CHAPTER 3: TRANSPORTATION AND PARKING: AFFECTED ENVIRONMENT, IMPACTS, AND MITIGATION

3.1 OVERVIEW

This chapter describes existing and future transportation conditions in the South Sacramento Phase 2 Corridor and quantifies the expected long-term transportation impacts of the No-Action Alternative, the TSM Alternative, and Locally Preferred Alternative Phase 2 (LPAP2). Construction-phase impacts are discussed in Chapter 5. The No-Action Alternative provides the basis for evaluation of TSM and LPAP2 impacts under NEPA and CEQA. Comparison of the TSM and LPAP2 alternatives provides the basis for the FTA's evaluation of the project's worthiness for federal funding.

The first sections describe existing and projected future transit services, forecasts of transit patronage, and impacts on travel patterns and the transportation environment. Subsequent sections describe existing and projected vehicular traffic, circulation, parking, and non-motorized conditions in the corridor. Traffic operations under the alternatives during peak hours[1] are evaluated, with emphasis on intersection level of service (LOS), and measures are identified for mitigating adverse impacts of the TSM and LPAP2 alternatives on the roadway network. An assessment of traffic delays and potential queuing conflicts at LRT at-grade arterial crossings is summarized along with measures to lessen the potential for conflicts between LRT operations and vehicular traffic.

Future transit patronage and vehicular traffic volumes were developed using a refined version of the Sacramento Area Council of Governments' (SACOG) current regional travel demand model (SACMET01). Transportation modeling approaches, assumptions, projects, and projections for current conditions under the TSM and LPAP2 alternatives are described in the *Travel Demand Forecasting Methodology and Results Report* (DKS Associates, August 2004), which is available for review at RT offices. This report forms the basis for much of the information provided in this chapter.

3.2 TRANSIT

Transit service within metropolitan Sacramento consists of LRT, fixed-route bus, paratransit for the disabled and mobility impaired, and intercity rail.

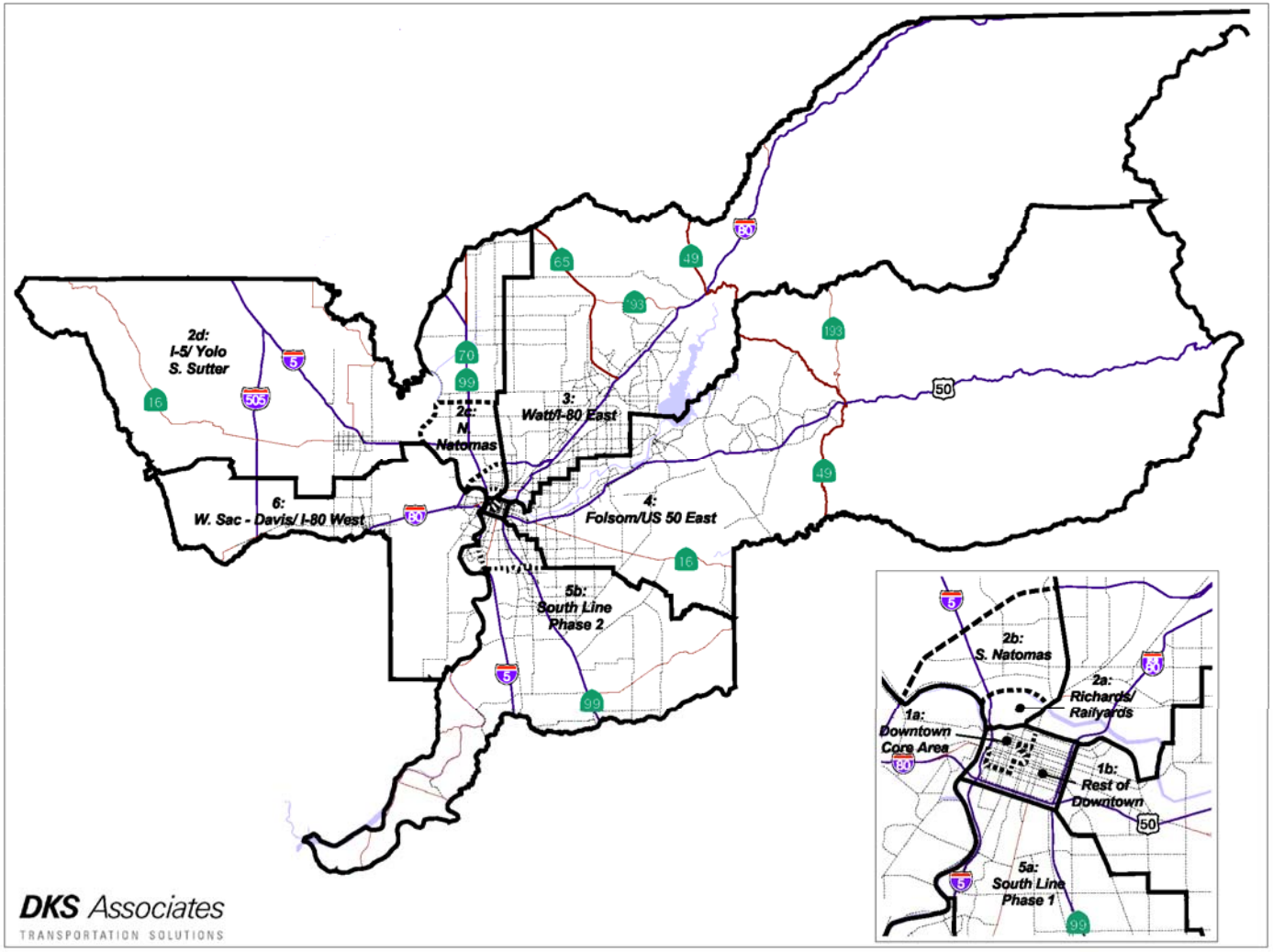
3.2.1 Existing Rail Transit Services

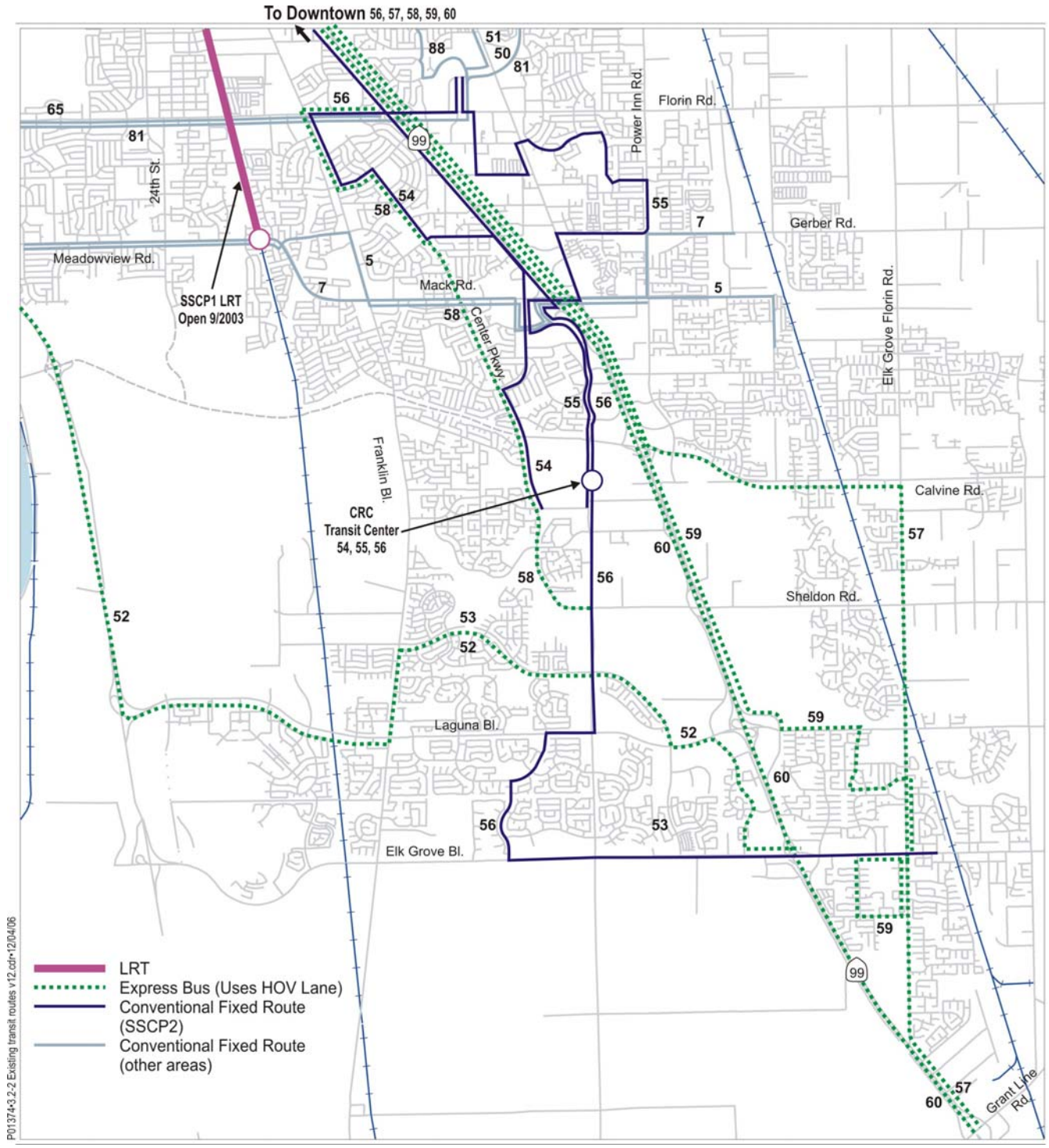
3.2.1.1 ROUTES AND OPERATIONS

In 1987, Sacramento RT began LRT service with the opening of an 18.3-mile Starter Line. In 1998, that line was extended to the Mather Field Station in the U.S. 50 Corridor, for a total of 20.6 miles of track. In 2003 service was extended to Meadowview Road as part of the South Sacramento Corridor Phase 1 Project. Figure 3.2-1 defines key travel corridors in the Sacramento region and Figure 3.2-2 defines the existing transit network. The corridors are as follows:

[1] Peak hours are defined as the highest hours of travel demand in the morning and the afternoon commute periods. Based on Year 2000 household surveys, these hours occur at 7:45-8:45 AM and 4:45-5:45 PM.

Figure 3.2-1: Definition of Corridors in RT Service Area





South Sacramento Corridor Phase 2 Project

EXISTING TRANSIT NETWORK
Figure 3.2-2

- *Downtown Sacramento* is the highest density employment center in the region, with over 90,000 employees. About two-thirds of these jobs are located in the Core Area of Downtown. Downtown Sacramento has the highest level of transit service in the region, with LRT, RT trunkline and express buses, commuter buses from surrounding counties, and inter-city rail converging in the Core Area.
- *The DNA/I-5/SR 99 North Corridor* includes the Richards/Railyards, South Natomas, and North Natomas areas north of Downtown Sacramento, along I-5, and the portions of Yolo, Sutter, and Yuba Counties along Interstate 5 and State Route 99. RT is considering options for providing transit service in this corridor, connecting from Downtown to the Sacramento International Airport. Current transit service within this corridor includes limited RT fixed route bus service, and commuter buses from Yolo, Sutter and Yuba Counties to Downtown Sacramento.
- *The Watt/I-80 East Corridor* is centered on Interstate 80, moving northeasterly from Downtown Sacramento to Placer County. RT provides light rail service and fixed route bus service in the corridor. Commuter bus service to Downtown Sacramento is provided by Placer County and the City of Roseville.
- *The Folsom/US-50 East Corridor* is centered on US-50, moving due east from Downtown Sacramento to El Dorado County. RT provides light rail and fixed route bus service in the corridor. Commuter bus service to Downtown Sacramento is provided by El Dorado County and the City of Folsom.
- *The West Sacramento/Davis/I-80 West Corridor* is centered on the Capital City Freeway (formerly Business 80) and I-80, moving westerly from Downtown Sacramento. Commuter and local fixed route bus service is provided by Yolobus in the corridor, with some routes connecting to Downtown Sacramento.
- *The South Sacramento Corridor/I-5/SR-99 Corridor* is centered on I-5 and SR-99 moving south from Downtown Sacramento. This corridor is split into the Phase 1 Corridor, north of Meadowview Road, and the Phase 2 Corridor, south of Meadowview Road. RT has recently opened for operation an LRT line connecting from Downtown Sacramento to Meadowview Road. The focus of this study is the Phase 2 Corridor.

Trains of up to four cars in length operate along both exclusive and shared (LRT and other vehicles) rights-of-way. In Downtown Sacramento trains operate at-grade on city streets and exclusively along the K Street Mall. Currently, trains provide through service between the Watt/I-80 Station, the terminus of which is referred to as the Northeast Line, and the Folsom Line to Folsom; and between downtown (St. Rose of Lima Park) and Meadowview Road the current terminus for the South Sacramento Corridor. There are a total of 31 LRT stations, including 9 bus and LRT transfer centers, and ten free park-and-ride lots.

LRT revenue service is provided seven days a week. On weekdays, passenger service begins at about 4:20 AM (first departure) and terminates at about 12:00 midnight (last end-of-line departure). Saturday service begins at about 5:00 AM, while Sunday and holiday service begins at about 5:30 AM. Weekend service terminates at about 12:00 midnight. Train headways – the time between consecutive train movements in the same direction – are 15 minutes, except for 30 minutes in the following periods: weekday evenings after 6:30 or 8:00 PM, depending on direction; Saturdays between 5:00 AM and 7:00 or 8:00 AM, depending upon direction; and Sundays between 5:30 AM and 9:30 or 10:30 AM, depending on direction. In general, service from Mather Field to Watt/I-80 has 15-minute headways beginning later and continuing until later than service in the opposite direction.

The current peak fleet requirement is eight trains and 32 light rail vehicles. The Year 2000 LRT fleet is 36 vehicles, which includes four spare vehicles. In fiscal year 2002 (ending June 30, 2002), LRT operations included 2.1 million annual revenue train-car miles, and 47,155 revenue consist hours of service.

In addition to LRT service operated by RT, the Sacramento area is served directly by two long-distance intercity passenger services and one northern California interregional service, all operated by Amtrak. The Amtrak depot at 4th and I Streets is served by the Coast Starlight service (between Seattle and San Diego), with one southbound and one northbound stop daily; the California Zephyr route (between Chicago and Oakland/San Francisco), with one eastbound and one westbound stop daily; and the Capitol Corridor service (between San Jose and Sacramento), with 20 trips (ten eastbound and ten westbound trains) on weekdays and 18 trips on weekends. The Amtrak depot is the only intercity rail stop serving Sacramento. The depot also provides connections via Amtrak buses to the California cities of Redding, Stockton, Martinez, Davis, Roseville, Nevada City, and Stateline as well as the Nevada cities of Reno/Sparks and Carson City.

Access can be gained via feeder bus service to one other intercity rail service provided by Amtrak. The San Joaquin route between Oakland and Bakersfield includes an Amtrak bus connection between the Sacramento Amtrak depot and the Stockton station stop for San Joaquin trains. The San Joaquin operates six trains per day in each direction.

3.2.1.2 EXISTING FARES

LRT fares are $1.75 for adults and $0.85 for students (age 5-12), elderly (62 and over), and persons with qualifying disabilities. Children under five years ride for free. There is also a Central City fare of $1.00 without transfer valid between the Alkali Flat/La Valentina and 29th Street Stations only within RT's Central City Zone bounded by C Street (north), Broadway Ave. (south), Alhambra Blvd. (east), and the Sacramento River (west). Various discounted daily, monthly, and multi-ride fares are also available. The LRT fare system is a self service “honor” system, where proof of payment is periodically checked on trains by RT officers. Transfers to and from LRT and RT fixed-route buses are $0.25.

3.2.1.3 PATRONAGE

Table 3.2-1 summarizes the average weekday transit boardings (see Section 3.2.4.1 for a discussion of transit boardings and linked trips) in the Sacramento metropolitan area in 2001.[2] RT’s light rail system carried approximately 29,000 passengers on an average weekday.[3] This represents about 31 percent of the total transit passenger boardings on services provided by RT and other fixed-route transit providers in metropolitan Sacramento.

[2] Year 2001 is used to represent "existing" conditions because it is the year nearest to the base year for the travel demand model (2000) for which station level boardings were available for LRT and line level boardings for fixed route buses.

[3] For comparison, 1997 total weekday boardings were 91,400 and Year 2002 were 92,800.

Table 3.2-1: Year 2001 Average Weekday Transit Boarding				
Operator	**Walk**	**Drive**	**Transfer**	**Total**
Sacramento Regional Transit District[1]				
Light Rail Vehicle	10,200	9,400	9,400	29,000
Bus	44,200	2,600	18,200	65,000
SRTD Total	54,400	12,000	27,600	94,000
Other Fixed Route Operators[2]				
Bus	n/a	n/a	n/a	7,000
Region Total				101,000
Notes: [1] Based on 1999 On-Board Transit Survey, scaled up to match FY2001 boardings by mode. [2] Includes Yolobus, Roseville Transit, Placer County Transit, Folsom Transit, El Dorado Transit. Excludes free or near-free operators (Unitrans, CSUS Shuttle) and Paratransit.				

