BEFORE THE TRANSPORTATION AGENCY FOR MONTEREY COUNTY
STATE OF CALIFORNIA

RESOLUTION NO. 2007-02

ADOPTING THE CALTRAIN EXTENSION PROJECT AS THE LOCALLY PREFERRED ALTERNATIVE FOR THE HIGHWAY 101 TRANSIT CORRIDOR

WHEREAS, the Transportation Agency for Monterey County is the Regional Transportation Planning Agency for Monterey County; and

WHEREAS, fast, convenient, reliable, safe and cost effective public transportation is important for the economy, community, air quality, congestion mitigation and overall mobility in Monterey County; and

WHEREAS, population, housing, and job growth in the Monterey and San Francisco Bay regions require increasingly proactive planning to ensure that transit can expand to meet the resulting demand; and

WHEREAS, rising fuel costs and the general uncertainty of the nation's energy future make it prudent to create the most versatile and useful transit system possible, to provide alternatives to commuting by automobile; and

WHEREAS, TAMC recognizes the importance of transit to meeting lifeline mobility needs throughout the region, including but not limited to the mobility of seniors and persons with disabilities; and

WHEREAS, high quality/highly reliable service operating at high speeds is crucial to enable transit to capture choice riders; and

WHEREAS, most goals for regional mobility, including effective transit, require the cooperation of national, regional and local governments in all areas that impact transportation, especially transportation funding, transportation corridor capacity management, and land use planning; and

WHEREAS, this cooperation is only possible through the development of a shared long-range vision for the future of transportation in the region and its distinct communities; and

WHEREAS, through previous transportation planning studies, TAMC and the State of California determined that they needed to invest in a system of premium transit services that could better compete with traveling by automobile and attract new riders from the automotive modes of travel in order to provide additional transportation capacity in the Highway 101 Corridor, thereby reducing congestion, improving air quality, and saving energy in the Monterey and San Francisco Bay areas; and

WHEREAS, in order to provide safe, efficient and effective transportation alternatives to the automobile, TAMC has supported the Extension of Caltrain Commuter Rail Service into Monterey County, with stations in Salinas, Pajaro and Castroville; and

WHEREAS, the Traffic Congestion Relief Act of 2000 (the Act) was established by Chapters 91 (AB 2928) and 92 (SB 496), as amended by SB 1662, of the statutes of 2000, creating the Traffic Congestion Relief Program; and

WHEREAS, the Governor and the Legislature expressed their support and endorsement of this Project by providing $20 million for the Caltrain Extension to Salinas and Monterey County in the Traffic Congestion Relief Act of 2000; and

WHEREAS, the Transportation Concept Report for U.S. Route 101 in Caltrans District 5, prepared by Caltrans District 5, dated October 1, 2001, identified the proposed Caltrain Extension to Monterey County as being an integral element for managing travel demand in the Highway 101 Corridor; and

WHEREAS, the Peninsula Corridor Joint Powers Board includes the Caltrain Extension to Salinas in its Caltrain 2004–2023 Strategic Plan; and

WHEREAS, the Union Pacific Railroad on June 26, 2003, presented TAMC with a draft "Term Sheet Conditions for Salinas–Gilroy Passenger Service," thereby signaling their support for the initial two round trip train per weekday, minimum operating segment; and

WHEREAS, TAMC staff determined that it must perform additional system planning and must follow the specified planning process that has been established for applicants to become eligible for "New Starts" funding from the Federal Transit Administration; and

WHEREAS, TAMC initiated a Monterey County Fixed Guideway Alternatives Analysis Study which identified two distinct, but interrelated travel corridors warranting fixed guideway investment consideration; and

WHEREAS, the TAMC Rail Policy Committee identified the Caltrain Extension to Monterey County as being a required component of all build alternatives; and

WHEREAS, a detailed definition of the Caltrain Extension—Build Alternative was defined by the *Caltrain Extension to Monterey County Project Study Report,* dated February 21, 2006, a project initiation document required to secure State of California funding; and

WHEREAS, in order to protect right-of-way, a draft California Environmental Quality Act Environmental Impact Report was prepared and circulated for public comment on April 26, 2006, and a Final Environmental Impact Report was subsequently published on July 26, 2006, and the TAMC Board of Directors certified the Final Environmental Impact Report on August 23, 2006; and

WHEREAS, in parallel to the above actions, an Alternatives Analysis Study of the proposed Build Alternative and a baseline Transportation System Management Alternative was finalized; and

WHEREAS, the Alternatives Analysis Study clearly demonstrated superior cost effectiveness of the proposed Caltrain Extension Build Alternative; and

WHEREAS, the Caltrain Extension to Monterey County Project Development Team, local stakeholders and the TAMC Rail Policy Committee selected the Build Alternative as the Locally Preferred Alternative based on the results of a comprehensive technical analysis of the Build and TSM alternatives and input from the public; and

WHEREAS, said Locally Preferred Alternative is the culmination of extensive planning and public involvement by TAMC; and

WHEREAS, on October 2, 2006, the TAMC Rail Policy Committee formally endorsed the candidate LPA and recommended its adoption by the full Board; and

WHEREAS, the U.S. Department of Transportation and the Federal Transit Administration need to see evidence that the Highway 101 Corridor Transit Element Locally Preferred Alternative has local support and has been adopted locally by all appropriate agencies and jurisdictions; and

WHEREAS, the Federal Transit Administration cannot approve moving into Project Development Studies on the Caltrain Extension Project until all approvals of the Locally Preferred Alternative have been completed.

NOW THEREFORE BE IT RESOLVED by the Board of Directors that:

1. TAMC adopts the Caltrain Extension to Monterey County as the Locally Preferred Alternative for providing high quality public transportation service in the Highway 101 Corridor between Monterey County and the San Francisco Peninsula area.

2. The Caltrain Extension to Monterey County Project Study Report and Alternatives Analysis Study Report will serve as the Strategic Plan for the Caltrain Extension Project development phase.

3. TAMC staff is authorized to seek "New Starts" funding for Project Development and Construction from the Federal Transit Administration for successful implementation of the Caltrain Extension to Monterey County Project.

PASSED AND ADOPTED by the Transportation Agency for Monterey County, State of California, this 31st day of January 2007 by the following vote:

AYES: F. Armenta, L. Calcagno, J. Smith, K. Lee, M. Cunningham, J. Edelen, M. Orozco, J. Huerta, S. Kleber, G. Wilmot, F. Sollecito, S. Miller, R. Russell, K. Morgan, R. Rubio,

NOES: None

ABSENT: R. Ortiz

JOHN P. HUERTA, JR., CHAIR
TRANSPORTATION AGENCY FOR MONTEREY COUNTY

ATTEST:

Debra L. Hale, Executive Director
Transportation Agency for Monterey County

CALTRAIN EXTENSION TO MONTEREY COUNTY

Alternatives Analysis

Prepared for

TAMC
TRANSPORTATION AGENCY FOR MONTEREY COUNTY

by

PARSONS

September 2006
Revised April 2007

DRAFT

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ABBREVIATIONS/ACRONYMS

AADT	average annual daily traffic
ACE	Altamont Commuter Express
AMBAG	Association of Monterey Bay Area Governments
BRT	bus rapid transit
Cal-B/C	California Life-Cycle Benefit/Cost Analysis Model
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMAQ	Congestion Mitigation and Air Quality Improvement
CO	carbon monoxide
CSUMB	California State University–Monterey Bay
DMU	diesel multiple unit train
EA/EIR	Environmental Assessment/Environmental Impact Report
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
F&E	freeway and expressway system
FHWA	Federal Highway Administration
FY	fiscal year
FORA	Fort Ord Reuse Authority
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	fiscal year
GDP	gross domestic product
HCM	Highway Capacity Manual 2000

ABBREVIATIONS/ACRONYMS (continued)

HOV	high-occupancy vehicle
RRS	Interregional Road System
ITC	Intermodal Transportation Center
ITSP	Interregional Transportation Strategic Plan
JPB	Peninsula Corridor Joint Powers Board
LOS	level of service
LPA	locally preferred alternative
LRT	light rail transit
MIS	major investment study
MOS	minimum operating segment
MOU	memorandum of understanding
MP	milepost
mph	miles per hour
MST	Monterey–Salinas Transit
MTC	Metropolitan Transportation Commission
NEPA	National Environmental Policy Act
NHS	National Highway System
NO_X	nitrogen oxides
O&M	operating and maintenance cost
O–D	origin-destination
PDO	property damage only
PDT	project development team
PM	particulate matter
PM_{10}	particulate matter up to 10 microns in size

ABBREVIATIONS/ACRONYMS (continued)

PSR	project study report
PTA	Public Transportation Account
RDA	Redevelopment Agency
RPC	Rail Policy Committee
RSTPI	Regional Surface Transportation Program–Interest
RTP	Regional Transportation Plan
SamTrans	San Mateo County Transit
SCS	Schiermeyer Consulting Services
SHELL	State Highway Extra Legal Load Route
SO_X	sulfur oxides
SR	State Route
STAA	Surface Transportation Assistance Act
STEAM 2.0	Surface Transportation Efficiency Analysis Module
STIP	State Transportation Improvement Program
STRAHNET	Strategic Highway Corridor Network
SVRTC	Silicon Valley Rapid Transit Corridor
TAMC	Transportation Agency for Monterey County
TAZ	transportation analysis zone
TCRP	Traffic Congestion Relief Program
TEA-21	Transportation Equity Act for the 21st Century
TSM	transportation system management
UPRR	Union Pacific Railroad
VMT	vehicle miles traveled
VOC	volatile organic compounds
VTA	Santa Clara Valley Transportation Authority

EXECUTIVE SUMMARY

An Alternatives Analysis study evaluates appropriate modal and alignment options for addressing mobility options in a given corridor. The study provides information to local officials on the benefits, costs, and impacts of alternative transportation investments developed to address the purpose and need for an improvement in a corridor. An Alternatives Analysis study is required for a project to qualify for federal Section 5309 New Starts capital funding. The study is complete when a locally preferred alternative (LPA) is selected by local and regional decision makers.

PURPOSE AND NEED FOR TRANSPORTATION INVESTMENT

The U.S. 101 Corridor is heavily congested in the San Francisco Bay Area and portions of Monterey County. Caltrain commuter rail service currently extends from San Francisco in the north to Gilroy in the south. The proposed Caltrain Extension to Monterey County project would extend Caltrain from its existing terminus in Gilroy to Monterey County, including stations in Pajaro (Watsonville Junction), Castroville, and Salinas. Figure 1 illustrates the project area and the existing and proposed station locations.

The proposed extension of Caltrain to Salinas would provide an alternative means of travel between Monterey County and Santa Clara, San Mateo, and San Francisco counties, significantly reducing congestion on U.S. 101 and improving regional air quality. The proposed rail service is also a cost effective alternative to widening U.S. 101.

In addition to lowering congestion on the roadways, the commuter rail extension would bring a significant increase in ridership to the existing Caltrain and connecting Capitol Corridor services. Other benefits include increased access to job opportunities, more transportation alternatives for senior citizens and those with physical disabilities, and increased access to educational and health care resources in the San Francisco Bay Area.

Currently, job distribution and worker housing distribution patterns do not match in the Monterey County and San Francisco Bay Areas. The northern counties of San Francisco and Santa Clara have large job surpluses, requiring approximately 117,000 non-San Francisco Bay Area residents to fill the available positions as of 2000 (Metropolitan Transportation Commission). This pull of workers generates a large volume of inter-regional commuter traffic, adding to highway congestion and air quality impacts.

The U.S. Census for 2000 estimated that 18,073 persons living in Monterey County work in another county. Of this number, more than 30 percent are employed in Santa Clara County or other San Francisco Bay Area counties. Available public transportation between Monterey County and Santa Clara County is limited to three northbound bus trips during the AM commute period and two southbound bus trips during the afternoon commute period. These buses are subject to traffic delays on U.S. 101 and SR 156

Figure 1
Caltrain Extension to Monterey County Project Study Area

ALTERNATIVES ANALYSIS STUDY PROCESS

The proposed project is the outgrowth of a detailed analysis of alternatives conducted over a five-year period (2002–2007). The process followed by the alternatives analysis is consistent with guidance provided by the Federal Transit Administration (see Figure 2). This study identifies unmet intra-county travel needs in Monterey County and inter-county travel needs between Monterey County and southern Santa Cruz County and the San Francisco Bay Area. To address these travel markets, eight alternatives were identified, as depicted in Figure 3. These alternatives were conceptually defined insofar as fixed guideway alignments, station locations, service characteristics and capital costs.

Figure 2
Locally Preferred Alternative Selection Process

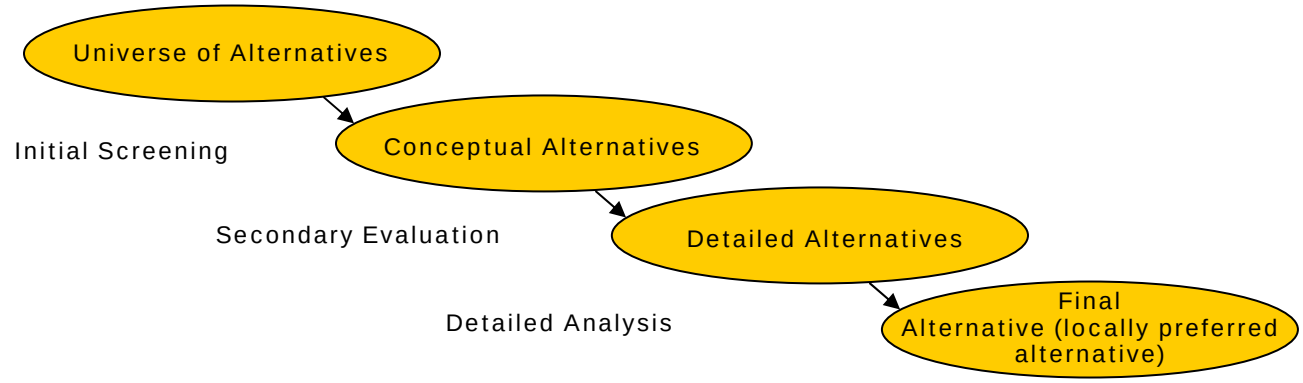


Figure 3
Conceptual Alternatives

ALTERNATIVE	
0	***No Build Rail Service:*** Existing transit services and limited road improvements.
1	***Caltrain to Salinas Rail Service:*** Extend four commuter rail roundtrips from Gilroy to Salinas.
2	***Monterey Peninsula to San Francisco Intercity Rail Service:*** Operate intercity train service between the Monterey Peninsula and San Francisco 2 or 3 roundtrips per day.
3	***Monterey Peninsula to San Francisco Intercity Rail Service Plus Caltrain to Salinas and Monterey Peninsula:*** Operate intercity train service between the Monterey Peninsula and San Francisco plus extend two Caltrain roundtrips from Gilroy to Salinas, and two roundtrips from Gilroy to the north side of Marina.
4	***Passenger Rail Shuttle to Castroville Caltrain Service:*** Extend four Caltrain commuter rail roundtrips from Gilroy to Salinas. Operate connecting shuttle service between Seaside and Castroville to meet Caltrain service extension.
5	***Local Peninsula Rail or Bus Rapid Transit (BRT) Service:*** Construct light rail transit (LRT) or BRT guideway between Monterey and Marina, or extend LRT to Castroville. Potential intercity rail from Marina to San Francisco under sub-option 5D. Includes Caltrain extension to Salinas.
6	***Salinas to Monterey Local Rail or BRT Service:*** Construct LRT or BRT guideway between Monterey and Marina. Extend LRT guideway to Castroville via MBL and Salinas along Coast Mainline. Alternately, extend BRT guideway to Salinas via Blanco or Davis roads. Includes Caltrain extension to Salinas.
7	***Monterey Peninsula to San Francisco Intercity Plus Salinas to Monterey Local Rail Service:*** Construct LRT between Monterey, Castroville and Salinas. Operate intercity rail service from Monterey to San Francisco. Use FRA-compliant DMU for both services. Includes Caltrain extension to Salinas.
8	***Monterey County to San Francisco Peninsula Express Bus Service:*** Low cost transit investments to match locally preferred build alternative. Includes major roadway construction to provide capacity/reduce congestion.

DETAILED DEFINITION OF ALTERNATIVES

Following the shortlisting of conceptual alternatives for further refinement and evaluation, the Alternatives Analysis Study was divided into two projects; one to serve intra-county needs and one to serve inter-county (Monterey to San Francisco Bay Area) needs. **This Alternatives Analysis document addresses the inter-county commute market alternatives.**

Two alternatives were defined to address the inter-county travel market: the Caltrain Extension to Salinas Alternative (Build Alternative) and the Express Bus Alternative (Transportation System Management (TSM) Alternative).

In addition to the Caltrain Extension Alternative and the Express Bus Alternative, five additional alternatives were considered, but rejected for the U.S. 101 Corridor. These included:

- Shuttle bus service to Gilroy
- Limited stop bus service to San Jose
- Shuttle train service to Gilroy
- Independent train service to San Francisco
- Bus rapid transit service

These alternatives were rejected as not being sufficiently attractive to capture ridership or not being cost effective.

Caltrain Extension Alternative

The proposed project consists of four elements: commuter rail station construction at the communities of Pajaro and Castroville; renovations/expansions of an existing passenger rail station and construction of a new parking facility at Salinas; and construction of a commuter rail layover facility at Salinas. Improvements to the Union Pacific Railroad (UPRR) Coast main line between Gilroy and Salinas and institutional arrangements required for construction and operation of commuter rail service between Gilroy and Salinas are also part of the Caltrain Extension Alternative.

Under the Caltrain Extension Alternative, existing Caltrain service to Gilroy would be extended to Salinas. Initially, two round trip trains would be operated on weekdays. As ridership warrants, service would be expanded to three round trips. As Caltrain service is restored to Gilroy (four round trips) and eventually expanded, service would be extended to Salinas as demand warrants. Trainsets would lay over in Salinas in lieu of Gilroy. A Salinas layover yard would be constructed with capacity for four trainsets, but would be designed to expand to accommodate six trainsets.

Weekday boardings at Monterey County stations (AM northbound) are forecast at 1,028 riders per day, based on Year 2000 commuting patterns. In the afternoon, an equal number of riders would board at San Francisco Bay Area stations and ride south to Monterey County. These commuting patterns appear to hold true as of 2005/2006, and are assumed for 2010 opening year conditions. Year 2030 boardings are forecast as 2,056 riders per day traveling in each direction (4,112 passenger trips).

The physical components of the Caltrain Extension Alternative are described and detailed in the *Caltrain Extension to Monterey County Project Study Report*, dated February 21, 2006. The project study report is a “Project Initiation Document” which provides sufficient project detail and cost estimates

to allow a project to be included in the State Transportation Improvement Program at the discretion of the California Transportation Commission. **The *Caltrain Extension to Monterey County Project Study Report* is included with this Alternatives Analysis by reference as the physical definition of the Build Alternative.** See Table 1 for the Caltrain Extension Alternative capital cost estimates expressed in FY 2007 and year of expenditure (YOE) dollars.

Table 1 identifies a cost allowance of $8.8 million for vehicles. This rolling stock is not required to accommodate peak passenger loads, and is included as a risk element for comparison with the Express Bus Alternative. This potential cost is not reflected in the year of expenditure funding plan.

Express Bus Alternative

The Express Bus Alternative entails express bus service from Salinas to the San Francisco Bay Area. This alternative would attempt to provide equivalent travel time savings, comfort and convenience for transit users as compared to the Caltrain Extension Alternative. Monterey–Salinas Transit express bus service would be established as part of this alternative and would operate from four Monterey County Transit Centers to Santa Clara, San Mateo, and San Francisco counties. An MST Transit Center/Park-n-Ride facility would be constructed at Eighth Street in Marina as part of the University Villages redevelopment of Fort Ord. Additional transit centers with park-and-ride facilities would be located in Salinas, Castroville, and Pajaro with express bus service operating via existing surface roads to Santa Clara and San Mateo counties, including non-stop service to select stations.

Table 1
Caltrain Extension Alternative Capital Cost Estimate ($1,000 FY 2007)

Work Description	UPRR Main Line	Gilroy Yard	Pajaro Station	Castroville Station	Salinas Station	Salinas Bus	Salinas Yard	2007 Totals	YOE Totals
Parking and access	—	—	$ 1,805	$ 2,085	$ 2,244	$1,526	—	$7,660	$8,426
Pedestrian structures	—	—	—	900	—	—	—	900	990
Platform and station amenities	—	—	1,602	1,953	2,555	1,298	—	7,408	8,149
Track and signal improvements	5,000	2,088	3,937	3,251	1,103	—	3,718	19,097	20,099
Specialty items	—	—	179	—	227	—	202	608	669
Mobilization	—	209	753	729	613	282	392	2,978	3,276
Contingencies	—	804	2,897	3,122	2,360	1,087	1,509	11,779	12,957
Construction Total	$5,000	$3,101	$11,173	$12,040	$ 9,102	$4,193	$5,821	$50,430	$54,566
Soft cost	—	1,023	3,687	3,973	3,004	1,384	1,921	14,992	15,756
Right-of-way	—	—	2,170	430	7,750	4,250	4,000	18,600	19,346
Subtotal	$5,000	$4,124	$17,030	$16,443	$19,856	$9,827	$11,742	$84,022	$89,668
Vehicles (risk element)	—	—	—	—	—	—	—	8,800	9,616
Unallocated contingency								9,282	9,871
Total	**$5,000**	**$4,124**	**$17,030**	**$16,443**	**$19,856**	**$9,827**	**$11,742**	**$102,104**	**$109,155**

High-speed transmission, over the road 40-foot coaches would be acquired for this service with a capacity of 45 to 49 passengers per vehicle. Twenty-five vehicles (plus 5 spares) would be required to operate the service in the near term to carry 1,028 commuters to the San Francisco Peninsula each weekday. Of these, 21 vehicles would operate to/from Santa Clara County and 4 vehicles would

operate to/from San Mateo and San Francisco counties. This is equivalent to two Caltrain trips extended from Gilroy to Salinas. Longer term, a fleet of 60 motor coaches (50 vehicles in revenue service plus 10 spares) would be required to accommodate the four Caltrain each way ridership scenario. The same fare structure as proposed for the Caltrain Extension Alternative is assumed for the Express Bus Alternative. All fare revenues would be used to offset operating and maintenance expenses. Table 2 outlines the Express Bus Alternative capital cost estimates.

Table 2
Express Bus Alternative Capital Cost Estimate ($1,000 FY 2007)

Work Description	Pajaro Park-and-Ride	Castroville Park-and-Ride	Salinas Station	Salinas Bus	Salinas Park-and-Ride	Marina Bus	Marina Park-and-Ride	2007 Totals	YOE Totals
Parking and access	$2,227	$1,426	—	$1,215	$ 8,888	$ 485	$1,390	$15,631	$17,194
Pedestrian structures	—	900	—	—	—	—	—	900	990
Platform and station amenities	576	453	2,301	1,298	—	1,204	—	5,832	6,415
Track and signal improvements	—	605	316	—	—	—	—	921	1,013
Specialty items	50	100	75	50	—	—	—	275	303
Mobilization	285	349	269	256	889	169	139	2,356	2,592
Contingencies	1,098	1,341	1,036	987	1,955	650	535	7,602	8,362
Construction Total	$4,236	$5,174	$3,997	$3,806	$11,732	$2,508	$2,064	$33,517	36,271
Soft cost	1,398	1,707	1,319	1,256	4,106	702	681	11,169	11,741
Right-of-way	2,170	409	—	4,250	1,650	74	2,622	11,175	11,593
Subtotal	$7,804	$7,290	$5,316	$9,312	$17,488	$3,284	$5,367	$55,861	59,605
Vehicles	—	—	—	—	—	—	—	30,000	36,383
Maintenance facility	—	—	—	—	—	—	—	6,000	6,493
Unallocated contingency	—	—	—	—	—	—	—	4,593	4,866
Total	**$7,804**	**$7,290**	**$5,316**	**$9,312**	**$17,488**	**$3,284**	**$5,367**	**$96,454**	**$107,347**

DETAILED EVALUATION OF ALTERNATIVES

The Alternatives Analysis study includes a detailed evaluation of how well each alternative/alignment option can meet the goals and objectives established for the project. These goals/objectives are to:

- Improve mobility
- Improve the environment
- Optimize transit operating efficiencies
- Provide a cost-effective solution
- Support local land use plans and respond to growth.

The evaluation methodology was designed to ensure that local priorities and Federal Transit Administration criteria were met. Table 3 shows some of the key results of the evaluation. These results compare the Caltrain Extension Alternative to the Express Bus Alternative for the selected evaluation criteria, including cost and user benefits. The benefits monetized in Table 3 are expressed as positive

dollars, while costs are expressed as (negative) dollars. Table 3 demonstrates that the benefits of the Caltrain Extension Alternative exceed the benefits of the Express Bus alternative in both 2010 and 2030.

Table 3
Summary of Caltrain Extension and Express Bus Alternative Benefits

Benefit Type	2010		2030	
	Caltrain	Express Bus	Caltrain	Express Bus
User Benefits				
In-vehicle travel time	$ 252,032	$ 252,032	$ 6,985,931	$ 4,160,454
Fuel costs	4,499,622	4,499,622	8,631,039	8,631,039
Non-fuel operating cost savings	1,925,316	1,925,316	3,693,083	3,693,083
Transit user fees	(3,310,612)	(3,310,612)	(6,320,790)	(6,320,790)
Internal accident costs or savings—Highway	3,144,040	3,144,040	6,027,934	6,027,934
Transit	(150,545)	(893,907)	(304,004)	(1,698,612)
Revenue Transfers (Fuel Taxes)	(893,915)	(893,915)	(1,714,681)	(1,714,681)
Reduction in External Costs				
Emissions	14,361	(105,368)	(136,415)	(381,210)
Highway accidents	554,830	554,830	1,063,753	1,063,753
Transit accidents	(14,406)	(148,306)	(28,744)	(284,432)
Net Public Operating Costs	(1,175,068)	(5,256,095)	(2,393,619)	(10,812,623)
Total	**$4,845,655**	**($232,363)**	**$15,503,487**	**$2,363,915**

The evaluation of the Caltrain Extension and Express Bus alternatives assumed equal ridership for both the commuter rail and express bus modes. For this reason, most of the user benefits identified above are equal between the Caltrain and Express Bus options. By the year 2030, in-vehicle travel time for the Express Bus Alternative will be longer due to increased roadway congestion; however, for the most part benefits are the same or similar between the two modal options. The significant difference is “Net Public Operating Costs” which is the difference between total operations and maintenance expense and fare revenues (transit user fees) paid to ride the service. Operation of a large bus fleet with limited seating capacity between Monterey County and San Francisco Peninsula stations is far more expensive than the incremental cost of extending Caltrain service 37 miles from Gilroy to Salinas.

The Caltrain Extension and Express Bus alternatives are assumed to be implemented by 2010, with the initiation of service occurring in 2011. An analysis of life-cycle benefits and costs indicates that the Caltrain Extension Alternative will have a higher benefit-cost ratio than the Express Bus Alternative over a 20-year, 2011 to 2030 payback period, as indicated in Table 4. Higher operating costs and the need to more frequently replace express bus vehicles result in less favorable performance for the Express Bus Alternative compared to the Caltrain Extension Alternative. The payback period is the amount of time measured in years to recover the life cycle investments (capital and net public operating costs). The table shows that public investment in the Express Bus Alternative will never be paid back.

This analysis includes estimates of user benefits including travel time savings, reductions in out-of-pocket travel expenses, and reduced accident costs. Estimates of revenue transfers (reduced public tax revenue collections) are included in the analysis. The economic analysis also measures external costs such as the health cost of motor vehicle emissions and accident costs which are not perceived by users.

Table 4
Summary of Benefit Cost Analysis Results

	Caltrain Extension	Express Bus
Life cycle benefits/total costs ratio	$203 M/$102 M = 1.99	$21 M/$116 M = 0.18
Net present value of benefits/costs at 7% discount rate	$77 M/$88 M = 0.88	$7 M/$84 M = 0.08
Payback period at 7% discount rate	23.5 years	Not paid back

Selection of a locally preferred alternative is seldom based on cost/benefit information alone. For this reason, social or societal performance indicators have been included to address key issues of project feasibility.

FREQUENTLY ASKED QUESTIONS

1. **Will the fixed guideway investment attract sufficient ridership to be worthy of the investment?**
   The Caltrain Extension Alternative and Express Bus Alternative are forecast to attract approximately 1,028 riders each direction (2,056 riders per day) as of 2010, and twice this number by 2030. Spread over a two-hour commute window, this ridership would be equivalent to approximately one-quarter of one freeway lane times 74.2 miles (equal to 18.5 lane miles) in 2010, and one-half of one freeway lane times 74.2 miles (equal to 37 lane miles) in 2030. Both transit alternatives would be capable of carrying additional riders as demand warrants, and could therefore provide additional freeway equivalent capacity to the U.S. 101 Corridor over and above these levels. **When compared to the cost of constructing equivalent freeway capacity (at $5 million per lane mile for freeway construction), the proposed transit fixed guideway investment will pay for itself in one year.**

   When compared to other transit investments, the Monterey County Caltrain Extension and Express Bus Alternatives **perform very well from a passenger miles traveled perspective.** Table 5 indicates that Monterey County's 2,056 daily riders (2010 ridership), for example, is equivalent to more than 12,000 Bay Area Rapid Transit (BART) riders, based on passenger miles traveled.

2. **Is the proposed fixed guideway investment cost effective?**
   The benefit-cost analysis summarized above indicates that the Caltrain Extension Alternative is cost effective and yields life cycle benefits which nearly equal costs. The Express Bus Alternative is one-tenth as cost effective. Table 6 compares ridership with annualized capital costs, operations and maintenance costs, and net public (subsidy) costs. **Relative to other (national) transit fixed guideway investments, both the Caltrain Extension and Express Bus alternatives are cost effective ($10.29 to $24.03 of public investment per rider).**

Table 5
Daily Caltrain Extension Transit Rider Equivalents Based on Trip Length (2004)

Mode/Service	Average Trip Length (miles)	Trip Length Ratio*	Daily Rider Equivalent†
Monterey County Caltrain/Express Bus (2010)	74.2	1	2,056
National			
Commuter rail	23.5	3.16	6,497
Heavy rail	5.2	14.27	29,339
Light rail	4.5	16.49	33,903
Bus	3.7	20.05	41,223
San Francisco Bay Area			
Caltrain Peninsula Corridor Joint Powers Board	20.07	3.70	7,607
Altamont Commuter Express	47.92	1.55	3,187
Bay Area Rapid Transit (BART)	12.59	5.89	12,110
Santa Clara Valley Transportation Authority	4.42	16.79	34,520

Source: 2004 National Transit Database, Parsons
645188AA-102
*Trip Length Ratio = Monterey County Average Trip Length ÷ Average Trip Length
†Daily Rider Equivalent = Trip Length Ratio × Monterey County Daily Rider Equivalent

Table 6
Capital and Operating Costs per Rider and per Passenger Mile

Parameter	Caltrain Extension Alternative		Express Bus Alternative	
	2010	2030	2010	2030
Annual ridership	524,280	1,001,130	524,280	1,001,130
Annual passenger miles	38,903,565	74,642,682	38,903,565	74,642,682
Annualized capital cost ($ 2007)	$7,150,000	$7,905,137	$7,337,476	$9,226,006
Annualized capital cost per rider	**$13.64**	**$7.90**	**$14.00**	**$9.22**
Annualized capital cost per passenger mile	**$0.184**	**$0.106**	**$0.189**	**$0.124**
Annual O&M cost ($ 2007)	$4,485,680	$8,714,409	$8,566,7071	$17,133,413
O&M cost per rider	$8.56	$8.70	$16.34	$17.11
O&M cost per passenger mile	$0.115	$0.117	$0.220	$0.230
Annual fare revenue	$3,310,612	$6,320,790	$3,310,612	$6,320,790
Annual net public operating cost	$1,175,068	$2,393,619	$5,256,095	$10,812,623
Net public operating cost per rider	**$2.24**	**$2.39**	**$10.03**	**$10.80**
Net public operating cost per passenger mile	**$0.030**	**$0.032**	**$0.135**	**$0.145**

3. Will the proposed fixed guideway investment equitably serve Monterey County residents?

The proposed Caltrain Extension and the Express Bus alternatives will provide Monterey County residents with public transportation access to relatively high paying jobs, colleges and universities, health care facilities, sports venues, national/international airports, recreational destinations and shopping attractions in the San Francisco Bay Area.

As of 2000, more than 233,000 residents of Monterey County and southern Santa Cruz County lived within 4.5 miles of one of the three Caltrain Extension commuter rail stations. Based on the findings of the 2000 census, more than 50 percent of the population served is likely to be of

Hispanic/Latino background and nearly 50 percent of the population served is classified as being of low or moderate income. In Santa Clara County, the average wage of all private workers is nearly double the average in Monterey County; while the average wage of high tech workers is nearly three and one-half times that paid by Monterey County employers. As of 2000, more than 570,000 jobs were available in Santa Clara County/Silicon Valley. Both the Caltrain Extension and the Express Bus alternatives will provide travel time competitive, affordable transit access to these higher paying jobs.

4. Will the proposed fixed guideway investment generate economic benefits for Monterey County?

Population and housing growth are forecast for the communities and neighborhoods surrounding the proposed fixed guideway stations. The Caltrain Extension and Express Bus alternatives could help to accommodate this growth by providing efficient public transportation options.

Beneficial impacts to community cohesion and quality of life would occur for residents and businesses near the proposed rail stations or park-and-ride facilities. Residential property values are expected to increase slightly near transit stations. Rail stations have a higher correlation with transit-oriented development and increase in property values than bus centers. (See the response to question 5 for more on transit-oriented development.)

Employment growth at the proposed station sites would result mostly from a redistribution of existing employment. Access to regional jobs and educational and entertainment opportunities would increase for residents living near proposed stations, including environmental justice populations. As noted above, the proposed project will provide access to higher paying jobs in Santa Clara County/Silicon Valley, as well as jobs located in San Mateo and San Francisco counties. In addition to jobs, educational opportunities that provide entry level access to these higher paying jobs will be accessible by the proposed Caltrain Extension and Express Bus alternatives.

Higher wages earned by Monterey County residents working in the San Francisco Bay Area will likely create secondary employment opportunities in the Monterey Bay region.

5. Will the proposed transit centers promote localized transit-oriented development?

The Transportation Agency for Monterey County has adopted a set of guidelines for community development that encourage the siting of higher density housing and mixed-use developments around transit centers. Higher density housing near rail stations could provide additional affordable or workforce housing. The Agency will partner with jurisdictions to promote transit-oriented development around transit centers. The Transportation Agency also administers the Transportation for Livable Communities Transit-Oriented Development incentive grant program, which rewards jurisdictions who approve such developments with funds for transportation projects. Encouraging this kind of growth around transit maximizes the investment in the transportation networks by promoting transit use and infill development in walkable areas, thereby increasing living and transportation choices while reducing reliance on automobiles.

General and local community plans show higher density housing and mixed-use developments in proximity to the three proposed rail stations. The draft Castroville Community Plan proposes housing and mixed-use developments proximate to the rail station. The City of Salinas's General Plan and Downtown Rebound Plan both call for redevelopment around the intermodal transportation center. In Pajaro, the County Redevelopment and Housing office is planning for a job-training center next to the rail station. All three plans actively support the transit centers as focal points for redevelopment and infill development.

6. Is funding available to implement the proposed transit service?

Table 7 lists the proposed capital budget for the Caltrain Extension to Monterey County project. The total estimated project cost is $99.5 million expressed in year-of-expenditure dollars, including a layover facility, bus transfer center, and commuter parking in Salinas, a platform and parking in Castroville, a platform and parking in Pajaro, and main line Union Pacific track upgrades in Gilroy and between Gilroy and Salinas. The budget does not include an allowance for Caltrain rolling stock as sufficient passenger capacity exists to implement the two-train and four-train scenarios without need for additional passenger coaches.

Funding for the Caltrain Extension project includes the State Traffic Congestion Relief Program, Proposition 116 rail bond funds, State Transportation Improvement Program–Public Transportation Account funds, Regional Surface Transportation Program-Interest, a federal earmark, Congestion Mitigation and Air Quality Improvement funding, and contributions from local partner agencies. A proposed application for FTA New Starts funding in the amount of $45.0 million fills the gap between the available funding and the estimated total project cost. These fund sources and amounts are preliminary and are subject to change.

Three sources of funds required to meet net public operating costs (subsidize transit operations and maintenance expenses) are anticipated: Local Transportation funds, State Transit Assistance funds, and local sales tax funds.[1]

Table 7
Caltrain Extension to Monterey County Capital Budget—Funding Element
(year of expenditure dollars)

Funding Sources	Identified Funds Available	Secured	Proposed	Grand Total
Regional Surface Transportation Program–Interest	$ 315,000	$ 315,000	$ 0	$ 315,000
Federal earmark	$ 990,644	$ 990,644	$ 0	$ 990,644
Congestion Mitigation and Air Quality Improvement	$ 975,000	$ 975,000	$ 0	$ 975,000
Proposition 116 rail bond funds	$ 3,000,000	$ 3,000,000	$ 0	$ 3,000,000
State Transportation Improvement Program	$ 4,520,000	$ 4,520,000	$ 0	$ 4,520,000
Traffic Congestion Relief Program	$ 20,000,000	$20,000,000	$ 0	$ 20,000,000
Local contributions	$ 16,865,000	$ 1,165,000	$15,700,000	$ 16,865,000
Monterey–Salinas Transit Federal grant/local match	$ 9,411,000	$ 0	$ 9,411,000	$ 9,411,000
Federal New Starts	$ 45,000,200	$ 0	$45,000,200	$ 45,000,200
Total Revenues	**$101,076,844**	**$30,965,644**	**$70,111,200**	**$101,076,844**

Source: TAMC—subject to change

PARTNERSHIPS AND COLLABORATION

There is strong local support for the proposed service extension due to the projected population growth in the Monterey Bay Area and the increasing numbers of San Francisco Bay Area workers who are making their homes in San Benito, Santa Cruz, and Monterey counties. A multi-agency task force comprised of the Santa Clara Valley Transportation Authority, Transportation Agency for Monterey County, Association of Monterey Bay Area Governments, MST, Caltrans, Santa Cruz

[1] A local transportation sales tax is proposed as a November 2008 ballot initiative.

County Regional Transportation Commission, San Benito County, and the cities of Salinas and Watsonville has been meeting to discuss and plan the initial steps to creating this train service extension. This project is an outgrowth of their multi-agency coordination.

Local and regional agencies representing the study area or portions thereof have conducted many studies that serve as precursors or complements to this selection of a locally preferred alternative. The project has been coordinated with the Union Pacific Railroad, the Peninsula Corridor Joint Powers Board, Caltrans, the Santa Clara Valley Transportation Authority, the City of Salinas, the Redevelopment Agency of Monterey County, Monterey–Salinas Transit, the City of Watsonville, the Santa Cruz County Regional Transportation Commission, and the Santa Cruz Metropolitan Transit District.

Specific ongoing efforts include the City of Salinas' plans for intensified transit-oriented development near the Salinas station site, Caltrans' plans for upgrading SR 156 east of Castroville Boulevard, the Castroville Community Plan, the Pajaro Community Plan, Union Pacific's short- and long-term plans for freight and yard operations, and the California Passenger Rail System Five-Year Improvement Plan.

SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE

The results of this Alternatives Analysis study indicate that **the Caltrain Extension to Monterey County is the most cost-effective alternative for serving inter-county commuters to Silicon Valley and providing access to educational and health care resources in the San Francisco Bay Area.** Selection of this option will meet the purpose and need of the proposed investment by providing additional transportation capacity in the U.S. 101 travel corridor. Further, selection of the Caltrain Extension modal option can increase capacity over and above that defined for the Caltrain Extension Alternative by increasing the length of the trains and/or increasing the number of trains. The Caltrain Extension Alternative is also superior to the Express Bus Alternative for stimulating the local economy and supporting transit-oriented development.

For the purpose of evaluating project worthiness, the Federal Transit Administration requires that project applicants for federal "New Starts" discretionary funding provide comparative information on a Express Bus or "best bus" alternative. For this reason, performance characteristics of a "baseline" alternative have been included in this study along with those of the Caltrain Extension Alternative and the minimum operating segment of the Caltrain Extension Alternative.

Based on the array of technical information, evaluation findings and public input, a key outcome of the detailed Alternatives Analysis is the selection of a preferred long-term strategy for the corridor. The long-term strategy is defined as investments required to address the 2030 planning horizon. As a subcomponent of the locally preferred alternative, a reduced scope alternative is defined to address near term, opening year needs. This reduced scope alternative is known as the "minimum operating segment." The minimum operating segment must address the purpose and need for the project within the context of near-term demographic and travel conditions. For the purpose of this study, the near-term minimum operating segment is defined for 2010 conditions.

Three stations would initially be constructed as proposed for the full Caltrain Extension Alternative. Parking supplies would be reduced, however, commensurate with ridership expectations for the 2010–2015 initial years of service operation. Other aspects of the minimum operating segment would be as defined for the full Caltrain Extension Alternative.

CHAPTER 1: INTRODUCTION

OVERVIEW OF MONTEREY COUNTY FIXED GUIDEWAY STUDY

The Monterey County Fixed Guideway Study considers major transit capital investment for inter-county commuting and intra-county travel needs. Inter-county commuting consists of travel between northern Monterey County and southern Santa Cruz County to the San Francisco Bay Area. Intra-county travel consists of trips along the Monterey Peninsula and trips between the Monterey Peninsula and Salinas. Figure 1-1 illustrates and summarizes the travel markets considered by the Monterey County Fixed Guideway Study.

The Monterey County Fixed Guideway Study had its origins in 1990 with the passage of Proposition 116, a California voter initiative which identified Monterey County as a recipient of rail bond capital funds for passenger rail projects within the county.

In 1990, the Governor approved Assembly Bill No. 222, which appropriated $100,000 for a rail passenger feasibility study for the Gilroy–Monterey portion of the San Francisco–Monterey rail corridor. Passenger Rail Feasibility Study No. 05D423 was prepared for the California Department of Transportation (Caltrans) District 5 in 1992 and finalized in September 1993. It addressed the feasibility of passenger rail service between San Francisco, Monterey, Salinas, and Hollister. The study found a market for work trips using passenger rail between Salinas and Silicon Valley, and indicated that service to Salinas would be the most feasible short-term corridor due to the presence of existing rail facilities. A daily schedule of two northbound trains departing from Salinas and two southbound trains terminating in Salinas was recommended.

Subsequent to this study, Monterey County officials apportioned the Proposition 116 bond funding between the U.S. 101 Corridor and Monterey Peninsula travel markets.

U.S. 101 Corridor Element

Insofar as the U.S. 101 Corridor fixed guideway alternative(s), project scoping activities for an extension of Caltrain to Monterey County have been ongoing since 1996. From June 1996 to June 1998, the City of Salinas sponsored investigations of development options for a Salinas Intermodal Transportation Center to be developed at the site of the existing Amtrak Station. Phase 1 of the transportation center, consisting of bus layover bays, surface parking, site landscaping and lighting, was subsequently constructed and placed into operation in 1999.

In 1997, the City of Watsonville prepared a *Draft Pajaro Valley Station Project Study Report*, in cooperation with Monterey County, the Transportation Agency of Monterey County (TAMC) and the Santa Cruz County Regional Transportation Commission. While not finalized, the draft project study report (PSR) identified a potential site location and set of program requirements for this station.

During the time period from 1998 to 2000, these program requirements and opportunities for adjacent site development were further refined and explored by a Monterey County–sponsored *Pajaro Railyards Area Feasibility Study*. This study, as well as the draft PSR, sited the Pajaro Valley Station adjacent to the former Southern Pacific Passenger Depot, accessed from Salinas Road.

Figure 1-1
Monterey County Fixed Guideway Travel Markets

- **Intra-County Transportation Issues:**

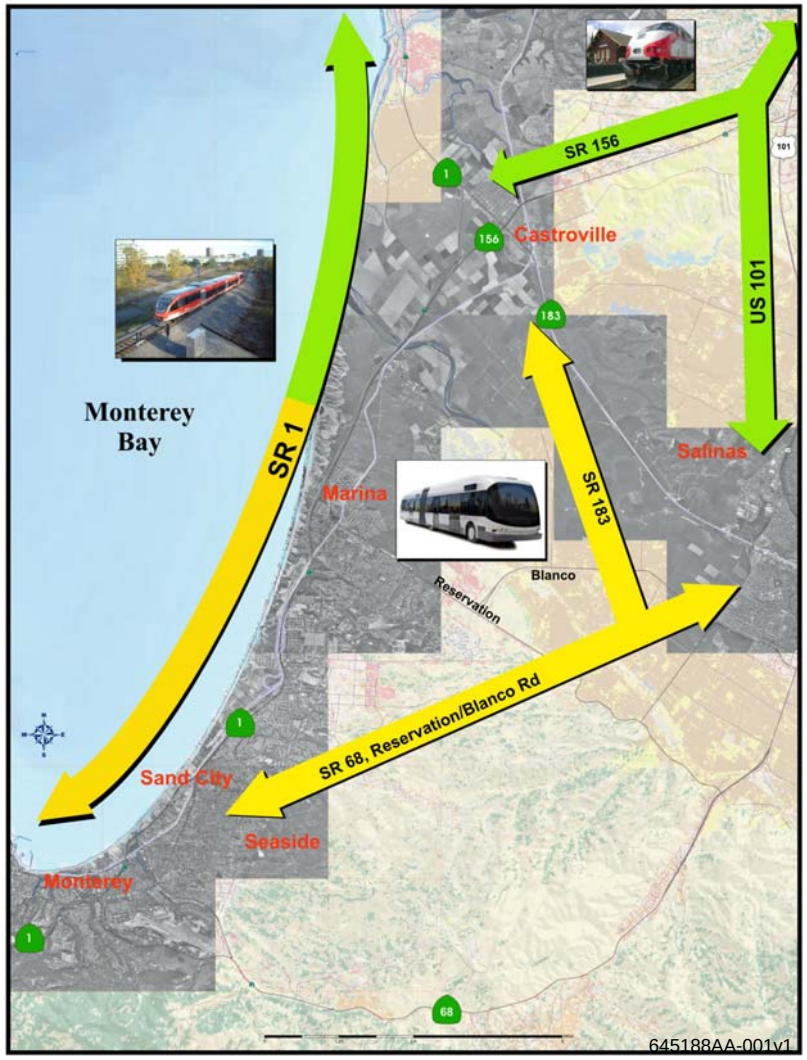
  Peak period congestion on

  - SR 1 between Marina and Monterey
  - SR 68 between Monterey/Seaside and Salinas
  - Reservation Road/Blanco Road between Marina and Salinas

- **Inter-County Transportation Issues:**

  Peak period congestion on

  - SR 1 north of Marina to Santa Cruz
  - U.S. 101 from Salinas to San Francisco
  - SR 156 between SR 1 and U.S. 101



In 2000, TAMC sponsored the preparation of the *Extension of Caltrain Commuter Service to Monterey County Business Plan*. The business plan considered, but did not thoroughly evaluate, alternative sites for stations at Pajaro and Castroville and a layover yard in Salinas.

Coinciding with the preparation of the Business Plan, the State of California enacted the Traffic Congestion Relief Act of 2000, which earmarked $20 million for the Caltrain extension to Salinas. To secure state funding, a transportation project in California must be included in the State Transportation Improvement Program. To enter the State Transportation Improvement Program, projects must have a "project initiation document" which is typically a PSR. The intent of the PSR is to provide decision makers with sufficient information to make budget decisions. In the case of the Caltrain Extension project, the PSR was initiated on March 28, 2002 and completed on February 21, 2006. The extensive time required to prepare this document resulted from citizen and agency input regarding definition of the Build Alternative.

A California Environmental Quality Act Environmental Impact Report was also prepared in parallel to the PSR, with a Draft Environmental Impact Report circulated for public review on April 26, 2006 and a Final Environmental Impact Report certified on August 23, 2006.

The proposed project consists of four elements: commuter rail station construction at the communities of Pajaro and Castroville; renovations/expansions of an existing passenger rail station and construction of a new parking facility at Salinas; and construction of a commuter rail layover facility at Salinas (Figure 1-2). Improvements to the Union Pacific Railroad (UPRR) Coast main line between Gilroy and Salinas and institutional arrangements required for construction and operation of commuter rail service between Gilroy and Salinas are also part of the Caltrain Extension Alternative.

Monterey Peninsula Corridor Element

In parallel with the Caltrain Extension to Salinas project, a number of studies have been undertaken to define fixed guideway service in the Monterey Peninsula Corridor.

The Caltrans-sponsored "Passenger Rail Feasibility Study" cited above was completed in September 1993 by Wilbur Smith & Associates in response to a state legislative requirement. This study examined both intercity and commuter rail services from San Francisco to Monterey, Salinas and Hollister and intercity service from San Francisco to Los Angeles that would also provide service between San Francisco and Salinas. As a result of this study, a locally-preferred alternative (LPA) was adopted in the 1994 Regional Transportation Plan. This LPA was comprised of short-term and long-term elements. In the short-term all rail services were to serve Salinas to minimize capital costs and included extension of one Caltrain commute train, a San Francisco to Salinas intercity train and a San Francisco to Los Angeles train serving Salinas. In the long-term, rail service into Monterey would be restored either via the Monterey branch line from Castroville or via a new alignment from Salinas through Fort Ord to Monterey.

The "San Francisco–Monterey Intercity Rail Service Implementation Plan" was completed in January 1998 by De Leuw, Cather & Company for TAMC. The study examined the travel market from the San Francisco Bay Area to the Monterey Bay Area by all modes. It found that there is a market for a once daily Friday through Monday rail service from San Francisco to Seaside in the morning and return in the evening with shuttle buses from Seaside to Monterey destinations. It also estimated the incremental ridership that would be generated by a bus connection from Castroville to Salinas and through connections with the Capitol Corridor at San Jose when the market justifies a second daily train.

Figure 1-2
Caltrain Extension to Monterey County Project Study Area

Products from this study included:

- Strategic planning and railroad negotiations (October 1995–December 1997)
- Sand City/Seaside Station Plans (October 1996)
- Market Research and Ridership Forecasts (December 1996) Monterey Branch Line Engineering Investigations (January and February 1997)
- Rail Development Issues and Implementation Plan (February 1997)

The "Around the Bay Rail Study" was completed in July 1998 by LS Transit Systems for TAMC and the Santa Cruz County Regional Transportation Commission. This study examined joint services from the San Francisco Bay Area to Monterey and Santa Cruz. It projected the ridership for weekend services building over time to frequent daily services. It analyzed the operating cost advantage of diesel multiple unit rolling stock in comparison to locomotive-hauled trains.

In 1999, STV Incorporated was contracted by TAMC to prepare environmental reports and a preliminary design of improvements necessary to accommodate intercity passenger rail service between Monterey and San Francisco on the Monterey branch line. This effort was completed in March 2003. Satisfying the Federal Transit Administration requirement for a major investment study (MIS) was also included in the scope of work.

Accordingly, TAMC formed a major investment study task force on March 28, 2000. This task force met on April 25, 2000 and identified four alternatives—a Base-Case Alternative (no action or no build), a Transit Demand Alternative, a Build Alternative to establish a limited stop bus service, and a Build Alternative to establish an intercity rail service. The Build Alternative (Caltrain Extension Alternative) assumed operation of a passenger rail service from San Francisco to Monterey via the Caltrain line to San Jose, the UPRR from San Jose to Castroville (shared with limited Caltrain service to Gilroy and a future extension to Salinas) and the Monterey branch line to a Monterey Bay station to be constructed at Fort Ord. Shuttle buses serving various Monterey destinations would meet the trains at the Monterey Bay station.

Following the completion of the STV study, TAMC contracted with Kleinfelder, Inc. for the preparation of a Phase II Site Assessment for the 13-mile segment of the Monterey branch line owned by the UPRR between Castroville and Seaside. This work was completed in June 2003.

TAMC subsequently purchased the Monterey branch line from UPRR in September 2003; using Proposition 116 state rail bond funding. Use of the Monterey branch line for public transportation is conditioned on certification of the California Environmental Quality Act and National Environmental Policy Act environmental documents.

To address concerns regarding noise impacts associated with intercity train service, and to potentially qualify the Monterey Peninsula service for "New Starts" discretionary funding, TAMC contracted with Parsons Transportation Group Inc. in June 2004 to undertake a Monterey Peninsula Fixed Guideway [Alternatives Analysis] Study. At the request of the Federal Transit Administration (FTA) staff, the scope of this study was later expanded to include the Caltrain Extension to Salinas project, in addition to examining Monterey Peninsula service options.

A long list of alternatives was developed and reviewed with local policy makers and the public during the June 2004 to June 2005 timeframe. The list of alternatives was then narrowed between June and August 2005, and subsequently refined through April 2006. The rest of this chapter summarizes these activities.

THE ALTERNATIVE ANALYSIS PROCESS

The development and screening of alternatives are very important steps within the Alternatives Analysis for the Monterey County Fixed Guideway Study. This alternatives analysis is both a planning activity and an evaluative process, consisting of interrelated analytical phases (see Figure 1-3). A key decision point in the study is the selection and adoption of a locally preferred alternative for the U.S. 101 Corridor and Monterey Peninsula elements of the Monterey County Fixed Guideway Study. Figure 1-4 illustrates the evaluation criteria and measures utilized during this process.

The overall planning and project development process for federally-funded transit projects is prescribed by the FTA and is referred to as the New Starts process. The following paragraphs provide a brief description of the analytical phases within the FTA New Starts process that provide decision making framework for the Monterey County Fixed Guideway Study.

Study Initiation

In this phase, the purpose and need for transportation improvements is carefully defined for the study area. Travel patterns, transportation system performance, and past studies are reviewed and analyzed. The Purpose and Need statement summarizes this technical information along with public input and identifies key trends and issues. These issues lead to the determination of objectives to be achieved by transportation improvements in the study area.

The Alternatives Analysis conducted to date indicates there are two separate but interrelated travel markets for fixed guideway transit serving Monterey County. One of these travel markets is the U.S. 101 commuter market between northern Monterey County and southern Santa Cruz County to the San Francisco Bay Area. This market and associated studies are referred to as the *Monterey County Fixed Guideway Study: 101 Corridor Element.* The vast majority of this alternatives analysis report, following this chapter, pertains solely to the 101 Corridor Element.

A second travel market is the Monterey Peninsula transportation market. It includes trips made between Peninsula cities and intra-county connections to Salinas and Castroville. These connections additionally accommodate inter-city service to/from the San Francisco Bay Area. This market and associated studies is referred to as the *Monterey Peninsula Fixed Guideway Study.*

The "Build Alternative" of the Monterey County Fixed Guideway Study: 101 Corridor Element is the *Caltrain Extension to Monterey County.* Hereafter, this alternatives analysis will be referenced by that name.

The U.S. 101 Corridor is heavily congested in the San Francisco Bay Area and portions of Monterey County. The proposed project would extend Caltrain commuter rail service from the existing terminus in Gilroy to Monterey County, including stations in Pajaro, Castroville, and Salinas, to relieve congestion, improve regional air quality, and provide transportation alternatives for commuters and residents traveling between Monterey County and southern Santa Cruz County to the San Francisco Bay Area.

The proposed extension of Caltrain to Salinas would provide an alternative means of travel between these counties, significantly reducing congestion along U.S. 101 into Santa Clara, San Mateo, and San Francisco counties, and improving regional air quality. In addition, the proposed rail service is a cost effective alternative to widening U.S. 101.

