



DEPARTMENT OF  
TRANSPORTATION

CITY OF SACRAMENTO  
CALIFORNIA

915 I STREET  
ROOM 2000  
SACRAMENTO, CA  
95814-2604

OFFICE OF THE DIRECTOR

PH 916-808-7100  
FAX 916-808-5573

December 3, 2007

Mr. José Luis Cáceres, Associate Planner  
Sacramento Area Council of Governments (SACOG)  
1415 L Street, Suite 300  
Sacramento, California 95814

**SUBJECT: SACOG 2008 BIKE & PEDESTRIAN FUNDING PROGRAM – CITY OF  
SACRAMENTO INTERSTATE 80 BICYCLE AND PEDESTRIAN  
BRIDGE CONSTRUCTION**

Dear Mr. Cáceres:

Please find enclosed the City of Sacramento's application for the Sacramento Area Council of Government's (SACOG's) 2008 Bike & Pedestrian Funding Program for the Interstate 80 Bicycle and Pedestrian Bridge at the West Canal. By the City Manager's designation, I am acknowledging that this application is officially authorized by the jurisdiction.

The Interstate 80 Bicycle and Pedestrian Bridge at the West Canal is an important link between North Natomas and South Natomas. Providing this connection will also serve the region as a major non-motorized route to downtown from areas to the north and Downtown. We hope that you will find this to be a competitive project and partner with us in providing this vital transportation and recreation trail.

Sincerely,

Jerry Way, Director  
City of Sacramento  
Department of Transportation

*Enclosures*

**PARTNER COMMITMENT LETTERS**

The City of Sacramento is the sole entity for this application. There are no partner commitment letters.