3.2.1.4 ACCESSIBILITY

One measure of transit accessibility is travel time between various geographic areas, for example, between major activity centers within the service area. As shown in Table 3.2-2, LRT service has improved travel times on corridors over bus service. One reason LRT service is faster than bus is that LRT trains operate on exclusive rights-of-way in some areas, and in areas where they operate in shared rights-of-way, preferential treatment is provided to the LRT over regular traffic. Peak period automobile travel times are extremely variable in these corridors, due to the effects of traffic and incidents. Anecdotal evidence and information from spot travel times studies suggest that automobile travel times are between the LRT and bus line haul times.

Table 3.2-2: Accessibility Comparison AM and PM Peak Period Travel Times by Mode		
Corridor	**LRT Travel Time (Minutes)**	**Bus Travel Time[1] (Minutes)**
Northeast Corridor: Watt/I-80 to State Capitol	26	36
East Corridor: Mather Mills to State Capitol	29	45
South Corridor: Meadowview Road to St. Rose of Lima Park	20	34
1 Bus times are estimates based on current or historic schedules. Source: DKS Associates, June 2005		

3.2.2 Existing Bus Services

3.2.2.1 BUS ROUTES AND OPERATIONS

RT operates fixed-route bus service on 77 routes in Sacramento County on weekdays, a combination of conventional, fixed-route, all-day local (56 routes), peak period express or limited (12), all-day express (2), and "Neighborhood Ride" shuttle services (7). Twenty-nine routes provide services in the evenings. Forty-nine of the local bus routes continue service on Saturdays, Sundays or holidays. The peak bus fleet is 187 vehicles, and the total fleet is 220 vehicles, including 136 compressed natural gas (CNG) and 75 diesel buses.

RT service is provided in the following four periods: Morning Peak (up to 9:00AM); Midday (9:00AM to 3:30PM); Afternoon Peak (3:30PM to 6:00PM); and Evening (after 6:00PM).

Bus service hours vary by route. Most regular routes are in service by 5:00 AM and end service around midnight on weekdays. Headways vary by time of day and route, and reflect policy standards (typically the case in off-peak periods) or are established to meet loading requirements to maintain a level of seating comfort for passengers (often the case for peak period). The RT load standard is 1.5 passengers per bus seat, meaning maximum loads should not have more than 50 percent standees[4].

Existing peak hour headways range from 15 minutes to 60 minutes on regular routes, with most services in the 15 to 30 minute range. Two or more routes may overlap coverage along certain roadways and thereby provide combined headways less than 15 minutes. Express limited routes usually offer two to four peak direction trips during the AM and PM peak periods only. In Year 2000, RT provided 7.4 million annual revenue miles, and 561,000 revenue hours of bus service.

Routes currently serving within or near the LPAP2 Corridor are shown in Figure 3.2-2 (page 3-4). Table 3.2-3 summarizes operations for each route in the corridor including the time periods and days of operation, headways, and weekday boardings. In the Table, "peak" service period refers to the Morning Peak and Afternoon Peak periods, as defined above; "off peak" refers to the Midday service period. Within and near the corridor, RT operates five express routes and two limited service routes that provide peak-period-only service. Ten RT local routes in the corridor provide peak and midday service, with six also providing evening service. Eight routes operate on Saturdays and seven on Sundays.

3.2.2.2 BUS PATRONAGE

As shown in Table 3.2-1 (page 3-6), fixed-route bus services in metropolitan Sacramento served approximately 72,000 passenger boardings (65,000 on RT buses, and 7,000 on other fixed route buses) on an average weekday in 2001.

Table 3.2-3 shows that there are approximately 3,400 average weekday boardings on bus routes within the South Sacramento Phase 2 Corridor, based on Year 2001 ridership data.[5] Bus routes operating primarily in the Phase 1 Corridor, but connecting to other buses in the northern part of the Phase 2 Corridor, are also shown on the Table. The most utilized routes are 5, 51, 56, 67, 68 and 81, each with over 1,000 passenger trips on weekdays. Each of these routes has maximum load factors over 90 percent in the morning service period.

[4] Sacramento Regional Transit, "Short Range Transit Plan, 2000-2008".

[5] Ibid.

Table 3.2-3: Year 2001 Average Weekday RT Transit Boardings by Line

	Schedules/Weekday	Peak Headway	Off-Peak Headway	Boardings
Light Rail Vehicle				
Downtown Area	122	15	15	13,500
Watt/I-80 Corridor	122	15	15	6,800
Folsom/US 50 Corridor	122	15	15	8,700
LRV Subtotal	122	15	15	29,000
South Sacramento Corridor Phase 2 Bus Routes				
54 / Center Parkway	28	60	60	600
55 / Scottsdale	36	60	60	600
56 / Laguna Express	28	60	60	1,000
57 / Elk Grove - Florin Express	4	30	n/a	100
58 / Center Parkway Express	4	30	n/a	100
59 / Elk Grove Express	6	30	n/a	200
60 / Elk Grove P&R Express	6	30	n/a	300
52 / Laguna West	10	25	n/a	400
53 / Laguna - Elk Grove	18	60	60	100
SSCP2 Bus Subtotal	n/a	n/a	n/a	3,400
Selected South Sacramento Corridor Phase 1 Bus Routes				
5 / Land Park – Meadowview	32	60	60	1,400
7 / Meadowview Express	30	60	60	900
50 / Stockton Limited	8	15	n/a	100
51 / Broadway – Stockton	122	15	15	5,600
65 / Florin Express	4	30	n/a	100
67 / Franklin	60	30	30	2,600
68 / 44th Street	60	30	30	2,300
81 / Florin - 65th	64	30	30	3,000
Selected SSCP1 Bus Subtotal	n/a	n/a	n/a	16,000
All Other RT Bus Routes	n/a	n/a	n/a	45,600
RT Bus Subtotal	n/a	n/a	n/a	65,000
Total RT Boardings	**n/a**	**n/a**	**n/a**	**94,000**

Table 3.2-4 shows greater detail on the routing and frequency of buses operating within the South Sacramento Phase 1 and South Sacramento Phase 2 Corridors.

Table 3.2-4: Year 2001 Bus Routes in the South Sacramento Corridor Phase 2 Study Area					
Route	**Schedules Per Weekday**	**Service Headway (Minutes)**		**Service Area**	**Ave. Weekday Boardings**
		Peak	**Off Peak**		
Primary Routes in the Corridor					
54 / Center Parkway	28	60	60	Florin Mall to Kaiser Hosp. & CRC via Florin Rd., Franklin Blvd., Center Parkway.	600
55 / Scottsdale	36	60	60	Florin Mall to Kaiser Hosp. & CRC via Power Inn Rd., Stockton Blvd., Bruceville Rd.	600
56 / Laguna Express	28	60	60	Elk Grove to Laguna, CRC & Downtown Sacramento via Elk Grove Blvd., Bruceville Rd., & State Route 99 (SR 99).	1,000
57 / Elk Grove - Florin Express	4	30	n/a	Elk Grove to Downtown Sacramento via Elk Grove-Florin Rd., Calvine Rd., & SR 99.	100
58 / Center Parkway Express	4	30	n/a	CRC to Downtown Sacramento via Center Parkway, Florin Rd., and SR 99.	100
59 / Elk Grove Express	6	45	n/a	Elk Grove to Downtown Sacramento via Elk Grove-Florin Rd., Bond Rd., East Stockton Blvd. & SR 99.	200
60 / Elk Grove P&R Express	6	45	n/a	Grant Line Road to Downtown Sacramento via East Stockton Blvd. and SR 99.	300
Other Routes In or Near the Corridor					
5 / Land Park - Meadowview	32	60	60	Florin H.S. & Kaiser Hosp. to Downtown Sacramento via Elsie Ave., Mack Rd., Meadowview Rd. via Land Park Dr.	1,400
7 / Meadowview Express	30	60	60	Kaiser Hosp. to Downtown Sacramento via I-5 via Mack Rd, Meadowview Rd. & I-5.	900
50 / Stockton Limited	8	15	n/a	Florin Mall to Downtown Sacramento via Stockton Blvd and P/Q Streets.	100
51 / Broadway - Stockton	122	15	15	Florin Mall to Downtown via Stockton Blvd., Broadway & 8th/9th Streets.	5,600
52 / Laguna West	10	25	n/a	Laguna to Downtown Sacramento via Laguna Blvd. and I-5.	400
53 / Laguna – Elk Grove	18	60	60	Laguna Town Hall to Elk Grove via Laguna Blvd., Big Horn, and Elk Grove Blvd.	100
65 / Florin Express	4	30	n/a	Florin to Downtown Sacramento via Florin Road and I-5.	100
67 / Franklin	60	30	30	Florin Mall to Downtown Sacramento and Arden Fair Mall, via Florin Rd., Franklin Blvd., 29th/30th Sts., and Capital City Freeway.	2,600
68 / 44th Street	60	30	30	Florin Mall to Downtown Sacramento and Arden Fair Mall, via 44th St., 14th Ave., MLK Jr. Way, 29th/30th Sts., and Capital City Freeway.	2,300
81 / Florin – 65th	64	30	30	Pocket to Florin Mall and 65th St. LRT, via Florin Road and 65th St.	3,000
				Total Weekday Boardings in Phase 2 Study Area	**19,400**
Source: Regional Transit, 2001.					

3.2.2.3 OTHER FIXED-ROUTE TRANSIT OPERATORS

Other bus operators serve metropolitan Sacramento from Folsom and points outside of Sacramento County. Service is primarily to Downtown Sacramento and the State Capitol. These transit providers include the Folsom Stage Line, El Dorado Transit, Placer County Transit, Roseville Commuter Service, San Joaquin Regional Transit District– SMART, Yolobus, and Yuba-Sutter Transit.

Three shuttle bus services operate weekdays within the metropolitan area, including South Natomas Transportation Management Association Commuter Scooter, California State University, Sacramento (CSUS) Hornet Express, and University of California Davis Medical Center. Long distance intercity bus connections are provided by Greyhound out of its depot at 715 L Street in Sacramento. Other than the transfer connections provided for in Downtown Sacramento, only the CSUS Hornet Express serves the Sacramento-Folsom Corridor directly.

3.2.2.4 PARATRANSIT SERVICE

Door-to-door, shared-ride service for individuals in metropolitan Sacramento who are disabled and cannot use conventional transit services is provided by Paratransit, Inc. and is operated seven days a week. The Folsom Stage Line provides a similar service within the City of Folsom. Riders must meet Americans with Disabilities Act eligibility requirements and register in advance for service.

3.2.2.5 TRANSIT ACCESSIBILITY

Current average bus travel times[6] between major activity centers and community areas in the South Sacramento Phase 2 Corridor are as follows:

- Cosumnes River College and Downtown is 61 minutes.
- Laguna and Downtown is approximately 62 minutes.
- Elk Grove and Downtown is approximately 65 minutes.
- Vineyard and Downtown Sacramento is approximately 90 minutes.

These travel times include the elapsed time to walk to the bus stop at either end of the trip, wait time, and in-vehicle travel time. Travel times represent weighted averages of several locations within those areas. (This travel time data is presented in tabular form in Table 3.2-13 below as part of the section comparing the No-Action, TSM, and LPAP2 alternatives).

3.2.3 Future Transit Services in the South Sacramento Phase 2 Corridor

This section outlines the three future transportation alternatives evaluated in this environmental analysis. These alternatives were: No-Action TSM, and LPAP2. A detailed description of the alternatives is presented above in Chapter 2.

The starting point for the No-Action, TSM, and LPAP2 alternatives in the South Sacramento Phase 2 Corridor is the 2025 Metropolitan Transportation Plan (MTP) adopted by the Sacramento Area Council

[6] Reported times are averages of walk-to-transit times from a collection of travel analysis zones representing each area, to a collection of zones in the Downtown Sacramento core area, calculated using the refined version of SACMET01 used for travel forecasts for this study.

of Governments (SACOG) in July 2002. The 2002 MTP's major transit improvements reflect the System Expansion and Phasing Strategy that was developed in RT's Multi-Corridor Study and adopted by the RT Board of Directors in July 2001 (outlined above in Section 2.2.2).

3.2.3.1 NO-ACTION ALTERNATIVE TRANSIT SERVICES

The No-Action Alternative includes all of the roadway improvements and nearly all of the transit improvements in the adopted 2025 MTP. The No-Action Alternative differs from the MTP in that LRT service in the South Sacramento Corridor would end at the Phase 1 terminus (Meadowview Road) and the feeder bus services in South Sacramento County would thus be routed to serve different LRT stations. The No-Action Alternative includes no new park-and-ride lots in the Phase 2 Corridor. The overall amount of transit service in the Phase 2 Corridor will increase by about 90 percent, comparing the 2030 No-Action Alternative to Year 2000 service. Section 2.2.2 above presents a complete description of the No-Action Alternative's transit services.

3.2.3.2 TRANSPORTATION SYSTEMS MANAGEMENT (TSM) ALTERNATIVE TRANSIT SERVICES

The TSM Alternative consists of the 2025 MTP, but replaces the LPAP2 LRT extension and its associated feeder bus services with new line-haul and feeder bus routes designed to represent the best that can be done through lower-cost transit service improvements to accommodate the LPA Phase 2 Corridor's travel demand without the proposed LPAP2 LRT extension.

Transit services provided under the TSM Alternative are detailed in Chapter 2, Section 2.3 and illustrated on Figure 2.3-1. Table 2.3-1 in Chapter 2 presents transit service headways under the TSM Alternative and their difference from the No-Action Alternative. The headways for this alternative were determined through "equilibration" (i.e., iterative travel model forecasts to balance headways to projected ridership for each transit line). Outside of the South Sacramento Phase 2 Corridor, the TSM Alternative network contains all the 2025 MTP transit investments and projects included in the No-Action Alternative.

3.2.3.4 LPAP2 TRANSIT SERVICES

The LPAP2 would extend LRT from the existing Phase 1 terminus at Meadowview Road to a terminus in the vicinity of Cosumnes River College. It would include stations at Morrison Creek, Franklin Boulevard, Center Parkway, and Cosumnes River College/College Square. The LPAP2's transit network is presented in Figure 2.4-1 and is based on the 2025 MTP. Key features of this system within the LPAP2 Corridor area are:

- Completion of the LPAP2 LRT extension to Cosumnes River College.
- Re-routing and re-orientation of existing fixed route bus service in the South Sacramento Corridor to avoid duplicate service and to provide feeder service to LRT stations.
- Provision of new fixed route bus service feeding the light rail line, primarily in the areas south of Meadowview Road and west of State Route 99 (SR 99).

One modification to the fixed route service in the LPAP2 is the result of re-configuring some of the existing express bus routes from Elk Grove to Downtown Sacramento. Table 2.4-1 in Chapter 2 provides service headways for the LPAP2 transit network and differences from the Future TSM Alternative. The headways were determined through "equilibration" (i.e. iterative travel model forecasts to balance headways to projected ridership for each transit line).

The LPAP2 does not include the proposed South Sacramento Corridor Phase 3 project which is included in the MTP project list. The Phase 3 project would extend the South Sacramento Corridor to Elk Grove. The mode, alignment, terminus, and other key project parameters of the Phase 3 extension have not been determined and will be the subject of a future alternatives analysis and environmental evaluation. In lieu of representing the Phase 3 project in the LPAP2, the alternative's transit network includes enhanced fixed route bus service from the LPAP2 terminus to Elk Grove (specifically the E, F, and G routes). Outside of the South Sacramento Corridor, the LPAP2 transit network contains all the 2025 MTP transit investments and projects described in the No-Action Alternative.

A comparison of the passenger-carrying capacity of the three alternatives and existing service is provided in Table 3.2-5. Capacity is tabulated for three "cutlines":

- Cutline 1—North of Meadowview and Mack Roads. LRT carrying capacity for this cutline increases from Year 2000 to Year 2030, due to the addition of supplemental peak period trains. LRT carrying capacity does not differ among the three alternatives for Cutline 1. Bus carrying capacity is highest for the TSM alternative (2,160) which reflects the addition express bus service included in this alternative compared to the No-Action and LRT alternatives.
- Cutline 2—North of Cosumnes River Boulevard and Calvine Road. LRT carrying capacity for this cutline is zero for existing conditions, and Year 2030 conditions with the No-Action and TSM alternatives, because LRT service terminates at Meadowview Road. For the LPAP2 alternative, LRT carrying capacity is 3,000 passengers, reflecting the extension of LRT service to CRC. Bus carrying capacity is highest for the TSM alternative (3,540 passengers).
- Cutline 3—North of Laguna Boulevard and Bond Road. No alternative provides LRT carrying capacity across this cutline. Bus carrying capacity is highest for the TSM alternative (1,560 passengers).

3.2.4 Projected Future Rail and Bus Patronage

Travel demand forecasts, based on the 2030 transit network assumptions described above, were developed for each project alternative. Forecasts include estimates of regional transit activity and trip-making in LPAP2 Corridor. Evaluation of future patronage focuses on the differences among the three alternatives: No-Action, TSM, and LPAP2.