Figure 1-3
Alternatives Evaluation Process

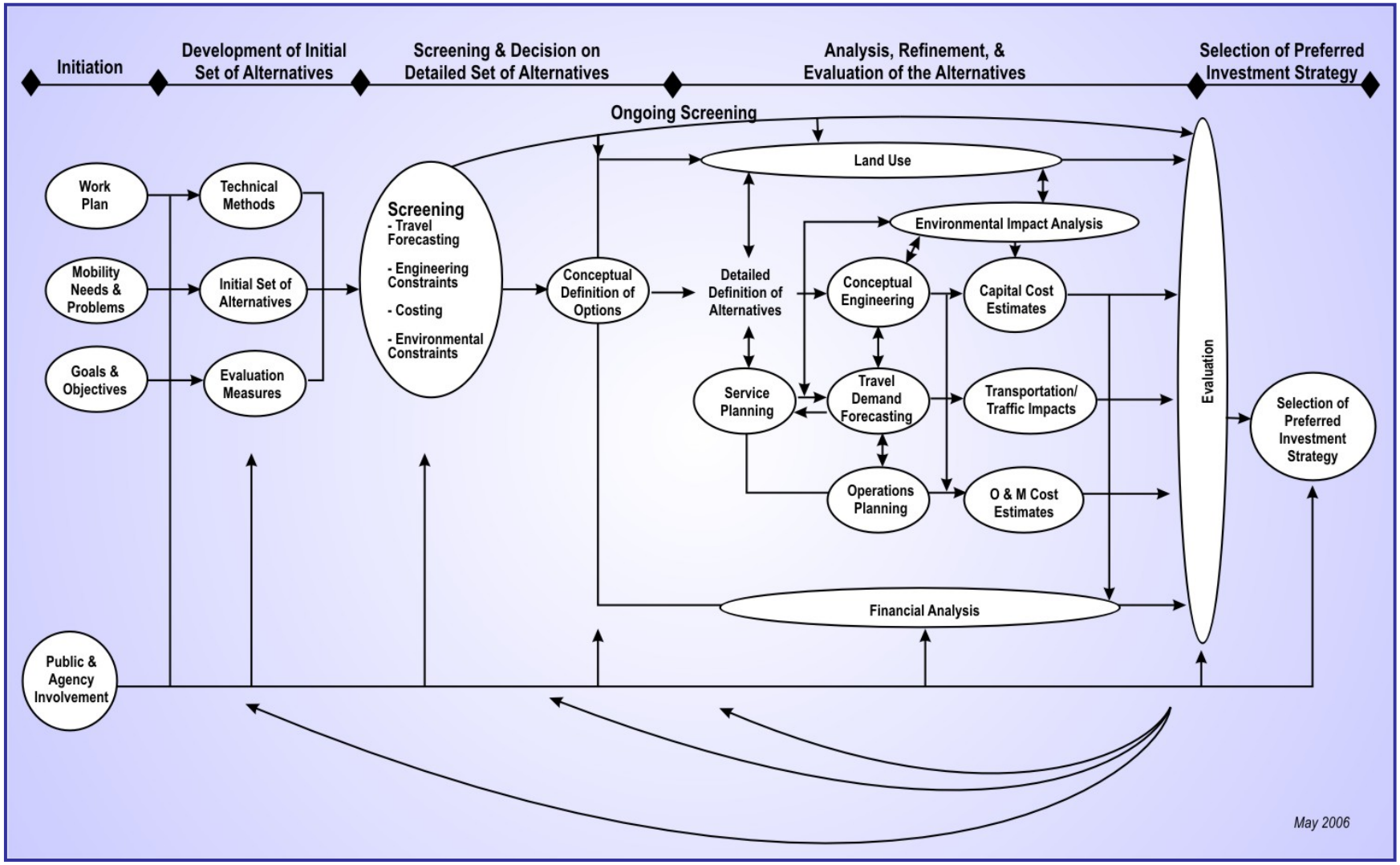


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Figure 1-4
Evaluation Criteria and Measures

TIER ONE EVALUATION:
Qualitative Evaluation of Conceptual Alternatives

CRITERIA	PERFORMANCE MEASURE
Addresses Purpose and Need	• Alignment serves identified corridors and travel markets • Station's proximity to housing and job concentrations
Community Acceptance	• Public comment and input • Potential visual impacts and issues • Pedestrian safety • Noise and vibration issues • Air quality • Neighborhood cohesion • Traffic disruption
Fundable Capital and Operating Costs	• Order of magnitude capital cost (i.e. $50M, $100M, $200M, more) • Net annual operating cost ($1M, $5M, $10M, more)
Potential for Phased Implementation	• Guideway construction • Transit service

TIER TWO EVALUATION:
Quantitative Evaluation of Short-Listed Alternatives

Criteria	Performance Measure	Measurement
Mobility Improvements	• Travel time savings • Ridership potential • Traffic Congestion relief	• Annual hours and dollar costs • Total forecasted ridership • Change in transit ridership • Reduction in auto trips using congested roadways
Equity Issues	• Low-Income House-holds served • Transit-Dependent Households served • Total Households served • Employment served	• Number of low-income households within 1/2 mile of boarding points • Number of 0-1 auto households within 1/2 mile of boarding points • Number of households within 1/2 mile of boarding points • Number of jobs within 1/2 mile of boarding points
Capital and Operating Expenditures	• Capital and operating costs of implementing alternative	• Total estimated capital cost of investment • Total annual operating cost of investment • Net annual operating cost of investment
Cost Effectiveness	• Operating performance • Cost performance	• Annual revenue passengers/ platform hour • Total annual operating and maintenance cost per rider for investment • Net operating and maintenance cost per new rider • Annualized capital cost/rider
Transit-Oriented Land Use	• Service to existing transit supportive land uses and potential for encouraging future transit-oriented development	• Subjective rating base on: Existing land use, transit-supportive corridor policies, supportive zoning
Environmental Concerns	• Likelihood of major environmental constraints • Disruption of neighborhood	• Assessment of potential health, water, biological, and cultural "fatal flaws" associated with each alternative • Potential noise, vibration, traffic, safety, and visual impacts

TIER THREE EVALUATION:
Quantitative Analysis of Locally Preferred and Baseline Alternatives and Required Materials for FTA and New Starts Report

Analysis Areas & Information Requirements

- Project Description Worksheet
- Project Maps
- Certification of Technical Assumptions
- Mobility Improvements
- Travel Time Savings Worksheet
- Low Income Households Served Worksheet
- Employment Worksheet
- Environmental Benefits
- Change in Emissions and Energy Consumption Worksheet
- Current Regional Air Quality Designation
- Operating Efficiencies
- Change in Operating Cost per Passenger Mile Worksheet
- Cost Effectiveness
- Transportation System User Benefits
- Annualized Cost Worksheet
- SUMMIT Report File
- Transit Supportive Existing Land Use and Future Patterns
- Land Use Documentation and Supporting Information
- Quantitative Land Use Data Worksheet
- Local Financial Commitment
- Project Finance Worksheet
- Project Finance Plan
- Other Supporting Financial Documentation

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In addition to lowering congestion on the roadways, the commuter rail extension would bring a significant increase in ridership to both the existing Caltrain and the connecting Capitol Corridor services. Other benefits to this new service include an increase in access to job opportunities, more transportation alternatives for senior citizens and those with physical disabilities, increased access to educational resources and health care in the San Francisco Bay Area.

Currently in the Monterey County and San Francisco Bay areas, job distribution and worker housing distribution patterns do not match. The northern counties of San Francisco and Santa Clara have large job surpluses, requiring approximately 117,000 non-San Francisco Bay Area residents to fill the available positions as of 2000 (Metropolitan Transportation Commission). This pull of workers generates a large volume of inter-regional commuter traffic, adding to highway congestion and air quality impacts.

The U.S. Census for 2000 estimated that 18,073 persons living in Monterey County work in another county. Of this number, more than 30 percent are employed within Santa Clara County or other Bay Area counties. Available public transportation choices between Monterey County and Santa Clara County are limited to three northbound bus trips (two Greyhound and one MST) during the AM commute period and two southbound bus trips (one Amtrak Thruway and one MST) during the afternoon commute period. These buses are subject to traffic delays on U.S. 101 and SR 156.

Development of Initial Alternatives

As part of this phase, a candidate pool of initial conceptual alternatives is developed to address mobility problems and other concerns in the study area. This initial set of conceptual alternatives is structured to provide a range of multi-modal transportation infrastructure and service improvements. The transportation alternatives emphasize candidate alignments and levels of investment and thus address different aspects of the study purpose and need. Included in the initial set of alternatives are baseline alternatives which assume there is no new major transit capital investment and various build alternatives which may include major investments in bus and/or rail transit technologies. For the Monterey County Fixed Guideway Study[1], the conceptual alternatives considered included:

- No Build Rail Service
- Caltrain to Salinas Rail Service
- Monterey Peninsula to San Francisco Intercity Rail Service
- Monterey Peninsula to San Francisco Intercity Rail Service plus Caltrain to Salinas and Monterey Peninsula
- Monterey Peninsula Passenger Rail Shuttle to Castroville Caltrain Service
- Local Monterey Peninsula LRT (light rail transit) or BRT (bus rapid transit) Service
- Salinas to Monterey Local Rail Service
- Monterey Peninsula to San Francisco Intercity Rail plus Salinas to Monterey Local Rail Service
- Enhanced Local Bus plus Monterey County to San Francisco Peninsula Express Bus Service (transportation system management (TSM))

See Figure 1-5 for a brief description and location of the preliminary alternatives.

[1] Combined study of the U.S. 101 Corridor and Monterey Peninsula elements.

Screening of Initial Alternatives

These eight alternatives were defined for capital cost estimating purposes. Capital cost information (Table 1-1), together with mode technology information, right-of-way utilization and potential station renderings, public involvement findings, and a qualitative evaluation of alternative performance (see Figure 1-6), was presented to the Rail Policy Committee (RPC) in June 2005, along with a Project Development Team recommendation of shortlisted alternatives showing strong potential for implementation. This short list recommendation along with subsequent refinements and revisions were discussed with RPC at their July, August, and September 2005 meetings along with individual briefings with committee members on request.

Following the shortlisting of conceptual alternatives for further refinement and evaluation, the Alternatives-Analysis study was divided into two projects; one to serve intra-county needs and one to serve inter-county (Monterey to San Francisco Bay Area) needs. **This Alternatives Analysis document addresses the inter-county commute market alternatives.**

Two alternatives were defined to address the inter-county travel market: the Caltrain Extension to Salinas Alternative (Build Alternative) and the Express Bus Alternative (Transportation Systems Management (TSM) Alternative). Five additional alternatives were considered, but rejected. These included:

- Shuttle bus service to Gilroy
- Limited stop bus service to San Jose
- Shuttle train service to Gilroy
- Independent train service to San Francisco
- Bus rapid transit service

(These alternatives that were considered, but rejected, are discussed in Chapter 3 along with the Build Alternative and the TSM Alternative.)

As a result of this public involvement and policy review process, four alternatives emerged for further refinement and testing. These four alternatives, labeled A through D, are listed below:

A. Caltrain to Salinas Rail Service (four roundtrips on weekdays) and **Intracounty BRT Service** (Monterey to Castroville and Marina to Salinas).

B. Intracounty BRT/LRT Service (BRT from Monterey to north Marina and Marina to Salinas, LRT from Monterey to Castroville), **Monterey Peninsula to San Francisco Intercity Rail Service** (Monterey to San Francisco) and **Caltrain to Salinas Rail Service** (Commuter Rail).

C. Intracounty LRT Service (local LRT from Monterey to north Marina, LRT extension from North Marina to Castroville and Castroville to Salinas), **Monterey Peninsula to San Francisco Intercity Rail Service** (passenger rail from Monterey to San Francisco) and **Caltrain to Salinas Rail Service**.

D. Express Bus Service to San Francisco Peninsula (between Monterey County Transit Centers and Santa Clara, San Mateo and San Francisco County Caltrain Station Sets) and **Enhanced Local Bus Service** (Monterey to Marina and Marina to Salinas).

Figure 1-5
Conceptual Alternatives

ALTERNATIVE	
0	***No Build Rail Service*** Existing transit services and limited road improvements.
1	***Caltrain to Salinas Rail Service*** Extend four commuter rail roundtrips from Gilroy to Salinas.
2	***Monterey Peninsula to San Francisco Intercity Rail Service*** Operate intercity train service between the Monterey Peninsula and San Francisco 2 or 3 roundtrips per day.
3	***Monterey Peninsula to San Francisco Intercity Rail Service Plus Caltrain to Salinas and Monterey Peninsula*** Operate intercity train service between the Monterey Peninsula and San Francisco plus extend two Caltrain roundtrips from Gilroy to Salinas, and two roundtrips from Gilroy to the north side of Marina.
4	***Passenger Rail Shuttle to Castroville Caltrain Service*** Extend four Caltrain commuter rail roundtrips from Gilroy to Salinas. Operate connecting shuttle service between Seaside and Castroville to meet Caltrain service extension.
5	***Local Peninsula Rail or BRT Service*** Construct LRT or BRT Guideway between Monterey and Marina, or extend LRT to Castroville. Potential intercity rail from Marina to San Francisco under sub-option 5D. Includes Caltrain extension to Salinas.
6	***Salinas to Monterey Local Rail or BRT Service*** Construct LRT or BRT guideway between Monterey and Marina. Extend LRT guideway to Castroville via MBL and Salinas along Coast Mainline. Alternately, extend BRT guideway to Salinas via Blanco or Davis roads. Includes Caltrain extension to Salinas.
7	***Monterey Peninsula to San Francisco Intercity Plus Salinas to Monterey Local Rail Service*** Construct LRT between Monterey, Castroville and Salinas. Operate intercity rail service from Monterey to San Francisco. Use FRA-compliant diesel multiple rail equipment for both services. Includes Caltrain extension to Salinas.
8	***Monterey County to San Francisco Peninsula Express Bus Service (TSM)*** Low cost transit investments to match locally preferred build alternative. Includes major roadway construction to provide capacity/reduce congestion.

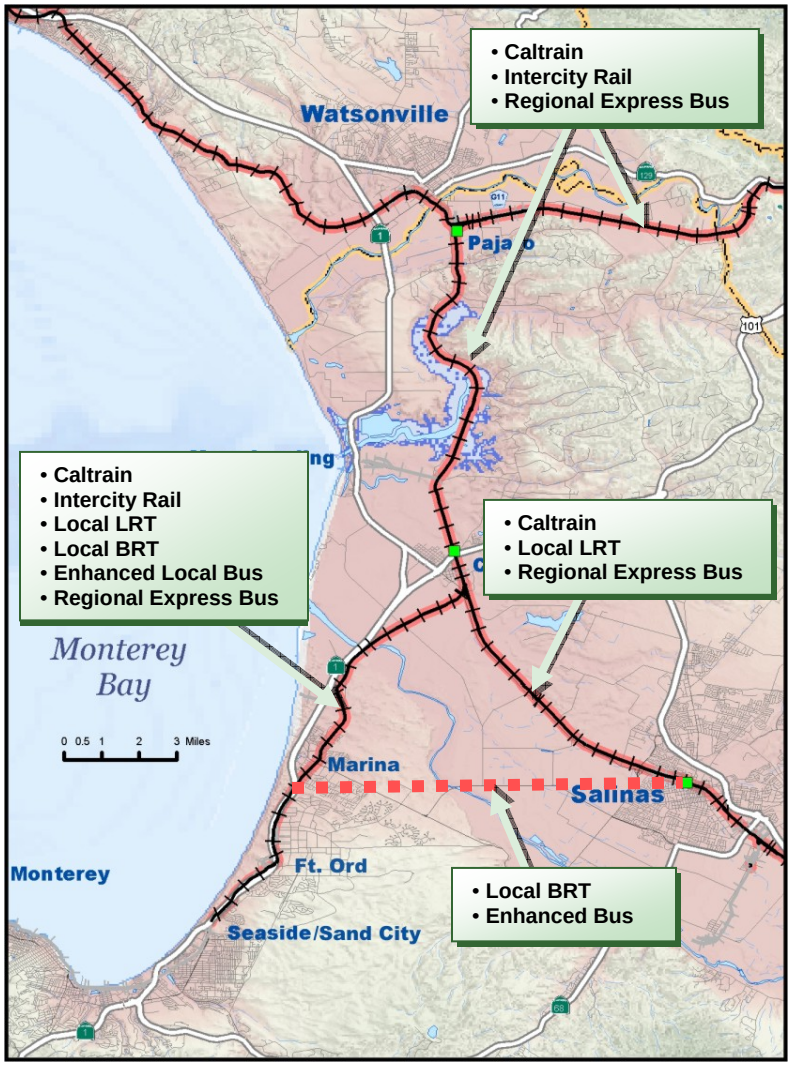

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Table 1-1
Preliminary Capital Cost Estimates

Alternative	Alternative Name and Description	Transportation Investment Component: Monterey Peninsula Fixed Guideway[1]	Transportation Investment Component: Caltrain Extension to Salinas[2]	Transportation Investment Component: Highway Elements	Total
0	***No Build Rail Service***—Existing transit services and limited road improvements	0	0	0	0
1	***Caltrain to Salinas Rail Service***—Extend four commuter rail roundtrips from Gilroy to Salinas	0	$75M	0	$75M
2	***Monterey Peninsula to San Francisco Intercity Rail Service*** —Operate intercity train service between the Monterey Peninsula and San Francisco 2 or 3 roundtrips per day	$44M	0	0	$44M
3	***Monterey Peninsula to San Francisco Intercity Rail Service Plus Caltrain to Salinas and Monterey Peninsula***—Operate intercity train service between the Monterey Peninsula and San Francisco plus extend two Caltrain roundtrips from Gilroy to Salinas, and two roundtrips from Gilroy to the north side of Marina.	$22M	$75M	0	$97M
4	***Passenger Rail Shuttle to Castroville Caltrain Service***—Extend four Caltrain commuter rail roundtrips from Gilroy to Salinas. Operate connecting shuttle service between Seaside and Castroville to meet Caltrain service extension.	$82M	$75M	0	$157M
5	**Local Peninsula Rail or BRT Service**—Construct LRT or BRT guideway between Monterey and Marina, or extend LRT to Castroville. Potential intercity rail from Marina to San Francisco under sub-option 5D. Includes Caltrain extension to Salinas.	5A—$ 88M 5B—$125M 5C—$ 75M 5D—$117M	0 $75M 0 0	0 0 0 0	$ 88M $200M $ 75M $117M
6	**Salinas to Monterey Local Rail or BRT Service**—Construct LRT or BRT guideway between Monterey and Marina. Extend LRT guideway to Castroville via Monterey branch line and Salinas along Coast main line. Alternately, extend BRT guideway to Salinas via Blanco or Davis roads. Includes Caltrain extension to Salinas.	$155M	$75M	0	$230M
7	**Monterey Peninsula to San Francisco Intercity Plus Salinas to Monterey Local Rail Service**—Construct LRT between Monterey, Castroville and Salinas. Operate intercity rail service from Monterey to San Francisco. Use FRA*-compliant diesel multiple rail equipment for both services. Includes Caltrain extension to Salinas.	$155M	$75M	0	$230M
8	**Monterey County to San Francisco Peninsula Express Bus Service**—Low cost transit investments to match locally preferred Caltrain Extension Alternative. Includes major roadway construction to provide capacity/reduce congestion.	TBD	TBD	$1,234M	$1,234M

Source: 645188AA-065

[1] *Capital Cost Report for the Monterey Branch Line*, Parsons, February 2005

[2] *Draft Caltrain Extension to Monterey County Project Study Report*, Parsons, February 2005

*Federal Railroad Administration

Figure 1-6
Qualitative Evaluation of Conceptual Alternatives

ALTERNATIVE		ADDRESSES PURPOSE AND NEED	COMMUNITY ACCEPTANCE	FUNDABLE CAPITAL AND OPERATING COSTS	POTENTIAL FOR PHASED IMPLEMENTATION
0	***No Build Rail Service*** Existing transit services and limited road improvements.	• Congested corridors remain so • Continuation of status quo • Residential growth compounds problems	• Residents desire traffic relief • Visitor and agricultural businesses desire traffic relief • Noise, air pollution, traffic reduce neighborhood cohesion/quality of life	• Monterey Branch line ROW purchased for $9.3 million • Local/state funding inadequate for county and interregional highway projects • Limited public financial support for transportation	• Basic bus service expanded as funding permits • Limited roadway construction as funding permits • Local initiative sales tax for transportation pending local and state economic recovery
1	***Caltrain to Salinas Rail Service*** Extend four commuter rail roundtrips from Gilroy to Salinas.	• Provides capacity/reduces traffic in U.S. 101 corridor between Salinas and Santa Clara/San Mateo counties • Stations centrally located in Salinas, Castroville, and Pajaro/Watsonville	• Wide public support in station communities • Supported by regional agencies • Reduces long distance vehicle trips, thereby improving air quality • Station investments viewed as visual/community improvements	• $75 million order of magnitude cost for 3 stations, layover facility, and track improvements. UPRR requirements may increase costs • Net annual operating cost low, $1–2 million/year due to high fare revenues	• Stations can be constructed as funding permits • Incremental parking supplies and station enhancements
2	***Monterey Peninsula to San Francisco Intercity Rail Service*** Operate intercity train service between the Monterey Peninsula and San Francisco 2 or 3 roundtrips per day.	• Trains operated during off-peak commute hours • Limited ridership forecast by earlier studies • One station proposed at former Fort Ord	• Community opposed to large train equipment (conventional locomotive hauled passenger coaches) • Small diesel multiple unit trains proposed to address noise and vibration concerns	• $44 million order of magnitude capital cost, excluding equipment • $5 million net annual operating cost	• Low potential for phasing • Requires restoration of branch line track and bridges between Castroville and Monterey Bay station
3	***Monterey Peninsula to San Francisco Intercity Rail Service Plus Caltrain to Salinas and Monterey Peninsula*** Operate intercity train service between the Monterey Peninsula and San Francisco plus extend two Caltrain roundtrips from Gilroy to Salinas, and two roundtrips from Gilroy to the north side of Marina.	• Provides capacity/reduces traffic in the U.S. 101 corridor between Prunedale and Santa Clara/San Mateo counties • Monterey Peninsula station would be inconveniently located, north of Marina near SR 1 and Del Monte Avenue	• Community opposition to large train equipment (conventional Caltrain locomotive and passenger coaches) would reposition Monterey Bay station • Out of sight station and service	• Requires Caltrain investment ($75 million for Salinas, Castroville and Pajaro studies) plus $22 million for 5 miles of Monterey branch line track and bridge restoration • Caltrain service split between Salinas and Monterey Peninsula could reduce ridership yielding higher net public costs. $7 million annually for combined services	• Caltrain service could be phased to service either Salinas or Monterey Peninsula • Stations can be constructed as funding permits • Requires restoration of branch line track and bridges between Castroville and Monterey Bay station
4	***Passenger Rail Shuttle to Castroville Caltrain Service*** Extend four Caltrain commuter rail roundtrips from Gilroy to Salinas. Operate connecting shuttle service between Seaside and Castroville to meet Caltrain service extension.	• Provides capacity/reduces traffic in U.S. 101, SR 1, and SR 156 corridors • Stations centrally located in Seaside, Marina, Salinas, Castroville and Pajaro/Watsonville	• Wide public support for Caltrain extension in Salinas, Castroville and Pajaro • Caltrain extension supported by regional agencies • Rail shuttle would extend “reach” of Caltrain service, with smaller vehicles • Reduces long distance vehicle trips, thereby improving air quality	• $75 million capital cost for Caltrain extension • $82 million capital cost for Monterey branch line shuttle • Low net annual operating cost, $2–3 million/year for combined service	• Passenger rail shuttle requires construction and operation of Caltrain extension to Salinas • Passenger rail shuttle could be added later • Shuttle service could be extended to Monterey station(s)
5	***Local Peninsula Rail or BRT Service*** Construct LRT or BRT Guideway between Monterey and Marina, or extend LRT to Castroville. Potential intercity rail from Marina to San Francisco under sub-option 5D. Includes Caltrain extension to Salinas.	• Provides capacity/reduces traffic in U.S. 101, SR 1, and SR 156 corridors • Stations located throughout Monterey, Seaside/Sand City and Marina	• Wide public support for Caltrain extension in Salinas, Castroville and Pajaro • Provides local peninsula service, voiced in numerous public meetings • Provides local stations, serving local residents • Option 5D addresses visitor trips, without Caltrain connection	• $75 million capital cost for Caltrain extension • $75 to 125 million capital cost for Monterey branch line local service, depending on length of service • Relatively low net annual operating cost. Local LRT/BRT replaces existing bus route	• Caltrain or Peninsula local service constructed independent from one another • Local service extended in stages • Marina to Castroville local service requires replacement of Salinas River bridge
6	***Salinas to Monterey Local Rail or BRT Service*** Construct LRT or BRT guideway between Monterey and Marina. Extend LRT guideway to Castroville via Monterey branch line and Salinas along Coast Mainline. Alternately, extend BRT guideway to Salinas via Blanco or Davis roads. Includes Caltrain extension to Salinas.	• Provides capacity/reduces traffic in U.S. 101, SR 1, and SR 68, SR 156, Blanco/Davis Road corridors • Stations located throughout Monterey, Seaside, Sand City, Marina, Castroville and Salinas	• Wide public support for Caltrain extension in Salinas, Castroville and Pajaro • Provides local Peninsula and Salinas to Peninsula service, voiced in numerous public meetings • Provides local stations, serving local residents • Environmental constraints may limit options for BRT guideway construction between Marina and Salinas	• $75 million capital cost for Caltrain extension • $155 million capital cost for Monterey branch line local and intracounty service, depending on mode of service • Relatively low net annual operating cost. Local LRT/BRT replaces existing bus route	• Caltrain or Peninsula local and intracounty service constructed independent from one another • Local and intracounty service extended in stages • Marina to Castroville service requires replacement of Salinas River bridge
7	***Monterey Peninsula to San Francisco Intercity Plus Salinas to Monterey Local Rail Service*** Construct LRT between Monterey, Castroville and Salinas. Operate intercity rail service from Monterey to San Francisco. Use FRA-compliant diesel multiple rail equipment for both services. Includes Caltrain extension to Salinas.	• Provides capacity/reduces traffic in U.S. 101, SR 1, and SR 68, SR 156, Blanco/Davis Road corridors • Stations located throughout Monterey, Seaside, Sand City, Marina, Castroville and Salinas	• Wide public support for Caltrain extension in Salinas, Castroville and Pajaro • Provides local Peninsula and Salinas to Peninsula, and intercity service to San Francisco service, voiced in numerous public meetings • Provides local stations, serving local residents and visitors • Diesel multiple unit (DMU) equipment requires taller (higher) station platforms	• $75 million capital cost for Caltrain extension • $155 million capital cost for Monterey branch line local and intracounty service • Relatively low net annual operating cost for local intracounty and Caltrain extension services • $5 million annual net public cost for intercity service to San Francisco	• Caltrain or Peninsula local and intracounty service constructed independent from one another • Intercity service can be added when funding permits • Local and intracounty service extended in stages • Marina to Castroville service requires replacement of Salinas River bridge
8	***Monterey County to San Francisco Peninsula Express Bus Service*** Low cost transit investments to match locally preferred build alternative. Includes major roadway construction to provide capacity/reduce congestion.	• Express bus is not enough Widening U.S. 101, SR 1, SR 68, SR 183 or SR 156, and Blanco/Davis Roads will address transportation needs	• Roadway improvement needs are well recognized • Environmental and funding constraints limit transportation solutions	• $1,234 million of roadway projects identified by RTP to address specific purpose and need of transit investment	• CT 036 – SR 156 West, $198 M current to 2020 • CT 015 – SR 1 Sand City, $45 M, 2011–20 • MYC 151 – Marina/Salinas, $35M, 2011–20 • MRY 004 – Del Monte EB Lane, $30 M, 2011–20 • CT 029 – 101 Prunedale Bypass, $421 M, 2011–30 • CT 038 – SR 183 Widening, $50 M, not funded • CT 016 – SR 68 Bypass, $395 M, not funded • CT 028 – 101-Las Aromitas, $60 M, not funded

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Common to all Build Alternatives (A–C) is the extension of Caltrain service to Monterey County. This commonality reflects the conscious decision on the part of the RPC to exclude from further consideration any build alternative which did not include the extension of Caltrain service to Salinas.

Analysis Refinement and Evaluation of the Alternatives

During the analytical phase, many technical studies are performed on the final set of alternatives. The purpose of these studies is to elicit evaluative information on the alternatives as well as provide a higher level of definition of their respective operational and physical characteristics. These technical studies include:

- Detailed definition of alternatives and conceptual engineering
- Travel demand forecasting
- Environmental analysis
- Estimation of capital, operating and maintenance costs
- Financial capacity analysis.

Once the technical studies are completed, the results are used to assess the travel benefits, costs, and impacts of the proposed alternatives. Key trade-offs among the alternatives are also evaluated and discussed.

Figure 1-7 illustrates this alternative evaluation process whereby alternatives undergo successive testing, refinement and shortlisting, all directed toward the selection of the locally preferred alternative.

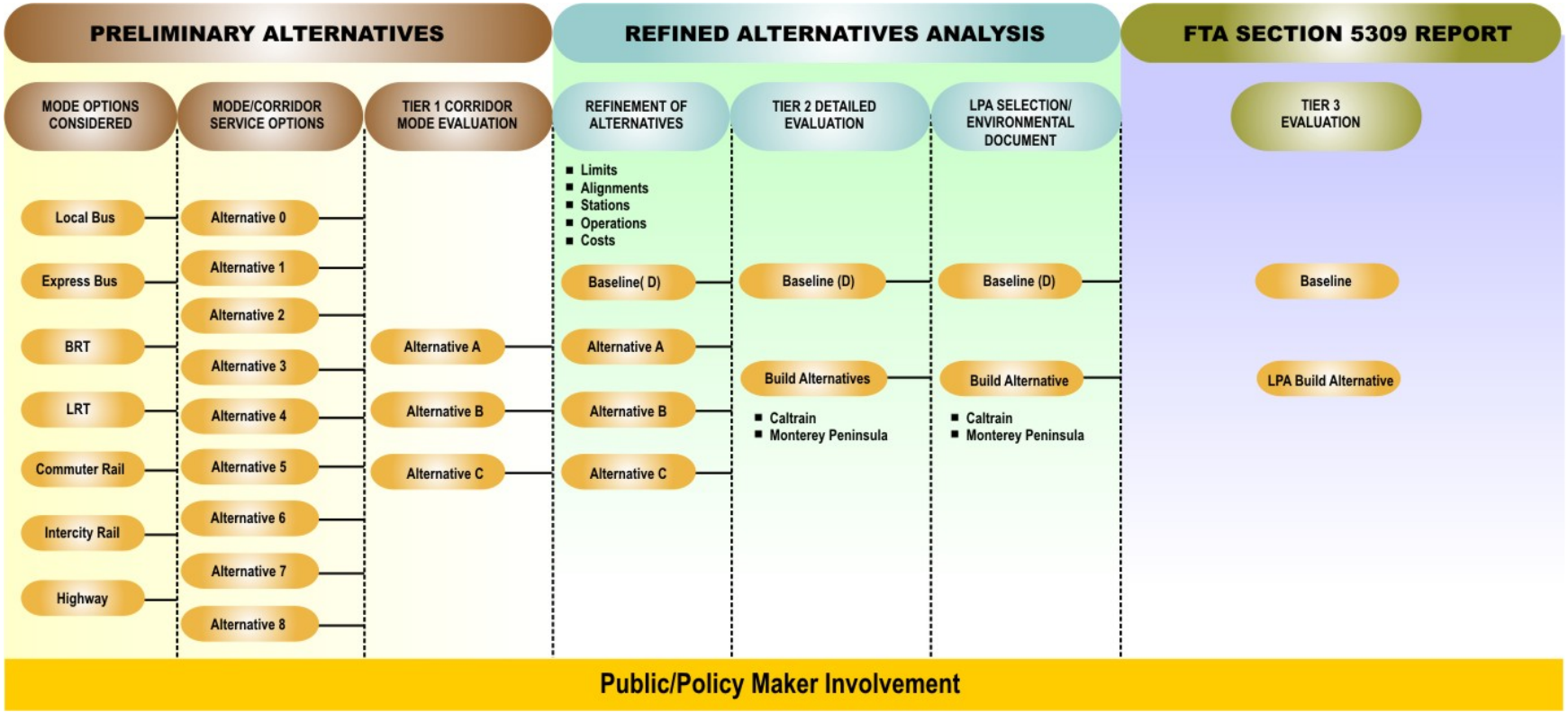
Selection of the Locally Preferred Alternative

Based on the array of technical information, evaluation findings and public input, a key outcome of the detailed Alternatives Analysis is the selection of a preferred long-term strategy for the corridor. The long-term strategy is defined as investments required to address the 2030 planning horizon. As a subcomponent of the LPA, a reduced scope alternative is defined to address near term, opening year needs. This reduced scope alternative is known as the “minimum operating segment,” or MOS.

The MOS must address the purpose and need for the project within the context of near-term demographic and travel conditions. For the purpose of this study, the near-term MOS is defined for 2010 conditions.

For the purpose of evaluating project worthiness, the FTA requires that project applicants for federal “New Starts” discretionary funding also provide comparative information on a TSM or “best bus” alternative. For this reason, performance characteristics of a “baseline” alternative are included along with those of the Caltrain Extension Alternative minimum operating segment for comparison.

Figure 1-7
Alternatives Evaluation Process



CHAPTER 2: EXISTING AND FORECAST CONDITIONS

The purpose of this project is to cost-effectively accommodate the existing and projected needs of commute-oriented traffic traveling between Monterey County and Santa Clara County, in order to provide capacity for the U.S. 101 Corridor and therefore avoid or postpone the need for widening this facility beyond currently programmed projects. In addition to lowering congestion, the project will provide access to job opportunities, educational resources and health care in the San Francisco Bay Area and provide transportation alternatives for senior citizens and those with physical disabilities.

REGIONAL OVERVIEW

The San Francisco Bay Area and the counties surrounding it comprise a region that is rapidly growing and becoming more economically interdependent. The central metropolitan counties closest to the San Francisco Bay are home to more jobs than workers, while outlying counties such as Monterey County are subjected to rapid increases in population and mid-priced housing. As a result, the number of commuters between these regions is increasing significantly.

In 2004, the Metropolitan Transportation Commission (MTC) published a report titled *Commuter Forecasts for the San Francisco Bay Area: 1990-2030.* This report estimates that the San Francisco Bay Area will need approximately 178,000 in-commuters from neighboring counties to fill the available jobs by 2010. This number is forecasted to reach 220,000 by 2030—an increase of 87 percent over year 2000 levels. These estimates indicate that the existing gap between the number of San Francisco Bay Area jobs and employees needed to fill them will continue to widen. This disparity will dramatically affect the region's transportation network as the projected number of in-commuters to the San Francisco Bay Area grows. As a result, interregional vehicle miles traveled will increase, congestion will increase, and average roadway speeds will decline.

MONTEREY BAY AREA OVERVIEW

The California Department of Finance's population forecasts and MTC's staff estimates of employment and employed residents confirm the fact that neighboring counties to the San Francisco Bay Area have a surplus of workers. MTC expects the Monterey Bay counties—San Benito, Monterey, and Santa Cruz—to fill approximately 35 percent of the San Francisco Bay Area worker shortfall by 2030 (approximately 77,000 workers: San Benito–18,661, Monterey–15,407, Santa Cruz–43,204).

Housing availability and affordability also have a direct impact on the long-distance commute market. In a 2004 document titled *Projections Silicon Valley: 2005*, the Silicon Valley Manufacturing Group notes that although the number of available jobs in Silicon Valley has declined since the year 2000, there are still more available jobs than housing in the area. This report projects that for every 100 households, this area will provide 141 jobs by 2005. This ratio is predicted to increase to 1.51 by the year 2010.

Home prices in the San Francisco Bay Area are rapidly climbing. Table 2-1 details the median price of houses in selected cities from 1998 to 2004, and Table 2-2 indicates the percentage of San Francisco Bay Area residents that could afford to purchase a median-priced home in their area in June 2004.

Table 2-1
Fourth Quarter Median House Prices

County/City	2004	2002	2001	2000	1999	1998	1998–2004 % Increase
Monterey County							
Salinas	$465,000	$325,000	$295,000	$285,000	$222,750	$187,750	147.67%
Marina	NA*	$364,000	$317,500	$299,000	$246,000	$200,250	81.8%*
Seaside	$568,500	$347,500	$313,000	$258,750	$198,000	$175,000	224.86%
San Benito County							
Hollister	NA*	$360,000	$332,500	$329,000	$254,000	$222,000	62.2%*
Santa Cruz County							
Watsonville	$504,500	$347,727	$315,000	$298,000	$229,000	$187,250	169.43%
Santa Cruz	$627,500	$490,000	$471,000	$450,000	$330,500	$273,000	129.85%
Santa Clara County							
Gilroy	$559,000	$440,000	$388,500	$450,000	$327,500	$290,000	92.76%
Morgan Hill	$614,000	$517,500	$440,000	$543,750	$423,750	$334,000	83.83%
San Jose	$508,000	$444,500	$415,000	$435,000	$339,000	$282,000	80.14%
Santa Clara	$535,000	$462,500	$417,500	$460,000	$355,000	$299,750	78.48%
Mountain View	$575,500	$468,750	$496,500	$565,000	$435,000	$350,000	64.43%
Milpitas	$505,000	$429,500	$400,000	$404,500	$338,000	$269,250	87.56%
Cupertino	$753,250	$677,000	$635,000	$745,000	$559,000	$497,500	51.41%
Los Gatos	$899,000	$695,000	$695,000	$699,000	$533,000	$515,750	74.31%
San Mateo County							
Menlo Park	$750,000	$625,000	$710,000	$735,750	$620,000	$477,500	57.07%
Redwood City	$645,000	$555,000	$520,000	$598,000	$440,000	$370,000	74.32%
Alameda County							
Fremont	$525,000	$439,500	$389,000	$432,000	$325,000	$270,000	94.44%
Union City	$492,000	$442,000	$371,250	$460,000	$351,250	$320,000	53.75%
Hayward	$429,750	$355,000	$303,500	$303,000	$235,000	$186,000	131.05%
Pleasanton	$656,000	$527,500	$449,000	$501,000	$399,750	$353,500	85.57%
Livermore	$510,000	$395,000	$350,000	$375,000	$300,000	$250,000	104.00%
San Joaquin County							
Tracy	$420,000	$305,000	$290,000	$260,000	$224,477	$193,250	117.34%
Manteca	$328,000	$245,000	$239,000	$180,000	$169,000	$145,000	126.21%
Stockton	$272,500	$180,000	$155,500	$123,000	$112,500	$105,250	158.91%
Stanislaus County							
Modesto	$260,000	$185,000	$156,000	$135,228	$118,000	$105,000	147.62%

Source: California Association of Realtors 645188AA-003
*2004 data unavailable for Marina and Hollister. Percentage change 1998–2002 shown.

Table 2-2
Percent of San Francisco Bay Area Residents Qualifying for Home Ownership (June 2004)

Region	Qualifying Households
Santa Clara	21%
San Francisco Bay Area	14%
San Francisco	10%
Monterey Region	11%

Source: California Association of Realtors, June 2004 645188AA-004

These numbers indicate that Silicon Valley workers can better afford houses in neighboring Monterey Bay counties than in Santa Clara County and that these same Silicon Valley workers can better afford these houses than local Monterey County residents.

Monterey County's *Regional Transportation Plan* (RTP) (2005) states that "Almost half of new homes purchased in Salinas are bought by people that work in Silicon Valley, placing further demands on the transportation network. It is anticipated that in the near future, more and more workers will be willing to tolerate a one and a half to two hour commute to work in order to own a home."

Therefore, the number of commuters traveling from Monterey County and its neighbors to jobs in Santa Clara County and beyond is increasing significantly. Table 2-3 reflects the number of Monterey County residents commuting to Santa Clara County and elsewhere, indicating that Monterey County residents bound for Santa Clara County increased more than 140 percent between 1990 and 2000. At the same time, the number of people who lived in Monterey County and also worked there declined.

Table 2-3 also provides similar information for Santa Cruz County. The project would directly serve the City of Watsonville, which comprised 17 percent of Santa Cruz County's population as of 2000. By 2030, Watsonville's population is expected to increase by nearly 60 percent compared with year 2000 levels, and the city will be home to 23 percent of the county's population.

Although the historical pattern of commuter growth from Monterey County to Silicon Valley slowed during 2002 and 2003 due to the downturn in the region's technology-based economy, it is expected to resume in the near future. MTC estimates that by 2030, approximately 15,000 commuters will travel daily from Monterey County to Santa Clara, San Mateo, Alameda and San Francisco counties, an increase of 113 percent over 2000. Insofar as Santa Cruz County, MTC estimates that 41,600 commuters will travel from this county to the same four Bay Area counties, an increase of 62 percent over 2000.

Table 2-3
Monterey County and Santa Cruz County Commuting Trends (1990 and 2000)

Commuting	1990	2000	Percent Change
Monterey County			
Total Population	355,660	401,762	+13.0
Work in Monterey County	162,079	159,157	–1.8
Live and work in Monterey County	151,520	146,444	–3.4
Live elsewhere and work in Monterey County	10,559	12,713	+20.4
Percent workforce commuting into Monterey County	7%	8%	+14.3
Live in Monterey County and work elsewhere	12,750	18,073	+41.7
Santa Cruz County	6,821	7,601	+11.4
Santa Clara County	2,411	5,799	+140.5
San Benito County	601	1,187	+97.5
San Luis Obispo County	329	540	+64.1
Alameda County	246	533	+116.7
San Mateo County	173	378	+118.5
Fresno County	113	254	+124.8
San Francisco County	120	220	+83.3
Contra Costa County	83	155	+86.7
Los Angeles County	295	134	–54.6
Yuma County, Arizona	222	112	–49.5
Outside U.S.	262	105	–59.9
San Diego County	85	101	+18.8
Other locations	989	954	–3.5

Commuting	1990	2000	Percent Change
Santa Cruz County			
Total Population	229,734	255,602	+11.3
Work in Santa Cruz County	102,674	107,407	+4.6
Live and work in Santa Cruz County	89,628	93,084	+3.9
Live elsewhere and work in Santa Cruz County	13,046	14,323	+9.8
Percent workforce commuting into Santa Cruz County	13%	13%	–
Live in Santa Cruz County and work elsewhere	25,571	33,022	+29.1
Santa Clara County	17,693	21,540	+21.7
Monterey County	3,650	5,164	+41.5
San Mateo County	1,373	2,010	+46.4
Alameda County	712	1,419	+99.3
San Benito County	322	622	+93.2
San Francisco County	470	621	+32.1
Contra Costa County	263	244	–7.2
Marin County	53	194	+266.0
Sonoma County	7	142	+1,928.6
Los Angeles County	197	109	–44.7
Outside U.S.	65	88	+35.4
San Joaquin County	32	62	+93.8
Santa Barbara County	6	57	+850.0
Other locations	728	750	+3.0

Source: U.S. Census 645188AA-005

If traveling by automobile, these commuters will increase traffic volumes on U.S. 101, which is projected to operate at unstable levels of service (LOS) barring capacity improvements or a significant mode shift. As reported in the following section of this document, the *Transportation Concept Report for Route 101* (2001) projects 2020 peak-hour operating conditions will degrade to LOS E and F from south Salinas to the San Benito/Santa Clara County line. The proposed Caltrain extension provides an alternative to roadway travel in this corridor and mitigates the impact of increasing volumes of commuters on the highway network.

Moreover, it is likely that a second group of potential Caltrain commuters—unskilled workers who do not own automobiles—could also access employment opportunities in Santa Clara County if transportation was available to them. Additional rail service will also increase access to extensive Santa Clara County health care services for Monterey County residents.

The Monterey County RTP (2005) includes the extension of commuter rail to Salinas in its list of planned passenger rail service:

> "The proposed extension of Caltrain to Salinas would provide an alternative means of travel between the Monterey County and the San Francisco Bay Area counties, allowing travelers to avoid traffic congestion along Highways 156 and 101. In addition, the commuter rail extension will bring a significant increase in ridership to both the existing Caltrain and the connecting Capitol and Altamont services. Other benefits of this new service are an increase in job opportunities, more transportation alternatives for senior citizens and those with physical disabilities, access to health care in the Bay Area, and economic development around the stations."

The Santa Cruz County Regional Transportation Commission RTP (2005) includes a funding contribution for the design of the Pajaro Rail Station and right-of-way purchase from the Union Pacific

Railroad for the Santa Cruz Branch rail line. The Commission is currently considering an amendment to the RTP to add additional funding for the design and construction of the Pajaro Valley rail station.

As further evidence of Santa Cruz County support for the extension of commuter rail service, the Santa Cruz County Transportation Funding Task Force voted on March 13, 2007 to include $10 million for construction of the Pajaro Valley station in the sales tax expenditure plan that will be placed on the 2008 primary or general election voter ballot.

U.S. 101

U.S. 101 is the primary highway that serves commuters traveling by automobile between Monterey Bay and Gilroy, Santa Clara County, and the San Francisco Bay Area. The *Transportation Concept Report for U.S. Route 101 in Caltrans District 5* (October 2001) characterizes U.S. 101:

> "US Route 101 (Route 101) is the major and historic thoroughfare through the Central Coast areas of California and the principal inter-city connection for numerous communities between Los Angeles and San Francisco. The route closely follows *El Camino Real* of the California's Spanish Colonial period."
>
> "…The multiple uses of Route 101, the mixture of interregional, regional and local traffic, and the beauty and environmental sensitivity of the areas through which it courses, in combination with projected population growth and new development all present challenges to transportation planners at every level of government…"
>
> "…The District 5 portion of the Route 101 corridor accommodates interregional, regional and urban traffic and the widest array of trip purposes. Common personal mobility purposes related to business, government, recreation, tourism, and daily living, including the journey-to-work, account for a high percentage of trips. The corridor also accommodates goods movement related to commerce and manufacturing. Certain segments of the highway experience heavy use by trucks moving unprocessed agricultural products and livestock. Other segments accommodate national defense-related traffic, including the movement of troops, equipment, and hazardous materials. The route and corridor purposes entail accommodating this array of corridor users with a facility that operates in a safe, efficient, and (as much as practicable) environmentally benign manner…"
>
> "…The high traffic volumes, strategic location, and environmental setting of Route 101 have resulted in numerous special designations by federal and state governments and their agencies. These designations and classifications provide information regarding the facility itself and its intended use. They also indicate the availability of special purpose funding related to the designation.
>
> "The federal functional classification of Route 101 is Principal Arterial. This classification recognizes trip lengths and travel densities that are indicative of substantial statewide and interstate travel as Route 101 passes through rural areas and delivers trips to and from urban areas.
>
> "Route 101 is also part of the National Highway System (NHS) identified in the federal Transportation Equity Act for the 21st Century (TEA-21). The NHS is comprised of the Interstate System and other urban and rural principal arterials that are essential for interstate and regional commerce and travel, national defense, intermodal transfer facilities, and trade…"
>
> "…The federal Department of Defense in cooperation with the Department of Transportation has also identified Route 101 as a Strategic Highway Corridor Network (STRAHNET) route. STRAHNET is a network of linked highways deemed essential to national defense for facilitating the movement of troops and equipment to airports, ports, rail lines and military bases**.**

> "The State of California has granted important designations to Route 101. First, the route is on the Freeway and Expressway System (F&E) whose completion has been declared essential to the future development of the State, with provision for control of access to the extent necessary to preserve the value and utility of the facilities.
>
> "In addition, Route 101 is on the Interregional Road System (IRRS) and is a designated Focus Route in the Caltrans Interregional Transportation Strategic Plan (ITSP)…"
>
> "…The importance of Route 101 for the movement of goods through the State and nation is indicated by additional federal and state designations. The Route is a designated route on the National Truck Network under the federal Surface Transportation Assistance Act (STAA). This network is designated for use by larger trucks. Route 101 is also a State Highway Extra Legal Load (SHELL) Route.
>
> "Finally, extensive portions of Route 101 in District 5 are eligible for designation as Scenic Highways under the State Scenic Highway Program….[including] from the Prunedale junction with Route 156 west in Monterey County to the junction with Route 156 east in San Benito County."

In the Transportation Concept Report, Caltrans divides U.S. 101 from Salinas to San Benito County into segments 8 through 12. Within Monterey County, the agency identifies two specific locations where interregional traffic flow is impeded: segments 8 and 10 in Salinas and Prunedale, respectively. Segment 8 suffers from a low existing peak-hour level of service (LOS E) as a result of commuter-related traffic. In segment 10, at-grade crossings, lane-crossing left turns, and the intersection with State Route 156 (SR 156) hamper traffic operations. These locations are discussed in greater detail below, as described in Caltrans' *Transportation Concept Report for U.S. Route 101 in Caltrans District 5* (2001). Figure 2-1 summarizes the existing (1998) traffic conditions from the Transportation Concept Report. Estimated 2005 traffic volumes have been included on the graphic for information.

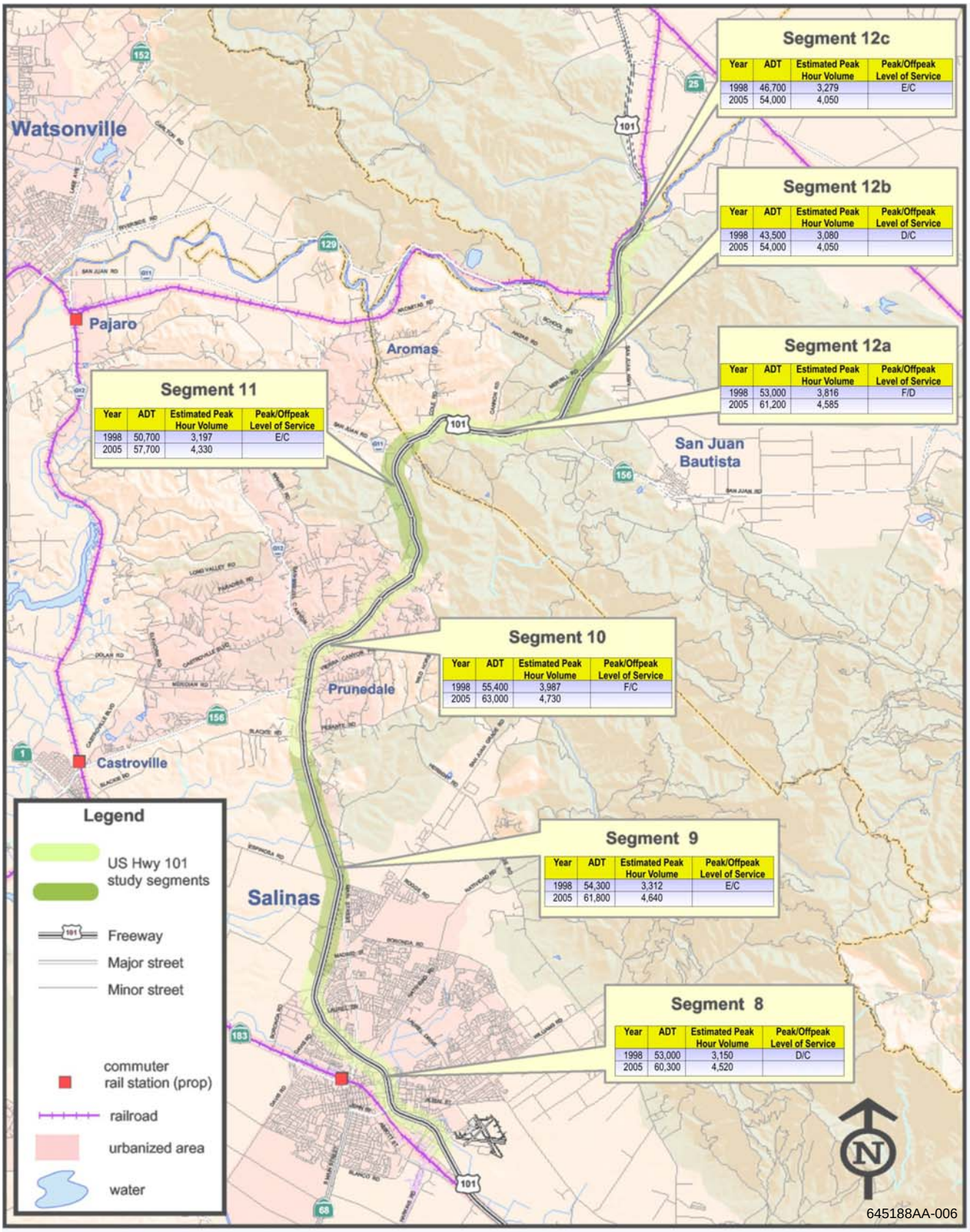
Existing U.S. 101 Conditions and Traffic Volumes

U.S. 101's Segment 8 runs between the north and south city limits of Salinas. It is a four-lane freeway that serves local, interregional, and commuter traffic. Truck traffic comprises approximately 18 percent of this total due to Salinas' position in the Salinas Valley as the agricultural and food processing center. The 1998 average annual daily traffic count (AADT) for segment 8 was 53,000 and the estimated peak hour volume was 3,150. In 1998, segment 8 operated at an average LOS D during the peak-hour and LOS C during the non-peak-hour.

Segment 9 runs from the northern city limits of Salinas to the southern portion of Prunedale. It is a four-lane facility, with some portions designated as a freeway and other portions designated as an expressway. Truck traffic comprises approximately 18 percent of the traffic in this segment. The 1998 average AADT on segment 9 was 54,300 and the estimated peak-hour volume was 3,312. In 1998, segment 9 operated at an average LOS E during the peak-hour and LOS C during the non-peak-hour.

Segment 10 runs from the south end of Prunedale to the north end and is designated as a four-lane urban expressway along the entire length. Truck traffic comprises approximately 15 percent of traffic along this segment. The 1998 average AADT was 55,400 with an estimated peak-hour volume of 3,987. In 1998, segment 10 operated at an average LOS F during the peak-hour and LOS C during the non-peak-hour.

Figure 2-1
Existing Traffic Volumes on U.S. 101



Segment 11 extends from the north end of Prunedale to the San Benito County line and is designated as a four-lane expressway along its entire length. Truck traffic comprises approximately 16 percent of traffic along this segment. The average 1998 AADT was 50,700 and the estimated peak-hour volume was 3,197. In 1998, segment 11 operated at an average LOS E during the peak-hour and LOS C during the non-peak-hour.

Segment 12A in San Benito County extends from the Monterey/San Benito County line to the intersection of U.S. 101 and SR 156. This segment is classified as a four-lane expressway for the first 1.8 miles; it then becomes a four-lane freeway. Truck traffic accounts for approximately 15 percent of the traffic volume in this segment. The 1998 AADT on segment 12A was 53,000 with an estimated peak-hour volume of 3,816. In 1998, segment 12A operated at an average LOS F during the peak-hour and LOS D during the non-peak-hour.

Segment 12B runs from the intersection of SR 156 to the intersection of State Route 129 (SR 129). Approximately 16 percent of traffic on this segment is truck traffic. This entire segment is classified as a four-lane freeway with a 1998 AADT of 43,500. The estimated peak-hour volume is 3,080. In 1998, segment 12B operated at an average LOS D during the peak-hour and LOS C during the non-peak-hour.

Segment 12C runs from the intersection of SR 129 to the Santa Clara County line. It is classified as a four-lane freeway along its entire length. Truck traffic accounts for approximately 16 percent of traffic along this segment. The 1998 AADT was 46,700 and the estimated peak-hour volume was 3,279. In 1998, segment 12A operated at an average LOS E during the peak-hour and LOS C during the non-peak-hour.

Traffic Projections

The Association of Monterey Bay Area Governments (AMBAG) projects that Monterey County will experience a population increase of 30 percent between 2000 and 2020 (2001 Revised Population Forecast, AMBAG). This level of growth is significantly less than forecast by the California State Department of Finance (Interim County Population Projections, June 2001). According to AMBAG's forecasts, much of this growth will take place along the U.S. 101 Corridor, with traffic volumes increasing concurrently. Figure 2-2 displays traffic projections along U.S. 101 for the year 2020, including projected AADT, peak-hour level of service, and off-peak level of service.

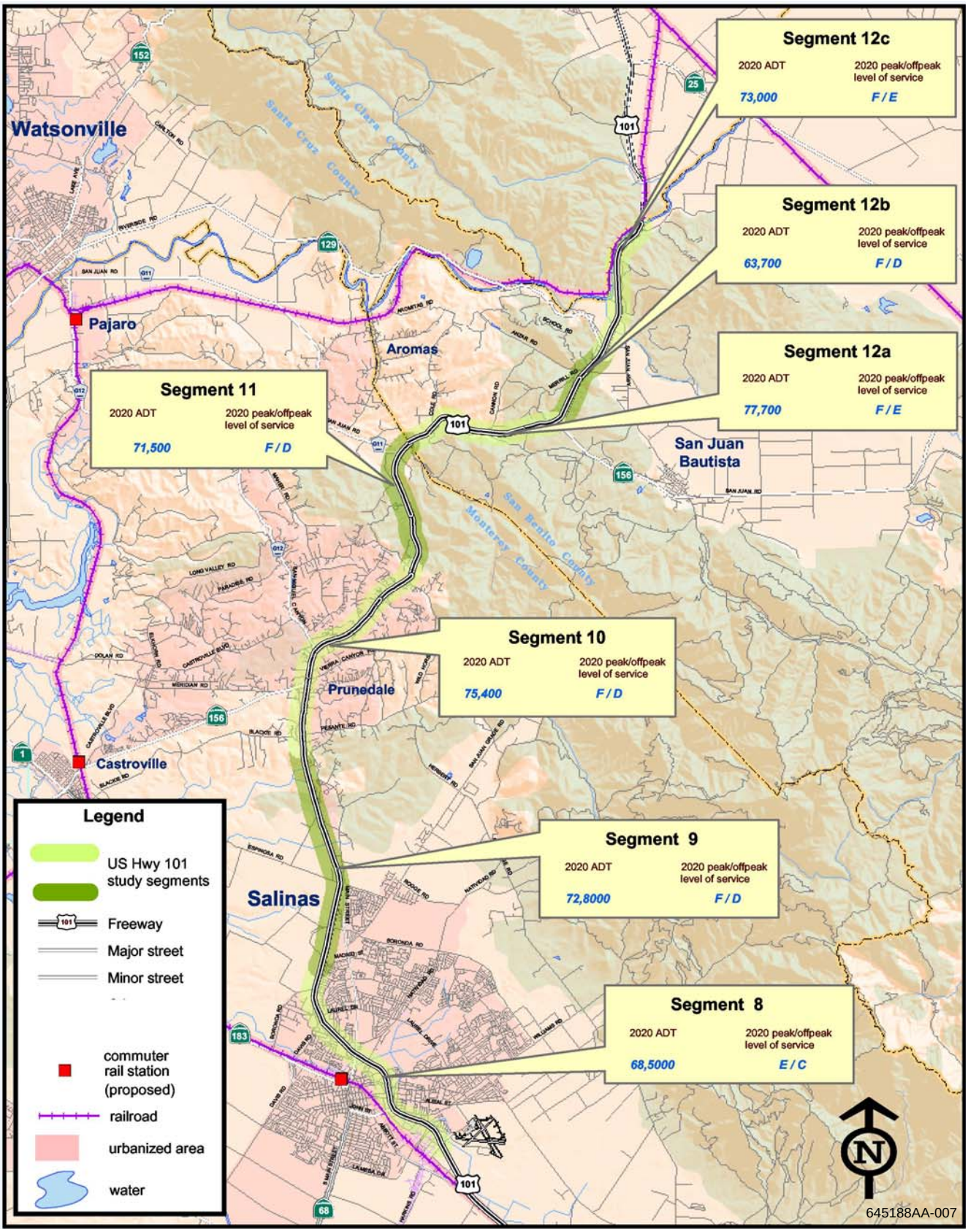
Segment 8 (southern Salinas to northern Salinas) is projected to have an AADT of 68,500 in the year 2020 and to operate at LOS E during the peak-hour and LOS C during the non-peak hour.

These levels of service have been deemed by Caltrans to be inadequate for traffic operations along this segment. Caltrans projects that commuter traffic will become heavier as the population of Salinas grows and the number of jobs in Silicon Valley increases:

> "As the population of Salinas and the surrounding area grows in the next 20 years, congestion on Route 101 is expected to increase. A recently approved project will reconstruct the Airport Boulevard interchange at the south urban boundary of the City of Salinas and facilitate the flow of truck and commuter traffic entering and exiting the freeway near the packing plants in the area. To improve traffic flow through the rest of the segment, however, Caltrans expects Route 101 in this area will need to be widened to six lanes."

Segment 9 (northern Salinas to southern Prunedale) is projected to have an AADT of 72,800 by 2020, and to operate at LOS F during the peak-hour and LOS D during the non-peak hour. Caltrans anticipates that these levels of service will fail to adequately accommodate projected traffic volumes.

Figure 2-2
Projected Traffic Volumes on U.S. 101 (2020)



On Segment 10 (southern Prunedale to northern Prunedale), the AADT is projected to be 75,400, and to operate at LOS F during the peak-hour and LOS D during the non-peak hour. Future level-of-service projections for this segment take into account capacity-increasing improvements, which are currently under consideration, but are still considered inadequate to accommodate the heavy local, regional, and interregional traffic volumes projected for the area.

