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# **APPENDIX A**

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Transportation Study

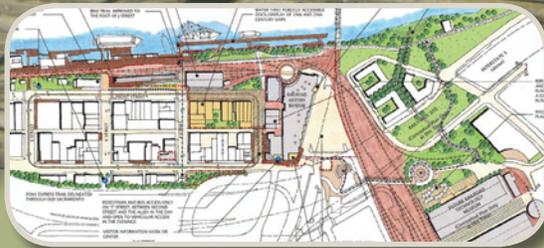




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*Final*

***Transportation Study for the  
Old Sacramento State Historic Park  
and California State Railroad Museum  
General Plan***

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## **APPENDICES**

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## **1. INTRODUCTION**

At the height of the Gold Rush, the Sacramento River served as the City's central transportation artery, and Old Sacramento was the City's core. In 1869, the Transcontinental Railroad was completed, and quickly supplanted the river as Sacramento's primary transportation artery. Modern day Sacramentans drive downtown on Interstate 5 (I-5), one of the busiest freeways in the region; or across the Tower Bridge, West Sacramento's primary connection to the Central Business District. These four key transportation corridors serve as Old Sacramento Historic District's (Old Sacramento's) boundaries: the Union Pacific Railroad/I Street Bridge to the north, the Tower Bridge/Capitol Mall to the south, I-5 to the east, and the Sacramento River to the west. Indeed, Old Sacramento lies at the heart of City's transportation system, and is accessible by automobile, boat, bus, train, bicycle, or on foot.

This study analyzes the potential impacts of the proposed Old Sacramento State Historic Park (OSSHP) and California State Railroad Museum (CSRM) General Plan upon the surrounding multi-modal transportation system. OSSHP and CSRM consist of several dispersed components concentrated in the northern half of Old Sacramento. The planning area addressed in the General Plan also includes an excursion train line that currently runs south from Old Sacramento along the eastern bank of the Sacramento River for approximately three miles, and its associated 16 plus miles of railroad right-of-way on the heritage Sacramento Southern railroad line, owned mostly by State Parks (with the exception of four-miles of right-of-way between the Land Park and Pocket/Meadowview areas, owned by the Sacramento Regional Transit District). Additional components within the planning area proposed to house or serve the Railroad Technology Museum (RTM) include two of the remaining Central Shops buildings, a turntable, transfer table, and firing line on the Railyards site.

The impact analysis conducted for this study evaluated the roadway, waterway, transit, bicycle, and pedestrian components of the overall transportation system under the following scenarios:

- Existing Conditions
- Existing Plus Project Conditions
- Cumulative Conditions
- Cumulative Plus Project Conditions

## PROJECT DESCRIPTION

The General Plan represents a long-term (approximately 20 years) vision for the future of the OSSHP and CSRM. The Preferred Alternative Plan includes numerous enhancements to existing components of OSSHP, in addition to new facilities, all of which are intended to improve the visitor experience within OSSHP and the newly established CSRM State Historic Park, and to assist in achieving each park's long-term vision. Components of the Plan include the following:

- **Visitor Gateways** – identify arrival into OSSHP and CSRM
- **Directional Signage** – identifies the location of specific destinations within the park
- **Visitor Kiosks** – new kiosks to provide materials/information to visitors
- **Riverfront Improvements** – pedestrian and bicycle circulation improvements; additional amenities including seating, exhibits, and signage; development of a new dock for the display of historic ships, boat moorage, and the potential operation of a water taxi service
- **1849 Scene/Future Gold Rush and Commerce Block** – reconstruction of a historic commercial block located on what is currently a large open grassy slope, located on Front Street between I Street and J Street, consisting of three levels: an excavated underground level to be used as a museum to expose and convey the original Gold Rush period elevation and experiences in Sacramento, interpret the archaeological remains found on-site, and the transformation to the architecture, development, and landscape of the City, following the city's recurring history with floods and fires; a street grade level with reconstructions of select commercial buildings and activities and period-style concessions from the 1850's and 1870's period (consistent with the period of buildings represented in Old Sacramento) and potential location for a Gold Rush Visitor Center; and a second story level housing State Park offices, potentially , a hotel, interpretive facilities, and other commercial concessions
- **Pony Express Trail** – enhance existing Pony Express Plaza on the corner of 2<sup>nd</sup> Street and I Street with additional visitor amenities, and identify the Pony Express Trail route through Old Sacramento using signage and interpretive materials
- **California State Railroad Museum Improvements** – construction of the RTM as an approximately 152,000 square foot new facility, occupying the former Southern Pacific

Railroad's Boiler Shop and Erecting Shop; addition of a catering kitchen on the north side of the existing Railroad History Museum (RHM) building; and a new entrance on the east side of the existing RHM building for school and tour groups

- **Big Four Building** – potential repurposing of the first and second floors as an option for the location of a Gold Rush Visitor Center, with potential access and use for interpretation as part of the Old Sacramento Underground Tours; and potential repurposing of the first floor for the OSSHP and CSRM library and reading room
- **Dingley Steam Coffee and Spice Mill** – repurposing of the first floor as a coffee shop
- **Central Pacific Railroad Passenger Station Improvements** – expanded boarding stand and ticketing for the excursion train line, new restaurant concession, and restroom improvements
- **Central Pacific Railroad Freight Depot Improvements** – removal of the public market additions, addition of new interpretive exhibits
- **Expanded Excursion Train Operations** – new service between Old Sacramento and the Sacramento Zoo (via an extension of the existing train route), new service between the Pocket/Meadowview neighborhood and the town of Hood
- **Horse car** – new horse car transit, serving visitors to Old Sacramento via a loop route along 2<sup>nd</sup> Street, I Street, Front Street, and L Street

## STUDY INTERSECTIONS

Study intersections were selected based on the expected travel characteristics associated with the project (i.e., project location and amount of project trips), as well as the susceptibility of nearby intersections to increased traffic due to implementation of the project. The following six intersections were studied as part of the transportation analysis:

1. I Street/3rd Street
2. I Street/5th Street
3. J Street/3rd Street
4. J Street/5th Street
5. Capitol Mall/Neasham Circle
6. O Street/Front Street

## DATA COLLECTION

To provide a baseline for the transportation analysis, traffic counts were collected at the six study intersections, all located within the City of Sacramento. The counts occurred on Tuesday, September 21, 2010 during the AM (7:00 AM – 9:00 AM) and PM peak periods (4:00 PM – 6:00 PM) of the roadway system surrounding Old Sacramento. During the counts, weather conditions were generally dry and local schools were in full session. Pedestrians and bicyclists were also counted at each of the study intersections.

Each intersection's peak hour within the peak period was used for the analysis. For the majority of study intersections, the counts indicate that the AM peak hour is between 8:00 AM and 9:00 AM and the PM peak hour is between 4:30 PM and 5:30 PM.

During the collection of the traffic counts, freeway off-ramp queues from northbound and southbound I-5 to J Street were also observed.

## STANDARDS OF SIGNIFICANCE

In accordance with CEQA, the lead agency evaluates the effects of a proposed project to determine if they could result in significant adverse impacts on the environment. The standards of significance in this analysis are based upon the current practices of the City of Sacramento, documented within the *Sacramento 2030 General Plan (2009)* and *Traffic Impact Analysis Guidelines (1996)*. Under CEQA, the City of Sacramento is the local responsible agency.

In addition to the City standards, Caltrans considers it an impact if the addition of project trips causes a queue on the off-ramp approach to a ramp terminal intersection to extend beyond its storage area and onto the freeway mainline. For the purposes of this analysis, an impact is considered significant if implementation of the project would result in any of the following:

### ***Bicycle Facilities:***

Impacts to bicycle facilities are considered significant if the proposed project would:

- Adversely affect existing or planned bicycle facilities; or
- Fail to adequately provide for access by bicycle

### ***Pedestrian Circulation:***

Impacts to pedestrian circulation are considered significant if the proposed project would:

- Adversely affect existing or planned pedestrian facilities; or
- Fail to adequately provide for access by pedestrians

**Transit Facilities:**

Impacts to the transit system are considered significant if the proposed project would:

- Adversely affect public transit operations; or
- Fail to adequately provide access to transit

**Freeway Facility Ramps:**

Caltrans considers the following to be a significant impact:

- Off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway (i.e., exceed the available storage capacity)

**Intersections:**

A significant traffic impact occurs when:

- The traffic generated by the project degrades level of service (LOS) from an acceptable LOS (without the project) to an unacceptable LOS (with the project);
- The level of service (without project) is unacceptable and project generated traffic increases the average vehicle delay by 5 seconds or more

Policy M 1.2.2 contained in the *Mobility Element* of the *Sacramento 2030 General Plan* sets forth definitions for what is considered an acceptable level of service. The following excerpt from the level of service policy is relevant to this study:

M 1.2.2 The City shall allow for flexible Level of Service (LOS) standards, which will permit increased densities and mix of uses to increase transit ridership, biking, and walking, which decreases auto travel, thereby reducing air pollution, energy consumption, and greenhouse gas emissions.

- a. Core Area Level of Service Exemption—LOS F conditions are acceptable during peak hours in the Core Area bounded by C Street, the Sacramento River, 30th Street, and X Street. If a Traffic Study is prepared and identifies a LOS impact that would otherwise be considered significant to a roadway or intersection that is in the Core

Area as described above, the project would not be required in that particular instance to widen roadways in order for the City to find project conformance with the General Plan. Instead, General Plan conformance could still be found if the project provides improvements to other parts of the citywide transportation system in order to improve transportation-system-wide roadway capacity, to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. The improvements would be required within the project site vicinity or within the area affected by the project's vehicular traffic impacts. With the provision of such other transportation infrastructure improvements, the project would not be required to provide any mitigation for vehicular traffic impacts to road segments in order to conform to the General Plan. This exemption does not affect the implementation of previously approved roadway and intersection improvements identified for the Railyards or River District planning areas.

Therefore, all six study intersections are located within the Core Area defined in Policy M 1.2.2 and are governed by M 1.2.2 (a). LOS F is acceptable at these locations during peak hours, provided that the project provides improvements to other parts of the citywide transportation system within the project site vicinity (or within the area affected by the project's vehicular traffic impacts) to improve transportation-system-wide roadway capacity, to make intersection improvements, or to enhance non-auto travel modes in furtherance of the General Plan goals. Road widening or other improvements to road segments are not required.

## **ANALYSIS METHODOLOGY**

All intersections were analyzed using procedures and methodologies contained in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2000). These methodologies were applied using Synchro<sup>1</sup>, a traffic operations analysis software package.

The HCM methodologies determine a level of service (LOS) for each study intersection. Level of service is a qualitative measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A

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<sup>1</sup> Trafficware, 2005

represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions. Table 1 presents the intersection LOS thresholds.

<b>Table 1 Intersection Level of Service Thresholds</b>		
<b>Level of Service</b>	<b>Average Control Delay (seconds/vehicle)<sup>1</sup></b>	
	<b>Signalized Intersection</b>	<b>Unsignalized Intersection</b>
A	0 – 10.0	0 – 10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	> 80.0	> 50.0

Notes:  
 1. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.  
 Source: *Highway Capacity Manual*, Chapter 16 (Signalized Intersections) and Chapter 17 (Unsignalized Intersections), Transportation Research Board, 2000.

Typical of a downtown business district, the capacity of some study area intersections may be adversely affected by operational and physical characteristics such as parking maneuvers, vehicle blockages, transit activity, small-radius turns and high pedestrian activity. Consistent with the methodology provided in the *Highway Capacity Manual* (Transportation Research Board, 2000), the vehicle headway factors were increased at three study intersections (intersection numbers two through four) to address the issue of regular and frequent interference.

**Detailed Intersection Analysis Assumptions and Methodologies**

The following assumptions and methodologies were applied during the analysis of study intersections:

- Per HCM procedures, the level of service (LOS) for signalized and all-way stop-controlled intersections was based on the average control delay for all vehicles
- September 2010 pedestrian counts were incorporated into the analysis

- Signalized intersections were analyzed using the most up-to-date traffic signal timings provided by the City of Sacramento
- Per the City of Sacramento's *Traffic Impact Analysis Guidelines* (1996), a peak hour factor (PHF) of 1.00 was assumed for all existing and cumulative scenarios
- Intersection peak hour heavy vehicle<sup>2</sup> percentages were set at 2 percent

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<sup>2</sup> As defined by the *Highway Capacity Manual*, a heavy vehicle is any "vehicle with more than four wheels touching the pavement during normal operation."