3.2.4.1 LINKED TRANSIT PASSENGER TRIPS AND PASSENGER BOARDINGS BY CORRIDOR

Table 3.2-6 summarizes 2030 linked transit passenger trips by corridor for the alternatives[7]. Table 3.2-7 summarizes transit passenger boardings by corridor for the alternatives. In both cases, the analysis corridors are those shown in Figure 3.2-1.

[7] Forecasts include the recent proposed transit fare changes under consideration by SRTD.

Table 3.2-5: Comparison of Peak Hour Passenger Carrying Capacity

Cutline/Vehicle Type	Existing[1,2]	Year 2030[1,3] No-Action	TSM	LPAP2
Cutline 1: North of Meadowview/Mack Roads				
LRT	2,000	3,000	3,000	3,000
Bus	540	1,140	2,160	1,020
Total	2,540	4,140	5,160	4,020
Cutline 1 Changes...				
...from Existing	n/a	+ 1,600	+ 2,620	+ 1,480
...from 2030 No-Action	n/a	n/a	+ 1,020	- 120
Cutline 2: North of Cosumnes River Blvd./Calvine Road				
LRT	0	0	0	3,000
Bus	520	2,460	3,540	1,560
Total	520	2,460	3,540	4,560
Cutline 2 Changes...				
...from Existing	n/a	+ 1,940	+ 3,020	+ 4,040
...from 2030 No-Action	n/a	n/a	+ 1,080	+ 2,100
Cutline 3: North of Laguna Blvd./Bond Road				
LRT	0	0	0	0
Bus	400	1,020	1,560	1,200
Total	400	1,020	1,560	1,200
Cutline 3 Changes...				
...from Existing	n/a	+ 620	+ 1,160	+ 800
...from 2030 No-Action	n/a	n/a	+ 540	+ 180

Source: DKS

[1] Passenger capacities include seats and standees (125 per LRV, 60 per standard bus, 90 per articulated bus). Carrying capacities calculated for AM peak hour in the northbound (peak) direction.

[2] Existing capacity based on 2004 published routes and schedules.

[3] Year 2030 capacities based on routes and schedules described in Chapter 2 of this document.

A "linked trip" includes all of the segments of a passenger's trip from its point of origin (e.g., the passenger's home) to its final destination (e.g., the passenger's place of work). Evaluating transportation improvements using linked trips is a common industry practice.

A "boarding" occurs whenever a passenger enters a transit vehicle. A single linked trip must include at least one boarding, but often includes more than one. For example, a trip which includes a bus trip from home to an LRT station, an LRT ride, and then a bus trip to a final destination includes three boardings (two bus boardings, and one LRT boarding) but only one linked trip. Figure 3.2-3 provides an illustration of the difference between a transit boarding and a linked trip.

Table 3.2-6: 2030 Weekday Linked Transit Trips by Corridor				
Corridor[1]	**Year 2000**	**Alternatives**		
		No-Action	**TSM**	**LPAP2**
South Sacramento Corridor (I-5/SR 99 South)				
Phase 1 Corridor (5a)	*9,930*	*18,900*	*18,930*	*19,130*
Phase 2 Corridor (5b)	*1,030*	*11,040*	*12,950*	*14,330*
South Sac. Subtotal	10,960	29,940	31,880	33,460
Rest of Region				
Downtown Area (1a-1b)	28,710	64,770	66,090	66,960
DNA/I-5/SR 99 North (2a-2d)	2,980	19,000	19,050	19,070
Watt/I-80 East (3)	15,060	25,940	25,950	25,960
Folsom/US 50 East (4)	14,800	27,830	27,860	27,940
W.Sac-Davis/I-80 West (6)	5,310	14,700	14,700	14,720
Gateways	0	0	0	0
Total Regionwide	***77,820***	***182,180***	***185,540***	***188,110***
Change from No-Build		n/a	**+ 3,360**	**+ 5,930**
Change from TSM			**n/a**	**+ 2,570**[2]

[1] See Figure 3.2-1 for boundaries of corridors used to summarize systemwide transit trips. Numbers in parentheses indicate the corridor segments included in the tabulation.
[2] This compares to incremental trips of 2,273 reported in the New Starts submittal, which are based on SUMMIT output files. This tabulation includes one trip purpose (home-based-school) which is excluded from SUMMIT. Also, there are minor computational differences between SUMMIT (used for New Starts submittal) and MINUTP (used for all tabulations in this document).
Source: DKS Associates, July 2006.

No-Action Alternative. Under the No-Action Alternative, Year 2030 weekday linked transit trips increase to 182,180, an increase of 134 percent over Year 2000 (Table 3.2-6). Weekday passenger boardings on bus and rail services in metropolitan Sacramento on weekdays are expected to increase from 101,500 in 2000 to about 278,570 in 2030, a 174 percent increase (Table 3.2-7).

TSM Alternative. For the TSM Alternative, Year 2030 weekday transit trips are forecasted to be 185,540, an increase of 3,360 linked transit trips over No-Action (Table 3.2-6). Total passenger boardings are projected to be about 284,930 in 2030, a 181 percent increase from 2000 levels. The bus improvements proposed for corridor with the TSM Alternative is estimated to result in about 1,330 more passenger boardings than the No-Action Alternative (Table 3.2-7).

Table 3.2-7: 2030 Weekday Transit Passenger Boardings by Corridor				
Corridor[1]	**Year 2000**	**Alternatives**		
		No-Action	**TSM**	**LPAP2**
South Sacramento Corridor (I-5/SR 99 South)				
Phase 1 Corridor	*13,100*	*43,910*	*43,790*	*42,720*
Phase 2 Corridor	*1,200*	*9,120*	*10,570*	*12,990*
South Sac. Subtotal	14,300	53,030	54,360	55,710
Rest of Region				
Downtown Area	31,600	89,780	93,080	93,020
DNA/I-5/SR 99 North	3,500	27,830	27,920	27,980
Watt/I-80 East	22,400	40,440	40,580	40,590
Folsom/US 50 East	25,100	51,720	53,200	52,510
W.Sac-Davis/I-80 West	4,600	15,770	15,790	15,880
Gateways	0	0	0	0
Total Regionwide	***101,500***	***278,570***	***284,930***	***285,690***
Change from No-Build		n/a	+ 6,360	+ 7,120
Change from TSM			n/a	+ 760

[1] See Figure 3.2-1 for boundaries of corridors used to summarize systemwide transit trips.
Source: DKS Associates, July 2006.

LPAP2. With completion and operation of the LPAP2, total systemwide linked transit trips are projected to be about 188,110 in the Year 2030. Linked transit trips for the LPAP2 Alternative would increase by 2,570 compared to the TSM, and increase by 5,930 compared to the No Action (Table 3.2-6). While the LPAP2 would result in an increase in transit trips, it would also require fewer transfers to serve some trips, resulting in only slightly higher (+760) total boardings than the TSM Alternative (Table 3.2-7). Specifically, many of the transit trips to and from the South Corridor without the LPAP2 would require more than one transfer. With the LPAP2, these trips would now only require one transfer.

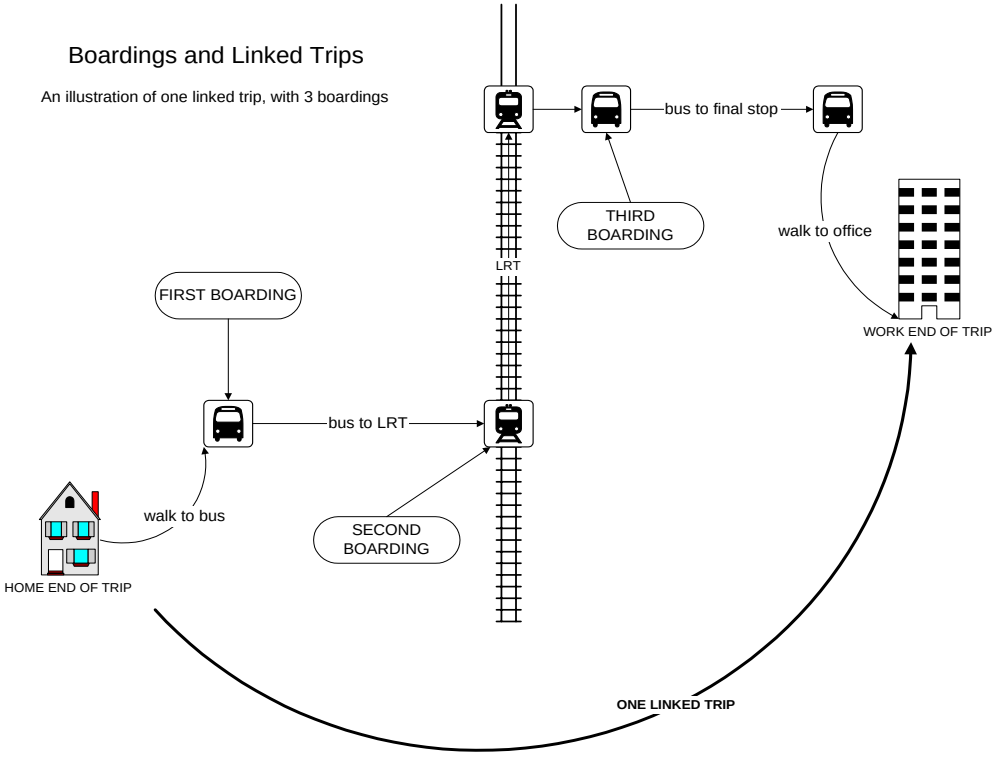
3.2.4.2 LINKED TRIPS BY ACCESS MODE

Access mode refers to the means used by a transit passenger to get to the transit line. Two modes of access are applicable to linked transit trips: walking or driving.[8] Transfers from other transit modes are tabulated for boardings, but a linked transit trip cannot begin with a transfer from another transit mode. Table 3.2-8 presents a comparison of regionwide linked transit trips by access mode, for the three corridor alternatives. Linked transit trips are reported for home-based-work trips, and for all other trip purposes.[9]

[8] For forecasting purposes, walk access includes all non-motorized modes of access, such as walking, bicycling, etc. Drive access mode includes both park-and-ride and drop-off modes.

[9] Includes home-based-shop, home-based-other, home-based-school (K-12), and non-home-based trips. Also includes airport passenger trips to Sacramento International Airport. Airport passenger trips are held constant for the alternatives analyzed in this study.

Figure 3.2-3: Illustration of Linked Transit Trips and Transit Boardings



Existing breakdowns of linked transit trips by mode and access mode are not available. The most recent transit survey of sufficient detail to estimate existing linked trips was conducted in 1999,[10] and surveyed only RT buses and trains. According to that survey, 80 percent of all linked transit trips served by RT are walk access, and 20 percent are drive access. By applying that split to estimates of average weekday linked transit trips for Year 2001, walk access trips were about 62,000, and drive access trips, about 15,000.

No-Action Alternative. Year 2030 average weekday walk access trips for this alternative are forecasted to be 134,862, an increase of 117 percent over Year 2000. Drive access trips are forecasted to be 47,313, an increase of 215 percent over Year 2000.

TSM Alternative. This alternative is forecasted to generate only slightly more (+704) walk access transit trips, compared to the No-Action Alternative. Drive access trips are forecasted to be about 2,657 higher than the No-Action Alternative, an increase of about six percent regionwide.

LPAP2. This alternative is forecasted to generate 1,631 more walk access transit trips than the No-Action Alternative, or 927 more than the TSM Alternative. Drive access trips are forecasted to be about 4,301 (nine percent) higher than the No-Action Alternative, and 1,644 (three percent) higher than the TSM Alternative.

[10] SACOG, "1999 On-Board Sacramento Regional Transit District Survey", June 2000.

Table 3.2-8: 2030 Regionwide Weekday Linked Transit Trips by Access Mode[1]

Access Mode	No-Action				TSM Alternative				LPAP2			
	Work	All Other	Total	%	Work	All Other	Total	%	Work	All Other	Total	%
Walk	48,641	86,221	134,862	74%	49,087	86,479	135,566	73%	49,604	86,889	136,493	73%
Drive[2]	35,353	11,960	47,313	26%	37,930	12,040	49,970	27%	39,119	12,495	51,614	27%
Total	**83,994**	**98,181**	**182,175**	100%	**87,017**	**98,519**	**185,536**	100%	**88,723**	**99,384**	**188,107**	100%
%	46%	54%	100%		47%	53%	100%		47%	53%	100%	

[1]For a definition of "linked transit trips", see Section 3.2.4.1 and Figure 3.2-4.
[2]Drive access combines park-and-ride and drop-off access modes.
Source: DKS Associates, July 2006.

3.2.4.3 PASSENGER BOARDINGS BY ACCESS MODE AND VEHICLE TYPE

Table 3.2-9 presents transit passenger boardings broken down by transit vehicle types. The vehicle considered are LRT and bus, with buses split out by RT versus all other operators. Bus includes all fixed route buses and community shuttles. Special user transit service (e.g., Paratransit) is not included in the tabulations. Year 2001 transit passenger boardings for LRT, RT buses and other fixed route buses are provided in Table 3.2-1.

Table 3.2-10 presents tabulations of LRT passenger boardings by mode of access. The modes of access to LRT stations presented in this table are similar to those presented in Table 3.2-7, but transfers are included as an access mode. Transfers are split into two categories: transfers from LRT to or from connecting buses, and "line-to-line" transfers on LRT (e.g., transfers from the Folsom-Airport line to the Watt-South Sacramento Line).

No-Action Alternative. Year 2030 average weekday passenger boardings to RT buses are projected to increase from 65,000 in 2001 to about 154,310 by 2030 with the No-Action Alternative, a 137 percent increase. Boardings to LRT are forecasted to increase from 29,000 in Year 2001 (Table 3.2-1) to 105,180, a 263 percent increase (Table. 3.2-8).

Currently about 35 percent of the LRT boarding are walk-access, and 32 percent are drive-access. By 2030 under the No-Action Alternative, walk-access boardings are forecasted to increase to 45 percent of total LRT boardings, while drive-access will decrease to 21 percent (Table 3.2-9). Boardings transferring from other transit remain relatively steady at 34 percent, but 3 percent of transfers are line-to-line transfers on LRT (i.e. transfers from one LRT line to another, rather than from LRT to/from buses).

TSM Alternative. Compared to No-Action Alternative, Year 2030 average weekday RT bus boardings would be 15,530 (10 percent) higher under the TSM Alternative. LRT patronage would be 1,120 (less than 1 percent) lower than the No-Action Alternative (Table 3.2-9). LRT boardings would be lower, because the TSM includes direct express bus service from CRC, which diverts some boardings from LRT relative to the No-Action Alternative.

Walk access boardings to LRT would decrease by 1 percent with the No-Action Alternative (47,330 compared to 47,760—see Table 3.2-9). Drive access boardings to LRT would actually decrease slightly relative to the No-Action alternative (21,620 compared to 21,750—see Table 3.2-10), and transfers from LRT to/from buses decrease slightly (31,910 compared to 32,440). This reflects the additional direct express bus services included in the TSM Alternative.

LPAP2. Year 2030 average weekday RT bus boardings for the LPAP2 would be about 3 percent higher than the No-Action Alternative (159,060 compared to 154,310—see Table 3.2-9). Boardings to LRT would be about 6,730 higher (111,550 compared to 105,180, an increase of 6 percent—see Table 3.2-9).

Walk access boardings to LRT would be almost 5 percent higher than for the No-Action Alternative (49,970 compared to 47,760—see Table 3.2-10). Drive access boardings to LRT would be about 15 percent higher (25,010 compared to 21,750—see Table 3.2-10).

Table 3.2-9: 2030 Regionwide Weekday Transit Passenger Boardings by Vehicle Type

Access Mode	No-Action				TSM Alternative				LPAP2			
	Peak	**Off-Peak**	**Total**	**%**	**Peak**	**Off-Peak**	**Total**	**%**	**Peak**	**Off-Peak**	**Total**	**%**
LRT	59,130	46,050	105,180	37%	57,460	46,590	104,060	36%	63,430	48,120	111,550	38%
RT Bus	81,990	72,320	154,310	56%	88,050	81,790	169,840	57%	81,170	77,890	159,060	55%
Other Bus[2]	9,310	10,920	20,230	7%	9,330	10,920	20,250	7%	9,360	10,940	20,290	7%
Total	**150,430**	**129,290**	**279,720**	100%	**154,130**	**136,440**	**290,570**	100%	**153,950**	**136,950**	**290,900**	100%
%	53%	47%	100%		53%	47%	100%		53%	47%	100%	

[1]For a definition of "transit passenger boardings", see Section 3.2.4.1 and Figure 3.2-4.
[2]Includes Yolobus, Unitrans, Folsom Transit/Stage Lines, CSUS shuttles, El Dorado Transit, Placer County Transit, and Roseville Transit/RUSH.
Source: DKS Associates, July 2006.