> "…other traffic operations issues in Prunedale include uncontrolled access to the roadway, lengthy stacking for left turns, and frequent congestion at the Routes 101/156 West interchange. A number of projects are underway to address these concerns. These projects include reconstruction of the Route 101/156 West interchange and construction of a new interchange at San Miguel Road. Furthermore, a project has been programmed and an EIR/EIS [Environmental Impact Report/Environmental Impact Statement] is being prepared that considers construction of a bypass and improvements to the existing alignment to improve traffic flow in the Prunedale area."

All of the abovementioned projects are in progress or have been completed:

- Phase 1 reconstruction of the U.S. 101/SR 156 interchange is complete
- San Miguel interchange was completed in early 2003
- The Prunedale Improvement project environmental review is complete
- U.S. 101 Bypass project is under environmental review.

Segment 11 (northern Prunedale to the San Benito County line) is projected to have a 2020 AADT of 71,500, operating at LOS F during the peak-hour and LOS D during the non-peak-hour. Improvements planned by Caltrans, but subject to available funding, include a new interchange at San Juan Road to address congestion.

Segment 12A (San Benito County line to SR 156) is projected to have a 2020 AADT of 77,700, operating at LOS F during the peak-hour and LOS E during the non-peak hour. Caltrans does not consider these operational levels to be adequate for projected traffic.

Segment 12B (SR 156 to SR 129) is projected to have a 2020 AADT of 63,700, operating at LOS F during the peak-hour and LOS D during the non-peak-hour. Caltrans does not consider these operational levels to be adequate for projected traffic.

Segment 12C (SR 129 to the Santa Clara County line) is projected to have a 2020 AADT of 73,000, operating at LOS F during the peak-hour and LOS E during the non-peak-hour. Caltrans does not consider these operational levels to be adequate for projected traffic.

Improvements under consideration for U.S. 101 between Salinas and Santa Clara County include the expansion of the four-lane segment immediately north of Prunedale to eight lanes of freeway/ conventional highway capacity. No funding is currently programmed for improvements to U.S. 101 between post mile Monterey 98 and post mile San Benito 3 (at the junction of SR 156 East). Given existing and forecasted traffic volumes along this corridor, it is likely that congestion at this point will increase even if adjacent segments are expanded.

Caltrans recommends that demand be reduced on U.S. 101 in Monterey and San Benito counties by encouraging and improving alternative modes of travel such as passenger rail and by enhancing intermodal facilities and services to improve interconnectivity. The proposed Caltrain extension and three station facilities will address the projected deficiencies in the regional network by providing a continuous transportation link between the communities of Monterey County and the job markets of Santa Clara County and its neighbors. Such a link will also postpone the need to widen U.S. 101 by providing an alternative mode to accommodate commuter demand.

COMMUTING TRENDS

The historical pattern of commuter growth from Monterey County and elsewhere to Silicon Valley slowed following 2000 due to the downtown in the region's technology-based economy. To gauge the impact of this slowdown on regional traffic patterns, 24-hour and peak period traffic counts were compiled for gateways leading to/from Santa Clara County and the San Francisco Bay Area. Figure 2-3 illustrates the locations for which traffic count trend data was available and examined for this study.

Figure 2-4 illustrates the year-by-year trend of AM peak period (3-hour, 6 AM to 9 AM) entering Santa Clara County and/or the San Francisco Bay Area along gateway highways, i.e., U.S. 101 and I-580. By and large, the traffic volume trends are generally flat over time, indicating that the technology sector recession has not had a pronounced impact on the volume of commuters living in outlying counties who commute to the Bay Area. Additional evidence of these commuting trends is discussed in the Regional Rail section of Existing Conditions.

SANTA CLARA COUNTY TRAFFIC CONDITIONS

The Caltrain Extension Alternative ridership forecasts documented in Chapter 4 indicate that 90 percent of the riders boarding trains in Monterey County will be destined to stations in Santa Clara County. Of these, more than two-thirds will be destined to "north county" stations in Sunnyvale, Mountain View and Palo Alto; and one-third will be destined to downtown San Jose and Santa Clara. The remaining 10 percent are forecast to ride to stations located in San Mateo and San Francisco counties.

Monterey County and Santa Cruz County (Watsonville) commuters destined to job locations in Santa Clara County ("Silicon Valley") currently experience traffic congestion along U.S. 101 in Monterey and San Benito counties (as described above), and along U.S. 101, I-280, SR 85, and a myriad of local streets and expressways in Santa Clara County.

Within Santa Clara County, the Santa Clara Valley Transportation Authority (VTA) monitors highway system performance through its "Congestion Management Program." The following data is taken from VTA's *2005 Monitoring and Conformance Report*, dated April 2006.

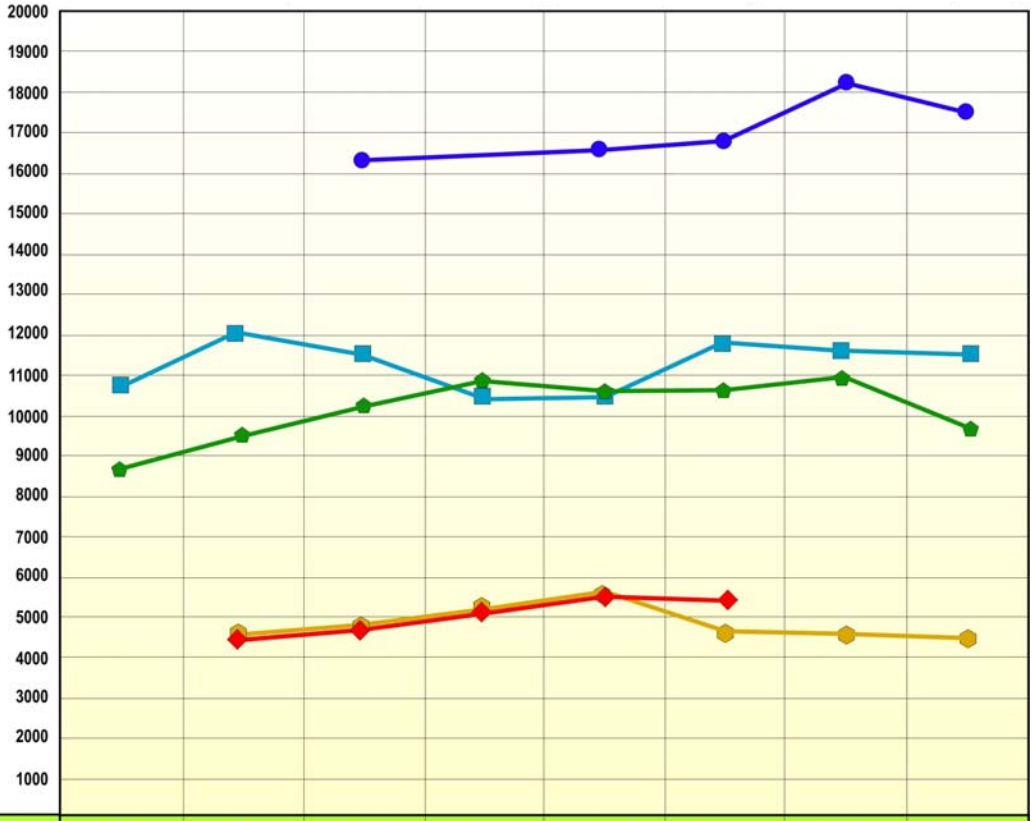
> VTA monitors approximately 152 miles of freeway. Including two travel directions for each freeway, there are about 304 directional miles. About 155 directional miles of the freeway system contain high-occupancy vehicle (HOV) lanes.
>
> VTA's Traffic Level of Service Analysis Guidelines, dated June 2003, adopted density as the parameter for freeway LOS analysis in Santa Clara County. The density values for LOS A/B, B/C and C/D thresholds are based on values from the Highway Capacity Manual (HCM) 2000. The LOS D/E and E/F thresholds are based on Santa Clara County conditions.

Table 2-4 compares the VTA and HCM 2000 LOS density value thresholds. By VTA's standards, LOS D, E and F are worse than (more congested) HCM 2000 criteria.

Based on VTA's LOS thresholds, a total of 61 directional freeway miles operated at LOS F during both the AM and PM peak hours during 2005. The duration of congestion lasted from one to three hours.

Figure 2-3
Traffic Count Trend Data Locations

Figure 2-4
AM Peak Period Traffic Year-by-Year Trends



Symbol	Location	Direction	1997	1998	1999	2000	2001	2002	2003	2004
●	I-580 @ AL/SJ Co.	Westbound	NA	NA	16233	NA	16873	16936	18138	17474
■	Hwy 17 @ SR 9	Northbound	10918	12007	11587	10513	10560	11879	11696	11565
⬟	US 101 @ Masten Ave	Northbound	8788	9548	10317	10952	10571	10700	10945	9781
⬢	US 101 South of SR 156	Northbound	NA	4685	4860	5283	5599	4883	4852	4702
◆	US 101 @ SC/SBt Co.	Northbound	NA	4464	4891	5245	4516	5459	NA	NA

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Table 2-4
Level of Service Criteria for Freeway Basic Segments

LOS	Description	Density Range (pc/mi/ln)	
		HCM 2000	VTA
A	Describes free flow operations. Free flow speeds prevail	0–11	0–11
B	Represents reasonably free flow, and free flow speeds are maintained	>11–18	>11–18
C	Provides for flow with speeds at or near the free flow speed of the freeway	>18–26	>18–26
D	Describes the level at which speeds begin to decline slightly with increasing flows and density begins to increase somewhat more quickly	>26–35	26–46
E	At this level's highest density value, it describes operation is at capacity of the freeway	>35–45	>46–58
F	Describes breakdown in vehicular flow and queues forming behind the breakdown points	>45	>58

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Figures 2-5 and 2-6 illustrate the overall operation of Santa Clara County's freeway system in 2005. This assessment is based on VTA's LOS density thresholds, which are worse than HCM 2000 for LOS D, E, and F. Figure 2-7 shows only those freeway segments which operate at LOS F in either the AM or PM peak hour. All of these graphics indicate that most or all of the freeway routes used by Monterey County resident commuters are heavily congested as of 2005[1].

Insofar as future traffic conditions, VTA anticipates that congestion will worsen even with an investment of some $766 million in highway improvements by Year 2030. VTA's *Valley Transportation Plan 2030*, adopted February 2005, indicates that Santa Clara County population is expected to grow by 27 percent and jobs by 37 percent over Year 2000 levels. Over the same time period, vehicle trips will increase by 39 percent during the morning peak hour and 36 percent during the afternoon peak hour. As freeway capacity will grow by only 5.6 percent, substantial increases in travel time for some commute trips is expected.

As part of its congestion monitoring effort, VTA collects travel time information for representative commute origin–destination (O–D) pairs. One of these O–D pairs surveys travel times between a residential area of Morgan Hill, 10 miles north of Gilroy, to a location in Santa Clara near U.S. 101 and Montague Expressway (see Figure 2-8).

Table 2-5 reports the observed travel times between these pairs for the period from 1997 to 2005, plus the estimated travel time in 2030 based on forecasted traffic growth and freeway performance. Compared with current (2005) conditions, VTA forecasts that travel time will increase by 48 percent during the AM peak hour(s) and 154 percent during the PM peak hour(s) for single occupant vehicles.

REGIONAL RAIL

Passenger rail service is currently being increased and expanded throughout northern California to address longer-distance commuting needs and support the region's growing economy. Figure 2-9 illustrates the existing and proposed regional (non-urban) passenger rail network, which includes Amtrak's Capitol service to Sacramento, the Altamont Commuter Express service to Stockton, and the Caltrain commuter rail service between San Francisco and Gilroy. The regional highway network is also illustrated for reference.

Caltrain Service

Caltrain is a commuter rail system that has linked San Francisco Bay Area peninsula communities with one another for more than 130 years. Until July 1980, the Southern Pacific Transportation Company owned and operated the commuter rail service for profit. Commuter rail ridership peaked during World War II at around 32,000 passengers per day and declined thereafter to a low of 14,000 riders in 1977 as Southern Pacific petitioned the California Public Utilities Commission to discontinue service.

After substantial negotiation, the State of California (through Caltrans) entered into a purchase-of-service agreement with Southern Pacific in July 1980. The purpose of this agreement was to continue and improve commuter rail service between San Jose and San Francisco. This agreement continued until July 1992, at which time the administration and operation of Caltrain was transferred from the State of California to the Peninsula Corridor Joint Powers Board (JPB)—a three-member agency comprising the City and County of San Francisco, the San Mateo County Transit District, and VTA. By that time, ridership had recovered and stabilized at approximately 21,000 passengers per day.

[1] Complete level of service, density, speed and volume information for all freeway segments are provided in VTA's *2005 Monitoring and Conformance Report*, dated April 2006.

Figure 2-5
2005 Freeway Level of Service in the AM Peak Period

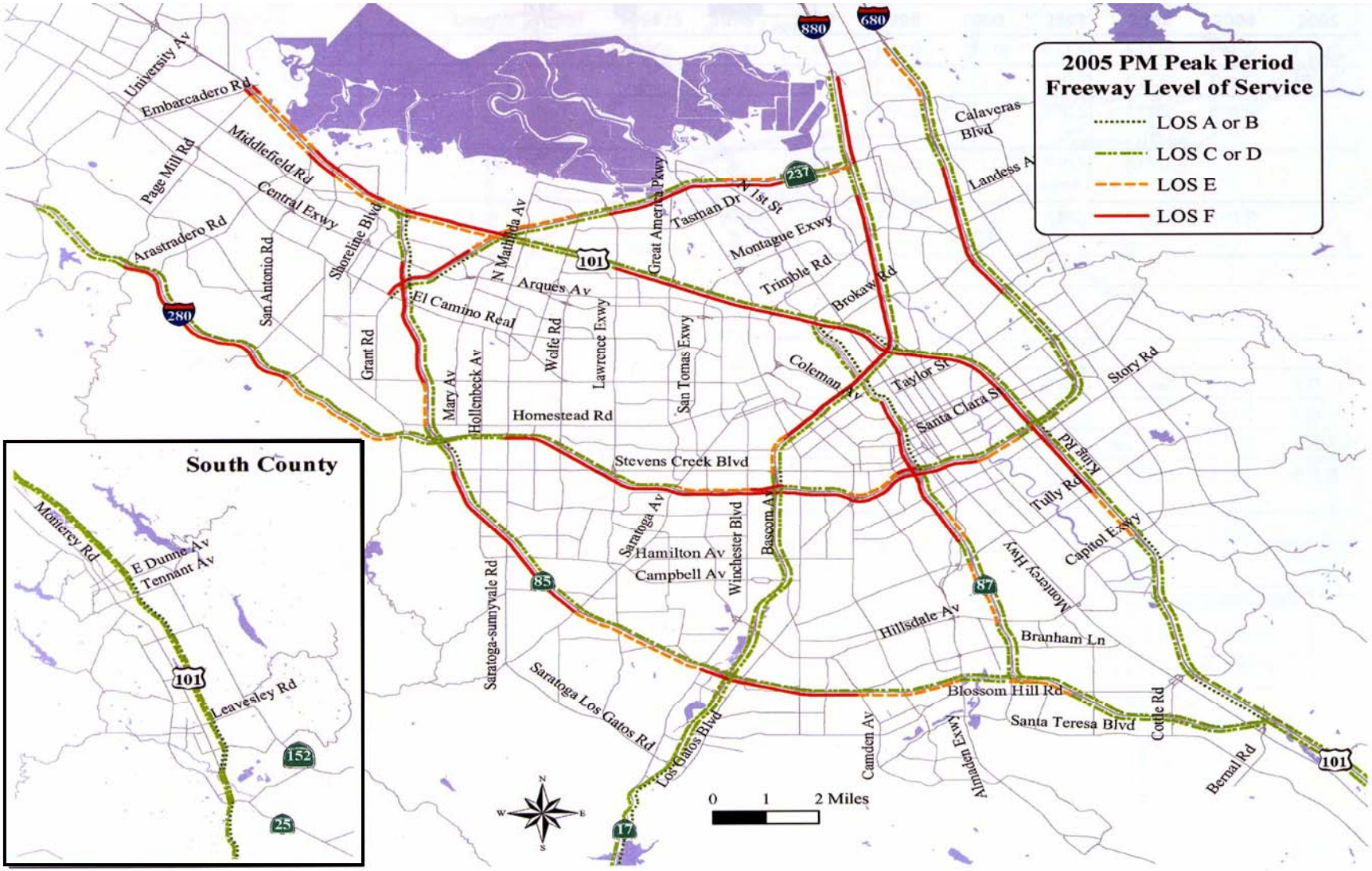

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Figure 2-6
2005 Freeway Level of Service in the PM Peak Period

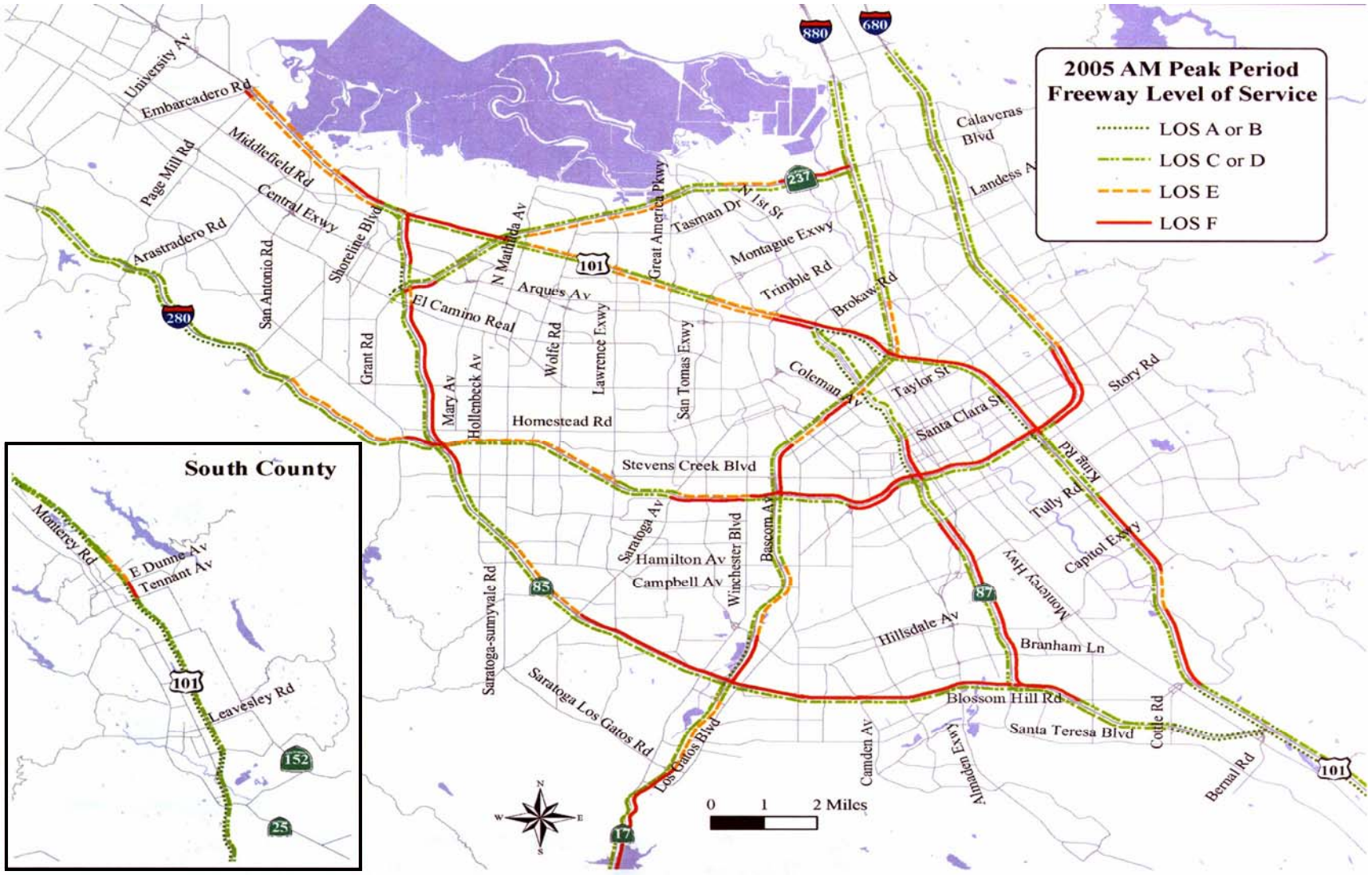

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Figure 2-7
2005 Freeway Level of Service F in the AM and PM Peak Periods

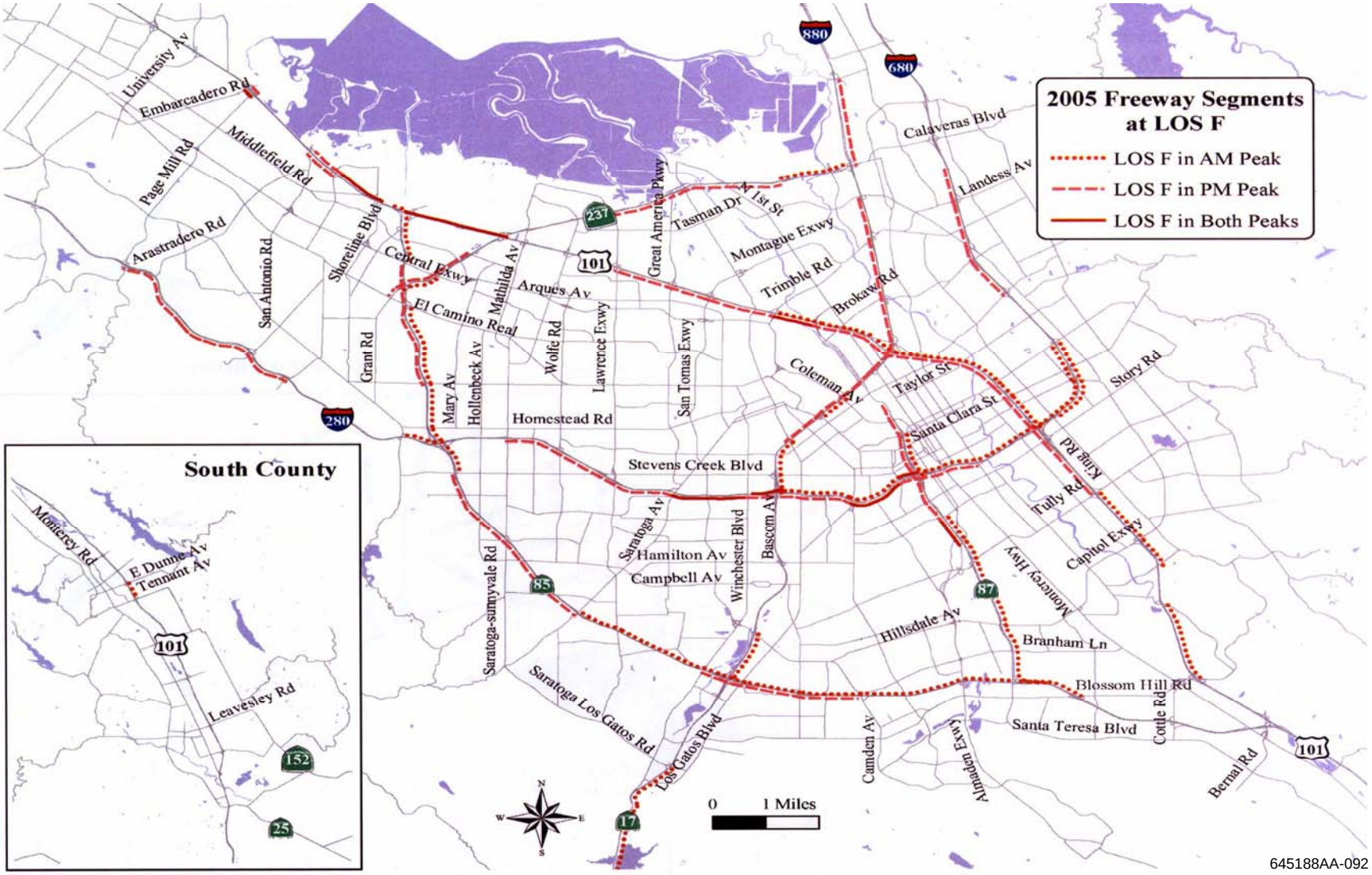

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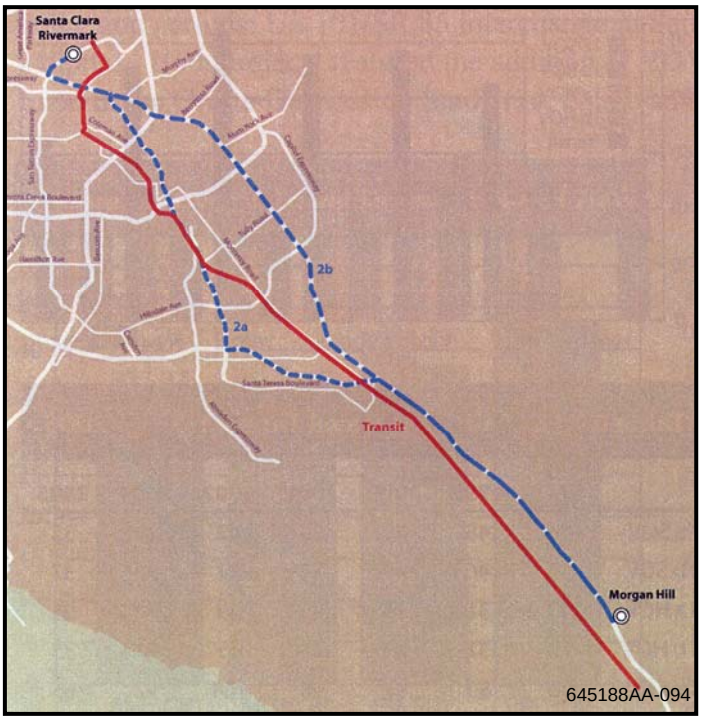
Figure 2-8
Origin-Destination Pair (Morgan Hill to Santa Clara)



O–D Pair	Route
2a	Intersection of Dunne and U.S. 101 > U.S. 101 > SR 85 > SR 87 > U.S. 101 > Montague > intersection of Montague and De La Cruz
2b	Intersection of Dunne and U.S. 101 > U.S. 101 > Montague > intersection of Montague and De La Cruz
Transit AM	Caltrain from Morgan Hill Caltrain Station to Santa Clara Transit Center > transfer to VTA Bus Route 44 to intersection of Montague and First

Table 2-5
Origin-Destination Pair Travel Times (minutes of travel from Morgan Hill to Santa Clara), 1997–2005 plus 2030

	1997	1998	2000	2001	2002	2004	2005	2030
AM—Northbound								
SOV	51	67	70	48	51	50	50	74
HOV	ND	52	58	41	43	39	36	55
Transit	ND	ND	76	64	77	68	80	79
PM—Southbound								
SOV	41	61	58	57	56	48	41	104
HOV	ND	51	56	47	49	42	35	53
Transit	ND	ND	83	88	91	48	68	77

Source: Valley Transportation Authority

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Figure 2-9
Existing and Proposed Regional Passenger Rail Network

The JPB has operated the Caltrain service via a contract with the National Railroad Passenger Corporation, commonly known as Amtrak, since 1992. Service frequencies have been increased and service was extended to Gilroy. Ridership has increased to near-World War II peak levels with a count of 35,609 passengers recorded in February 2001. The JPB is committed to further service improvements and has developed a 20-year strategic plan to guide its initiatives. The proposed service extension to Salinas is intended to complement and support JPB's vision for upgrading Caltrain during the 21st century.

Caltrain rail service currently spans 77 miles and includes 30 stations in San Francisco, San Mateo, and Santa Clara counties. The Gilroy station represents both the end of the line for current rail service and the stepping-off point for further travel south utilizing connecting bus services and private vehicles. Passengers wishing to continue their travel to Monterey County and Santa Cruz County (Watsonville) currently must do so via private automobile.

The proposed Caltrain extension to Salinas would utilize a 38-mile portion of Union Pacific Railroad's (UPRR) Coast main line track running between San Jose and Los Angeles. This track is owned and maintained by UPRR. In general, the track is in good condition and is reputed to have a good ride quality.

Ridership Patterns

Table 2-6 lists Caltrain weekday passenger boardings by station, with year-by-year detail provided for 1992 through 2006. The table shows that boardings at the Gilroy station grew by 408 percent between 1992 and 2001, more than at any other station. Total Caltrain boardings grew 81 percent during this 10-year period.

During 2002 through 2005, boardings at almost every station declined as overall Caltrain ridership fell. (Stations served by "Baby Bullet" trains, i.e., Diridon, Mountain View, Palo Alto, Hillsdale, Millbrae, experienced increased ridership.) This diminished ridership can be attributed to the concurrent regional economic downturn and is therefore projected to be short-lived. Table 2-4 indicates that 2006 ridership has recovered to 2000 levels, in part due to increased service. JPB now operates 96 weekday trains between San Jose Diridon Station and downtown San Francisco.

While overall Caltrain ridership declined from 2001 to 2005 and has since recovered to Year 2000 levels, ridership boarding at stations in southern Santa Clara County has continued to lose ridership. Figure 2-10 illustrates the sharp rise and fall of the number of passengers boarding at the five southernmost stations, i.e., Capitol to Gilroy. The reasons for this ridership decline are well known, as follows.

1. Overall Caltrain ridership declined from 2000 to 2005 in direct proportion to total industry employment in Santa Clara, San Mateo and San Francisco counties.

2. Caltrain ridership boarding at south Santa Clara County stations declined from 2000 to 2003 in slightly greater than direct proportion to total industry employment in Santa Clara County.

3. U.S. 101 was widened from four lanes to eight lanes between Morgan Hill and South San Jose for a distance of 11 miles. The widening alleviated northbound AM and southbound PM congestion and slow speeds on U.S. 101. The project was completed in June 2003 and resulted in the 33 percent loss of Caltrain ridership boarding at south county stations between 2003 and 2004.

Table 2-6
Caltrain Weekday Passenger Boardings

Station	Oct '92	Apr '93	Mar '94	Feb '95	Mar '96	Feb '97	Feb '98	Feb '99	Feb '00	Feb '01	Feb '02	Feb '03	Feb '04	Feb '05	Feb '06
San Francisco	6,280	5,680	5,795	5,303	5,536	6,126	6,302	5,898	6,602	6,807	6,180	5,846	5,065	5,910	7,155
22nd Street	208	206	242	235	297	397	517	510	574	673	524	456	382	545	797
Paul Avenue	52	50	35	37	37	17	20	6	11	10	25	9	6	1	—
Bayshore	169	215	194	170	241	316	402	403	458	513	463	403	344	247	166
South San Francisco	418	421	397	392	398	521	509	517	549	621	597	510	472	487	521
San Bruno	454	500	529	529	578	650	694	704	723	844	762	659	505	488	412
Millbrae	501	550	558	549	543	618	698	655	782	870	776	657	1,148	1,507	1,816
Broadway	336	377	378	392	377	430	464	423	495	567	492	433	333	205	—
Burlingame	546	581	566	618	638	674	686	755	842	985	884	726	645	604	588
San Mateo	589	623	648	633	719	845	905	957	1,105	1,389	1,302	1,084	1,004	1,062	1,009
Hayward Park	211	210	203	198	216	299	275	320	381	607	565	447	417	347	244
Bay Meadows	127	129	70	2	134	180	167	154	62	67	70	57	65	71	10
Hillsdale	920	917	918	961	1,038	1,156	1,193	1,163	1,278	1,318	1,193	1,065	1,080	1,487	1,815
Belmont	554	519	566	529	554	506	548	590	648	892	770	629	568	518	435
San Carlos	620	638	703	749	716	835	878	865	1,028	1,216	987	848	816	836	867
Redwood City	764	725	807	778	874	1,142	1,286	1,331	1,597	1,804	1,597	1,356	1,360	1,423	1,870
Atherton	299	275	243	240	230	250	206	225	266	260	246	198	182	122	—
Menlo Park	859	815	796	863	847	1,017	1,133	1,104	1,174	1,321	1,194	1,034	1,055	1,009	1,171
Palo Alto	1,020	991	1,075	1,162	1,242	1,610	1,706	1,693	1,960	2,249	2,016	1,880	1,849	2,425	3,054
Stanford	0	0	3	0	0	0	18	14	12	11	0	0	—	—	—
California Avenue	881	929	922	974	950	1,125	1,163	1,211	1,280	1,376	1,225	1,026	976	839	822
San Antonio	0	0	0	0	0	0	0	0	550	841	694	644	697	610	488
Mountain View	962	887	980	1,023	1,162	1,369	1,477	1,478	1,640	2,200	1,854	1,644	1,519	2,423	2,764
Sunnyvale	814	816	872	828	1,001	1,204	1,214	1,230	1,363	1,427	1,222	1,020	1,149	970	1,342
Lawrence	601	522	575	558	687	822	965	981	1,124	1,309	956	773	593	534	514
Santa Clara	558	587	570	579	554	770	809	863	1,031	1,124	991	853	798	706	657
College Park	161	132	169	150	154	167	197	178	206	185	180	184	192	133	97
San Jose Diridon	1,352	1,317	1,118	1,092	1,197	1,486	1,616	1,492	1,454	1,747	1,421	1,244	1,183	1,906	2,270
Tamien	287	332	359	382	468	492	531	526	676	821	634	520	480	343	466
Capitol	—	—	25	33	39	54	76	63	95	121	82	67	56	57	29
Blossom Hill	52	54	85	84	91	128	148	119	161	177	136	130	101	99	77
Morgan Hill	138	88	124	128	151	195	318	297	387	437	340	276	194	191	151
San Martin	—	46	51	63	51	95	170	175	200	252	164	158	91	78	72
Gilroy	112	90	143	198	182	300	394	420	468	569	421	357	225	210	141
TOTAL	***20,845***	***20,222***	***20,719***	***20,432***	***21,902***	***25,796***	***27,685***	***27,320***	***31,182***	***37,810***	***30,963***	***27,193***	***27,069***	***28,393***	***31,820***

Source: Caltrans and Peninsula Corridor Joint Powers Board

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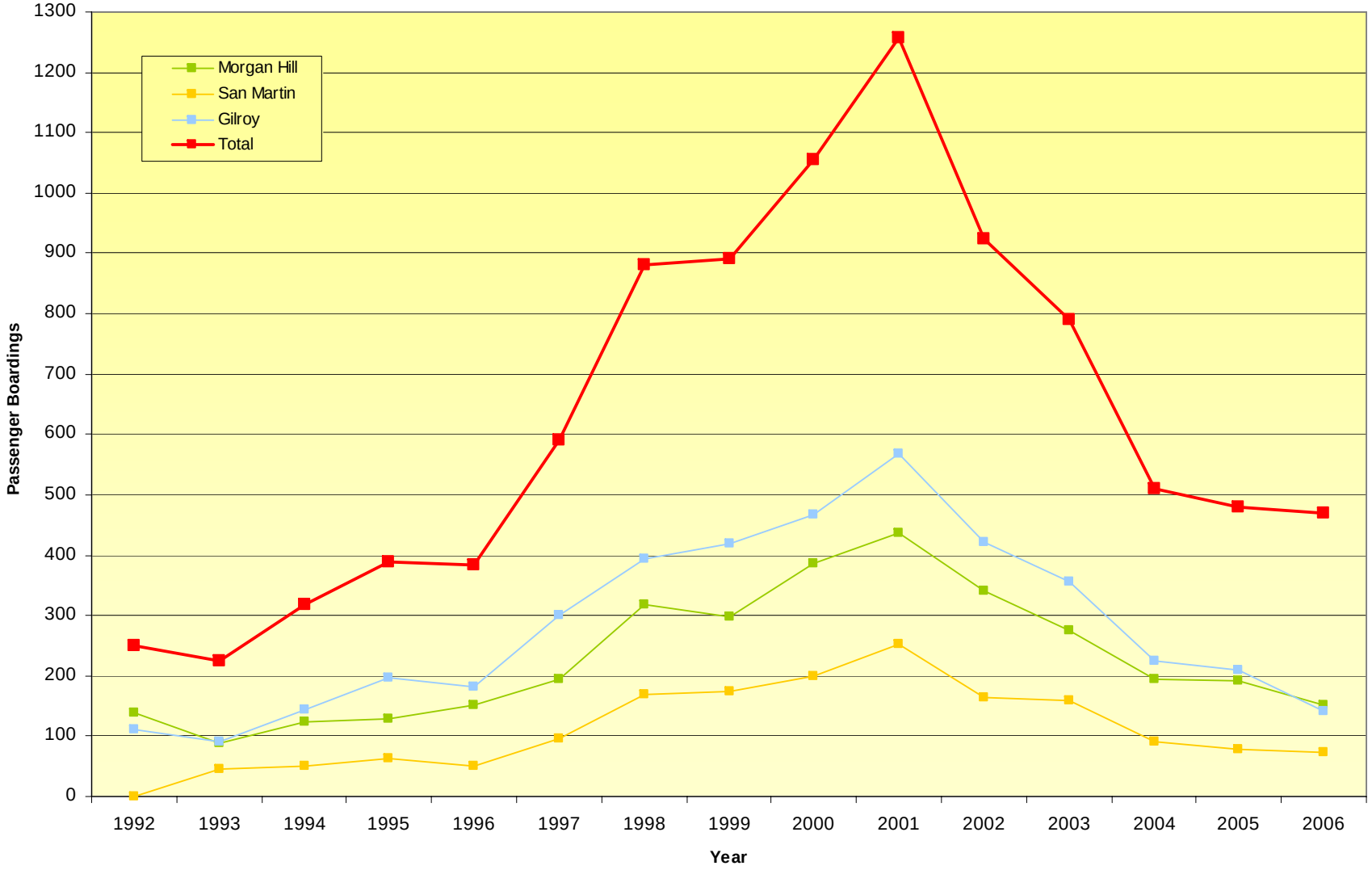
Figure 2-10
Caltrain Weekday Passenger Boardings for South Santa Clara County



Data Source: Caltrans and Peninsula Corridor Joint Powers Board

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4. Caltrain service to south Santa Clara County stations was reduced in August 2005 from four weekday round trips to three weekday round trips. In addition, the schedule of one of the remaining trains (each direction) was revised to eliminate (skip) one-half of the station stops in northern Santa Clara County. For south Santa Clara County residents, Caltrain service was effectively reduced by one-third. South Santa Clara County ridership fell by 26 percent following the service reduction.

The VTA is committed to restoring and expanding Caltrain service to south Santa Clara County residents. The need for this service expansion is discussed below and in Chapter 3 under the No Build Alternative.

Prior to this rise and fall of south Santa Clara County ridership, TAMC conducted a survey of Caltrain patrons boarding at the Gilroy station in November 1999. The survey found that 17 percent of the riders live in Monterey County and 4 percent live in Santa Cruz County. This place-of-residence information is remarkable given the relatively short access distances that typify park-and-ride lot use. Access distances of five miles or less, the immediate market shed of Gilroy, typically account for 60 percent of park-and-ride lot uses. Corresponding capture rates for 10, 15, and 20 miles of access distance have been measured as 80, 90, and 94 percent, respectively, according to a report titled *Traveler Response to Transportation System Changes* (1981) published by Barton-Aschman Associates, Inc. The end-of-the-line nature of the Gilroy station undoubtedly contributes to its large market area.

It is likely that current Caltrain use by San Benito County, Monterey County, and Watsonville residents actually understates the market for service extensions by a wide margin, as the number of commuters who choose to drive 20 to 30 miles to a Caltrain park-and-ride lot and change modes for a 30- to 40-mile train trip is limited.

Future Demand for Caltrain Service

In July 2004, the Peninsula Corridor Joint Powers Board adopted a 20-year Strategic Plan for Caltrain covering the 2004 to 2023 implementation horizon. This Strategic Plan set forth a vision for Caltrain encompassing four service scenarios: (1) the status quo, (2) moderate growth, (3) enhanced, and (4) build-out scenarios. On November 30, 2006, JPB issued a companion report, entitled *Project 2025. Project 2025* was undertaken to identify specific capital improvements and actions needed to implement the strategic vision.

Underlying *Project 2025* is market research indicating strong potential demand for increased Caltrain service. Within the three counties currently served by Caltrain (San Francisco, San Mateo, and Santa Clara), JPB foresees the following based on the Association of Bay Area Governments (ABAG) demographic projections and Metropolitan Transportation Commission (MTC) travel demand forecasts.

- The three peninsula counties are expected to grow in population by 16 percent over the next 20 years. Santa Clara County population will increase at a faster rate (18.5 percent) than its partners. As illustrated in Figure 2-11, there will be more than 500,000 additional people residing in the three counties between 2005 and 2025.

- Employed residents are expected to increase by 37 percent, adding nearly 500,000 employed residents. The rate of growth is more than twice the rate of total population growth between 2005 and 2025. This increase in employed residents means that the three counties will have 37 percent more commuters over the next 20 years, with Santa Clara County ahead of San Mateo and San Francisco counties.

Figure 2-11
Population Growth (1980–2025)

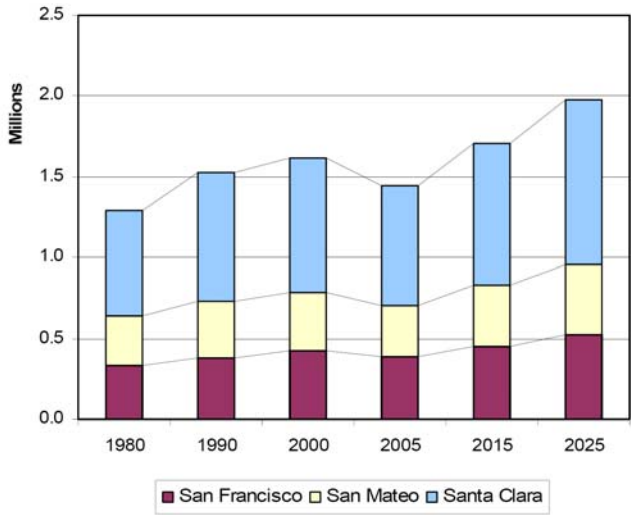
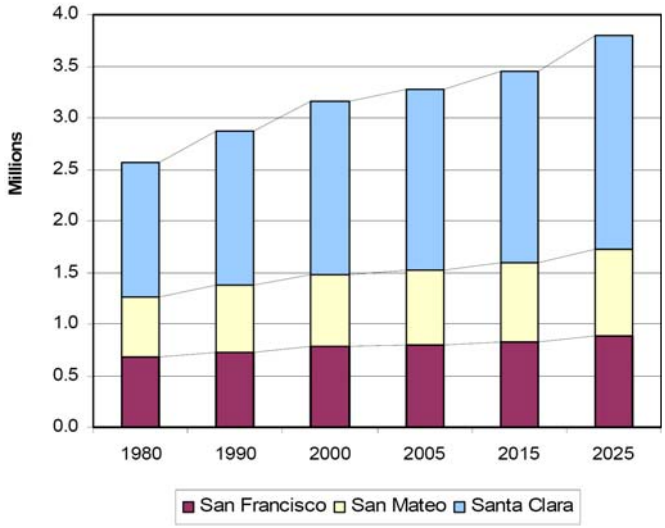


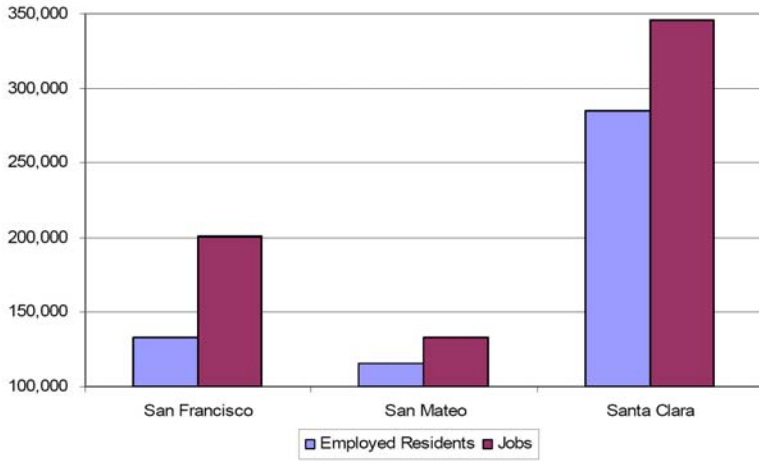
Figure 2-12
Employed Resident Growth (1980–2025)



- Jobs located within the three counties are expected to increase by 37 percent, which is equivalent to 678,830 additional jobs by 2025. Santa Clara will have 345,250 additional jobs compared to 200,300 for San Francisco and 133,280 for San Mateo County.

  Figure 2-13 shows a comparison between job growth and employed residents growth over the next 20 years. Each county is expecting to have more new jobs than employed residents requiring greater importation of its labor force. All three counties will need to rely on workers from other Bay Area and outlying counties, which will place greater demand on regional rail service. (These data do not include forecasts for Monterey, Santa Cruz, and San Benito counties.)

Figure 2-13
Comparison of Growth in Employed Residents vs. Jobs, 2025



- Santa Clara County's intra-commute growth is expected to be equal to its job growth rate (38 percent) over the next 20 years. San Francisco intra-commute growth (37 percent) will outpace its job growth (35 percent) as a higher proportion of San Francisco jobs will be filled by San Francisco residents. In San Mateo County, the job growth (40 percent) will be higher than the intra-commute growth (35 percent); therefore, the county will need to rely on more workers from outside the county.

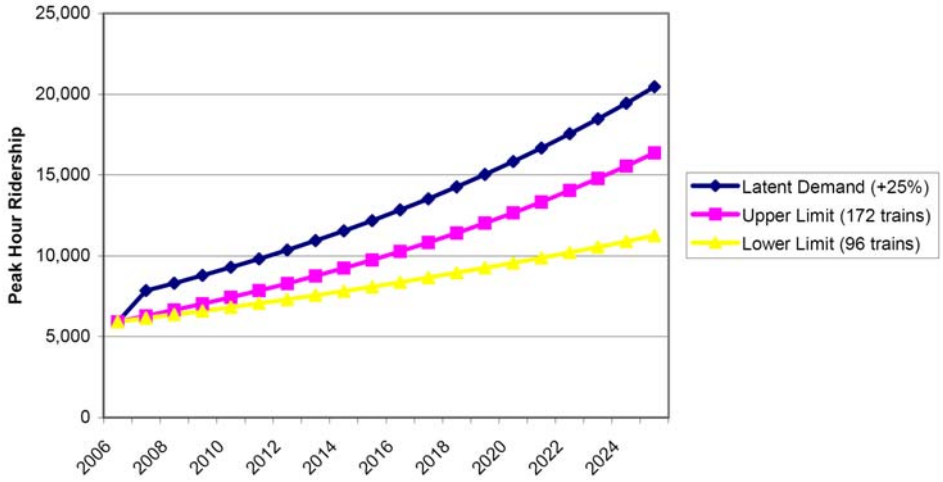
  Growth in commuters from Alameda County to San Mateo County (47 percent) and to Santa Clara County (37 percent) will be significant. There are more commuters (2.04 million) destined for Santa Clara County from all Bay Area origins than the number of San Mateo County and San Francisco commuters combined and this will continue in 2025.

Based on this forecast growth in population, employed residents, employment and travel, JPB foresees a significant demand for increased service.

Figure 2-14 illustrates projected peak hour ridership on the Caltrain system assuming 96 daily trains and 172 daily trains, plus an estimate for latent demand equal to 25 percent above the curve for the 172 train scenario. Without major modifications or improvements to the current 96 daily train service, Caltrain ridership would realize a ridership increase of nearly 100 percent based on JPB's ridership forecasts.

JPB's plans and options for addressing this anticipated ridership demand are discussed in Chapter 3.

Figure 2-14
Caltrain Ridership Demand through 2025



Source: PCJPB

Altamont Commuter Express

The Altamont Commuter Express (ACE) is a commuter rail line operating between Stockton and San Jose. Overall, the line, service area and operations are very similar to the Caltrain line operating between San Jose and Gilroy plus the proposed extension of service to Monterey County. ACE is briefly discussed in this chapter as it serves as a comparison benchmark for Caltrain extension ridership forecasts.

Altamont Commuter Express trains operate on an 82-mile route between Stockton and San Jose through the San Joaquin, Central, and Silicon Valleys. ACE trains use a combination of Caltrain and UPRR tracks (including the former Western Pacific line over Altamont Pass), serving 10 stations.

ACE commuter service is governed by the Altamont Commuter Express Joint Powers Authority, formed in 1997 by Alameda, San Joaquin, and Santa Clara counties to coordinate management and funding. The service is managed by the Joint Powers Authority member agency San Joaquin Regional Rail Commission, and trains are operated under contract by Herzog Transit Services. UPRR owns the tracks.

Service began on October 19, 1998. Initial operations consisted of two round trips, with a morning turn-back train between San Jose and Fremont added in February 2000.

On March 5, 2001, the turn-back train was dropped and a third round trip was added departing Lathrop–Manteca later in the morning and returning in the evening. Concurrent with the March schedule change, ACE trains added a stop at Caltrain's station in Santa Clara.

In late evening, passengers can also board an ACE bus from San Jose to Stockton.

At the San Jose Diridon station, passengers can connect to Amtrak and Caltrain commuter trains. Local bus operators provide free connections between ACE rail stations and employment sites.

As noted below, ACE now operates four round-trip trains per day. Station stops are indicated on the following ACE train schedule. One-way travel time between Stockton and San Jose Diridon is 2 hours 10 minutes. Within Santa Clara County, only three stops occur.

Ridership Patterns

As of March 2006, ACE carried approximately 2,500 riders per day, or approximately 1,250 in each direction. Like Caltrain, ACE has seen its ridership increase rapidly during the dot-com boom years, to be followed by declining and then stabilized ridership patterns. Figure 2-15 illustrates the average weekday daily ridership experienced by ACE from its inception in 1998 through March 2006. Since 2003, ridership has been relatively stable at ±2,500 riders per day.

AM - WESTBOUND

Stockton To San Jose (Read Down)	**#01**	**#03**	**#05**	**#07**
Stockton	4:20 AM	5:35 AM	6:40 AM	9:30 AM
Lathrop/Manteca	4:38 AM	5:53 AM	6:58 AM	9:48 AM
Tracy	4:52 AM	6:07 AM	7:12 AM	10:02 AM
Vasco	5:22 AM	6:37 AM	7:42 AM	10:32 AM
Livermore	5:27 AM	6:42 AM	7:47 AM	10:37 AM
Pleasanton	5:35 AM	6:50 AM	7:55 AM	10:45 AM
Fremont	5:57 AM	7:12 AM	8:17 AM	11:07 AM
Great America	L6:16 AM	L7:31 AM	L8:36 AM	11:26 AM
Santa Clara	suspended	suspended	suspended	suspended
San Jose	6:30 AM	7:50 AM	8:50 AM	11:40 AM

PM - EASTBOUND

San Jose To Stockton (Read From Bottom Up)	**#02**	**#04**	**#06**	**#08**
Stockton	2:15 PM	5:45 PM	6:45 PM	7:45 PM
Lathrop/Manteca	1:53 PM	L5:23 PM	L6:23 PM	7:23 PM
Tracy	1:39 PM	L5:09 PM	L6:09 PM	L7:09 PM
Vasco	1:09 PM	4:39 PM	5:39 PM	6:39 PM
Livermore	1:04 PM	4:34 PM	5:34 PM	6:34 PM
Pleasanton	12:56 PM	4:26 PM	5:26 PM	6:26 PM
Fremont	12:34 PM	4:04 PM	5:04 PM	6:04 PM
Great America	12:16 PM	3:46 PM	4:46 PM	5:46 PM
Santa Clara	suspended	suspended	suspended	suspended
San Jose	12:05 PM	3:35 PM	4:35 PM	5:35 PM

L = Train may leave ahead of schedule after discharging passengers

Figure 2-15
Altamont Commuter Express Average Daily Ridership Trends

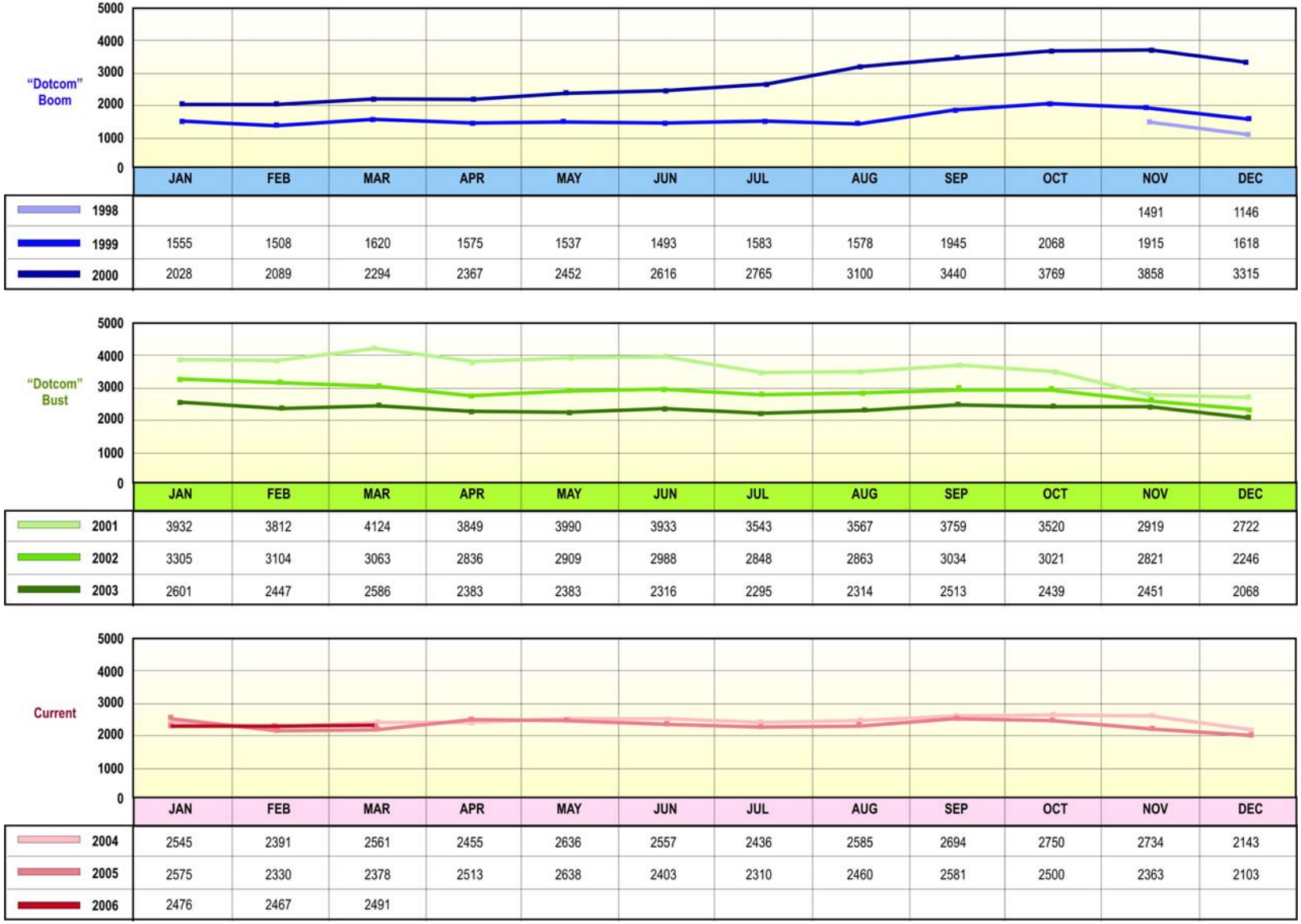


Table 2-7
Altamont Commuter Express Rider Boarding Patterns

Station	4/4/2000		7/25/2001		4/24/2006	
	AM Westbound	PM Eastbound	AM Westbound	PM Eastbound	AM Westbound	PM Eastbound
Stockton	7%	—	9%	—	14%	—
Lathrop	18	—	28	—	31	—
Tracy	19	—	23	—	25	—
Vasco	9	—	7	2	6	2
Livermore	10	1	8	1	7	1
Pleasanton	29	3	16	6	13	17
Fremont	8	8	9	8	5	18
Great America	—	72	—	52	—	52
Santa Clara	—	—	—	17	—	—
San Jose Diridon	—	14	—	14	—	10
Not returning by ACE	—	2	—	—	—	—

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ACE Expansion Plans

ACE recently expanded its commuter rail service between the San Joaquin Valley and the Santa Clara Valley. Beginning on Monday, August 28, 2006, a fourth train was added which departs Stockton Monday through Friday at 9:30 a.m. making all stops en route to San Jose and arriving there at 11:40 a.m. Returning, this new train departs San Jose at 12:05 p.m. and arrives back in Stockton at 2:15 p.m.

Funding for this new service comes in part from Caltrans to help absorb congestion from motor traffic on I-205 during a 3-year construction project to widen that facility. Funding also comes from Amtrak whose passengers connecting to and from the San Joaquin trains #711 and #716 will be carried on this new train.

ACE believes that the added convenience of this additional service will enable their customers to get to work later when necessary, or return home sooner for important appointments. It will allow new customers the opportunity to make shopping trips to Pleasanton or San Jose, or spend the day at a museum or Paramount's Great America.

The San Joaquin Regional Rail Commission originally established a requirement that ACE ridership reach 85 percent capacity prior to initiating the fourth train. Ridership is currently at 65 percent of available capacity and an additional daily 500 passengers eacy way are needed to reach the 85 percent of capacity threshold. However, a unique opportunity presented itself for a partnership between ACE, Caltrans District 10, and the San Joaquin Intercity Rail Service for the initiation fo the fourth train much earlier than anticipated.

In this collaborative effort, it became apparent that a midday (fourth) ACE train might satisfy several purposes:

- Providing a midday train for ACE riders who need a half-day work trip, or need to get home for various appointments (medical/dental, parent-teacher conferences, children's sports events, family activities, etc.) and for special group destinations that are more conducive to a half-day trip.
- Providing a morning/midday/evening alternative to Interstate 205 during the construction widening project scheduled to begin in late Spring 2006. Motorists would be advised of the ACE train alternative via advertising efforts and the changeable message signs throughout the construction zone.
- Providing a "train-to-train" connection to the San Joaquin Intercity Rail Service, as a substitution for the current bus between Stockton and San Jose, allowing broader connectivity and marketing activities. (ACE and Caltrans currently share the costs of a midday bus along the ACE route between Stockton and San Jose.)