## 2. EXISTING CONDITIONS

This chapter describes the physical and operational characteristics of the transportation system within the study area.

### PROJECT AREA TRANSPORTATION FACILITIES

Within Old Sacramento, a well-connected gridded system of streets provides access to businesses and attractions. Streets within Old Sacramento have two bidirectional travel lanes, a mixture of parallel and angled on-street parking, and are designed for vehicles to operate at low travel speeds. Front Street is paved with cobblestones between Neasham Circle and J Street, which results in lower vehicle travel speeds.

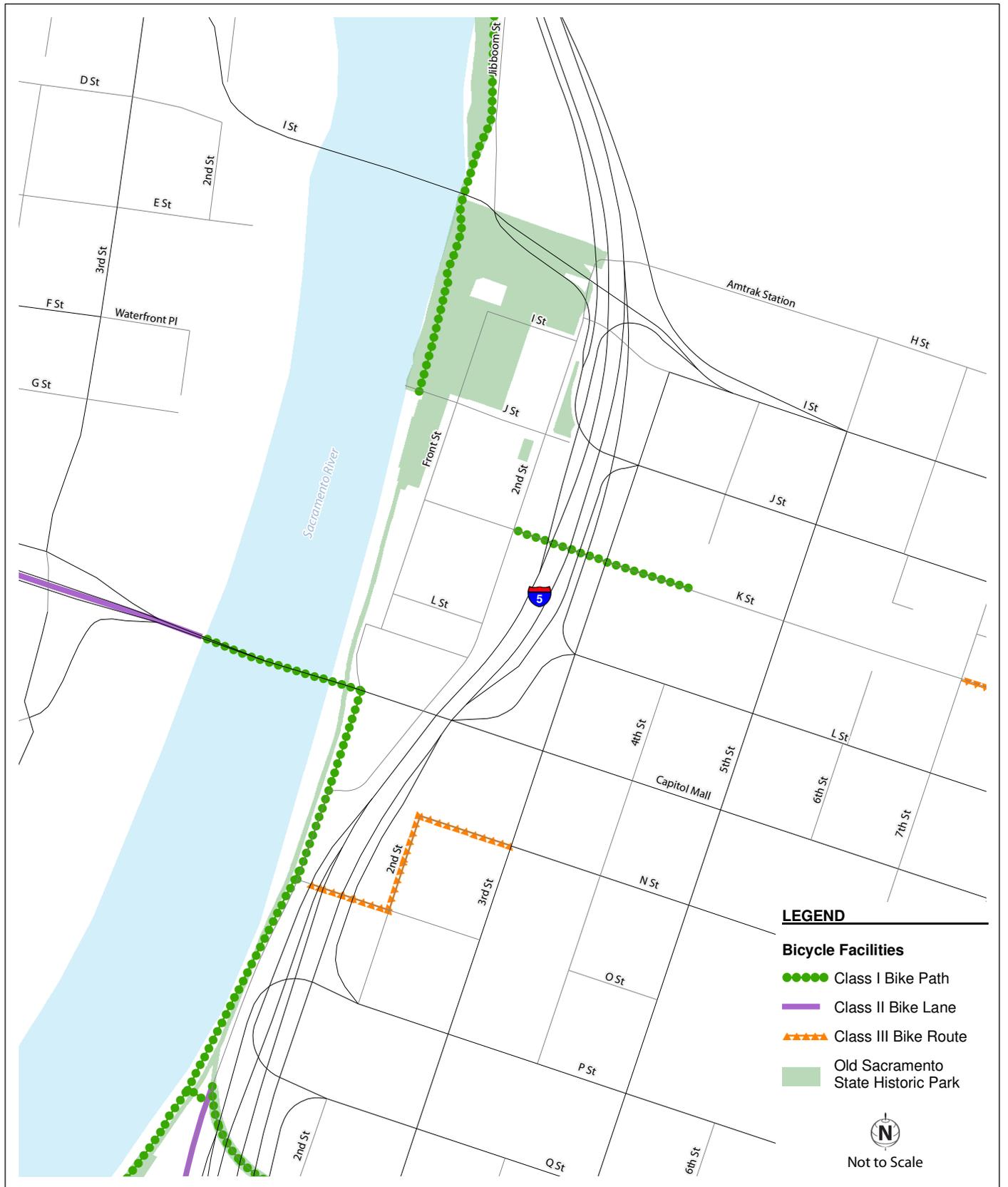
Streets in Old Sacramento are lined with sidewalks on both sides, most of which are approximately 15 feet wide and constructed of wooden planks raised above the roadway. Sidewalk ramps have recently been upgraded to comply with the Americans with Disabilities Act. Additionally, an approximately thirty-foot wide boardwalk stretches along the western edge of OSSHP between the Sacramento River and



the tracks for the California State Railroad Museum's excursion train. The boardwalk extends to the northwest corner of OSSHP where it connects with the American River Bike Trail, a major regional bicycle facility that runs adjacent to the river for 33 miles from Old Sacramento to Folsom Lake (see image above).

Additional Class I off-street bicycle facilities currently serving the area include a trail along the eastern bank of the Sacramento River south of Capitol Mall, a connection to Old Sacramento across the Tower Bridge, and a connection to Downtown Plaza via an undercrossing of I-5 and 3<sup>rd</sup> Street. Figure 1 displays a map of existing bicycle facilities surrounding Old Sacramento.







## REGIONAL TRANSPORTATION FACILITIES

A sidewalk-lined system of gridded streets also exists on the east side of I-5 in Downtown Sacramento. However, unlike within Old Sacramento, streets on the east side of the freeway have three to five travel lanes designed to handle large volumes of regional commuter traffic, and many of the major roadways in Downtown are one-way facilities.

The City's Amtrak station, one of the ten busiest in the nation,<sup>3</sup> is located only a few hundred feet to the northeast of Old Sacramento on the opposite side of I-5. Two long distance Amtrak routes, the Coast Starlight (Seattle-Portland-Sacramento-Log Angeles) and the California Zephyr (Emeryville-Sacramento-Denver-Chicago) serve the station in addition to two Amtrak California regional routes, the Capitol Corridor (San Jose-Sacramento-Auburn), and the San Joaquin (Sacramento-Bakersfield). Regional Transit's (RT) Gold Line also connects the Amtrak station to the Sacramento region's light rail transit network.

Regional Transit provides a majority of the public transit service (light rail and bus) within the study area as shown in Figure 2. However, bus transit service connecting Sacramento to the surrounding region is also provided by Yolobus, Folsom Stage Lines, Yuba-Sutter Transit, Roseville Transit, El Dorado Transit, Elk Grove Transit (e-Trans), and the San Joaquin Regional Transit District.

Access to the regional freeway system from Old Sacramento is provided via on-ramps to I-5 at I Street and L Street, and off-ramps at J Street. Interstate 5 extends the length of California and into Oregon and Washington. Within the study area, this freeway serves as a vital link between the primarily residential neighborhoods to the north and south of Downtown and the Central Business District. Interstate 5 also provides easy access from Old Sacramento to the region's two major east-west freeways, Interstate 80 and US Highway 50 (US-50). Adjacent to Old Sacramento, I-5 has four northbound and four southbound travel lanes. South of the I Street merge, southbound I-5 gains a fifth lane that serves as an auxiliary lane between the I Street on-ramp and the US-50/Business 80 off-ramp.

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<sup>3</sup> Amtrak's Fiscal Year 2009 *National Fact Sheet* lists Sacramento as 7<sup>th</sup> in total Amtrak ridership.



**LEGEND**

- Sacramento LRT Stations
- +++ Sacramento LRT
- Orange Line e-Trans Route
- Purple Line El Dorado Transit Route
- Pink Line Roseville Transit Route
- Brown Line Yuba Sutter Transit Route
- Green Line Yolobus Route
- Light Green Line San Joaquin RTD
- Blue Line Sacramento RT Route
- Green Area Old Sacramento State Historic Park



Not to Scale





## ROADWAY NETWORK

The characteristics of several key roadway facilities in the vicinity of OSSHP are described in greater detail below:

- **Capitol Mall** is a four-lane east-west divided roadway within the study area. Capitol Mall originates on the west at the Tower Bridge, and is a continuation Tower Bridge Gateway, a roadway that connects to Business Route 80 in West Sacramento. Capitol Mall terminates on the east at 10<sup>th</sup> Street at the State Capital. A grass median, approximately 40 feet wide, separates eastbound and westbound traffic within the study area.
- **I Street** is a three to four-lane one-way (westbound) roadway within the study area. I Street originates on the east at 28<sup>th</sup> Street and terminates on the west at Front Street in Old Sacramento. I Street serves as one of the primary gateways to OSSHP, and also has on-ramps to northbound and southbound I-5. Motor vehicle traffic is not permitted on I Street between Front Street and Commonwealth Alley.
- **J Street** is a three to four-lane one-way (eastbound) roadway within the study area and forms a couplet with I Street through Downtown Sacramento. J Street originates on the west at I-5, fed by off-ramps from northbound and southbound I-5. J Street continues through Downtown and Midtown Sacramento, and eventually transitions into Fair Oaks Boulevard east of the American River. A separate discontinuous segment of J Street exists within Old Sacramento between the Sacramento River and I-5.
- **3rd Street** varies from a three-lane divided roadway to a three-lane one-way (southbound) roadway within the study area. Third Street originates on the north at I Street and terminates on the south at Broadway. The western side of 3<sup>rd</sup> Street between I Street and O Street lacks sidewalks.
- **5<sup>th</sup> Street** is primarily a three-lane one-way (northbound) roadway within the study area. Fifth Street originates on the south at 4<sup>th</sup> Avenue and terminates on the north at H Street. Fifth Street has two-way travel between J Street and L Street as it passes under the Downtown Plaza mall. Future plans call for the extension of 5<sup>th</sup> Street northward to North B Street as part of the Railyards Redevelopment Project.
- **Front Street** is a two-lane north-sound roadway that runs along the eastern bank of the Sacramento River. Front Street is discontinuous on either side Capitol Mall, with a northern segment that travels through Old Sacramento connecting Neasham Circle to I Street, and a southern segment that runs from Miller Park before transitioning into 2<sup>nd</sup>

Street just south of Capitol Mall. The northern segment of Front Street within Old Sacramento is paved with cobblestones, and north of J Street vehicular access is prohibited.

- **Neasham Circle** – is a two-lane local roadway that provides access to Old Sacramento via a signalized intersection with Capitol Mall. Neasham Circle connects Capitol Mall to 2<sup>nd</sup> Street within Old Sacramento.
- **I Street Bridge:** The I Street Bridge has one travel lane in each direction, and serves largely as a local connection between West Sacramento and Downtown Sacramento. It has the northernmost location of the three bridges connecting the two cities. Between the I Street crossing on the east side of West Sacramento, and the Bryte Bend Bridge (which carries Interstate 80 over the Sacramento River) in the northwestern corner of West Sacramento, no other river crossings exist. The I Street Bridge carries approximately 12,700 vehicles per day. In addition to motor vehicles, the I Street Bridge also accommodates pedestrians and bicyclists. However, sidewalks on the bridge are narrow and are directly adjacent to the vehicle travel lanes, and no bicycle lanes are provided. No transit routes currently make use of the I Street Bridge.
- **Tower Bridge:** The Tower Bridge is located less than a half a mile south of the I Street Bridge on the Sacramento River. This crossing has four motor vehicle travel lanes (two in each direction) in addition to striped shoulders which are used by bicyclists. Bicyclists may also share the Tower Bridge's wide protected sidewalks with pedestrians. This bridge carries about 20 percent more traffic than the I Street Bridge, handling approximately 15,600 vehicles per day on a weekday (May 2010 traffic count revealed that the volume on the bridge is approximately 30 percent less on a Saturday). Numerous transit routes use the Tower Bridge to travel between West Sacramento and Downtown Sacramento.

## PROJECT AREA ACCESS

Despite its proximity to several of the region's major transportation investments, accessing Old Sacramento represents a challenge for many visitors, especially during high visitation events. Old Sacramento's location between the Sacramento River, Union Pacific Railroad tracks, and I-5 results in a limited number of access points into and out of OSSHP. As shown in Table 2, when not considering boat access from the Sacramento River, Old Sacramento has only five access points. Two of these five access points serve bicycles and pedestrians only.