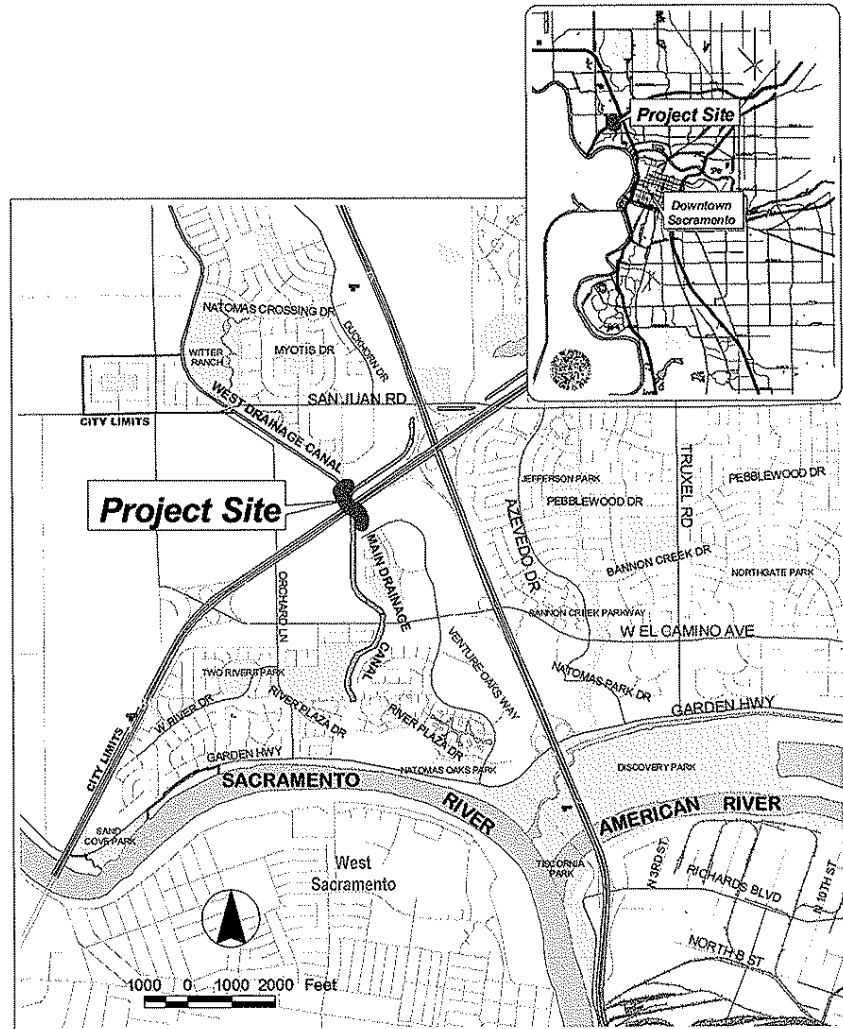
**PROJECT SUMMARY**

Project Title	I-80 Bike/Pedestrian Bridge at the West Canal
Local agency contact information	Theresa Arnold 915 I Street Room 2000, Sacramento, CA 95814-2604 (916) 808-5514 (916) 808-8281 fax <a href="mailto:tarnold@cityofsacramento.org">tarnold@cityofsacramento.org</a>
Partners	City of Sacramento is the only organization
Project Number SACOG Master Plan	MTIP: SAC 22620; Bike/Ped Plan: 07-08-20
Scope of project & location (not to exceed 150 words) Include aspects of project/program that contribute to Blueprint implementation and other goals of the Funding Program	The project is a new connection between North and South Natomas. It includes the design, environmental documentation, right-of-way acquisition and construction of one freeway overcrossing structure and one canal overcrossing structure. This connection will provide intra-community bicycle and pedestrian connection to downtown from areas to the north. As a safe, comfortable and convenient access across the barrier created by Interstate 80, this project will advance the blueprint planning principles to encourage people to walk and bicycle in the region.
Project Schedule & Milestones: <ul style="list-style-type: none"> <li>• Start work</li> <li>• Final Ed approved</li> <li>• R/W Acquired</li> <li>• Final plans approved</li> <li>• Environmental permits secured</li> <li>• Award construction contract</li> <li>• Work completed</li> </ul>	4/28/2003 7/7/2008 11/24/2008 3/2/2009 9/9/2008 6/22/2009 3/15/2010
Overall Total Cost Estimate	\$6,639,622
Total funding sought and funding committed from other sources	<b>\$4,526,646</b> \$1,345,262 prior federal funds
Local funding commitment from each partner Local match must be at least 11.47% of requested amount	\$767,714
Risks to Schedule or Cost	Currently the structure is designed using metric units, however, over time; Caltrans could require conversion to English units. Another risk is with the proposed Caltrans HOV Auxiliary lanes, which if built first would change the assumed construction method, and cause a need to re-design to a higher bridge. These situations will delay the construction of the project and could cost up to \$1 million.
Phases/divisibility	None

## MAPS AND EXHIBITS – Site and Setting

### **Project Site:**

The I-80 Bike and Pedestrian Bridge at the West Canal project site is just east of the freeway interchange of Interstate 80 and Interstate 5. The maps below illustrate the project site location.