In the event that the new time slot does not provide the benefits to the highway construction mitigation program or is not well-utilized by the Amtrak San Joaquin Intercity Rail Service passengers or the ACE one-half day commuters, the Rail Commission will consider moving the train to a peak commuter slot.

Beyond this recent expansion, the Regional Rail Commission is keenly aware of the need to expand the existing ACE service and to improve the quality of service to ACE's passengers. To this end, the Commission is undertaking a study to identify:

1. A short term (i.e., 1–5 years) action plan to improve and increase ACE service between Stockton and San Jose.
2. A longer term (i.e., 6–10 years) action plan to improve and increase ACE service between Stockton and San Jose.
3. An action plan detailing the steps that will need to be taken to improve the ACE–BART connection at Pleasanton.

Results of this study are currently being discussed at the public meetings being held in four corridor cities. Short term and long term proposals include the following:

- Completing train signal improvements
- Adding train dispatching staff
- Creating a dedicated UPRR maintenance gang for the ACE corridor
- Repairing slides in the Altamont pass
- Making drainage improvements in Niles Canyon
- Making improvements at the BNSF crossing
- Increasing speed in curves (unbalanced superelevation)
- Developing a dedicated corridor for ACE service
- Constructing tunnels in the Altamont Pass and Niles Canyon
- Constructing a flyover at the BNSF tracking crossing

These proposed improvements demonstrate the commitment of the San Joaquin Regional Rail Commission to upgrading ACE service and the importance of commuter rail service within the overall Bay Area and surrounding county regional network of mobility options.

CHAPTER 3: DETAILED DEFINITION OF ALTERNATIVES

Chapter 1 of this document summarized the alternative definition and shortlisting process followed by the Monterey County Fixed Guideway [Alternatives Analysis] Study.

As a result of public involvement, city input, and The Transportation Agency for Monterey County (TAMC) policy review, four alternatives emerged for further refinement and testing. These four alternatives, labeled A through D, are listed below and are summarized in Table 3-1.

A. Local Monterey Peninsula bus rapid transit service and Caltrain commuter rail service from San Francisco to Salinas.

B. Local Monterey Peninsula bus rapid transit service with future transition to light rail service; direct intercity rail service from the City of Monterey to San Francisco; and Caltrain commuter rail service from San Francisco to Salinas.

C. Local Monterey Peninsula light rail service and Caltrain commuter rail service from San Francisco to Salinas.

D. Transportation Systems Management (TSM) enhanced local bus service and express bus service between Monterey County and Santa Clara, San Mateo and San Francisco counties.

Common to all Build Alternatives (A, B and C) is the extension of Caltrain service to Monterey County. This commonality reflects the conscious decision on the part of the TAMC Rail Policy Committee to exclude from further consideration any Build Alternative which did not include the extension of Caltrain service from Gilroy to Salinas.

This commitment to the Caltrain extension is further reflected by the TAMC Board policy.

The *Final 2005 Monterey County Regional Transportation Plan* (RTP) identifies the Caltrain-commuter rail extension to Salinas as part of its planned new passenger rail services. The RTP states, "TAMC plans to extend the existing Caltrain commuter rail service (between San Francisco and Gilroy) south to Salinas. The extension will include three new station stops: Pajaro, Castroville, and Salinas. At its inception, the service would consist of two round trips per day running from Salinas to San Francisco and will be increased to four or more round trips as demand warrants, probably within 10 years from start of service."

The purpose of this chapter is to define the Caltrain Extension (Build) Alternative and Express Bus (TSM) Alternative, along with the No Build Alternative.

DEFINITION OF THE NO BUILD ALTERNATIVE

The purpose of the Caltrain extension to Monterey County is to provide an alternative means of commuter travel between Monterey County and southern Santa Cruz County to the San Francisco Bay Area. The Caltrain extension is expected to lower congestion/increase capacity in the U.S. 101 Corridor and provide increased access to job opportunities and educational resources within Silicon Valley and along the San Francisco Peninsula. It will additionally provide transportation alternatives for senior citizens and those with physical disabilities.

Addressing transportation needs in the U.S. 101 Corridor is TAMC's top regional priority.

Table 3-1
Description of Monterey County Fixed Guideway Study Alternatives Shortlisted for Detailed Definition and Evaluation

Alternatives	Service Features	Equipment Options	Cost Estimates
A. Local Monterey Peninsula **bus rapid transit** service	**Monterey Branch Line:** Local bus rapid transit service (phases) • Monterey to Marina • Marina to Castroville • Marina to Salinas on surface roads **Main Line:** Caltrain rail service to Salinas • Intercity service transfer at Castroville or Salinas	**Monterey Branch Line:** Bus rapid transit options • Articulated buses • Diesel or natural gas powered buses • Hybrid diesel electric vehicles • Trolley cars **Main Line: FRA-compliant** • Caltrain vehicles • Amtrak Superliner • Diesel multiple unit (DMU): Colorado Railcar	$193 million
B. Local Monterey Peninsula **bus rapid transit** service with future transition to **light rail transit** service and direct intercity rail service from Monterey to San Francisco	**Monterey Branch Line:** Phase 1: Bus Rapid Transit Option A • Monterey to Marina plus intercity rail service—Monterey to San Francisco Phase 2: Light Rail Transit Option C • Monterey to Castroville plus intercity rail service—Monterey to San Francisco **Main Line:** Caltrain rail service to Salinas	**Monterey Branch Line:** Vehicle options would be identical to bus rapid transit and light rail options and also include Colorado rail car or new technology for direct intercity service **Main Line: FRA-compliant** • Caltrain vehicles • Amtrak Superliner • DMU: Colorado Railcar	$305 million
C. Local Monterey Peninsula **light rail transit** service	**Monterey Branch Line:** Local light rail (phases) • Monterey to Marina • Marina to Castroville • Castroville to Salinas **Main Line:** Caltrain rail service to Salinas • Intercity transfer at Castroville Direct intercity rail service from Monterey to San Francisco (future phase)	**Monterey Branch Line:** Light rail options • Hybrid diesel electric vehicles • Conventional diesel units • Lighter, smaller, streetcar-like, diesel multiple units **Main Line: FRA-compliant** • Caltrain vehicles • Amtrak Superliner • DMU: Colorado Railcar	$230 million
D. Transportation Systems Management (TSM)	Enhanced local bus service provided by MST Express bus service between Monterey County Transit Centers to existing Caltrain stations in: • Santa Clara County • San Mateo County • San Francisco County	**Bus Service:** • Diesel or natural gas powered vehicles • 40-foot coaches • Articulated buses	$1,234 million (includes planned highway improvements)

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U.S. 101 through north Monterey County is a rural four-lane highway with left turn channelization at most intersections. U.S. 101 through the Prunedale area is congested as a result of considerable truck, inter-city and inter-county traffic. At-grade intersections and driveways, and the lack of frontage roads for local traffic also impact the roadway's safety and efficiency.

Caltrans and TAMC have identified level of service (LOS) deficiencies on U.S. 101 through the Prunedale Corridor. TAMC determined that Year 2000 LOS on this facility was F, and projected that this facility would continue to operate at LOS F in 2025. High volumes and numerous at-grade intersections with limited sight distance have made left turns to or from the expressway dangerous

and difficult. With the exception of the Boronda Road/State Route 156/U.S. 101 interchange, and recently completed San Miguel Canyon Road interchanges, all intersections on these segments of U.S. 101 are at-grade.

The Caltrans final draft 2002 *Transportation Concept Report* recommends either widening the existing U.S. 101 to six lanes or providing equivalent capacity in a bypass of Prunedale.

Improvements to U.S. 101 anticipated for the Caltrain Extension to Monterey County "No Build Alternative" can be divided into two components—a safety and operational component and a capacity component.

U.S. 101 Safety and Operational Improvements—the Prunedale Improvement Project

In 2002, TAMC agreed to fund safety and operational improvements on the existing U.S. 101 Corridor through Prunedale prior to implementation of a separate capacity improvement project (widening or bypass) in the corridor. Safety and operational improvements on the existing U.S. 101 between Russell and Espinosa Roads and Crazy Horse Canyon Road/Echo Valley Road on U.S. 101 have been labeled the U.S. 101 Prunedale Improvement Project.

The Prunedale Improvement Project will construct three new interchanges/overpasses along U.S. 101 through North Monterey County at Russell Road/Espinosa Road, Blackie Road/Reese Circle, and Crazy Horse Canyon Road/Echo Valley Road. Additional improvements will also be made to the San Miguel flyover and to local roads throughout the corridor to improve access and local circulation.

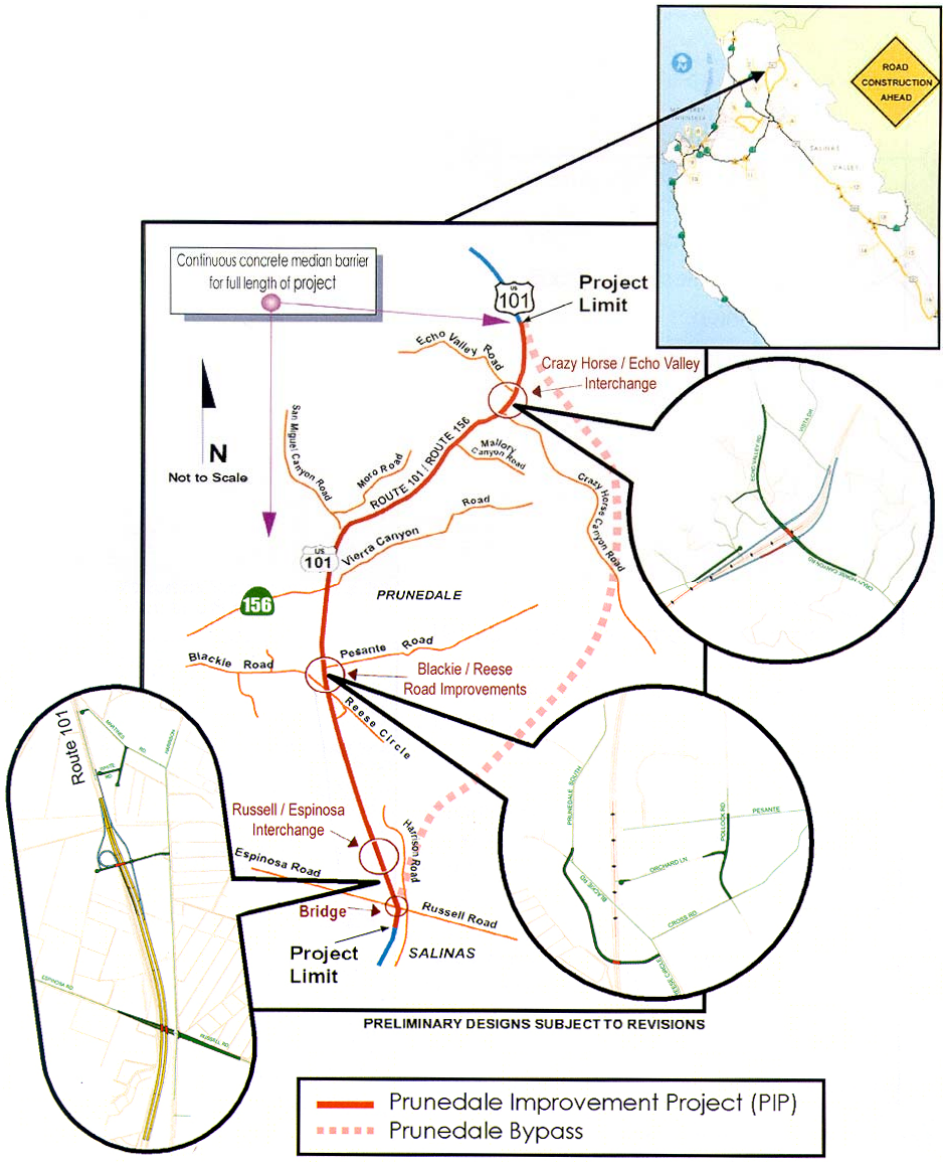
The major suite of improvements is illustrated in Figure 3-1. The project is estimated to cost $259 million and is largely funded in the State Transportation Improvement Program. Construction is slated to start in 2009 and be complete by 2012. By itself, the Prunedale Improvement Program will not address traffic capacity shortfalls in the U.S. 101 corridor. The *Traffic Operational Analysis Supplemental Report*[1] for the Prunedale Improvement Project indicates that under the No Build Caltrain Extension Alternative, U.S. 101 will operate at LOS E and F under 2030 traffic conditions in the AM northbound and PM southbound directions, respectively, for most of the length covered by the project. Northbound AM and southbound PM peak hour demand will exceed capacity by over 30 percent.

U.S. 101 Capacity Improvements—the U.S. 101 Prunedale Freeway

Based on the above defined shortfall, TAMC projects a need for additional capacity on U.S. 101 through the Prunedale corridor in addition to the short-term safety and operational improvements to be constructed on the existing alignment. In 2002, TAMC committed to pursuing the Prunedale Bypass project, Alternative 4E, to address the existing and projected capacity shortfall on this corridor. The project will replace the existing U.S. 101 facility with a new bypass freeway to the east of Prunedale, with interchanges at Espinosa Road/Russell Road and Crazy Horse Canyon Road/Echo Valley Road. This project is estimated to cost approximately $420 million to design and construct.

[1] Caltrans District 6, June 2004.

Figure 3-1
U.S. 101 Prunedale Improvement Project



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TAMC only expects completion of the Prunedale Bypass to be possible with the addition of new local funding sources. New monies in the first 14 years of the plan would be devoted to completing environmental review and design of the project. Even with additional funding, TAMC anticipates construction of this substantial project to be possible only within the outer years (2021–2030) of the *2005 Regional Transportation Plan.*

State Route 156 Widening

Intersecting U.S. 101 at the midpoint of the Prunedale Improvement Project is State Route (SR) 156. SR 156 is a two-lane highway serving as an east–west connector from U.S. 101 to SR 1 and the Monterey Peninsula. SR 156 becomes a four-lane highway for less than 2 miles along the southern

edge of Castroville where it connects to SR 1. As a connector, it experiences high weekday peak period and weekend traffic volumes, carrying a significant number of visitors.


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This facility carries local and interregional truck traffic, agricultural traffic, and commuter traffic. As such, improvements to SR 156 are considered to be vital to the county economy and have been classified as a regional priority by TAMC. The segment of SR 156 between Castroville and U.S. 101 has also been identified as a "focus route" by Caltrans. The level of service along this section of road is currently an E and is expected to drop to F by the year 2010 if no improvements are undertaken.

The first part of the improvement project would widen the existing conventional two-lane highway to a four-lane expressway between Castroville and the existing U.S. 101 interchange in Prunedale. The second part of the project would construct interchange improvements at U.S. 101 and SR 156 to improve traffic flow in the area. The estimated cost of these highway improvements is $248 million. Currently, the project is undergoing environmental review. Due to funding constraints, the project is not assumed to be constructed until 2020 or later, but is assumed for the 2030 No Build Alternative.

MST Public Transportation Plans

Monterey–Salinas Transit (MST) serves a 275-square-mile area of Monterey County and southern Santa Cruz County. MST's 33 routes serve an estimated 352,000 population based on the area within ¾-mile of established routes within the county.

MST's routes provide service primarily in the Monterey Peninsula jurisdictions and in the Salinas Valley. Intercity service is provided via Highway 68 and SR 1 between these two urban areas of Monterey County. In addition, intercity routes connect MST with the Santa Cruz Metropolitan Transit District at their Transit Center in Watsonville.

In fiscal year (FY) 2005, MST operated 3,116,583 vehicle miles of service and carried 4,738,112 on its fleet of 78 buses and 6 trolleys. Its farebox recovery ratio was 27.7 percent and its FY 2006 operating budget is $19.6 million.

Due to uncertain funding, MST prepares a Business Plan and Short Range Transit Plan every other year. Its current plan, covering FY 2006 through FY 2008 was adopted as modified in October 2005. These plans set forth a conservative expansion strategy given anticipated capital and operating funding shortfalls of $100 million over the five-year transit plan horizon. Funding is needed to expand and improve service, expand and improve its bus fleet, and to construct new transit centers and an operations and maintenance facility.

If the TAMC-sponsored sales tax initiative had passed on June 6, 2006, MST intended to increase service on high demand routes and initiate service on a number of new routes. While the sales tax

initiative did not pass[2], MST initiated a new intercity route between Monterey and San Jose on August 28, 2006. Line 55 consists of three round trips each day, 365 days a year. One round trip occurs the morning commute period, departing downtown Monterey at 5:15 AM with a scheduled arrival at the San Jose Diridon Caltrain station at 7:28 AM. A midday trip departs Monterey at 9:50 AM, arrives at San Jose by 12:03 PM and returns, leaving San Jose at 1:35 PM. The afternoon commute period trip departs San Jose Diridon at 5:53 PM and is scheduled to arrive in downtown Monterey at 7:53 PM. This service makes intermediate stops in Seaside/Sand City, Prunedale, Gilroy and Morgan Hill. Fares are $8 for the full Monterey to San Jose trip. This new route is the only public transportation between Monterey County and San Jose over and above the existing Amtrak Coast Starlight train and Thruway bus service, and Greyhound intercity bus service; both operating between Salinas and San Jose. Amtrak operates six round trips between Salinas and San Jose daily with a round trip fare of $32.00. None of the trips operate within the commute window, save one southbound trip leaving San Jose (Diridon Station) at 3:25 PM. Greyhound operates five round trips per day between Salinas and San Jose. These make intermediate stops and offer a $23.00 round trip fare. Two northbound trips, leaving Salinas at 5:15 AM and 7:50 AM, operate within the commute journey to work window.

Beyond these options, Monterey County commuters will need to drive to the Caltrain station at Gilroy and park-and-ride from that point northward.

Caltrain Commuter Rail Service

Caltrain currently operates three round trip trains between Gilroy and San Francisco on weekdays. Prior to August 2005, four Caltrain round trips to Gilroy were offered. The Santa Clara Valley Transportation Authority (VTA) is the lead agency for Caltrain operations and program development between San Jose and Gilroy. As part of its Long-term Transit Capital Investment Program, VTA has negotiated an agreement with Union Pacific Railroad (UPRR) which grants VTA/JPB (Peninsula Corridor Joint Powers Board) rights to operate up to 20 trains (10 round trips) between Gilroy and San Jose upon completion of $35 million of capacity improvements. These improvements include construction of 8.5 miles of double track (addition of a second track) between San Jose and Gilroy on UPRR property. VTA also plans to construct a Gilroy yard facility to accommodate storage of 10 commuter rail train sets.

Exhibit 1, shown on the following page, presents the prototypical schedule developed for the 10 roundtrip train negotiations between VTA and UPRR. The exhibit indicates a start year that is dependent on ridership levels and VTA funding availability. For the No Build Alternative, at least four round trips trains are assumed to be in operation by 2010. For the 2030 planning horizon, ten round trip trains per weekday are assumed.

DEFINITION OF THE CALTRAIN EXTENSION ALTERNATIVE

Institutional Framework

Peninsula Corridor Joint Powers Board
Caltrain is governed by a Joint Powers Agreement between San Francisco, San Mateo and Santa Clara counties, which established the Peninsula Corridor Joint Powers Board. San Mateo County Transit (SamTrans) is the managing partner and is responsible for operations and planning for the system. The trackage, stations and most parking areas, from Tamien Station in San Jose to San

[2] Ballot Measure A required a two-thirds majority. The Yes vote received 57.13 percent of the votes cast.

Exhibit 1
Commuter Service between San Jose and Gilroy—Depart Times

Southbound Start (Year)	Train Schedule	Diridon (pm)	Train #	Tamien	Train #	Gilroy	Schedule Priority	Service Description
2008	*8*	4:01	258	4:08	*258*	*5:15*	L	Provide added service, limit impact to UP by running close to existing window
2007	*7*	*4:23*	*new*	*4:30*	*new*	*5:15*	L	Provide added service, limit impact to UP by running close to existing window
	1	4:45	160	4:51	160	5:36		
2006	*6*	*5:06*	*262*	*5:12*	*262*	*5:57*	M	Provide added service within existing commute window limiting impact to UPRR
2004	*5*	*5:28*	*new*	*5:35*	*new*	*6:20*	H	Provide added service within existing commute window as agreed with UPRR
	2	5:51	164	5:57	164	6:42		
	3	6:16	270	6:22	270	7:07		
	4	6:49	172	6:56	172	7:41		
2009	*9*	7:16	278	7:23	*278*	*8:08*	L	Provide added service, limit impact to UP by running close to existing window
2010	*10*	8:01	284	8:08	*284*	*8:53*	L	Provide added service, limit impact to UP by running close to existing window

Northbound	Train Schedule	Gilroy (am)	Train #	Tamien	Train #	Diridon		
2010	*10*	*4:49*	*215*	5:32	215	5:39	L	Provide added service, limit impact to UP by running close to existing window
	1	5:16	121	5:58	121	6:06		
2006	*6*	*5:39*	*new*	*6:22*	*new*	*6:29*	M	Provide added service within existing commute window limiting impact to UPRR
	2	6:02	227	6:44	227	6:52		
2004	*5*	*6:25*	*new*	*7:08*	*new*	*7:15*	H	Provide added service within existing commute window as agreed with UPRR
	3	6:45	231	7:27	231	7:37		
	4	7:02	235	7:44	235	7:52		
2007	*7*	*7:25*	*new*	*8:08*	*new*	*8:15*	M	Provide added service, limit impact to UP by running close to existing window
2008	*8*	*7:49*	*239*	*8:31*	*239*	8:39	L	Provide added service, limit impact to UP by running close to existing window
2009	*9*	*8:16*	*new*	8:59	141	9:06	M	Provide added service, limit impact to UP by running close to existing window

Note: No weekend commute service

LEGEND
black type existing service
red type *proposed service*
H = High Priority (keep schedule close to proposed times)
M= Medium Priority (keep in general area of proposed schedule)
L= Low Priority (adjust schedule as needed for efficient operation)

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Francisco is owned by the JPB with UPRR and other commuter operations (Altamont Commuter Express, Capitol Corridor, Amtrak Coast Route) operating under trackage rights agreements. South of Tamien to Gilroy, the track is owned by UPRR with Caltrain operating under trackage rights purchased from UPRR.

Caltrain operating funds come from the three county transit agencies with the percentage determined by the proportion of morning peak hour boardings in each county. Capital funds for system-wide improvements (track improvements, signals, station platforms, American with Disabilities Act improvements) are funded equally by the three partners with federal and state participation. Certain station improvements and expansion projects are negotiated between the partners based on the specifics of each project. All capital improvements south of Tamien are funded exclusively by the VTA. These include capital improvements necessary for riders and improvements mandated by UPRR as well as purchase of track slots.

The Transportation Agency for Monterey County

TAMC is a 23-member agency which consists of local officials from each of its 12 incorporated cities and five county supervisorial districts, and ex-officio members from six public agencies. TAMC is Monterey County's designated Regional Transportation Planning Agency, Congestion Management Agency, Local Transportation Commission, and Service Authority for Freeways and Expressways.

TAMC was created by Government Code Section 67930-67931 to provide regional transportation planning and development for Monterey County. TAMC's powers include eminent domain and the power to preserve, acquire, construct or improve: rights-of-way for rail purposes; rail terminals and stations; rolling stock, including locomotives, passenger cars, and rail related equipment and facilities; grade separation and other improvements along rail rights-of-way for rail purposes; rail maintenance facilities; and other capital facilities deemed necessary for rail service, including soundwalls. Code Section 67931(c) additionally specifies that TAMC may contract for the operation of rail service in Monterey County and for connections with rail service in adjacent and neighboring counties and cities.

Caltrain Strategic Plan 2004–2023 Implementation Framework

The Caltrain Strategic Plan was adopted by the JPB in July 2004. The Strategic Plan is a blueprint for the future of Caltrain and covers four future service delivery scenarios: the status quo, moderate growth, enhanced, and build-out scenarios.

The extension of service to Monterey County (Monterey/Salinas Extension) is included in two future service delivery scenarios—enhanced and build-out. It is categorized as a "Regional Extension (Third Party Project)." Three additional regional extensions are included in the Strategic Plan. These are downtown San Francisco, Dumbarton, and California High-Speed Rail. Of these, the San Francisco and Dumbarton extensions are included in the enhanced and build-out scenarios. The California High-Speed Rail project is included in the build-out scenario only.

Actions taken by JPB and third parties indicate that Caltrain service enhancements are moving along the enhanced service delivery scenario. Evidence of this includes project development for the extensions of service to downtown San Francisco and through the Dumbarton Corridor, which are progressing along parallel tracks to that of the Monterey/Salinas Extension. The number of total weekday trains is already 96 as of 2006, approaching the upper limit specified for the moderate growth scenario (100 trains by Year 2023). In addition, 22 "Baby Bullet" express trains are in operation, surpassing the upper limit of moderate growth by the 2023 service scenario. The Caltrain Extension Alternative is constructed around the enhanced service scenario.

TAMC Regional Transportation Plan Implementation Framework
The RTP includes the Caltrain Extension elements in its constrained funding plan. This service is based on the *Extension of Caltrain Commuter Service to Monterey County Business Plan* prepared in August 2000, and the *Caltrain Extension to Monterey County Project Study Report* dated February 21, 2006. A *Caltrain Extension to Monterey County Passenger Rail Stations Draft Environmental Impact Report* dated April 26, 2006 is currently being circulated for public review. A National Environmental Policy Act Environmental Assessment is also being finalized. TAMC intends to construct a commuter rail station in Pajaro and a commuter rail station in Castroville; renovate and expand an existing passenger rail station in Salinas; and construct a layover facility for Caltrain trainsets in Salinas. TAMC also anticipates funding track, switch and signal improvements between Salinas and Gilroy in conjunction with UPRR. Initiation of service is targeted for late 2009/early 2010.

Caltrain *Project 2025*
The JPB has prepared a strategy for implementing the vision outlined in the Caltrain Strategic Plan. Dated November 30, 2006, the *Project 2025* report identifies capital investments needed to support future service expansions. Elements of this program are listed in Exhibit 2 along with capital cost estimates. Three scenarios are listed in the table reflecting vehicle technology options. Total capital costs range from $2.076 billion to $3.041 billion, expressed in Year 2006 dollars. The *Project 2025* document does not include a funding plan.

Proposed Extension of Caltrain Service to Salinas

The JPB currently operates 96 trains per weekday between San Jose (Diridon Station) and San Francisco. Six of these trains (three round trips) additionally operate between San Jose (Diridon Station) and Gilroy on weekdays. Prior to August 1, 2005, JPB operated four round trip trains to/from Gilroy JPB has authorization to operate up to five round trip trains to/from Gilroy.

As of December 15, 2004, VTA and UPRR concluded negotiations to allow for an increase from the allowed five round trips per day (to/from Gilroy) to 10 round trips. Service will be expanded when track improvements between San Jose and Gilroy are completed and when ridership warrants. The track improvements involve 8.5 miles of double tracking, switches, signals, a bridge and grade crossings.

Trains serving Gilroy lay over at a small yard adjacent to the Gilroy Station. Trains layover during evening hours, during which time they are cleaned and serviced. Up to five trainsets can be accommodated currently—three in the yard, one on a tail track extension of the station track, and one on the station track at the platform.

Trainsets begin their weekday utilization in Gilroy, traveling to San Francisco. After this initial one-way trip, trainsets operate between San Francisco and San Jose. Their final trip of the day ends at Gilroy where the trains layover during the evening.

Under the Caltrain Extension Alternative, existing Caltrain service to Gilroy would be extended to Salinas. Initially, two round trip trains would be operated on weekdays. As ridership warrants, service would be expanded to three round trips. As Caltrain service is restored to Gilroy (four round trips) and eventually expanded, service would be extended to Salinas as demand warrants.

Exhibit 2 Caltrain Capital Program 2006–2025

These estimates are based upon current information available for projects included in JPB's 20-Year Capital Program. Changes in regional priorities, Board policy, available funding, and other factors could change the project and cost components of the Capital Program.

Projects	20-year Cost Estimate (in 2006 $Millions)		
	Current Program Diesel Locomotives	Alternative A Electric Locomotives	Alternative B Non-Compliant EMUs
Rehabilitation Projects - Baseline			
Systemwide Infrastructure Projects			
1. Highway Bridges - San Francisco	$18	$18	$18
2. San Mateo Bridges	$46	$46	$46
3. Quint & Jerrold Bridges	$23	$23	$23
4. Los Gatos & Guadalupe Bridges	$25	$25	$25
5. North Terminal - Phase I	$26	$26	$26
6. Grade Crossing Program	$22	$22	$22
7. Fencing Replacement	$4	$4	$4
8. Systemwide Track Rehab	$101	$101	$101
9. Systemwide Bridge Inspection Program	$4	$4	$4
Sub-Total	$268	$268	$268
Communication Improvements			
1. Voice & Data Radio	$2	$2	$2
2. ATCS Microwave	$2	$2	$2
Sub-Total	$4	$4	$4
Operational Improvements - Removal of Hold-Out Rule			
1. Burlingame Station (incl. Broadway Tracks)	$21	$21	$21
2. Cal. Ave. Station & Underpass	$18	$18	$18
3. Palo Alto Station & Underpass	$14	$14	$14
4. Santa Clara Station Improvement Project	$26	$26	$26
5. So. San Francisco Station	$55	$55	$55
Sub-Total	$134	$134	$134
TVM Replacement	$20	$20	$20
Total - Rehabilitation Projects	**$425**	**$425**	**$425**
Rolling Stock Replacement	**$296**	**$296**	**$296**
Enhancement Projects			
Grade Separation in San Mateo County	$230	$230	$230
Signal & Communication Improvements			
1. Systemwide Signal Respacing for Improved Headways	$6	$6	$6
2. Communications Backbone	$20	$20	$20
Sub-Total	$26	$26	$26
South Terminal Improvement Project			
1. Phase I - Platforms	$8	$8	$8
2. Phase II - Additional Tracks bet. CEMOF & Diridon	$40	$40	$40
3. Phase III - Addt'l. Tracks-Santa Clara to CEMOF & South of	$40	$40	$40
Sub-Total	$88	$88	$88
North Terminal Improvement Project - Phase II	$100	$100	$100
Dumbarton Project			
1. Phase I (TA Project)	$300	$300	$300
2. Redwood City-Dumbarton Interconnect (3rd Track)	$50	$50	$50
Sub-Total	$350	$350	$350
Parking Improvements	$40	$40	$40
Platform Modifications	$20	$20	$20
Total - Enhancement Projects	**$854**	**$854**	**$854**
Total - Electrification	**$471**	**$471**	**$471**
Positive Train Control	**$30**	**$30**	**$30**
Platform - Level Boarding	**$0**	**$190**	**$190**
Fleet Expansion & Associated Infrastructure			
1. Expanded Fleet		$311	$365
2. Transition from Existing System to Proposed System	N/A	$0	$35
3. Maintenance Facilities (based on Fleet Size & Performance)			
a. Modify CEMOF for Electric Locos/EMUs	N/A	$0	$30
b. Build New Maintenance Facilities	N/A	$100	$150
4. Construct Additional Storage Facilities	N/A	$100	$100
5. Resolution of UPRR Trackage Rights/PUC/FRA Issues	N/A	$10	$10
6. Signal & Grade Crossing Modifications	N/A	$15	$15
7. Additional Parking	$0	$60	$60
8. Training	N/A	$2	$10
Total - Fleet Expansion & Associated Infrastructure	**$0**	**$598**	**$775**
Total	**$2,076**	**$2,864**	**$3,041**

Trainsets would layover in Salinas in lieu of Gilroy. A Salinas layover yard would be constructed initially with capacity for four trainsets. The yard would be designed to be expandable to accommodate six trainsets.

Train Layover and Crew Basing

The Caltrain Extension Alternative would construct a layover yard in Salinas with capacity for overnight storage of four trainsets, expandable to six trainsets. This facility, together with existing facilities at Gilroy, would accommodate up to ten trainsets.

Without the Caltrain extension to Monterey County, VTA will need to expand the Gilroy layover facility to accommodate additional train service to/from Gilroy (beyond four or five round trips per day). This VTA investment may be largely or totally avoided via construction of the Salinas layover facility.

Facilities at the Salinas yard will be the same as those existing or proposed for upgrade at Gilroy. The Salinas yard would include a crew basing facility. Locomotive and rolling stock maintenance would be performed at Caltrain's centralized equipment maintenance and operations facility located in San Jose.

Train Schedule

The existing Caltrain schedule, effective January 1, 2006, is assumed for the Caltrain Extension Alternative's initial service (two round trip trains each weekday). The 10-train each direction schedule, used for VTA/UPRR negotiations (as of October 4, 2004) of trackage rights and "slot fees" (for additional train service to Gilroy), is assumed for service expansion planning purposes. (See the exhibit on page 53 and Table 3-2, Caltrain Public Timetable, below.) Specific trains operated to/from Salinas would be clustered within the existing commute window as agreed with UPRR. These schedules are presented in Chapter 6 under Estimation of Capital, Operating and Maintenance Costs, and Revenue.

The JPB *Project 2025* report outlines a number of additional, potential service scenarios. These are addressed below under "Electrification," "Vehicle Requirements," and "Core System Improvements/ TAMC Participation."

Caltrain Extension Service Reliability

The operating plan assumptions for the Caltrain Extension (Build) Alternative are addressed on pages 153–155 of the Draft Alternatives Analysis report. A portion of this text is repeated below.

Table 3-2 displays an illustrative timetable for 8 round trip trains operating between San Jose and Gilroy[3]. For planning purposes, the schedules have been extended south to Salinas to indicate potential departure/arrival times. This table highlights the extension of three existing "Gilroy" round trip trains to/from Salinas. A fourth round trip train is also extended from San Jose to Gilroy and Salinas for planning purposes. These schedules are preliminary and are based on train simulation/capacity modeling undertaken for UPRR. Factors which might affect scheduling include electrification of the Caltrain line north of San Jose; upgrades to the UPRR coast line track between Salinas and Gilroy; Caltrain/Amtrak schedule coordination south of Gilroy; and schedule recovery "padding" to ensure reliability of Caltrain service north of Gilroy.

[3]Schedule based on Caltrain public timetable, effective January 1, 2006.

Table 3-2
Caltrain Public Timetable

Gilroy/San Jose to San Francisco—Northbound

Train #	101	103	305	207	309	211	313	215	217	319	221	323	225	227	329	231	233	135
Salinas									5:12		5:35			6:10		6:37		
Castroville									5:22		5:45			6:20		6:47		
Pajaro									5:36		5:59			6:34		7:01		
Gilroy									6:07		6:30			7:05		7:32		
San Martin									6:16		6:39			7:14		7:41		
Morgan Hill									6:22		6:45			7:20		7:47		
Blossom Hill									6:35		6:58			7:33		8:00		
Capitol									6:41		7:04			7:39		8:06		
Tamien	—	4:58	—	5:50	5:56	—	—	—	6:49	6:56	7:12	—	—	7:47	7:56	8:14	8:33	—
San Jose Diridon	4:30	5:05	5:45	5:57	6:03	6:22	6:45	6:50	6:57	7:03	7:20	7:45	7:50	7:55	8:03	8:22	8:40	9:10
College Park	—	—	—	—	—	—	—	—	—	—	—	—	—	7:58	—	—	—	—
Santa Clara	4:35	5:10	—	6:02	—	6:27	—	—	7:02	—	7:25	—	—	8:02	—	8:27	8:45	9:15
Lawrence	4:40	5:15	—	6:12	—	—	—	—	7:12	—	7:30	—	—	8:12	—	—	8:50	9:20
Sunnyvale	4:44	5:19	—	6:18	6:13	—	—	7:00	7:18	7:13	—	—	8:00	8:18	8:13	—	8:54	9:24
Mountain View	4:49	5:24	5:57	6:23	—	6:37	6:57	7:05	7:23	—	7:37	7:57	8:05	8:23	—	8:37	8:59	9:29
San Antonio	4:53	5:28	—	6:27	—	—	—	—	7:27	—	—	—	—	8:27	—	—	9:03	9:33
California Avenue	4:57	5:32	—	6:31	—	—	—	7:11	7:31	—	—	—	8:11	8:31	—	—	9:07	9:37
Palo Alto	5:01	5:36	6:05	6:36	6:23	—	7:05	7:16	7:36	7:23	—	8:05	8:16	8:36	8:23	—	9:11	9:41
Menlo Park	5:04	5:39	—	6:39	—	6:45	—	—	7:39	—	7:45	—	—	8:39	—	8:45	9:14	9:44
Redwood City	5:09	5:44	—	6:45	6:30	6:51	—	—	7:45	7:30	7:51	—	—	8:45	8:30	8:51	9:19	9:49
San Carlos	5:13	5:48	—	—	—	6:55	—	7:24	—	—	7:55	—	8:24	—	—	8:55	9:23	9:53
Belmont	5:16	5:51	—	—	—	6:58	—	—	—	—	7:58	—	—	—	—	8:58	9:26	9:56
Hillsdale	5:19	5:54	6:16	6:51	—	7:02	7:16	7:28	7:51	—	8:02	8:16	8:28	8:51	—	9:02	9:29	9:59
Hayward Park	5:22	5:57	—	—	—	7:05	—	—	—	—	8:05	—	—	—	—	9:05	—	10:02
San Mateo	5:25	6:00	—	—	6:39	7:08	—	7:32	—	7:39	8:08	—	8:32	—	8:39	9:08	9:33	10:05
Burlingame	5:28	6:03	—	—	—	7:11	—	7:35	—	—	8:11	—	8:35	—	—	9:11	9:36	10:08
Millbrae	5:33	6:08	6:24	6:59	6:45	7:17	7:24	—	7:59	7:45	8:17	8:24	—	8:59	8:45	9:17	9:41	10:13
San Bruno	5:37	6:12	—	—	—	7:21	—	7:42	—	—	8:21	—	8:42	—	—	9:21	9:45	10:17
So. San Francisco	5:41	6:16	—	7:05	—	7:25	—	—	8:05	—	8:25	—	—	9:05	—	9:25	—	10:21
Bayshore	5:47	6:22	—	—	—	7:33	—	—	—	—	8:33	—	—	—	—	9:31	—	10:27
22nd Street	5:52	6:27	—	—	—	7:40	—	—	—	—	8:40	—	—	—	—	9:37	—	10:32
San Francisco	6:01	6:36	6:42	7:19	7:02	7:48	7:42	7:57	8:19	8:02	8:48	8:42	8:57	9:19	9:02	9:45	10:02	10:41

San Francisco to San Jose/Gilroy—Southbound

Train #	154	256	158	260	362	264	266	368	270	372	274	276	378	280	382	284	386	288
San Francisco	2:07	2:37	3:07	3:37	4:09	4:19	4:27	4:33	4:56	5:14	5:20	5:27	5:33	5:56	6:14	6:27	6:33	6:56
22nd Street	2:12	—	3:12	—	—	—	4:32	—	—	—	—	5:32	—	—	—	6:32	—	—
Bayshore	2:17	—	3:17	—	—	—	4:40	—	—	—	—	5:40	—	—	—	6:40	—	—
So. San Francisco	2:23	—	3:23	—	—	—	4:48	—	5:08	—	—	5:48	—	6:08	—	6:48	—	7:08
San Bruno	2:27	2:51	3:27	3:51	—	4:33	4:52	—	—	—	5:34	5:52	—	—	—	6:52	—	—
Millbrae	2:31	2:55	3:31	3:55	4:25	—	4:56	4:49	5:14	5:30	—	5:56	5:49	6:14	6:30	6:56	6:49	7:14
Burlingame	2:35	2:59	3:35	3:59	—	4:38	5:00	—	—	—	5:39	6:00	—	—	—	7:00	—	—
San Mateo	2:38	3:02	3:38	4:02	—	4:42	5:04	4:57	—	—	5:43	6:04	5:57	—	—	7:04	6:57	—
Hayward Park	2:41	—	3:41	—	—	—	5:07	—	—	—	—	6:07	—	—	—	7:07	—	—
Hillsdale	2:44	3:06	3:44	4:06	4:33	4:47	5:11	—	5:22	5:38	5:48	6:11	—	6:22	6:38	7:11	—	7:22
Belmont	2:47	3:09	3:47	4:09	—	—	5:14	—	—	—	—	6:14	—	—	—	7:14	—	—
San Carlos	2:50	3:12	3:50	4:12	—	4:51	5:18	—	—	—	5:52	6:18	—	—	—	7:18	—	—
Redwood City	2:55	3:17	3:55	4:17	—	—	5:22	5:06	5:28	—	—	6:22	6:06	6:28	—	7:22	7:06	7:28
Menlo Park	3:00	3:22	4:00	4:22	—	—	5:28	—	5:34	—	—	6:28	—	6:34	—	7:28	—	7:34
Palo Alto	3:03	3:25	4:03	4:25	4:44	5:01	—	5:12	5:38	5:49	6:02	—	6:12	6:38	6:49	—	7:12	7:38
California Avenue	3:07	3:29	4:07	4:29	—	5:05	—	—	5:42	—	6:06	—	—	6:42	—	—	—	7:42
San Antonio	3:11	3:33	4:11	4:33	—	—	—	—	5:46	—	—	—	—	6:46	—	—	—	7:46
Mountain View	3:15	3:37	4:15	4:37	4:51	5:11	5:36	—	5:50	5:56	6:12	6:36	—	6:50	6:56	7:36	—	7:50
Sunnyvale	3:20	3:42	4:20	4:42	—	5:16	—	5:21	5:55	—	6:17		6:21	6:55	—	—	7:21	7:55
Lawrence	3:24	3:46	4:24	4:46	—	—	—	—	6:01	—	—	6:43	—	7:01	—	—	—	7:59
Santa Clara	3:29	3:51	4:29	4:51	—	—	5:47	—	6:08	—	—	6:48	—	7:08	—	7:47	—	8:04
College Park	—	—	4:32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
San Jose Diridon	3:38	4:00	4:39	5:00	5:06	5:27	5:55	5:32	6:16	6:11	6:28	6:56	6:32	7:16	7:11	7:55	7:32	8:12
Tamien	—	4:07	4:45	5:07	—	5:33	—	5:39	6:22	—	—	7:02	6:39	7:23	—	—	7:39	8:19
Capitol			4:52			5:40			6:29			7:09						
Blossom Hill			4:58			5:46			6:35			7:15						
Morgan Hill			5:11			5:59			6:48			7:28						
San Martin			5:17			6:05			6:54			7:34						
Gilroy			5:30			6:18			7:07			7:47						
Pajaro			6:01			6:49			7:38			8:18						
Castroville			6:15			7:03			7:52			8:32						
Salinas			6:25			7:13			8:02			8:42						

Gilroy/Salinas service

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Concern has been expressed by Joint Powers Board staff that service interruptions or delays occurring south of Gilroy would impact Caltrain operations north of Gilroy. These interruptions or delays could affect train schedule adherence throughout the day as a minimal amount of recovery time is included with current schedules.

Service interruptions or delays south of the San Jose Tamien station will be outside the control of the Joint Powers Board as this portion of the track is owned by Union Pacific Railroad. Potential delays include, but are not limited to, schedule conflicts with Union Pacific freight trains, track maintenance "slow orders" on the Coast Subdivision, grade crossing accidents, pedestrian crossing accidents, mechanical failure, train scheduling/train signaling software malfunctions, ongoing track resurfacing/tie replacement maintenance activities, train signal malfunctions, train derailments, and train or motor vehicle hazardous material spills. These potential service interruptions or delays could also occur north of San Jose Diridon, on Joint Powers Board owned track and right-of-way.

As part of the service analysis, a preliminary exposure incident/hazards analysis investigation was undertaken. This assessment indicates that the risk exposure associated with non-train related events south of Gilroy is minimal compared to land use densities, motor vehicle traffic volumes, and pedestrian activities occurring north of Gilroy to San Francisco.

South of Gilroy, the Coast line track passes through agricultural or undeveloped lands except in the vicinity of the three proposed stations and Gilroy. Within Gilroy, Pajaro, Castroville and Salinas, the line passes existing and former rail yards and industrial uses. The Coast line traverses 13 at-grade public road crossings between the Gilroy (MP 77.04) and Salinas stations (MP 114.90).

All of these at-grade crossings serve light traffic volumes except Tenth Street, immediately south of the Gilroy station and yard, and Bloomfield Road (State Route 25). Projected traffic volumes for each of the at-grade crossings are listed in Table 3-3. Only two of these roads have projected traffic volumes greater than 10,000 vehicles per day.

Regarding railroad activities, freight trains operating between San Jose and Watsonville Junction or points south comprise the majority of daily movements—which currently average approximately eight trains per weekday, but may increase to twelve in the future (see Table 3-4. The Amtrak Coast Starlight train also makes one round trip per day over the Coast line track.

Washington International Group is currently undertaking a capacity study for Union Pacific and the Transportation Agency for Monterey County. This capacity study is investigating the extension of four round trip Caltrain movements between Salinas and Gilroy. A two round trip Caltrain extension scenario has previously been undertaken. While this simulation/capacity study remains underway, Washington International Group has opined the following:

> "The set of improvements being built in connection with additional Gilroy trains are adequate to handle both Caltrain and UP trains without excessive delay. In all our simulations, and in the Real World, commuter trains will have priority over freights. Many of the improvements under construction are designed to facilitate the proper movement of commuters, and preserve the level of utility of UP freight service. But none of the improvements were designed with a particular UP through freight service schedule in mind, as they change too often, and the train schedule performance is erratic."

The objective of the four train capacity study will be to identify track and signaling enhancements south of Gilroy which are required to support the extension of Caltrain service to Salinas.

Table 3-3
At-Grade Public Crossing Locations

County City (in/near)	US DOT ID	Street/Road	Count Date	Count Average Daily Traffic	2013 Estimated Daily Traffic	2030 ADT >10,000
Santa Clara						
Gilroy	755186C	Tenth	2005	19,500	22,800	Yes
Gilroy	755187J	Luchessa	2005	8,000	9,400	No
Gilroy	755194U	Bolsa	1988	400	700	No
Gilroy	755195B	Bloomfield (SR 25)	2000	20,200	26,100	Yes
Monterey						
Aromas	755206L	Carpenteria	1991	2,750	4,300	No
Aromas	755207T	Kortwright	1991	50	100	No
Watsonville	755209G	San Juan	1996	6,900	9,700	No
Watsonville	755212P	San Miguel Cyn	1991	1,300	2,000	No
Pajaro	752354V	Lewis	1991	1,200	1,900	No
Moss Landing	752351A	Kirby	1987	50	100	No
Castroville	752253J	Blackie	1991	4,300	6,600	No
Castroville	752252C	Espinosa	1991	5,500	8,500	No
Salinas	752246Y	San Jon	1988	750	1,200	No

Source: US DOT Crossing Inventory; City of Gilroy Traffic Monitoring Program; Caltrans District 5

Note: Traffic count volumes increased by a growth factor of two percent per year to represent future conditions when the Caltrain service was projected to be operating.

Fares and Revenues

Expansion of the existing JPB fare structure is assumed for the Caltrain Extension Alternative, increasing the number of fare zones from six to eight. The three station stops in Monterey County would all be in fare zone 8. No stations are proposed for fare zone seven, which could eventually include a future service extension to Hollister. This fare structure is detailed in Chapter 6 under Estimation of Capital, Operating and Maintenance Costs and Revenue.

Fare revenues generated by passengers boarding (AM) and deboarding (PM) in Monterey County are assumed to be credited to the Monterey Extension Service account.

Train Operations/Purchase of Service

Caltrain passenger rail service to/from Monterey County would be procured by TAMC through a "purchase of service" from JPB. JPB in turn would contract with its operator for service. The Caltrain Extension Alternative operations and maintenance costing assumes that the purchase of service contract would be based on a mutually agreeable *fully allocated cost formula*, based on budgeted and actual JPB costs. Additionally, the Caltrain Extension Alternative anticipates the inclusion of a "crew basing surcharge" which may be imposed by JPB's contract operator, for train crew deployment to/from Salinas.

Table 3-4
Coast Line Existing and Expanded Freight Service (San Jose to Salinas)

Train	Weekly Trips	San Jose	Morgan Hill	Gilroy	Watsonville Junction	Castroville	Salinas
Existing							
IBRLBR	1	←	←	←	←	←	←
ILCOA	5	←	←	←	←		
IOALBR	7	→	→	→	→	→	→
LRQ31	5			←	←		
	5			←	←		
LRQ40	5					←	←
	5					→	→
LRQ42R	5					→	
	5					←	
LRQ53	6	→	→	→	→		
	6	←	←	←	←		
LRQ81B	3					→	→
	3					←	←
LRQ83	6	←	←				
	6	→	→				
MMLRV	7	←	←	←	←	←	←
MWCPT	7	←	←	←	←	←	←
QRVML	7	→	→	→	→	→	→
Expansion							
AOAWF	7	→	→	→	→	→	→
MWCoaEU	7	←	←	←	←	←	←
MWCoaRV	7	←	←	←	←	←	←
ZBRoaLC	7	→	→	→	→	→	→
Weekly Trains		**86**	**86–96**		**86–96**	**83**	**73**

Insofar as UPRR trackage rights or slot fees for Caltrain service between Gilroy and Salinas, the Caltrain Extension Alternative assumes that these fees would be in addition to and separate from the JPB purchase of service. TAMC or TAMC/JPB would negotiate these fees with UPRR. Trackage rights could take the form of an annualized "capital access fee," similar to the San Joaquin Regional Rail Commission's arrangement with UPRR; or a 10- to 15-year "slot fee" as negotiated by VTA for the increase in service between Gilroy and San Jose.

Capital Investments

A draft UPRR term sheet dated June 26, 2003 documents capital investments in track, switch, and signaling which may be required to implement Caltrain service to Salinas. This term sheet reflects a

two-round trip scenario and will be finalized to reflect a four round trip train scenario.

The Caltrain Extension Alternative assumes that the financial responsibility for undertaking these and other to be identified capital investments, south of Gilroy to Salinas, will be the responsibility of TAMC. VTA may be requested to participate in funding the improvements identified at Gilroy in exchange for removing or significantly reducing VTA's need for an expanded train layover facility in Gilroy. Insofar as funding and delivering station improvements in Monterey County, the Caltrain Extension Alternative assumes these are the responsibilities of TAMC.

Electrification

As part of its Caltrain Strategic Plan 2004–2023, JPB has been seeking funding to electrify the Caltrain line between San Francisco and San Jose, and possibly to Gilroy. Electrification will allow trains to accelerate faster, thereby shortening run times, and allow for the extension of service to downtown San Francisco via an underground tunnel. As the price of diesel fuel has increased, interest in accelerating the implementation of electrifying the line has increased. An environmental document is complete; however, a record of decision has not been provided by the Federal Transit Administration (FTA) as local funding has not been secured. Design is at a conceptual level and is awaiting the National Environmental Policy Act (NEPA) Record of Decision and FTA's approval to enter preliminary engineering.

JPB has recently completed a cost benefit study of electrification options. The outcome of this study is reflected within the *Project 2025* report.

Project 2025 assumes that funding will be secured to electrify the Caltrain line between downtown San Francisco and downtown San Jose, and this electrification will be accomplished by 2014. Until the electrification project is complete, Caltrain will continue to operate trains with diesel-powered locomotives and will not be able to serve the downtown San Francisco extension.

There are two electrification alternatives which are advanced by the *Project 2025* report. Alternative A would replace the diesel locomotives with electric locomotives and replace the gallery cares with bi-level low-floor cars as they reach the end of their service lives. Diesel equipment (Gilroy/Salinas and Dumbarton passenger trains and freight trains) could still use the right-of-way by running "under the wire" once the electrification project is complete.

Alternative B would require JPB to replace its entire fleet with rapid transit vehicles, specifically electric multiple units (EMU), and require an FRA waiver to operate non-compliant vehicles alongside FRA-compliant vehicles. According to the *Project 2025* report, the transition from current operations to a rapid transit system would be complicated without provisions for mixed fleet (FRA-compliant and non-compliant) operations in the corridor.

No matter what option is ultimately selected for electrification and no matter what schedule electrification ultimately proceeds along, the JPB intends to operate diesel commuter rail equipment into the foreseeable future over at least a portion of its line. The Caltrain Extension Alternative therefore assumes diesel fuel propulsion of trains operated between Salinas and San Jose (Diridon Station), or preferably to the Redwood City station or the Fourth and Townsend station in San Francisco.

Monterey County Ridership

The Caltrain Extension Alternative physical facilities and service definition are based on the ridership forecasts documented in Chapter 4. Weekday boardings at Monterey County stations (AM north-

bound trains) are forecast at 1,000 riders per day, based on Year 2000 commuting patterns. These commuting patterns appear to hold true as of 2005/2006, and are assumed for 2010 opening year conditions. Year 2030 boardings at Monterey County stations are forecast as 2,000 riders per day. In the afternoon, an equal number of riders would board at San Francisco Bay Area stations (PM southbound trains) and ride south to Monterey County.

Of this ridership, 90 percent are forecast to ride to stations within Santa Clara County. Seven percent of the riders are forecast to travel to San Mateo County destinations and three percent to San Francisco.

Vehicle Requirements

The Caltrain Extension Alternative assumes that existing JPB trainsets operating to/from Gilroy would be utilized. No additional trainsets would be required. Additional wear and tear on trainset locomotives and rolling stock will be addressed through the fully allocated cost formula. Vehicle replacements will be addressed by a capital recovery (mileage based) fee to be determined through negotiations with JPB.

Trainsets operating to/from Gilroy have residual, unused capacity. As of the February 2006 boarding count, no more than 470 seats were occupied on the three trains serving Gilroy south of the Tamien station; and approximately 1,480 seats were vacant (for the portion of the train trip between San Jose Tamien and Gilroy). System-wide, the maximum load point for Caltrain has historically been at or near the Millbrae station in San Mateo County, well north of most Monterey County resident forecast ridership.

Actual Monterey County Caltrain ridership patterns would be determined through rider surveys and analysis of Caltrain ticket (zone 8) sales. This data, in conjunction with passenger load checks on trains serving Monterey County, would be used to access Monterey County-generated rolling stock requirements.

Caltrain Vehicle Technology Options

The issue of rolling stock availability and technology is complex, and remains under negotiation between JPB and TAMC. *Project 2025* sets forth three rolling stock options.

Under its *Current Program—Diesel Locomotives* scenario, JPB would continue to operate its 96 train weekday schedule, with slightly longer train consists (up to six cars per train) where required to meet capacity requirements. JPB currently operates 20 sets of rolling stock with one set aside as a preventive maintenance spare. The current fleet totals 110 cab/trailer cars and 29 diesel powered locomotives. These would be replaced as lifecycle and maintenance requirements dictate. *Project 2025* notes there is an immediate need to acquire eight additional cars in the near-term to bolster spare ratios and provide additional capacity in the form of longer train sets on those trains which are operating nearest to capacity. Without additional capacity, JPB has stated that they will be unable to extend service to Salinas, due to their spare vehicle shortfall, and preventive maintenance cycles.

Under *Alternative A: Electric Locomotives*, JPB would replace the majority of its diesel locomotives with electric powered locomotives. JPB would also replace its gallery-style trailers and cab cars (73 purchased in 1985 and 20 purchased in 2000) with bi-level, low-floor cars. The fleet would be expanded to provide additional service as demand warrants. Diesel rolling stock would continue to operate on the Gilroy extension, and could run "under the wire" as far north as the Fourth and Townsend station in San Francisco (the line's current northern terminus).

Under *Alternative B: Rapid Transit Non-compliant EMUs,* JPB would replace its entire fleet of locomotives and passenger coaches with rapid transit vehicles, specifically electric multiple units (EMUs). An FRA-compliant EMU to Caltrain specification does not yet exist; therefore, JPB assumes operation of non-compliant EMUs for ALternative B operations. To allow for operation of mixed compliant and non-compliant fleets, a FRA waiver would be required. Given such a waiver, JPB could transition from diesel locomotive hauled equipment to EMUs over time, and could operate Dumbarton and Gilroy/Salinas extension services, as well as freight service, "under the wire."

Additional trainset capacity (additions of coaches to consists) required to accommodate riders boarding/deboarding in Monterey County are assumed to be addressed through Federal Transit Administration grant requests, with TAMC providing the local funding match contribution. Acquisition of rolling stock to accommodate the initial (two round trip) service plan for extending Caltrain to Salinas has not been identified as a near-term requirement by this Alternatives Analysis. At some time in the future, TAMC anticipates the need to participate in JPB's rolling stock acquisition program. For the purpose of the Alternatives Analysis Study, the Caltrain Extension Alternative assumes the acquisition of four bi-level passenger coaches, one for each of the trainsets operating to/from Salinas. This rolling stock may not be required to accommodate peak passenger loads. The capital cost of this equipment is included as a risk element for comparison with the Express Bus Alternative.

JPB/TAMC Subsidies
The Caltrain Extension Alternative assumes no JPB subsidies of Caltrain extension service. It also assumes that there will be no TAMC subsidies of Caltrain service north of Gilroy. The purchase of service agreement between JPB and TAMC is assumed to be cost based, without profit.

Core System Improvements/TAMC Participation
The Caltrain Extension to Monterey County enjoys widespread support by Bay Area and State policy makers. The Caltrain Extension Alternative assumes no "buy in" requirements (funding for capital improvements to the existing system), as none have been identified by JPB/VTA Board members or staff in negotiations to date.

Insofar as improvements needed to accommodate the extension of Caltrain service to Monterey County, the Caltrain Extension Alternative assumes that TAMC will (or could be required to) participate in funding these improvements. These include:

- Additional trainset capacity (four bi-level passenger coaches assumed as a risk element)
- Additional trainset layover capacity (in Salinas)—see pages 72 and 73
- Gilroy station track extension to East Luchessa Avenue and mainline turnout—see pages 72 and 74
- South Terminal Improvements to address bottlenecks and multi-operator capacity demands (see Appendix A). These improvements are currently underway and are therefore not assumed—potential risk element.