**Table 2**  
**Access Points to Old Sacramento**

Access Point	Motor Vehicle Access	Bicycle/Pedestrian Access
1. Neasham Circle	✓	✓
2. Front Street	✓	✓
3. K Street		✓
4. I Street	✓	✓
5. American River Bike Trail		✓

While there are three access points open to motor vehicle traffic, the current configuration of the Front Street gateway is somewhat circuitous because Front Street is depressed below grade at Capitol Mall. Rather than being able to turn directly onto Front Street from Capitol Mall, visitors to OSSHP must travel an additional half mile to connect to Front Street via 3rd Street and O Street in order to use this gateway.

This configuration makes this gateway less attractive to all modes of travel, but especially to bicyclists and pedestrians who are more affected by increased travel distance. Additionally, the existing sidewalks on the segment of Front Street beneath Capitol Mall are narrow and have no buffer between the sidewalk and adjoining travel lanes (see image to right). The design of these sidewalks, combined with the circuitous nature of this access, limit the gateway's effectiveness as a pedestrian entry/exit to Old Sacramento.



Recent modifications to 3rd Street on the east side of I-5 have added a northbound travel lane between I Street and J Street. Previously, this segment of roadway was one-way southbound. This previous configuration required motorists exiting I-5 at J Street to travel two blocks out of their way to access the I Street gateway into Old Sacramento. With the addition

of the northbound lane on 3rd Street, motorists exiting I-5 and traveling to the I Street access point travel 2,000 fewer feet than under the previous configuration.



The I Street access point to Old Sacramento also serves as the pedestrian connection to Sacramento's railroad depot, linking visitors to Amtrak, RT light rail, and Amtrak California. Although the station is only a few hundred feet from the northeastern corner of Old Sacramento, the existing connection requires pedestrians and bicyclists to navigate their way through a dimly lit parking lot located beneath a freeway interchange (see image to left). The route to the Amtrak station is well marked, but the connection currently lacks inviting pedestrian/ bicycle facilities.

The segment of I Street immediately east of Old Sacramento crosses beneath I-5 and serves as a primary vehicular gateway into Old Sacramento, but has several attributes which decrease its desirability as a pedestrian gateway. East of 3<sup>rd</sup> Street, sidewalks exist on only the southern side of I Street; west of 3<sup>rd</sup> Street, sidewalks exist on only the northern side of the roadway. The relatively narrow sidewalks on the segment of I Street beneath I-5 have no buffer between the roadway and the adjacent travel lane, and lack pedestrian scale lighting.

The intersections on either side of this segment, I Street/3<sup>rd</sup> Street and I Street/2<sup>nd</sup> Street, also have features that present challenges to pedestrian mobility. The westbound approach to the I Street/2<sup>nd</sup> Street intersection is uncontrolled, while the northbound and southbound legs are stop-controlled. Of the three approaches to this intersection, only one (southbound) has a marked crosswalk. The I Street/3<sup>rd</sup> Street intersection also lacks a marked crosswalk on the eastbound approach. The existing sidewalks and crosswalks at the I Street gateway to Old Sacramento do not adequately provide a direct path for convenient pedestrian travel.

The project list for the City of Sacramento's Year 2010 Streetscape Enhancement Program currently lists the I Street Gateway to Old Sacramento (defined as I Street between 2<sup>nd</sup> Street and 5<sup>th</sup> Street) as the fifth highest priority for "other corridors" (i.e., non commercial corridors).

Opportunities for additional access points to Old Sacramento from the north may be possible, in connection with the development of the Railyards site, but require further future planning and coordination with the City and property owners of the Railyards property.

## **PARKING**

Within one-quarter of a mile from Old Sacramento, there are approximately 11,000 off-street parking spaces.<sup>4</sup> Additionally, a mixture of parallel and angled on-street parking lines most streets within the historic district. On-street parking spaces are metered, with meter enforcement occurring seven days a week, while off-street parking decks typically charge an hourly rate.

Although numerous parking opportunities exist within a close walk of Old Sacramento's attractions, many visitors make use of two parking decks owned by the City of Sacramento. These two public decks, one located at each of the two access points to Old Sacramento most heavily utilized by motor vehicle traffic, offer a combined 1,329 spaces (451 spaces in the deck located off of Neasham Circle and 878 spaces located in the deck accessed off of I Street).

In addition to these City-owned decks, four public parking decks at Downtown Plaza combine to offer nearly 4,000 spaces. These spaces are located on the opposite side of I-5 from Old Sacramento, and are connected to Old Sacramento via the K Street pedestrian/bicycle access point.

## **RAIL CROSSING**

An at-grade Sacramento Southern Railroad crossing of Capitol Mall traverses the western leg of Capitol Mall/Neasham Circle study intersection. According to data provided by the Sacramento Southern Railroad/California State Railroad Museum, 1,306 train movements occurred in 2010 resulting in an average of just under four trains per day. Higher levels of train activity occur on weekends versus weekdays due to excursion train operations from OSSHP. This crossing is

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<sup>4</sup> According to Draft Downtown Off-Street Parking Supply data produced by the City of Sacramento in January, 2010.

currently equipped with traffic signal preemption, warning signage, crossing arms, warning bells, and flashing lights.

## **WATER TRANSPORTATION**

The Sacramento River forms the western border of Old Sacramento. At the height of the Gold Rush, the section of river adjacent to Old Sacramento served as the City's central transportation artery. Although the river no longer serves this function, the Sacramento River is still used for transport, and a significant number of boat trips pass by OSSHP on a daily basis. Recreational traffic comprises the majority of boat trips on the segment of river adjacent to Old Sacramento. However, commercial river cruises operated by Hornblower Cruises & Events also utilize the river and operate from a dock located within Old Sacramento. In addition to the docks within Old Sacramento, two public boat launches are located within one mile of OSSHP:

- **The Broderick Boat Ramp** is located approximately one third of a mile upriver from Old Sacramento on the western bank of the Sacramento River. This public facility is operated by the City of West Sacramento, and has amenities including a picnic area and restrooms.
- **The Discovery Park Boat Ramp** is located approximately one mile upriver from Old Sacramento on the eastern bank of the Sacramento River. This public facility is operated by the Sacramento County Regional Parks Department.

## **INTERSECTION OPERATIONS**

Figure 1 displays the existing AM and PM weekday peak hour traffic volumes, as well as the current lane configurations and traffic controls present at each of the six study intersections. Table 3 summarizes the existing peak hour intersection operations at the study intersections (refer to separate Appendix A for detailed calculations). As shown, all signalized and unsignalized intersections currently operate at LOS E or better.

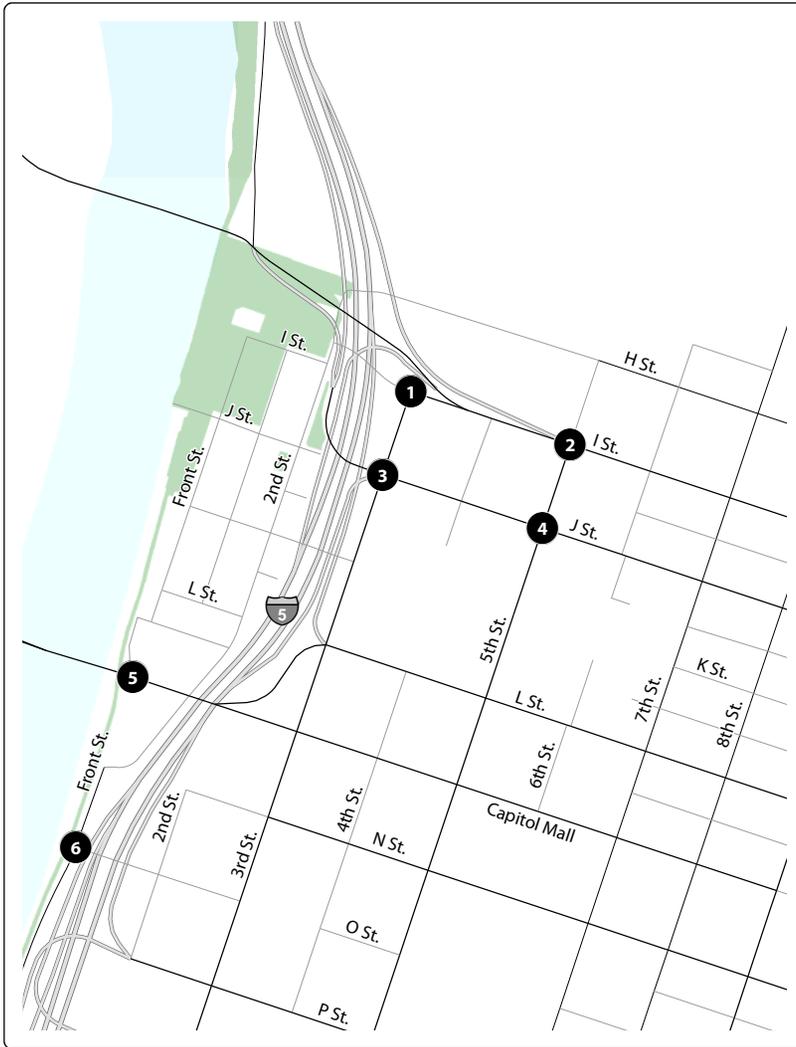
Overall, the existing roadway system within the area can be characterized as operating efficiently. Motorists typically incur modest delays, do not experience substantial vehicle queues, and benefit from the coordinated traffic signal system along the primary commute corridors that connect downtown to the regional freeway system. The intersection of J Street/3rd Street is the most congested of all study locations due primarily to competing traffic flows entering downtown from the northbound and southbound I-5 off-ramps. It should be

noted that all three intersections that provide motor vehicle access into and out of Old Sacramento currently operate with very low levels of delays (LOS A) during both peak hours.

<b>Table 3 Intersection Level of Service – Existing Conditions</b>				
<b>Intersection</b>	<b>Control</b>	<b>Peak Hour</b>	<b>Delay<sup>1</sup></b>	<b>LOS</b>
1. I Street/3rd Street	All-Way Stop	AM PM	8 9	A A
2. I Street/5th Street	Traffic Signal	AM PM	13 16	B B
3. J Street/3rd Street	Traffic Signal	AM PM	58 37	E D
4. J Street/5th Street	Traffic Signal	AM PM	16 16	B B
5. Capitol Mall/Neasham Circle	Traffic Signal	AM PM	5 5	A A
6. O Street/Front Street	All-Way Stop	AM PM	7 8	A A
Notes: Average intersection delay is reported in seconds per vehicle for all approaches. Source: Fehr & Peers, 2011.				

Freeway off-ramp queues from I-5 to the J Street/3<sup>rd</sup> Street intersection were also observed under existing conditions. As shown in Table 4, all study freeway off-ramps are within their storage areas during the AM and PM peak hours.

<b>Table 4 Off-Ramp Queuing – Existing Conditions</b>			
<b>Off-Ramp</b>	<b>Storage Length</b>	<b>Peak Hour</b>	<b>Queue<sup>1</sup></b>
1. I-5 Northbound – Off-ramp to J Street	1,025 feet	AM PM	975 feet 875 feet
2. I-5 Southbound – Off-ramp to J Street	1,475 feet	AM PM	550 feet 250 feet
Notes: <sup>1</sup> Queue length is the maximum queue observed during peak period field observations conducted in September 2010, rounded to the nearest 25 feet. Source: Fehr & Peers, 2011.			