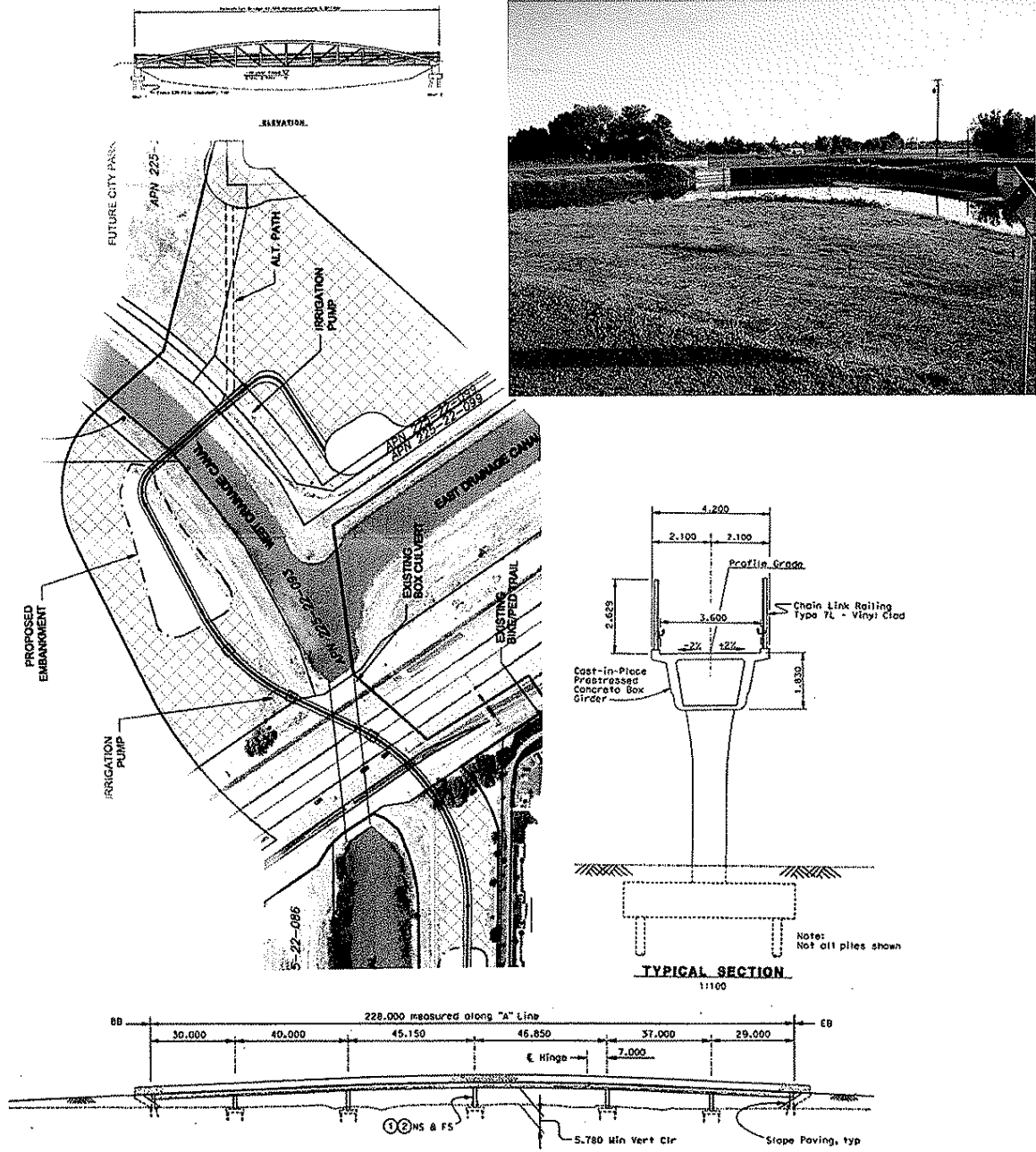
### **Project setting:**

The proposed project will cross Interstate 80 and the West Canal in Natomas. The setting for this project is within the City of Sacramento in an area of former agricultural land called Natomas. It is frequently described as two parts: North Natomas and South Natomas. South Natomas is close to downtown Sacramento and has most of its land already built-out with residential, office and commercial development. North Natomas is further away from downtown Sacramento, but is still within a “bikeable” 4-mile distance. It is a fast growing area of the city that is expected to grow to a population of 66,000 with new residential, commercial, and employment development.

The Natomas area is in a floodplain that requires considerable attention to drainage. The development of North Natomas depends on a system of detention basins and drainage canals. North Natomas drainage is conveyed by two canals: The Natomas East Drain Canal and the West Canal. These two canals combine in South Natomas to become the Natomas Main Drain Canal.

**MAPS AND EXHIBITS – Preliminary Design & Project Need**

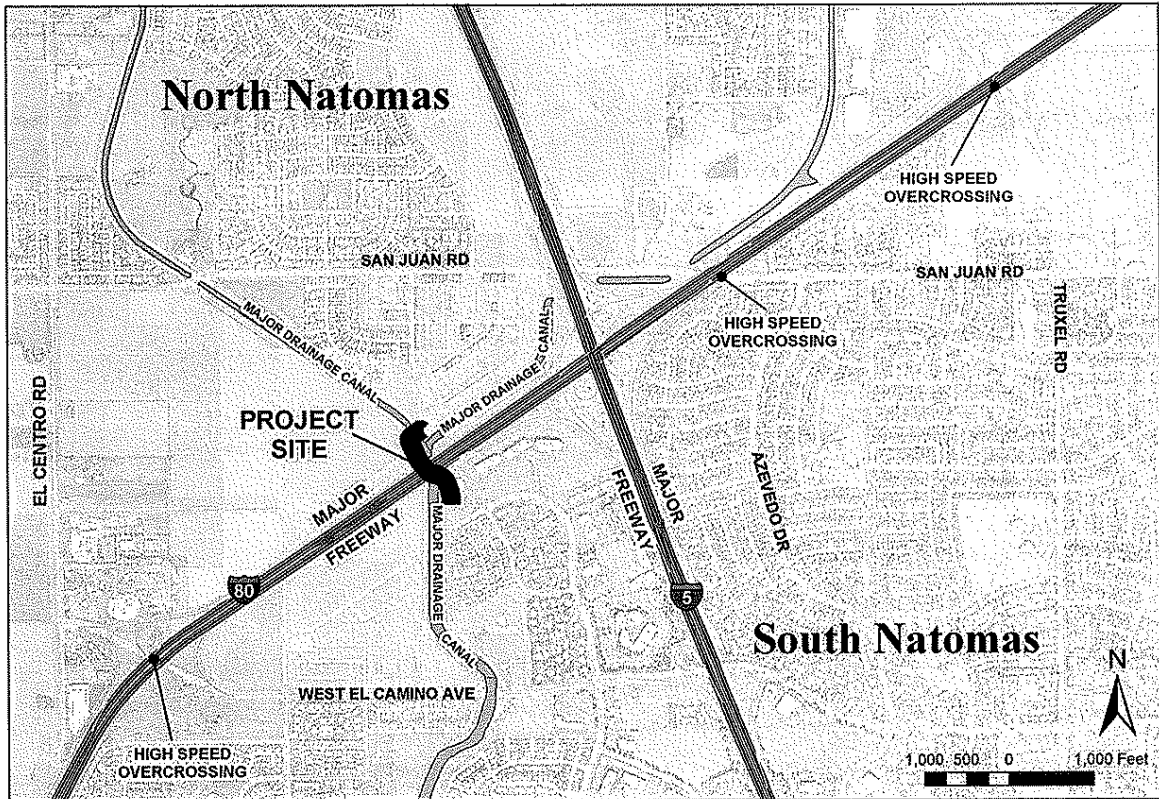
Pictured below is the project site as seen today looking south from the confluence of the east and west canals. Also included on this page are illustrations of the preliminary design.



