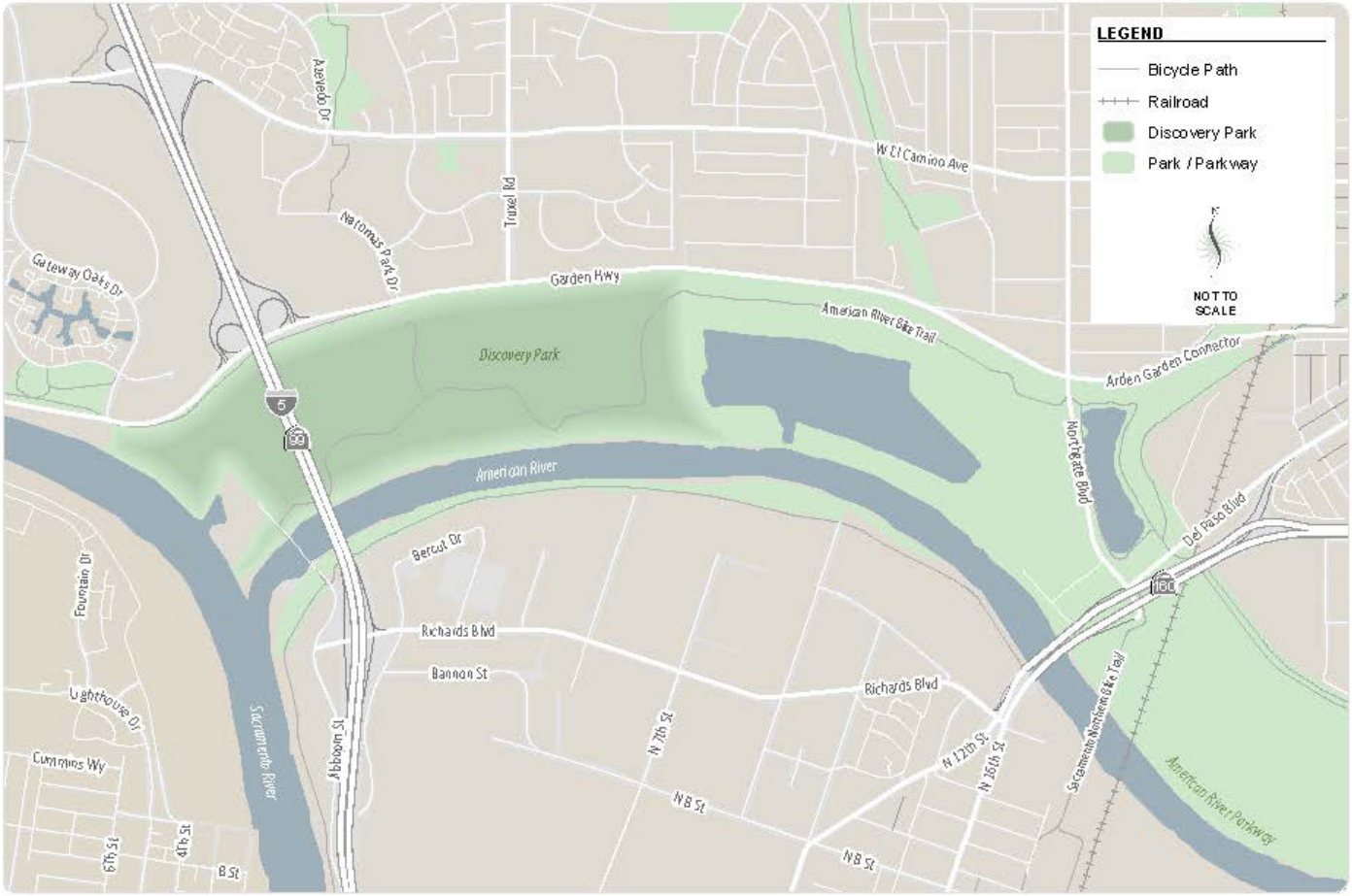
5 Stakeholder Advisory Committee Meeting #5
- Discussion of Community Survey
- Transportation Analysis
- Final Refinements to Purpose & Need
- Potential Environment Effects
- Preliminary Cost Estimates
- Finalize Recommendation

6 Stakeholder Advisory Committee Meeting #6
- Prioritize Alternatives

Community Workshop
- Obtain community feedback

Project Overview

Study Area



AMERICAN RIVER CROSSING
Alternatives Study

Purpose & Need

<u>Need</u> = What is the existing and/or future transportation problem? What are we trying to fix or improve?

<u>Purpose</u> = The purpose of the project is to accomplish specific objectives. In this study, the stakeholders and public will help to identify these objectives based on community values, which provides a context for evaluation.

Purpose & Need

Alternatives evaluated in the study must:

- **Respond to the need and purpose**
- **Connect to logical termini**
- **Be of sufficient length to address environmental effects**
- **Have independent utility**

Purpose & Need

NEED The proposed action is needed for the reasons listed below.	PURPOSE The proposed action will achieve the following objectives.
1) Limited connectivity across the American River creates a barrier to economic activity, land use development, social exchanges, and access to jobs within the Central City and South Natomas. The barrier causes longer trip lengths between origins and destinations that are physically close, which discourages walking and bicycling, reduces public health, creates inefficient transit routing, consumes more fuel, and generates higher levels of air pollutants and Greenhouse gas (GHG) emissions due to the reliance on automobiles.	*1A) Add bridge capacity across the American River between the Central City and South Natomas that serves multiple modes and minimizes the growth in vehicle miles of travel (VMT), air pollutants, and GHG emissions.* *1B) Minimize the growth in vehicle traffic on nearby residential streets caused by trips with either origins or destinations outside of the Central City and South Natomas accessing any new or modified bridge of the American River.*
2) Limited connectivity across the American River contributes to peak period travel delays on I-5.	*2) Add bridge capacity with the primary function of providing local connectivity between the Central City and South Natomas to reduce the overall reliance of local trips on state facilities.*
3) Limited connectivity across the American River contributes to longer emergency response times and limits evacuation alternatives.	*3) Add bridge capacity that increases options for evacuations and emergency/disaster response for the Central City and South Natomas.*
4) Limited connectivity across the American River creates a barrier to recreational opportunities within the American River Parkway.	*4) Improve recreational access to the American River Parkway as part of any bridge capacity improvements.*