Table 3.2-10:Weekday LRT Passenger Boardings by Access Mode							
Alternative	**Walk**	**Drive**	**Bus Transfer[1]**	**LRT Transfer[2]**	**Total**	**% Change Compared with 2001**	**% Change Compared with No-Action**
Year 2000	10,200	9,400	9,400	0	29,000	n/a	n/a
%	35%	32%	32%	0%	100%	n/a	n/a
Year 2030							
No-Action	47,760	21,750	32,440	3,240	105,190	+ 263%	n/a
%	45%	21%	31%	3%	100%	n/a	n/a
TSM	47,330	21,620	31,910	3,190	104,050	+ 259%	- 1%
%	45%	21%	31%	3%	100%	n/a	n/a
LRT	49,970	25,010	33,130	3,430	111,540	+ 285%	+ 6%
%	45%	22%	30%	3%	100%	n/a	n/a

[1]Includes transfers from bus to LRT, and LRT to bus.
[2]Includes line-to-line transfers on LRT.
Source: DKS Associates, July 2006.

3.2.4.4 PROJECTED LPAP2 PATRONAGE BY STATION AREA

Table 3.2-11 summarizes projected passenger boardings at South Line LRT stations for the TSM, and Table 3.2-12 provides a similar tabulation for the LPAP2.

Table 3.2-11: 2030 Weekday Station/Transit Center Boardings and Parking Space Demand TSM Alternative					
	Mode of Access to Transit Center/Station				**Parking Space Demand[2]**
Transit Center/Station[1]	**Walk**	**Drive**	**Bus Transfer**	**Total**	
South Sacramento Corridor-Phase 2					
Morrison Creek	110	0	120	230	0
Franklin	10	0	300	310	0
Cosumnes Riv. Coll. Transit Ctr.	210	2,000	940	3,150	1,320
Calvine/SR-99 Park-and-Ride	80	250	60	390	170
Phase 2 Subtotal	410	2,250	1,420	4,080	1,490
South Sacramento Corridor-Phase 1 LRT Stations					
Meadowview	190	1,680	2,600	4,460	1,110
Other Phase 1 Stations	3,620	3,370	2,110	9,120	2,220
Phase 1 Subtotal	3,810	5,050	4,710	13,580	3,330
Southline Total	**4,220**	**7,300**	**6,130**	**17,660**	**4,820**

[1]TSM includes no LRT stations in the Phase 2 Corridor. Table shows bus transit centers, roughly equivalent to LRT station areas in the LPAP2.
[2]Parking space demand shown for Phase 2 Corridor are new bus park-and-ride facilities.
Source: DKS Associates, July 2006.

TSM Alternative. Since the TSM Alternative includes only bus service south of Meadowview, no LRT boardings would take place in the Phase 2 Corridor. However, the TSM Alternative includes additional transit facilities such as transit centers and bus park-and-ride lots. Table 3.2-11 tabulates transit passenger boardings for transit centers and bus stops in areas equivalent to the LRT station areas in the LPAP2.

A total of 4,080 passenger boardings would occur at bus stops served by multiple lines near the Morrison Creek and Franklin Boulevard Station areas, or at the Cosumnes River College or Calvine/Auberry transit centers in the TSM Alternative. The majority of passenger boardings would occur at the CRC Transit Center (3,150), where the largest concentration of bus routes converges in this alternative. Additionally, a direct express bus service via SR-99 to Downtown Sacramento (the G2 Route) terminates here, and is served by a 1,320 space park-and-ride lot.

Year 2030 average weekday LRT boardings at the Meadowview LRT station would be about 4,460, with over one-third of those passengers accessing the station by car (either parking or being dropped off). This would require about 1,110 parking spaces at this station, which is near the planned capacity of the station lot. An additional 2,600 passengers would transfer from one of thirteen feeder buses serving this station.

LPAP2. Year 2030 average weekday passenger boardings to the four Phase 2 stations (Morrison Creek, Franklin, Center Parkway, and CRC) are about 6,050 (Table 3.2-12). As with the TSM Alternative, the station with the highest levels of boardings would be CRC Station, with about 3,820 weekday boardings. Activity is high at this station in part because of trips generated by the College itself, but also because of the high level of feeder bus activity at the station with nine bus lines converging there, and the large park-and-ride lot provided at the station. Franklin Station has the next highest ridership with 1,690 passenger boardings. Morrison Creek[11] and Center Parkway Stations serve the remaining 540 passenger boardings.

Three of the four new LRT stations in the Phase 2 Corridor for this alternative would include park-and-ride lots. A total of 2,410 park-and-ride spaces would be required to meet estimated weekday drive access demands. A total of about 1,830 of these spaces would be needed at the CRC Station. An additional 530 would be needed at Franklin Boulevard, and 50 spaces at Morrison Creek Station.

Total boardings at the Meadowview Station would be about two-thirds that of the TSM Alternative (2,880 compared to 4,460). The total number of parking spaces at the Meadowview LRT station would be 880, or 230 less than the TSM Alternative. This reduction in parking requirement provides opportunities for joint development at this station which could be considered in future planning efforts by RT and the City of Sacramento (See Section 4.10 regarding RT's Transit for Livable Communities (TLC) program).

[11] Land uses assumed at the Morrison Creek Station for purposes of this study reflect the current residential zoning of the land, and the regional demographic forecasts provided by SACOG for use in this study. A community plan update is under way which would intensify the land uses around the station and increase the ridership.

Table 3.2-12: 2030 Weekday LRT Station Boardings and Parking Space Demand LPAP2

LRT Station	Mode of Access to Station				Parking Space Demand
	Walk	Drive	Bus Transfer	Total	
South Sacramento Corridor-Phase 2					
Morrison Creek	220	70	70	360	*50*
Franklin	160	900	630	1,690	*530*
Center Parkway	60	0	120	180	*0*
Cosumnes River College.	110	2,620	1,090	3,820	*1,830*
Phase 2 Subtotal	550	3,590	1,910	6,050	*2,410*
South Sacramento Corridor-Phase 1					
Meadowview	310	1,330	1,350	2,880	880
Other Phase 1 Stations	3,620	3,430	2,300	9,440	2,270
Phase 1 Subtotal	3,930	4,760	3,650	12,320	3,150
Southline Total	**4,380**	**8,450**	**5,560**	**18,370**	**5,590**

Source: DKS Associates, July 2006.

3.2.5 Projected Travel Times/Accessibility

On average, in-vehicle travel times between many locations in the South Sacramento Corridor and Downtown Sacramento, as elsewhere in metropolitan Sacramento, are projected to increase in the future due to traffic growth and increasing congestion. The impacts of congestion on travel times would differ by mode. Individuals relying on modes that must operate in mixed flow traffic (e.g., bus) would experience longer travel times than would individuals using modes that provide preferential treatments when operating on public roadways (e.g., carpools or HOV lanes) or modes operating in exclusive rights-of-way (e.g., LRT).

Table 3.2-13 lists projected AM peak period travel times by mode between four areas in the South Sacramento Phase 2 Corridor (CRC area, Laguna area, Vineyard area, and Elk Grove area) for each of the project alternatives. All times are for average conditions in the morning commute period,[12] exclusive of any incidents, breakdowns, accidents, construction, etc. The travel times represent the average of travel times from all the traffic analysis zones (TAZ) in those areas to the State Capitol (travel times are measured from the TAZ centroids). The following subsections discuss the travel times.

3.2.5.1 NO-ACTION ALTERNATIVE

As shown in Table 3.2-13, in most cases, Year 2030 No-Action Alternative auto travel times are projected to increase significantly compared to Year 2000 conditions. Increases in travel times range from 25 percent to over 50 percent relative to Year 2000.

[12] The commute period is the three hours of highest travel demand in the morning and afternoon commute periods. Based on Year 2000 household travel surveys, this time period is 6:45 to 9:45 AM.

Table 3.2-13: Year 2000 and 2030 AM-Peak Period Travel Times

Alternative	Average Travel Time in Minutes by Mode (AM Peak Period)[1]			
	Auto[2]		Transit	
	Drive Alone	Carpool	Walk Access	Drive Access
CRC Area to Downtown Sacramento				
Existing (2000)	32 to 39	27 to 34	61	n/a
No-Action (2030)	40 to 51	33 to 42	47	52
TSM (2030)	"	"	47	50
LRT (2030)	"	"	40	35
Laguna West Area to Downtown Sacramento				
Existing (2000)	30 to 37	30 to 37	62	n/a
No-Action (2030)	42 to 53	38 to 48	76	72
TSM (2030)	"	"	72	54
LRT (2030)	"	"	66	43
Elk Grove Area to Downtown Sacramento				
Existing (2000)	35 to 43	30 to 36	65	n/a
No-Action (2030)	51 to 64	40 to 50	95	70
TSM (2030)	"	"	94	60
LRT (2030)	"	"	78	46
Vineyard Area to Downtown Sacramento				
Existing (2000)	48 to 57	33 to 41	90	n/a
No-Action (2030)	54 to 66	46 to 56	92	75
TSM (2030)	"	"	92	65
LRT (2030)	"	"	87	51

[1] Weighted times by trips amongst groups of travel analysis zones representing each area to the State Capitol.

[2] Ranges of Year 2000 auto times reflect 10% variation due to fluctuations in demand within the 3-hour period. Future year variations are assumed to be 15% to reflect higher congestion levels on major surface streets and freeways.

Source: DKS Associates, July 2006.

For most of the trips interchanges examined, the Year 2030 No-Action Alternative transit travel times are also longer relative to Year 2000. Although the No-Action alternative includes significant additional bus service in the South Sacramento Phase 2 Corridor, most of the new service consists of buses operating on non-exclusive rights-of-way. To that extent, they are subject to the same growth in congestion reflected in the automobile travel times.

3.2.5.2 TSM ALTERNATIVE

The TSM Alternative is projected to marginally improve transit travel times relative to the No-Action Alternative for all trip interchanges reported here. In general, the bus network assumed to be present in the TSM Alternative is very similar to the No-Action Alternative, but with higher frequencies of service and more drive access opportunities. The walk access times for the TSM Alternative are marginally lower than the No-Action alternative, reflecting slightly lower waiting times due to higher service frequencies. For most of the trip interchanges, the TSM Alternative provides significantly lower drive-access transit travel times, because of the addition of two park-and-ride lots with high-frequency, timed-transfer feeder connections to LRT.

3.2.5.3 LPAP2

Drive-access-transit times for the LPAP2 are more significantly improved relative to Year 2000 than for the No-Action and TSM Alternatives. Relative to Year 2000, the LPAP2 would provide 40 to 50 percent reductions in transit travel times. This is due to the potential for "one-seat", no-transfer transit trips via drive access, which compare to bus park-and-ride to LRT trips for the No-Action and TSM Alternatives.

Walk access travel times are generally lower for the LPAP2 than the No-Action Alternative, but relative improvements are less than for drive access options.

3.2.5.4 ESTIMATES OF USER BENEFITS

An alternate measure of user benefits for the LPAP2 was prepared using the SUMMIT analysis software program provided by the Federal Transit Administration. SUMMIT is a unique program that enables a comprehensive comparison of the project benefits compared to the No-Action or TSM alternatives. The benefits calculation takes into account actual travel time savings as one measure. It also considers the “equivalent time value” of auto operating costs, parking charges, etc. that are avoidable if the project is built. Costs are converted to equivalent time using statistically estimated monetary values of time. Finally, if the project itself provides a viable travel option not present in the comparison alternative, the value of the additional option itself is included in the estimate of benefit. The benefits are weighted by the number of travelers affected, even if the transit option is not utilized. This program is required for use in FTA New Starts applications and is provided in this document as another measure of project impact.

Table 3.2-14 provides a tabulation of Year 2030 average weekday hours of user benefit, calculated using the SUMMIT program. This Table compares the LPAP2 to the TSM Alternative, and shows a total of 2,222 hours of equivalent travel time savings. The Table shows how the benefits break down by the “production end” (i.e. home end of a home-based trip) and the “attraction end” (i.e. non-home end of a home-based trip) of all trips. In general, the production end can be equated with the residence location for a traveler, and the attraction end with the work, shop or other destination end of a trip. The tabulation shows that the South Sacramento Phase 2 Corridor receives the vast majority of production end benefits (96%) and Downtown Sacramento receives the majority of attraction-end benefits (75%).

Table 3.2-14: User Benefits by District (LRT Compared to TSM)

Corridor	Production or "From" Corridor Benefits[1]		Attraction or "To" Corridor Benefits[1]	
1 Downtown Core	15	1%	1,284	58%
2 Rest of Downtown	1	0%	385	17%
3 DNA	-7	0%	36	2%
4 Watt/I-80 East	4	0%	27	1%
5 Folsom/U.S. 50	9	0%	110	5%
6 South Line Phase 1	55	2%	185	8%
7 South Line Phase 2	2,142	96%	177	8%
8 W.Sac/Davis/I-80 West	4	0%	19	1%
9 External	0	0%	0	0%
Total	2,222	100%	2,222	100%

[1] Includes "general purpose" trips (i.e. home-based-work, home-based-shop, home-based-other, and non-home-based trips). Does not include airport passenger ground access or other special purpose trips.
Source: DKS Associates, July 2006.

3.2.6 Mitigation Measures

There are no substantial adverse impacts to transit use under either the TSM or LPAP2, no transit mitigation measures are proposed. In fact, significant benefits would accrue to most transit passengers, due to travel time savings and increased transit accessibility provided by the LPAP2 alternative. Additionally, the LPAP2 alternative would result in reduced parking demand in Downtown Sacramento.

3.3 VEHICULAR TRAFFIC

The following assessment of vehicular traffic focuses on existing and anticipated future conditions in the South Sacramento Phase 2 Corridor, including changes in traffic patterns and potential impacts associated with each of the project alternatives.

3.3.1 Existing Street and Highway System

An overview of the major roadway network in the South Sacramento Phase 2 Corridor is shown in Figure 3.3-1. The two major freeways serving the study area also serve Downtown Sacramento. Interstate 5 and State Route 99, generally follow a north-south direction between Downtown Sacramento and the South Sacramento Phase 2 Corridor area. Away from Downtown Sacramento, roadways generally follow north-south or east-west alignments and form a grid pattern. In the vicinity of the LPAP2, CRB and Calvine Road are the major east-west streets, while Franklin Boulevard, Center Parkway and Bruceville Road are the major north-south streets.

Regional Transit

South Sacramento Corridor Phase 2 Project

STUDY AREA HIGHWAY NETWORK
Figure 3.3-1

3.3.2 Existing Traffic Volumes and Level of Service

3.3.2.1 FREEWAYS

Interstate 5 (I-5) is a north-south freeway located west of the Phase 2 Corridor. The average daily traffic volume on I-5 south of Meadowview Road is about 75,000 vehicles per day (Source: State of California, Department of Transportation, *2000 Traffic Volumes on The California State Highway System)*. To the north, I-5 provides access to Interstate 80, northern portions of the City and County, Sacramento International Airport, other Sacramento Valley communities and the Pacific Northwest. To the south, I-5 provides access to many San Joaquin Valley and Southern California communities.

State Route 99 (SR-99) is also a north-south freeway that extends through the eastern portion of the Phase 2 Corridor study area. Access to this freeway within the corridor area is primarily via interchanges at Mack Road and CRB/Calvine Road. The average daily traffic volume on SR 99 south of Meadowview Road is about 116,000 vehicles per day (Source: State of California, Department of Transportation, *2000 Traffic Volumes on The California State Highway System)*. To the north, SR-99 provides access to U.S. Highway 50 and connects to the Capital City Freeway north of U.S. Highway 50. The Capital City Freeway provides access to northeastern portions of the City and County and to Interstate 80 extending into Placer County. To the south, State Route 99 provides access to southern portions of Sacramento County, as well as many San Joaquin Valley communities.

Sacramento County, as part of its Traffic Impact Analysis Guidelines, has established evaluation criteria for level of service (LOS) based upon facility type, daily traffic volumes, number of travel lanes, and access control. The criteria for freeways that provide full access control set the maximum daily traffic volume per lane at 20,000 for LOS E. Above this threshold, LOS F, or failure conditions, would typically result. A planning level LOS analysis of existing conditions was conducted for freeway segments in the study area based upon daily traffic count data, the number of mixed-flow traffic lanes and the daily capacity used by Sacramento County to evaluate its roadway system. Although segment-based LOS analysis is based upon daily traffic volumes, the resultant LOS is representative of peak period conditions.

LOS criteria for freeways are defined in Table 3.3-1. LOS “A” to “D” are considered as “good.” Freeway LOS were determined based on a segment’s calculated volume-to-capacity (V/C) ratio. A segments V/C ratio is the average daily traffic volume divided by its capacity assuming mixed flow lanes have a maximum daily capacity of 20,000 vehicles per lane, and high-occupancy vehicle (HOV) lanes have a maximum capacity of 5,278.

Existing LOS and average daily traffic volumes (ADT) on State Route 99 and Interstate 5 are summarized in Table 3.3-2. An estimate of the number of hours that a freeway segment operates at LOS “F” conditions during morning and afternoon peak commute periods is also provided (i.e. F2 for 2 hours of LOS “F”). As Table 3.3-2 shows, State Route 99 currently has recurring traffic congestion (LOS F) for one to three hours during both the morning and afternoon commute periods between Laguna Boulevard and Florin Road.