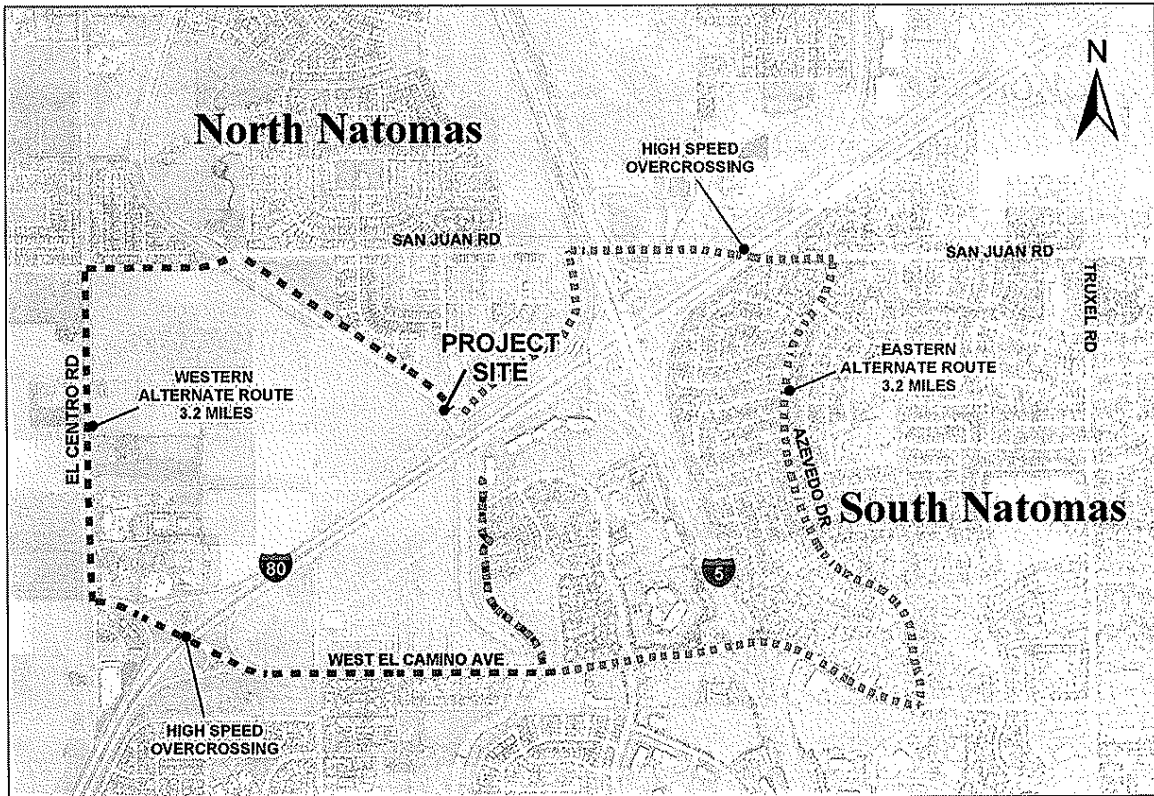
**Project Need:**

The existing freeways and canals are barriers to bicycling and walking in Natomas. The most significant barrier is the I-80 freeway that separates North Natomas from South Natomas. All of the existing adjacent road crossings of the I-80 freeway are heavy with traffic, presenting a challenge to bicyclists and pedestrians. The proposed project will provide a safe and efficient crossing of I-80 and the drainage canals, cutting approximately 3.2 miles of bicycle or pedestrian travel between the two ends of the bridge. Refer to the following illustrations:

### MAPS AND EXHIBITS – Project Need



EXISTING BARRIERS TO BIKE AND PEDESTRIAN CONNECTIVITY



DISTANCES OF ADDITIONAL TRAVEL WITHOUT BRIDGE

## MAPS AND EXHIBITS – Adjacent Projects

Several new projects have begun in the area immediately adjacent to the proposed I-80 Bike and Pedestrian Bridge. Each project has been coordinated with the addition of the new bridge:

### *Peregrine Park*

The north end of the I-80 Bike and Pedestrian Bridge at the West Canal will be Peregrine Park. Over the past year, the City Parks and Recreation Department has been constructing an 8-acre neighborhood park. It includes: basic landscaping, a picnic shelter with picnic tables, trash receptacles, handball court, grass volleyball court, softball field, basketball court, play area, bantam soccer field, dry creek bed, bike paths, benches, open turf, and a natural area. This park will be completed January 2008.