Opportunities and Constraints

LEGEND

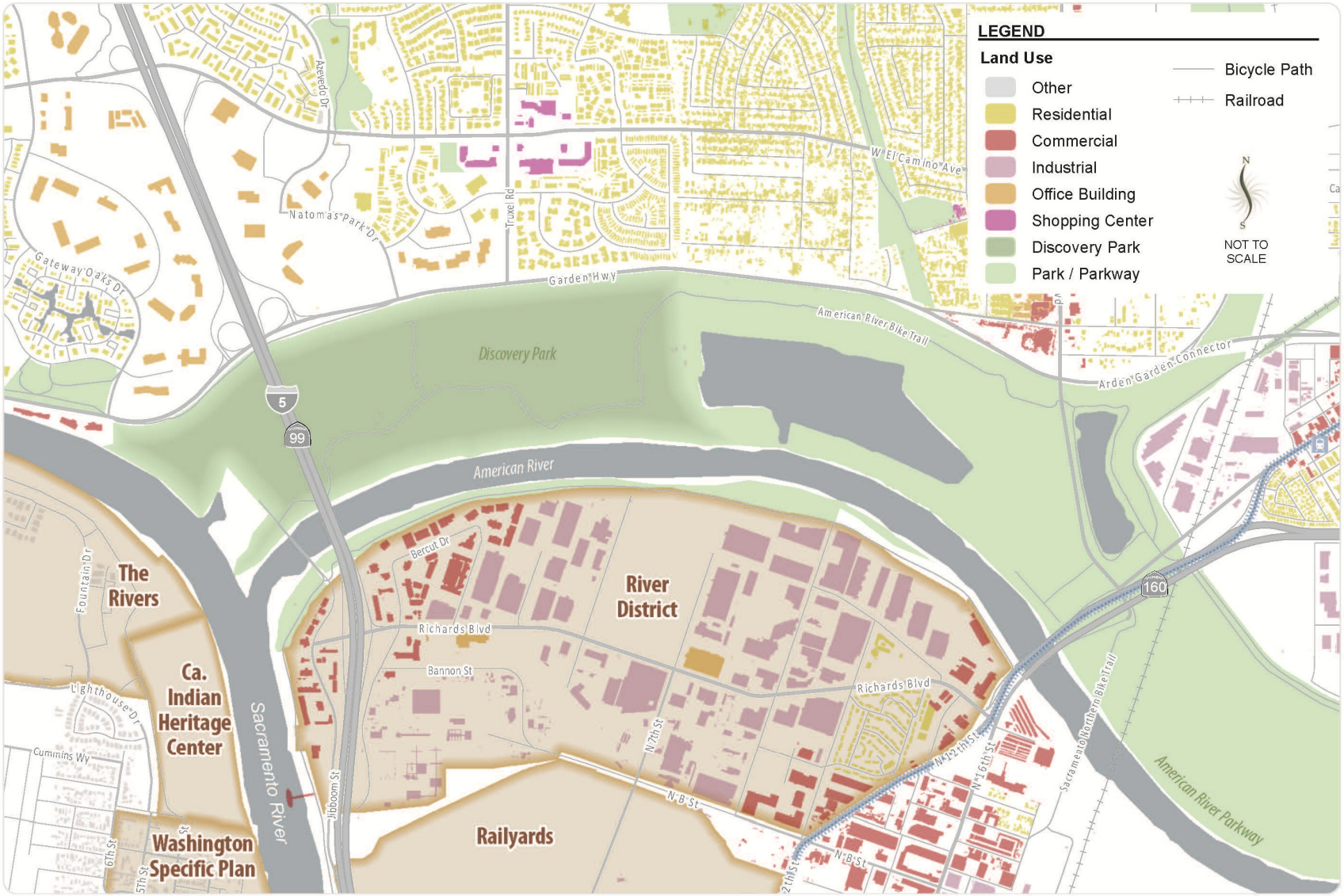
- Highly Sensitive
- Moderately Sensitive
- Potentially Sensitive
- Planned Mitigation
- Existing Mitigation

NOTE: Due to the sensitive nature of cultural resources, archaeological site locations are not identified. However, the entire study area is potentially sensitive for cultural resources. The American River Parkway, in particular, is considered mederately to highly sensitive.

The mitigation areas contain one or more of the following habitats: Mixed Riparian Forest, Shaded Riverine Aquatic, Riparian Woodland, Oak Woodland, Elderberry, Riparian, and Native Grass.

N
S
NOT TO SCALE

Opportunities and Constraints



Evaluation Criteria

TABLE 1
PROPOSED FINAL EVALUATION CRITERIA PERFORMANCE MEASURES

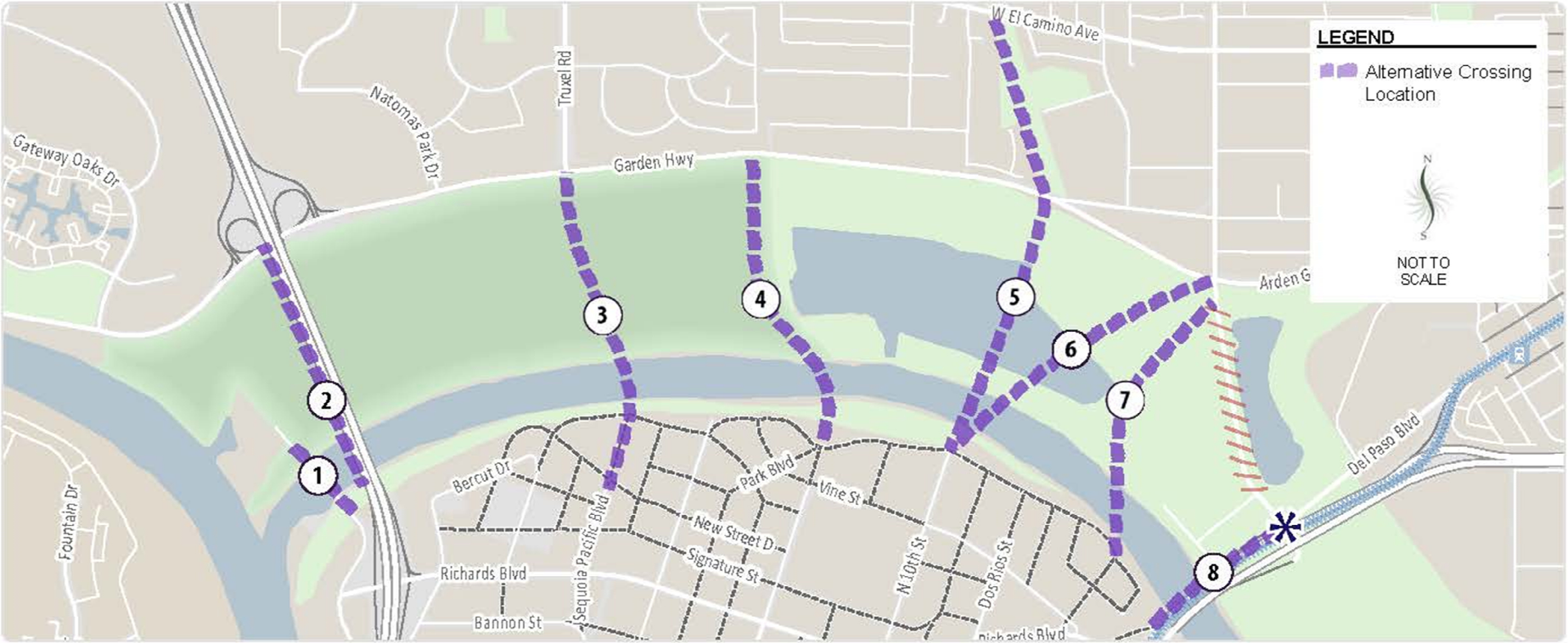
POLICIES AND COMMUNITY VALUES	QUANTITATIVE PERFORMANCE MEASURES	QUALITATIVE PERFORMANCE MEASURES
Accessibility • Increase accessibility to the Parkway • Increase accessibility to the Central City and South Natomas	• How many **people live and work within a ½ mile** route of the bridge location? • How many **households without autos are located within a ½ mile route of the bridge location**? • How many **people live and work within a 5-minute drive** of the bridge location? • How does the bridge location **increase the number of properties accessible from the nearest emergency rooms and fire stations based on adopted response time standards**?	• Where do the **vehicle trips using the bridge location start and end**?
Aesthetics • Maintain local character and identity		• Is the bridge location **compatible with existing or planned development**?