**LEGEND**

↪ Turn Lane

AM (PM) Peak Hour Traffic Volume

① Study Intersection

🚦 Traffic Signal

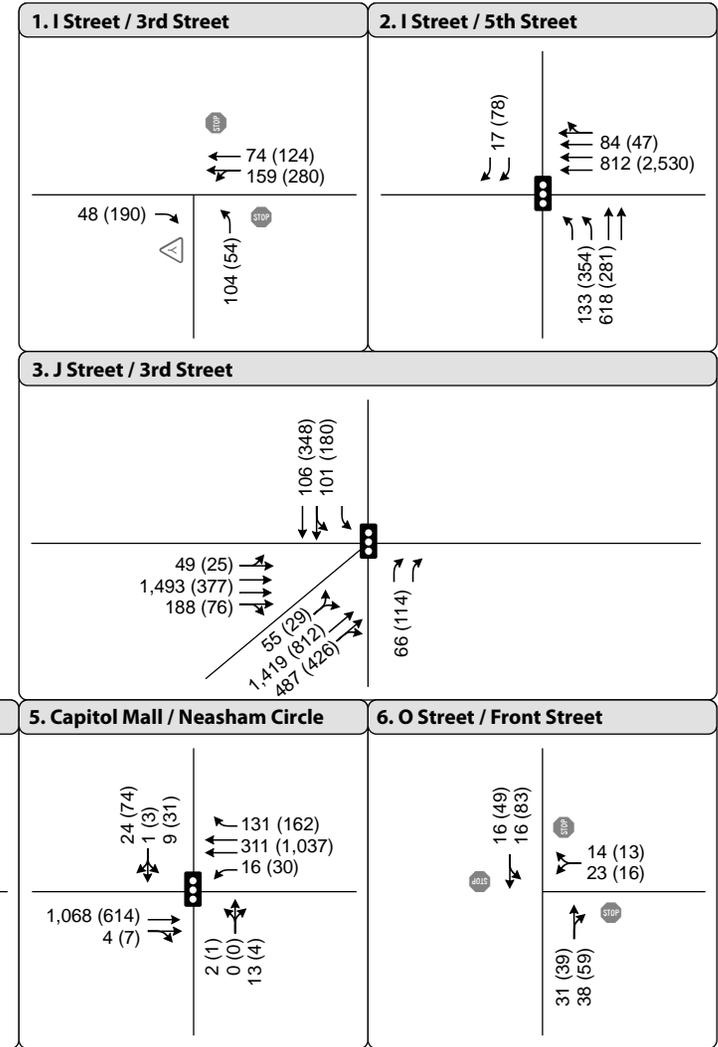
⊛ Stop Sign

▽ Yield Sign

🌳 Old Sacramento State Historic Park



Not to Scale



**PEAK HOUR TRAFFIC VOLUMES  
AND LANE CONFIGURATIONS -  
EXISTING CONDITIONS**

**FIGURE 3**

### 3. EXISTING PLUS PROJECT CONDITIONS

This chapter discusses the conditions of the transportation system under Existing Plus Project conditions.

#### PROJECT DESCRIPTION

As discussed in Chapter 1, the OSSHP General Plan includes numerous enhancements to existing components of the Park as well as proposed new facilities. However, many of the proposed components discussed previously will not result in quantifiable increases in motor vehicle trips to Old Sacramento (i.e., improved signage, visitor kiosks, enhanced bicycle/pedestrian circulation, additional pedestrian amenities, etc.). In fact, several of the components of the Plan could increase the attractiveness of traveling to/from and within Old Sacramento via bicycle or on foot. Specific components of the Preferred Alternative Plan likely to generate additional motor vehicle trips include the following:

- Development of the Gold Rush and Commerce Block, consisting of a total of 64,000 square feet of additional land uses, broken down as follows:
  - 38,000 square feet of retail
  - 38,000 square feet of office
- Railroad Technology Museum – a complementary facility to the existing Railroad History Museum, located within the Railyards Specific Plan area
- Expansion of Excursion Train Service – additional trains would run on the existing railroad line, providing new excursion service between Old Sacramento and the Sacramento Zoo, and between Pocket/Meadowview and Hood

#### TRIP GENERATION

This section documents the expected trip generation characteristics of the General Plan. Due to OSSHP's and CSRM's proximity to the Central Business District, peak demand on the transportation system surrounding both parks occurs during the weekday AM and PM peak commute periods. For this reason, the transportation analysis focuses upon these two time periods, as the susceptibility of the system to impacts during these periods is greater than during off-peak periods when the system has higher levels of available capacity. Although the number of trips associated with the proposed project will likely be higher on the weekend, the

higher levels of available transportation system capacity on weekends reduce the likelihood of impacts, associated with the proposed project during this time period. Therefore the trip generation estimates presented in this chapter are for the weekday AM and PM peak hours.

All passengers using the proposed excursion train service between Old Sacramento and the Sacramento Zoo would purchase tickets in OSSHP and would return to OSSHP. Therefore, new trips associated with this service would occur within the planning area. However, this service would be provided on weekends only, outside of the peak hours of the transportation system surrounding OSSHP. For this reason, the potential new trips associated with this expanded service are not reflected in the trip generation estimates presented below.

The methods used to calculate the trip generation potential of the Gold Rush and Commerce Block and Railroad Technology Museum differ. The trip generation potential of the proposed additional land uses within Old Sacramento, located on the Gold Rush and Commerce Block, are calculated using standard retail and office trip rates published in *Trip Generation* (Institute of Transportation Engineers, 2008). Once these rates were applied, the number of trips was adjusted downward by 8 percent to account for visitors arriving via an alternative transportation mode (including walking, bicycling, and transit). This reduction is equal to the total regional walk/bike and transit mode splits reported in the *2000 Sacramento Area Household Travel Survey* conducted by the Sacramento Area Council of Governments (SACOG). The survey revealed the following transit and walk/bike mode splits for the Sacramento region:

<b>Trip Type</b>	<b>Walk/Bike Mode Split</b>	<b>Transit Mode Split</b>
Work Trips	5.9%	3.4%
Non-Work Trips	6.8%	0.8%
All Trips	6.7%	1.3%

Given the location of OSSHP adjacent to the Central Business District, the grid of walkable streets within and adjacent to the study area, the area's pedestrian and bicycle infrastructure, and the number and quality of nearby transit services, a bike/walk/transit share of 8 percent is considered appropriate. Table 5 presents the trip generation estimate for the proposed additional land uses on the Gold Rush and Commerce Block.

Land Use	Quantity	ITE Land Use Code	Trip Rate <sup>1</sup>			Trips						
			Daily	AM Peak Hour	PM Peak Hour	Daily	AM Peak Hour			PM Peak Hour		
							In	Out	Tot	In	Out	Tot
Retail	38 ksf <sup>2</sup>	820	42.95	1.00	3.74	1,632	23	15	38	69	72	142
Office	38 ksf <sup>2</sup>	70	11.00	1.55	1.50	418	52	7	59	10	47	57
Adjustments – External Trips Made by Bike/Walk/Transit <sup>2</sup>						-164	-6	-2	-8	-6	-10	-16
Net External Project Trips Made by Vehicle						<b>1,886</b>	<b>69</b>	<b>20</b>	<b>89</b>	<b>73</b>	<b>109</b>	<b>183</b>
Notes: <sup>1</sup> Trip rates from <i>Trip Generation</i> (ITE, 2008). <sup>2</sup> Refer to previous pages for assumptions regarding transit, and walk/bike trips <sup>3</sup> Thousand square feet Source: Fehr & Peers, 2011												

The *Feasibility Analysis for the Railroad Technology Museum* (Economics Research Associates, June 2008) documents the potential visitation of the Railroad Technology Museum. This study estimates that the facility will have between 220,000 and 419,000 annual visitors. The trip generation estimates contained in Table 7 are calculated using the high end of this estimated visitation range, which is displayed in Table 6.

	Mid-Scenario	High-Scenario
Estimated Annual Attendance	320,000	419,000
Peak Month Attendance (@ 12% of total)	38,400	50,280
Weekly Attendance in Peak Month (@ 22.5% of peak month)	8,640	11,313
Design Day Attendance (@ 22% of week)	1,901	2,489
Peak In-Museum Attendance (40% of design day)	760	996
Source: ERA, 2008.		

Since the operating hours of the Railroad Technology Museum are anticipated to be similar to the existing Railroad History Museum (10:00 AM to 5:00 PM), the facility will not generate a significant number of trips during the AM peak hour of the transportation system.<sup>5</sup> According to California State Parks, 30 percent of visitors on weekdays will arrive on private buses (consisting primarily of school groups), similar to the existing Railroad History Museum. Table 7 presents the PM peak hour trip generation estimate for the Railroad Technology Museum.

Peak Daily Attendance (visitors)	2,489		
Travel by Automobile (%)	62%		
Travel by Private Bus (%)	30%		
Alternative Mode (Walk, Bike, Transit) (%)	8%		
Average Persons per Automobile	2.5		
Average Persons per Private Bus	30		
Daily One-Way Automobile Trips	617		
Daily One-Way Private Bus Trips	25		
Total Daily Motor Vehicle Trips	1,284		
<b>PM Peak Hour Trips</b>	<b>Inbound (1% of Daily)</b>	<b>Outbound (20% of Daily)</b>	<b>Total</b>
Automobile Trips	6	123	129
Private Bus Trips	0	5	5
<b>Total PM Peak Hour Motor Vehicle Trips</b>	<b>6</b>	<b>128</b>	<b>134</b>
Source: Fehr & Peers, 2011.			

Trip generation estimates for the Railroad Technology Museum presented in Table 7 are based on forecasted peak day attendance during a peak month using the high-scenario visitation estimate, and thus are considered conservative. Additionally, many of the visitors to the Railroad Technology Museum will likely not produce “new trips,” and will instead include

<sup>5</sup> Traffic counts conducted at the study intersections indicate that the AM peak hour generally occurs between 8:00 AM and 9:00 AM within the study area.

visitors that would otherwise already be within Old Sacramento visiting other attractions, particularly the existing Railroad History Museum. Therefore, Table 8 adjusts the total trips generated by the combined trip generating components of the Plan to account for linked trips between uses, and presents an estimate of the total number of new vehicle trips associated with the proposed project. Note that in addition to the PM peak hour trips estimated in Table 7, Table 8 also includes a nominal quantity of trips associated with the Railroad Technology Museum during the AM peak hour to account for expected employee/delivery/maintenance trips during this time period.

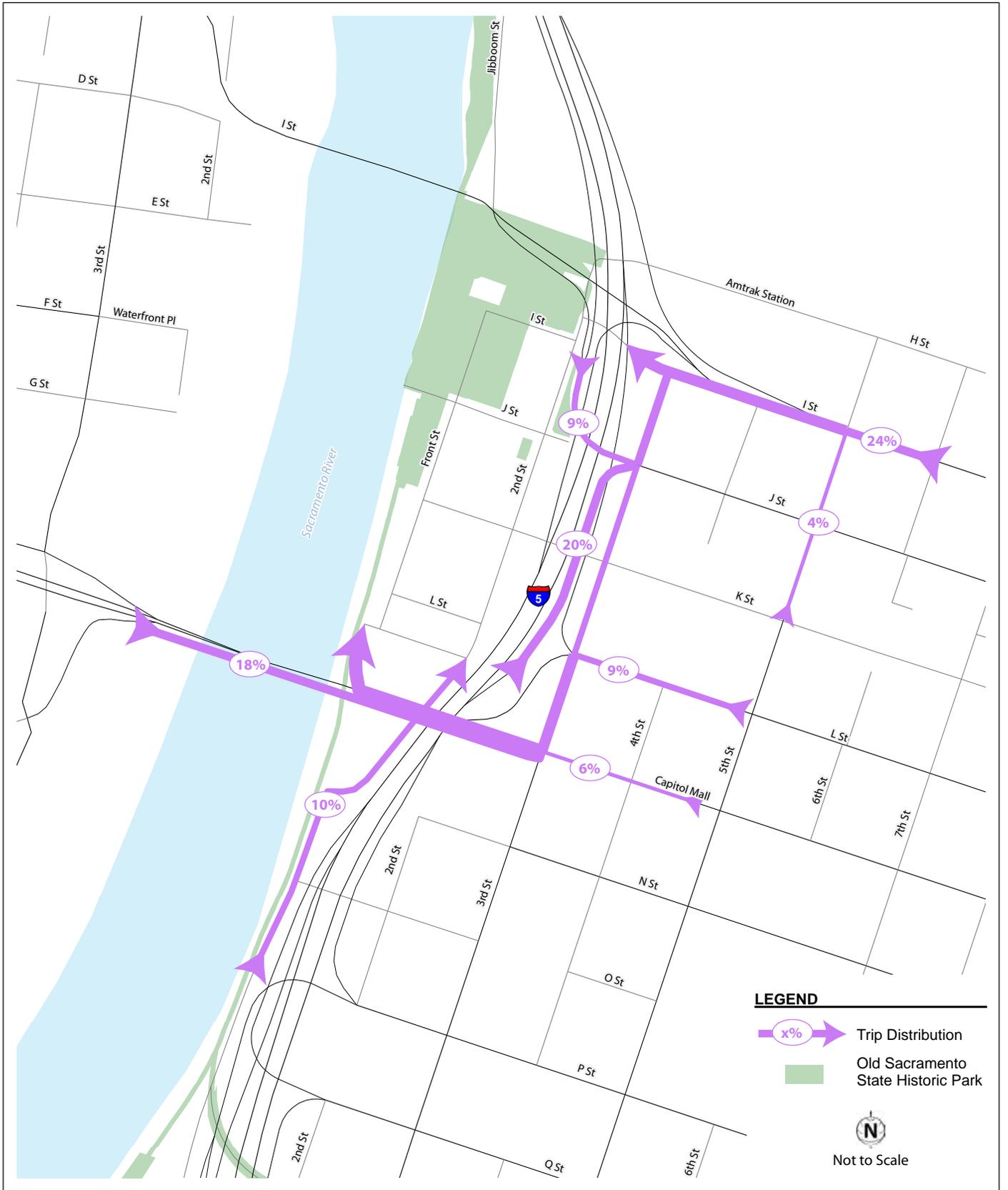
<b>Table 8 Trip Generation – Total</b>							
<b>Land Use</b>	<b>Trips</b>						
	<b>Daily</b>	<b>AM Peak Hour</b>			<b>PM Peak Hour</b>		
		<b>In</b>	<b>Out</b>	<b>Tot</b>	<b>In</b>	<b>Out</b>	<b>Tot</b>
1849 Scene	1,886	69	20	89	73	109	182
Railroad Technology Museum	1,284	8	1	9	6	128	134
Adjustments - Linked trips within Old Sacramento (30%)	-951	-23	-6	-29	-24	-71	-95
<b>Net New Project Trips Made by Vehicle</b>	<b>2,219</b>	<b>54</b>	<b>15</b>	<b>69</b>	<b>55</b>	<b>166</b>	<b>221</b>
Source: Fehr & Peers, 2011							