### *Riverdale North*

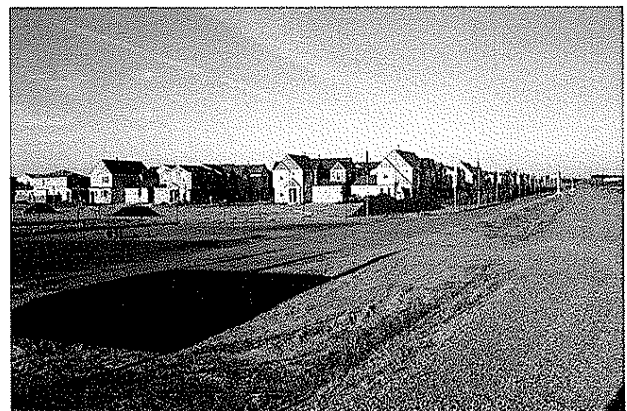
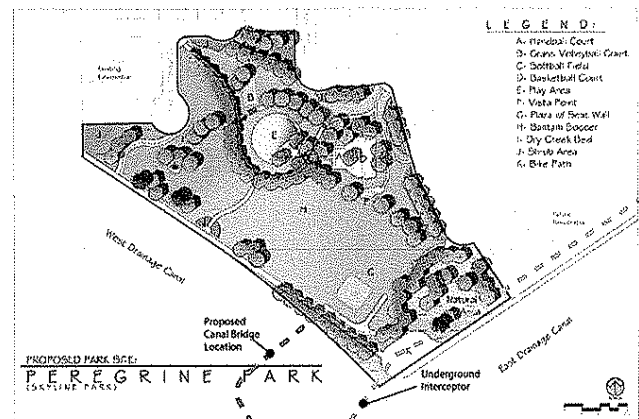
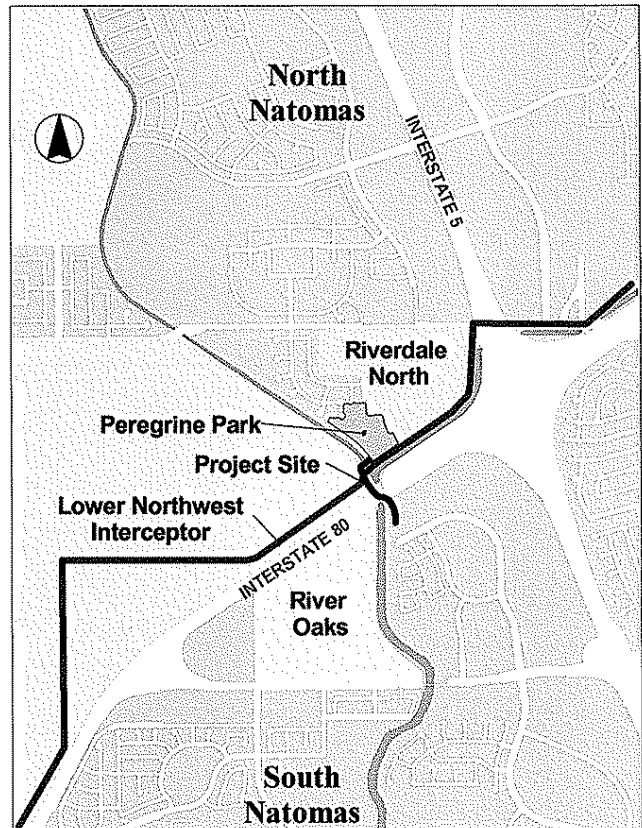
Adjacent to Peregrine Park and north of the project site is a new residential subdivision called Riverdale North. This project is a 537-unit residential development on 46.6± acres. The project includes a village center, recreation areas, and a mixture of residential densities. Construction of this development is nearly complete. See photograph at right.

### *Sacramento Regional County Sanitation District Lower Northwest Interceptor Project*

The Lower Northwest Interceptor (LNWI) project is a multi-county public sewer line project. In the area of the I-80 Bike and Pedestrian Bridge at the west canal, the LNWI project has installed two underground 60-inch force main interceptors that have the same alignment as the bike trail that leads to the proposed bridge. The LNWI project has completed the underground work and built the trail, which will also function as a service road for the interceptor. See photograph at right.

### *River Oaks*

In South Natomas, along the west side of the Natomas Main Drain Canal is the recently approved River Oaks development project. This project is a 654-unit residential development on 80.3± acres. It includes two neighborhood parks, recreation areas, and mixture of residential densities. Development is currently on hold for this location.