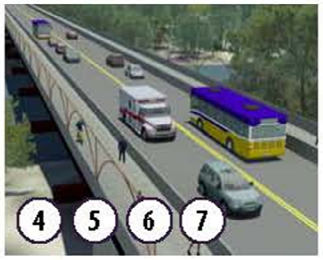
Evaluation Criteria

TABLE 1
PROPOSED FINAL EVALUATION CRITERIA PERFORMANCE MEASURES

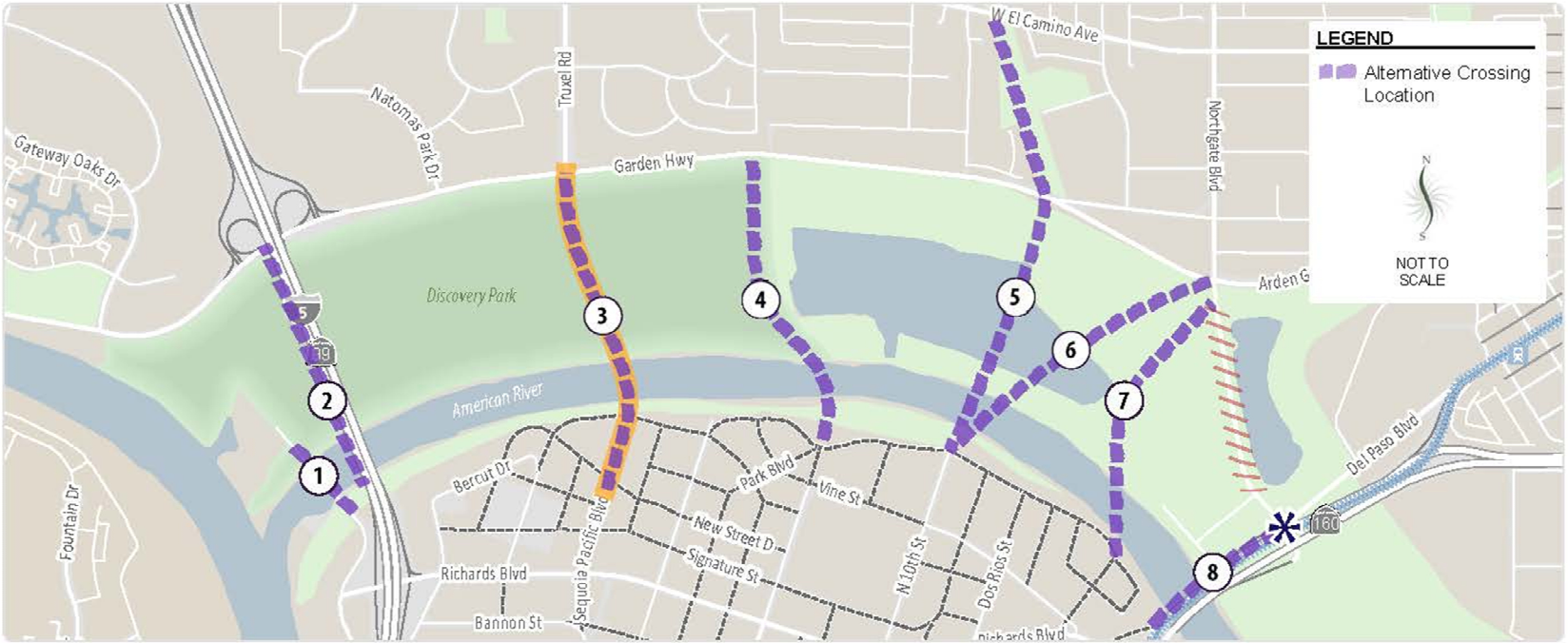
POLICIES AND COMMUNITY VALUES	QUANTITATIVE PERFORMANCE MEASURES	QUALITATIVE PERFORMANCE MEASURES
Environment • Protect environmental and cultural resources • Protect and restore habitat • Reduce travel-related energy and emissions	• How much does the bridge location change the **number of miles driven** in the study area?[1] • How does the change in number of miles driven **affect fuel consumption, air pollution, and greenhouse gases**?	• What aspects of the **no project environmental setting are potentially disturbed by the crossing** (visual, noise etc.)? • Is the bridge location **compatible with existing habitat restoration plans**?
Mobility • Reduce the growth of future congestion • Reduce travel times to cross the river by all modes	• How much does the bridge location change the **number of miles of congested roadways**? (defined as roadways with p.m. peak period volumes above capacity) • How much does the bridge location **change travel times** for walking, bicycling, riding transit, and driving between select origin-destination pairs?	• How does the bridge location **affect existing and planned transit service**?
Neighborhoods/Community • Minimize regional cut-through traffic • Improve Parkway safety • Reduce Parkway litter	• How much does the bridge location **change traffic volumes on select neighborhood streets**?	• How does the bridge location **enhance recreational access to the Parkway**?