### TRIP DISTRIBUTION

The distribution of project trips was estimated using the following sources and analytical techniques:

- Traffic assignment using the SACMET Travel Demand Model
- Review of existing travel patterns within the study area using traffic counts collected in September 2010
- Relative travel time/speed comparisons between the project and key travel corridors for various routes

Due to the number of one-way streets within the study area and the location of freeway on-and off-ramps, it was necessary to develop separate trip distribution estimates for inbound and outbound trips. Figures 4 and 5 display the expected distribution of inbound and outbound project trips to Old Sacramento, respectively, estimated using the above sources and techniques. Project trips were assigned to the study intersections in accordance with the trip generation and distribution methodologies discussed in this chapter.



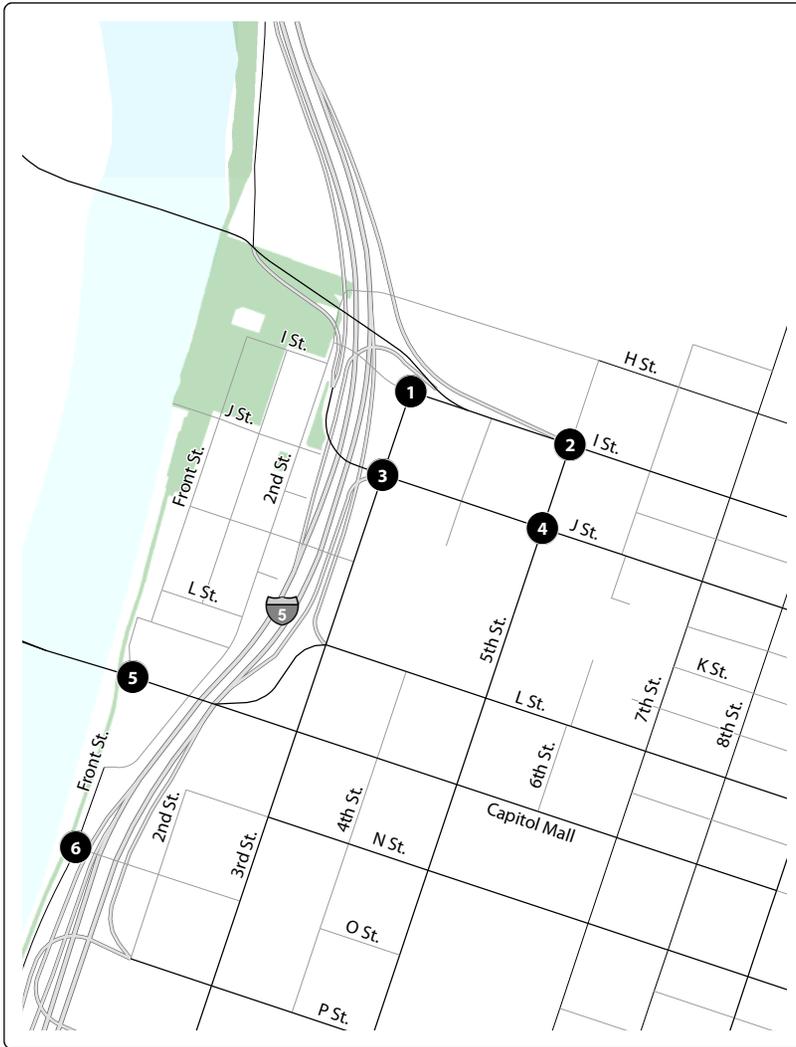


## INTERSECTION OPERATIONS

The Existing Plus Project scenario assumes full build-out of the Plan and layers the additional trips generated by OSSHP and CSRM on top of existing 2010 trip levels using the previously discussed trip distribution estimates. This results in a combined 15 percent increase in traffic entering/exiting Old Sacramento at the gateway intersections during the AM peak hour, and a 27 percent increase in traffic entering/exiting Old Sacramento during the PM peak hour. Figure 6 displays the Existing Plus Project traffic volumes.

As shown in Table 9 below, with the addition of the traffic associated with the proposed project, all study intersections would continue to operate at LOS E or better and would experience no degradation in level of service from existing conditions (refer to separate Appendix B for detailed calculations). Therefore, all project specific impacts to the study intersections are considered less than significant.

<b>Table 9 Intersection Level of Service – Existing Plus Project Conditions</b>				
<b>Intersection</b>	<b>Control</b>	<b>Peak Hour</b>	<b>Delay<sup>1</sup></b>	<b>LOS</b>
1. I Street/3rd Street	All-Way Stop	AM PM	8 9	A A
2. I Street/5th Street	Traffic Signal	AM PM	14 16	B B
3. J Street/3rd Street	Traffic Signal	AM PM	59 37	E D
4. J Street/5th Street	Traffic Signal	AM PM	16 15	B B
5. Capitol Mall/Neasham Circle	Traffic Signal	AM PM	5 6	A A
6. O Street/Front Street	All-Way Stop	AM PM	7 8	A A
Notes: Average intersection delay is reported in seconds per vehicle for all approaches. Source: Fehr & Peers, 2011.				



**LEGEND**

↔ Turn Lane

AM (PM) Peak Hour Traffic Volume

① Study Intersection

🚦 Traffic Signal

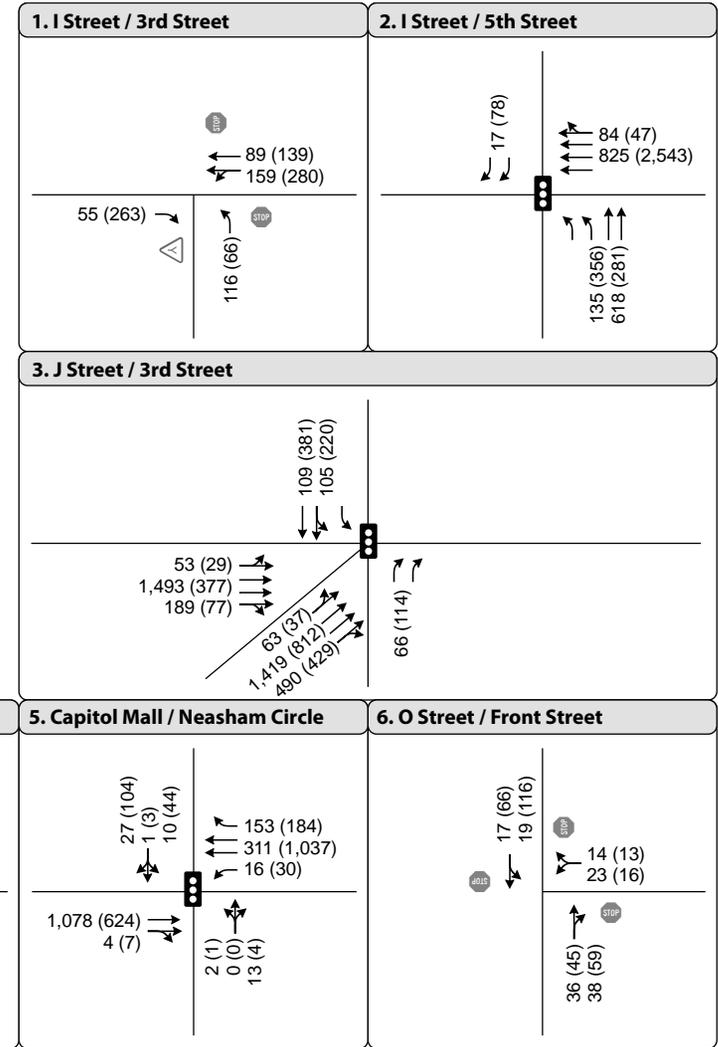
⊛ Stop Sign

▽ Yield Sign

🌳 Old Sacramento State Historic Park



Not to Scale



**PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS PROJECT CONDITIONS**

**FIGURE 6**

As shown in Table 10, the addition of proposed project trips would not result in freeway off-ramp vehicle queues exceeding the available storage at the two I-5 off-ramps to J Street. Implementation of the project would result in the following increases to freeway off-ramp volumes:

- I-5 Northbound off-ramp to J Street – volume on the ramp would increase by 11 vehicles during the AM peak hour (0.6 percent increase) and 11 vehicles during the PM peak hour (0.9 percent increase)
- I-5 Southbound off-ramp to J Street – volume on the ramp would increase by 5 vehicles during the AM peak hour (0.3 percent increase) and 5 vehicles during the PM peak hour (1.0 percent increase)

<b>Off-Ramp</b>	<b>Storage Length</b>	<b>Peak Hour</b>	<b>Existing Queue</b>	<b>Existing Plus Project Queue</b>
1. I-5 Northbound – Off-ramp to J Street	1,025 feet	AM PM	975 feet 875 feet	980 feet 885 feet
2. I-5 Southbound – Off-ramp to J Street	1,475 feet	AM PM	550 feet 250 feet	550 feet 255 feet

Source: Fehr & Peers, 2011.

## 4. CUMULATIVE CONDITIONS

This chapter discusses the cumulative conditions of the transportation system with and without implementation of the General Plan. The cumulative conditions analysis considers all future planned developments and transportation improvements within the vicinity of the Old Sacramento.

### TRAFFIC FORECASTS

The SACMET regional travel demand model (TDM) developed by SACOG was used to forecast cumulative (year 2035) traffic volumes. The cumulative version of this model reflects planned land use growth both within the City of Sacramento as well as within the surrounding region. The model also incorporates planned improvements to the surrounding transportation system.

It should be noted that under cumulative conditions the Railyards redevelopment project is assumed in place including the planned roadway infrastructure associated with this project. The Railyards roadway network includes extensions of 5<sup>th</sup> Street and 6<sup>th</sup> Street northward over the Union Pacific Railroad tracks which results in a shifting of traffic patterns within the study area.

In addition to the Railyards, several other large-scale development projects are planned in the vicinity of OSSHP and CSRSM on either side of the Sacramento River. Figure 7 highlights several of these planned development/redevelopments that have been included in the modeling of cumulative conditions.