**COST ESTIMATE**

<b>Funding Categories</b>	<b>Task</b>	<b>Cost Estimate</b>
Environmental	Environmental Studies	\$141,522
Engineering	Engineering & Design	\$953,978
Right-of-Way*	Engineering & Design	\$361,000
	Utility relocation & lighting	\$70,000
Construction*	Environmental mitigation	\$64,762
	Grading	\$618,860
	Foundation & Pavement	\$164,500
	Bridges &/or tunnels	\$3,000,000
	Drainage, curb/gutter, street furniture, planting & irrigation	\$16,500
	Signage, signals, & striping	\$148,500
	Bicycle storage/parking	0
	Buildings/structures	0
	Non-capital staff activities	\$1,090,000
	Non-capital materials (maps, brochures, manuals, printing, etc)	10,000
Misc.*	Other project components	

\* If project applicant is Caltrans, please provide cost estimate for the following additional two components:

- Right-Of-Way Support: \_\_\_\_\_
- Construction Support: \_\_\_\_\_

## PROJECT BENEFIT ESTIMATE

### Quantifiable Benefits Methodology

Estimate of Existing Usage  $x = 0$

Annual Average Daily Traffic (ADT) for the nearest travel way = 35,000

Estimate of Increase in Usage  $y = 157,500$  bikers per year (based on number of trips reduced)

Length of Project (miles)  $a = \text{length of travel reduced} = 3.2 \text{ mile}$

Quantifiable Benefits  $= (x (a/10 \text{ mph}) (\$5/\text{hr})) + (y (a/10 \text{ mph}) (\$10/\text{hr}))$

$= \$ \text{ benefits}$

$= 0 + (157,500(3.2/10 \text{ mph}) (\$10/\text{hr}))$

$= \$504,000 \text{ annually}$

### Qualitative Benefits Methodology

*In one or two paragraphs, are there benefits to the project that are not measured by the dollar figure above?*

This proposed bridge project will encourage bicycling and walking. Existing bicycle routes are only for the most seasoned cyclists due to the high-speed road crossings of I-80, I-5 or both. Combined with the long distances currently involved, this problem is even more pronounced for walking trips. With this new bridge project there will be a reduction of 3.2 miles of travel distance between two developing communities.

This bridge will support community connectivity. Residents in South Natomas will be able to go to facilities in North Natomas and vice-versa.

Beyond the community needs, this bridge project will also have regional significance. This connection is a vital link for a major north-south bike and pedestrian corridor connecting Downtown to Natomas and to destinations further north. SACOG studies have indicated the need for better bike and pedestrian crossings of this freeway.

## **EMISSIONS CALCULATIONS FOR CMAQ FUNDING**

The project is located within the City of Sacramento which is a Capital City with a population of 467,343. The I-80 Bicycle and Pedestrian bridge will connect the major trail system in North Natomas to the major trail system in South Natomas and points further south, will provide access across a significant barrier created by Interstate 80, and will reduce the travel distance by 3.2 miles.

### **Inputs to Calculate Cost-Effectiveness:**

Funding Dollars (Funding):	\$4,526,646
Effectiveness Period (Life):	20 years
Days (D):	250
Average Length (L) of bicycle trips:	3.2 miles
Annual Average Daily Traffic (ADT):	30,000
Adjustment (A) on ADT for auto trips replaced by bike trips:	0.019
Credit (C) for Activity Centers near the project:	0.002
Emission Factors (From Table 3 for a 20 year life):	

	<u>Auto Trip End Factor</u>	<u>Auto VMT Factor</u>
ROG Factor	0.866 grams/trip	0.229 grams/mile
NOx Factor	0.387	0.269
PM10 Factor	0.016	0.219

### **Calculations:**

$$\begin{aligned}
 \text{Annual Auto Trip Reduced} &= (D) * (ADT) * (A + C) \\
 &= (250) * (30,000) * (0.019 + .0002) \\
 &= \mathbf{157,500}
 \end{aligned}$$

$$\begin{aligned}
 \text{Annual Auto VMT Reduced} &= (\text{Auto Trips Reduced}) * (L) \\
 &= (157,500) * (3.2) \\
 &= \mathbf{504,000}
 \end{aligned}$$

**Annual Emission Reductions (ROG, NOx and PM10) in lbs. per year:**

$$= [(Annual\ Auto\ Trips\ Reduced) * (Auto\ Trips\ End\ Factor) + Annual\ Auto\ VMT\ Reduced] * (Auto\ VMT\ Factor) / 454$$

$$ROG: [(157,500) * 0.866] + (504,000 * 0.229) / 454 = 555\ lbs.\ per\ year$$

$$NOx: [(157,500) * 0.387] + (504,000 * 0.269) / 454 = 433\ lbs.\ per\ year$$

$$PM10: [(157,500 * 0.016) + (504,000 * 0.219)] / 454 = 249\ lbs.\ per\ year$$

**Cost-Effectiveness of Funding Dollars: (CRF \* Funding) / (ROG + NOx + PM10)**

$$\begin{aligned} \text{Capital Recovery Factor (CRF):} & \quad \frac{(1+i)^n(I)}{(1+i)^n - 1} \\ = \text{CRF} & = \frac{(1+0.03)^{20}(0.03)}{(1+0.03)^{20} - 1} = 0.067 \end{aligned}$$