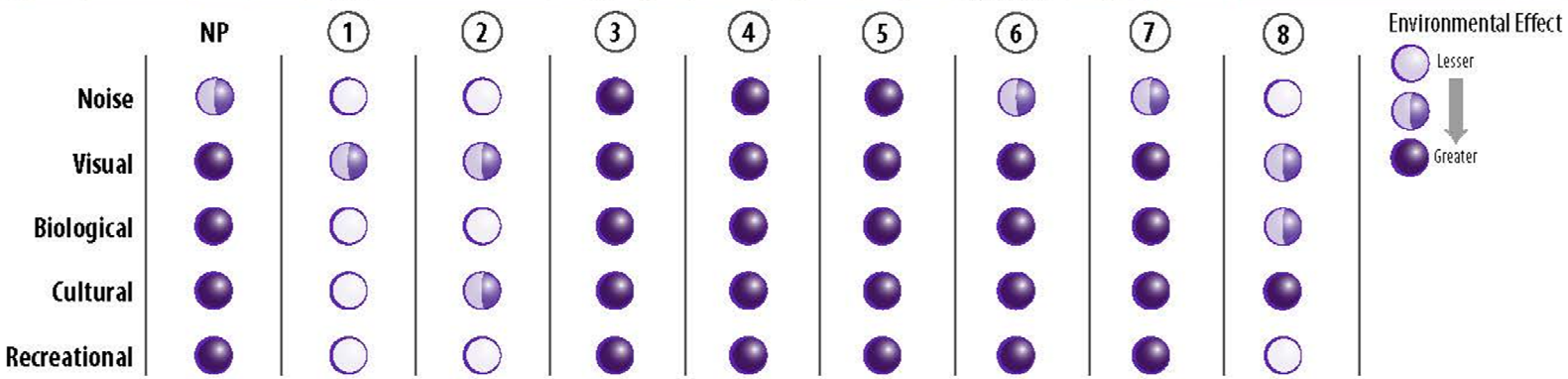
Alternatives





Environmental Assessment



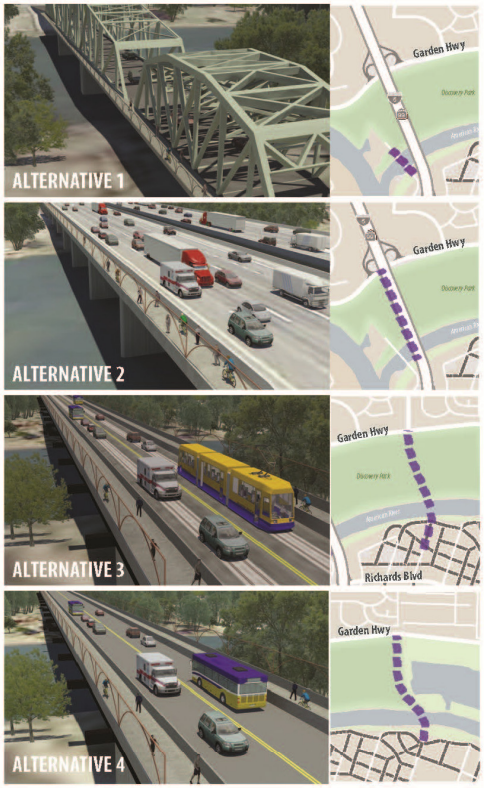


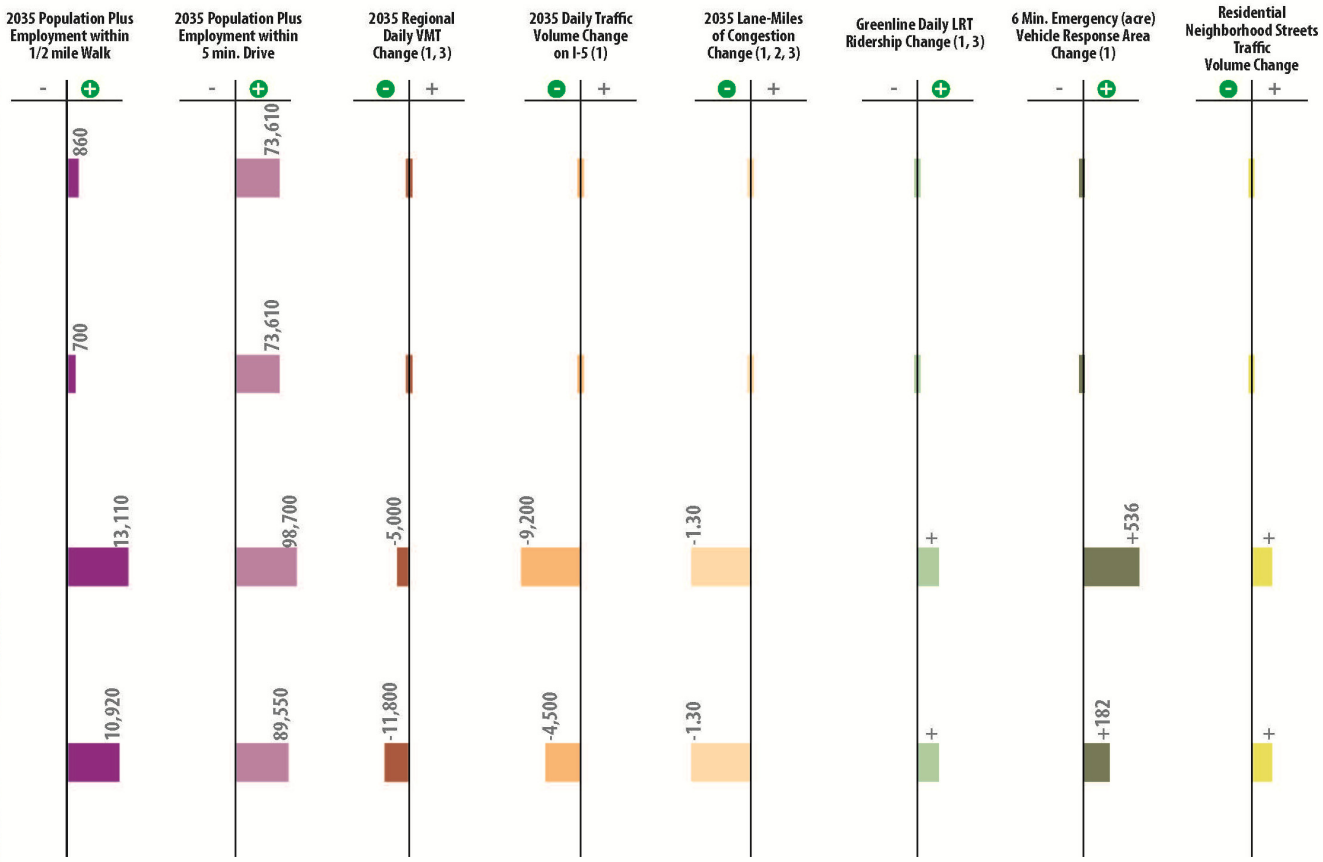
Alternative 7 includes closure of this portion of Northgate Blvd.

Alternative 8 includes new at-grade intersection with full access to both directions of SR 160.

No Project (NP) Alignment

Transportation Analysis



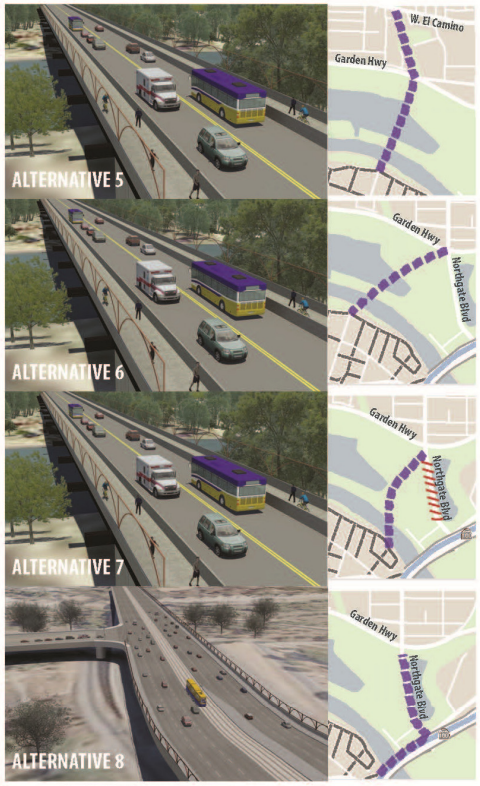


Notes: Shaded cells denote highest value.
(1) [2035 with new bridge] - [2035 no project]
(2) Change within study area during PM peak period.
(3) Some results are within the margin of forecasting error.
⊕/⊖ Desired direction of change based on purpose and need statement.

AMERICAN RIVER CROSSING
Alternatives Study

Transportation Analysis

Alternatives / Modal Options	2035 Population Plus Employment within 1/2 mile Walk	2035 Population Plus Employment within 5 min. Drive	2035 Regional Daily VMT Change (1, 3)	2035 Daily Traffic Volume Change on I-5 (1)	2035 Lane-Miles of Congestion Change (1, 2, 3)	Greenline Daily LRT Ridership Change (1, 3)	6 Min. Emergency (acre) Vehicle Response Area Change (1)	Residential Neighborhood Streets Traffic Volume Change
	- +	- +	- +	- +	- +	- +	- +	- +
ALTERNATIVE 5	8,760	87,150	+22,900	-4,300	+1.0	+	+145	+
ALTERNATIVE 6	8,450	91,010	+1,000	-4,000		+	+39	+
ALTERNATIVE 7	2,360	76,580	+34,800	-100	-2.90	-	-6	+
ALTERNATIVE 8	1,780	74,180	-8,200	+300	+1.90	-	-184	+