Brief descriptions of key land development and transportation projects included in the forecasts, along with potential implications upon Old Sacramento and Central Shops Historic District (Central Shops), are provided below:

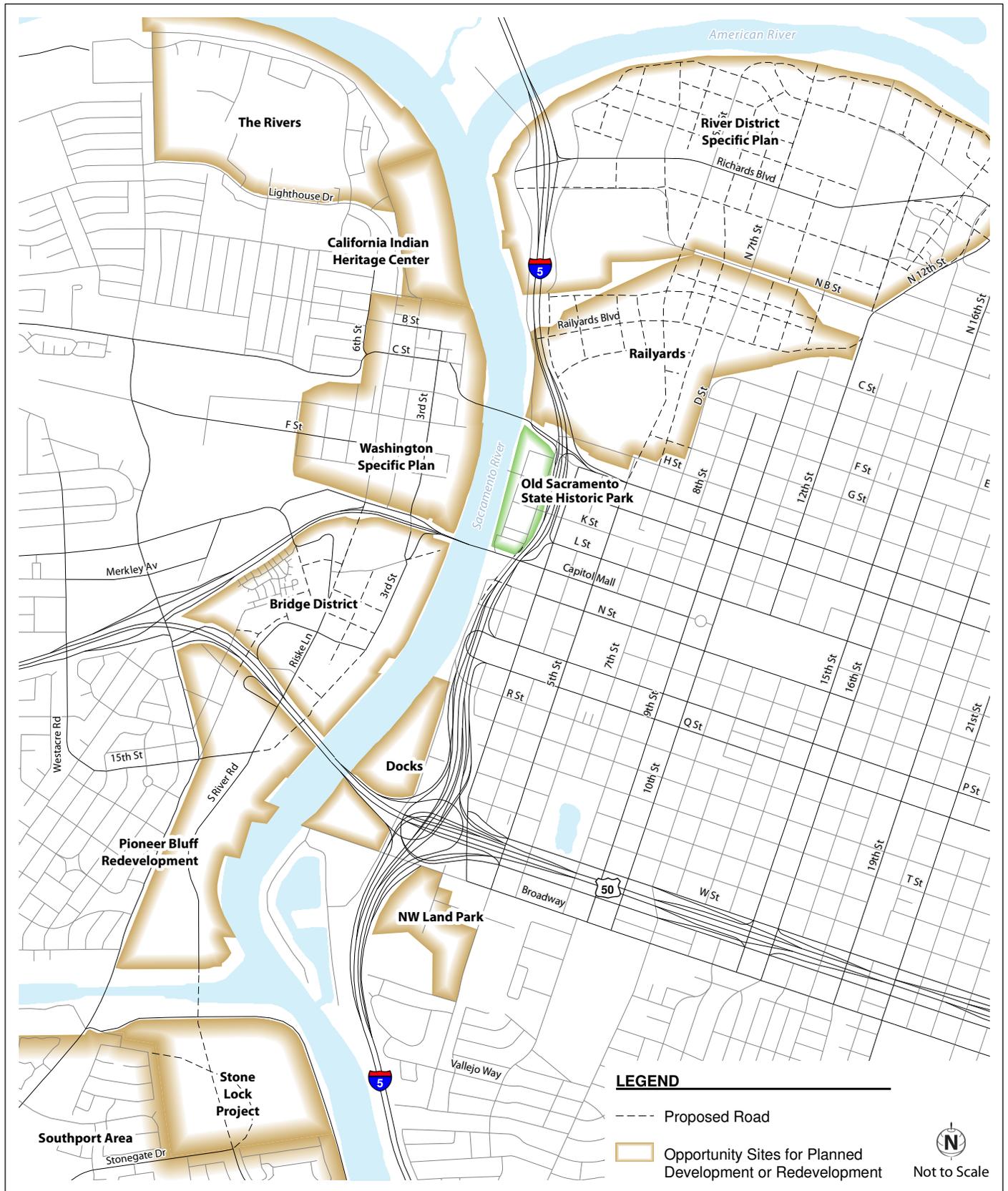
- **Bridge District Specific Plan:** This specific plan envisions a large mixed-use development on the West Sacramento side of the Sacramento River. The project area is bordered by Tower Bridge Gateway to the north, the Sacramento River to the east, and US-50 to the southwest. This plan includes a wide range of commercial uses, as well as medium- to high-density residential development. The district will be developed on a gridded street system, and will include the development of parks as well as an expansion of West Sacramento's riverfront promenade.

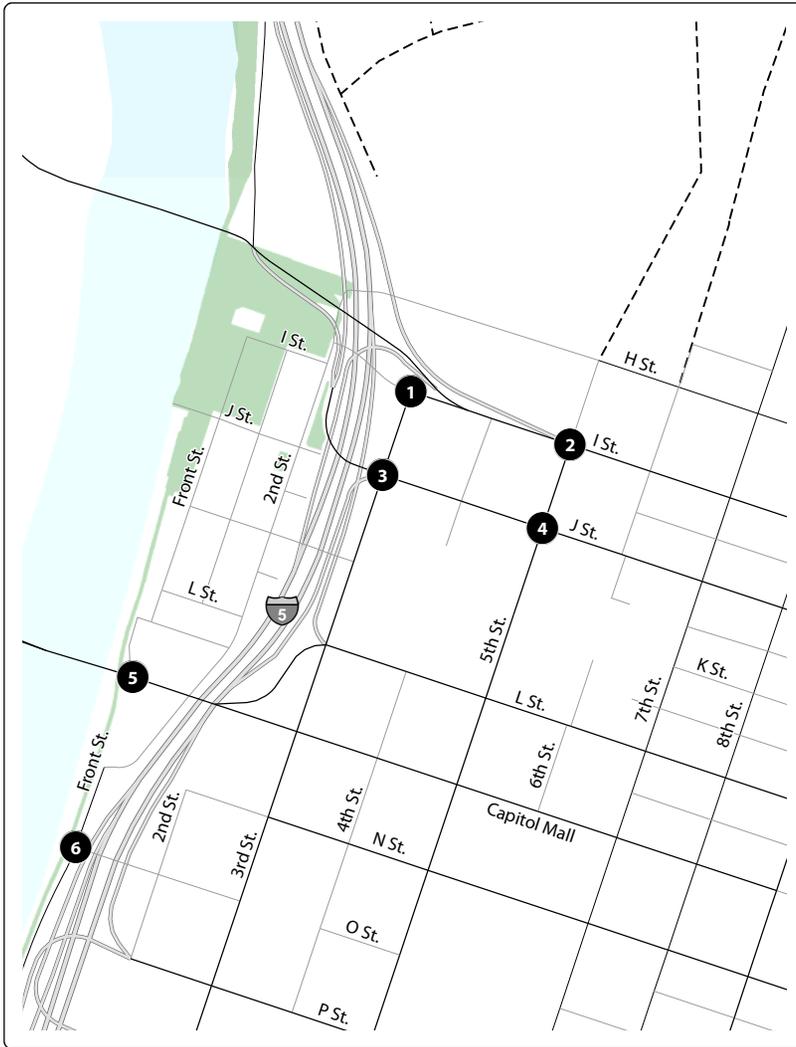
- Implications: New commercial and residential development on the west side of the Sacramento River would increase activity along the riverfront, and would increase the attractiveness of Old Sacramento as a destination. This project would also increase the amount of traffic across the Tower Bridge, and along the southern border of Old Sacramento.
- **Railyards Specific Plan:** This 244-acre redevelopment site is located immediately north of Old Sacramento, and is envisioned as an expansion of Sacramento's downtown. The plan calls for a transit-oriented mixed-use district surrounding RT's planned light rail extension across the American River. The plan includes new connections between the project and Downtown, and encompasses the site of the planned Sacramento Intermodal Transportation Facility.
  - Implications: This plan would transform the northern boundary of OSSHP, and result in a shift of more visitors arriving from the north than under existing conditions. Redevelopment of the area surrounding the railroad depot would present opportunities to better link Old Sacramento to the City's transit hub.
- **Sacramento Streetcar:** The cities of Sacramento and West Sacramento initiated a planning process in 2006 to assess the feasibility of connecting the two cities with a streetcar across the Tower Bridge. The West Sacramento Civic Center is proposed as the western terminus of the line, and the Sacramento Convention Center is proposed as the eastern terminus. The feasibility study also identified several other possible alignments. The City of Sacramento is currently in the midst of a citywide effort to evaluate streetcar alignments and determine how to prioritize their implementation.
  - Implications: If the proposed streetcar across the Tower Bridge is implemented, it would travel along the southern border of Old Sacramento. The streetcar would increase the percentage of visitors to Old Sacramento arriving on transit by providing a direct link to the existing RT light rail transit line, as well as connections to several attractions including Raley Field, the riverfront, the California State Capitol, and the Sacramento Convention Center. A potential future streetcar connection between Capitol Mall and the Amtrak Station/Railyards to the north would further increase the attractiveness of travel to/from Old Sacramento via transit by providing streetcar service on 3<sup>rd</sup> Street, one block east of OSSHP and nearby the CSRM's RTM.

The following two projects would have implications upon the transportation system surrounding Old Sacramento. However, funding sources for these projects are uncertain at this time, and neither project was assumed in place for the purposes of developing traffic forecasts for the City's General Plan. Therefore, the analysis conservatively assumes that neither project is in place under cumulative conditions:

- **Downtown to Waterfront Reconnection Project:** This project would realign Front Street between O Street and L Street, construct a new overcrossing of I-5 at N Street, and construct an at-grade intersection at Capitol Mall/Front Street. Additionally, Capitol Mall would be reconfigured to include Class II on-street bicycle lanes alongside two travel lanes in each direction between Neasham Circle and 3rd Street.
  - Implications: By improving access to Front Street and creating a new at-grade intersection at Capitol Mall, this project would improve accessibility to Old Sacramento at its southeastern corner. This improved access would relieve traffic at the existing Capitol Mall/Neasham Circle intersection by providing an additional gateway off of Capitol Mall. Construction of bicycle lanes on Capitol Mall would also make accessing Old Sacramento from the south safer and more convenient for bicyclists.
- **Sacramento River Crossing Alternatives Study:** This recently approved study explores new crossings of the Sacramento River, as well as modifications to existing crossings, in an effort to improve connectivity between Sacramento and West Sacramento. Future crossings may serve a mix of motor vehicles, transit, bicycles, and pedestrians, or could be identified as bicycle/pedestrian only connections. The study, adopted by both City Councils, recommends the development of two new crossings including one in the "north market" area north of Tower Bridge and one in the "south market" area.
- Implications: Modifications to the I Street Bridge or a new adjacent bridge to the north could potentially improve pedestrian and bicycle access to OSSHP and CSRM. Additionally, of the six identified opportunities for new crossing locations, four are within one mile of Old Sacramento and the Central Shops. Improved connectivity across the Sacramento River would likely increase the level of activity along the riverfront, and would therefore increase the attractiveness of Old Sacramento as a destination.

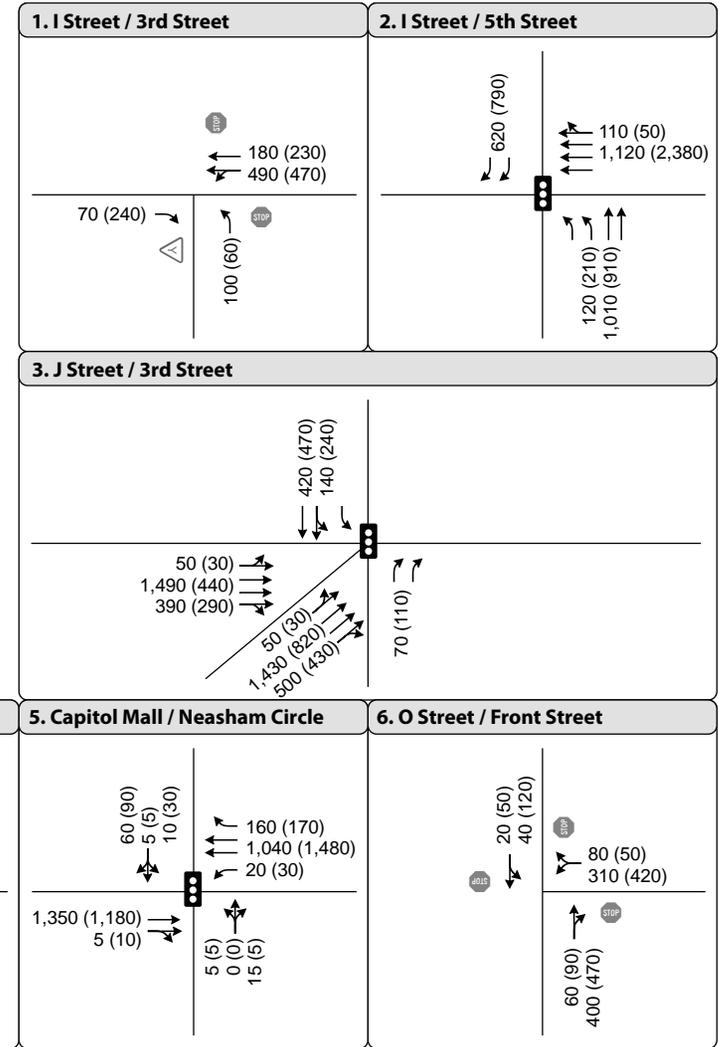
Figure 8 displays the Cumulative No Project lane configurations and traffic volumes at each of the study intersections.