$$\text{Cost Effectiveness of Funding Dollars} = (0.067 * 4,526,646) / (1,440)$$

$$= \mathbf{\$210.62\ per\ lb.}$$

**FOR CMAQ PROJECTS ONLY:**

**Annual Emission Reductions (ROG, NOx and PM10) in kg/day:**

$$\frac{\text{Lbs. reduced per year}}{2.2\ lbs./kg * 365\ days/year} = \frac{555}{2.2 * 365} = \mathbf{0.691\ kg/day\ ROG}$$

$$\frac{\text{Lbs. reduced per year}}{2.2\ lbs./kg * 365\ days/year} = \frac{433}{2.2 * 365} = \mathbf{0.539\ kg/day\ NOx}$$

$$\frac{\text{Lbs. reduced per year}}{2.2\ lbs./kg * 365\ days/year} = \frac{249}{2.2 * 365} = \mathbf{0.310\ kg/day\ PM10}$$

## **ENVIRONMENTAL JUSTICE**

***What kind of outreach of the community and to other stakeholders do you plan to undertake?***

During the current funding phase of this project, the City held one community meeting regarding the design of this project on October 8, 2003. Additional public outreach is planned for the environmental processing of the project. Public outreach for the right-of-way acquisition is currently not planned at this time. Additional public outreach is planned during the construction phase of the project.

***Will low-income or minority members of the community be given an opportunity to fully participate in this outreach?***

All of the outreach conducted to date and planned for the future has been and will continue to be free and made available to all income levels in the community. In addition, the City operates a special "interpreter-program" intended to allow members of minority and disabled communities to have opportunity to comment to the City.

***Benefits and burdens of this project for low income and minority members of the community:***

This project is not expected to have any significant burdens on low income or minority members of this community. The proposed project will be a non-motorized bridge for bicyclists and pedestrians of this and surrounding communities. Thus, this project will benefit people who cannot (or cannot afford to) drive an automobile. The project will be built in a manner that complements the community without displacing any low income or minority members.

## SUPPLEMENTAL INFORMATION

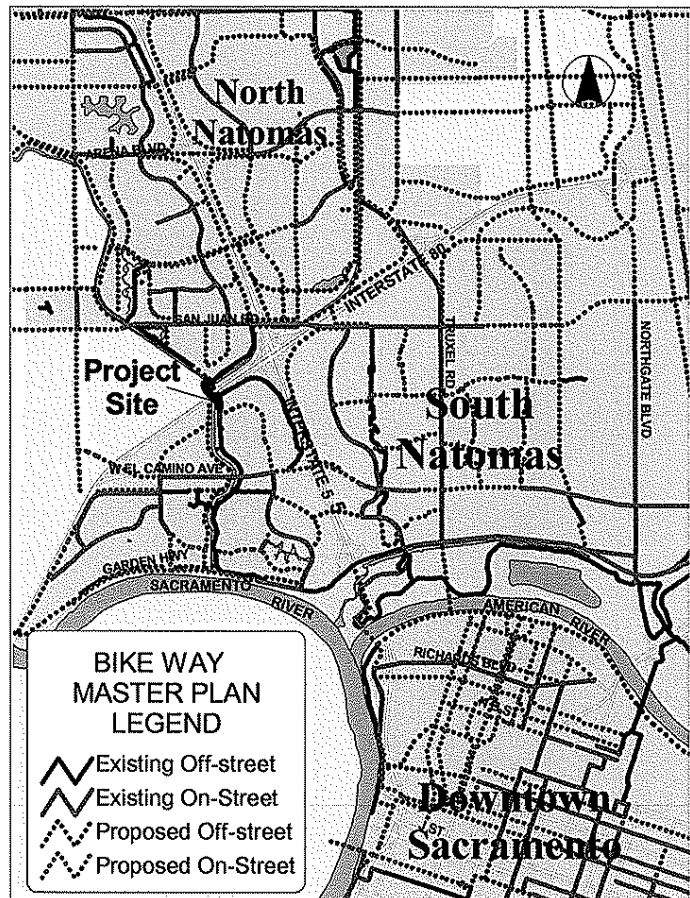
### *How does this project meet the screening criteria?*

- a. This project is listed as a “high priority” overcrossing (SACOG Bike and Pedestrian Plan 07-08-20).
- b. This project is already listed in the Metropolitan Transportation Improvement Program (SACOG MTIP SAC22620)

### *How does this project meet the Bicycle and Pedestrian Program Goals?*

The proposed project will offer a needed connection for Natomas. By connecting with the existing trails in the area, it creates increased shorter, more efficient bicycling and walking trips. It meets the following Bike and Pedestrian Program Goals in the following ways:

1. Intra-community connectivity will be enhanced because residents on either side of the freeway will be able to travel to the schools, parks, offices and retail areas.
2. Intercommunity connectivity will be enhanced because it connects the major trail system in North Natomas to the major trail system in South Natomas and points further south to Downtown. This bridge is expected to be used by many bicycle commuters in North Natomas to reach employment destinations in downtown Sacramento.
3. The proposed bridge will close a gap on the existing proposed bikeway master plan.
4. The bridge will provide access across a significant barrier created by Interstate 80.
5. Travel times will be reduced, because the travel distances will be reduced by 3.2 miles.
6. Safety and security will be enhanced because the trips will be completely on Class I bike trails. Users will not be required to interact with automobiles at freeway interchanges.
7. The bicycling and walking experience will be aesthetic, pleasant and comfortable because it will connect two park-like settings.