Table 3.3-1: Level of Service Criteria for Freeways		
LOS	**Description**	**Volume/Capacity Ratio**
A	Free-flow conditions with a high level of maneuverability.	0.00 to 0.35
B	Free-flow conditions but presence of other vehicles is noticeable. Minor disruptions easily absorbed.	0.35 to 0.54
C	Minor disruptions cause significant local deterioration.	0.54 to 0.77
D	Borders on unstable flow with ability to maneuver severely restricted due to congestion.	0.77 to 0.93 61 mph
E	Conditions at or near capacity. Disruptions cannot be dissipated and cause queues to form.	0.93 to 1.00
F	Forced or breakdown flow with queues forming at locations where demand exceeds capacity.	Greater than 1.00
Source: DKS Associates, January 2005. Based on *Sacramento County General Plan Update, Technical Appendix, February 1992.*		

Table 3.3-2: Existing (Year 2000) Levels of Service on Study Area Freeways						
Freeway	**Segment**		**ADT**	**Lanes Mixed-flow (HOV)**	**V/C[1]**	**LOS[1]**
	From	**To**				
I-5	Florin Road	Meadowview Road	90,000	6(0)	0.75	C
	Meadowview Road	Laguna Boulevard	75,000	4(0)	0.94	E
SR 99	Florin Road	Mack Road	163,000	4(2)	1.80	F3
	Mack Road	Cosumnes River Blvd/Calvine Road	116,000	4(2)	1.29	F2
	Cosumnes River Blvd/Calvine Road	Sheldon Road	96,000	4(2)	1.21	F2
	Sheldon Road	Laguna Boulevard	98,000	4(2)	1.08	F1
Note 1: Volume/Capacity ratio (V/C) and LOS reflects mixed-flow lanes.						
Source: DKS Associates, 2004.						

3.3.2.2 ARTERIALS

Table 3.3-3 summarizes existing daily traffic volumes on arterials in the South Sacramento Phase 2 Corridor study area. The volumes do not necessarily represent the most heavily traveled arterial segments in the area but characterize traffic levels on critical links.

The street system in South Sacramento is served by roadways that generally follow north–south or east-west alignments to form a grid pattern. Aside from freeways, arterial roadways are the most important part of this street system since they carry higher traffic volumes and longer distance trips than other roadways (i.e. collector and local roadways).

Table 3.3-3: Year 2000-2025 Change in Daily Traffic Volumes on Study Area Arterial Roadways

Roadway	Segment		Lanes		Average Weekday Traffic Volume		
			2000	2025	Year 2000	Year 2025 No-Action	Percent Increase
Cosumnes River Boulevard	SR 99	Bruceville Road	6	6	13,500	67,300	399%
	Bruceville Road	Center Parkway	4	4	13,700	31,300	128%
	Center Parkway	Franklin Boulevard	4	4	7,000	24,500	250%
	Franklin Boulevard	24th Street	0	4	NA	22,500	NA
	24th Street	I-5	0	6	NA	21,300	NA
Calvine Road	SR 99	Power Inn Road	6	6	47,400	88,300	86%
	Power Inn Road	Auberry Drive	4	4	35,400	62,100	75%
	Auberry Drive	Elk Grove-Florin Road	4	4	26,900	55,900	108%
Sheldon Road	Bruceville Road	SR99	6	6	13,900	35,600	156%
Mack Road	Center Parkway	Franklin Boulevard	4	4	25,500	27,900	9%
	Franklin Boulevard	24th Street	4	4	24,200	27,600	14%
Center Parkway	Mack Road	Cosumnes River Blvd	4	4	8,000	16,500	106%
	Cosumnes River Blvd.	Calvine Road	4	4	5,000	16,600	232%
	Calvine Road	Bruceville Road	2	2	9,300	15,800	70%
Franklin Boulevard	Mack Road	Cosumnes River Blvd	4	4	21,000	29,000	38%
	Cosumnes River Blvd	Calvine Road	4	4	15,500	24,000	55%
Power Inn Road	Stockton Boulevard	Calvine Road	4	4	19,100	39,700	108%
	Calvine Road	Old Calvine Road	4	4	14,700	39,100	166%
Auberry Drive	Spengler	Calvine Road	2	2	4,000	9,600	140%
	Calvine Road	Old Calvine Road	0	2	NA	3,400	NA
Bruceville Road	Cosumnes River Blvd	West Stockton Blvd	4	6	8,900	56,200	531%
	West Stockton Blvd	Cosumnes River College	4	6	8,900	50,900	472%
	Calvine Road	Sheldon Road	2	6	8,900	37,700	324%

Source: DKS Associates, 2004.

Important east-west arterial roadways within the corridor study area include Meadowview Road, Mack Road, CRB and Calvine Road. Meadowview Road is a four-lane arterial that extends from I-5 to Brookfield Drive where it becomes Mack Road. It carries about 25,000 daily vehicles near Brookfield Drive. Mack Road is a four-lane arterial that extends across SR 99 to Stockton Boulevard where it becomes Elsie Avenue. It carries about 25,000 daily vehicles near Franklin Boulevard.

CRB is currently a two lane arterial roadway that extends from Franklin Boulevard to Bruceville Road where it becomes Calvine Road. CRB will be widened from two lanes to four lanes west of the Bruceville Road intersection. Calvine Road extends eastward from Bruceville Road over SR-99 to Grant Line Road. Calvine Road is a 6 lane arterial between Bruceville Road and Power Inn Road, and a four-lane roadway east of Power Inn Road. One of the highest volumes on the study area arterials occurs on Calvine Road between SR 99 and Power Inn Road with 47,400 vehicles per day. CRB carries about 13,700 daily vehicles between Center Parkway and Bruceville Road.

Important north-south streets for corridor access include Franklin Boulevard, Center Parkway, and Bruceville Road. Franklin Boulevard is located between I-5 and SR-99 and extends south from Broadway near Downtown Sacramento to the San Joaquin County line where it becomes Thornton Road. Within the corridor study area it is a four-lane arterial roadway. Between Mack Road and CRB, Franklin Boulevard carries about 21,000 daily vehicles.

Center Parkway is located east of Franklin Boulevard and extends from the intersection of Bruceville Road and Sheldon Road to north of Mack Road. It carries about 6,000 daily vehicles north of Bruceville Road. Bruceville Road is located west of SR-99 and extends from Valley High Drive, north of CRB, to the southern end of Sacramento County. Within the corridor study area, it is a two-lane roadway. Bruceville Road carries about 9,000 daily vehicles south of CRB.

3.3.2.3 ARTERIAL INTERSECTION OPERATIONS

In an urban setting, roadway capacity of the local (non-freeway) roadway system is generally governed by the characteristics and capacity of intersections. Field reconnaissance was undertaken to ascertain the traffic control characteristics of each of the study area intersections. Available traffic volume data from the City of Sacramento was assembled for the AM and PM peak hours and supplemented with new counts conducted in May 2002. Counts at the major study area intersections were conducted during the AM and PM commuter periods (7:00 to 9:00 AM and 4:00 to 6:00 PM).

Determination of roadway operating conditions is based upon comparison of known or projected traffic volumes during peak hours to roadway capacity. "Levels of service" describe roadway-operating conditions. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs. Levels of service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. Levels of Service (LOS) "A" through "E" generally represent traffic volumes at less than roadway capacity, while LOS "F" represents over capacity and/or forced flow conditions. Table 3.3-4 presents general LOS definitions.

Table 3.3-4: LOS Criteria for Signalized Intersections

LOS	Control Delay Per Vehicle (seconds)	Description
A	< 10.0	Very low control delay. Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10.0 and < 20.0	Generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS "A," causing higher levels of average delay.
C	> 20.0 and < 35.0	These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	> 35.0 and < 55.0	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55.0 and < 80.0	These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	> 80.0	This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.

The City of Sacramento General Plan includes a goal of maintaining LOS "C" throughout the roadway network. Because of the constraints of existing development in the City, and because of other environmental concerns, this goal cannot always be met. Sacramento County and the City of Elk Grove have a LOS E standard for urban area roadways.

Intersection analyses were conducted using a methodology outlined in the Transportation Research Board's Special Report 209, Highway Capacity Manual, 2000. The methodology utilized is known as "operational analysis." This procedure calculates an average control delay per vehicle at an intersection, and assigns a LOS designation based upon the delay. The method also provides a calculation of the volume-to-capacity (v/c) ratio of the critical movements at signalized intersections. Table 3.3-4 summarizes LOS criteria for signalized intersections.

Peak hour traffic operations at 15 intersections in the South Sacramento Phase 2 Corridor study area were evaluated in terms of LOS. Table 3.3-5 summarizes the existing AM and PM peak hour operating conditions at the study area intersections. All of the intersections currently operate at LOS C or better, which meets the LOS standards for the City of Sacramento, Sacramento County and the

City of Elk Grove. The intersections chosen for analysis were selected in coordination with the above jurisdictions as the ones most likely to be affected by traffic to stations or by LRT trains delaying traffic.

Table 3.3-5: Existing (Year 2002) Intersection Levels of Service

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay	LOS	Delay
Franklin Boulevard/Mack Rd	C	27.0	C	32.2
Franklin Blvd PNR/Cosumnes River Blvd	-	-	-	-
Franklin Blvd/Cosumnes River Blvd	C	27.6	B	20.0
Center Pkwy/Cosumnes River Blvd	C	29.9	C	27.6
Bruceville Rd/Cosumnes River Blvd	C	31.0	C	34.9
SR 99 SB Ramps/Cosumnes River Blvd	B	17.9	C	20.6
SR 99 NB Ramps/Cosumnes River Blvd	B	11.5	B	10.8
Power Inn Rd/Calvine Rd.	C	21.0	C	34.8
Auberry Dr/Calvine Rd	A	7.8	A	6.9
Bruceville Rd/W Stockton Blvd	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Bruceville Rd/CRC	A	3.8	C	18.4
Bruceville Rd/Old Calvine Rd.	D[2]	31.2[2]	F[2]	>50.0[2]
Bruceville Rd/Sheldon Rd	C	25.6	C	29.0
24th Street/Cosumnes River Blvd	n/a[1]	n/a[1]	n/a[1]	n/a[1]
Detroit Blvd/Cosumnes River Blvd	n/a[1]	n/a[1]	n/a[1]	n/a[1]

[1] Future intersection
[2] Stop sign controlled intersection (from College Marketplace study).
Source: DKS Associates, 2002.

3.3.3 Criteria for Assessing Project-Specific Impacts on Vehicular Traffic

The South Sacramento Corridor includes areas in three jurisdictions: the City of Sacramento, the County of Sacramento, and the City of Elk Grove. These jurisdictions have different standards for evaluating the impact of projects on intersections.

In the City of Sacramento, projects are considered to have impacts on intersections if one of the following is true:

- Traffic generated by a project degrades AM or PM peak period LOS from A, B or C (without project) to D, E or F (with project); or
- LOS (without project) is D, E or F and project generated traffic increases the AM or PM peak period delay by five seconds or more.

In Sacramento County and Elk Grove, projects are considered to have impacts on intersections if one of the following is true:

- Traffic generated by a project degrades AM or PM peak period LOS from A, B, C, D, or E (without project) to F (with project); or

- LOS (without project) is F and project generated traffic increases the AM or PM peak period delay by five seconds or more.

3.3.4 No-Action Alternative Long-Term Traffic Impacts

Substantial growth is projected in the Elk Grove and South Sacramento County areas over the next 20 years. To accommodate this growth, several major roadway improvements are planned including widening Bruceville Road from two to six lanes south of CRB, widening CRB from two to four lanes west of Bruceville Road and extending CRB from Franklin Boulevard to I-5 and Freeport Boulevard.

Traffic impacts under the No-Action Alternative would consist of freeway, arterial, and intersection impacts. Section 2.2 lists major roadway improvements in the MTP that are intended to enhance operation of the existing network and to provide capacity for continuing growth in travel demand. These improvements are assumed to be part of the Year 2025 roadway network for the No-Action Alternative. No other improvements are programmed that would substantially affect future operations of transportation systems in the project corridor.

The No-Action future traffic volume forecasts include the College Square Development at the southeast corner of Consumes River College and Bruceville Road, the project roadway improvements and the mitigation measures.

3.3.4.1 NO-ACTION ALTERNATIVE FREEWAY AND ARTERIAL IMPACTS

Even with programmed roadway improvements, future traffic conditions in the South Sacramento Phase 2 Corridor and much of metropolitan Sacramento are expected to deteriorate steadily.

Table 3.3-6 shows substantial increases in traffic volumes on both SR 99 and I-5 between 2002 and 2025. It also shows a LOS analysis for these freeways based on daily capacities. This general analysis shows that much of SR 99 currently operates at LOS E or F conditions.

Daily traffic volumes on SR 99 north of Mack Road are expected to increase by about 25 percent by 2025, while between Calvine Road and Mack Road a 35 percent increase is expected. During the 1990's, SR 99 was widened to accommodate HOV lanes from Elk Grove Boulevard north to the Sacramento Central City. However, no additional improvements are planned for this section of SR 99 over the next 20 years. The projected increase in volumes will cause traffic congestion on SR 99 to expand to more hours of the day and extend southward to Elk Grove. This freeway congestion will cause traffic diversions to numerous parallel arterial roadways in the corridor and thereby add to the anticipated congestion levels along those roadways.

Average daily traffic volumes on study arterial roadways are shown on Table 3.3-3 for both existing year 2002 conditions, and the year 2025 No-Action Alternative. The estimated traffic volume increases on other roadways in the study area vary greatly, with daily volumes on many roadways increasing by more than 100 percent by 2025 under the No-Action Alternative.

Table 3.3-6: Existing and Year 2025 Freeway Levels of Service - No-Action Alternative

Freeway	Segment		Existing				2025 No-Action			
	From	To	ADT	Lanes Mixed Flow (HOV)	V/C	LOS	ADT	Lanes Mixed Flow (HOV)	V/C	LOS
I-5	Florin Road	Meadowview Road	90,000	6(0)	0.75	C	145,900	6(2)	1.01	F1
	Meadowview Road	Laguna Boulevard	75,000	6(0)	0.63	C	132,400	6(0)	1.10	F1
SR 99	Florin Road	Mack Road	163,000	4(2)	1.69	F3	203,400	4(2)	1.91	F3
	Mack Road	Cosumnes River Blvd /Calvine Rd	116,000	4(2)	1.20	F2	155,700	4(2)	1.46	F3
	Cosumnes River Blvd/ Calvine Rd	Sheldon Road	96,000	4(2)	1.00	F1	116,900	4(2)	1.13	F1
	Sheldon Road	Laguna Boulevard	98,000	4(2)	1.02	F1	125,000	4(2)	1.20	F2

Notes:
F1 indicates one hour of LOS F conditions in the peak travel direction during the morning and evening peak commute period while F2 and F3 indicate two and three hours of LOS F conditions respectively.
ADT = Average daily traffic volumes.
V/C = Volume/capacity ratio.
Source: DKS Associates, 2002.

3.3.4.2 NO-ACTION ALTERNATIVE INTERSECTION IMPACTS

Table 3.3-7 compares existing year 2002 intersection operating conditions to future year 2025 conditions under the No-Action Alternative during the AM and PM peak hours. The future widening of Bruceville Road and CRB, as well as the other future roadway improvements detailed in Table 2.2-1, will help accommodate projected growth. While most study intersections will operate at LOS C or better in 2025, some would degrade to LOS D or E.

During the AM peak hour, intersection operations are expected to degrade between 2002 and 2025 from LOS C or better to LOS D at three intersections and to LOS E at one intersection. During the PM peak hour, intersection operations are expected to degrade between 2002 and 2025 from LOS C or better to LOS D at three intersections, to LOS E at two intersections, and to LOS F at one intersection. The intersections that would operate at LOS D or worse conditions in 2025, except three in the AM peak hour and two in the PM peak hour, are located in the City of Sacramento, which has a LOS C standard. The other intersections are in Sacramento County and the City of Elk Grove, both of which have a LOS E standard.

The MTP includes CRB as a roadway that will be widened from two to four lanes between Bruceville Road and Franklin Boulevard by 2025. CRB will also be extended from its current terminus at Franklin Boulevard to I-5. The extended CRB would be four lanes between Franklin Boulevard and 24th Street and six lanes between 24th Street and I-5. The lane geometries at the intersection of CRB with Franklin Boulevard and with Bruceville Road have been evaluated in recent EIRs and were thus assumed for this analysis.

The specific intersection improvements that will be constructed in connection with the widening of CRB at the Center Parkway intersection are not certain at this time. If only the eastbound and westbound approaches were improved with the future widening, this intersection would operate at LOS E during the AM peak hour and LOS D during the PM peak hour in 2025 under the No-Action Alternative.

The LOS values shown in Table 3.3-7 assume a second northbound left turn lane would be added to this intersection with construction of the four-lane CRB project. This level of improvement to the intersection would be reasonable to assume. Both the eastbound and westbound approaches will be improved with the widening project, and the right-of-way appears to presently exist to allow for the addition of a second northbound left turn lane. With this geometry, the AM peak hour Year 2025 No-Action Alternative LOS would improve from E to C, and the PM peak hour LOS would remain D.