**LEGEND**

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1** Study Intersection
- Traffic Signal
- Stop Sign
- Yield Sign
- - - Planned Streets
- Old Sacramento State Historic Park
- N
- Not to Scale



**PEAK HOUR TRAFFIC VOLUMES  
AND LANE CONFIGURATIONS -  
CUMULATIVE NO PROJECT CONDITIONS**

**FIGURE 8**

## CUMULATIVE NO PROJECT INTERSECTION OPERATIONS

Table 11 summarizes traffic operations at the study intersections under Cumulative No Project conditions (refer to separate Appendix C for detailed calculations). As shown in Table 11, the J Street/3<sup>rd</sup> Street intersection is expected to operate at LOS F in the future during the AM peak hour without the implementation of the proposed project. Per the City of Sacramento’s LOS standards, LOS F is an acceptable level of service at this location since it is within the core area defined in the City’s General Plan and is therefore exempt from level of service standards. All other study intersections are expected to continue to operate at LOS D or better under cumulative conditions during both peak hours.

<b>Table 11 Intersection Level of Service – Cumulative No Project Conditions</b>				
<b>Intersection</b>	<b>Control</b>	<b>Peak Hour</b>	<b>Delay<sup>1</sup></b>	<b>LOS</b>
1. I Street/3rd Street	All-Way Stop	AM PM	20 16	C C
2. I Street/5th Street	Traffic Signal	AM PM	18 34	B C
3. J Street/3rd Street	Traffic Signal	AM PM	90 39	F D
4. J Street/5th Street	Traffic Signal	AM PM	20 17	B B
5. Capitol Mall/Neasham Circle	Traffic Signal	AM PM	6 6	A A
6. O Street/Front Street	All-Way Stop	AM PM	14 26	B D
Notes: Average intersection delay is reported in seconds per vehicle for all approaches. Source: Fehr & Peers, 2011.				

Table 12 compares estimated queue lengths under Cumulative No Project conditions to the available amount of storage. As shown in Table 4, all study freeway off-ramps remain within their storage areas during the AM and PM peak hours.

<b>Table 12</b>			
<b>Off-Ramp Queuing – Cumulative No Project Conditions</b>			
<b>Off-Ramp</b>	<b>Storage Length</b>	<b>Peak Hour</b>	<b>Queue</b>
1. I-5 Northbound – Off-ramp to J Street	1,025 feet	AM PM	985 feet 885 feet
2. I-5 Southbound – Off-ramp to J Street	1,475 feet	AM PM	615 feet 400 feet

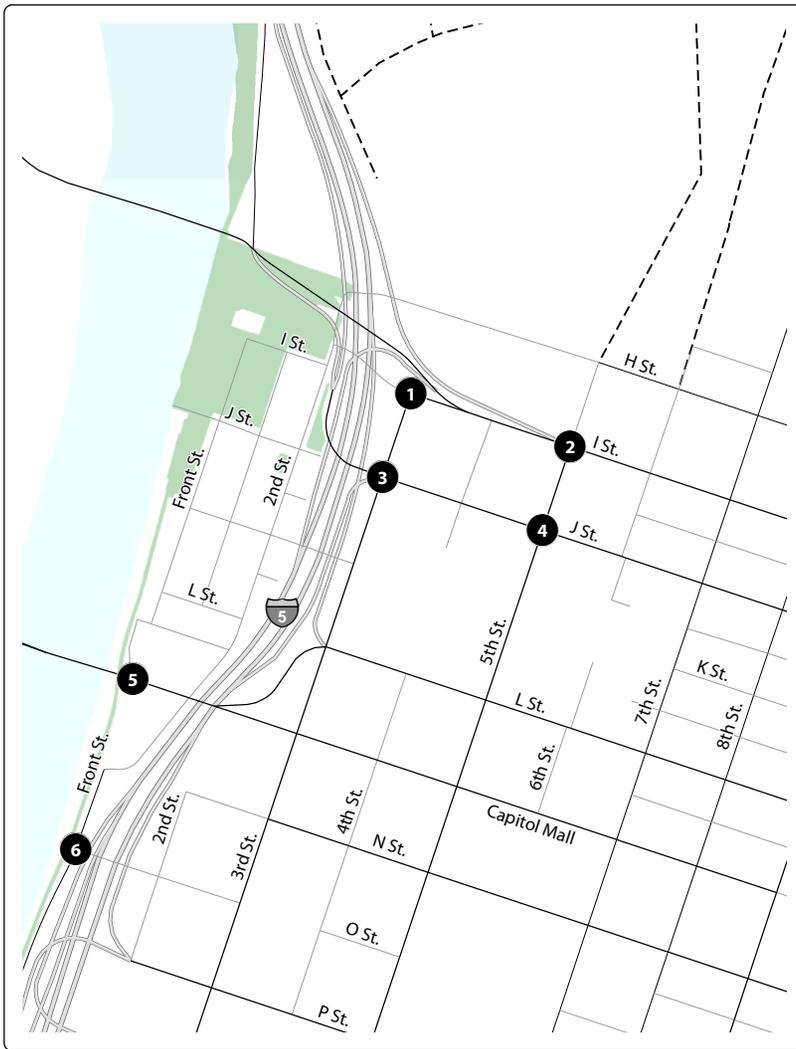
Source: Fehr & Peers, 2011.

### CUMULATIVE PLUS PROJECT INTERSECTION OPERATIONS

Figure 9 displays the Cumulative Plus Project traffic volumes, and Table 13 summarizes traffic operations at each of study intersections (refer to separate Appendix C for detailed calculations). As shown in Table 13, the addition of traffic associated with the proposed project does not alter the level of service at any study location from Cumulative No Project conditions.

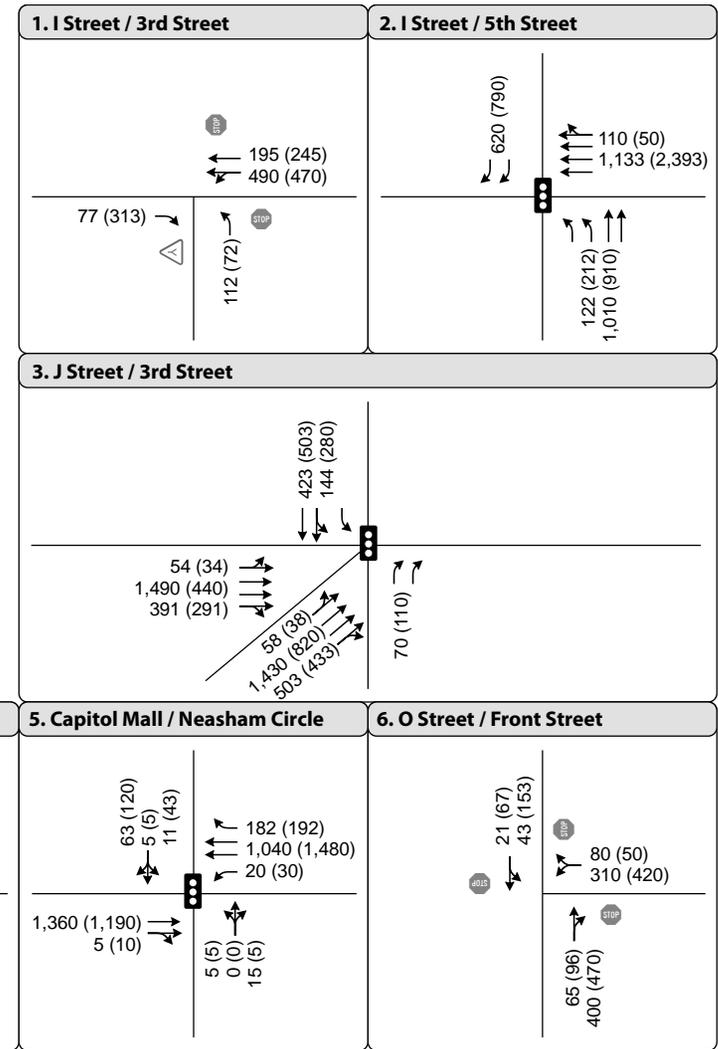
<b>Table 13</b>				
<b>Intersection Level of Service – Cumulative Plus Project Conditions</b>				
<b>Intersection</b>	<b>Control</b>	<b>Peak Hour</b>	<b>Delay<sup>1</sup></b>	<b>LOS</b>
1. I Street/3rd Street	All-Way Stop	AM PM	20 16	C C
2. I Street/5th Street	Traffic Signal	AM PM	18 35	B C
3. J Street/3rd Street	Traffic Signal	AM PM	92 40	F D
4. J Street/5th Street	Traffic Signal	AM PM	20 17	B B
5. Capitol Mall/Neasham Circle	Traffic Signal	AM PM	6 8	A A
6. O Street/Front Street	All-Way Stop	AM PM	14 30	B D

Notes: Average intersection delay is reported in seconds per vehicle for all approaches.  
 Source: Fehr & Peers, 2011.



**LEGEND**

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1** Study Intersection
- Traffic Signal
- Stop Sign
- Yield Sign
- - - Planned Streets
- Old Sacramento State Historic Park
- N
- Not to Scale



**PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS PROJECT CONDITIONS**

**FIGURE 9**

Although the J Street/3<sup>rd</sup> Street intersection operates at LOS F under Cumulative Plus Project conditions, the addition of project traffic does not increase overall intersection delay by five or more seconds from Cumulative No Project conditions. Therefore, according to the City of Sacramento’s significance criteria, the two second increase in the level of delay at this location does not constitute a project impact. All cumulative impacts to the study intersections are considered less than significant.

As shown in Table 14, the addition of proposed project trips under Cumulative Plus Project conditions would not result in freeway off-ramp vehicle queues exceeding the available storage at the two I-5 off-ramps to J Street. Implementation of the project would result in the following increases to freeway off-ramp volumes from Cumulative No Project conditions:

- I-5 Northbound off-ramp to J Street – volume on the ramp would increase by 11 vehicles during the AM peak hour (0.6 percent increase) and 11 vehicles during the PM peak hour (0.9 percent increase)
- I-5 Southbound off-ramp to J Street – volume on the ramp would increase by 5 vehicles during the AM peak hour (0.3 percent increase) and 5 vehicles during the PM peak hour (0.7 percent increase)

Off-Ramp	Storage Length	Peak Hour	Cumulative No Project Queue	Cumulative Plus Project Queue
1. I-5 Northbound – Off-ramp to J Street	1,025 feet	AM PM	985 feet 885 feet	990 feet 890 feet
2. I-5 Southbound – Off-ramp to J Street	1,475 feet	AM PM	615 feet 400 feet	615 feet 400 feet

Source: Fehr & Peers, 2011.

**TRANSIT FACILITIES**

The Preferred Alternative Plan includes several components that would either directly or indirectly benefit land and water based transit access to/from and within OSSHP and CSR, including the following:

### ***Improved Wayfinding:***

Several components of the Plan include improved wayfinding signage, including new signage along the riverfront, at gateways to Old Sacramento and the Central Shops, and along the Pony Express Trail. Wayfinding signage benefits visitors traveling by transit by allowing them to more easily reach their final destination from transit stop locations.

### ***New Dock:***

A proposed dock extending from J Street to just south of the I Street Bridge would allow for implementation of water taxi service between OSSHP and other nearby destinations, including the planned California Indian Heritage Center in West Sacramento. Although the new dock space is intended primarily for the use of water taxis and other public access vessels, as well as for the display of historic ships, identified space for private recreational vessels would also be provided.