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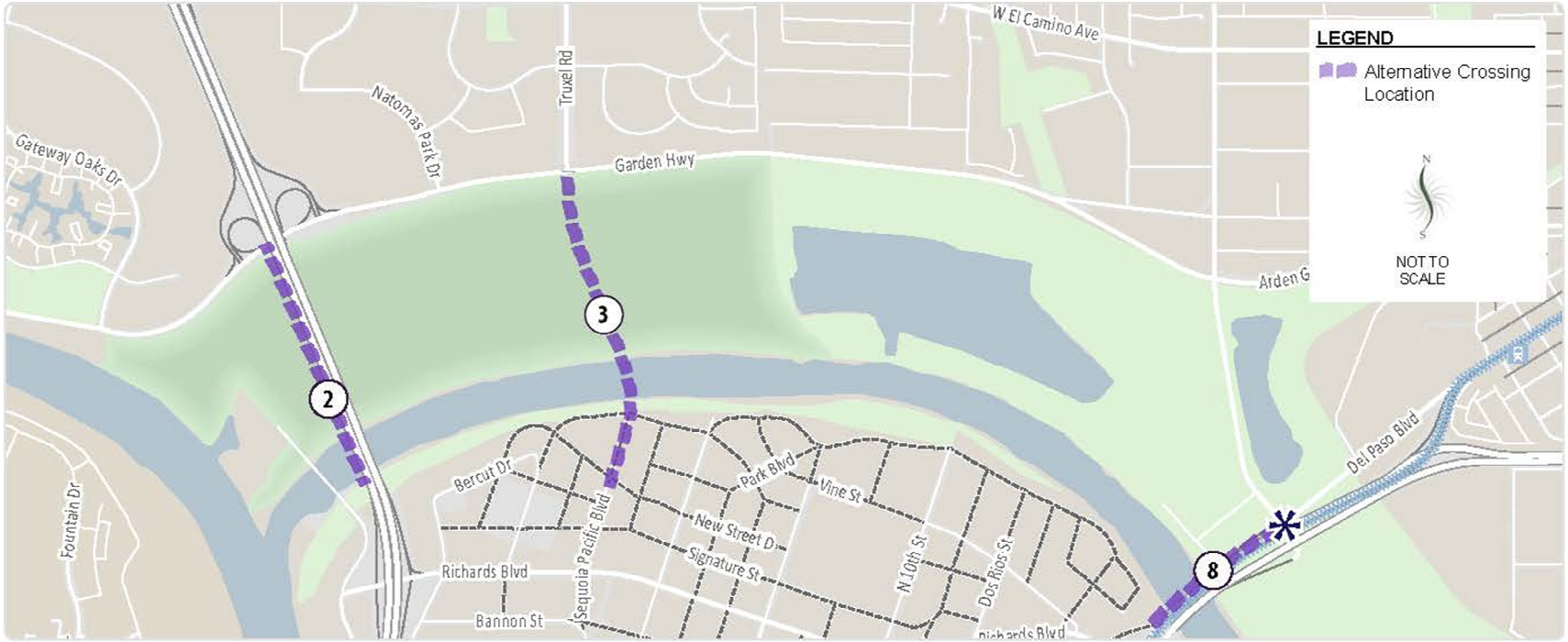
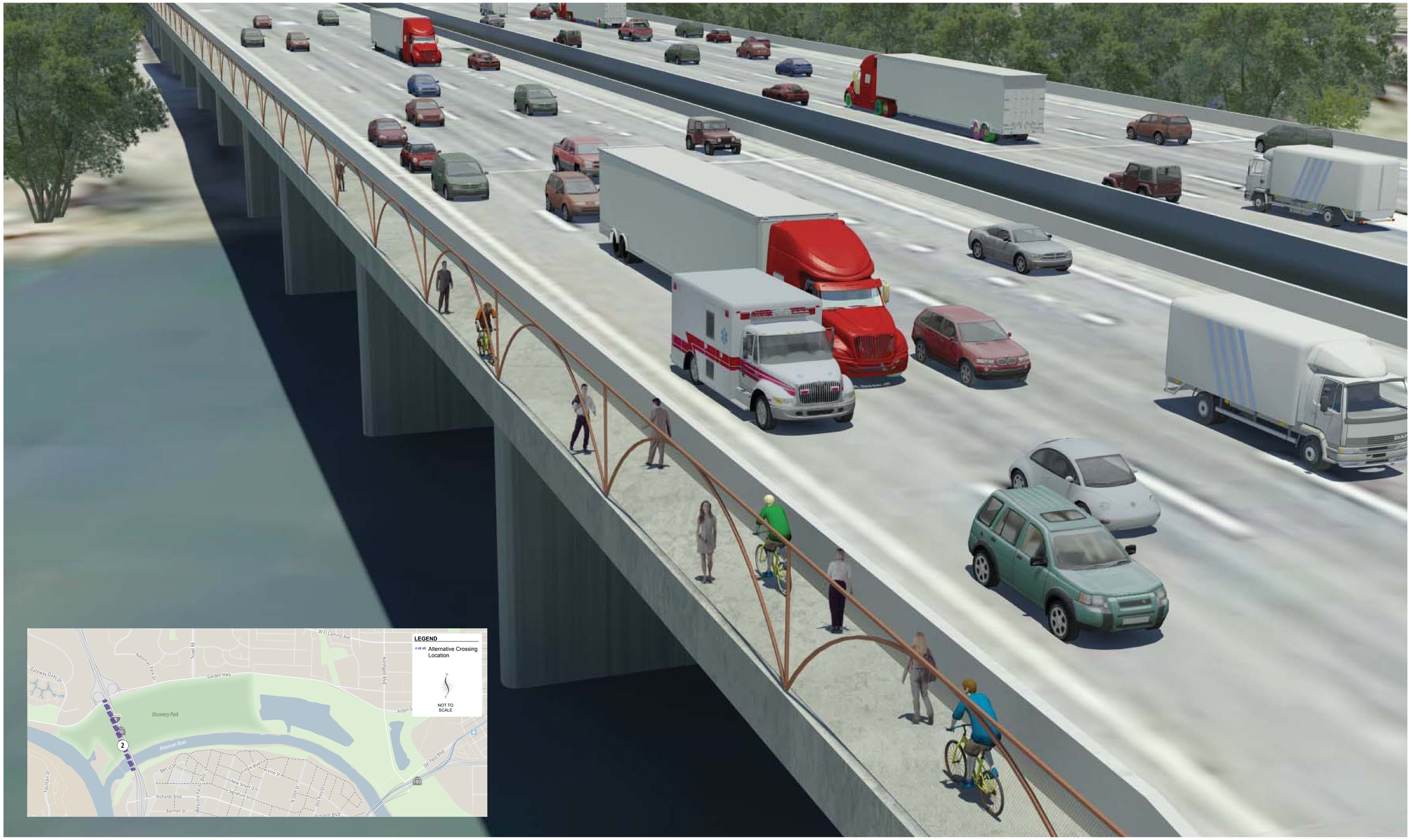
(3) Some results are within the margin of forecasting error.
⊕/⊖ Desired direction of change based on purpose and need statement.