Physical Station, Yard and Track Components of the Caltrain Extension Alternative

The physical components of the Caltrain Extension Alternative are described and detailed in the *Caltrain Extension to Monterey County Project Study Report* (PSR), dated February 21, 2006. This PSR documents program requirements, locational alternatives, design considerations, design exceptions, property acquisition and relocation plans, real estate cost studies, conceptual design plans, and detailed cost estimates, based on the 10 percent design plans.[4]

The PSR is a "Project Initiation Document" which provides sufficient project detail and cost estimates to allow a project to be included in the State Transportation Improvement Program at the discretion of the California Transportation Commission. **The *Caltrain Extension to Monterey County PSR* is**

[4] **Station Program Requirements** are identified in Appendix B-2 of the *Caltrain Extension to Monterey County Project Study Report.* This document is included as Appendix B of this report as it identifies station access, parking, and amenity requirements.

included with this Alternatives Analysis by reference as the physical definition of the Caltrain Extension Alternative.

The Caltrain Extension Alternative has been defined over the course of a four-year period (March 2002 to February 2006) based on extensive public, city, and Union Pacific Railroad input. The evolution of design concepts and project components are detailed in the *Caltrain Extension to Monterey County PSR*.

The Caltrain Extension Alternative's physical components include construction of passenger rail stations in Pajaro/ Watsonville and Castroville, rehabilitation and expansion of the Salinas Intermodal Transportation Center, construction of a Caltrain layover facility in Salinas, and minor track and signal improvements on the UPRR Coast Line between Gilroy and Salinas. These project components are summarized below.

Pajaro Valley Station
The Pajaro Valley station will serve the unincorporated community of Pajaro, located at the northern end of Monterey County, and Watsonville, which is located at the south end of Santa Cruz County. Under the Caltrain Extension Alternative, this station will include the following elements:

- A rail passenger loading platform 700 feet long by 20 feet wide
- Intertrack fencing separating the main line from the Pajaro Valley station track
- Platform shelters, lighting, furniture and fixtures, ticket vending machines, information displays, and landscaping
- Station building (provided by others), furniture and fixtures, information displays
- Bus, shuttle, and van loading/unloading berths, shelters, information displays
- Parking, bicycle facilities, sidewalks, and circulation roadways
- Roadway, signing and striping, and roadway median construction
- Relocation of track, turnouts, track removals, and railroad signaling
- Modification of railroad grade crossing warning devices at Lewis Road
- Site drainage, lighting, and landscaping
- Access to the station platform via the Santa Cruz branch rail line.

Surface parking for approximately 410 vehicles will be provided on the west side of the tracks, roughly parallel with Salinas Road. The northwest corner of the site will remain vacant and provide an opportunity for expansion of parking or other future development. A bus loading and turn-around area will be located on the northeast corner of the parking lot.

Vehicular traffic will access the station via two driveways on Salinas Road between its intersections with Lewis Road and Railroad Avenue.

A significant amount of track work is required to accommodate a Caltrain station at this location (which is preferred by UPRR and the Pajaro community).

The overall site and track plan for the station is illustrated as Figure 3-2. An enlarged view of the platform and parking area is illustrated as Figure 3-3. The estimated cost of this station is $17 million expressed in FY 2007 dollars, and $18.2 million expressed in year of expenditure dollars.

Castroville Station

The Castroville station will serve the unincorporated community of Castroville, surrounding unincorporated pockets of residential development, and residents living in coastal Monterey Peninsula cities. In general, the Castroville station will include the following elements:

- A rail passenger loading platform 700 feet long by 20 feet wide
- Intertrack fencing separating the main line from the Castroville station track
- Platform shelters, lighting, furniture and fixtures, ticket vending machines, information displays, and landscaping
- Bus, shuttle, and van loading/unloading berths, shelters, information displays
- Parking, bicycle facilities, sidewalks, and circulation roadways
- Access roadway construction, signing, and striping
- Relocation of track, new track construction, turnouts, and railroad signaling, as may be required
- Site drainage, lighting, and landscaping
- Pedestrian grade separation crossing of the main line and Castroville station tracks
- Access to the station location via the Monterey branch rail line.

Surface parking for approximately 250 vehicles will be provided to the east and west of the station platform. The parking supplies will be accessible to Monterey Peninsula commuters via Collins Road, which will be resurfaced or reconstructed and extended. Local Castroville residents will access the station via Benson Road which will be connected to Salinas Road. The east side parking lots will be connected to the station platform via a pathway that leads from the western edge of the parking lot through a bicycle and pedestrian undercrossing to the station platform located on the west side of the track.

Auto passenger drop-off and taxi loading will take place on the west side of the station, adjacent to the platform.

The conceptual plan for the station is illustrated as Figure 3-4. The estimated cost of this station is $16.4 million expressed in FY 2007 dollars, and $17.6 million expressed in year of expenditure dollars.

Figure 3-2
Pajaro Valley Station Overall Site and Track Plan

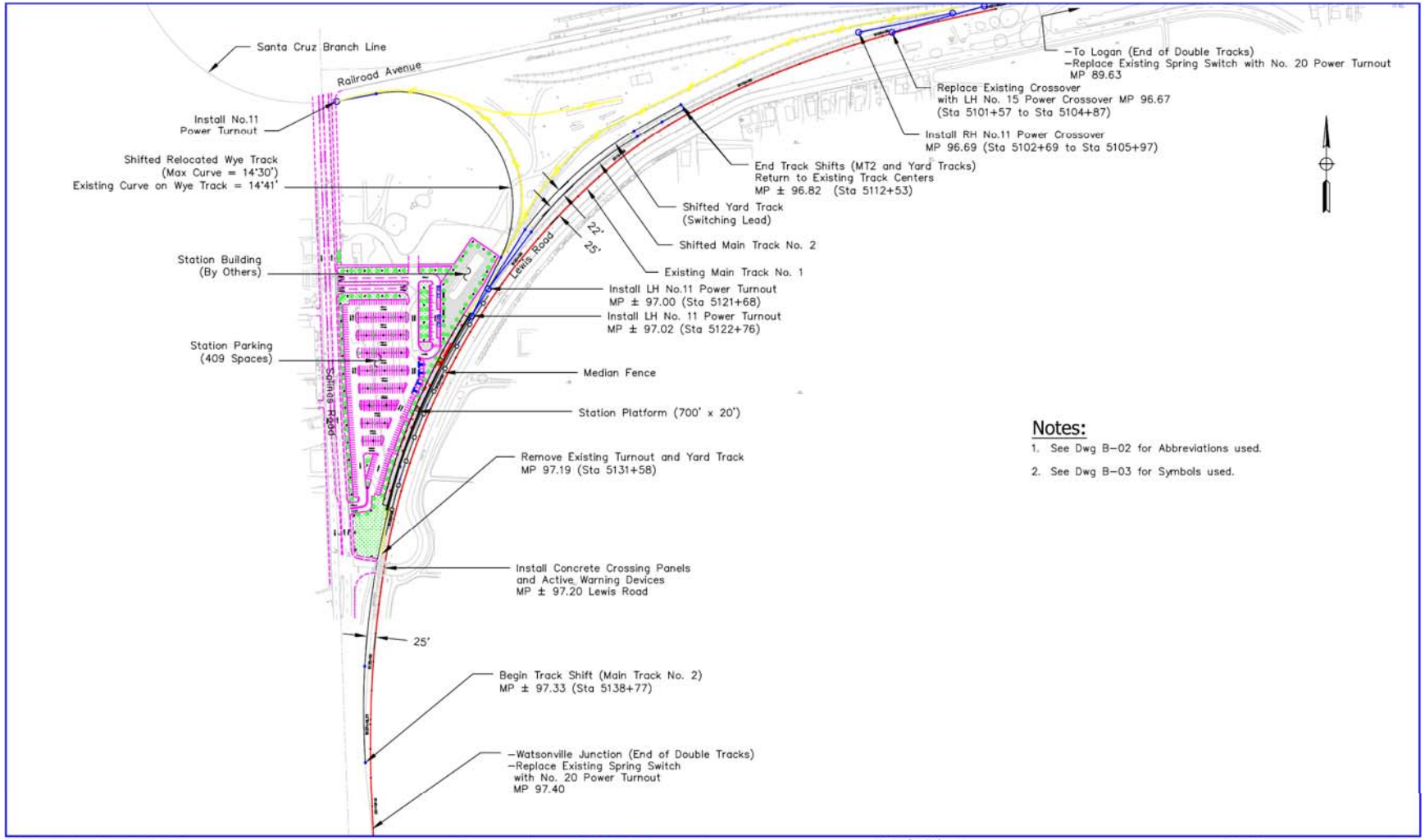

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Figure 3-3
Pajaro Valley Station Site Parking Lot Plan

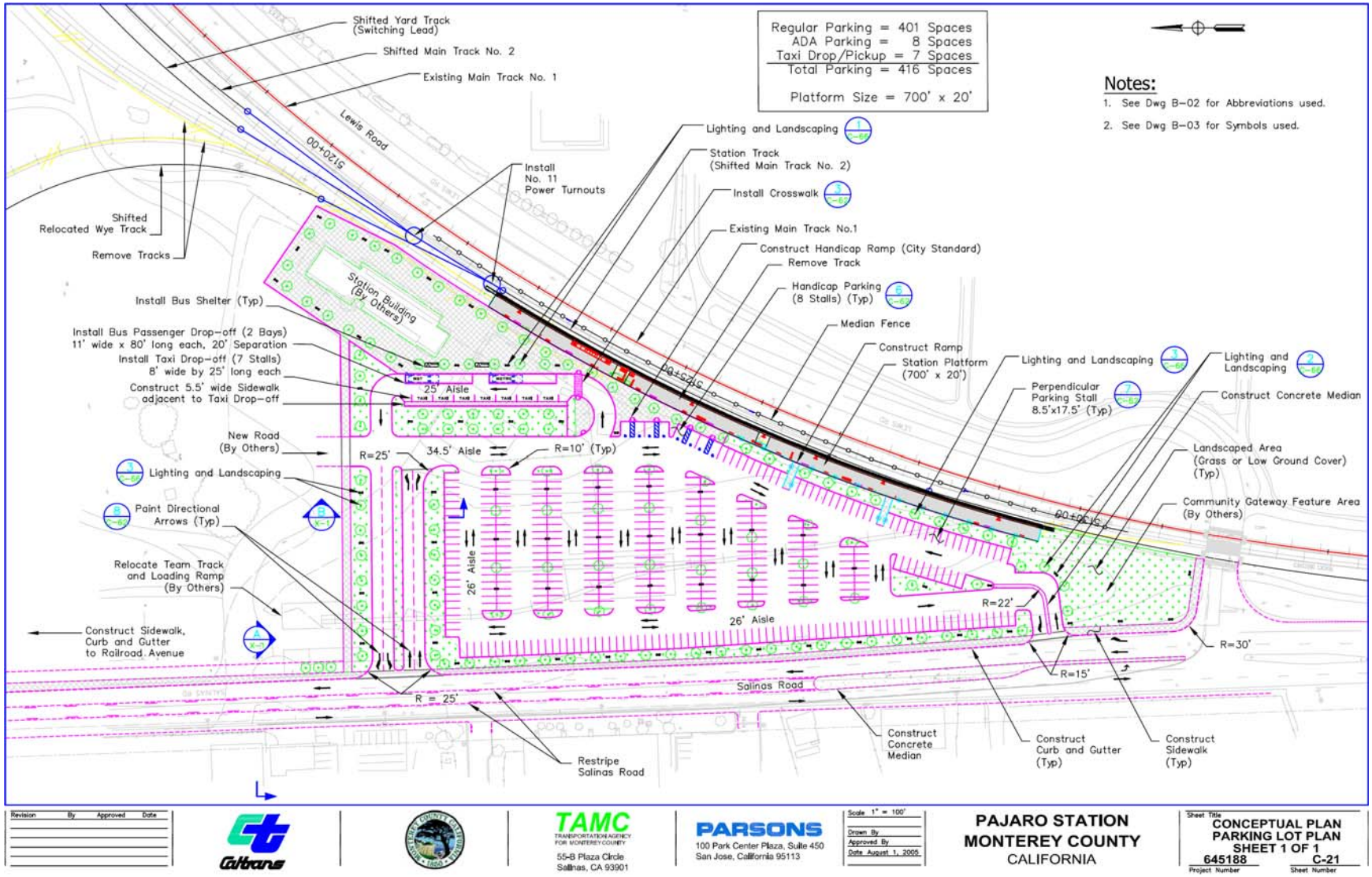

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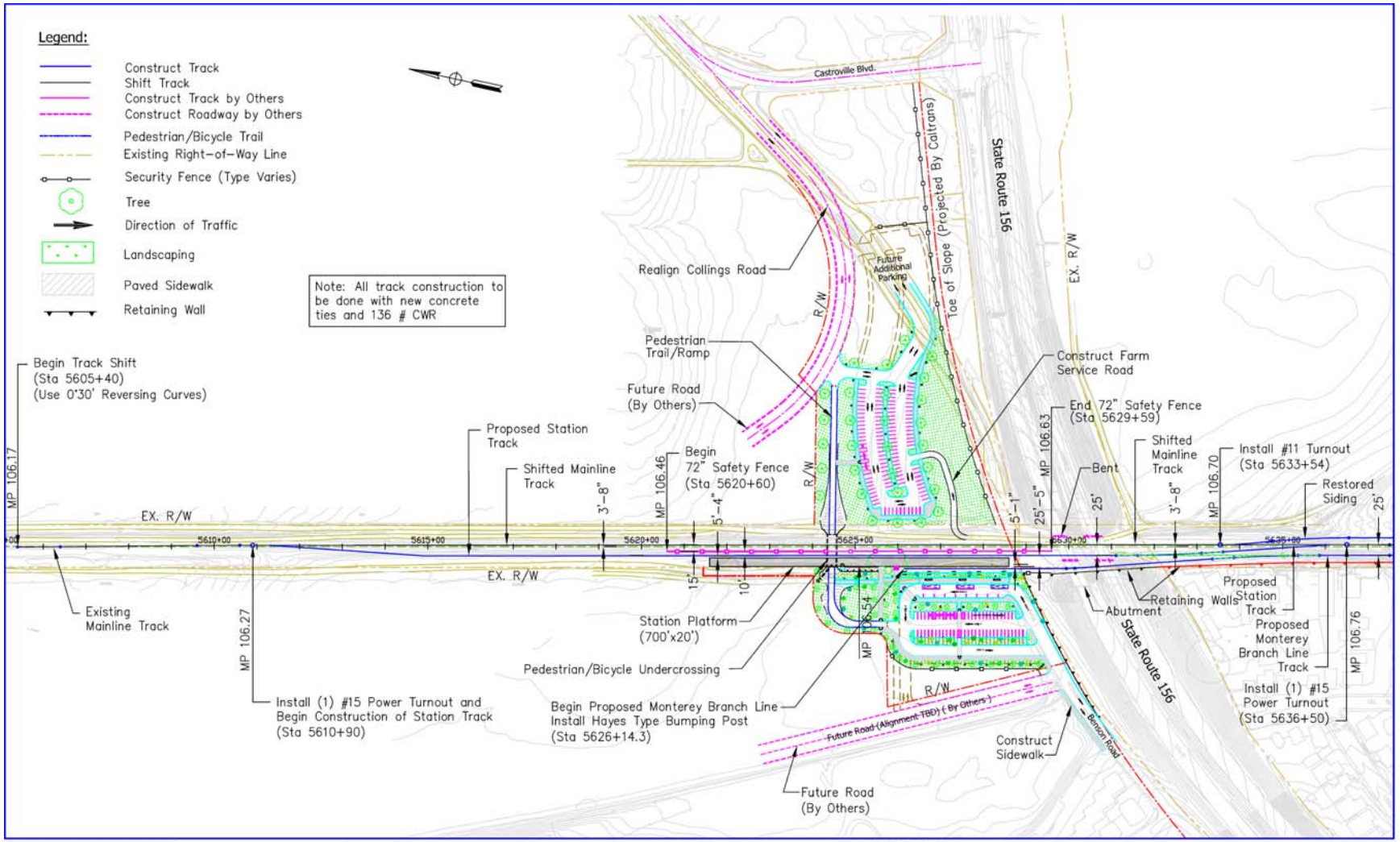
Figure 3-4
Caltrain Extension Alternative Castroville Station Site Plan



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Salinas Intermodal Transportation Center Expansion

The City of Salinas has been working to upgrade the existing Salinas Amtrak Station since 1996. The Caltrain Extension Alternative will expand the Intermodal Transportation Center (ITC) to accommodate the Caltrain extension, relocation of the Monterey-Salinas Transit downtown Salinas transit center to the ITC, relocation of Greyhound and other intercity bus operations to the ITC, and upgrade the Amtrak boarding platform to conform with current design standards. The Salinas station and parking renovations include:

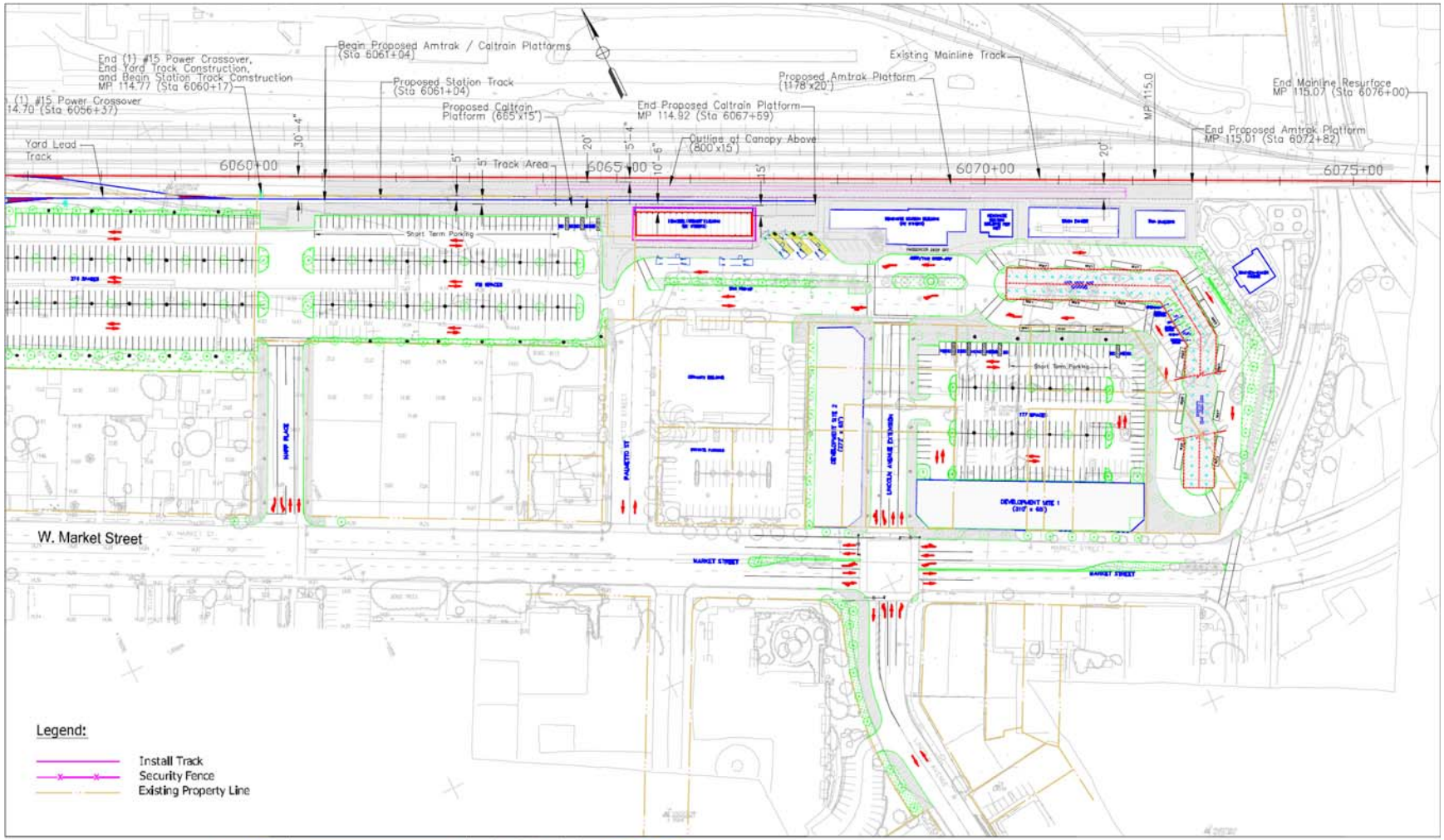
- Increased parking supply adjacent to the station with approximately 500 net new parking spaces
- Bicycle lockers and bicycle racks
- Reconstruction of the passenger loading platform for joint Amtrak and Caltrain use
- Resurfacing track, new track construction, turnouts, and railroad signaling
- Installation of a public address system, benches, trash receptacles, ticket vending machines, and shelters
- Installation of an electronic message sign consistent with Caltrain and Amtrak improvement plans
- Addition of new site access and circulation roadways
- Traffic signalization, signing, and striping
- Relocation of the Monterey-Salinas Transit Center in downtown Salinas and the Greyhound bus depot to the site of the ITC
- Site lighting and landscaping
- Modifications to adjacent structures.

Structured or surface parking for approximately 650–700 vehicles will be provided adjacent to the existing Amtrak station building. The parking supply and the expanded ITC will be accessed by a new roadway extension of Lincoln Avenue. Palmetto Street, Happ Place, and Vale Street will also be available for site access/egress depending on the ultimate alternative selection, either surface and structured parking (alternative 17) or only surface parking (alternative 18).

The reconstructed station platform will allow for Amtrak patron loading along its northern edge and Caltrain patron loading along its southern edge. A new station track will be constructed for Caltrain use, stub ending at the Salinas station. A canopy will cover the Caltrain/Amtrak station platform and connect these passenger loading areas with the parking supplies.

Figure 3-5 illustrates the conceptual plan for expansion option 18, which is assumed for the Caltrain Extension Alternative. The capital cost of these ITC improvements is $29.7 million expressed in FY 2007 dollars, and $31.6 million expressed in year of expenditure dollars.

Figure 3-5
Caltrain Extension Alternative Salinas Intermodal Transportation Center Expansion Option 18B



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Salinas Layover Facility
An overnight storage and light maintenance facility will be required to accommodate the Caltrain extension to Salinas. UPRR has determined that their existing, adjacent yard will not be available to meet this requirement. In general, the Salinas layover facility will include the following elements:

- Construction of yard track and turnouts to initially accommodate up to four Caltrain consists
- Construction of maintenance roads
- Perimeter fencing and security lighting
- Drip pans for the fueling positions and spill containment
- Standby power and potable water pedestals
- A small building for housing brake shoes, tools, and supplies
- A crew base building.

Storage for up to four train sets is envisioned for the Caltrain Extension Alternative, similar to the existing Caltrain layover facility at Gilroy. The conceptual plan illustrated as Figure 3-6 will allow for the expansion of this facility to accommodate up to six Caltrain consists. The estimated capital cost of this yard is $11.7 million expressed in FY 2007 dollars, and $12.3 million expressed in year of expenditure dollars.

Gilroy Yard Improvements
Extension of Caltrain service south of Gilroy will require a new track connection at the south end of the station track to permit passenger train flow-through while maintaining passenger boarding from the existing station platform. The track extension will include demolition, track, ties, ballast, one new turnout, modifying railroad signal interlocking, and modifying motorist warning devices at 10th Street, immediately adjacent to the Gilroy station and at Luchessa Street. Figure 3-7 provides a conceptual plan that shows the improvements needed at Gilroy. These improvements are estimated to cost $4.1 million expressed in FY 2007 dollars and $4.4 million expressed in year of expenditure dollars.

UPRR Coast Main Line Improvements
The Caltrain Extension Alternative will include railway improvements to the existing UPRR Coast main line, passing tracks, yard tracks, and branch line connections to allow Caltrain to extend service from Gilroy in Santa Clara County, through San Benito County to Salinas in Monterey County. All railway improvements noted below will occur within the UPRR right-of-way. Milepost (MP) locations are approximate.

Gilroy

- Install new second main track from 10th Street to East Luchessa Avenue (MP 77.65 to MP 78.52)
- Tenth Street (MP 77.70). Relocate existing or install new warning devices at crossing No. 755180C to accommodate three tracks. Install concrete grade crossing panels, rebuild track, replace ballast, and repave crossing for new track
- East Luchessa Avenue (MP 78.40). Relocate existing or install new warning devices at crossing No. 755181J to accommodate two tracks. Install concrete grade crossing panels, rebuild track, replace ballast and repave crossing for new track
- South (east) of East Luchessa Avenue (MP 78.52). Install #20 power turnout.

Figure 3-6
Caltrain Extension Alternative Salinas Layover Facility and Surface Parking

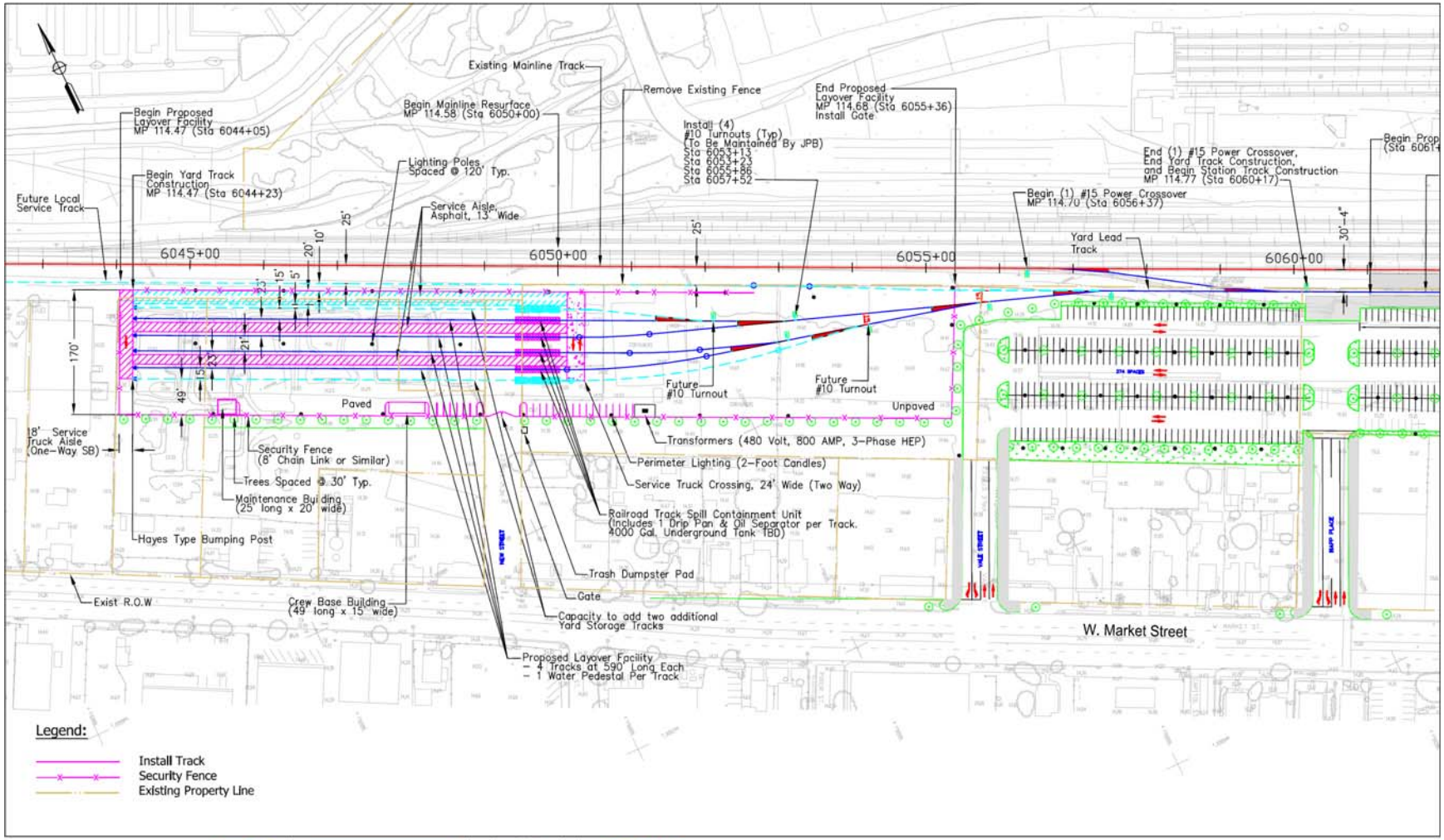

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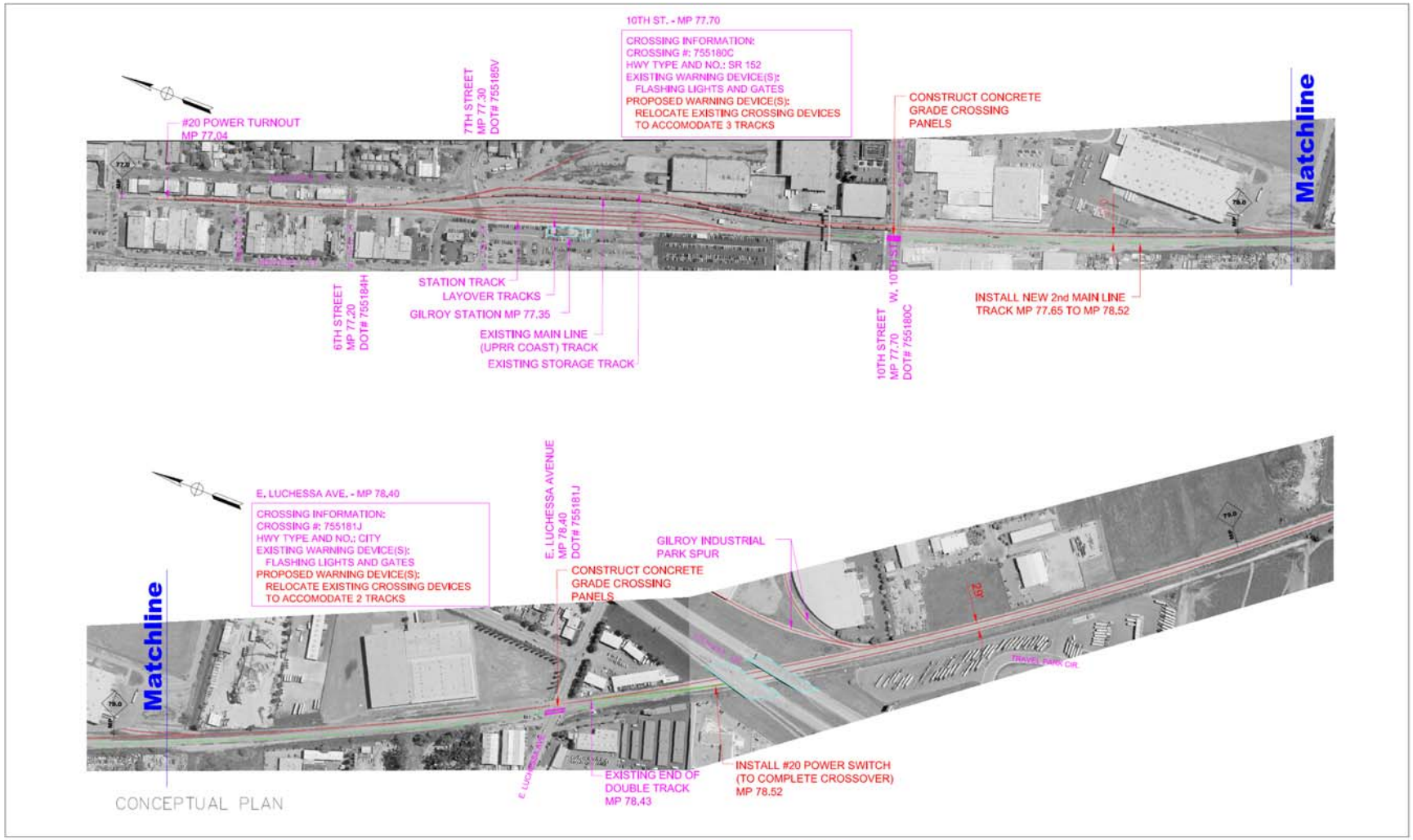
Figure 3-7
Caltrain Extension Alternative Gilroy Yard Necessary Improvements



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Pajaro

- Logan (west end of double track at MP 89.63). Replace existing spring switch with #20 power turnout
- Watsonville Yard (MP 96.67). Replace existing track crossover with left hand #15 power crossover
- Watsonville Yard (MP 96.69). Install right hand #11 power crossover
- Watsonville Yard (MP 96.82 to MP 97.33). Shift main track No. 2
- Watsonville Yard (MP 96.82 to MP 97.00). Shift yard lead track
- Watsonville Yard (Lewis Road MP 97.19 to vicinity MP 96). Remove yard track
- Watsonville Yard (MP 97.00 and MP 97.02). Install left hand #11 turnouts
- Watsonville Yard (MP 97.19). Remove existing turnout
- Lewis Road (MP 97.20). Relocate existing or install new warning devices at crossing #752354V. Install concrete grade crossing panels, rebuild track, replace ballast and repave crossing for shifted main track No. 2
- South (east) of Lewis Road (MP 97.40). Replace existing spring switch with #20 power turnout.

Castroville

- North of SR 156 (MP 106.27). Install #15 power turnout
- Construct station track from MP 106.27 to MP 106.76
- South of SR 156 (MP 106.70). Install #11 turnout
- South of SR 156 (MP 106.70 to MP 106.85). Restore existing siding track
- South of SR 156 (MP 106.76). Install #15 power turnout
- North of SR 156 to south of SR 156 (MP 106.27 to MP 106.87). Shift main line track easterly 3 feet 8 inches or less.

Salinas

- At Vale Street (MP 114.70). Install #15 power crossover
- New Street to Main Street (MP 114.58 to MP 115.07). Resurface or rebuild main line track, replace ballast.

Coast Main Line—Gilroy to Salinas

- Resurface and/or rebuild track, replace ballast, replace ties, repair or upgrade drainage structures, upgrade or install train signals and controllers at locations to be determined.

The capital cost of the Gilroy, Pajaro, Castroville and Salinas main line improvements is reflected in the station cost estimates. The Caltrain Extension Alternative includes a $5 million allowance for unspecified Coast Main Line-Gilroy to Salinas track, tie, and signal improvements. This capital cost allocation has not been negotiated with UPRR and is considered to be a risk factor.

DEFINITION OF THE EXPRESS BUS ALTERNATIVE—EXPRESS BUS SERVICE TO SAN FRANCISCO PENINSULA

The shortlisted Monterey County Fixed Guideway Study "Build" Alternatives (Alternatives A, B, and C) address a variety of travel markets. These include Monterey County to San Francisco Bay Area commuters; local Monterey Peninsula trips; intra-Monterey County trips between Salinas and the Monterey Peninsula; and inter-city trip making by residents and visitors between the Monterey Peninsula and San Francisco. For an Alternatives Analysis, the Express Bus Alternative must be defined to mimic whichever service or services are selected as the locally preferred build alternative (LPA).

Fixed Guideway Investment

The Build Alternatives (A, B, and C) shortlisted for detailed definition and testing include components to address each of the travel markets noted above. Insofar as the Monterey County to San Francisco Bay Area commuters, all three alternatives specify a Caltrain extension from Gilroy to Salinas to address this travel market. The definition of the Caltrain Extension service and capital investment is identical for all three shortlisted Build Alternatives. TAMC Board policy and the results of this Fixed Guideway Study therefore identify the Caltrain Extension as the LPA for this travel market.

An Express Bus Alternative does not typically include fixed-guideway investments; however, roadway and intersection improvements can be constructed to speed local or express bus transportation. These may include high-occupancy vehicle bypass lanes at ramp metered highway interchanges, traffic queue bypass lanes at signalized intersections, and traffic signal priority measures. These features are also elements of many non-guideway bus rapid transit (BRT) deployments. Major construction of highway lanes or exclusive roadways for transit is typically beyond the investment contemplated for TSM alternatives.

In the case of Monterey County, however, failure to address capacity shortfalls in an express bus or "Baseline" alternative merely ignores the county's transportation problems. Demonstrated capacity problems exist currently in the U.S. 101, SR 1, Route 68, SR 156, Route 183 and the Marina–Salinas corridors (Blanco Road and Davis Road). Environmental, topographic, and funding constraints, plus the cost of major road construction, all limit options for non-transit solutions. Therefore, to consider express bus or baseline proposals as a viable alternative to "build" transit guideway options, definition of this alternative must include the delivery of equivalent travel time savings, comfort and convenience for transit users.

Service/Stations/Stops

To provide Caltrain comparable service, MST express bus service will be established as part of the Express Bus Alternative and will operate from four Monterey County Transit Centers to the San Francisco Peninsula. An MST Transit Center/Park-n-Ride facility will be constructed at Eighth Street in Marina as part of the University Villages redevelopment of Fort Ord. Additional transit centers with park-and-ride facilities will be located in Salinas, Castroville, and Pajaro with express bus service operating via existing surface roadways to Santa Clara and San Mateo counties. The location of these park-and-ride facilities is illustrated in Figure 3-8.

The Express Bus Alternative will include the construction of park-and-ride facilities to support express bus operations at comparable Caltrain Extension Alternative rail station locations. These will include Salinas, Castroville and Pajaro/ Watsonville, as well as Marina (Fort Ord). Service will be provided to attract comparable ridership. Hence, facilities will be similarly sized to the locally preferred Caltrain Extension Alternative.

Operations

The Express Bus Alternative will be similarly defined to the Caltrain Extension Alternative as a commuter-oriented service. Express bus service between Monterey County origin stations will be defined to run non-stop to select stations in Santa Clara, San Mateo, and San Francisco counties. Table 3-5 identifies the matrix of station origins and destinations proposed for this service. The table also indicates the frequency of service required to accommodate Year 2030 passenger demands. The objective will be to provide comparable service from both a ride quality and travel time perspective. Ultimately, providing a similar level of corridor capacity and the removal of vehicle trips from the U.S. 101 Corridor will be the objective of the Express Bus Alternative. Over the road, commuter vehicles with more comfortable seating will be substituted for standard MST coaches.

Figure 3-8
Location of Express Bus Alternative Park-and-Ride Facilities

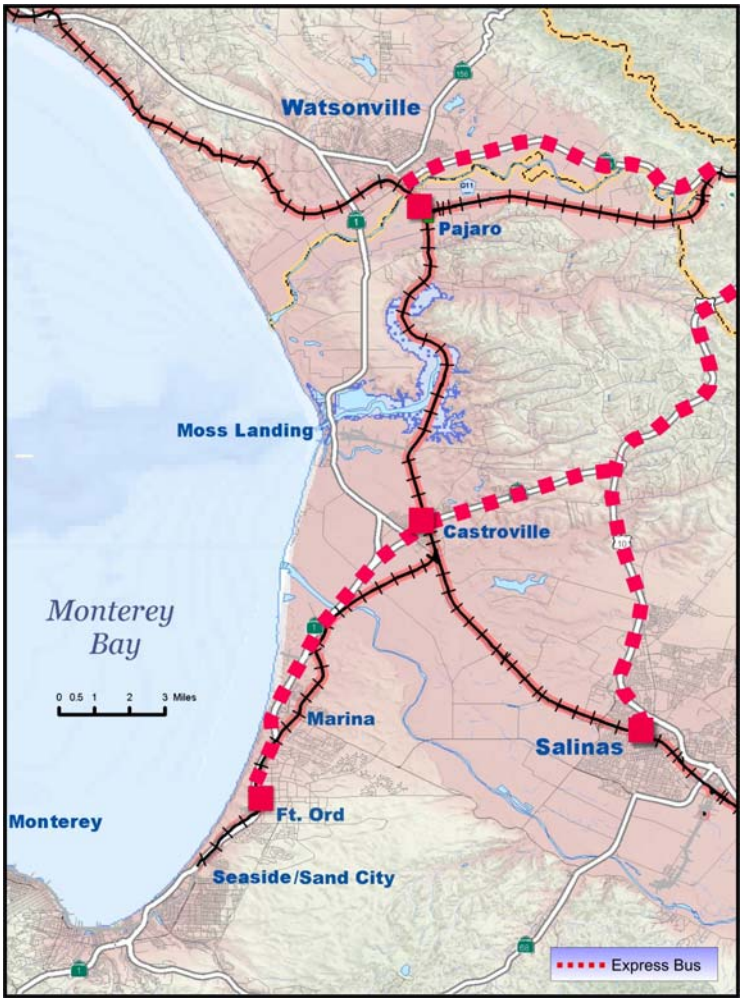


Table 3-5
Express Bus Alternative Service Matrix and Frequency of Service (Headway Minutes)

Monterey County	Santa Clara–Mid		Santa Clara–North		San Mateo and San Francisco
	A-1	A-2	B-1	B-2	C
Pajaro	30		30	30	60
Castroville/Fort Ord	60		30		60
Salinas	30	30	15	15	30

Station Matrix Key:
A-1 = San Jose Diridon
A-2 = Santa Clara (SJIA), Lawrence, Sunnyvale
B-1 = Mountain View, San Antonio
B-2 = California, Palo Alto
C = Redwood City, Hillsdale, Millbrae (SFO), San Francisco

Vehicle Requirements

Luxury, high-speed transmission, over the road motor coaches will be acquired for this service. These coaches will feature all-forward-facing high back seats, individual air controls and reading lights for passenger comfort and convenience. For costing purposes, 40-foot coaches are assumed with a capacity of 45 to 49 passengers per vehicle. Assuming an average load factor of 85 percent, equivalent to 40 passengers per vehicle, 30 vehicles will be required to operate the service (including spares) in the near term—carrying 1,028 commuters to the San Francisco Peninsula each weekday. This is equivalent to two Caltrain trips extended from Gilroy to Salinas. Longer term, a fleet of 60 motor coaches (50 vehicles in revenue service plus 10 spares) will be required to accommodate the four Caltrain each way ridership scenario.

Fares and Revenues

The same fare structure as proposed for the Caltrain Extension Alternative is assumed for the Express Bus Alternative. All fare revenues will be used to offset operating and maintenance expenses.

Physical Facilities of the Express Bus Alternative

As noted above, the Express Bus Alternative assumes that MST will provide express bus service from four park-and-ride facilities located in Pajaro Valley, Castroville, Salinas, and Marina. In addition, the planned Frank J. Lichtanski Monterey Bay Operations Center facility will need to be enlarged in scope to accommodate the express bus fleet.

Pajaro Valley Park-and-Ride Facility

The Express Bus Alternative assumes that a park-and-ride facility will be constructed in Pajaro at the site of the proposed Caltrain station. Given this location along the UPRR Coast line track, the Express Bus Alternative investment could be used for Caltrain Extension Alternative passenger rail service, when capacity/operations and maintenance cost tradeoffs warrant.

In general, the Pajaro park-and-ride facility will include the same elements as the Caltrain Extension Alternative minus the Caltrain passenger loading platform and the track, switch and signaling improvements needed to accommodate Caltrain service. The resulting park-and-ride facility will include the following elements:

- Station building (provided by others), furniture and fixtures, information displays
- Bus, shuttle, and van loading/unloading berths, shelters, information displays
- Parking, bicycle facilities, sidewalks, and circulation roadways
- Roadway, signing and striping, and roadway median construction
- Site drainage, lighting, and landscaping.

Surface parking for approximately 410 vehicles will be provided on the west side of the tracks, roughly parallel with Salinas Road. The northwest corner of the site will remain vacant and provide an opportunity for expansion of parking or other future development. The express bus loading and turn-around area will be located on the northeast corner of the parking lot.

Vehicular traffic will access the station via two driveways on Salinas Road between its intersections with Lewis Road and Railroad Avenue.

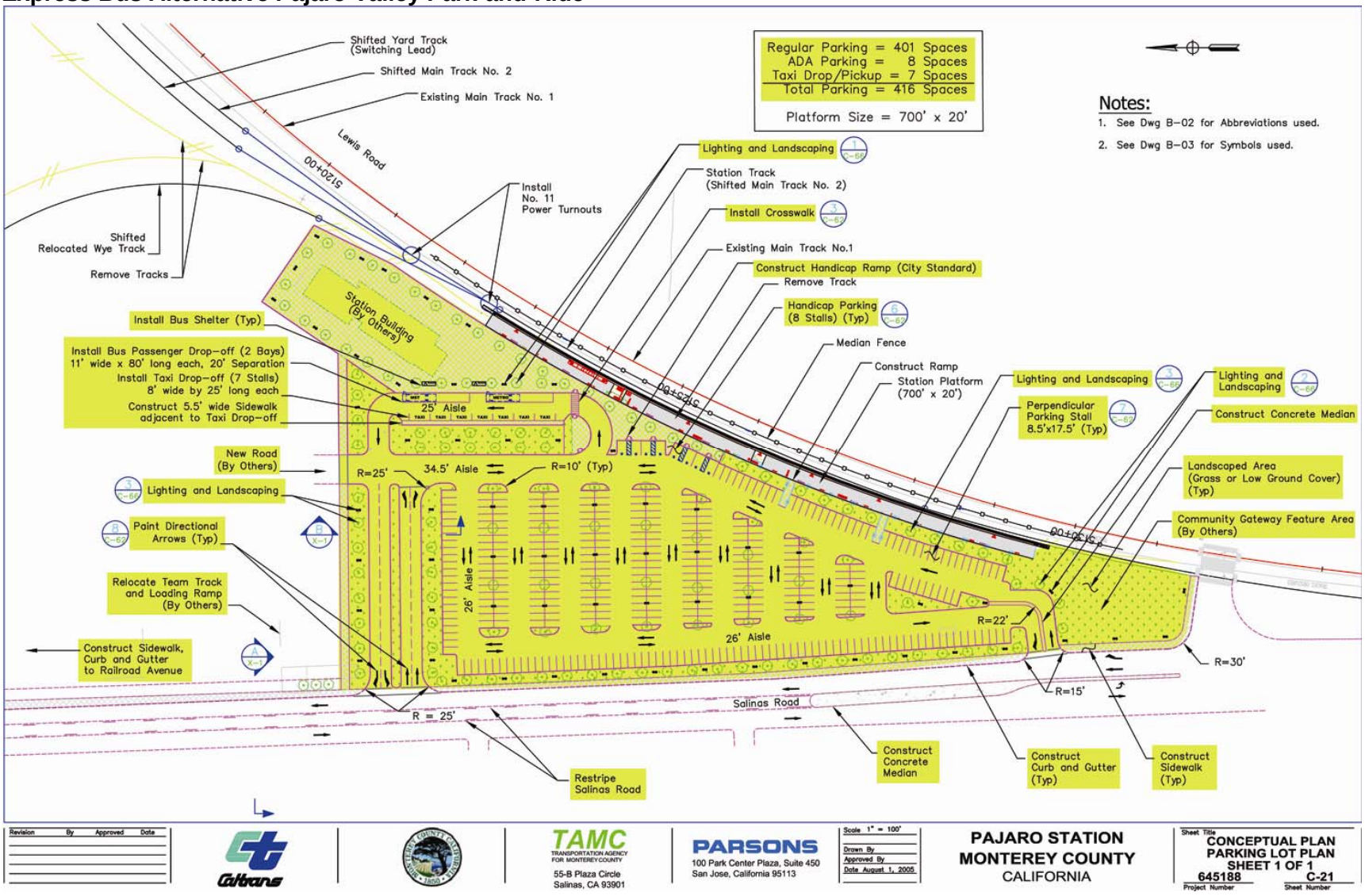
Features included with the Express Bus Alternative are highlighted on Figure 3-9. The estimated cost of this facility is $7.8 million expressed in FY 2007 dollars and $8.3 million expressed in year of expenditure dollars.

Castroville Park-and-Ride

Similar to Pajaro, the Castroville park-and-ride facility will be sited adjacent to the UPRR Coast Line track, to facilitate conversion to a rail passenger facility at a later date. A smaller parking supply will be provided at this location compared to the Caltrain Extension Alternative. A companion facility will be constructed at Marina to provide an equivalent supply of parking. The Castroville park-and-ride will include:

- Bus, shuttle, and van loading/unloading berths, shelters, information displays
- Parking, bicycle facilities, sidewalks, and circulation roadways
- Access roadway construction, signing, and striping
- Site drainage, lighting, and landscaping
- Pedestrian grade separation crossing of the main line and Castroville station tracks
- Shoofly track to permit construction of a pedestrian grade separation
- Safety fencing to control pedestrian at-grade crossing of the UPRR main line track
- Access to the station location via the Monterey branch rail line.
- Surface parking for approximately 53 vehicles will be provided to the west of the UPRR track. Local Castroville residents will access the station via Benson Road, which will be connected to Salinas Road, and via a pedestrian undercrossing of the UPRR track.

Figure 3-9
Express Bus Alternative Pajaro Valley Park-and-Ride



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Auto passenger drop-off, express bus and taxi loading will take place adjacent to the park-and-ride lot.

The conceptual plan for the park-and-ride facility is illustrated on Figure 3-10. Elements pertaining to the Express Bus Alternative are highlighted.

The Castroville park-and-ride facility is estimated to cost $7.3 million expressed in FY 2007 dollars and $7.8 million expressed in year of expenditure dollars.

Salinas ITC Expansion

The Salinas ITC will be expanded to accommodate MST local bus operations, intercity bus operations, Express Bus Alternative operations, and upgrades of the Amtrak platform to meet current design standards. Elements of the project will include:

- Increased parking supply adjacent to the station with approximately 550 net parking spaces
- Bicycle lockers and bicycle racks
- Reconstruction of the passenger loading platform for Amtrak use
- Resurfacing and reballasting track to provide a consistent boarding elevation adjacent to the platform
- Installation of a public address system, benches, trash receptacles, and shelters
- Installation of an electronic message sign consistent with Amtrak improvement plans
- Addition of new site access and circulation roadways
- Traffic signalization, signing, and striping
- Relocation of the Monterey-Salinas Transit Center in downtown Salinas and the Greyhound bus depot to the site of the ITC
- Site lighting and landscaping
- Modifications to adjacent structures.

Structured parking for approximately 700 vehicles will be provided adjacent to the existing Amtrak station building. The parking supply and the expanded ITC will be accessed by a new roadway extension of Lincoln Avenue. Palmetto Street will also be available for site access/egress.

The reconstructed station platform will allow for Amtrak patron loading from an elevation 8 inches above the top of rail. Currently, the platform is level with the top of rail. A canopy will cover the Amtrak station platform and connect this passenger loading area with the parking supply.

Figure 3-11 illustrates the conceptual plan for expansion option 17. A parking structure is assumed (see Figure 3-12) as there will be no need to acquire lands to the west for a track connection to a Caltrain layover facility.

The estimated cost of these capital improvements is $32.1 million expressed in FY 2007 dollars and $34.3 million expressed in year of expenditure dollars.

Figure 3-10
Express Bus Alternative Castroville Park-and-Ride

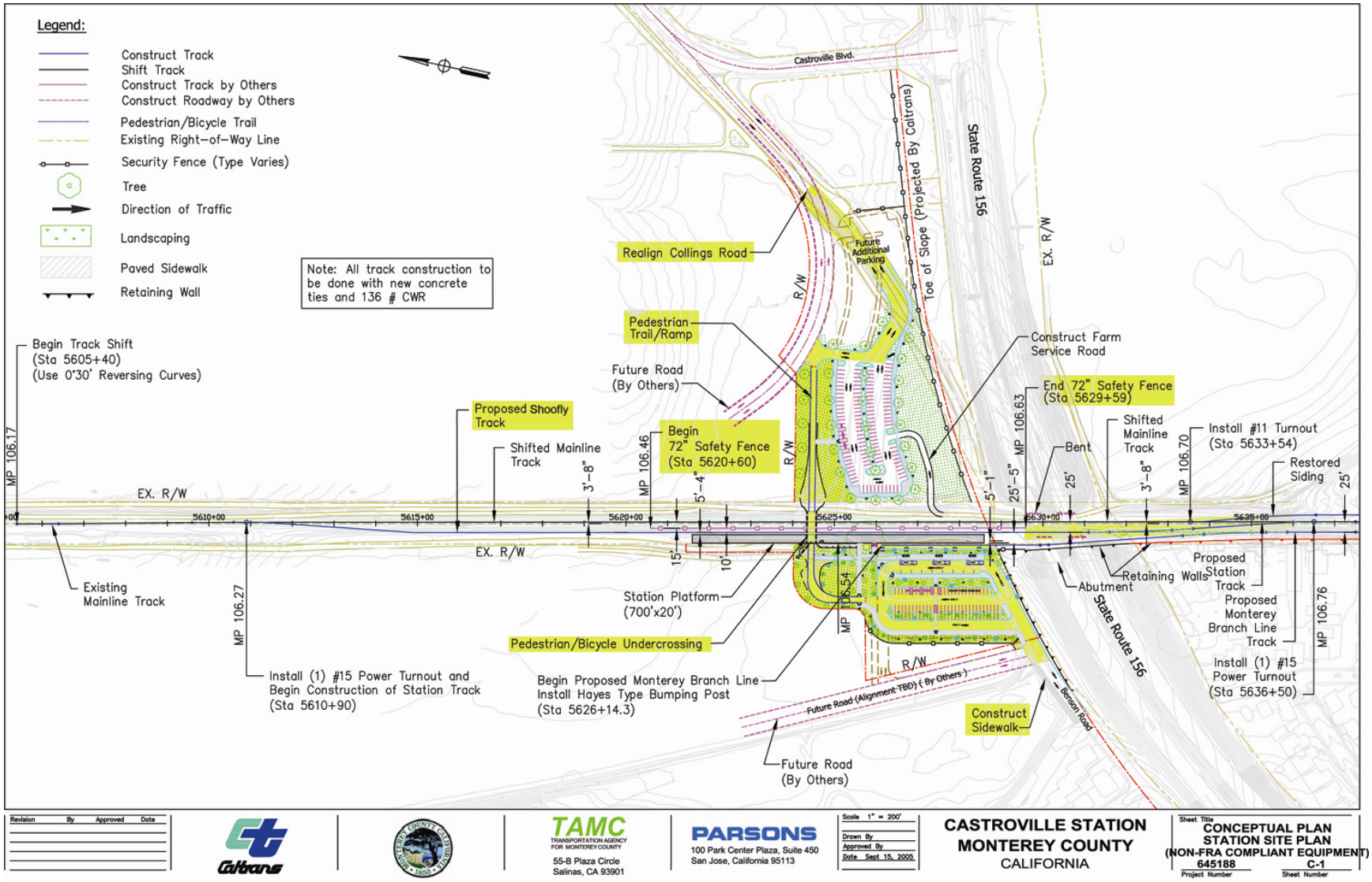

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Figure 3-11
Express Bus Alternative Salinas Intermodal Transportation Center Expansion Option 17

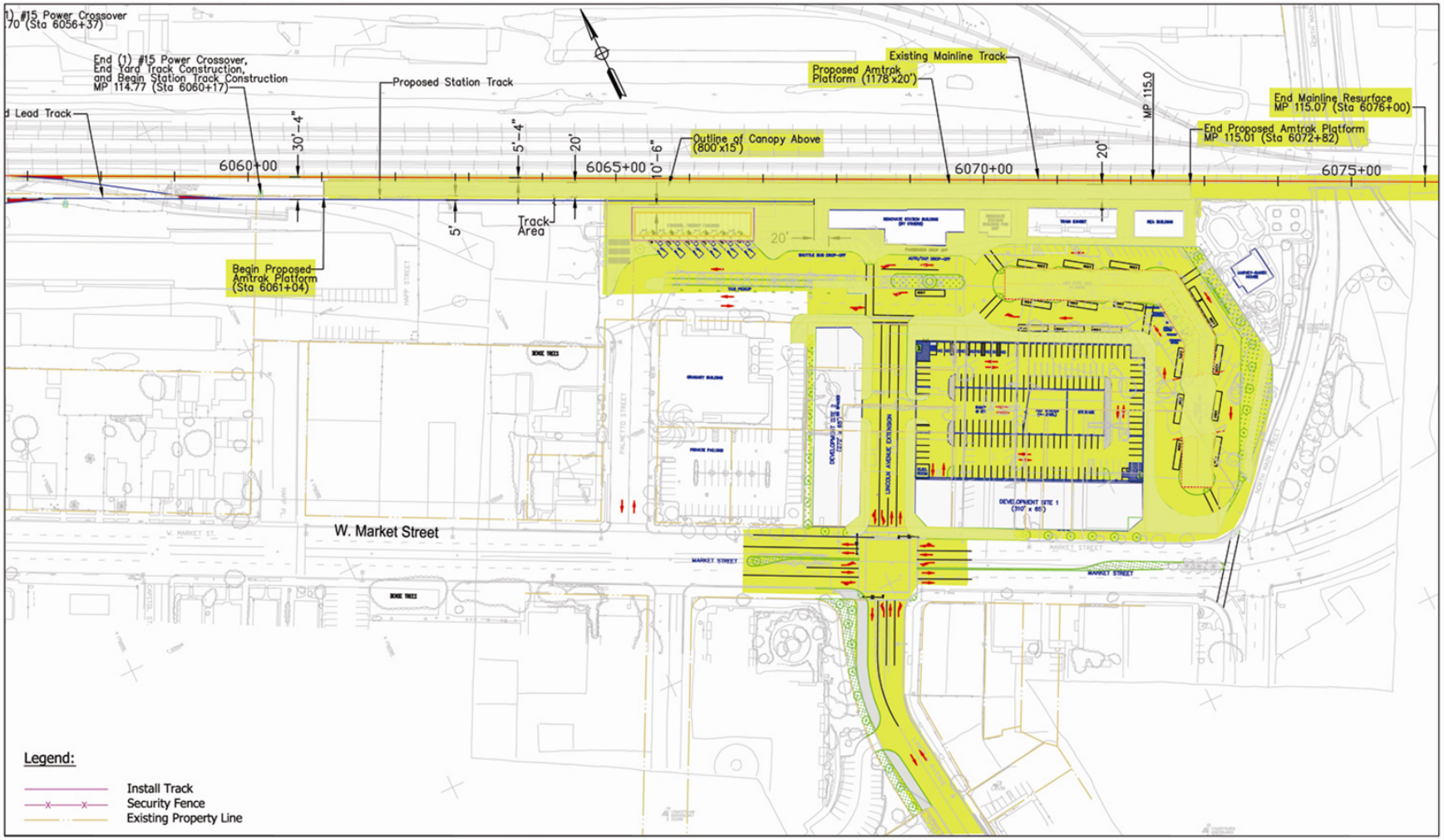

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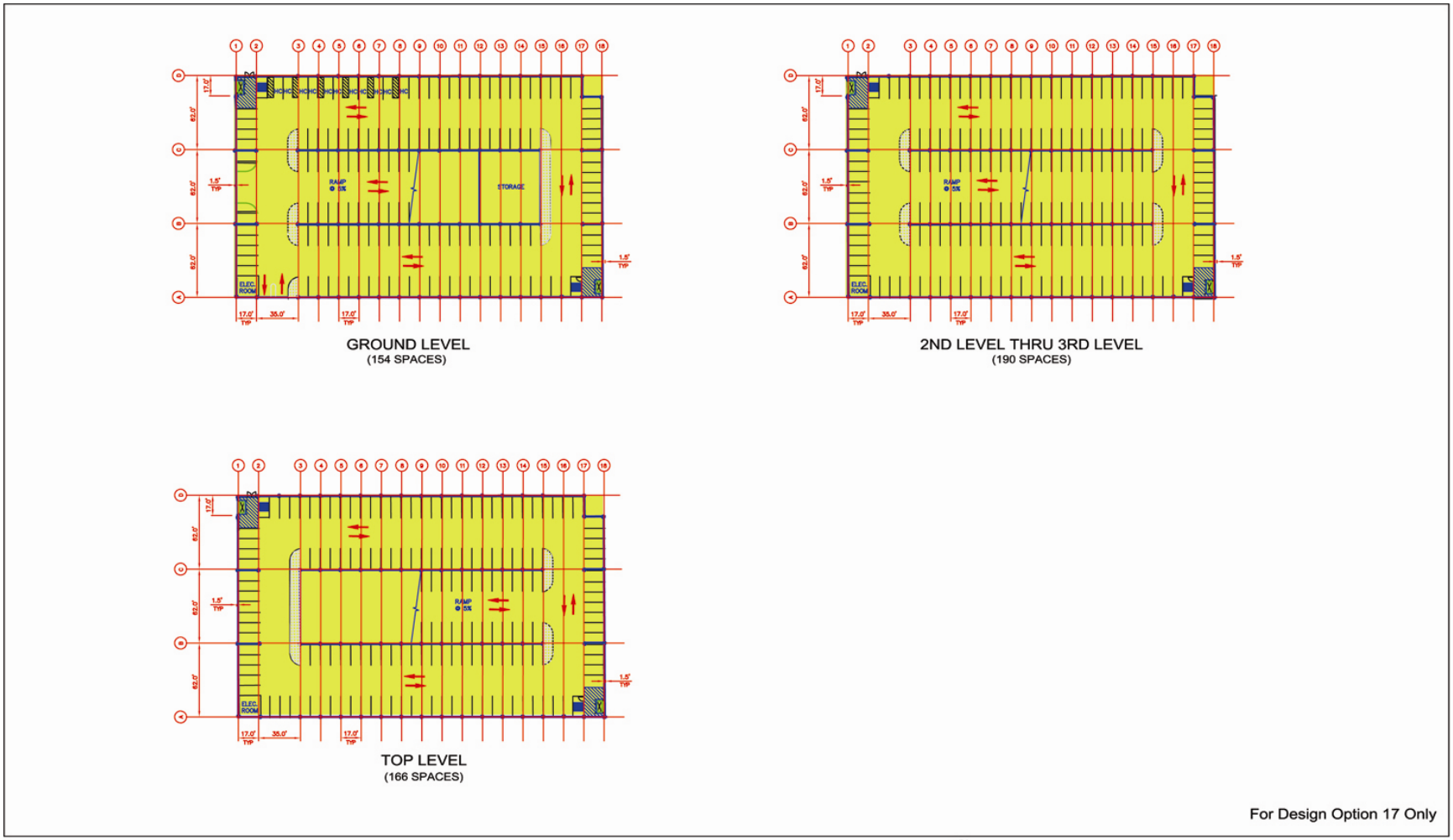
Figure 3-12
Express Bus Alternative Salinas Intermodal Transportation Center Expansion Parking Structure Floor Plans



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Marina/California State University–Monterey Bay (CSUMB) Transit Center and Park-and-Ride
In addition to the park-and-ride facilities at Pajaro Valley, Castroville, and the Salinas ITC, the Express Bus Alternative will include construction of an MST Transit Center and park-and-ride facility in Marina at CSUMB (former Fort Ord). The site will be on lands owned by TAMC, proposed for use as a transportation center, adjacent to a proposed transit-oriented development.