### ***Expanded Excursion Train Operations:***

Existing excursion train operations from Old Sacramento consist of a 40 minute out-and-back scenic ride along the Sacramento River. All excursion trains currently run to a location called Baths, where the trains pause while the engine is coupled to the opposite end of the train for the return trip. Passengers are not permitted to disembark at this location. According to Sacramento Southern Railroad ridership data provided by California State Parks for fiscal year 2010-2011, the railroad carried 85,109 passengers. The Preferred Alternative Plan includes proposed expansions of excursion train operations on two separate segments of the Sacramento Southern Railroad, as described below:

- **Sacramento Zoo** – The Plan proposes to provide additional service on the existing excursion train line, with the additional service operating approximately 0.5 miles beyond the current terminus at the Baths to allow for a stop at the Sacramento Zoo. New stops adjacent to the Crocker Art museum and Miller Park are also proposed.
- **Meadowview to Hood** – The Plan proposes to run new excursion train service between the Pocket/Meadowview neighborhood in the City of Sacramento and Hood, a census-designated place located in unincorporated Sacramento County approximately 15 miles south of Old Sacramento on the Sacramento River.

The following data and methodologies were used to estimate the expected increase in Sacramento Southern Railroad ridership associated with the expanded excursion train service:

- According to data provided by the Sacramento Southern Railroad/California State Railroad Museum, a total of 1,068 train movements (534 roundtrip trains) occurred in 2010 associated with excursion train, school train, “Spookatmotive, and “Polar Express” operations.
- The Sacramento Southern Railroad carried 85,109 passengers in the most recent year for which data is available (fiscal year 2010-2011).
  - $85,109 / 534 = 159$  passengers per train
- According to California State Parks, the proposed service to the Zoo would result in an additional 4 trains per day on days when the current excursion service operates.
- Excursion trains operated on 53 calendar days in 2010.
- Service between Pocket/Meadowview and Hood will operate on days when current excursion trains operate, and will consist of up to three trains per day.

Using the above data, it is possible to calculate an estimate of the increase in trains and passengers associated with the two expansions of service proposed in the Plan:

- Sacramento Zoo Service:  $159 \text{ passengers} \times 4 \text{ daily trains} \times 53 \text{ days} = 33,708$  additional passengers (on 212 trains) annually
- Meadowview to Hood Service:  $159 \text{ passengers} \times 3 \text{ daily trains} \times 53 \text{ days} = 25,281$  additional passengers (on 159 trains) annually
- Projected Grand Total = 144,098 annual passengers<sup>6</sup>

Unlike existing excursion train service, future service expansions would allow passengers to board and disembark at separate locations. The expanded service to the Sacramento Zoo would allow visitors to both Old Sacramento and the Zoo to park once in Old Sacramento and travel by train to/from the Zoo as well as to the Crocker Art Museum and Miller Park. Allowing

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<sup>6</sup> This estimate is a conservative long-range figure unlikely to be achieved until several years after the implementation of all service expansions.

visitors to travel by train between these four destinations would reduce the growth in future automobile trips to these facilities.

Implementation of one or both of the proposed expansions in excursion train service would require California State Parks to work with appropriate regulatory agencies, including the California Public Utilities Commission, to determine appropriate crossing treatments and obtain all required approvals.

### ***Horse Car Transit Service:***

The Plan proposes a new horse car service through Old Sacramento via a loop route along 2<sup>nd</sup> Street, I Street, Front Street, and L Street. The horse car would operate on tracks embedded within the street in mixed vehicle traffic, except on the portions of Front Street and I Street where motor vehicle traffic is prohibited. This service would operate at low speeds similar to existing horse-drawn carriage service currently available within Old Sacramento. The proposed horse car service would serve as a circulator, extending the range of pedestrian trips within the area, and stopping within one block of existing and proposed transit services on Capitol Mall and 3<sup>rd</sup> Street allowing for transfers.

Implementation of the horse car service would require additional approvals from appropriate regulatory agencies, including the City of Sacramento.

### ***Summary:***

No public transit routes currently operate within Old Sacramento. Implementation of the project would provide additional train service from OSSHP via the expanded excursion train line to the Sacramento Zoo, would provide a horse car service to assist in the circulation of visitors within Old Sacramento, and would allow for the implementation of water taxi service between OSSHP and other nearby destinations on the Sacramento River. Additionally, the project would improve wayfinding allowing transit riders to/from the area to more easily reach their destinations. Implementation of the proposed project would not adversely affect public transit operations. Therefore, project impacts to transit are considered less than significant.

## **PEDESTRIAN AND BICYCLE FACILITIES**

The Preferred Alternative Plan includes several components that would either directly or indirectly benefit pedestrian and bicycle access to/from and within OSSHP and CSRM, including the following:

***Improved Wayfinding:***

Several components of the Plan include improved wayfinding signage, including new signage along the riverfront, at gateways to Old Sacramento and the Central Shops, and along the Pony Express Trail to assist pedestrians and bicyclists in finding their destinations.

***Pedestrian/Bicyclist Amenities:***

Multiple components of the Plan include additional amenities for pedestrians and bicyclists including additional seating, shade trees, picnic tables, and drinking fountains.

***Riverfront Bicycle/Pedestrian Circulation Improvements:***

The Plan calls for improvements to the existing bicycle trail along the Sacramento River south to J Street, providing improved bicycle/pedestrian access. The current bicycle/pedestrian crossing of the Sacramento Southern Railroad tracks at I Street would be abandoned as a physical crossing, and bicyclists/pedestrians would be rerouted to J Street to improve safety. The existing crossing at I Street requires bicyclists to cross multiple train tracks spaced out over an area approximately 85 feet in length, and places cyclists on a one block long unpaved segment of I Street. Abandonment of this crossing is not considered an adverse impact to the existing bicycle facility.

New clearly marked pedestrian crossings over the existing excursion train tracks and boardwalk would improve safety for bicyclists and pedestrians while also assisting mobility-impaired visitors in reaching the waterfront.

***Summary:***

Implementation of the Plan would improve existing pedestrian and bicycle infrastructure and provide additional signage and amenities for bicyclists and pedestrians within OSSHP and CSRM. The Plan would provide for adequate access by pedestrians and bicyclists, and would not adversely affect any existing or planned pedestrian or bicycle facilities. Therefore, project impacts to bicycle and pedestrian circulation are considered less than significant.

## **APPENDIX B**

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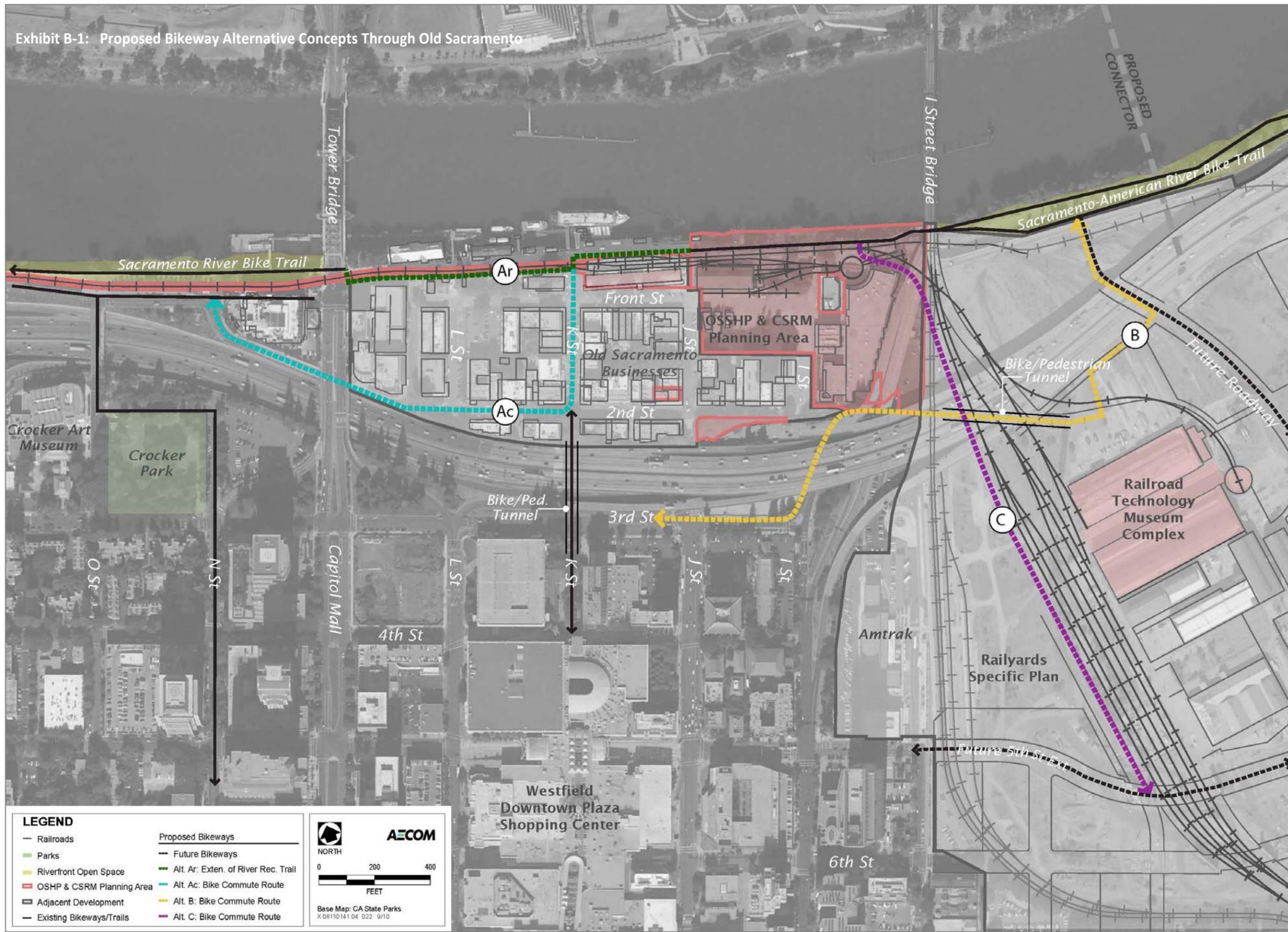
### Proposed Bikeway Alternative Concepts

## B.1 BIKEWAY ALTERNATIVE CONCEPTS

The following bicycle/pedestrian access routes (shown in Exhibit B-1) are proposed through Old Sacramento to address issues of bicycle safety with existing bicycle routes and improve bicycle access connections through Old Sacramento. The proposed bike routes would improve access connections along the river and to surrounding destinations in Downtown Sacramento, linking to existing and planned bikeways in Downtown Sacramento. Three potential bikeway routes are presented in Exhibit B-1:

- Alternative A proposes two routes: (1) a river recreation route along the Sacramento River that continues and connects the existing segments of the Sacramento River Bike Trail; this route extends the existing bike trail (along the west side of the excursion train line) from where it currently terminates near J Street to K Street, crosses the excursion train tracks at K Street, continues south along the east side of the excursion train line to Capitol Mall, then, crosses back to the west side of the excursion train line and reconnects with the existing Sacramento River Bike Trail; (2) a commute route that also continues the existing Sacramento River Bike Trail near J Street to K Street, crosses at K Street and travels east to 2<sup>nd</sup> Street, and then, continues south along 2<sup>nd</sup> Street-Neasham Circle to reconnect with the Sacramento River Bike Trail.
- Alternative B provides a safe bike connection from the Railyards site and destinations north of the Capitol Corridor to Old Sacramento and Downtown destinations south of the Capitol Corridor. It proposes a connection from the Sacramento River Bike Trail at a point north of the I Street Bridge on the Railyards site (to be coordinated with the development of future roadway and bicycle routes in the Railyards), travels east through the Railyards property and connects with the future West tunnel that will provide bicycle and pedestrian access from the Railroad Technology Museum to Old Sacramento.
- Alternative C proposes an alternative to the existing informal bicycle crossing of the Sacramento Southern Railroad line on I Street, suggesting abandoning this crossing on I Street and replacing it with a new improved bicycle crossing and route. This route would connect with the Sacramento River Bike Trail just north of the turntable at the Railroad History Museum and continue east along the realigned tracks of the Capitol Corridor (specific alignment to be coordinated with development of the Railyards site).

Proposed bike alignments, development of bike routes, and improvements to bikeway surfaces, shoulders, and signage in Old Sacramento and in the planning area will require coordination with the City of Sacramento and other relevant jurisdictions.



LEGEND	
Railroads	Proposed Bikeways
Parks	Future Bikeways
Riverfront Open Space	Alt. A: Exten. of River Rec. Trail
OSSHP & CSRM Planning Area	Alt. Ac: Bike Commute Route
Adjacent Development	Alt. B: Bike Commute Route
Existing Bikeways/Trails	Alt. C: Bike Commute Route

Base Map: CA State Parks  
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