AMERICAN RIVER CROSSING
Alternatives Study

Recommendations





AMERICAN RIVER CROSSING
Alternatives Study

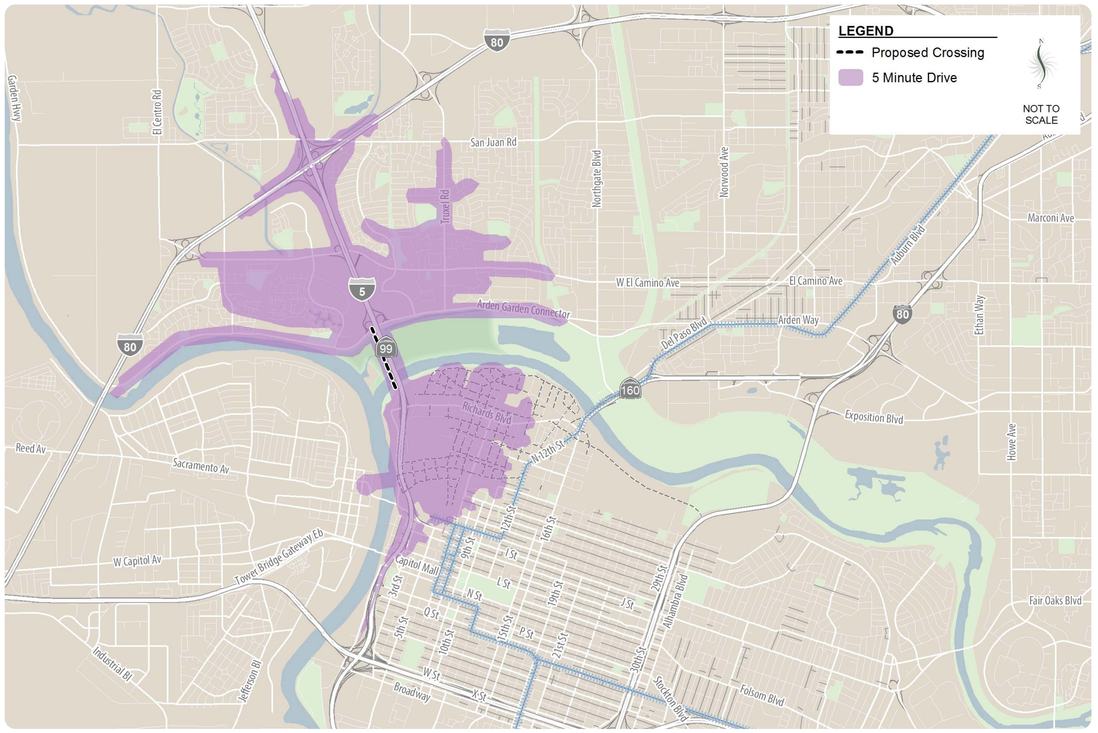
ALTERNATIVE 2

ALTERNATIVE 3

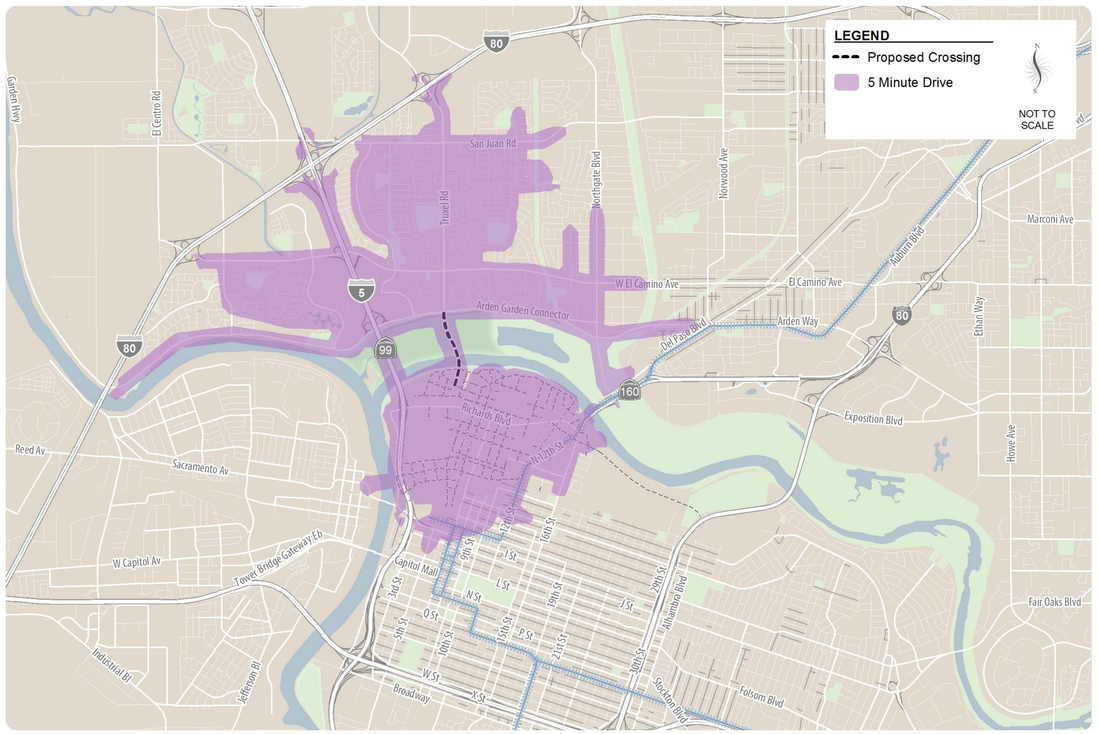
AMERICAN RIVER CROSSING
Alternatives Study