As illustrated on Figure 3-13, Express Bus Alternative elements will include:

- Bus, shuttle and van loading/unloading berths
- Bus passenger waiting and a driver/operations and ticket sales enclosed spaces
- Parking, bicycle facilities, sidewalks and circulation roadways
- Access roadway construction, signing and striping
- Site drainage, lighting and landscaping
- Access to the transit center via the Monterey branch rail line.

Surface parking for approximately 128 vehicles will be provided to complement the reduced parking supplied at the Castroville facility. Combined, the Castroville and Marina park-and-rides will provide equivalent capacity for the Express Bus Alternative when compared with the Caltrain Extension Alternative.

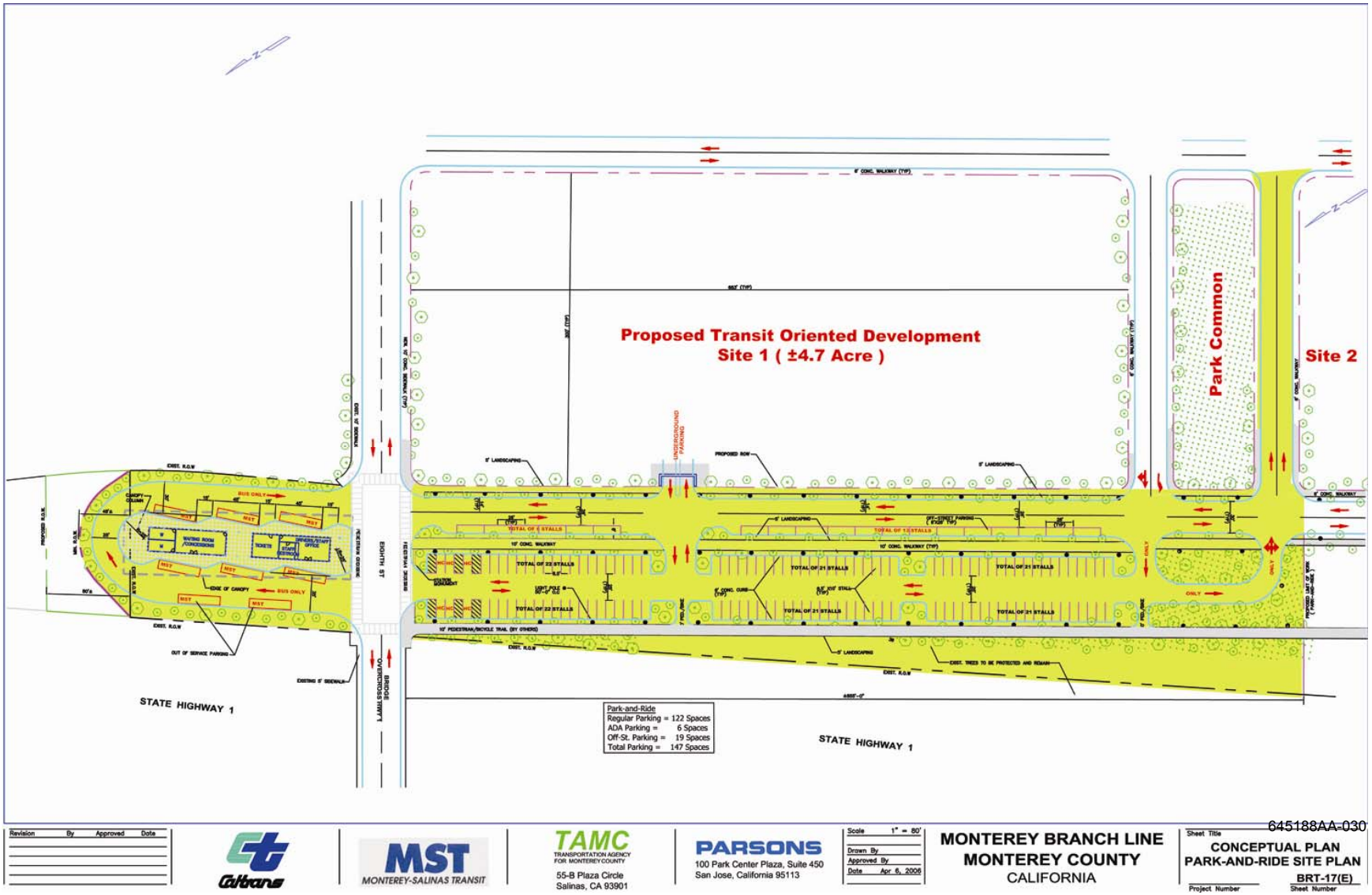
Access to the park-and-ride will be via Eighth Street and First Avenue.

The estimated capital cost of this facility is $8.7 million expressed in FY 2007 dollars and $9.2 million expressed in year of expenditure dollars.

Frank J. Lichtanski Monterey Bay Operations Center Expansion
Monterey-Salinas Transit anticipates that the demands on the region's transportation infrastructure and services will greatly increase. MST has out-grown its operating divisions in Monterey and Salinas. Fleet expansion to meet growing community needs requires upgraded maintenance, operations and administrative facilities to provide adequate support. On January 13, 2003, MST received quitclaim deeds from the United States Department of the Army for three parcels of the former Fort Ord military Reservation. A portion of this acreage will serve as the site of the Frank J. Lichtanski Monterey Bay Operations Center. The estimated cost to design and construct the facility is approximately $28.0 million and the facility will accommodate 170 buses.

MST officials state that the new operations center has not been planned to accommodate the express bus fleet anticipated by the Express Bus Alternative. The Frank J. Lichtanski Monterey Bay Operations Center will therefore need to be expanded, or an existing facility (Monterey) reutilized to accommodate the express bus fleet. In either event, an allowance of $100,000 per vehicle is assumed to expand, purchase, or upgrade a maintenance and operations base for the Express Bus Alternative fleet.

Figure 3-13
Express Bus Alternative Marina/CSUMB Monterey-Salinas Transit Cente



ALTERNATIVES CONSIDERED, BUT REJECTED

To accomplish the objectives of the Caltrain Extension Alternative, an alternative needs to be sufficiently attractive to provide a quality of service comparable to the Caltrain Extension Alternative. In addition to the express bus scenario defined above, additional alternatives were considered, but rejected.

Shuttle Bus Service to Gilroy

This alternative would operate regularly scheduled, fixed route bus service between concentrations of population in northern Monterey County and the Gilroy Caltrain station. Schedules would be devised to meet Caltrain trips, allowing for cross platform transfers at the existing Gilroy station. Route origins in Monterey County would include Salinas, the Monterey Peninsula, Castroville and Pajaro/ Watsonville. Park-and-ride lots could also be constructed as part of this service definition.

A service virtually identical to that outlined was operated by MST for three years between September 9, 2002 and July 29, 2005. Known as the "Caltrain Fastrack," the service failed to attract sufficient ridership to warrant its continuance following a three-year demonstration period. Long travel times by bus to Gilroy, the need to transfer in Gilroy, and missed connections were cited as reasons for discontinuing the service.

The exhibit shown on the following page depicts the public timetable and route map for the Caltrain Fastrack service. The routes served all of the proposed Express Bus Alternative park-and-ride sites or their equivalent bus stops, with the exception of Pajaro/Watsonville. Travel time to Gilroy was comparable to the proposed Caltrain extension service; however, these shuttle bus passengers encountered additional time penalties for transfers. The timetables indicate 18 minutes of delay for northbound, AM riders assuming on time arrival of Route 25/26 vehicles.

Table 3-6 indicates the ridership experienced on lines 25/26 during January and February 2005. Ridership averaged 28 patrons in each direction or 56 riders per day. Operating costs were approximately $300,000 per year.

Limited Stop Bus Service to San Jose

This alternative would operate regularly scheduled, limited stop, fixed route bus service between concentrations of population in northern Monterey County and selected stops in Santa Clara County, including the Diridon Caltrain Station adjacent to downtown San Jose.

Beginning in the summer of 2006, MST initiated a limited stop service (Line 55) from Monterey to San Jose Diridon Station, with intermediate stops in Edgewater/Sand City, Prunedale, Gilroy, and Morgan Hill. The route is similar to Route 25 as discussed above, but this service extends to San Jose. Travel time between Monterey and San Jose is 2 hours 13 minutes during the morning commute trip and 2 hours during the evening commute trip. The public timetable and route map for this service is shown as an exhibit on the following page.

This Limited Stop Bus Alternative is similar to the proposed Express Bus Alternative. The Express Bus Alternative will, however, additionally serve sets of stations north of downtown San Jose which attract the vast majority of trips originating within Monterey County, based on Caltrain boarding and deboarding counts.

25 Gilroy

Weekdays

Monterey Transit Plaza (D)	Edgewater Transit Exchange (E)	Marina Transit Station (F)	Castroville (G)	Prunedale Park & Ride (H)	Gilroy Caltrain Station (J)	*Caltrain Departs*
5:20	5:27	5:37	5:48	5:57	6:27	*6:45*
9:50	10:02	10:14	10:28	10:38	11:14	--
4:05	--	**4:29**	**4:43**	**4:53**	**5:29**	--

25 Monterey

Weekdays

Notes	*Caltrain Arrives*	Gilroy Caltrain Station (J)	Prunedale Park & Ride (H)	Castroville (G)	Marina Transit Station (F)	Edgewater Transit Exchange (E)	Monterey Transit Plaza (D)
	--	6:35	6:56	7:06	7:15	7:26	7:41
	--	11:20	11:46	11:56	**12:07**	--	**12:25**
	5:36	**5:42**	**6:08**	**6:18**	**6:29**	**6:39**	**6:50**
A	***7:41***	**7:47**	**8:15**	*Via Salinas*	**8:55**	**9:05**	**9:15**

26 Gilroy

Weekdays

Salinas Transit Center (A)	Salinas Amtrak (B)	Northridge Center (C)	Prunedale Park & Ride (H)	Gilroy Caltrain Station (J)	*Caltrain Departs*
4:50	4:53	4:59	5:11	5:44	*6:02*
5:50	5:53	5:59	6:11	6:44	*7:02*
11:22	11:25	11:39	11:51	**12:21**	--
4:35	--	**4:50**	**5:02**	**5:30**	--
5:35	--	**5:50**	**6:02**	**6:30**	--
6:35	--	**6:50**	**7:02**	**7:30**	

26 Salinas

Weekdays

Notes	*Caltrain Arrives*	Gilroy Caltrain Station (J)	Prunedale Park & Ride (H)	Northridge Center (C)	Salinas Amtrak (B)	Salinas Transit Center (A)
	--	5:45	6:13	6:25	--	6:35
	--	6:55	7:23	7:35	--	7:45
	--	**12:30**	**12:58**	**1:10**	**1:22**	**1:25**
	5:36	**5:42**	**6:10**	**6:22**	**6:32**	**6:34**
	6:42	**6:48**	**7:16**	**7:28**	**7:38**	**7:40**
B	***7:41***	**7:47**	**8:15**	**8:27**	**8:37**	**8:39**

Notes: A Departs Gilroy for Salinas as line 26 then continues to Marina & Monterey. *Partirá de Gilroy a Salinas como línea 26 y continúa a Marina y Monterey.*
B 7:47 pm trip travels to Salinas then continues to Monterey. *El viaje continúa a Salinas y después a Monterey a las 7:47 pm.*

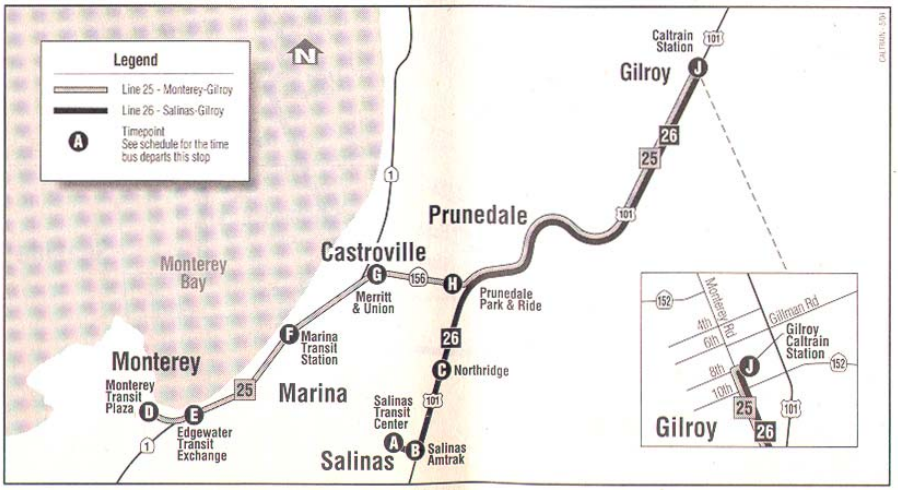


Table 3-6
Monterey–Salinas Transit Lines 25 and 26: Caltrain Fastrack Boarding Statistics (January–February 2005)

Month	Line 25	Line 26	Total
January 2005 • 20 weekdays • 402.67 hours of operation	• 379 total boardings • 19/day • 9 passenger round trips	• 759 total boardings • 38/day • 19 passenger round trips	• 1,138 total boardings • 57/day • 28 passenger round trips
February 2005 • 20 weekdays • 402.67 hours of operation	• 374 total boardings • 19/day • 9 passenger round trips	• 754 total boardings • 38/day • 19 passenger round trips	• 1,128 total boardings • 57/day • 28 passenger round trips
All of fiscal year 2004			**1,070 average monthly total boardings**

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Shuttle Train Service to Gilroy

This alternative would operate regularly scheduled shuttle train service between three stations located in Monterey County (Pajaro, Castroville and Salinas) and the Gilroy Caltrain station. Schedules would be devised to meet Caltrain trips, allowing for cross track transfers at the existing Gilroy station.

Physical improvements to stations, platforms, park-and-ride facilities, main line track, and layover facilities, defined for the Caltrain Extension Alternative, would be assumed for this Shuttle Train Service Alternative. Additionally, this alternative would require purchase of locomotives and passenger coaches for the shuttle trainsets running between Salinas and Gilroy.

To minimize impacts to UPRR freight operations, and therefore minimize the need for offsetting mainline capacity improvements; this alternative would store the shuttle trains in Gilroy during the midday on VTA's existing layover tracks.

Compared with the Caltrain Extension Alternative, the Shuttle Train Alternative would be more expensive, both from a capital and operating perspective. Insofar as capital costs, the Shuttle Train Alternative would require the purchase of FRA-compliant rolling stock that would stand idle for all but two hours, 255 weekdays per year. From an operating cost perspective, a shuttle train service would be cost prohibitive as train crew productivity (vehicle hours of revenue service) would be less than 15 percent of crew paid time.

Independent Train Service to San Francisco

This alternative would operate regularly scheduled, independent, commuter rail service between three stations located in Monterey County (Pajaro, Castroville and Salinas) and the San Francisco Caltrain station. Schedules would be devised to interlace with Caltrain trips, thereby supplementing or replacing existing Caltrain service. Similar to Altamont Commuter Express (ACE) service, trains would originate in Salinas and make one northbound trip in the morning to San Francisco. During the midday, trains would layover in San Francisco before returning to Salinas in the evening.

Monterey County based trains would make selected stops at stations between Gilroy and San Francisco. To minimize disruptions to existing Caltrain operating schedules, Monterey County based trains could piggyback behind Caltrain Baby Bullet trains, or replace selected trips (such as trains 215, 319, 323, 329, 362, 368, 372 and 378) altogether.

Physical improvements to stations, platforms, park-and-ride facilities, main line track, and layover facilities, defined for the Caltrain Extension Alternative, would be assumed for this Independent Train Service Alternative. Additionally, this alternative would require purchase of locomotives and passenger coaches for the trainsets running between Salinas and San Francisco.

To minimize impacts to Union Pacific Railroad freight operations, and therefore minimize the need for additional offsetting mainline capacity improvements, the Transportation Agency for Monterey County would assume the responsibility for its proportional share of track improvements and slot fees negotiated by the Santa Clara Valley Transportation Authority with Union Pacific for increased service between Gilroy and San Jose.

55 San Jose Express

Monterey (Tyler St.) Parking Garage (A)	Monterey Transit Plaza (B)	Edgewater Transit Exchange (C)	Prunedale Park & Ride (D)	Gilroy Caltrain Station (E)	Morgan Hill Caltrain Station (F)	San Jose Diridon Station (G)	Capitol Corridor: Layover time	Capitol Corridor: Departures at San Jose Diridon	Caltrain: Layover time	Caltrain: Departures at San Jose Diridon
Weekdays										
5:15	5:17	5:27	5:49	6:16	6:43	7:28	*1:37*	9:05	*0:17*	7:45 *
9:50	9:52	10:02	10:24	10:51	11:18	**12:03**	*0:17*	**12:20**	*0:07*	**12:10**
3:18	**3:20**	**3:30**	**3:52**	**4:19**	**4:46**	**5:31**	*0:19*	**5:50**	*0:14*	**5:45** *
Saturdays & Sundays **										
5:22	5:24	5:34	5:56	6:23	6:50	7:35	*0:15*	7:50	*0:25*	8:00
10:24	10:26	10:36	10:58	11:25	11:52	**12:37**	*0:13*	**12:50**	*0:23*	**1:00**
3:15	**3:17**	**3:27**	**3:49**	**4:16**	**4:43**	**5:28**	*0:22*	**5:50**	*0:32*	**6:00**

55 Monterey Express

Capitol Corridor: Arrivals at San Jose Diridon	Capitol Corridor: Layover time	Caltrain: Arrivals at San Jose Diridon	Caltrain: Layover time	San Jose Diridon Station (G)	Morgan Hill Caltrain Station (F)	Gilroy Caltrain Station (E)	Prunedale Park & Ride (D)	Edgewater Transit Exchange (C)	Monterey Transit Plaza (B)	Monterey (Tyler St.) Parking Garage (A)
				Weekdays						
7:35	*0:20*	7:24	*0:31*	7:55	8:40	8:57	9:22	9:42	9:53	9:55
1:15	*0:20*	**1:00**	*0:35*	**1:35**	**2:20**	**2:37**	**3:02**	**3:22**	**3:33**	**3:35**
3:15	*2:38*	**5:27** *	*0:26*	**5:53**	**6:38**	**6:55**	**7:20**	**7:40**	**7:51**	**7:53**
				Saturdays & Sundays **						
8:45	*0:20*	–	–	9:05	9:50	10:07	10:37	10:57	11:08	11:10
1:45	*0:20*	**1:36**	*0:29*	**2:05**	**2:50**	**3:07**	**3:37**	**3:57**	**4:08**	**4:10**
5:20	*0:25*	**5:36**	*0:09*	**5:45**	**6:30**	**6:47**	**7:17**	**7:37**	**7:48**	**7:50**

Rider Notes: Light type = AM, Bold type = PM / Schedule subject to traffic delays
* Denotes connections to/from Caltrain Baby Bullet or limited stop trains
**Holiday schedule: Line 55 operates a Sunday schedule on Thanksgiving, the day after Thanksgiving, Christmas Day, Memorial Day, Independence Day, Labor Day, New Year's Day and a regular schedule on all other holidays.

Regular Fares (One Way)

	Monterey Parking Garage (A)	Monterey Transit Plaza (B)	Edgewater Transit Exchange (C)	Prunedale Park & Ride (D)	Gilroy Caltrain Station (E)	Morgan Hill Caltrain Station (F)	San Jose Diridon Station (G)
Monterey Parking Garage (A)	–	$ 2.	$ 2.	$ 4.	$ 6.	$ 6.	$ 8.
Monterey Transit Plaza (B)	$ 2.	–	$ 2.	$ 4.	$ 6.	$ 6.	$ 8.
Edgewater Transit Exchange (C)	$ 2.	$ 2.	–	$ 4.	$ 6.	$ 6.	$ 8.
Prunedale Park & Ride (D)	$ 4.	$ 4.	$ 4.	–	$ 4.	$ 4.	$ 6.
Gilroy Caltrain Station (E)	$ 6.	$ 6.	$ 6.	$ 4.	–	$ 2.	$ 4.
Morgan Hill Caltrain Station (F)	$ 6.	$ 6.	$ 6.	$ 4.	$ 2.	–	$ 4.
San Jose Diridon Station (G)	$ 8.	$ 8.	$ 8.	$ 6.	$ 4.	$ 4.	–

Discount Fares (One Way)

Riders who are 5-18, 65 years and older or have disabilities

	Monterey Parking Garage (A)	Monterey Transit Plaza (B)	Edgewater Transit Exchange (C)	Prunedale Park & Ride (D)	Gilroy Caltrain Station (E)	Morgan Hill Caltrain Station (F)	San Jose Diridon Station (G)
Monterey Parking Garage (A)	–	$ 1.	$ 1.	$ 2.	$ 3.	$ 3.	$ 4.
Monterey Transit Plaza (B)	$ 1.	–	$ 1.	$ 2.	$ 3.	$ 3.	$ 4.
Edgewater Transit Exchange (C)	$ 1.	$ 1.	–	$ 2.	$ 3.	$ 3.	$ 4.
Prunedale Park & Ride (D)	$ 2.	$ 2.	$ 2.	–	$ 2.	$ 2.	$ 3.
Gilroy Caltrain Station (E)	$ 3.	$ 3.	$ 3.	$ 2.	–	$ 1.	$ 2.
Morgan Hill Caltrain Station (F)	$ 3.	$ 3.	$ 3.	$ 2.	$ 1.	–	$ 2.
San Jose Diridon Station (G)	$ 4.	$ 4.	$ 4.	$ 3.	$ 2.	$ 2.	–

Compared with the Caltrain Extension Alternative, the Independent Train Service Alternative would be more expensive, both from a capital and operating perspective. Insofar as capital costs, the Independent Train Service Alternative would require the purchase of FRA-compliant rolling stock that would stand idle for all but five or six hours, 255 weekdays per year. From an operating cost perspective, an independent train service would be more costly than the Caltrain Extension Alternative, as train crew productivity (vehicle hours of revenue service) would be approximately 50 percent of crew paid time. To improve this productivity, Monterey County based trains could replace or supplement Baby Bullet service throughout the midday.

Tables 3-7 and 3-8 list the comparative capital and operating costs for independent train service to San Francisco versus the extension of existing Caltrain service to Salinas.

Table 3-7
Capital Costs of Independent Train Service to San Francisco Alternative versus Caltrain Extension ($1,000 FY 2007)

	Independent Train Service	Caltrain Extension Alternative
UPRR main line	$35,000	$ 5,000
Gilroy yard	4,124	4,124
Pajaro station	17,030	17,030
Castroville station	16,443	16,443
Salinas station	19,856	19,856
Salinas bus	9,827	9,827
Salinas yard	11,742	11,742
Rolling stock	48,000	8,800
	$162,022	$92,822

Source: Parsons
Note: Capital costs exclude unallocated contingencies

Table 3-8
Operating and Maintenance Costs of Independent Train Service to San Francisco Alternative versus Caltrain Extension ($ FY 2007)*

	Independent Train Service	Caltrain Extension Alternative
Rail operator	$ 9,870,000	$3,270,000
Fuel	1,796,000	583,000
Timetables and tickets	35,000	35,000
Insurance	655,000	219,000
Facilities and equipment	200,000	160,000
Utilities	97,000	97,000
UPRR track use charge	1,915,000	1,058,000
UPRR slot fees	1,915,000	2,196,000
JPB administrative expense	—	1,097,000
	$19,071,000	$8,715,000

Source: Parsons
* Altamont Commuter Express FY 2006–2007 budget is $14 million.

Bus Rapid Transit Service

Bus rapid transit (BRT) has been defined as a rapid mode of transportation that can provide the quality of rail transit and the flexibility of buses. It is an integrated system of stations, equipment, services, running ways, and intelligent transportation system (ITS) elements having a strong image and identity.

The *Bus Rapid Transit Practitioner's Guide*[5] identifies the following components and features of bus rapid transit systems.

> "The main features of bus rapid transit systems include:
>
> - Dedicated (bus-only) running ways (preferably physically separated from other traffic)
> - Accessible, safe, secure, and attractive stations
> - Easy-to-board, attractive, and environmentally friendly vehicles
> - Efficient (i.e., off-vehicle) fare collection
> - ITS applications to provide real-time passenger information, signal priority, and service command/control
> - Frequent, all-day service
> - Distinctive system identity
>
> "All BRT systems must have running ways, stations, and vehicles. Other major components include service design, the fare collection system, the application of ITS technology, and branding. Service design is the *key* to system design. The individual components must be compatible and must support the service design.
>
> "The type of each component varies among systems. Running ways include special physical facilities such as busways, and operational treatments such as bus lanes, queue jumps/bypass lanes, and transit signal priority (TSP). Stations can range from smaller passenger waiting areas with simple shelters to large-scale terminals with many passenger amenities. BRT vehicles typically are large-capacity, stylized vehicles with low-floor boarding and different degrees of ITS integration, such as automatic vehicle location (AVL), next-stop annunciators, and driver-assist systems. Fare collection systems can be located either on- or off-board vehicles and can integrate new electronic media such as smart cards. Service design can range from BRT serving as a new line-haul service with limited stops to BRT serving as a feeder service that extends the reach of rail transit. Finally, branding the system creates a unique logo, color scheme, and/or marketing strategy that distinguishes the BRT service from other transit services."

Compared to the Express Bus Alternative, a Bus Rapid Transit Alternative would add dedicated (bus-only) running ways, or at least high occupancy vehicle (HOV) lanes, along US 101 from Salinas to Morgan Hill; use advanced design, articulated, low-floor vehicles; and operate throughout the day with frequencies of service of 15 minutes or less. Given these features, a Bus Rapid Transit Alternative would not be comparable to the Caltrain Extension Alternative, and would be far more expensive to construct and operate.

Adding HOV lanes to US 101 from Main Street in Salinas to Cochrane Road in Morgan Hill, a distance of 38.6 miles would cost on the order of $500 million including necessary bridge and

[5] Draft Report, TCRP Project A-23A, Kittleson & Associates, 2006.

interchange reconstruction. Operating the service throughout the day, on 15 minute headways along three branch lines from Monterey County to downtown San Jose would require a fleet of 60 vehicles (50 buses operating in maximum revenue service plus 10 spares).

Tables 3-9 and 3-10 list the comparable capital and operating costs for the bus rapid transit service to downtown San Jose versus the Express Bus Alternative. While two alternatives are not directly comparable, the BRT capital costs are more than six times higher than those of the Express Bus Alternative, and annual operating costs are nearly twice as high. Given these relative costs, a Bus Rapid Transit Alternative was removed from further consideration.

Table 3-9
Capital Costs of Bus Rapid Transit Service to San Jose versus Express Bus Alternative ($1,000 FY 2007)

	Bus Rapid Transit Alternative	Express Bus Alternative
US 101 HOV lanes	$500,000	—
Pajaro station	7,804	7,804
Castroville station	7,290	7,290
Salinas station	32,117	32,116
Marina station	8,651	8,651
Rolling stock	60,000	30,000
Maintenance facility	4,800	6,000
	$620,662	$91,861

Source: Parsons
Note: Capital costs exclude unallocated contingencies

Table 3-10
Operating and Maintenance Cost of Bus Rapid Transit Service to San Jose versus Express Bus Alternative ($ FY 2007)

Cost Function	Basis	Service	Change from No Build	Unit Cost	Weighted Cost Factor	Bus Rapid Transit Annual Cost	Express Bus Annual Cost
Vehicle Operations	Hours	BRT	207,200	$56.23	1.0	$11,650,856	
	Hours	Express	119,294	$56.23	1.0		6,707,902
	Miles	BRT	5,884,480	$0.75	1.0	4,413,360	
	Miles	Express	3,858,660	$0.75	1.0		2,893,995
Vehicle Maintenance	Miles	BRT	5,884,480	$1.07	2.0	12,592,787	
	Miles	Express	3,858,660	$1.07	1.0		4,128,766
Facilities Maintenance	MOV	BRT	50	$13,752	1.0	687,600	
	MOV	Express	50	$13,752	1.0		687,600
Stations	Stations	BRT	4 × 0.40	$89,325	1.0	142,920	
	Stations	Express	4 × 0.40	$89,325	1.0		142,920
TVM	Units	BRT	5 × 0.095	$89,325	1.0	42,429	
	Units	Express	5 × 0.095	$89,325	1.0		42,429
Stores	Fleet vehicles	BRT	60 × 0.065	$89,325	1.0	348,368	
	Fleet vehicles	Express	60 × 0.065	$89,325	1.0		348,368
General Administration	MOV	BRT	50	$54,303	1.0	2,715,150	
	MOV	Express	50	$54,303	1.0		2,715,150
						$32,593,470	$17,667,130

Source: Parsons

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CHAPTER 4: TRAVEL DEMAND FORECASTS

INTRODUCTION

Patronage forecasts are an essential element of analyzing the feasibility of transit service and sizing its program elements. These forecasts are used to define parking and access requirements, level of service requirements, vehicle capacity requirements, and to estimate passenger revenues.

Typically, patronage forecasts are developed using regional travel forecast models. The Association of Monterey Bay Area Governments (AMBAG) has recently developed a "3+1 County Model" covering Monterey, Santa Cruz, San Benito and Santa Clara counties. AMBAG has added a "mode split" model component to this model that could be utilized for analyzing the extension of Caltrain service to Monterey County; however, the model is not currently validated at the route level of detail and the land use employment data is incompatible between the three counties (San Benito, Monterey, and Santa Cruz) and the +1 county (Santa Clara). As a result, AMBAG's 3+1 model inherently attracts a greater proportion of work trips internal to the three counties, and exports fewer work trips to the San Francisco Bay Area.

In addition to this employment data compatibility issue, the mode choice model calibration was completed in 1996/1997, and its nested logit coefficients are now considered to be out of the Federal Transit Administration's (FTA) currently accepted range for New Starts ridership forecasting. The top level nesting coefficient (0.65) violates discrete choice model theory since it is smaller than the next level coefficient (0.75).

None of the in-vehicle time model coefficients are within FTA guidelines (–0.02 to –0.03). The relationships of the other coefficients (e.g., out-of-vehicle travel time/in-vehicle travel time are generally within FTA guidelines, however. Use of the AMBAG model for the Caltrain Extension project would therefore require significant model recalibration effort.

Another recently developed model is maintained by the Santa Clara Valley Transportation Authority (VTA). This model, known as the Silicon Valley Rapid Transit Corridor (SVRTC) Model Recalibration, includes Santa Cruz, Monterey, and San Benito, and San Joaquin counties, in addition to San Francisco Bay Area counties. This model was recalibrated for the purposes of VTA's 2005 New Starts submittal; however, VTA's New Starts request was withdrawn prior to FTA's rating. The SVRTC Model Recalibration thus remained uncertified at the time of the *Caltrain Extension to Monterey County Project Study Report* (PSR) preparation, upon which this alternatives analysis is based. Notwithstanding this disclaimer, the latest version of the SVRTC Model Recalibration could be used in follow-on work efforts in support of Federal Transit Administration Section 5309 New Starts Criteria information submittals.

For the purpose of the PSR and this Alternatives Analysis Report, "sketch planning" and spreadsheet patronage forecasting methods were employed using the best available information.

The remainder of this document presents relevant information which is available for estimating ridership potentials. This information includes Year 2000 census data, available forecasts of population, jobs, and traffic growth in the U.S. 101 corridor, observed ridership information from a highly comparable service (e.g., the Altamont Commuter Express (ACE)), and some mode share research undertaken by the VTA.

DEMOGRAPHIC DATA

U.S. Census data is available for Year 2000 regarding population and housing statistics and home-to-work commuting habits. Additional demographic data is available for future forecast years from the AMBAG and the Association of Bay Area Governments.

Figure 4-1 illustrates a series of accessibility "buffers" plotted around each of the proposed Caltrain stations in Monterey County. From the outermost circle, which has a 4.5 mile radius, an automobile driving at an average speed of 30 miles per hour (mph) would reach the station in approximately 10 minutes. From the middle circle, which has a 2.5 mile radius, a shuttle bus traveling at an average speed of 15 mph would reach the station in approximately 10 minutes. From the innermost circle, which has a 0.5 mile radius, a pedestrian walking at an average speed of 3 mph would reach the station in approximately 10 minutes. Residents living beyond the outermost circle would, in many cases, include commuters who were willing to drive more than 10 minutes to get to the transit station.

The number of residents living within each of these accessibility buffers was tabulated using socio-economic data aggregated by traffic analysis zone (TAZ) as maintained for the AMBAG 4-County Model, the predecessor of the 3+1 County Model. The socio-economic data included households, household population, and employment.

Fitting the TAZ data into the circular buffers required making some judgments. There were instances where the TAZ area fell within more than one circle (buffer). In such instances, the circle with the majority of the TAZ area was assigned the TAZ data. In other cases, where only a portion of the TAZ area was within any given circle, it was assigned to the buffer using an "all or nothing" approach.

Table 4-1 presents the results of this assessment of potential transit markets based on household population for Year 2000, 2010, 2020, and 2025.

Similar to the assessment of "home-based" ridership potential, a tabulation of jobs within easy access of Caltrain stations was undertaken. Buffers of 0.5-mile, 1-mile, and 2-mile radii were drawn around each of the Caltrain stations located within Santa Clara County. Data from surveys of Caltrain and ACE riders indicate that existing riders of commuter rail travel to jobs well beyond the 0.5-mile radius typically assumed by FTA for its "New Starts" mobility criteria. In Santa Clara County, the presence of shuttle bus service provided by major employers and the VTA greatly increases the accessibility of these commuter rail stations to jobs.

Figures 4-2 and 4-3 illustrate the commuter rail station locations and accessibility buffers within Santa Clara County. Figure 4-2 includes an ACE station at the Great America theme park within the city of Santa Clara for reference.

Table 4-2 presents a tabulation of jobs accessible to Caltrain stations plus the ACE station at Great America. Excluding the Great America Station, Caltrain provides transit access to 572,737 jobs within Santa Clara County as of Year 2000 estimates. Jobs in San Mateo and San Francisco counties would be in addition. Please note that the tabulation of jobs served by the stations excludes double counting due to overlaps of the buffers.

Figure 4-1
Monterey County Station Locations and Access Buffers

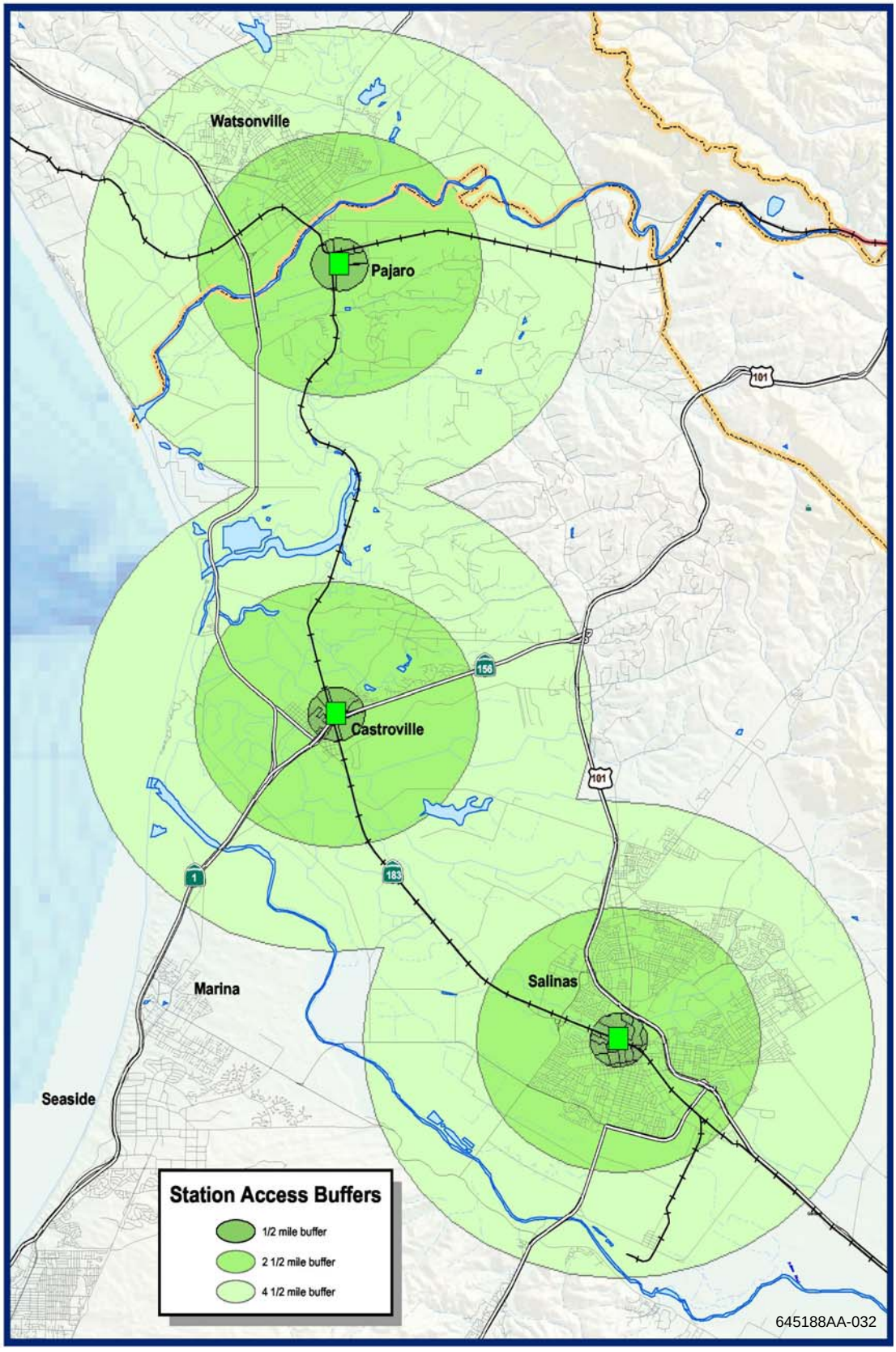

Table 4-1
Socio-Economic Data with Buffer Information around Stations

	2000		2010		2020		2025	
Stations/Buffers	**Household Population**	**Percent Share**	**Household Population**	**Percent Share**	**Household Population**	**Percent Share**	**Household Population**	**Percent Share**
Castroville								
0.5-mile buffer	7,682		8,003		8,196		8,510	
2.5-mile buffer	4,920		5,424		5,850		6,155	
4.5-mile buffer	3,917		8,516		12,986		15,125	
Subtotal	16,519	7%	21,943	8%	27,032	9%	29,790	9%
Pajaro								
0.5-mile buffer	5,296		5,485		5,587		5,643	
2.5-mile buffer	39,407		43,405		47,081		48,988	
4.5-mile buffer	33,065		36,529		39,733		41,430	
Subtotal	77,768	33%	85,419	31%	92,401	30%	96,061	29%
Salinas								
0.5-mile buffer	13,256		14,742		16,001		16,119	
2.5-mile buffer	99,493		114,641		127,929		145,795	
4.5-mile buffer	25,970		35,050		43,566		42,969	
Subtotal	138,719	60%	164,433	60%	187,496	61%	204,883	62%
Total	**233,006**	**100%**	**271,795**	**100%**	**306,929**	**100%**	**330,734**	**100%**

Source: Parsons

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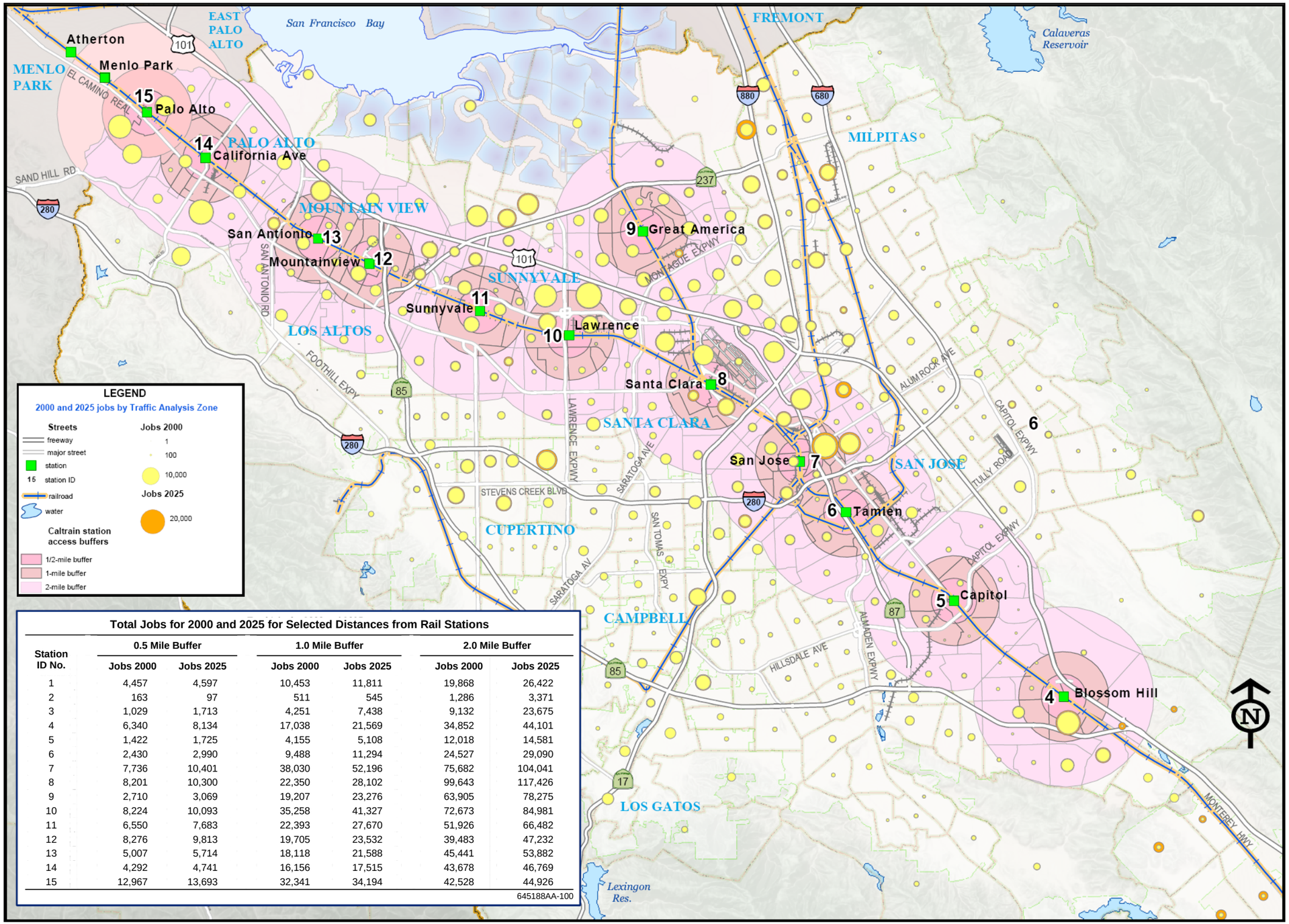
COMMUTER DATA

Table 4-3 indicates where Monterey County residents work and how many residents from other counties work in Monterey County. According to the U.S. Census, the number of persons working within Monterey County declined from 162,079 to 159,157 between 1990 and 2000. The number of Monterey County residents living and working within Monterey County declined by a larger margin, from 151,520 in 1990 to 146,444 in 2000, a drop of 5,076 intra-county commuters. The number of Monterey County residents commuting to jobs outside the county grew from 12,750 in 1990 to 18,073 in 2000, an increase of 41.7 percent. Most of this growth was directed along the U.S. 101 corridor to Santa Clara, San Benito, and other San Francisco Bay Area counties.

Table 4-4 reports forecasts of county-to-county commuting, prepared by Parsons in 2003, AMBAG in 2001 and 2005, and the Metropolitan Transportation Commission (MTC) in 1988, 2000, and 2004. Based on this compilation of forecasts, estimates of county commuting have been prepared by Parsons for potential use by this assessment. Of significance, the AMBAG estimate of Year 2000 Monterey to Santa Clara County commuters, used in its 4-County Model, is low by a factor of more than two based on U.S. Census data. Insofar as the AMBAG 3+1 County Model, AMBAG's estimate of home based work trips to Santa Clara County indicates no increase between Year 2000 and 2030. This lack of growth occurs due to the incompatibility of the population and employment data used by AMBAG for the three Monterey Bay counties versus the employment data used for Santa Clara County.



Total Jobs for 2000 and 2025 for Selected Distances from Rail Stations

Station ID No.	0.5 Mile Buffer		1.0 Mile Buffer		2.0 Mile Buffer	
	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025
1	4,457	4,597	10,453	11,811	19,868	26,422
2	163	97	511	545	1,286	3,371
3	1,029	1,713	4,251	7,438	9,132	23,675
4	6,340	8,134	17,038	21,569	34,852	44,101
5	1,422	1,725	4,155	5,108	12,018	14,581
6	2,430	2,990	9,488	11,294	24,527	29,090
7	7,736	10,401	38,030	52,196	75,682	104,041
8	8,201	10,300	22,350	28,102	99,643	117,426
9	2,710	3,069	19,207	23,276	63,905	78,275
10	8,224	10,093	35,258	41,327	72,673	84,981
11	6,550	7,683	22,393	27,670	51,926	66,482
12	8,276	9,813	19,705	23,532	39,483	47,232
13	5,007	5,714	18,118	21,588	45,441	53,882
14	4,292	4,741	16,156	17,515	43,678	46,769
15	12,967	13,693	32,341	34,194	42,528	44,926

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Figure 4-2
Santa Clara County Station Locations and Access Buffers—North County

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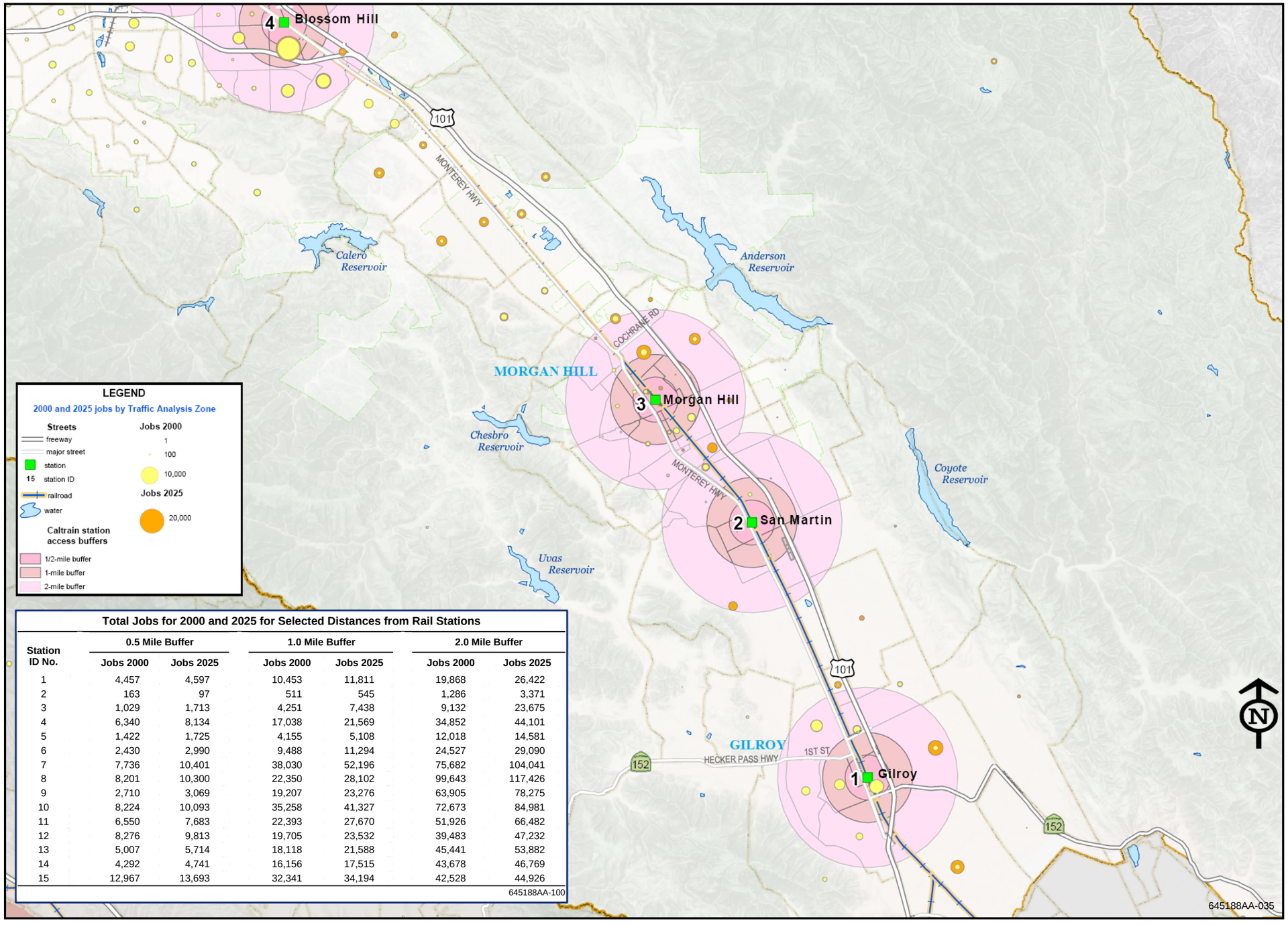

Total Jobs for 2000 and 2025 for Selected Distances from Rail Stations

Station ID No.	0.5 Mile Buffer		1.0 Mile Buffer		2.0 Mile Buffer	
	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025
1	4,457	4,597	10,453	11,811	19,868	26,422
2	163	97	511	545	1,286	3,371
3	1,029	1,713	4,251	7,438	9,132	23,675
4	6,340	8,134	17,038	21,569	34,852	44,101
5	1,422	1,725	4,155	5,108	12,018	14,581
6	2,430	2,990	9,488	11,294	24,527	29,090
7	7,736	10,401	38,030	52,196	75,682	104,041
8	8,201	10,300	22,350	28,102	99,643	117,426
9	2,710	3,069	19,207	23,276	63,905	78,275
10	8,224	10,093	35,258	41,327	72,673	84,981
11	6,550	7,683	22,393	27,670	51,926	66,482
12	8,276	9,813	19,705	23,532	39,483	47,232
13	5,007	5,714	18,118	21,588	45,441	53,882
14	4,292	4,741	16,156	17,515	43,678	46,769
15	12,967	13,693	32,341	34,194	42,528	44,926

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Figure 4-3
Santa Clara County Station Locations and Access Buffers—South County

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Table 4-2
Commuter Rail Access to Employment in Santa Clara County

ID No.	Station	Range 0.5 Mile 2000	0.5 Mile 2025	1.0 Mile 2000	1.0 Mile 2025	2.0 Miles 2000	2.0 Miles 2025
15	Palo Alto	12,967	13,693	32,341	34,194	42,528	44,296
14	California	4,292	4,741	16,156	17,515	43,678	46,769
13	San Antonio	5,007	5,714	18,118	21,588	45,441	53,882
12	Mountain View	8,276	9,813	19,705	23,532	39,483	47,232
11	Sunnyvale	6,550	7,683	22,393	27,670	51,926	66,482
10	Lawrence	8,224	10,093	35,258	41,327	72,673	84,981
8	Santa Clara	8,201	10,300	22,350	28,102	99,643	117,426
7	San Jose	7,736	10,401	38,030	52,196	75,682	104,041
6	Tamien	2,430	2,990	9,488	11,294	24,527	29,090
5	Capitol Expressway	1,422	1,725	4,155	5,108	12,018	14,581
4	Blossom Hill	6,340	8,134	17,038	21,569	34,852	44,101
3	Morgan Hill	1,029	1,713	4,251	7,438	9,132	23,675
2	San Martin	163	97	511	545	1,286	3,371
1	Gilroy	4,457	4,597	10,453	11,811	19,868	26,422
9	Great America	2,710	3,069	19,207	23,276	63,905	78,275
Station buffer totals		**81,804**	**96,788**	**271,454**	**329,446**	**638,642**	**786,649**
Countywide		**1,362,948**	**1,724,585**	**1,362,948**	**1,724,585**	**1,362,948**	**1,724,585**
Percent of county totals		**6.0%**	**5.6%**	**19.9%**	**19.1%**	**46.9%**	**45.6%**
Station buffer totals without Great America		**77,094**	**91,694**	**250,247**	**303,889**	**572,737**	**706,349**
Percent of county totals without Great America		**5.7%**	**5.3%**	**18.4%**	**17.6%**	**42.0%**	**41.0%**

Source: Parsons

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Table 4-3
Monterey County Commuting Trends (1990 and 2000)

Commuting	1990	2000	Percent Change
Total population	355,660	401,762	+13.0
Work in Monterey County	162,079	159,157	–1.8
Live and work in Monterey County	151,520	146,444	–3.4
Live elsewhere and work in Monterey County	10,559	12,713	+20.4
Percent workforce commuting into Monterey County	7%	8%	+14.3
Live in Monterey County and work elsewhere	12,750	18,073	+41.7
Santa Cruz County	6,821	7,601	+11.4
Santa Clara County	2,411	5,799	+140.5
San Benito County	601	1,187	+97.5
San Luis Obispo County	329	540	+64.1
Alameda County	246	533	+116.7
San Mateo County	173	378	+118.5
Fresno County	113	254	+124.8
San Francisco County	120	220	+83.3
Contra Costa County	83	155	+86.7
Los Angeles County	295	134	–54.6
Yuma County, Arizona	222	112	–49.5
Outside U.S.	262	105	–59.9
San Diego County	85	101	+18.8
Other Locations	989	954	–3.5

Source: U.S. Census

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Table 4-4
Monterey County Commuter Forecasts

	San Benito				Monterey				Santa Cruz				Santa Clara				Other Bay Area				Total Commuters			
	2000	2010	2020	2030	2000	2010	2020	2030	2000	2010	2020	2030	2000	2010	2020	2030	2000	2010	2020	2030	2000	2010	2020	2030
Parsons																								
2003	1,187	1,583	1,978	2,374	146,444	169,803	191,365	209,963	7,601	11,402	13,302	14,252	5,799	12,267	14,051	15,390	1,401	3,002	3,402	3,402	165,912	201,356	228,454	248,111
AMBAG																								
2001	524	NA	851	NA	176,750	NA	233,901	NA	8,055	NA	14,418	NA	2,575	NA	5,999	NA	741	NA	1,149	NA	188,645	NA	256,318	NA
2005	1,360	NA	NA	2,933	125,006	NA	NA	197,118	11,398	NA	NA	13,997	6,747	NA	NA	6,555	1,876	NA	NA	4,546	146,387	NA	NA	225,149
MTC																								
1998	745	1,005	1,201	NA	154,370	187,747	225,960	NA	10,774	11,936	14,687	NA	5,591	6,221	8,093	NA	1,269	1,293	1,799	NA	172,908	208,400	252,000	NA
2000	455	600	914	NA	169,941	193,322	217,174	NA	8,547	10,998	17,254	NA	2,676	4,364	8,041	NA	570	863	1,739	NA	182,241	210,226	245,314	NA
2004	1,187	1,417	1,663	2,213	146,298	175,035	217,393	245,911	7,593	10,954	12,330	14,652	5,799	9,570	9,705	12,468	1,401	1,979	2,130	2,938	162,509	199,222	243,536	278,601

Sources:
1. Parsons, 2003
2. *AMBAG Four-County Travel Demand Model*; AMBAG 2001. *AMBAG 3+1 Regional Travel Demand Model;* AMBAG June 2005.
3. Metropolitan Transportation Commission, *Commuter Forecasts for the San Francisco Bay Area 1990–2030,* Data Summary, September 1998, October 2000, and May 2004.