## SUPPLEMENTAL INFORMATION

### ***How does this project support the Blueprint Planning Principles?***

The proposed bridge is supportive of the first and the seventh Blueprint Planning Principles: It will encourage people to walk or bicycle instead of driving an automobile. It also provides places for everyone to enjoy the outdoors with family outings and by creating a sense of open space.

### ***How cost effective is this project?***

- Total project cost: \$6,639,622
- Average annual cost after construction: \$20,000
- Total life cycle cost, assuming 20 year life: \$6,889,297
- Quantifiable project benefits: \$504,000 Per Year (using SACOG methodology)
- Qualitative benefits: increase in safety, time savings, improved air quality, more bicycle and pedestrians instead of motorists.

### ***How committed is the City of Sacramento to building this project?***

The City has already received federal funds to prepare the design and environmental documentation. At this time, the City is 60 percent complete on the design of the project. Completion of the design phase is scheduled for the spring of 2009. Pending funding, construction of the project will follow. Having the project funded in multiple funding phases allows the City to develop accurate cost estimates and assure complete project delivery.

### ***Risks to Schedule and Cost***

*Metric versus standard measuring system:* Initially the project has been designed to meet the previous Caltrans design standard using the Metric system. Although Caltrans has recently made their standard to use English measuring system, the City has been granted a design exception by Caltrans to complete the work in using the Metric system. This exception could change if the project encounters significant delays. Changing from Metric to English system will cause an increase in cost and an increase in delivery time. The cost to convert the project to English units would be approximately \$300,000 in additional design costs. In addition to the delay associated with this change, there may be effects of the related I-80 HOV/Auxiliary lane project. (See next paragraph). A change to English system will delay project construction by a minimum of one year. Assuming a one year delay and 10% construction cost escalation, the project construction and construction administration costs would increase by \$600,000. The total project costs would increase by \$900,000 for design and construction. If the project is delayed more than one year due to lack of funding, the construction costs could increase by a minimum of 7.5% per year for an additional \$500,000 per year of added delay.

*I-80 HOV/Auxiliary lane project:* Pending funding, Caltrans is planning to advertise the I-80 HOV/Auxiliary lane project in April 2009. If the I-80 Bike and Pedestrian Bridge does not get built first, the construction height clearance will need to be changed, which would have a negative effect on the proposed bridge height. The final height of the bridge would need to be redesigned to a greater height to provide minimum clearance for the HOV lanes. This will result in creating potential issues with additional right-of-way, accessibility requirements and increased exertion for the end user. Changes to the bridge project will increase the cost of both design and construction.

In addition, the foundation of the center column will have to be redesigned and changed to pile footing. This will result in additional design costs between \$10,000 and \$50,000, and \$15,000 for construction.

***Why should this project be funded?***

The proposed project supports the goals of the Metropolitan Transportation Plan and those of the Bike and Pedestrian Program. It also complies with the applicable Blueprint Planning Principles. Furthermore, the proposed project is consistent with planning documents for the City of Sacramento, including the General Plan, the 2010 City/County Bikeway Master Plan, the Pedestrian Master Plan, the North Natomas Community Plan and the South Natomas Community Plan.

Construction of this bridge is critical to unify Natomas and provide connectivity between the various activity centers on both sides of Interstate 80. This bridge will connect two developing areas with good bicycle and pedestrian circulation. A project of this scope needs grant funding for its construction, since it is beyond what is required of developers to fund.

The I-80 Bike and Pedestrian Bridge at the West Canal should be funded because the area is ready for it:

- The barriers to bicycling and walking between North and South Natomas are formidable; a bridge structure is the only feasible solution. Existing bicycle routes are only for the most seasoned cyclists due to the high-speed road crossings of I-80, I-5 or both. Combined with the long distances currently involved, this problem is even more pronounced for walking trips. With this new bridge project there will be a reduction of 3.2 miles of travel distance between two developing communities.
- As population has grown in Natomas, so too has the demand for a safe bike and pedestrian crossing of I-80. There is considerable interest from the community for this project. This project will provide the much needed bicycle commuter link between North Natomas and Downtown.
- Beyond the community needs, this bridge project will also have regional significance. SACOG studies have indicated the need for better bike and pedestrian crossings of this freeway. This connection is a vital link for a major north-south bike and pedestrian corridor.