ALTERNATIVE 8

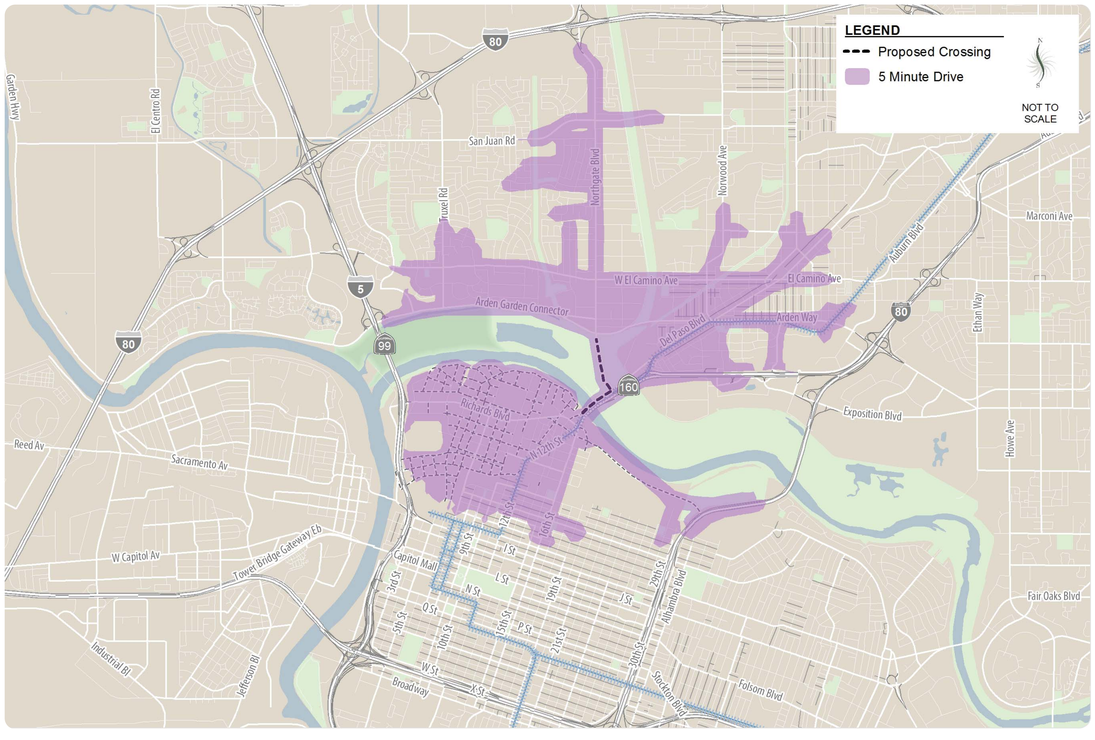
Alternative 2



Alternative 3

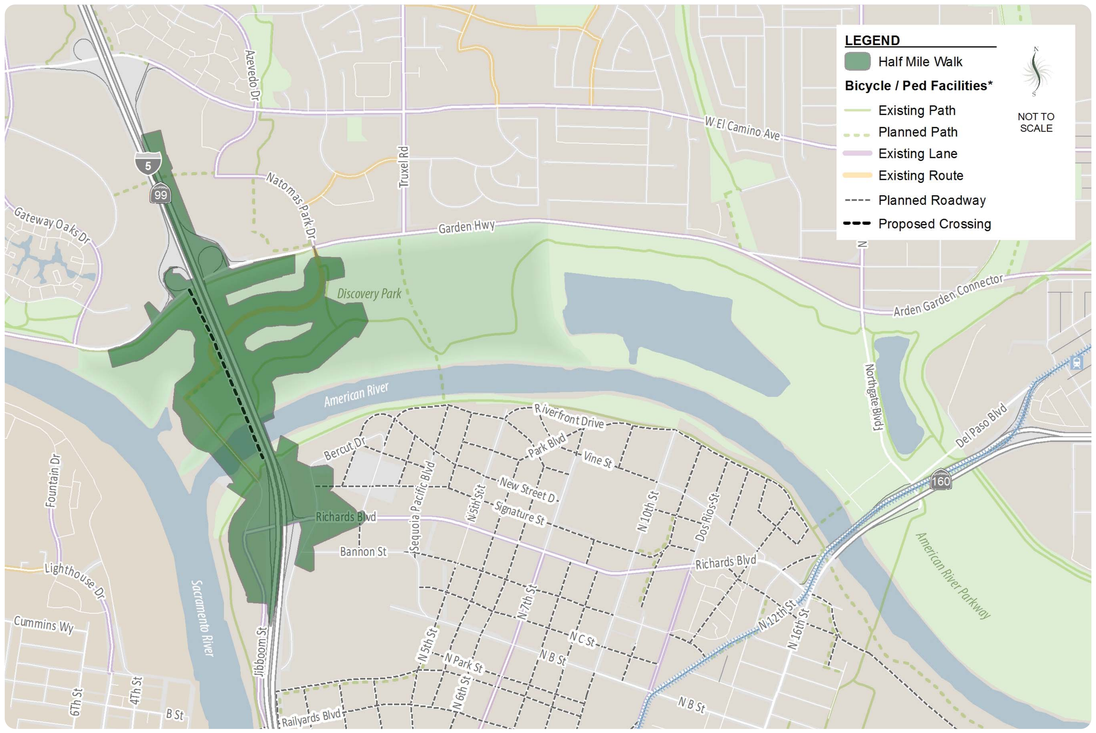


Alternative 8

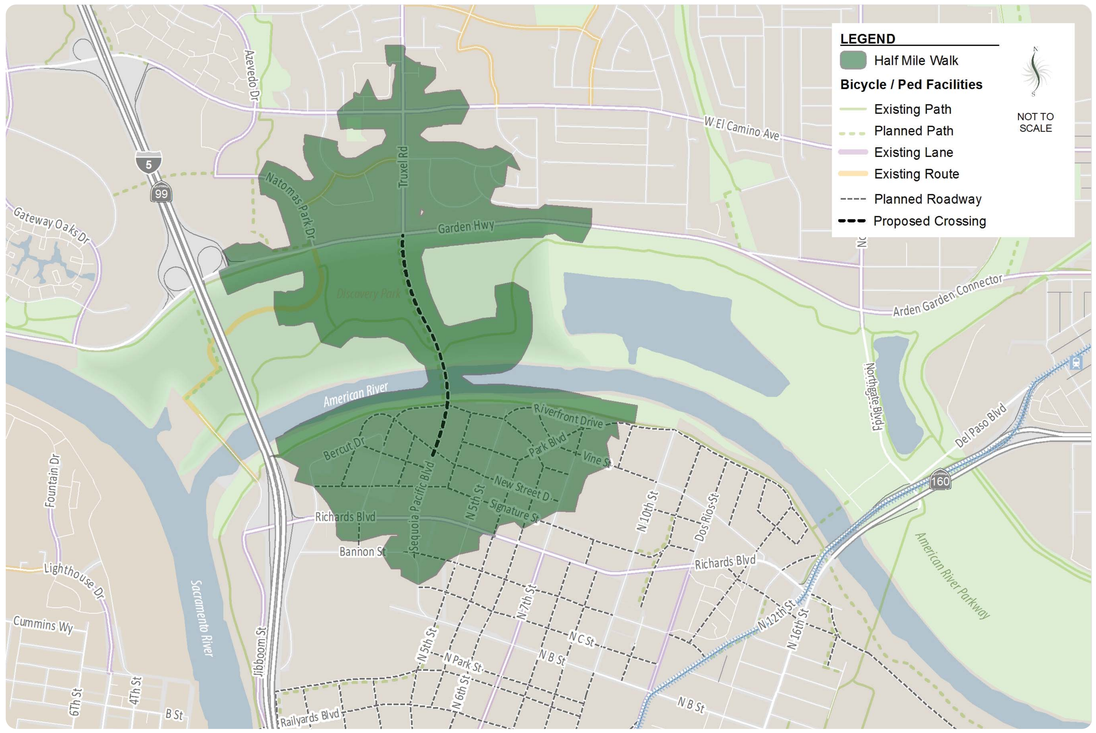


5 MINUTE DRIVE FROM CROSSING LOCATION

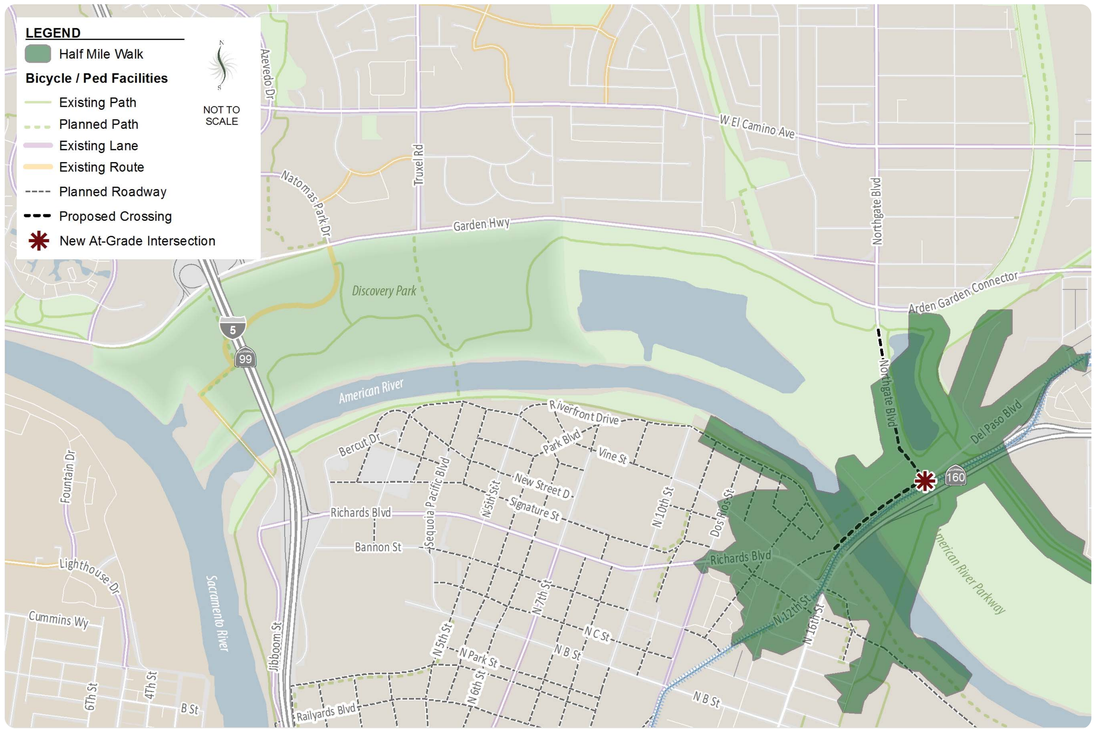
Alternative 2



Alternative 3



Alternative 8



HALF MILE WALK FROM CROSSING LOCATION

AMERICAN RIVER CROSSING
Alternatives Study

AMERICAN RIVER CROSSING
Alternatives Study

Community Workshop Feedback

Alternative 2	Alternative 3	Alternative 5	Alternative 8	Other Observations
It would be great to have couple of bulb outs along the new pedestrian portions with some interpretive signage about the river/convergence.	Would love to keep this to two lanes of traffic only!		Great to avoid winter closures.	
		I am a community organizer working at the River Garden Estates Mutual Housing Community on Northview Drive. Alternative #5 would pass directly behind our apartments and have a huge negative impact on our families. Aside from the increased noise and pollution, the road would also destroy a community garden that feeds over 40 local families. I believe Alternative #3 makes the most sense given the existing RT plans and its ability to link up with Truxel and increase access to and from downtown.		
Little ROI for cost. Provides bike/ped but no add vehicle connectivity.	Good. But will cause high congestion on Truxel, which already has lots of traffic. No expansion beyond 2 lanes.		Favorite alternative. Allows high traffic flow in multiple directions (east or west-bound). Fixes bridge problem and winter flooding. Creates important flood evac route for Natomas residents. Splits traffic between I-5 and Northgate.	Request alternatives be evaluated for flood evac suitability too. Safety first (climate change is real).
This option seems to be the least impact to the park and provide "minimal" cost. This option along with 3 would also be preferred as it provides least amount of transient and undesirable conflicts with pedestrians and cyclists.	This option is also good in that it is a shared bridge across the parkway. RT will be building a bridge through the park anyway so making it a shared resource is good. The incremental impact of a slightly wider bridge to accommodate pedestrians and cyclists is also good. A bridge across parkway is not a great idea but necessary. This option is more costly than Alt 2 but a good strong option to downtown and the new arena.		How are people going to get their shopping carts on the bridge? Too expensive and impractical an option.	From the cyclist's perspective, 2 and 3 best options. Design Engineers and City staff should "ride" the routes and spend a lot of time in these areas to understand potential issues.
Yes love it.	Yes love it.		Yes want all. 3.8; 2 & 3.	Would love to see all 3 move forward.
In my opinion, does not reduce traffic on I-5 or regionally enough to be viable. The traffic impact downtown would be more severe due to proximity with I-5 and the proposed replacement of the I Street bridge there will be a concentration of traffic.	This is the superior transportation alternative with the largest reduction in VMT and emission. Hopefully the shared lanes will be acceptable. This results in the lowest costs. There will be some additional localized impact on the parkway, however with respect to vegetation and habitat it will be small. The impact of most concern to parkway recreation will be sound. Every effort would be made to reduce/minimize sound. Such as use of rubberized pavement, keeping speeds relatively low and avoiding reasons or need to accelerate and bridge transverse joint design to reduce impact noise.		Would not have as much transportation benefit as Alt 3, i.e. EMT and emission reduction would likely be more costly than Alt 3. The orientation/alignment of the connection between Northgate and Hwy 160 would be more difficult hydraulically and with respective potential for erosion and impact on hydraulics, i.e. head losses.	
Don't see the need with Alternative #3.	Build a third lane and change traffic flow direction based on traffic flow. My favorite plan - bring light rail down Truxel.		Overkill. Scale back to two lanes each way and put in bike road.	

Community Workshop Feedback

Alternative 2	Alternative 3	Alternative 5	Alternative 8	Other Observations
		I do not agree. I am living near project #5. There is a nice garden. This garden helps my family. We have fresh vegetables. This garden is about 16 years old. Also, I think it will be very noise and there will be many homeless.		
		I am a local resident. I live near project #5. This bridge will go through my garden, and it will be very noisy and no biologically.		