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The census data indicates that the majority of commuters living in Monterey County travel to work during a two-hour morning peak period (6:30–8:30 AM) as reported in Table 4-5. Commuters leaving home during the early portion of the peak period would be expected to be traveling greater distances, using the congested U.S. 101 Corridor. These commuters would be traveling during the time when Caltrain service would operate between Monterey County and the Bay Area. Based on this data, it was assumed that most of the commuters to Santa Clara, San Mateo, and San Francisco counties from Monterey County and southern Santa Cruz County would travel during this AM peak period. Statewide, the commute pattern is similar.

Table 4-5
Home to Work Commute (Time Leaving Home)

	California State		Monterey County	
	Estimate	**Percent**	**Estimate**	**Percent**
Total	**14,525,322**		**164,517**	
Work from home	**557,036**		**5,931**	
Work away from home	**13,968,286**	**96.17%**	**158,586**	**96.39%**
Departure Time				
12:00 AM to 4:59 AM	606,086	4.34%	6,807	4.29%
5:00 AM to 5:29 AM	523,209	3.75%	7,971	5.03%
5:30 AM to 5:59 AM	692,256	4.96%	7,578	4.78%
6:00 AM to 6:29 AM	1,216,867	8.71%	14,024	8.84%
6:30 AM to 6:59 AM	1,362,830	9.76%	14,658	9.24%
7:00 AM to 7:29 AM	2,006,950	14.37%	22,815	14.39%
7:30 AM to 7:59 AM	1,986,831	14.22%	26,013	16.40%
8:00 AM to 8:29 AM	1,577,815	11.30%	16,121	10.17%
8:30 AM to 8:59 AM	778,152	5.57%	8,159	5.14%
9:00 AM to 9:59 AM	972,355	6.96%	10,078	6.35%
10:00 AM to 10:59 AM	414,479	2.97%	4,786	3.02%
11:00 AM to 11:59 AM	189,005	1.35%	2,302	1.45%
12:00 PM to 3:59 PM	865,284	6.19%	9,703	6.12%
4:00 PM to 11:59 PM	776,167	5.56%	7,571	4.77%

Source: 2000 Census

645188AA-039

CALTRAIN EXTENSION RIDERSHIP FORECAST

Four estimates of Caltrain extension to Monterey County ridership have been made within the recent past. Valley Transportation Authority staff made a preliminary estimate of ridership potential in November 1999 based on a survey of major employers conducted in 1997/1998 and an estimate of mode shares based on express bus data. This estimate is documented in a VTA staff memorandum to the Transportation Agency for Monterey County (TAMC) dated November 8, 1999, which is provided in Appendix C of this study for reference. VTA staff estimated a potential for about 304 passengers to board trains extending to Monterey County. Daily ridership (to and from) would be twice this number. This estimate was based on a commuter base of 1,683 persons residing in Monterey County and Watsonville and working in major employment centers within Santa Clara County.

During the preparation of the *Extension of Caltrain Commuter Service to Monterey County Business Plan* (August 2000), information was collected for the ACE commuter rail service and compared with Caltrain service and ridership for south Santa Clara County and the proposed extension of service to Monterey County. It appears that ACE is an excellent benchmark for estimating the ridership potential of the Caltrain extension to Salinas, given the similarity of commute markets and travel impedances.

As illustrated in Figure 4-4, ACE provides commuter rail service between three stations in San Joaquin County (Stockton, Lathrop/Manteca and Tracy), four stations in Alameda County (Vasco, Livermore, Pleasanton and Fremont), and three stations in Santa Clara County (Great America, Santa Clara and San Jose). Excellent ridership data collected from passenger counts and surveys is available for comparison with Monterey County service attributes.

ACE became operational on October 19, 1998, providing two westbound morning trains and two eastbound evening trains. On February 21, 2000, an additional train was added to alleviate over-crowding in the Alameda County-to-Santa Clara segment of the route. This additional service provided a third westbound morning train between the Pleasanton station and San Jose. This level of service compared favorably with the initial service proposed for Monterey County and the four round trips operated by Caltrain between Gilroy, San Jose, and San Francisco (as of 2000).

Monthly fares, ride times, and distances for ACE trips into Santa Clara County are reported in Table 4-6. This table also supplies Census 2000 population data for the cities served, station-by-station AM boarding counts, and a calculation of riders (one-way boardings) per capita. The same information is also presented for the south Santa Clara County stations served by Caltrain and the proposed extension of service to Monterey County. An estimate of riders boarding at Monterey County stations is reported (in italics) based on a cross-classification technique that compares station service attributes with observed rates of boardings per capita.

While this estimation technique was simplistic, it was grounded by an array of corridor similarities:

- ACE provides service from San Joaquin County and the Tri-Valley area of Alameda County to three stations in Santa Clara County, serving the heart of Silicon Valley's employment base. The proposed extension of Caltrain to Salinas would provide mobility to 14 stations in Santa Clara County as well as San Mateo and San Francisco County destinations.

- As reported by Census 2000, 7,046 residents of San Joaquin County work in Santa Clara County. By comparison, 5,799 residents of Monterey County work in Santa Clara County and 598 work in San Mateo or San Francisco County. Santa Cruz County, 17% of whose residents reside in Watsonville, has 21,540 of its residents employed in Santa Clara County.

- The travel time and congestion faced by San Joaquin County commuters to Silicon Valley jobs is similar to that faced by Monterey County commuters.

- Housing prices in Tracy and commute times to Silicon Valley are very similar to Salinas housing and commute conditions.

Based on this methodology, Parsons estimated that 898 passengers would board trains from stations located in Monterey County. This estimate has since been updated based on Census 2000 counts of population, with Table 4-6 reflecting 1010 northbound riders boarding at Salinas, Castroville and Pajaro. Daily ridership would be twice this number.

Figure 4-4
Altamont Commuter Express Rail Network

Table 4-6
Year 2000 Commuter Rail Corridor Assessment

ACE Corridor	Population	Primary Destination—Great America Station					Secondary Destination—San Jose					2000 Ridership[1]	Riders per Capita
		Monthly Fare	Commuter Rail		Highways		Monthly Fare	Commuter Rail		Highways			
			Minutes	Miles	Minutes	Miles		Minutes	Miles	Minutes	Miles		
Stockton	243,800	$279	126	77	126	76.8	$279	140	80	128	79.8	100	0.0004
Lathrop/Manteca	59,700	$235	104	69	114	65.1	$235	118	72	115	68.1	242	0.004
Tracy	56,900	$191	90	58	106	54.8	$191	104	61	108	57.8	313	0.0055
Livermore (Vasco)	73,345	$147	55	32	83	28.3	$147	70	35	85	31.3	298	0.004
Pleasanton	63,654	$147	44	26	68	24.1	$147	58	29	69	27.1	341	0.005
Fremont	203,413	$103	22	13	55	16.4	$103	36	16	57	19.4	128	0.0006
											Total	**1,422**	

Caltrain Corridor	Population	Primary Destination—San Jose					Secondary Destination—Sunnyvale					2000 Ridership[2]	Riders per Capita
		Monthly Fare	Commuter Rail		Highways		Monthly Fare	Commuter Rail		Highways			
			Minutes	Miles	Minutes	Miles		Minutes	Miles	Minutes	Miles		
Salinas	143,776	$142	93	68	98	60.1	$160	103	79	107	68.3	*600*	0.004
Castroville*	~25,000	$124	84	61	93	56.5	$142	94	72	101	60.8	*125*	0.005
Pajaro (Watsonville)	47,649	$106	72	50	81	47.4	$124	82	61	87	51.0	*285*	0.006
Gilroy	41,464	$ 71	47	30	55	32.4	$ 89	57	41	63	40.6	351	0.0085
San Martin	4,600	$ 71	38	24	47	26.6	$ 89	48	35	56	34.7	83	0.018
Morgan Hill	33,556	$ 71	32	20	45	23.5	$ 89	42	31	53	31.7	383	0.0115
											Total	**1,827**	

[1] Morning westbound boardings.
[2] Morning northbound boardings. city of origin based on rider survey. Excludes Monterey and San Benito County riders boarding at Gilroy, San Martin and Morgan Hill stations.

* Includes passengers traveling from the city of Marina

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Italicized data: Estimated ridership boarding at Monterey County stations

Source: Parsons

Two additional forecasting efforts, undertaken for the preparation of the PSR were also used for this Alternatives Analysis.

The VTA methodology of utilizing mode shares based on travel distances was applied to the census estimates of county-to-county commuters and the proportion of Santa Clara County's employment base served by the Caltrain stations.

Table 4-7 reports VTA's assumptions regarding transit mode shares based on travel distances, while Table 4-8 reports trip distances and travel times between Monterey County and select Santa Clara destinations. VTA's assumptions are similar to those used in 1997 to establish the feasibility of the Wasatch Front (Salt Lake City) commuter rail service.

Estimates of Year 2000 commuters traveling from Monterey County and Watsonville to the Bay Area peninsula counties served by Caltrain are reported in Table 4-9. This table indicates that the number of commuters assumed to be serviceable by Caltrans is 50 percent of the total, based on the tabulation of commuter rail access to employment reported in Table 4-2.

Table 4-7
Transit Patronage Based on Trip Distance

Distance in Miles	Transit Percent Share
30	9.0%
40	14.0%
50	16.5%
60	18.6%
>70	20.0%

Source: Santa Clara Valley Transportation Authority

645188AA-042

Wasatch Front Commuter Rail Feasibility Study Ridership Estimation Methodology

The approach used to develop the ridership estimates for the Wasatch Front commuter rail corridor was based on an origin-destination methodology developed by Schiermeyer Consulting Services (SCS), in Orange, California. The methodology focused on identifying commuter travel patterns to major employers (employers with more than 100 employees) within a given corridor and applying a "commuter rail mode split" based on rail miles traveled.

To begin, major employers located within an approximate 2-mile radius of a proposed destination station were plotted on a regional map. The 2-mile radius was selected as it represents the distance, a surrogate for travel time, that most commuters are willing to ride a shuttle to reach their final employment destination.

Origin zip codes were next identified and assigned to specific boarding stations. The origin zip codes represent the "catchment" area of a specific boarding station and may extend much farther than the city or community in which the station is located.

All major employers were then contacted by letter with telephone follow-up. They were asked to provide a zip code listing of their employees' home destinations. After this data was collected and tabulated, mode split factors (based on rail miles traveled) were applied to the total. This subtotal was then factored to account for the lack of small employer data.

The mode split factors are based on distances (in rail miles) between the boarding and the destination stations. For trips of 15 to 19 miles, a five percent mode split was used, 10 percent for trips greater than 20 miles or more, 15 percent for trips 30 miles or more, 20 percent for trips 40 miles or more, 25 percent for trips greater than 50 miles, and 30 percent for trips greater than 80 miles.

One of the critical assumptions in the SCS methodology is the expectation that at least three round trips trains will be operated during the peak commuting periods. Experience in Southern California indicates that for commuter rail to be attractive and to meet the varied number of work shifts within a given corridor, at least three operating schedules must be provided. If service is started with less than three operating schedules, ridership can be expected to be reduced by a minimum of 33 percent.

Another critical assumption in the ridership estimation process is that adequate supporting bus service will be in place. In the best case, the commuter rail ticket, whether single ride, multiple ride, or monthly, should also include the supporting bus service at both the origin and destination end of the trip. For predominantly origin stations, such as those where commuters are boarding the train in the morning for travel to work, supporting bus service is relatively unimportant since experience has shown that most rail commuters are automobile owners and typically drove to work prior to the inauguration of rail passenger service. At destination stations, supporting bus service to ensure a quick trip from the station to the final destination, normally the place of work, is essential. Typical commuters will not sacrifice more than 10 minutes from arrival of the train at the destination station to arrival at their final destination.

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Table 4-8
Trip Distance and Travel Times from Monterey County

Egress Stations	Distance in Miles		Highway Minutes (2000)
	Rail	Highway	
San Jose			
From Pajaro	50.0	47.4	81
From Castroville	61.0	56.5	93
From Salinas	68.0	60.1	98
Average	**59.7**	**54.7**	**91**
Sunnyvale/Santa Clara			
From Pajaro	61.0	51.0	87
From Castroville	72.0	60.8	101
From Salinas	79.0	68.3	107
Average	**70.7**	**60.0**	**98**

Source: Parsons

645188AA-043

Table 4-9
Year 2000 Commuters to Caltrain Markets

Destination County	Origin		Total	Served by Caltrain	Transit Market
	Monterey County	Watsonville[1]			
Santa Clara	5,799	3,662	9,461	50%	4,730
San Mateo	378	342	720	50%	360
San Francisco	220	106	326	50%	163
Total	**6,397**	**4,109**	**10,506**		**5,253**

[1]Assumes 17% of Santa Cruz County commuters based on population share

Source: 2000 Census, Parsons

645188AA-044

Table 4-10 reports that this methodology yields an estimate of 1,028 riders boarding at Monterey County stations (AM northbound). In the afternoon, an equal number of riders would board at San Francisco Bay Area station and ride south to Monterey County. These riders would be expected to board from the stations indicated in Table 4-11.

Table 4-10
Calculation of Potential Rail Ridership (VTA Method)

Destination County	Travel Distance (miles)	Mode Share	Transit Market	Potential Riders
Santa Clara—Central	54.7	0.19	1,570	291
Santa Clara—North	60.0	0.20	3,161	632
San Mateo	80.0	0.20	360	72
San Francisco	100.0	0.20	163	33
Peninsula Total			**5,254**	**1,028**

Source: Parsons

645188AA-045

Table 4-11
Caltrain Extension Ridership Estimates by Station (VTA Method)

Egress/Access	Transit Commuters	Pajaro	Castroville	Salinas
2000: Percent Share	100%	33%	7%	60%
Santa Clara—Central	291	96	20	175
Santa Clara—North	632	209	44	379
San Mateo	72	24	5	43
San Francisco	**33**	**11**	**2**	**20**
Total	**1,028**	**340**	**72**	**617**

Source: Parsons 645188AA-046

The ACE 2000-onboard passenger survey indicated that there were 395 respondents to the survey who rode ACE trains to Santa Clara County from San Joaquin County (a survey response rate of 84 percent). The data was expanded to the actual number of passengers riding ACE (470) as shown in Table 4-12.

The survey also contained information on the destination of riders traveling from San Joaquin to Santa Clara County. Destination data is shown in Table 4-13, reported by zip code. The ACE rider survey results were expanded to the actual number of riders traveling to Santa Clara County from San Joaquin County.

Table 4-12
Altamont Commuter Express Ridership from San Joaquin County to Santa Clara County—2000 Survey

Origin Station San Joaquin County	Destination Station		Total Responses	Expanded Riders
	Great America	San Jose		
Stockton	43	17	60	71
Lathrop/Manteca	124	32	156	186
Tracy	135	44	179	213
Total	**302**	**93**	**395**	**470**

Source: ACE 2000 On Board Passenger Survey 645188AA-047

Table 4-13
Year 2000 Commuters to Caltrain Markets

Zip Code	Location	Total Jobs	Tracy	Stockton	Lathrop	Total	Expanded	Percent Share
94089	Lockheed	73,265	10			10	30	6%
95050	Santa Clara East	101,205	12		8	20	59	13%
95054	Great America	169,480	23	4	14	41	122	26%
95134	McCarthy Ranch	147,427	21	9	18	48	143	30%
94043	Shoreline	102,739		4		4	12	3%
95051	Santa Clara West	110,487		5		5	15	3%
94086	Oakmead	50,000			13	13	39	8%
95052	Alameda							
95110	De la Cruz							
94538	Alviso	7,574			8	8	24	5%
95113	Downtown San Jose	33,978			9	9	27	6%
95014	Los Altos							
	Total	**806,155**	**66**	**22**	**70**	**158**	**470**	**100%**

Source: ACE 2000 On Board Passenger Survey 645188-048

The total number of jobs within a 2-mile buffer of the ACE stations (Great America, Santa Clara, and San Jose Diridon) was previously shown in Figure 4-2. Based on the distribution of rider destinations reported by the Year 2000 survey of ACE riders, a second graphic was prepared illustrating the area effectively serviced by ACE. Figure 4-5 illustrates this expanded buffer of trip destinations for the ACE stations served in Santa Clara County. While the Santa Clara station is additionally served, no trip destination data was reported for that station by the Year 2000 rider survey. A summary of the total number of jobs surrounding the destination stations is shown in Table 4-14.

From the rider destination data presented in Table 4-13, it was observed that 56 percent of the riders are destined to job locations within approximately two miles of the ACE station. For calculating a trip rate based on transit service market, the total number of jobs accessible within a 2-mile buffer was assumed to be 100 percent. Beyond the 2-mile ring, but within the expanded buffer, 30 percent of the total jobs in the outer buffer were assumed to be accessible. The total number of jobs serviced by the ACE corridor was therefore estimated to be 242,221 as shown in Table 4-14. The ACE transit service trip rate was simply the ratio of the total number of riders to the service market (470/242221) and is equal to 0.0019403.

The total number of jobs for the Year 2000 along the Caltrain corridor was a 2-mile buffer of a station is 572,737 within Santa Clara County. Applying the transit service trip rated developed from the ACE information to this Caltrain service market (572,737× 0.0019403) results in an estimate of 1,111 transit trips to Santa Clara County from Monterey County. Trips to San Mateo and San Francisco counties would be in addition.

Summary of Ridership Forecasts

Based on the three sketch planning methods of estimating ridership, it appears that approximately 1,028 patrons could be expected to board Caltrain at stations located within Monterey County, given Year 2000 commuter patterns. An equal number of riders would board at San Francisco Bay Area stations and ride south to Monterey County. (This estimate now appears to be appropriate for the 2010 planning horizon.[5]) This number of patrons would be expected to double by 2020 to 2030, based on commuter forecasts developed by Parsons and MTC. Table 4-15 provides estimates of boarding locations within Monterey County and destination stations in the San Francisco Bay Area. Daily ridership would double the estimates of one-way, northbound, AM boardings.

Table 4-14
Year 2000 Commuters from San Joaquin County Served by Altamont Commuter Express Stations in Santa Clara County

Destination Station	Jobs in 2-Mile Buffer	Jobs in Outer Buffer	Effective Service to Outer Buffer	Discounted Jobs in Outer Buffer	Total Jobs Serviced by ACE
Great America	63,905	282,059	30%	84,618	148,523
San Jose	75,682	60,054	30%	18,016	93,698
Total	**139,587**	**342,113**		**102,634**	**242,221**

Source: Parsons

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[5] Chapter 2 of this Alternatives Analysis discusses commuting trends observed between 2000 and 2005 insofar as gateway traffic volumes and regional rail ridership. Based on this information, it appears that 2006 travel demand conditions are similar to Year 2000 travel demand conditions with respect to long distance commutes from outlying counties to Silicon Valley employers. Thus, references to Year 2000 demand and ridership projections are assumed to be now realized in 2010. Year 2020 ridership projections are assumed to be now realized in 2030.

Figure 4-5
Santa Clara County Altamont Commuter Express Station Locations and Access Buffers

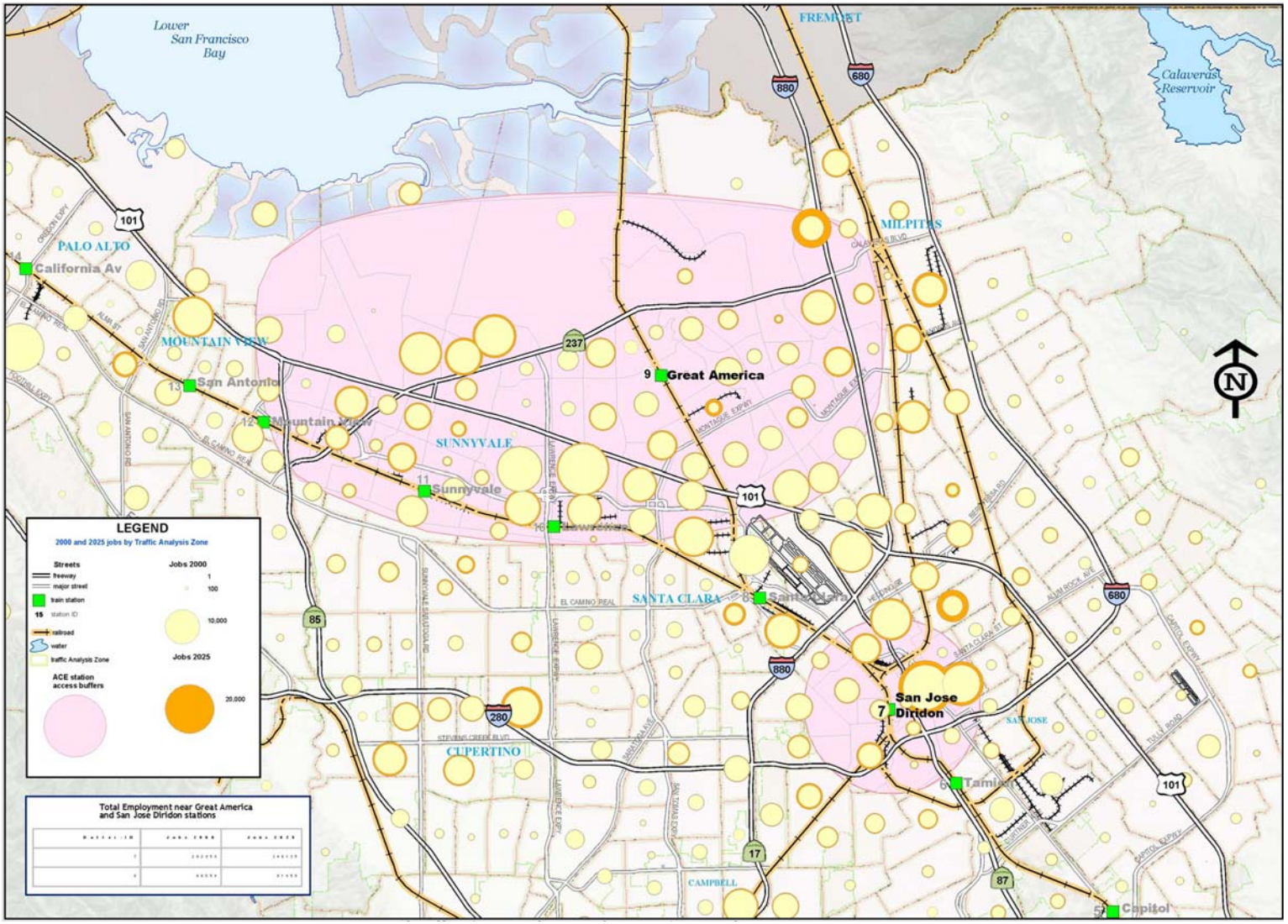

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Table 4-15
Future Ridership Forecasts from Monterey County

Egress	Transit Commuters	Access Station		
		Pajaro	Castroville	Salinas
2000: Percent Share[1]	100%	33%	7%	60%
Santa Clara—Mid	291	96	20	175
Santa Clara—North	632	209	44	379
San Mateo	72	24	5	43
San Francisco	33	11	2	20
Total	**1,028**	**340**	**71**	**617**
2006: Percent Share	100%	33%	7%	60%
Santa Clara—Mid	395	130	28	237
Santa Clara—North	854	282	60	512
San Mateo	97	32	7	58
San Francisco	44	15	3	26
Total	**1,390**	**459**	**98**	**833**
2010: Percent Share	100%	31%	8%	60%
Santa Clara—Mid	492	154	40	298
Santa Clara—North	1,064	333	86	645
San Mateo	121	38	10	73
San Francisco	54	17	4	33
Total	**1,731**	**542**	**140**	**1,049**
2020: Percent Share[2]	100%	30%	9%	61%
Santa Clara—Mid	557	167	50	340
Santa Clara—North	1,206	362	109	735
San Mateo	137	41	12	84
San Francisco	63	19	6	38
Total	**1,963**	**589**	**177**	**1,197**
2025: Percent Share	100%	30%	9%	61%
Santa Clara—Mid	579	174	52	353
Santa Clara—North	1,253	376	113	764
San Mateo	143	43	13	87
San Francisco	64	19	6	39
Total	**2,039**	**612**	**184**	**1,243**
2030: Percent Share	100%	30%	9%	61%
Santa Clara—Mid	600	180	54	366
Santa Clara—North	1,300	390	117	793
San Mateo	147	44	13	90
San Francisco	67	20	6	41
Total	**2,114**	**634**	**190**	**1,290**

Source: Parsons

645188AA-051

[1]2000 forecast applies to Year 2010 planning horizon.

[2]2020 forecast applies to Year 2030 planning horizon.

CHAPTER 5: ENVIRONMENTAL ANALYSIS

In May 2003, Parsons prepared the Initial Study for the Caltrain Extension to Monterey County project to determine if significant adverse impacts (either short-term or long-term) would result from project construction or operation. The Initial Study was prepared in accordance with the California Environmental Quality Act (CEQA) to provide preliminary environmental investigation of the proposed project.

The Initial Study determined that the proposed project may have a significant effect on the environment and that an Environmental Impact Report (EIR) would be required. Circulation of the Initial Study and Notice of Preparation identified the following issues of concern, raised by regional and local agencies and the public via written responses received regarding the Notice of Preparation.

- Purpose and need, policies, funding, alternatives
  - — Associated operating costs and capital costs, and project timeline
  - — Determination of need for the project and discussion of all alternatives considered
  - — Coastal development permit required
- Public outreach
  - — Public outreach/environmental justice outreach to minority, migrant and agricultural community
- Visual
  - — Aesthetics qualities or impacts at each station
- Air quality
  - — Control and mitigation of construction emissions
  - — Direct and indirect source emissions from operational activities
  - — Project operational and construction particulate matter (PM_{10}) emissions should be quantified
  - — Exposure of air quality impacts to sensitive receptors
- Hazards/hazardous materials
  - — Discussion and analysis of any onsite potential hazardous materials
- Hydrology/water quality
  - — Potential drainage impacts to Route 183
  - — Discussion of drainage issues and identification of measures that will avoid erosion and the discharge of polluted runoff both during and after construction
  - — Compliance with Section 404 permits
- Land use
  - — Station design in compliance with the Americans with Disabilities Act, safety, and legal requirements
  - — Discussion of transit-oriented development near stations

  - — Evaluations of the impact of the proposed project on existing Gilroy station and maintenance yard

- Noise
  - — Control and mitigation of construction noise emissions

- Traffic
  - — Show project is identified by and consistent with the Monterey County Regional Transportation Plan
  - — Consult with Caltrans District 5 staff on the scope of the traffic study area
  - — Show level of services (LOS) methodologies and calculations
  - — Discussion and analysis of existing and cumulative traffic volumes within study area, trip reduction measures, operational/queuing analysis to determine the impact of the proposed project on traffic operations on Route 183, and recommendations for any new grade crossings and the need for grade separations or crossings over or under rail lines.
  - — Provide information on proposed service schedule and frequency
  - — Exclusive use of park-and-ride lots at all three stations for train riders
  - — The potential interface between the proposed project and the proposed intercity rail service between San Francisco and Monterey at the Salinas, Pajaro Valley, and Castroville stations.

A joint National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) document Draft Environmental Assessment/Environmental Impact Report (Draft EA/EIR) was subsequently prepared. This Draft EA/EIR addressed the Caltrain Extension Alternative and No Build Alternative. The Express Bus Alternative was not addressed by this environmental analysis, as its physical facilities are a subset of the Caltrain Extension Alternative with three exceptions. The Marina/California State University–Monterey Bay (CSUMB) park-and-ride lot proposed for the Express Bus Alternative rests on land owned by the Transportation Agency for Monterey County (TAMC) at the site of the former Fort Ord quartermaster industry siding and warehouse facilities. The site is currently clear with only final grading required prior to construction of the proposed surface parking lot. The proposed Marina/CSUMB Monterey–Salinas Transit (MST) transit center also lies on TAMC-owned land adjacent to the proposed park-and-ride lot. This transit center site lies on land currently occupied by a non-historic building, which would be removed. No aspect of the building demolition, transit center construction, park-and-ride lot construction and/or operation is considered to create a significant environmental impact. Notwithstanding this assessment, a re-evaluation of the affected environment for this facility would be required if the Express Bus Alternative is selected as the locally preferred alternative (LPA).

The second aspect of the Express Bus Alternative not addressed by the Draft EA/EIR document is the proposed expansion of the Frank J. Lichtanski Monterey Bay Operations Center to accommodate the express bus fleet. This planned facility rests on land owned by MST sufficient in size to accommodate 60 express buses, in addition to the 170 vehicles for which the facility is being designed. Adoption of the Express Bus Alternative as the LPA would likely necessitate a re-evaluation of the affected environment prior to issuance of a record of decision.

The third aspect of the Express Bus Alternative not addressed by the Draft EA/EIR document is the operation of up to 50 express bus vehicles operating over highways and through local street intersections while traveling between Monterey County and the San Francisco Bay Area. This aspect

of the Express Bus Alternative is likely to be categorically exempt from CEQA regulations and eligible for a Programmatic Categorical Exclusion under NEPA. Nevertheless, re-evaluation of Section 3.14 of the affected environment (Traffic and Circulation) would likely be warranted if the Express Bus Alternative is selected as the LPA.

The Administrative Draft Environmental Assessment/Environmental Impact Report was published in November 2005 and circulated for public agency review. The document covered all aspects of the Caltrain Extension Alternative and nearly all aspects of the Express Bus Alternative as noted above. The joint NEPA/CEQA Draft EA/EIR was circulated for CEQA public review on April 26, 2006. CEQA review of this document has been completed and the Final EIR was certified on August 23, 2006. Federal Transit Administration review of the Draft EA (NEPA document) will await completion and acceptance of this Alternatives Analysis and formal LPA selection by TAMC.

To aid the reader in understanding the potential impacts posed by the Caltrain Extension Alternative and Express Bus Alternative, the affected environment of the station/park-and-ride sites and the transit vehicle operating environments are summarized below. Any inconsistency between this summary and the environmental document is unintentional, and the complete Final Environmental Impact Report, dated July 2006, should be consulted for clarification.

TRANSIT VEHICLE OPERATING ENVIRONMENTS

Figure 5-1 illustrates the fixed guideway/roadways used by the Caltrain Extension Alternative and Express Bus Alternative and the locations of transit stations. The Caltrain Extension Alternative would operate commuter rail passenger trains between Gilroy and Salinas, California over the existing Union Pacific Coast Line track. North of Gilroy and south of Salinas, passenger freight train service would be unaffected. Other than the immediate vicinity of the station sites at Gilroy, Pajaro, Castroville and Salinas, no significant trackwork construction has been identified by Union Pacific Railroad (UPRR) to accommodate the Caltrain Extension Alternative. Switch and signaling upgrades and track/tie maintenance are anticipated along the existing main line and passing siding tracks. While these railway improvements are anticipated to be eligible for a Programmatic Categorical Exclusion under NEPA, they are nevertheless addressed by the Draft EA.

Insofar as this operating environment, potential environmental impacts related to train operations appear to be confined to air and noise impacts, as construction activities will be minimal. The paragraphs below describe the operating environment for these potential impact areas. All milepost (MP) notations are based on the UPRR track inventory charts, which are the basis for the at-grade crossing inventory and numbering system maintained by the California Public Utilities Commission. Maps illustrating this operating environment are provided in Appendix D of this document.

Gilroy to Pajaro

Immediately south of the Gilroy station, the Coast Line track crosses Tenth Street (MP (milepost) 81.00) at grade. Commercial and light industry surrounds Tenth Street; there are no sensitive receptors within 400 feet of the crossing.

The line then traverses 0.7 mile of an industrial corridor before crossing Luchessa Avenue (MP 81.70) located in south Gilroy. Commercial and light industry surrounds Luchessa Avenue and there are no sensitive receptors within 400 feet of the crossing. Immediately south of Luchessa Avenue is the U.S. Highway 101 overcrossing (MP 81.88).

Figure 5-1
Fixed Guideway/Roadways with Locations of Transit Stations

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South of the U.S. Highway 101 crossing, the Coast Line passes through commercial and light industrial land uses, and then predominately agricultural lands approaching Bolsa Road (MP 83.60). Prior to reaching Bolsa Road, the track curves south after passing Carnadero Road, a crossing that is used primarily by farm machinery. Two houses are adjacent to the track on the west side. At the Bolsa Road at-grade crossing, there are three houses within 400 feet of the crossing. There are also horse corrals and a stable within 400 feet of the crossing. South of Bolsa Road, farm industry and agricultural lands surround the rail corridor leading to the Bloomfield Road (State Route 25) at-grade crossing. At this crossing (MP 84.00) there are no sensitive receptors within 400 feet.

South of Bloomfield Road (State Route 25), the Coast Line runs in a north/south orientation before turning west to traverse the Chittenden Pass. From Bloomfield Road to the U.S. Highway 101 overpass (MP 86.36), the line passes through agricultural lands. An historic freight building lies on the west side of the main line, just south of Bolsa Road. One farm house is adjacent to the railroad at the U.S. Highway 101 overcrossing. South of the U.S. Highway 101 overcrossing, the Coast Line runs parallel to the Pajaro River and passes by the Betabel Recreational Vehicle Resort located just south of the Betabel/Y Road interchange with U.S. 101. On average, there are about 50 RVs in the park, which is east of the Pajaro River, approximately one-half mile from the Coast Line track.

Just south of the Betabel Recreational Vehicle Resort, the Coast Line makes a 90 degree turn at MP 88.8 and the track runs for four miles as the main line passes through the Santa Cruz Mountains following the Pajaro River bed. Chittenden Pass, at the west end of the gorge, defines this stretch of track. Midway through this segment, Riverside Road (State Route 129) passes under the Coast Line at MP 90.93. West of the grade separated crossing, about 25 houses lie on the south side of the track, accessed by Old Chittenden Road. These houses are located more than 400 feet from the track.

The Coast Line next passes by the Granite Rock Company quarry, located on the south and east side of the railroad. The quarry is accessed by Quarry Road which connects with Aromas Road. Two houses are located more than 400 feet from the track at a private crossing on the west side of the track.

Just to the west of the quarry, the Coast Line crosses Carpenteria Road at MP 94.50. Carpenteria Road provides primary vehicular access to the unincorporated village of Aromas. To the southwest of the at-grade crossing lies the Aromas School. Classrooms are beyond 400 feet from the track; however, ball fields are within 400 feet. Houses and a church are all further than 400 feet from the track. Traveling west of the school, Kortwright Lane crosses the Coast Line track at MP 95.00 and provides access to agricultural lands located on the north side of the track.

As the Coast Line continues west through agricultural lands and to the San Juan Road at-grade crossing (MP 96.20), one house is located on the south side of the track within 400 feet of the crossing. The Coast Line then runs parallel to San Juan Road where two houses lie between the road and the track. These houses appear to be located about 300 feet from the track. About 0.6 mile west of the San Juan Road crossing, at San Miguel Canyon Road (MP 97.10), two houses on the north side of the track are located about 400 feet distant from the track.

Before the Coast Line begins to turn southward at the Watsonville Junction (MP 100.4), thirteen houses are located along Lewis Road to the south of the two main line tracks. A large, active railroad yard is adjacent to the main line tracks at this location.

Pajaro to Castroville

The Lewis Road at-grade crossing (MP 100.5) is located at the south end of the Watsonville yard. It is immediately south of the Pajaro Rail Station which is no longer used for passenger rail service. A new Caltrain/Amtrak station is proposed for this location. Adjacent to Lewis Road, on the west side of Salinas Road, one restaurant/bar and several residences are located approximately 400 feet to the northwest of the at-grade crossing. Just north of the Lewis Road crossing, there is also one house on the east side of the railroad located about 100 feet from the nearest track.

South of Lewis Road, the rail line passes through agricultural lands running parallel to Salinas Road. At MP 101.67, Elkhorn Road passes overhead, and there are no sensitive receptors within 400 feet of the track.

South of Elkhorn Road, the single track approaches the Elkhorn Slough, which extends roughly from MP 103 to MP 107. As the track travels through the slough, a boat ramp at Kirby Road (MP 104.60) with no sensitive receptors is located within 400 feet.

South of Elkhorn Slough, as the Coast Line runs south by southwest, there is an automobile salvage yard just north of Dolan Road that lies about 200 feet from the track. Dolan Road crosses over the Coast Line track at MP 107.95, but is not listed in the California Public Utilities Commission reference file of main line crossings. One house is located more than 150 feet from the track on the south side of Dolan Road.

South of Dolan Road, the Coast Line runs through agricultural lands until it reaches the State Route (SR) 156 highway overcrossing in Castroville (MP 110.00). Just north of SR 156, a commuter rail Caltrain station is proposed for construction. South of the SR 156 overcrossing, the Coast Line runs parallel to Del Monte Road through a mixed industrial/residential neighborhood. In this section of track, between SR 156 and Blackie Road, there are about 30 apartments and about 50 houses on the west side of the track between approximately 200 feet to one-third mile away from the tracks. At Blackie Road (MP 110.60), industrial land uses surround the at-grade crossing and there are no sensitive receptors within 400 feet of the crossing.

Castroville to Salinas

South of Castroville, the Coast Line runs through agricultural lands and is parallel to SR 183, which is aligned to the west of the Coast Line. At the Espinosa Road at-grade crossing (MP 111.60), three houses north of Espinosa Road and one house south of Espinosa Road are on the east side of the track and within 400 feet of the crossing.

South of Espinosa Road, San Jon Road (MP 115.00) crosses the Coast Line track at-grade from the east, connecting to SR 183. There is one house located to the west of SR 183 within 400 feet of the San Jon Road crossing.

South of San Jon Road, McFadden Road intersects with SR 183 to the west of the rail line. Graves School is located adjacent to this intersection but is greater than 150 feet from the track. Between McFadden Road and an old cemetery opposite Boronda Road, there are two houses on the west side of SR 183, both of which are greater than 150 feet from the track.

About one-half mile north of Davis Road (MP 117.23), Boronda Road dead ends about 100 feet from the track on the east side. There are no sensitive receptors within 150 feet.

Just north of the Davis Road overcrossing, there is a small housing complex with approximately ten or fewer residential units. These units are west of the track and beyond 150 feet.

South of Davis Road, the Coast Line enters the urbanized portion of Salinas. Between Davis Road and the Salinas Station (MP 118.2), land uses surrounding the rail corridor are primarily industrial, with some commercial. A small number of residential units are located on the south side of the track, adjacent to SR 183, which is known as West Market Street. These residences are located beyond 150 feet of the track. A small freight yard is also located adjacent to the Salinas Amtrak Station.

TRANSIT STATION ENVIRONMENTS

The Caltrain Extension Alternative would construct transit stations at Pajaro and Castroville, expand the existing Salinas Intermodal Transportation Center, construct a Caltrain layover facility in Salinas, and extend the Gilroy station track from Tenth Street to East Luchessa Avenue (approximately 4,600 feet). The Express Bus Alternative would construct park-and-ride facilities at Pajaro and Castroville, expand the existing Salinas Intermodal Transportation Center, construct a MST Transit Center and park-and-ride facility at Marina/CSUMB, and increase the size of the planned Frank J. Lichtanski Monterey Bay Operations Center located on the lands of the former Fort Ord in Marina.

The environmental setting of each of these sites is described below.

Pajaro Station/Park-and-Ride Site (Watsonville Junction)

Located at the site of Watsonville Junction, the Pajaro passenger station site is on the nearly level floodplain of the Pajaro River near the unincorporated community of Pajaro just southeast of the Pajaro River and the Santa Cruz County line. The city of Watsonville is just northwest of the site and across the river. The Monterey County General Plan maps this site as light industrial. Zoning is Light Industrial–Coastal Zone. The Pajaro site is a developed parcel located along the UPRR corridor in a primarily agricultural setting. There are no trees on the project site. The site has been graded and supports only weedy growth in places. The site was previously used as a railroad storage yard and train depot and small piles of wood and other debris have been observed on site. The existing station is currently in use as a railroad storage yard and for limited office use.

The Pajaro station site is located along the east side of Salinas Road, in between Salinas Road and the UPRR (see Figure 5-2). The site includes the former Pajaro passenger station (which is currently used by UPRR for yard operations) and a small toolshed and is bounded by industrial and agricultural land. The topography of the site and larger area is generally flat. To the north of the site lie undeveloped UPRR lands and yard track, with the former Smuckers processing plant in the distance. To the west lay three residential buildings and an agricultural field with row crops. To the south of the site is undeveloped railroad right-of-way and agricultural fields. To the east is undeveloped land which may have been in agricultural use at one time. An industrial building can be seen on the aerial photograph next to the field.

Within the immediate project area, Salinas Road is a four-lane arterial roadway that supports commercial, residential, and industrial/manufacturing uses. North of the project site, industrial/ manufacturing uses are located along the UPRR corridor and along Salinas Road. UPRR support structures and equipment storage areas are located within the boundary of the project site. A building that formerly served as the Southern Pacific Station is located on the proposed station location. The present stucco, one-story, Moderne-style passenger station was built in 1942 as a replacement for

Figure 5-2
Pajaro Site Location

the former Pajaro passenger station. The building is used by UPRR yard personnel and is in disrepair, with the majority of the fenestration boarded. The passenger station is currently not in public service and would be removed by the county to construct a community center/station building. The building is not historic.

Only freight operations have been continuous since the opening of the railroad line in July of 1871. Along with the passenger station, a small, adjunct metal Railroad Express Agency operations building and weathered wood-framed Southern Pacific smoke house (also known as the tool building), located to the south and to the north of the station building, respectively, are the only structures remaining on the former Southern Pacific Railroad site. Commercial and a few residential properties are located along Salinas Road in the project area; however, most of the surrounding land use to the east, south, and west is agricultural.

Castroville Station/Park-and-Ride Site

The community of Castroville is located in northern Monterey County, at the northern end of the Salinas Valley. Castroville is approximately 8 miles northeast of the city of Salinas, 5 miles west of the community of Prunedale and is located at the junction of three major tourist and commuter-serving highways (Highway 1, Highway 156 and Highway 183). Castroville is surrounded by agricultural land and is the center of the largest artichoke-growing region in the world. The community remains predominately agricultural in its land use character and industries.

The Castroville passenger station site is at the edge of an agricultural swale that lies just north of the SR 156 overcrossing of the UPRR main line on the east side of the unincorporated community of Castroville (see Figure 5-3). Agricultural land makes up most of the site and all the lands to the north, and is bordered on the south by the Caltrans SR 156 transportation corridor and the stubs of Collins Road and Benson Road. The General Plan maps this site as Agricultural Preservation–Coastal. The site is designated farmland in the North County Area Plan. The site includes the following agricultural zoning designations: Coastal Agricultural Preserve (Coastal Zone), Resource Conservation (Coastal Zone), and Farmland, 40-acre minimum.

The California Coastal Commission was established by voter initiative in 1972 (Proposition 20) and was made permanent by the legislature through adoption of the California Coastal Act of 1976. The Coastal Commission, in partnership with coastal cities and counties, plans and regulates the use of land and water in the Coastal Zone. Development activities, which are broadly defined by the Coastal Act to include (among others) construction of buildings, divisions of land and activities that change the intensity of use of land or public access to coastal waters, generally require a coastal permit from either the Coastal Commission or the local government. The policies of the Coastal Act constitute the statutory standards applied to planning and regulatory decisions made by the Commission and by local Governments, pursuant to the Coastal Act. Implementation of Coastal Act policies is accomplished primarily through the preparation of Local Coastal Programs that are required to be completed by every county and city located within the Coastal Zone. Completed Local Coastal Programs must be submitted to the Commission for review and approval. A Local Coastal Program includes a land use plan that prescribes land use classifications, types and densities of allowable development, goals and policies concerning development and zoning ordinances necessary to implement the plan. Amendments to certified land use plans and Local Coastal Programs only become effective after approval by the Commission.

The Castroville site is located within the Coastal Zone. Therefore, development within this area must be consistent with policies of the Coastal Act.

Figure 5-3
Castroville Site Location

Although the site is currently agricultural, it has been identified in the Castroville Community Plan as an opportunity area. The plan designates the site as a "Commuter Train Station Opportunity Area" and the EIR for the plan will evaluate the impacts of a train station at a programmatic level. The plan states that, "The proposed train station…would serve as a focal point for surrounding proposed residential development."

Salinas Intermodal Transportation Center and Caltrain Layover Facility

The proposed expansion of the Salinas Intermodal Transportation Center and Caltrain Layover Facility would be located on a site west of the intersection of Main Street/Salinas Avenue and Market Street, on land occupied by the existing Salinas Amtrak station and adjacent industrial and commercial properties. This area is totally urbanized within the limits of the city of Salinas (see Figure 5-4). The Salinas General Plan maps this site as General Commercial/Light Industrial. Zoning is Commercial District/Industrial Business Park or Industrial General District. The Amtrak station is a single-story structure that faces south, and is set back one short block north of Market Street. The historic Southern Pacific passenger station, currently the Salinas Amtrak station, was built in 1942 as a replacement of the earlier Salinas (circa 1901) colonnade-style passenger station.

The Amtrak station is shown on Figure 5-5. The historic freight depot building is the original Southern Pacific standard-design freight house (station), built in 1872 and is located adjacent to the Amtrak station to the west. The freight depot is a board and batten structure, which exhibits superficial modifications to the roof, west and north elevation and surface cladding. The freight station is currently not in service and the majority of the windows are boarded. The freight depot is shown in Figure 5-6. A paved, surface parking lot and industrial building are located further west, fronting the existing train tracks.

Located to the east of the Amtrak station are a historic Southern Pacific locomotive steam engine and wood caboose sited parallel to the tracks, and a single-story warehouse structure that was originally the Southern Pacific Railway Express Agency building, built in 1919, which has been appropriately renovated. The historic caboose is shown in Figure 5-7. The historic Harvey-Baker House, a Victorian-style residence that was the home of the first Mayor of Salinas, and its ancillary building, were built in 1886 and are located further east, in the northeast corner of the site.

The Harvey-Baker House was relocated from its original location to this site around 2000 in an effort by the city of Salinas to centralize tourist destinations near the Amtrak station. Another tourist destination, the National Steinbeck Center, is located southeast of the Intermodal Transportation Center site, on the southeast corner of Salinas Street and Market Street. The National Steinbeck Center draws tourists from around the globe, and at the same time is a focal point for activities in education, history and the arts with the city.

An on-site, paved surface parking lot stretches from in front of the Harvey-Baker House to the caboose, Amtrak station, and freight depot. Commercial office properties and paved surface parking located south–southwest and southeast of the Amtrak station comprise the remainder of the site. A short block of early-1900, one-story, storefront commercial buildings (El Aguila Bakery, Market and Warehouse) flank the north side of Market Street between Station Place and the proposed Lincoln Avenue extension. These buildings were originally separate establishments, but have been reconfigured over the years to allow expansion of the market and bakery. Presently, these buildings represent one expanded building. To the east fronting Station Place is a one-story, wood-framed, commercial building that used to be a grocery store, but is now a fish market and café. The Waldorf Hotel, built in 1898 as a rooming house, is a two-story, wood-framed, vernacular Victorian-style

Figure 5-4
Salinas Site Location

Figure 5-5
Salinas Amtrak Station

Figure 5-6
Salinas Historic Freight Depot

Figure 5-7
Salinas Historic Caboose

building. The original simple rectangular-plan front gable façade exhibits multiple additions and alterations as evidenced by the hipped roof extension fronting Station Place.

The National Steinbeck Center and an adjacent row of 1880 vintage Victorian two-story storefront buildings front the south side of Market Street, across from the site.

On the west side of the El Aguila building is an on-site, paved surface parking lot that fronts Market Street and is in front of the renovated Granary Building. A three-story, modern office building (remodeled Granary Building) is located between the parking lot and the freight depot. Additional industrial properties, including the American Supply Company distribution facility, are located further west of Palmetto Street.

Marina/CSUMB MST Transit Center and Park-and-Ride

The Express Bus Alternative includes constructing a transit center/park-and-ride facility in the city of Marina, in addition to a facility located in Castroville, adjacent to SR 156. The parking supply would be apportioned between the two locations and sized to be equal to the Caltrain Extension Alternative transit station at Castroville.

The proposed Marina/CSUMB Transit Center and Park-and-Ride would be located at the former Fort Ord in the city of Marina. The facility would be adjacent to Highway 1 on land formerly occupied by military quartermaster warehouses, industry siding track, and a print shop.

In 1994, the United States Army closed military operations at Fort Ord as part of the Base Realignment and Closure process of the Department of Defense after 80 years of operation as an infantry training installation.

To address these economic and environmental challenges, the Base Realignment and Closure process led to the formation of the Fort Ord Reuse Authority (FORA) as an agency of the State of California, and the approval of a Ford Ord Reuse Plan. FORA's objective is to plan for and facilitate

the reuse for civilian purposes of a major part of the lands of the former Fort Ord and in particular to finance deconstruction, provide environmental mitigation, new infrastructure and to foster economic development on the Peninsula.

At the same time, approximately 1,500 acres of the fort were conveyed to the California State University system to provide a campus for California State University Monterey Bay, and various parcels of land within Fort Ord have been conveyed by the Department of Defense via the Department of the Interior to the cities of Marina and Seaside, MST, and TAMC.

These land transfers have been subjected to the U.S. Army's process, defined as "Finding of Suitability for Transfer," to confirm its environmental status as safe for the civilian uses contemplated by the FORA. This process includes the U.S. Environmental Protection Agency and the Department of Toxic Substance Control of the State. These lands have now been conveyed as either public benefit conveyances or economic development conveyances.

Figure 5-8 illustrates the location of the proposed Marina/CSUMB MST Transit Center and Park-and-Ride. Lands designated as transit-oriented development will be jointly or cooperatively developed by Marina, TAMC and MST. The park-and-ride and MST Transit Center lie on lands conveyed to TAMC. East of First Avenue, a mixed use development (University Villages) is currently under construction. Lands identified for the park-and-ride facility are currently clear of all buildings. The land identified for the MST Transit Center is currently occupied by a non-historic structure (see Figure 5-9).

Environmental cleanup of the groundwater under the site continues by way of the Army Corps of Engineers' pump-and-treat system, which extracts groundwater from the shallow aquifer, purifies it and re-injects it underground. This process will continue for 15 or more years.

Obsolete and abandoned Army buildings remain on the TAMC, MST and city of Marina lands identified for a transit oriented development, together with above ground infrastructure and parking areas.

Deconstruction and removal of these materials, including some hazardous materials, are the responsibility of FORA. The Caltrain Extension to Monterey County Draft Environmental Impact Report does not address the Marina/CSUMB MST Transit Center and Park-and-Ride facility discussed above. This information is provided to assess environmental risks (or lack thereof) associated with the Express Bus Alternative.

Frank J. Lichtanski Monterey Bay Operations Center Expansion

As the reuse plan for the former Fort Ord unfolds, the demands on the region's transportation infrastructure and services will greatly increase. MST has outgrown both of its operating divisions in Monterey and Salinas. Fleet expansion to meet growing community needs requires upgraded maintenance, operations and administrative facilities to provide adequate support. On January 13, 2003, MST received quit claim deeds from the United States Department of the Army for three parcels of the former Fort Ord Military Reservation. A portion of this acreage will serve as the site of the Frank J. Lichtanski Monterey Bay Operations Center. Figure 5-10 illustrates the proposed site of the operations center. Approximately one-half of the site is paved and the other one-half remains undeveloped. Responsibilities for environmental cleanup are as noted above. Implementation of the Express Bus Alternative would require an expansion of the Frank J. Lichtanski Monterey Bay Operations Center or reuse of existing MST facilities in Monterey and/or Salinas. Environmental issues associated with these expansion or reuse options are expected to be minimal.