LOS C could be obtained during both the AM and PM peak hours for the Center Parkway and CRB intersection if the widening of CRB from two to four lanes included a second left turn lane on the westbound, southbound and northbound approaches. Improving the southbound approach would be more difficult because of the existing bridge over the drainage canal that would require widening to accommodate two left turn lanes. Therefore, this improvement was not assumed under the No-Action Alternative.

Table 3.3-7: Year 2025 Intersection Levels of Service - No-Action Alternative

Intersection	AM Peak Hour				PM Peak Hour			
	2002		2025 No-Action		2002		2025 No-Action	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Franklin Blvd/Mack Rd	C	27.0	C	26.1	C	32.2	**D**	**37.0**
Franklin Blvd PNR/Cosumnes River Blvd	-	-	-	-	-	-	-	-
Franklin Blvd/Cosumnes River Blvd	C	27.6	C	29.3	B	20.0	C	22.9
Center Pkwy/Cosumnes River Blvd	C	29.9	C	30.3	C	27.6	**D**	**36.4**
Bruceville Rd/Cosumnes River Blvd	C	31.0	**E**	**66.2**	C	34.9	**F**	**143.3**
SR 99 SB Ramps/Cosumnes River Blvd	B	17.9	C	23.0	C	20.6	**D**	**48.9**
SR 99 NB Ramps/Cosumnes River Blvd	B	11.5	B	11.7	B	10.8	B	15.0
Power Inn Rd/Calvine Rd.	C	21.0	**D**	**52.5**	C	34.8	**E**	**77.2**
Auberry Dr/Calvine Rd	A	7.8	**D**	**37.8**	A	6.9	C	30.9
Bruceville Rd/W Stockton Blvd	-	-	B	15.2	-	-	B	17.6
Bruceville Rd/CRC-Cotton PNR	A	3.8	C	24.8	C	18.4	C	26.4
Bruceville Rd/Old Calvine Rd.	D	31.2	C	32.5	F	>50.0	C	15.5
Bruceville Rd/Sheldon Rd	C	25.6	**D**	**49.8**	C	29.0	**E**	**63.9**
24th Street/Cosumnes River Blvd	-	-	A	7.3	-	-	7.9	A
Detroit Blvd/Cosumnes River Blvd	-	-	A	1.1	-	-	1.4	A

Notes: "-" future intersection
Source: DKS Associates, 2004.

3.3.5 TSM Alternative Traffic Impacts

Traffic impacts under the TSM Alternative would consist of freeway, arterial, and intersection impacts.

3.3.5.1 TSM Alternative Freeway and Arterial Impacts

Proposed transit improvements would encourage shifts from auto to transit and are projected to result in some lessening in traffic on corridor roadways. The projected shift would not be sufficient to reduce roadway congestion substantially. Table 3.3-8 shows that traffic volumes and levels of service on both SR 99 and I-5 in 2025 would be almost identical to the No-Action Alternative. As under the No-Action Alternative, the duration of LOS F conditions along SR 99 is expected to lengthen by 2025 under the TSM Alternative.

Table 3.3-9 compares the estimated daily traffic volumes on study area arterial roadways under each of the project alternatives. It shows that the TSM Alternative would reduce traffic volumes on some roadways in the study area and increase volumes on others compared to the No-Action Alternative, but such changes would be only marginal.

Traffic volumes would change between the No-Action Alternative and the TSM Alternative for two reasons. First, additional bus service would attract some additional transit riders compared to the No-Action Alternative and thereby reduce traffic volumes on some roadways. Second, direct express bus service to Downtown Sacramento via SR-99 and I-5 would encourage some people to shift their travel routes and drive to park-and-ride lots at one of the new bus centers. The traffic coming to and from these lots would result in traffic increases on some roadways, or in some additional turn movements at some intersections.

3.3.5.2 TSM Alternative Intersection Impacts

Tables 3.3-10 and 3.3-11 show intersection LOS under the No Action, TSM, and LPAP2 alternatives. The impacts on intersection LOS are judged by the criteria for the appropriate jurisdiction (described in Section3.3.3).

The TSM Alternative is projected to adversely affect one City of Sacramento intersection in 2025:

Bruceville Road and Cosumnes River College – During the PM peak hour, the intersection operating condition deteriorates from LOS C to LOS D, and the average delay increases from 26.4 to 35.9 seconds.

The TSM Alternative is not projected to adversely affect any study intersections during the AM peak hour.

Table 3.3-8: Year 2025 Levels of Service on Study Area Freeways - TSM and LPAP2 Alternatives

Freeway	Segment		TSM Alternative				LPAP2			
	From	To	ADT	Lanes Mixed Flow (HOV)	V/C	LOS	ADT	Lanes Mixed Flow (HOV)	V/C	LOS
I-5	Florin Road	Meadowview Road	145,300	6(2)	1.00	F1	145,600	6(2)	1.00	F1
	Meadowview Road	Laguna Boulevard	131,800	6(0)	1.10	F1	131,600	6(0)	1.10	F1
SR 99	Florin Road	Mack Road	202,000	4(2)	1.89	F3	202,000	4(2)	1.89	F3
	Mack Road	Cosumnes River Blvd/Calvine Rd	154,900	4(2)	1.45	F3	153,200	4(2)	1.44	F3
	Cosumnes River Blvd/Calvine Rd	Sheldon Road	116,800	4(2)	1.12	F1	116,800	4(2)	1.12	F1
	Sheldon Road	Laguna Boulevard	124,800	4(2)	1.20	F2	125,200	4(2)	1.21	F2

ADT = Average daily traffic volumes.
V/C = Volume/capacity ratio.

Source: DKS Associates, 2002.

Table 3.3-9: Daily Traffic Volumes on Study Area Arterial Roadways – TSM and LPAP2 Alternatives

Roadway	Segment		Lanes		Average Weekday Traffic Volume			
					Year 2000	Year 2025		
			2000	2025		No-Action	TSM	LPAP2
Cosumnes River Blvd	SR 99	Bruceville Road	6	6	13,500	67,300	68,500	68,400
	Bruceville Road	Center Parkway	2	4	13,700	31,300	31,400	31,000
	Center Parkway	Franklin Boulevard	2	4	7,000	24,500	24,300	24,200
	Franklin Boulevard	24th Street	0	4	0	22,500	22,300	22,300
	24th Street	I-5	0	6	0	21,300	21,100	21,200
Calvine Road	SR 99	Power Inn Road	6	6	47,400	88,300	88,900	89,100
	Power Inn Road	Auberry Drive	4	4	35,400	62,100	62,100	62,100
	Auberry Drive	Elk Grove-Florin Rd	4	4	26,900	55,900	55,900	55,900
Sheldon Road	Bruceville Road	SR99	6	6	13,900	35,600	36,100	36,300
Mack Road	Center Parkway	Franklin Boulevard	4	4	25,500	27,900	28,100	27,200
	Franklin Boulevard	24th Street	4	4	24,200	27,600	27,400	27,400
Center Parkway	Mack Road	Cosumnes River Blvd	4	4	8,000	16,500	16,800	16,400
	Cosumnes River Blvd.	Calvine Road	4	4	5,000	16,600	16,400	16,400
	Calvine Road	Bruceville	2	2	9,300	15,800	16,000	15,800
Franklin Boulevard	Mack Road	Cosumnes River Blvd	4	4	21,000	29,000	28,500	28,300
	Cosumnes River Blvd	Calvine Road	4	4	15,500	24,000	23,900	23,800
Power Inn Road	Stockton Boulevard	Calvine Road	4	4	19,100	39,700	39,800	40,100
	Calvine Road	Old Calvine Road	4	4	14,700	39,100	38,900	39,100
Auberry Drive	Spengler	Calvine Road	2	2	4,000	9,600	9,900	9,800
	Calvine Road	Old Calvine Road	0	2	0	3,400	3,600	3,500
Bruceville Road	Cosumnes River Blvd	West Stockton Blvd	4	6	8,900	56,200	57,200	57,900
	West Stockton Blvd	Cosumnes River College	2	6	8,900	50,900	51,400	52,600

Source: DKS Associates, 2004.

Table 3.3-10: Year 2025 Intersection LOS Impacts - TSM and LPAP2 Alternatives - AM Peak Hour

Intersection	No-Action		TSM		LPAP2	
	LOS	Delay	LOS	Delay	LOS	Delay
Franklin Boulevard/Mack Rd	C	26.1	C	26.1	C	27.1
Franklin Blvd PNR/Cosumnes River Blvd	-	-	A	1.0	A	2.2
Franklin Blvd/Cosumnes River Blvd	C	29.3	C	29.2	C	34.0
Center Pkwy/Cosumnes River Blvd	C	30.3	C	29.4	**D**	**35.3**
Bruceville Rd/Cosumnes River Blvd	**E**	**66.2**	**E**	**71.1**	**E**	**72.6**
SR 99 SB Ramps/Cosumnes River Blvd	C	23.0	C	22.7	C	22.5
SR 99 NB Ramps/Cosumnes River Blvd	B	11.7	B	12.1	B	12.3
Power Inn Rd/Calvine Rd	D	52.5	D	52.0	E[1]	59.7
Auberry Dr/Calvine Rd	D	37.8	D	36.1	D	39.6
Bruceville Rd/W Stockton Blvd	B	15.2	B	16.6	B	14.9
Bruceville Rd/CRC-Cotton PNR	C	24.8	C	30.9	C	34.8
Bruceville Rd/Old Calvine Rd.	C	32.5	C	33.1	**E**	**56.6**
Bruceville Rd/Sheldon Rd	**D**	**49.8**	**D**	**49.2**	**D**	**48.5**
24th Street/Cosumnes River Blvd	A	7.3	A	7.4	A	7.4
Detroit Blvd/Cosumnes River Blvd	A	1.1	A	1.1	A	1.2
CRC P&R/Cosumnes River Blvd	-	-	A	2.3	-	-
Old Calvine Rd/New CRC Access (TWSC)[2]	-	-	-	-	C(F)	17.5 (338.3)

Shaded cells denote levels of service impacts, as defined in Subsection 3.3.3, Criteria for Assessing Project-Specific Impacts on Vehicular Traffic
[1] The Power Inn Rd/Calvine Rd Intersection is located in Sacramento County and hence LOS E is not considered as an impact. [2.] TWSC = Two-Way Stop Control – 2000 HCM Methodology – average control delay (worst-case approach delay)Source: DKS Associates, 2004.

Table 3.3-11: Year 2025 Intersection LOS Impacts - TSM and LPAP2 Alternatives - PM Peak Hour

Intersection	No-Action		TSM		LPAP2	
	LOS	Delay	LOS	Delay	LOS	Delay
Franklin Boulevard/Mack Rd	D	37.0	D	39.8	C	28.4
Franklin Blvd PNR/Cosumnes River Blvd	-	-	A	1.8	A	5.1
Franklin Blvd/Cosumnes River Blvd	C	22.9	C	22.3	C	30.8
Center Pkwy/Cosumnes River Blvd	D	36.4	C	29.8	D	39.9
Bruceville Rd/Cosumnes River Blvd	**F**	**143.3**	**F**	**90.1**	**F**	**84.8**
SR 99 SB Ramps/Cosumnes River Blvd	**D**	**48.9**	**D**	**50.8**	**D**	**46.5**
SR 99 NB Ramps/Cosumnes River Blvd	B	15.0	B	14.1	B	14.6
Power Inn Rd/Calvine Rd	E	77.2	D	52.9	E	64.3
Auberry Dr/Calvine Rd	C	30.9	C	31.8	C	29.5
Bruceville Rd/W Stockton Blvd	B	17.6	B	15.1	B	16.0
Bruceville Rd/CRC-Cotton PNR	C	26.4	**D**	**35.9**	**D**	**35.2**
Bruceville Rd/Old Calvine Rd.	C	15.5	B	19.6	**D**	**37.8**
Bruceville Rd/Sheldon Rd	**E**	**63.9**	**E**	**66.4**	**E**	**67.7**
24th Street/Cosumnes River Blvd	A	7.9	A	8.3	A	8.3
Detroit Blvd/Cosumnes River Blvd	A	1.4	A	1.4	A	1.4
CRC P&R/Cosumnes River Blvd	-	-	A	2.6	-	-
Old Calvine Rd/New CRC Access[1]	-	-	-	-	**D (F)**	**33.5 (229)**

Shaded cells denote LOS impacts, as defined in Subsection 3.3.3, Criteria for Assessing Project-Specific Impacts on Vehicular Traffic

Note: 1. TWSC = Two-Way Stop Control – 2000 HCM Methodology – average control delay (worst-case approach delay)Source: DKS Associates, 2004.

3.3.6 LPAP2 Long-Term Traffic Impacts[13]

Traffic impacts under the LPAP2 would consist of freeway, arterial, and intersection impacts.

3.3.6.1 LPAP2 Freeway and Arterial Impacts

Table 3.3-8 shows traffic volumes and levels of service on both SR 99 and I-5 in 2025 under the LPAP2. Table 3.3-9 compares daily traffic volumes on arterial roadways under each of the project alternatives. These Tables show that the LPAP2 would reduce traffic volumes on some roadways in the study area and increase volumes on others compared to the No-Action Alternative, but only marginally.

Traffic volumes would change between the No-Action Alternative and the LPAP2 for two reasons. First, the extension of light rail service would attract some additional transit riders compared to the No-Action Alternative and thereby reduce traffic volumes on some roadways. Second, some people would shift their travel routes and drive to park-and-ride lots at one of the new LRT stations. The traffic coming to and from these new stations would result in traffic increases on some roadways, or in some additional turn movements at some intersections.

Another impact on the LOS at some intersections in the corridor would be the increase in delay due to either new at-grade rail crossings, or increased train travel at existing at-grade crossings. The traffic analysis of the LPAP2 estimated the increase in delay at each intersection that would be adjacent to the at-grade crossing due to the loss in effective "green time" when the tracks are cleared prior to a train arrival. This loss in green time lowers the effective capacity of the intersection, and increases delay. The increase in delay could be enough at some intersections to change their LOS. Section 3.3.7 discusses these potential impacts.

Tables 3.3-10 and 3.3-11 show the levels of service under the LPAP2, and allow comparisons to the other project alternatives. The impacts on intersection levels of service from the LPAP2 are discussed below. The intersections are judged by the criteria for the appropriate jurisdiction.

3.3.6.2 LPAP2 Intersection Impacts

The LPAP2 locates a 2,000 space parking structure in the southeast corner of the campus and includes an extension of an internal CRC roadway to a new driveway on Old Calvine Road, about 500 feet west of Bruceville Road. The LPAP2 is projected to have the following impacts on intersections in the City of Sacramento in 2025:

- Center Parkway and CRB – During the AM peak hour, the intersection operating condition deteriorates from LOS C to LOS D, and the average delay increases from 30.3 to 35.3 seconds.
- Bruceville Road and CRB – During the AM peak hour, the intersection operating condition deteriorates by more than 5 seconds of delay, and the average delay increases from 66.2 to 72.6 seconds.
- Bruceville Road and Consumes River College – During the PM peak hour the intersection operating condition deteriorates from LOS C to D and average delay increases from 26.4 to 35.2.
- Bruceville Road and Old Calvine Road – During the AM peak hour the intersection operating condition deteriorates from LOS C to E and average delay increases from 32.5 to 56.6. During the PM peak

[13] All traffic impacts, except the construction phase impacts are termed long-term traffic impacts.

hour the intersection operating condition deteriorates from LOS C to D and average delay increases from 15.5 to 37.8.

- Cosumnes River College New South Access and Old Calvine Road – During the PM peak hour the proposed intersection would operate at an overall LOS of D, which is below the City of Sacramento's goal of LOS C.,

The LPAP2 is not projected to have impacts on any intersections in Sacramento County or the City of Elk Grove in 2025.

3.3.7 Delays at Grade Crossings

Under the LPAP2, year 2025 LRT service to Cosumnes River College would operate on directional headways averaging 10 minutes during weekday peak periods, 15 minutes weekday midday and early evening, and 30 minutes weekday evenings after 7:00 PM. At-grade crossings for the LPAP2 would include grade crossing protection consisting of flashers, alarms and crossing gates.

Vehicular traffic on cross streets would be delayed when crossing protection equipment is activated and LRT trains occupy the crossing. Therefore, an intersection queuing analysis and an intersection efficiency analysis were completed to more completely evaluate the Project's traffic impacts.

Queuing analyses were completed for the four potential at-grade LRT crossings considered as part of the LRT project: the mid-block crossings of Meadowview Road and CRB, and the intersection crossings at CRB/Franklin Boulevard and CRB/Center Parkway. Queuing analyses were conducted to estimate 95th percentile queue lengths for the No-Action, TSM, and LPAP2 alternatives. Tables 3.3-12 and 3.3-13 present the results of the queuing analysis. As shown in the Tables, long queues are not anticipated under the LPAP2 at any of the LRT crossing locations.