	We prefer this bridge as it includes light rail. It makes sense to allow for airport extension.			
		We live near project #5. It will go through our garden. WE have had this garden 11 years and it helps to feed my family. They will be so much noise close to our apartment.		
Doesn't provide congestion relief to I-5. Doesn't add connectivity between Natomas and Downtown. Doesn't add additional access for public safety vehicles.	Preferred alternative. Adds connectivity. Adds ability to share public resources (police, fire). This is the connection that is provided in the River District Specific Plan. Provides local access from Natomas to River District/Rail yards/Downtown. More economical to add vehicle lanes to RT bridge than to build a second bridge.		Doesn't add connectivity. Doesn't relieve I-5 congestion. Good project. We should look at doing this in addition to Alternative 3 (not instead of).	Alt 4 kills new park on south side of the river (in an area that already is deficient in park/rec space.)
		I don't agree with #5 because we live in an apartment too close ; there will be noise.		
		Project #5 will go through our garden. We have had this garden for many years. The garden helps us to feed our family. Also it will be noisy because it is too close to our apartments.		
I like this alternative because it would promote bicycling (and allow bicycling over I-5 even when the park isn't flooded), but I'm not sure how many people would actually walk/bike over this bridge with the Jibboom St. Bridge so close. I'm not sure this alternative would be cost effective.	I oppose this alternative because it would make building light rail down Truxel Road (a bad location) much too easy, and because the traffic projections show such a large daily volume reduction of cars on I-5. I'm not convinced that many of those people not using I-5 would be on light rail rather than in cars. The volume of cars on Truxel Road would be far too large as a result.		I like this alternative because something needs to be done about Northgate Blvd., which is such a mess even when not flooded. There are currently safety concerns on Northgate and 160. I'm constantly afraid I'm going to hit a homeless person on foot or bike. I think raising Northgate and fixing the bridge would help alleviate this concern somewhat.	
	Only one.			To remedy and strive to enhance South Natomas for feasibility to Sac Metro/Downtown/airport and walking bike trails, all studies should have been with all assets of light rail, pedestrian and bike trail. Therefore, 8 proposals are ridiculous and suggest a marketing plan to point to the most logical that has it all, #3. Even though I supported #3, before seeing it now and still do - the City tactics here are deplorable. (for over a year!)
		No to Alt #5 because we want to keep the garden. The smoke from the cars will contaminate our vegetables and apartments.		

Community Workshop Feedback

Alternative 2	Alternative 3	Alternative 5	Alternative 8	Other Observations
	The best. Adds the most connectivity for both vehicles and peds (and bikes). Gets local Natomas - Downtown traffic off of I-5. Better, quieter option for bikes and peds crossing the river than going on I-5.			
For all alternatives you will need a permit from the Central Valley Flood Board and RD1000. Our issues are: hydraulic impacts; levee access for our District; Levee O&M; Compatibility with Federal flood control project on levee.				
	My preference is for Option #3 and my reasons are: It makes good sense for the RT Green Line Crossing. The plan includes the options for vehicles to use this particular crossing and if chosen, would eliminate the need of another crossing in the future. And although #8 is another option that is appealing, it does not allow for an additional crossing, only that we would rebuild the existing one. This would not eliminate our original need, i.e., an additional crossing between I-5 and R-160. In addition to the above, this crossing is already provided for in the River District Plan, the General Plan, SACOG's Blue Print and the MTP.			
This could be very good if connected with existing bike paths on both sides of the river.	LOVE THIS!! I have lived here 17 years and have been waiting for this access - including RT. This is the only option that increases connectivity to the degree that it will improve access to jobs, economic activity and social connections.			
Best environmental.	Worst environmental.	Second best environmental.	1) No info on how environmental impacts will be mitigated to insignificant. 2) What are the assumptions underlying transportation analysis? Where is the sensitivity analysis of the transportation modeling?	