Intersection efficiency analyses were completed for intersections affected by the Project. The addition of light rail operations to signalized intersections decreases the vehicular capacity available to non-rail vehicles. The interruption of the standard sequence of traffic signal phasing, as well as the necessary clearance intervals to ensure that there are no vehicles on the tracks, result in less "green" time for the motoring public. Table 3.3-14 summarizes the results of an intersection efficiency analysis completed to help assess the impact of this loss in capacity based upon the anticipated LRT headways. As shown in the table, the three affected intersections would experience a small decrease in efficiency of from approximately two to six percent.

3.3.8 Circulation Impacts in Station Areas

3.3.8.1 NO-ACTION ALTERNATIVE

The growth of traffic in the vicinity of the Meadowview Station, the Phase 1 end-of-the-line station, would cause increasing congestion over the study period. LOS at the intersection of Mack Road and Franklin Boulevard is projected to decrease from LOS C to LOS D between 2002 and 2025 under the No-Action Alternative.

Table 3.3-12: Year 2025 Design Queue Lengths at Grade Crossings (95th percentile queue, per lane in vehicles) - AM Peak Hour

Location	Alternative											
	No-Action				TSM				LPAP2			
	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB
Intersection Crossings												
Franklin Blvd/Cosumnes River Blvd	14	9	5	14	14	9	5	11	18	12	7	18
Center Pkwy/ Cosumnes River Blvd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	12	17
Westbound and Eastbound Cosumnes River Blvd between Center Pkwy and Bruceville Rd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	34	21
Mid-block Crossings												
UPRR/Meadowview Rd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7	8

1. Worst case queue for each approach is listed, based upon unmitigated intersection geometrics.
Source: DKS Associates, 2004.

Table 3.3-13: Year 2025 Design Queue Lengths at Grade Crossings (95th percentile queue, per lane in vehicles) - PM Peak Hour

Location	Alternative											
	No-Action				TSM				LPAP2			
	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB
Intersection Crossings												
Franklin/Cosumnes River Blvd	7	9	9	6	7	9	9	6	10	13	13	8
Center Pkwy/ Cosumnes River Blvd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16	13
Westbound and Eastbound Cosumnes River Blvd between Center Pkwy and Bruceville Rd	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10	35
Mid-block Crossings												
UPRR/Meadowview Road	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10	8

1. Worst case queue for each approach is listed, based upon unmitigated intersection geometrics.

Source: DKS Associates, 2004.

Table 3.3-14: Year 2025 Intersection Efficiency Changes (percent change in seconds of green time per hour)

Intersection	Alternative					
	No Action		TSM		LPAP2	
	AM	PM	AM	PM	AM	PM
Franklin Blvd/Mack Rd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Franklin PNR/Cosumnes River Blvd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Franklin/Cosumnes River Blvd	n/a	n/a	0.0%	0.0%	-5.6%	-5.8%
Center Pkwy/Cosumnes River Blvd	n/a	n/a	0.0%	0.0%	-2.1%	-5.9%
Bruceville/Cosumnes River Blvd-Calvine Rd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
SR 99 SB Ramps/Cosumnes River Blvd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
SR 99 NB Ramps/Cosumnes River Blvd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Power Inn Rd/Calvine Rd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Auberry/Calvine Rd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Bruceville Rd/West Stockton Blvd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Bruceville Rd/CRC-Cotton PNR	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Bruceville Rd/Old Calvine Rd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Bruceville Rd/ Sheldon Rd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
24th Street/Cosumnes River Blvd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
Detroit Blvd/Cosumnes River Blvd	n/a	n/a	0.0%	0.0%	0.0%	0.0%
CRC North P&R/Cosumnes River Blvd	n/a	n/a	n/a	n/a	n/a	n/a

Source: DKS Associates, 2002

3.3.8.2 TSM ALTERNATIVE

The proposed transit center at CRC would be a bus transfer point with large (1,400 space) park-and-ride lot. The park-and-ride facilities would be expected to affect local circulation due to increased auto traffic on access roadways. These circulation impacts were considered in the traffic analysis presented in Section 3.3.5 above, and potential impacts would be minimized by implementing intersection and related improvements at each location.

3.3.8.3 LPAP2

Four new stations are included in the LRT extension to the Bruceville Road entrance to Cosumnes River College, of which three include park-and-ride lots. The four new stations are as follows:

- Morrison Creek Station (bus and auto drop-off, parking lot with 50 spaces)
- Franklin Boulevard (bus and auto drop-off, parking lot with up to 650 spaces)
- Center Parkway (bus and auto drop-off on street)
- CRC (bus and auto drop-off, parking lot with up to 2,000 spaces)

The vehicle circulation impacts in station areas were included in the traffic analysis and mitigation measures were identified to address the overall traffic impacts (as described in Section 3.3.5 above). The project is expected to change circulation patterns, but with the mitigation measures there would be no adverse impact. In all cases vehicular and pedestrian access to surrounding land uses would be maintained.

3.3.8.4 LPAP2 DESIGN OPTIONS

There are two parking design options at the Cosumnes River College Station. The first design option under consideration for the CRC Station area would move the parking garage to north of the main entrance off of Bruceville Road, immediately to the west of the LRT station platform. The second option under consideration would consist of surface parking. The following traffic impacts occur with each design option.

The design option with the parking structure located north of the Bruceville college entrance, immediately to the west of the LRT station platform, is projected to have the following impacts on intersections in the City of Sacramento in 2025; as illustrated in Tables 3.3-15 and 3.3-16.

- Center Parkway and CRB – During the AM peak hour, the intersection operating condition deteriorates from LOS C to LOS D, and the average delay increases from 30.3 to 35.3 seconds.
- Bruceville Road and CRB – During the AM peak hour, the intersection operating condition deteriorates by more than 5 seconds of delay, and the average delay increases from 66.2 to 72.6 seconds.
- Bruceville Road and Consumes River College – During the AM and PM peak hours, the intersection operating condition deteriorates from LOS C to LOS E. The average AM delay increases from 24.8 to 59.4 seconds. The average PM delay increases from 26.4 to 61.8 seconds.

Three intersections are projected to require improvements based upon projected conditions in 2025 for the design option with the parking structure located north of the Bruceville college entrance, immediately to the west of the LRT station platform. As shown in Tables 3.6-15 and 3.6-16, the intersections of Center Parkway/CRB, Bruceville Road/CRB and Bruceville Road/Consumes River College east entrance would exceed the City of Sacramento thresholds for project impacts during the AM and PM peak hour.

Table 3.3-15: Year 2025 Intersection LOS Impacts - LPAP2 and Design Option Alternatives - AM Peak Hour

Intersection	No-Action		Design Option – Surface Parking		Design Option – Garage north of entrance		LPAP2	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Franklin Boulevard/Mack Rd	C	26.1	C	27.1	C	27.1	C	27.1
Franklin Blvd PNR/Cosumnes River Blvd	-	-	A	2.2	A	2.2	A	2.2
Franklin Blvd/Cosumnes River Blvd	C	29.3	C	34.0	C	34.0	C	34.0
Center Pkwy/Cosumnes River Blvd	C	30.3	**D**	**35.3**	**D**	**35.3**	**D**	**35.3**
Bruceville Rd/Cosumnes River Blvd	**E**	**66.2**	**E**	**71.0**	**E**	**72.6**	**E**	**72.6**
SR 99 SB Ramps/Cosumnes River Blvd	C	23.0	C	22.7	C	22.5	C	22.5
SR 99 NB Ramps/Cosumnes River Blvd	B	11.7	B	11.9	B	12.3	B	12.3
Power Inn Rd/Calvine Rd	D	52.5	E[1]	59.7	E[1]	59.7	E[1]	59.7
Auberry Dr/Calvine Rd	D	37.8	D	39.6	D	39.6	D	39.6
Bruceville Rd/W Stockton Blvd	B	15.2	B	16.0	B	14.9	B	14.9
Bruceville Rd/CRC-Cotton PNR	C	24.8	**D**	**36.1**	**E**	**59.4**	C	34.8
Bruceville Rd/Old Calvine Rd.	C	32.5	C	34.1	C	32.7	**E**	**56.6**
Bruceville Rd/Sheldon Rd	**D**	**49.8**	**D**	**45.7**	**D**	**48.5**	**D**	**48.5**
24th Street/Cosumnes River Blvd	A	7.3	A	7.4	A	7.4	A	7.4
Detroit Blvd/Cosumnes River Blvd	A	1.1	A	1.2	A	1.2	A	1.2
CRC P&R/Cosumnes River Blvd	-	-	B	19.4	-	-	-	-
Old Calvine Rd/New CRC Access (TWSC)[1]	-	-	-	-	-	-	C (F)	17.5 (338.3)

Shaded cells denote LOS impacts, as defined in Subsection 3.3.3, Criteria for Assessing Project-Specific Impacts on Vehicular Traffic
Note: 1. TWSC = Two-Way Stop Control – 2000 HCM Methodology – average control delay (worst-case approach delay)
Source: DKS Associates, 2004.

Table 3.3-16: Year 2025 Intersection LOS Impacts - LPAP2 and Design Option Alternatives - PM Peak Hour

Intersection	No-Action		Design Option – Surface Parking		Design Option – Garage north of entrance		LPAP2	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Franklin Boulevard/Mack Rd	D	37.0	D	39.8	C	28.4	C	28.4
Franklin Blvd PNR/Cosumnes River Blvd	-	-	A	1.8	A	5.1	A	5.1
Franklin Blvd/Cosumnes River Blvd	C	22.9	C	22.3	C	30.8	C	30.8
Center Pkwy/Cosumnes River Blvd	D	36.4	C	29.8	D	39.9	D	39.9
Bruceville Rd/Cosumnes River Blvd	**F**	**143.3**	**F**	**109.6**	**F**	**84.8**	**F**	**84.8**
SR 99 SB Ramps/Cosumnes River Blvd	**D**	**48.9**	**D**	**51.9**	**D**	**46.5**	**D**	**46.5**
SR 99 NB Ramps/Cosumnes River Blvd	B	15.0	B	15.0	B	14.6	B	14.6
Power Inn Rd/Calvine Rd	E	77.2	D	52.9	E	64.3	E	64.3
Auberry Dr/Calvine Rd	C	30.9	C	31.8	C	29.5	C	29.5
Bruceville Rd/W Stockton Blvd	B	17.6	B	15.7	B	16.0	B	16.0
Bruceville Rd/CRC-Cotton PNR	C	26.4	**D**	**37.6**	**E**	**61.8**	**D**	**35.2**
Bruceville Rd/Old Calvine Rd.	C	15.5	C	22.3	B	18.6	**D**	**37.8**
Bruceville Rd/Sheldon Rd	**E**	**63.9**	**E**	**64.7**	**E**	**67.7**	**E**	**67.7**
24th Street/Cosumnes River Blvd	A	7.9	A	8.3	A	8.3	A	8.3
Detroit Blvd/Cosumnes River Blvd	A	1.4	A	1.4	A	1.4	A	1.4
CRC P&R/Cosumnes River Blvd	-	-	B	13.0	-	-	-	-
Old Calvine Rd/New CRC Access[1]	-	-	-	-	-	-	**D (F)**	**33.5 (229)**

Shaded cells denote LOS impacts, as defined in Subsection 3.3.3, Criteria for Assessing Project-Specific Impacts on Vehicular Traffic
Note: 1. TWSC = Two-Way Stop Control – 2000 HCM Methodology – average control delay (worst-case approach delay)
Source: DKS Associates, 2004.

The design option with surface parking is projected to have the following impacts on intersections in the City of Sacramento in 2025:

- Center Parkway and CRB – During the AM peak hour, the intersection operating condition deteriorates from LOS C to LOS D, and the average delay increases from 30.3 to 35.3 seconds.
- Bruceville Road and Cosumnes River College – During the AM and PM peak hours, the intersection operating condition deteriorates from LOS C to LOS D. The average AM delay increases from 24.8 to 36.1 seconds, and the average PM delay increases from 26.4 to 37.6 seconds.

This design option is not projected to have impacts on any intersections in Sacramento County or the City of Elk Grove in 2025.

3.3.9 Mitigation Measures

3.3.9.1 TSM ALTERNATIVE

Based upon projected conditions in 2025, one intersection under the TSM Alternative would exceed the City of Sacramento thresholds for project impacts during the AM peak hour, as illustrated in Table 3.3-17. Mitigation measures would require physical improvements at each intersection to avoid exceeding these thresholds, should any measures be considered feasible. These improvements focus on physical capacity improvements, such as lane additions through restriping or widening of intersections.

In the City of Sacramento mitigation is proposed at Bruceville Road and Consumes River College east entrance. The proposed mitigation is to build dual eastbound and dual westbound left turn lanes, which would improve LOS at the intersection to C in the PM.

3.3.9.2 LPAP2

Two types of mitigation measures are recommended for the LPAP2 should the measures be considered feasible: improvements to intersections to achieve LOS standards and improvements to mitigate delays caused by LRT trains crossing roadways.

Five intersections are projected to require improvements based upon projected conditions in 2025 under the LPAP2. The intersections of Center Parkway/CRB, Bruceville Road/CRB, Bruceville Road/CRC, Bruceville Road/Old Calvine road, and Old Calvine Road/CRC South Access would exceed the City of Sacramento thresholds for project impacts during peak hours.

The following mitigation measures are recommended:

- Center Parkway and CRB: add a second southbound left turn lane. With this modification, the intersection would operate at LOS C, and the impact would be reduced to below a level of significance. This mitigation would require widening the bridge over Union House Creek (the cost of which is included in the project costs).
- Bruceville Road and Consumes River College: build dual eastbound left turn lanes, which would improve LOS at the intersection to C in the AM and PM peak hour.
- Bruceville Road and Old Calvine Road: on the eastbound approach stripe dual left turn lanes and provide overlap signal phasing on the right turn to improve LOS at the intersection to C in the AM and PM peak hour.
- Old Calvine Road and CRC south access: Signalize the intersection. This would improve LOS at the intersection to C or better in the AM and PM peak hour.

To mitigate impacts to the Bruceville Road and Cosumnes River Boulevard Intersection would require building a triple northbound left turn, to reduce the design option delay to less than five seconds in the AM peak hour. This mitigation is not practicable, resulting in an unavoidable adverse traffic impact.

Adding a third left turn for the northbound Bruceville Road movement would require widening on the west side of Bruceville, south of its intersection with CRB, to accommodate shifting over of the southbound lanes. The shifted southbound lanes would then need to transition back to their original alignment. This is in the area between CRB and West Stockton Boulevard where there is already tapering from three to two lanes and challenging geometrics to accommodate the double left turn lanes into West Stockton Boulevard. This new shift would require approximately 600 feet to meet Sacramento City design standards and would therefore extend south beyond the intersection with West Stockton Boulevard, which would also affect the proposed new PG&E replacement pole. On the north side of the Bruceville Rd/CRB intersection, the west side of Bruceville Road would need to be widened to match the additional lane on the south side. This would require widening of the Strawberry Creek culvert undercrossing under Bruceville Road,

The following mitigation measures are recommended for the design option with surface parking:

- Center Parkway and CRB: add a second southbound left turn lane. With this modification, the intersection would operate at LOS C, and the impact would be reduced to below a level of significance. This mitigation would require widening the bridge over Union House Creek (the cost of which is included in the project costs).
- Bruceville Road and Consumes River College: to build dual eastbound and dual westbound left turn lane, which would improve LOS at the intersection to C in the AM and PM peak hour.

The following mitigation measures are recommended for the design option with the parking structure located north of the Bruceville college entrance, immediately to the west of the LRT station platform.

- Center Parkway and CRB: add a second southbound left turn lane. With this modification, the intersection would operate at LOS C, and the impact would be reduced to below a level of significance. This mitigation would require widening the bridge over Union House Creek (the cost of which is included in the project costs).
- Bruceville Road and Consumes River College: build dual eastbound and duel northbound left turn lanes, which would improve LOS at the intersection to C in the AM and PM peak hour.

To mitigate impacts to the Bruceville Road and Cosumnes River Boulevard Intersection would require building a triple northbound left turn, to reduce the design option delay to less than five seconds in the AM peak hour. This mitigation is not practicable, resulting in an unavoidable adverse traffic impact.

To reduce impacts of LRT grade crossings on roadway operations, RT will implement the following measures:

- RT will implement crossing signal control measures at LRT grade crossings adjacent to stations. These would minimize the amount of time gates are down while LRT trains are stopped for loading and unloading passengers at stations before they cross the roadway. A timed delay mechanism will be installed that activates the crossing gates just prior to the train departing the station platform.
- Express trains not stopping at a near side station would have equipment to bypass the timed delay.

The results of mitigation measures discussed above are presented below in Tables 3.3-17, 3.3-18 and 3.3-19.

Table 3.3-17: Year 2025 Intersection LOS Mitigations - TSM and Design Option with Surface Parking

Intersection	No-Action		TSM				Design Option With Surface Parking			
			No Mitigation		With Mitigation		No Mitigation		With Mitigation	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
AM Peak Hour										
Center Parkway/CRB	C	30.3	-	-	-	-	**D**	**35.3**	C	32.2
Bruceville Road/CRC	C	24.8	-	-	-	-	**D**	**36.1**	C	29.1
PM Peak Hour										
Bruceville Road/CRC	C	26.4	**D**	**35.9**	C	29.8	**D**	**37.6**	C	30.4

Shaded cells denote impacts, as defined in Subsection 3.3.3, Criteria for Assessing Project-Specific Impacts on Vehicular Traffic.
Source: DKS Associates, 2002.

Table 3.6-18: Year 2025 Intersection LOS Mitigations - Design Option With Surface Parking and Design Option with Garage North of Entrance

Intersection	No-Action		Design Option With Surface Parking				Design Option with Garage North of Entrance			
			No Mitigation		With Mitigation		No Mitigation		With Mitigation	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
AM Peak Hour										
Center Parkway/CRB	C	30.3	**D**	**35.3**	C	32.2	**D**	**35.3**	C	32.2
Bruceville Road/CRB	**E**	**66.2**	**-**	**-**	-	-	**E**	**72.6**	**Not Practicable**	
Bruceville Road/CRC	C	24.8	**D**	**36.1**	C	29.1	**E**	**59.4**	C	30.2
PM Peak Hour										
Bruceville Road/CRC	C	26.4	**D**	**37.6**	C	30.4	**E**	**61.8**	C	34.8

Shaded cells denote impacts, as defined in Subsection 3.3.3, Criteria for Assessing Project-Specific Impacts on Vehicular Traffic.
Source: DKS Associates, 2002.

Table 3.3-19: Year 2025 Intersection LOS Mitigations - Design Option with Surface Parking and LPAP2

Intersection	No-Action		Design Option With Surface Parking				LPAP2			
			No Mitigation		With Mitigation		No Mitigation		With Mitigation	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
AM Peak Hour										
Center Parkway/CRB	C	30.3	**D**	**35.3**	C	32.2	**D**	**35.3**	C	32.2
Bruceville Road/CRB	**E**	**66.2**	**-**	**-**	-	-	**E**	**72.6**	**Not Practicable**	
Bruceville Road/CRC	C	24.8	**D**	**36.1**	C	29.1	**-**	**-**	-	-
Bruceville Road/Old Calvine	C	32.5	**-**	**-**	-	-	**E**	**56.6**	C	30.1
PM Peak Hour										
Bruceville Road/CRC	C	26.4	**D**	**37.6**	C	30.4	**D**	**35.2**	C	32.4
Bruceville Road/Old Calvine	C	15.5	**-**	**-**	-	-	**D**	**37.8**	C	21.9
Old Calvine Road/CRC South[1]	-	-	**-**	**-**	-	-	**D (F)**	**33.5 (229)**	B	16.4

Shaded cells denote impacts, as defined in Subsection 3.3.3, Criteria for Assessing Project-Specific Impacts on Vehicular Traffic.

Note: 1. TWSC = Two-Way Stop Control – 2000 HCM Methodology – average control delay (worst-case approach delay)

Source: DKS Associates, 2002.

3.4 PARKING

There are currently park-and-ride lots for RT's express bus services in the South Sacramento Corridor at the following locations:

- Elk Grove Boulevard/SR 99 (Route 60 buses)
- Sheldon Road/SR 99 (Route 59 and 60 buses)
- Calvine Road/SR 99 (Route 60 buses)
- Franklin Boulevard/Laguna Boulevard (Route 52 buses)

3.4.1 No-Action Alternative

The No-Action Alternative would not add park-and-ride spaces for transit services or displace any parking in the South Sacramento Corridor. Growing demand for parking and a need to increase parking supply are anticipated at major activity centers in the South Sacramento Corridor.

The level of transit service in the South Sacramento Corridor will affect the demand for parking in Downtown Sacramento. Employment in the Downtown Sacramento is projected to increase from about 103,600 in 2000 to about 154,300 in 2025, an increase of 50 percent. A proportional increase in parking demand would be expected in the absence of measures to alter the level of automobile travel to the Downtown area.

3.4.2 TSM Alternative

The TSM Alternative relies primarily on operational improvements rather than capital improvements, and includes direct express bus service to Downtown Sacramento via SR-99 and I-5 from PNR lots and a new bus park-and-ride lot at Cosumnes River College (CRC). Table 3.4-1 defines the parking demand expected at these locations. These trips to PNR lots reflected in the intersection LOS shown in Table 3.3-10 and Table 3.3 -11, show increased number of trips, of shorter duration, to PNR lots and LRT Stations and reduced number of trips, of longer duration, to downtown Sacramento.

Under the TSM Alternative, approximately of 1,370 park-and-ride spaces are planned for the CRC Station. Of these spaces, at least 1,100 spaces would be on the lot east of Bruceville Road. The remaining 290 spaces would be located on the north side of the campus and south of Consumes River Boulevard. Although those are the spaces that RT will be constructing for the increased parking demand, parking at the RT CRC PNR lot and on the CRC campus would be shared by both transit riders and students.

Per a cooperative agreement to be developed between RT and CRC, park-and-ride spaces off the campus and college parking spaces on the campus may require a $1 daily fee for parking, with the parking revenues going to CRC. CRC would provide security for the park-and-ride vehicles on and off campus. The fee is consistent with the current parking policy on the CRC campus, with all parking lots charging $1 per day.

Table 3.4-1: Year 2025 Changes in Parking Demand

Year 2025 Parking Demand (Vehicles) at Park-and-Ride Lots			
Station/Stop Area	**Alternative**		
	No Action	**TSM**	**LPAP2**
Morrison Creek Station	*--*	*--*	*30*
Franklin Station/Bus PNR	*--*	*--*	*520*
Center Pkwy. Station	*--*	*--*	*--*
CRC Station/Transit Center	*--*	*1,370*	*1,830*
Calvine Rd./SR 99 Bus PNR	*180*	*180*	*--*
Elk Grove Blvd./SR 99 Bus PNR	*130*	*--*	*--*
Sheldon Road/SR 99 Bus PNR	*180*	*--*	*--*
Franklin Blvd./Laguna Blvd. Bus PNR	*220*	*--*	*--*
Phase 2 Area Total	710	1,550	2,380
Meadowview	1,010	990	790
Year 2025 Change in Parking Demand in Downtown Sacramento (Relative to No-Action Alternative)			
Downtown Sacramento	--	-900	-1,300

Source: DKS Associates, August 2004.

This environmental analysis evaluated the complete parking requirements expected for the forecast year (2025) and proposes construction of parking facilities for this ultimate demand. Right of way requirements and cost estimates presented in this analysis are for this ultimate level of parking. However, it is expected that demand for parking will grow as development in the area takes place; therefore, the parking facilities will likely be constructed in phases based on monitoring of actual use.

Under the cooperative agreement, about 1100 of the proposed park-and-ride spaces would be designated as the base parking at CRC, while the remaining amount could be designated to be leased parking. The leased parking would be subject to a monitoring program, with the anticipation that the amount of leased parking would decline over time as LRT extensions are implemented and park-and-ride lots are built further south.

By diverting trips from auto to bus, the TSM Alternative would reduce the growth in overall parking demand in Downtown Sacramento, which due to constrained parking would probably benefit the most from such a mode shift. Based on projected changes in trip ends in 2025, the TSM Alternative is projected to save about 900 parking spaces in Downtown Sacramento compared to the No-Action Alternative.

Other than the relocation of some CRC spaces for the bus transfer station and kiss-and-ride, which will be replaced as part of the project, no displacement of parking is anticipated under the TSM Alternative.

3.4.3 LPAP2

The LPAP2 would reduce parking demand by shifting some trips from auto to transit. The benefits would be realized primarily in Downtown Sacramento, but would also occur at some major activity centers in the vicinity of RT's LRT stations. Based on projected changes in trip ends in 2025, the LPAP2 is projected to save about 1,300 parking spaces in Downtown Sacramento compared to the No-Action Alternative.

Construction of park-and-ride lots as part of the LPAP2 would create up to about 2,700 spaces for LRT parking at the Morrison Creek, Franklin and CRC stations. As shown in Table 3.4-1 this would satisfy the expected parking demand at the park-and-ride lots in the year 2025. The anticipated size of the parking lots, as defined in here and in Chapter 2, is slightly larger than the projected parking demand to allow for uncertainties in the demand projections. The parking lots may be constructed in phases based on monitoring of actual use.

The new Center-Parkway Station does not include a park-and-ride lot because passengers are projected to access the new station via bus transfers or walking. Some commuters may still park in areas adjacent to the station.

Parking plans at the Cosumnes River College Station would be developed in coordination with the College. A cooperative parking agreement is expected to be developed between RT and CRC. Under the LPAP2, approximately of 2,000 park-and-ride spaces are planned for the CRC Station. RT will be constructing spaces for the increased parking demand. Parking at the RT CRC PNR lot and on the CRC campus would be shared by both transit riders and students.

A parking structure with capacity for at least 2,000 spaces on the north side of the CRC entrance is also in consideration as an option to a parking structure on the south side of the CRC entrance. Surface parking is also under consideration.

Per a cooperative agreement to be developed between RT and CRC, park-and-ride spaces off the campus and college parking spaces on the campus may require a $1 daily fee for parking, with the parking revenues going to CRC. The fee is consistent with the current parking policy on the CRC campus, with all parking lots charging $1 per day. As an expected provision of the cooperative agreement to be developed between RT and CRC, about 1,100 of the proposed park-and-ride spaces would be designated as the base parking at CRC, while the remaining amount could be designated to be leased parking. The leased parking would be subject to a monitoring program, with the anticipation that the amount of leased parking would decline over time as a Phase 3 transit extension is implemented and park-and-ride lots are built further south and/or east.

By diverting trips from auto to bus, the LPAP2 would reduce the growth in overall parking demand in Downtown Sacramento, which due to constrained parking would probably benefit the most from such a mode shift. Based on projected changes in trip ends in 2025, the LPAP2 is projected to save about 1,300 parking spaces in Downtown Sacramento compared to the No-Action Alternative. This reduction is 400 more spaces than the TSM Alternative.

Additionally, the need for approximately 200 parking spaces at the Meadowview LRT Station, and about 700 bus park-and-ride spaces elsewhere in the South Sacramento Phase 2 Corridor area, would be re-located at new LRT stations.

No other long-term adverse parking impacts on existing residents or businesses are anticipated in the South Sacramento Phase 2 Corridor. Other than the relocation of some CRC spaces for the bus transfer station and kiss-and-ride, which will be replaced as part of the project, no displacement of parking is anticipated under the LPAP2.

3.4.4 Mitigation Measures

Because transit improvements under either the TSM or LPAP2 alternatives would include park-and-ride lots with adequate spaces to match demand, and because these alternatives would reduce parking demand in Downtown Sacramento, there is expected to be a beneficial impact overall on parking supply.

If monitoring indicates commuter parking exceeds acceptable levels at the Center Parkway Station, a residential permit parking program will be implemented. It would provide preferential parking by imposing parking time limits in neighborhoods and providing residents with a permit that would exempt them from the time limits.

3.5 PEDESTRIAN AND BICYCLE FACILITIES

Currently pedestrians in the project area are accommodated on sidewalks, with at-grade crossings of major intersections. Bicycle facilities in the area are mostly Class II bicycle lanes (striped bike lane on roadway), as illustrated by Figure 3.5-1, including Meadowview Road, CRB, Franklin Boulevard, and Center Parkway. There is also a bike trail parallel to the Union Pacific Railroad alignment from north of Florin Road to Meadowview Road. At present pedestrian and bicycle traffic is relatively low, reflecting the area's current low density of development.

3.5.1 No-Action Alternative

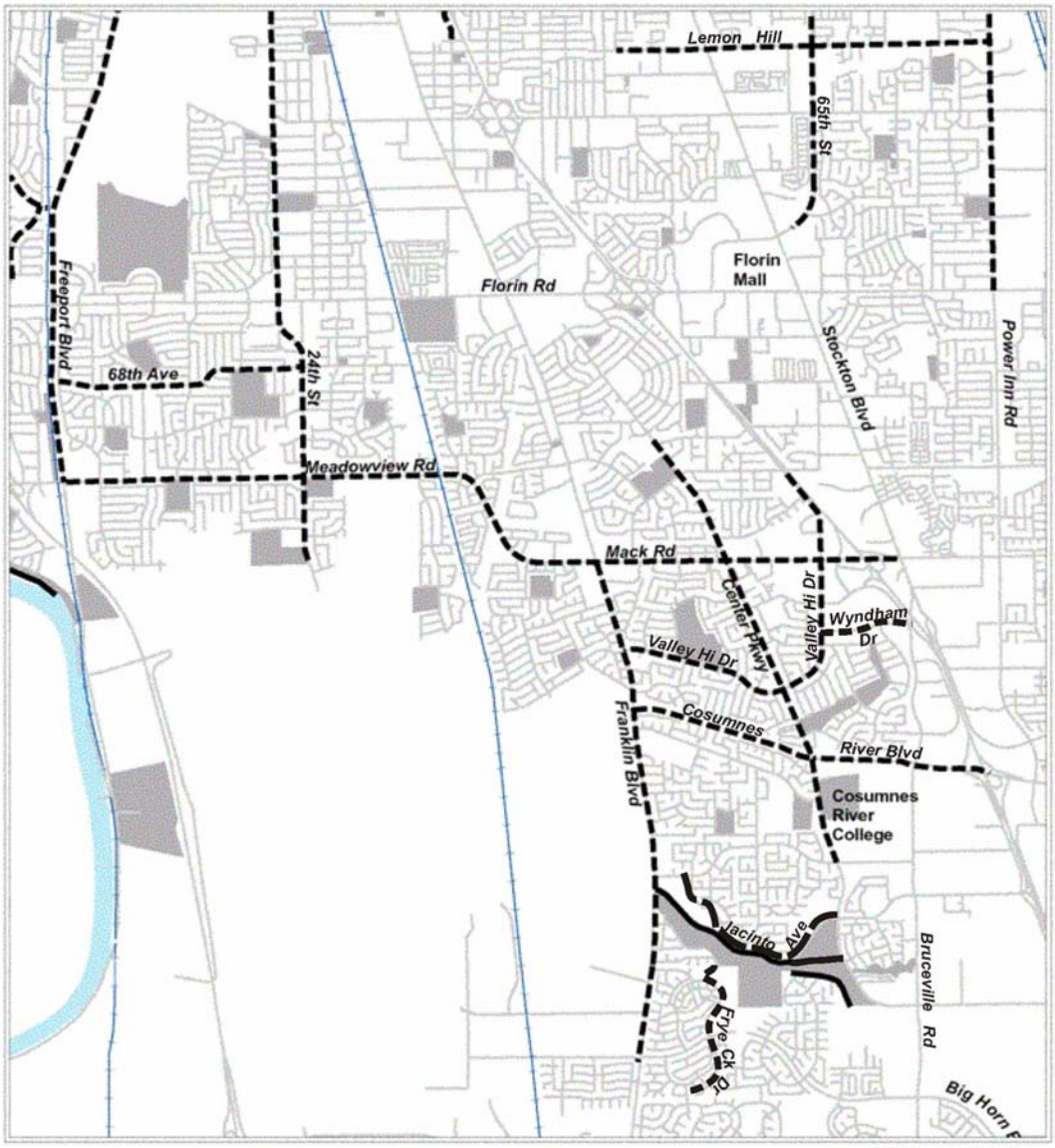
The planned extension of CRB to west of Franklin Boulevard will also extend the Class II bicycle lane on the CRB. The City of Sacramento has a planned bikeway along Morrison Creek, north of the planned extension of the CRB. This would be an extension of the existing bike trail parallel to the Union Pacific alignment. No other change to the existing pedestrian and bicycle facilities is anticipated under the No-Action Alternative.

3.5.2 TSM Alternative

There would be localized pedestrian and bicycle access improvements associated with proposed park-and-ride lots in the Cosumnes River College (CRC) area. No additional change to the existing pedestrian and bicycle facilities is anticipated under the TSM Alternative.

3.5.3 LPAP2

There would be localized pedestrian and bicycle access improvements associated with the proposed LRT stations at Morrison Creek, Franklin Boulevard, Center Parkway, and CRB. These improvements are included in the project cost estimates. The two pedestrian/bicycle bridges and pathways across Union House Creek to the Franklin Station and to the Center Parkway Station (as described in Chapter 2, Section 2.4.5) are also included in the capital costs.



Regional Transit

South Sacramento Corridor Phase 2 Project

EXISTING BICYCLE FACILITIES
Figure 3.5-1

The bikeway planned by the City of Sacramento along Morrison Creek, north of the planned extension of CRB, will most likely be located along the north and west side of Morrison Creek. The bikeway would need to cross under the LRT Alignment where the LRT would bridge over the creek. The design of the LRT Bridge will be coordinated with the City to ensure that it would accommodate the bikeway.

The planned extension of CRB to west of Franklin Boulevard will extend the Class II bicycle lane on the CRB. The LPAP2 has mid-block crossings of CRB that under some design options may cross the bike lanes at acute angles. Under these conditions, the bike lane striping angle would be coordinated with the City of Sacramento, in order to provide a safe crossing.

3.5.4 Mitigation Measures

South Sacramento Corridor transit improvements under both the TSM and LPAP2 Alternatives would increase pedestrian and bicycle use in the long term. There would be no displacement of pedestrian and bicycle facilities requiring mitigation.