Figure 5-8
Marina/CSUMB Site Location

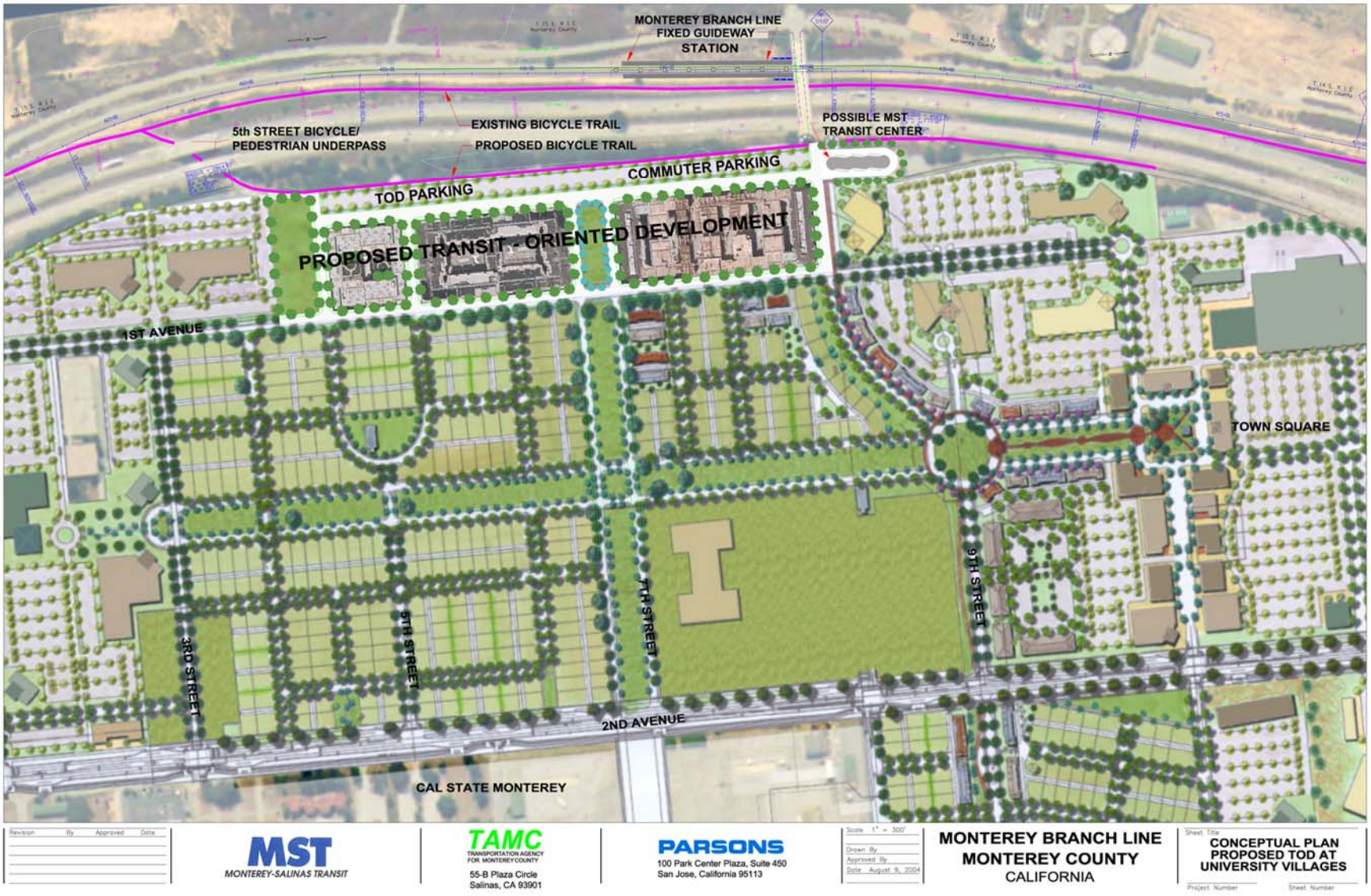

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Figure 5-9
Marina/CSUMB Monterey-Salinas Transit Center and Park-and-Ride Facility Site Map and Photographic Views

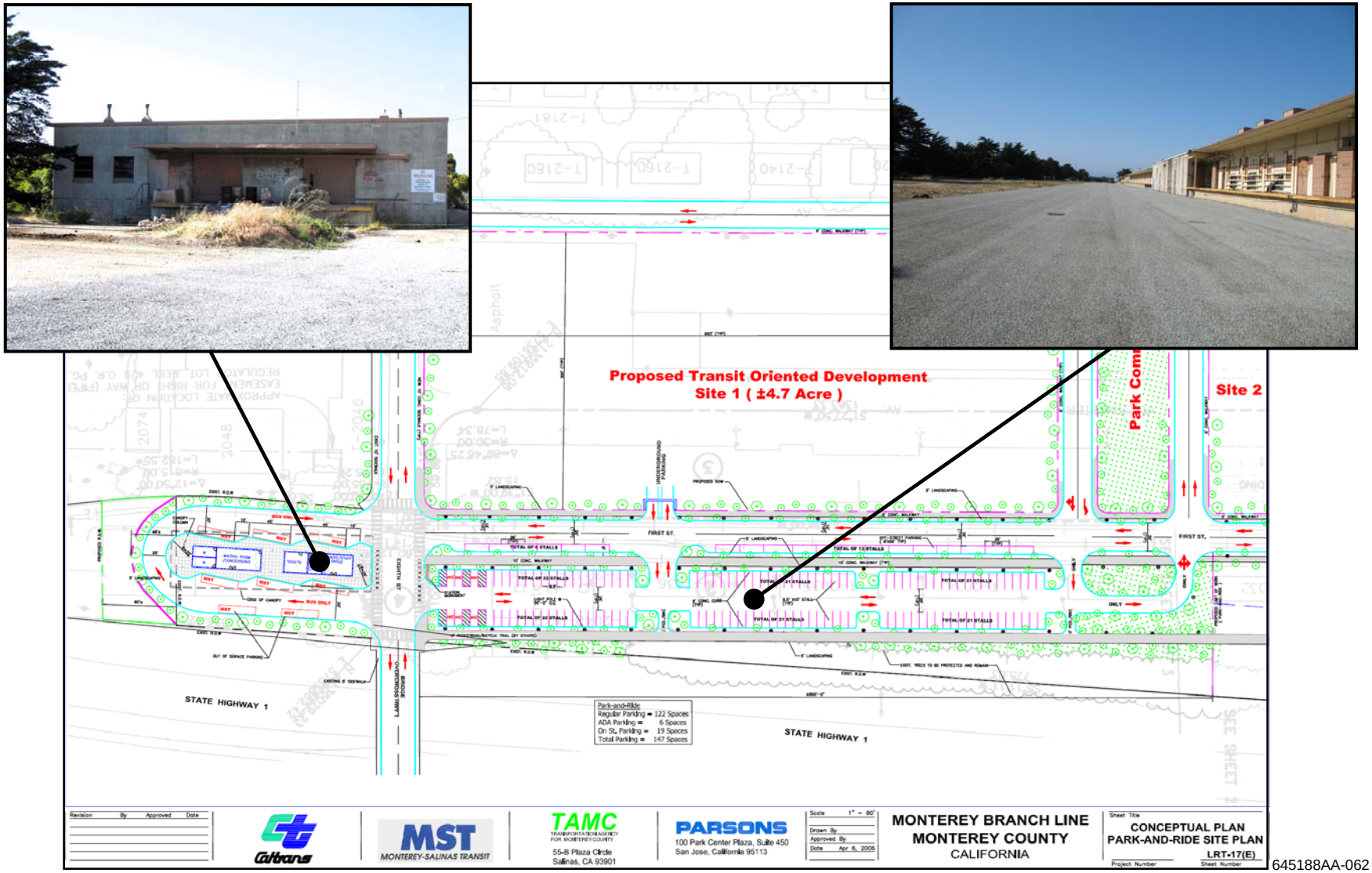

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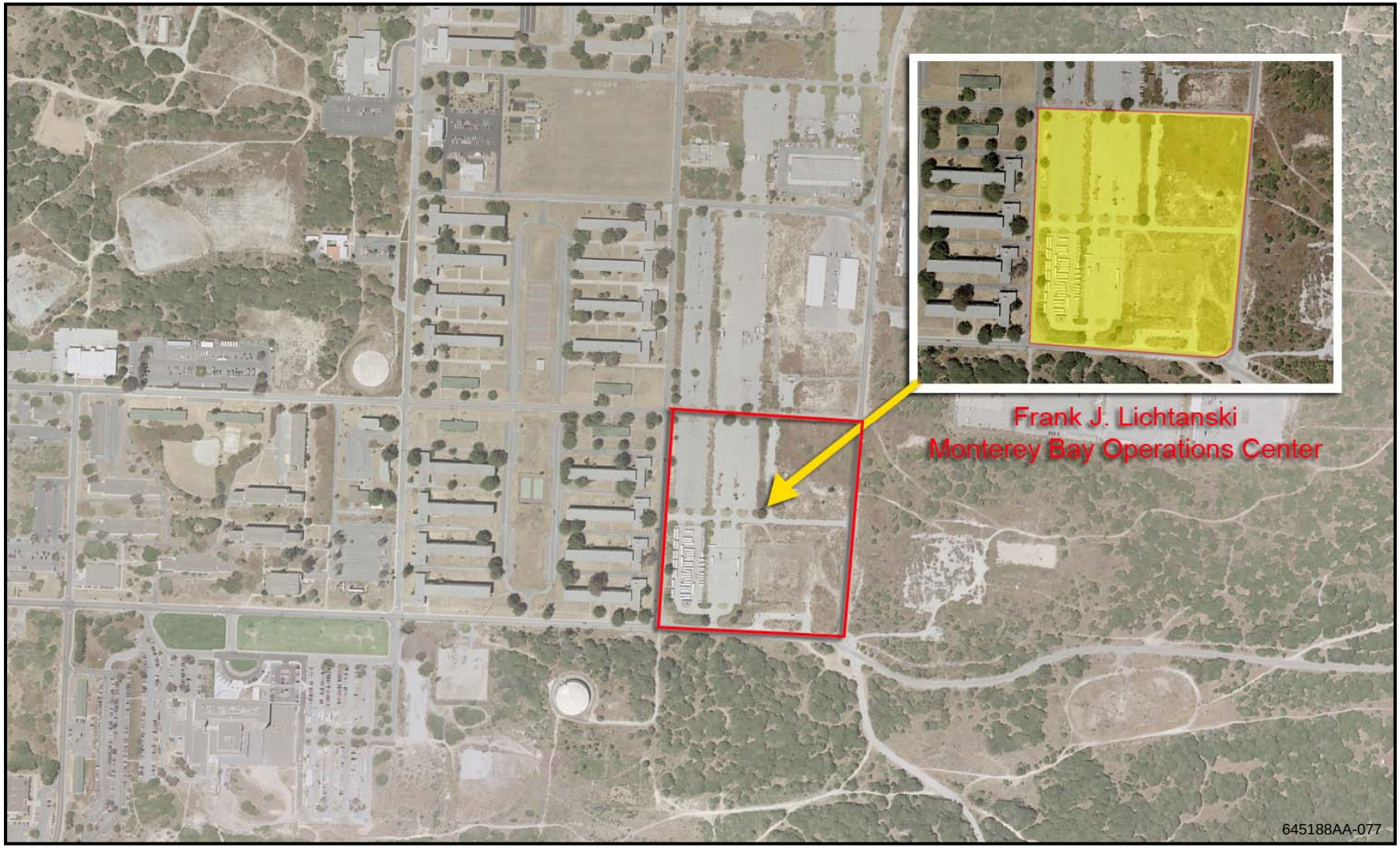
Figure 5-10
Frank J. Lichtanski Monterey Bay Operations Center Site Location



ENVIRONMENTAL JUSTICE

Under Executive Order 12898, effective February 1994, consideration of environmental justice involves an examination of income and ethnicity patterns in relation to the environmental impacts of planning and development decisions to determine whether governmental actions create unreasonable biases that disadvantage low-income and/or minority residents or provide advantages to higher-income or non-minority residents.

Racial and Ethnic Populations

Monterey County
The communities of Pajaro and Castroville are unincorporated areas of Monterey County. According to the findings of the 2000 U.S. Census, approximately 47 percent of Monterey County's population (unincorporated and incorporated areas) was identified as being of Hispanic/Latino background. Of the total 401,762 persons reported in the 2000 U.S. Census data for Monterey County, 187,969 identified themselves as of Hispanic/Latino background and the remaining 213,793 persons were identified as non-Hispanic/Latino (Monterey County, 2003).

Salinas
Based on the 2000 U.S. Census, the city's population is 64 percent Hispanic, 45 percent Caucasian, 6 percent Asian, 3 percent African-American, and 1 percent Native American.

Figure 5-11 illustrates the distribution of population and race by census block group relative to the Caltrain Extension Alternative and Express Bus Alternative station sites. The graphic illustrates relatively high concentrations of racial and ethnic populations that would be served by the proposed investments.

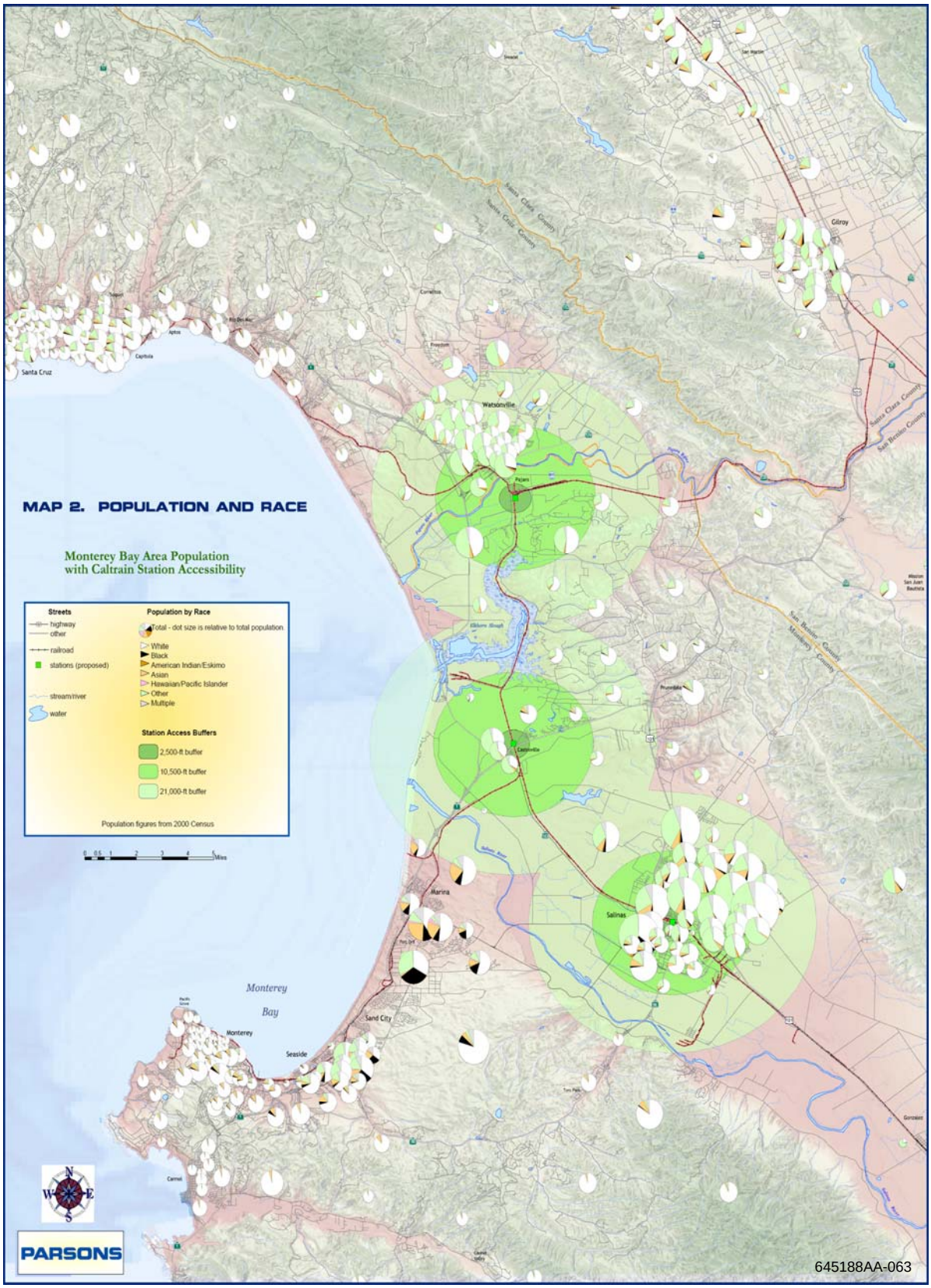
Income Levels

Monterey County
The 2000 U.S. Census data reports median income for the calendar year 1999. According to that data, the median household income for Monterey County was $48,305 annually. The information below compares Monterey County's median household income with that of neighboring counties and the state (Monterey County, 2003).

Geographic Area	1999 Median Household Income
Monterey County	$48,305
Santa Cruz County	$53,998
San Luis Obispo County	$42,428
Santa Clara County	$74,335
State of California	$47,493

Source: U.S. Census, 2000 645188AA-096

Figure 5-11
Monterey Bay Area Population and Race



At the time that the Monterey County Housing Element was prepared (2003), the 2000 U.S. Census data regarding household income according to the income categories of lower, moderate and above moderate was not yet available. Based on 1990 U.S. Census Data for the County of Monterey (unincorporated and incorporated areas), approximately 22 percent of all households could be considered very low income and another 19 percent of households as low income.

The State of California, Department of Finance, has estimated that there were 34,762 households as of January 1, 2002 in the unincorporated areas of Monterey County. The chart below demonstrates the estimated number of households by income category using the 1990 household income percentage distributions as applied to the 2002 Department of Finance household estimates.

Household Income:	Very Low	Low	Moderate	Above Moderate	Unincorporated Area Total
Number of Households	7,648	6,605	8,690	11,819	34,762
(Percentage of Total)	22%	19%	25%	34%	100%

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Information provided in the Housing Element (Monterey County, 2003) indicates that the two major industries in Monterey County are tourism and agriculture. The average annual wage in the "agricultural industry cluster" in Monterey County is approximately $18,608, which is considered very low income for households of two persons or more. Tourism related jobs also pay very low wages. Households with members who rely on employment in either or both of these fields could be expected to qualify as either very low or low income, depending on household size.

Salinas

The 1990 U.S. Census indicates that 49.85 percent of Salinas' population is of low and moderate income. The city of Salinas' economy is predominantly agriculturally oriented, with relatively low-skilled, low-paying jobs (City of Salinas, 2002).

Figure 5-12 illustrates the distribution of population by block group above and below income poverty levels according to the 2000 census. The graphic illustrates concentrations of lower income families which would be served by the proposed transit investment.

Table 5-1 summarizes the environmental impacts and mitigation measures proposed for the project. **The complete *Draft Environmental Assessment* dated April 2007 is incorporated with this Alternatives Analysis by reference.** With implementation of the proposed mitigations, the Caltrain Extension to Monterey County would pose no significant environmental impact. (Beneficial impacts of the Caltrain Extension Alternative and Express Bus Alternative are addressed in Chapter 8.)

Insofar as the Express Bus Alternative, the express bus transit vehicles would operate over existing local streets and state highways (U.S. 101, SR 1, SR 129, SR 156, and SR 183). Other than access to the park-and-ride sites themselves, bus operation over state highways would be eligible for a Programmatic Categorical Exclusion under NEPA.

Figure 5-12
Monterey Bay Area Population by Poverty Level

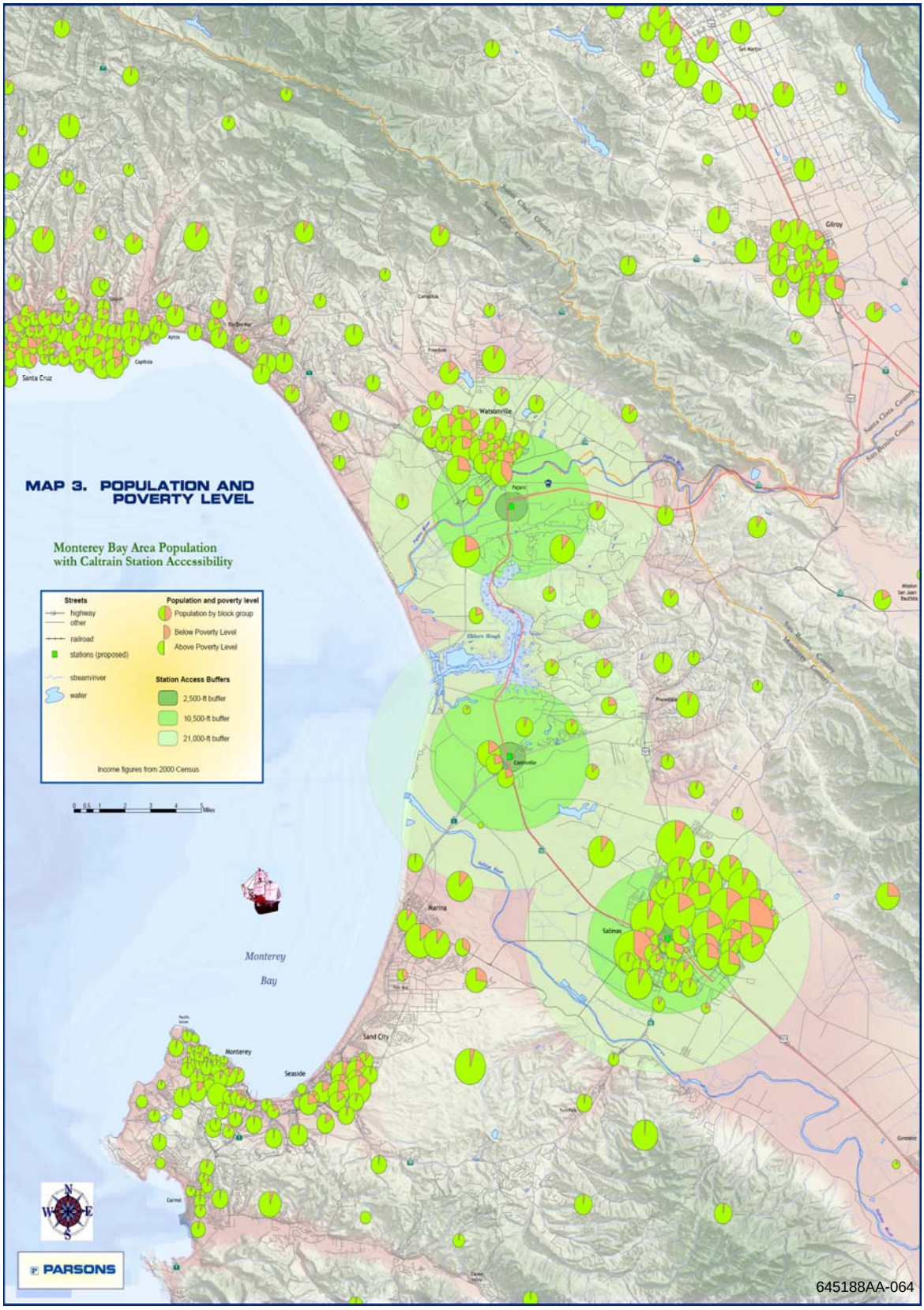

Table 5-1
Summary of Impacts and Mitigation Measures

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
3.1. Visual Resources			
VR-1: Will the Project have a substantial effect on a scenic vista?	Less than significant	No mitigation necessary.	Less than significant
VR-2. Will the Project substantially damage scenic resources along a designated scenic highway?	No impact- Alternate Castroville Site; Potentially significant - LPA	No mitigation necessary. VR-2: Conduct a final design review and analysis for Castroville Site No. 2.	No impact Less than significant
VR-3: Will the Project substantially degrade the existing visual character or quality of the site and its surroundings?	Significant	VR-3a: Incorporation of design standards to preserve historic visual character of the area. VR-3b: Design parking to be compatible with surrounding character and setting.	Less than significant
VR-4: Will the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Potentially significant	VR-4: Prepare an Exterior Lighting Design, in accordance with Monterey County General Plan Policy ER-9.8, along with implementation of Mitigation Measure VR-2, conduct a visual impact analysis of affected residential properties.	Less than significant
VR-C1: Will the project have significant cumulative aesthetic impacts?	Potentially significant	Implement Mitigation Measures VR-3a and VR-3b, as shown above.	Less than significant.
3.2. Air Quality			
AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?	Less than significant	No mitigation necessary.	Less than significant
AQ-2: Would the project violate any air quality standard or contribute substantially to an existing or project air quality violation?	Less than significant	No mitigation necessary.	Less than significant
AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?	Less than significant	No mitigation necessary.	Less than significant
AQ-4: Would the project create or expose a substantial number of people to objectional odors	No impact	No mitigation necessary.	No impact

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
AQ-C1: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	Less than significant	No mitigation necessary.	Less than significant
3.3. Biological Resources			
BIO-1: Will the project cause loss of individuals or occupied habitat of endangered, threatened, or rare fish, wildlife or plant species?	Potentially significant	BIO-1: Conduct floristically-based special-status plant surveys for Congdon's tarplant at Castroville sites and if found, redesign the project to avoid the plants or provide compensation and habitat restoration.	Less than significant
BIO-2: Will the project cause loss of individuals of CNPS List 2, 3, or 4 plant species?	Less than significant	No mitigation necessary.	Less than significant
BIO-3: Will the project cause loss of active raptor nest or other breeding sites?	Less than significant	No mitigation necessary.	Less than significant
BIO-4: Will the project cause a permanent loss of sensitive wildlife habitats?	Less than significant	No mitigation necessary.	Less than significant
BIO-5: Will the project cause a permanent loss of sensitive native plant communities?	No impact	No mitigation necessary.	No impact
BIO-6: Will the project substantially block or disrupt major fish or wildlife migration or travel corridors?	No impact	No mitigation necessary.	No impact
BIO-7: Will the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	No impact	No mitigation necessary.	No impact
BIO-8: Will the Project destroy wetlands or waters of the U.S. or waters of the State?	No impact – Alternate Castroville Site Potentially significant - LPA	No mitigation necessary. BIO-8: Avoid wetlands to the extent feasible and compensate for any wetlands that cannot be avoided.	No impact Less than significant
BIO-C1: Will the project have significant cumulative impacts to biological resources?	Less than significant	No mitigation necessary.	Less than significant
3.4. Cultural Resources			

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
CR-1: Will the project cause a substantial adverse change in the significance of historical resources as defined in Section 15064.5?	Significant.	CR-1: Adhere to the Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR Part 68).	Less than significant
CR-2: Will the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	Significant	CR-2: Protect archaeological resources.	Less than significant
CR-3: Will the project directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	No impact	No mitigation necessary.	No impact
CR-4: Will the project disturb any human remains, including those interred outside of formal cemeteries?	Significant	CR-4: Protect human remains.	Less than significant
CR-C1: Will the project have the potential to have a cumulative impact on cultural resources?	No impact	No mitigation necessary.	No impact
3.5. Geology, Soils, and Seismicity			
GEO-1: Will the Project be located within an area of unstable slope conditions?	No impact	No mitigation necessary.	No impact
GEO-2: Will the Project be located within an area of unstable slope conditions?	No impact	No mitigation necessary.	No impact
GEO-3: Will the Project be located in areas with soils and groundwater conditions that are susceptible to liquefaction during an earthquake?	Potentially significant	GEO-3: Minimize risk of liquefaction damage by applying standard design and construction practices.	Less than significant
GEO-4: Will earthquake-induced strong ground shaking damage Project facilities?	Potentially significant	GEO-4: Minimize damage due to ground shaking by applying standard structural engineering design and construction practices.	Less than significant
GEO-5: Will construction of the Project cause off-site water-related soil erosion?	No impact	No mitigation necessary.	No impact
GEO-6: Will the Project be exposed to damage due to expansive soils?	Less than significant	No mitigation necessary.	Less than significant
GEO-C1: Will the Project have the potential to have a cumulative geologic hazard impact?	Less than significant	No mitigation necessary.	Less than significant
3.6. Hazards and Hazardous Materials			
HM-1: Will the Project create a hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?	Less than significant	No mitigation necessary.	Less than significant

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
HM-2: Will the Project create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials?	Less than significant	No mitigation necessary.	Less than significant
HM-3: Will the Project release hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Less than significant	No mitigation necessary.	Less than significant
HM-4: Will the Project expose workers or the public to hazards from a known hazardous waste site as identified pursuant to Government Code Section 65962.5 (Cortese List)?	Significant	HM-1a: Update Phase I Site Assessment summarizing reported releases of hazardous materials within the project area prior to construction. HM-1b: Monitor soil and groundwater during construction for evidence of hazardous waste. HM-1c: Containerize and test suspect soil and groundwater prior to disposal. HM-1d: Inspect and Test for ACM and lead-based paint.	Less than significant
HM-C1: Will the project have the potential to have a cumulative impact on hazardous materials or hazardous waste management?	Less than significant	No mitigation necessary.	Less than significant
3.7. Hydrology and Water Quality			
HYDRO-1: Will the Project violate any surface water or groundwater quality standards or waste discharge requirements or cause a substantial degradation of surface runoff quality?	Less than significant	No mitigation necessary.	Less than significant
HYDRO-2: Will the Project cause water-related erosion or siltation on- or off-site?	Less than significant	No mitigation necessary.	Less than significant
HYDRO-3: Will the Project cause increased runoff or flooding?	Less than significant	No mitigation necessary.	Less than significant
HYDRO-4: Will the Project create or contribute stormwater that would exceed the capacity of existing or planned stormwater drainage systems?	Less than significant	No mitigation necessary.	Less than significant
HYDRO-5: Will the Project deplete groundwater supplies or interfere with groundwater recharge?	Less than significant	No mitigation necessary.	Less than significant

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
HYDRO-6: Will the Project imperil people or structures by causing flooding, including inundation due to levee or dam failure?	Less than significant	No mitigation necessary.	Less than significant
HYDRO-7: Will the Project place structures or housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	Less than significant	No mitigation necessary.	Less than significant
HYDRO-C1: Will the project have significant cumulative impacts to hydrology and water quality?	Less than significant	No mitigation necessary.	Less than significant
3.8. Land Use and Planning			
LU-1 Will the Project be inconsistent with County or City zoning ordinances?	Less than significant-Alternative Castroville Site Potentially significant-LPA	No mitigation necessary. LU-1: Rezone properties	Less than significant Less than significant
LU-2: Will the Project increase potential for conflict as a result of incompatible land uses?	Less than significant-Alternative Castroville Site Potentially significant-LPA	No mitigation necessary. LU-2: Design project to be compatible with surrounding land use.	Less than significant Less than significant
LU-C1: Will the Project result in cumulative impacts on land uses?	Less than significant	No mitigation necessary.	Less than significant
3.9. Agriculture			
AG-1: Will the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use?	No impact – Alternate Castroville Site Less than significant-LPA	No mitigation necessary. AG-1: Purchase of development rights, conservation easements or transfer of development rights.	No impact Less than significant
AG-2: Will the Project conflict with existing zoning for agricultural use or a Williamson Act?	No impact – Alternate Castroville Site Significant-LPA	No mitigation necessary. AG-2: Rezoning of Castroville Passenger Station Site.	No impact Less than significant
AG-3: Will the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use?	Less than significant	No mitigation necessary.	Less than significant

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
AG-C1: Will the project have the potential to have a cumulative impact on agriculture?	Less than significant	No mitigation necessary.	Less than significant
3.10. Noise			
NO-1: Would the Project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of lead or responsible agencies?	Significant	NO-1: Utilize special horn designs, establish quiet zones, or install residential sound insulation.	Less than significant
NO-2: Would the Project expose persons to or generate excessive groundborne vibration or groundborne noise levels?	No impact	No mitigation necessary.	No impact.
NO-3: Would the Project cause a substantial permanent increase in ambient noise levels in the project vicinity?	Less than significant	NO-1: Utilize special horn designs or establish quiet zones.	Less than significant
NO-4: Would the Project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity?	Significant	NO-4: Implement Best Management Practices during construction of the project.	Less than significant
NO-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the project area to excessive noise levels?	No impact	No mitigation necessary.	No impact
NO-6: For a project within the vicinity of a private airstrip, would the Project expose people residing or working in the project area to excessive noise levels?	No impact	No mitigation necessary.	No impact
NO-1c: Will the Project have the potential to generate cumulative noise impacts in excess of standards or cause a substantial increase in noise levels above existing levels in the project vicinity?	Potentially significant	Regionally, noise impacts from increased service on the rail lines could be minimized by implementation of additional noise abatement methods such as limited use of train horns, as described above in Mitigation Measure NO-1.	Less than significant.
3.11. Socioeconomics			
PH-1: Would the Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	Significant	PH-1A: Implement Monterey County and City of Salinas Growth Management Policies PH-1B: Implement TAMC Transportation-Related Principles	Less than significant

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
PH-2: Would the Project displace substantial numbers of existing housing or people, necessitating the construction of replacement housing elsewhere?	Potentially significant	PH-2: Implement procedures for residential acquisition and relocation consistent with City of Salinas Redevelopment Agency requirements and the federal Uniform Act (49 CFR 24C Section 24.205).	Less than significant
PH-3: Would the Project displace substantial numbers of existing businesses or jobs, requiring relocation of businesses or employees elsewhere?	Potentially significant	PH-3: Implement procedures for business property acquisition and relocation consistent with City and County requirements and the federal Uniform Act (49 CFR 24C Section 24.205).	Less than significant
PH-1c: Would the Project have the potential to have a cumulative impact on population, housing, or socio-economics?	Less than significant	No mitigation is necessary.	Less than significant
3.12. Public Services, Utilities, and Service Systems			
PSU-1: Will the Project increase demand for police, fire, water, wastewater treatment and disposal, or solid waste removal to such a degree that accepted service standards are not maintained?	Less than significant	No mitigation is necessary.	Less than significant
PSU-2: Will project construction disrupt police, fire, water, wastewater treatment and disposal, or solid waste removal to such a degree that accepted service standards are not maintained?	Less than significant	No mitigation is necessary.	Less than significant
PSU-3: Will the project construction and/or permanent operation result in greater demand for school, library, and park facilities and services?	Less than significant	No mitigation is necessary.	Less than significant
PSU-C1: Will the project have significant cumulative impacts to public services and utility resources?	Less than significant	No mitigation is necessary.	Less than significant
3.13. Parks and Recreation			
PR-1: Would the project increase the use of existing recreational facilities, including neighborhood and regional parks, such that substantial physical deterioration of the existing facilities would occur or be accelerated?	Less than significant	No mitigation is necessary.	Less than significant
PR-2. Would the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	No impact	No mitigation is necessary.	No impact

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
PR-3: Would the project preclude or substantially limit the use of existing park and recreational facilities by the general public?	Potentially significant	PR-3: Prepare a Traffic Management Plan to Accommodate Parking around the Harvey-Baker House during Project Construction.	Less than significant
PR-C-1. Would the proposed project result in cumulative impacts to parkland and recreation?	Less than significant	No mitigation is necessary.	Less than significant
3.14. Traffic			
TC-1: Will Project cause the 5-year or 10-year (cumulative) no project LOS at an analysis location—to worsen from LOS C or better to LOS D or worse?	Significant	TC-1: Install traffic signal at Salinas Road and Railroad Avenue in Pajaro.	Less than significant
TC-2: Will the Project cause the existing or cumulative no project LOS at an analysis location within the City of Salinas or unincorporated Monterey County to worsen from LOS D or better to LOS E or worse?	Significant	TC-1: Install traffic signal at Salinas Road and Railroad Avenue in Pajaro.	Less than significant
TC-3: Will the Project worsen already (or projected) unacceptable operations at an analysis location?	Significant	TC-3 Install traffic signal at Salinas Road and Railroad Avenue in Pajaro; reroute MST bus routes as needed to avoid congestion at Salinas Road and West Market Street.	Less than significant; LPA Significant and Unavoidable; Alternative Castoville Site.
TC-4: Will the Project create an inconsistency with policies concerning roadway systems set forth in the General Plans for the City of Salinas and Monterey County?	No impact	No mitigation necessary.	No impact
TC-5: Will the Project create the demand for public transit service above that which is provided, or planned to be provided?	Less than significant	No mitigation necessary.	Less than significant
TC-6: Will the Project disrupt or interfere with existing or planned public transit services or facilities?	No impact	No mitigation necessary.	No impact
TC-7: Will the Project create an inconsistency with policies concerning transit systems set forth in the General Plans for the City of Salinas and Monterey County?	No impact	No mitigation necessary.	No impact
TC-8: Will the Project disrupt or interfere with existing or planned bicycle or pedestrian facilities?	No impact	No mitigation necessary.	No impact
TC-9: Will the Project create an unmet need for bicycle or pedestrian facilities?	Less than significant	No mitigation necessary.	Less than significant

Impact	Pre-mitigation Significance	Mitigation Measure	Significance after Mitigation
TC-10: Will the Project create an inconsistency with policies related to bicycle or pedestrian systems in the General Plans of the City of Salinas and Monterey County?	No impact	No mitigation necessary.	No impact
TC-C1: Will the Project have the potential to have a cumulative impact on traffic and circulation?	Less than significant	No mitigation necessary.	Less than significant
TC-C2: Will the Project have the potential to have a cumulative impact on active highway/rail at-grade crossings?	Less than significant	No mitigation necessary.	Less than significant
TC-C3: Will the Project have the potential to have a cumulative impact on freight train operations?	Potentially significant	TC-C3 Conduct 4-train Rail Capacity Analysis. Work with Union Pacific to identify capital investments in track, switch, and signaling required to accommodate both commuter and freight trains. Include these investments as part of the Locally Preferred Alternative.	Less than significant.

CHAPTER 6: ESTIMATION OF CAPITAL, OPERATING AND MAINTENANCE COSTS, AND REVENUE

CALTRAIN EXTENSION ALTERNATIVE CAPITAL COST ESTIMATES

The Caltrain Extension Alternative includes seven major transit improvement components:

- Upgrading trackage and signal systems on the Union Pacific Railroad (UPRR) Coast main line between Gilroy and Salinas
- Extending the Gilroy station track 0.9 miles and connecting to the Coast main line track
- Constructing a Caltrain station at Pajaro/Watsonville
- Constructing a Caltrain station at Castroville
- Expanding the existing Salinas Intermodal Transportation Center (ITC) to accommodate Caltrain and intercity buses; providing additional parking; and upgrading the Amtrak platform to comply with Americans with Disabilities Act accessibility standards
- Expanding the Salinas ITC to accommodate an expanded downtown Salinas transit center for Monterey-Salinas Transit (MST) local buses
- Constructing a layover facility in Salinas for Caltrain trainsets.

A description of this alternative and these investments is summarized in Chapter 3. **A more thorough definition of the Caltrain Extension Alternative physical facilities, design basis and conceptual design drawings are provided in the *Caltrain Extension to Monterey County Project Study Report*, dated February 21, 2006, which is incorporated with this Alternatives Analysis by reference.**

The estimated project cost of the Caltrain Extension Alternative, in FY 2007 dollars, is $102 million. This estimate includes an allowance for unallocated contingencies, but does not include escalation and is subject to change. Risk factors that may affect project costs include the cost of right-of-way acquisition in Salinas; the costs of upgrading trackage and signal systems on the UPRR main line between Gilroy and Salinas; and the potential/eventual cost of accommodating diesel rail to electric rail cross platform transfers at the San Jose Diridon station. Table 6-1 lists the estimated project costs by component (location) and work type expressed in FY 2007 and year of expenditure (YOE) dollars. The cost indicated for the UPRR main line is an allowance and is subject to change.

The estimated project cost, escalated to midpoint of right-of-way acquisition, design and construction phase indirect (soft) costs, and construction is $109 million. This escalated cost assumes a three percent per year increase in construction and other costs.

These costs include an allowance of $8.8 million for the acquisition of rolling stock. This rolling stock is not required to accommodate peak passenger loads. The capital cost of this equipment is included as a risk element for comparison with the Express Bus Alternative.

Table 6-1
Caltrain Extension Alternative Capital Cost Estimate ($1,000 FY 2007)

Work Description	UPRR Main Line	Gilroy Yard	Pajaro Station	Castroville Station	Salinas Station	Salinas Bus	Salinas Yard	2007 Totals	YOE Totals
Parking and access	—	—	$ 1,805	$ 2,085	$ 2,244	$1,526	—	$7,660	$8,426
Pedestrian structures	—	—	—	900	—	—	—	900	990
Platform and station amenities	—	—	1,602	1,953	2,555	1,298	—	7,408	8,149
Track and signal improvements	5,000	2,088	3,937	3,251	1,103	—	3,718	19,097	20,099
Specialty items	—	—	179	—	227	—	202	608	669
Mobilization	—	209	753	729	613	282	392	2,978	3,276
Contingencies	—	804	2,897	3,122	2,360	1,087	1,509	11,779	12,957
Construction Total	$5,000	$3,101	$11,173	$12,040	$ 9,102	$4,193	$5,821	$50,430	$54,566
Soft cost	—	1,023	3,687	3,973	3,004	1,384	1,921	14,992	15,756
Right-of-way	—	—	2,170	430	7,750	4,250	4,000	18,600	19,346
Subtotal	$5,000	$4,124	$17,030	$16,443	$19,856	$9,827	$11,742	$84,022	$89,668
Vehicles (risk element)	—	—	—	—	—	—	—	8,800	9,616
Unallocated contingency								9,282	9,871
Total	**$5,000**	**$4,124**	**$17,030**	**$16,443**	**$19,856**	**$9,827**	**$11,742**	**$102,104**	**$109,155**

Table 6-2 provides additional capital detail, summarized by FTA cost code. Totals vary slightly from those tallied in Table 6-1 due to rounding.

Table 6-3 provides an estimate of annualized capital costs. These costs are based on a 7 percent discount rate and Federal Transit Administration (FTA) assumptions regarding the number of useful years of each component.

Detailed cost estimates and methodologies are provided in Appendix E of this document.

Table 6-2
Main Worksheet—Build Alternative

MAIN WORKSHEET-BUILD ALTERNATIVE (Rev.9, Feb. 6, 2007)

Transportation Agency for Monterey County — Today's Date: 3/6/07
Caltrain Extension to Monterey County — Yr of Base Year $: 2007
Conceptual Engineering — Yr of Revenue Ops: 2011

	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	Base Year Dollars Unit Cost (X000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (X000)
10 GUIDEWAY & TRACK ELEMENTS (route miles)	**0.00**	15,352,424	0	**15,352,424**		**30%**	**15%**	**16,613,134**
10.01 Guideway: At-grade exclusive right-of-way				0				0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)				0				0
10.03 Guideway: At-grade in mixed traffic				0				0
10.04 Guideway: Aerial structure				0				0
10.05 Guideway: Built-up fill				0				0
10.06 Guideway: Underground cut & cover				0				0
10.07 Guideway: Underground tunnel				0				0
10.08 Guideway: Retained cut or fill				0				0
10.09 Track: Direct fixation				0				0
10.10 Track: Embedded				0				0
10.11 Track: Ballasted		10,464,317		10,464,317				11,323,625
10.12 Track: Special (switches, turnouts)		4,888,107		4,888,107				5,289,509
10.13 Track: Vibration and noise dampening				0				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	**0**	6,985,896	0	**6,985,896**		**14%**	**7%**	**7,559,564**
20.01 At-grade station, stop, shelter, mall, terminal, platform		6,985,896		6,985,896				7,559,564
20.02 Aerial station, stop, shelter, mall, terminal, platform				0				0
20.03 Underground station, stop, shelter, mall, terminal, platform				0				0
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.				0				0
20.05 Joint development				0				0
20.06 Automobile parking multi-story structure				0				0
20.07 Elevators, escalators				0				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	0.00	3,885,341	0	**3,885,341**		**8%**	**4%**	**4,204,397**
30.01 Administration Building: Office, sales, storage, revenue counting		675,000		675,000				730,430
30.02 Light Maintenance Facility				0				0
30.03 Heavy Maintenance Facility				0				0
30.04 Storage or Maintenance of Way Building				0				0
30.05 Yard and Yard Track		3,210,341		3,210,341				3,473,967
40 SITEWORK & SPECIAL CONDITIONS	0.00	18,855,777	0	**18,855,777**		**37%**	**18%**	**20,404,175**
40.01 Demolition, Clearing, Earthwork		3,457,588		3,457,588				3,741,518
40.02 Site Utilities, Utility Relocation				0				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		207,495		207,495				224,534
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks				0				0
40.05 Site structures including retaining walls, sound walls		511,988		511,988				554,031
40.06 Pedestrian / bike access and accommodation, landscaping		2,571,660		2,571,660				2,782,839
40.07 Automobile, bus, van accessways including roads, parking lots		7,474,945		7,474,945				8,088,772
40.08 Temporary Facilities and other indirect costs during construction		4,632,102		4,632,102				5,012,481
50 SYSTEMS	0.00	5,346,000	0	**5,346,000**		**11%**	**5%**	**5,785,003**
50.01 Train control and signals		4,725,000		4,725,000				5,113,008
50.02 Traffic signals and crossing protection		135,000		135,000				146,086
50.03 Traction power supply: substations				0				0
50.04 Traction power distribution: catenary and third rail				0				0
50.05 Communications				0				0
50.06 Fare collection system and equipment		486,000		486,000				525,909
50.07 Central Control				0				0
Construction Subtotal (10 - 50)	0.00	50,425,437	0	**50,425,437**		**100%**	**49%**	**54,566,273**
60 ROW, LAND, EXISTING IMPROVEMENTS	0.00	18,600,000	0	**18,600,000**			**18%**	**19,345,740**
60.01 Purchase or lease of real estate		18,600,000		18,600,000				19,345,740
60.02 Relocation of existing households and businesses				0				0
70 VEHICLES (number)	**4**	8,800,000	0	**8,800,000**	**$ 2,200,000**		**9%**	**9,615,998**
70.01 Light Rail				0				0
70.02 Heavy Rail				0				0
70.03 Commuter Rail	4	8,800,000		8,800,000	$ 2,200,000			9,615,998
70.04 Bus				0				0
70.05 Other				0				0
70.06 Non-revenue vehicles				0				0
70.07 Spare parts				0				0
80 PROFESSIONAL SERVICES	0.00	14,991,013	0	**14,991,013**		**30%**	**15%**	**15,756,439**
80.01 Preliminary Engineering		1,362,797		1,362,797				1,432,380
80.02 Final Design		3,179,860		3,179,860				3,342,220
80.03 Project Management for Design and Construction		3,634,371		3,634,371				3,819,938
80.04 Construction Administration & Management		4,542,657		4,542,657				4,774,601
80.05 Insurance				0				0
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		2,271,328		2,271,328				2,387,300
80.07 Surveys, Testing, Investigation, Inspection				0				0
80.08 Start up				0				0
Subtotal (10 - 80)	0.00	92,816,450	0	**92,816,450**			**91%**	**99,284,450**
90 UNALLOCATED CONTINGENCY				**9,282,000**			**9%**	**9,871,407**
Subtotal (10 - 90)	0.00			**102,098,450**			**100%**	**109,155,857**
100 FINANCE CHARGES				**0**			**0%**	**0**
Total Project Cost (10 - 100)	0.00			**102,098,450**			**100%**	**109,155,857**

Allocated Contingency as % of Base Yr Dollars w/o Contingency	0.00%	
Unallocated Contingency as % of Base Yr Dollars w/o Contingency	10.00%	
Total Contingency as % of Base Yr Dollars w/o Contingency	10.00%	
Unallocated Contingency as % of Subtotal (10 - 80)	10.00%	
YOE Construction Cost per Mile (X000)		#DIV/0!
YOE Total Project Cost per Mile Not Including Vehicles (X000)		#DIV/0!
YOE Total Project Cost per Mile (X000)		#DIV/0!

Enter finance charges on Inflation Worksheet.

Table 6-3
Annualized Cost—Build Alternative

A N N U A L I Z E D C O S T - B U I L D A L T E R N A T I V E (Rev.9, Feb. 6, 2007)

Transportation Agency for Monterey County — Today's Date **3/6/07**

Caltrain Extension to Monterey County — Yr of Base Year $ 2007

Conceptual Engineering — Yr of Revenue Ops 2011

	Quantity	Total Base Year Dollars (X000)	Cat. 80 Prof. Svc. spread proportionally over Cats. 10 - 50 (X000)	Spread Cat. 90 Unalloc. Cont. according to perceived risks (X000)	Revised Total Base Year Dollars (X000)	Years of Useful Life	Annualization Factor (based on 7% rate) [.07/1 - (1.07)^-no. yrs]	**Annualized Cost (X000)**
10 GUIDEWAY & TRACK ELEMENTS (route miles)	**0.00**	**15,352,424**	**4,564,133**	**5,000,000**	**24,916,556**			**1,945,663**
10.01 Guideway: At-grade exclusive right-of-way	0.00	0	0		0	125	0.0700	0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	0.00	0	0		0	30	0.0806	0
10.03 Guideway: At-grade in mixed traffic	0.00	0	0		0	20	0.0944	0
10.04 Guideway: Aerial structure	0.00	0	0		0	80	0.0703	0
10.05 Guideway: Built-up fill	0.00	0	0		0	80	0.0703	0
10.06 Guideway: Underground cut & cover	0.00	0	0		0	125	0.0700	0
10.07 Guideway: Underground tunnel	0.00	0	0		0	125	0.0700	0
10.08 Guideway: Retained cut or fill	0.00	0	0		0	125	0.0700	0
10.09 Track: Direct fixation		0	0		0	30	0.0806	0
10.10 Track: Embedded		0	0		0	20	0.0944	0
10.11 Track: Ballasted		10,464,317	3,110,944	5,000,000	18,575,261	35	0.0772	1,434,641
10.12 Track: Special (switches, turnouts)		4,888,107	1,453,189		6,341,296	30	0.0806	511,022
10.13 Track: Vibration and noise dampening		0	0		0	30	0.0806	0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	**0**	**6,985,896**	**2,076,842**	**1,000,000**	**10,062,738**			**710,626**
20.01 At-grade station, stop, shelter, mall, terminal, platform	0	6,985,896	2,076,842	1,000,000	10,062,738	70	0.0706	710,626
20.02 Aerial station, stop, shelter, mall, terminal, platform	0	0	0		0	70	0.0706	0
20.03 Underground station, stop, shelter, mall, terminal, platform	0	0	0		0	125	0.0700	0
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	0	0	0		0	70	0.0706	0
20.05 Joint development		0	0		0	70	0.0706	0
20.06 Automobile parking multi-story structure		0	0		0	50	0.0725	0
20.07 Elevators, escalators		0	0		0	30	0.0806	0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS		**3,885,341**	**1,155,076**	**0**	**5,040,416**			**356,289**
30.01 Administration Building: Office, sales, storage, revenue counting		675,000	200,671		875,671	50	0.0725	63,451
30.02 Light Maintenance Facility		0	0		0	50	0.0725	0
30.03 Heavy Maintenance Facility		0	0		0	50	0.0725	0
30.04 Storage or Maintenance of Way Building		0	0		0	50	0.0725	0
30.05 Yard and Yard Track		3,210,341	954,404		4,164,745	80	0.0703	292,838
40 SITEWORK & SPECIAL CONDITIONS		**18,855,777**	**5,605,647**	**500,000**	**24,961,424**			**2,078,182**
40.01 Demolition, Clearing, Earthwork		3,457,588	1,027,909		4,485,496	125	0.0700	314,051
40.02 Site Utilities, Utility Relocation		0	0		0	125	0.0700	0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		207,495	61,686		269,181	125	0.0700	18,847
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks		0	0		0	125	0.0700	0
40.05 Site structures including retaining walls, sound walls		511,988	152,209		664,197	80	0.0703	46,702
40.06 Pedestrian / bike access and accommodation, landscaping		2,571,660	764,530	500,000	3,836,190	20	0.0944	362,109
40.07 Automobile, bus, van accessways including roads, parking lots		7,474,945	2,222,231		9,697,176	20	0.0944	915,345
40.08 Temporary Facilities and other indirect costs during construction		4,632,102	1,377,081		6,009,183	100	0.0701	421,128
50 SYSTEMS		**5,346,000**	**1,589,316**	**0**	**6,935,316**			**562,186**
50.01 Train control and signals		4,725,000	1,404,699		6,129,699	30	0.0806	493,970
50.02 Traffic signals and crossing protection		135,000	40,134		175,134	30	0.0806	14,113
50.03 Traction power supply: substations		0	0		0	50	0.0725	0
50.04 Traction power distribution: catenary and third rail		0	0		0	30	0.0806	0
50.05 Communications		0	0		0	20	0.0944	0
50.06 Fare collection system and equipment		486,000	144,483		630,483	25	0.0858	54,102
50.07 Central Control		0	0		0	30	0.0806	0
Construction Subtotal (10 - 50)		**50,425,437**	**14,991,013**	**6,500,000**	**71,916,450**			**5,652,946**
60 ROW, LAND, EXISTING IMPROVEMENTS		**18,600,000**		**2,782,000**	**21,382,000**			**1,497,058**
60.01 Purchase or lease of real estate		18,600,000		2,782,000	21,382,000	125	0.0700	1,497,058
60.02 Relocation of existing households and businesses		0			0	125	0.0700	0
70 VEHICLES (number)	**4**	**8,800,000**		**0**	**8,800,000**			**755,133**
70.01 Light Rail	0	0			0	25	0.0858	0
70.02 Heavy Rail	0	0			0	25	0.0858	0
70.03 Commuter Rail	4	8,800,000			8,800,000	25	0.0858	755,133
70.04 Bus	0	0			0	12	0.1259	0
70.05 Other	0	0			0	12	0.1259	0
70.06 Non-revenue vehicles	0	0			0	12	0.1259	0
70.07 Spare parts	0	0			0	12	0.1259	0
80 PROFESSIONAL SERVICES		**14,991,013**						
80.01 Preliminary Engineering		1,362,797						
80.02 Final Design		3,179,860						
80.03 Project Management for Design and Construction		3,634,371						
80.04 Construction Administration & Management		4,542,657						
80.05 Insurance		0						
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		2,271,328						
80.07 Surveys, Testing, Investigation, Inspection		0						
80.08 Start up		0						
Subtotal (10 - 80)		**92,816,450**						
90 UNALLOCATED CONTINGENCY		**9,282,000**						
Subtotal (10 - 90)		**102,098,450**	14,991,013	9,282,000	#########			**7,905,137**

The range for buses is 12 to 18 years. Provide supporting documentation for an estimated useful life of more than 12 years.

EXPRESS BUS ALTERNATIVE CAPITAL COSTS

Similar to the Caltrain Extension Alternative, the Express Bus Alternative has seven major transit improvement components:

- Constructing a park-and-ride facility at Pajaro/Watsonville
- Constructing a park-and-ride facility at Castroville
- Expanding the existing Salinas ITC to accommodate intercity buses and upgrading the Amtrak platform to comply with Americans with Disabilities Act accessibility standards
- Expanding the Salinas ITC to accommodate an expanded downtown Salinas transit center for Monterey-Salinas Transit local buses
- Providing additional parking at the Salinas ITC to accommodate Express Bus patrons
- Constructing a MST Transit Center in Marina/California State University–Monterey Bay
- Constructing a park-and-ride facility at Marina/California State University–Monterey Bay, adjacent to the MST Transit Center.

A description of this alternative and these investments is summarized in Chapter 3.

The estimated project cost of the Express Bus Alternative, in FY 2007 dollars, is $96.5 million. This estimate does not include escalation and is subject to change. Table 6-4 lists the estimated project costs by component (location) and work type expressed in FY 2007 and year of expenditure dollars. The cost indicated for the expansion of the Frank L. Lichtanski Monterey Bay Operations Center (maintenance facility) is an allowance and is subject to change.

Table 6-4
Express Bus Alternative Capital Cost Estimate ($1,000 FY 2007)

Work Description	Pajaro Park-and-Ride	Castroville Park-and-Ride	Salinas Station	Salinas Bus	Salinas Park-and-Ride	Marina Bus	Marina Park-and-Ride	2007 Totals	YOE Totals
Parking and access	$2,227	$1,426	—	$1,215	$ 8,888	$ 485	$1,390	$15,631	$17,194
Pedestrian structures	—	900	—	—	—	—	—	900	990
Platform and station amenities	576	453	2,301	1,298	—	1,204	—	5,832	6,415
Track and signal improvements	—	605	316	—	—	—	—	921	1,013
Specialty items	50	100	75	50	—	—	—	275	303
Mobilization	285	349	269	256	889	169	139	2,356	2,592
Contingencies	1,098	1,341	1,036	987	1,955	650	535	7,602	8,362
Construction Total	$4,236	$5,174	$3,997	$3,806	$11,732	$2,508	$2,064	$33,517	36,271
Soft cost	1,398	1,707	1,319	1,256	4,106	702	681	11,169	11,741
Right-of-way	2,170	409	—	4,250	1,650	74	2,622	11,175	11,593
Subtotal	$7,804	$7,290	$5,316	$9,312	$17,488	$3,284	$5,367	$55,861	59,605
Vehicles	—	—	—	—	—	—	—	30,000	36,383
Maintenance facility	—	—	—	—	—	—	—	6,000	6,493
Unallocated contingency	—	—	—	—	—	—	—	4,593	4,866
Total	**$7,804**	**$7,290**	**$5,316**	**$9,312**	**$17,488**	**$3,284**	**$5,367**	**$96,454**	**$107,347**

The estimated project cost, escalated to midpoint of right-of-way acquisition, design and construction phase indirect (soft) costs, and construction is $107 million. This escalated cost assumes a three percent per year increase in construction and other items. Table 6-5 provides additional capital detail, summarized by FTA cost code. Totals vary slightly from those tallied in Table 6-4 due to rounding.

In addition to facilities, a cost allowance is included in Table 6-4 for the acquisition of express bus vehicles.

Table 6-6 provides an estimate of annualized capital costs based on a 7 percent discount rate and FTA assumptions regarding the useful life of each component.

Appendix E of this document includes detailed, line item cost estimates for the Express Bus Alternative along with assumptions and cost estimating methodology.

Table 6-5
TSM Alternative

MAIN WORKSHEET - BUILD ALTERNATIVE (Rev.9, Feb. 6, 2007)

Transportation Agency for Monterey County — Today's Date: 3/8/07
Express Bus Alternative — Yr of Base Year $: 2007
Conceptual Engineering — Yr of Revenue Ops: 2011

	Quantity	Base Year Dollars w/o Contingency (X000)	Base Year Dollars Allocated Contingency (X000)	Base Year Dollars TOTAL (X000)	Base Year Dollars Unit Cost (X000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (X000)
10 GUIDEWAY & TRACK ELEMENTS (route miles)	**0.00**	1,458,783	0	**1,458,783**		**4%**	**2%**	**1,578,575**
10.01 Guideway: At-grade exclusive right-of-way				0				0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)				0				0
10.03 Guideway: At-grade in mixed traffic				0				0
10.04 Guideway: Aerial structure				0				0
10.05 Guideway: Built-up fill				0				0
10.06 Guideway: Underground cut & cover				0				0
10.07 Guideway: Underground tunnel				0				0
10.08 Guideway: Retained cut or fill				0				0
10.09 Track: Direct fixation				0				0
10.10 Track: Embedded				0				0
10.11 Track: Ballasted		1,438,776		1,438,776				1,556,925
10.12 Track: Special (switches, turnouts)		20,007		20,007				21,650
10.13 Track: Vibration and noise dampening				0				0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	**0**	4,048,807	0	**4,048,807**		**10%**	**4%**	**4,381,287**
20.01 At-grade station, stop, shelter, mall, terminal, platform		4,048,807		4,048,807				4,381,287
20.02 Aerial station, stop, shelter, mall, terminal, platform				0				0
20.03 Underground station, stop, shelter, mall, terminal, platform				0				0
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.				0				0
20.05 Joint development				0				0
20.06 Automobile parking multi-story structure				0				0
20.07 Elevators, escalators				0				0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS	0.00	7,376,190	0	**7,376,190**		**19%**	**8%**	**7,981,908**
30.01 Administration Building: Office, sales, storage, revenue counting		675,000		675,000				730,430
30.02 Light Maintenance Facility		6,000,000		6,000,000				6,492,708
30.03 Heavy Maintenance Facility				0				0
30.04 Storage or Maintenance of Way Building				0				0
30.05 Yard and Yard Track		701,190		701,190				758,770
40 SITEWORK & SPECIAL CONDITIONS	0.00	25,891,808	0	**25,891,808**		**66%**	**27%**	**28,017,991**
40.01 Demolition, Clearing, Earthwork		1,987,471		1,987,471				2,150,678
40.02 Site Utilities, Utility Relocation				0				0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		33,750		33,750				36,521
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks				0				0
40.05 Site structures including retaining walls, sound walls				0				0
40.06 Pedestrian / bike access and accommodation, landscaping		2,831,016		2,831,016				3,063,493
40.07 Automobile, bus, van accessways including roads, parking lots		18,721,551		18,721,551				20,258,927
40.08 Temporary Facilities and other indirect costs during construction		2,318,020		2,318,020				2,508,371
50 SYSTEMS	0.00	742,500	0	**742,500**		**2%**	**1%**	**803,473**
50.01 Train control and signals				0				0
50.02 Traffic signals and crossing protection		337,500		337,500				365,215
50.03 Traction power supply: substations				0				0
50.04 Traction power distribution: catenary and third rail				0				0
50.05 Communications				0				0
50.06 Fare collection system and equipment		405,000		405,000				438,258
50.07 Central Control				0				0
Construction Subtotal (10 - 50)	0.00	39,518,088	0	**39,518,088**		**100%**	**41%**	**42,763,234**
60 ROW, LAND, EXISTING IMPROVEMENTS	0.00	11,174,225	0	**11,174,225**			**12%**	**11,593,024**
60.01 Purchase or lease of real estate		11,174,225		11,174,225				11,593,024
60.02 Relocation of existing households and businesses				0				0
70 VEHICLES (number)	**0**	30,000,000	0	**30,000,000**			**31%**	**36,382,613**
70.01 Light Rail				0				0
70.02 Heavy Rail				0				0
70.03 Commuter Rail				0				0
70.04 Bus		30,000,000		30,000,000				36,382,613
70.05 Other				0				0
70.06 Non-revenue vehicles				0				0
70.07 Spare parts				0				0
80 PROFESSIONAL SERVICES	0.00	11,170,242	0	**11,170,242**		**28%**	**12%**	**11,740,583**
80.01 Preliminary Engineering		1,181,531		1,181,531				1,241,858
80.02 Final Design		2,756,905		2,756,905				2,897,669
80.03 Project Management for Design and Construction		1,742,857		1,742,857				1,831,846
80.04 Construction Administration & Management		3,938,435		3,938,435				4,139,528
80.05 Insurance				0				0
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		1,550,515		1,550,515				1,629,683
80.07 Surveys, Testing, Investigation, Inspection				0				0
80.08 Start up				0				0
Subtotal (10 - 80)	0.00	91,862,555	0	**91,862,555**			**95%**	**102,479,455**
90 UNALLOCATED CONTINGENCY				**4,593,000**			**5%**	**4,866,369**
Subtotal (10 - 90)	0.00			**96,455,555**			**100%**	**107,345,823**
100 FINANCE CHARGES				**0**			**0%**	**0**
Total Project Cost (10 - 100)	0.00			**96,455,555**			**100%**	**107,345,823**

Allocated Contingency as % of Base Yr Dollars w/o Contingency	0.00%	
Unallocated Contingency as % of Base Yr Dollars w/o Contingency	5.00%	
Total Contingency as % of Base Yr Dollars w/o Contingency	5.00%	
Unallocated Contingency as % of Subtotal (10 - 80)	5.00%	
YOE Construction Cost per Mile (X000)		#DIV/0!
YOE Total Project Cost per Mile Not Including Vehicles (X000)		#DIV/0!
YOE Total Project Cost per Mile (X000)		#DIV/0!

Enter finance charges on Inflation Worksheet.

Table 6-6
TSM Alternative Annualized Cost

A N N U A L I Z E D C O S T - B U I L D A L T E R N A T I V E (Rev.9, Feb. 6, 2007)

Transportation Agency for Monterey County — Today's Date **3/8/07**

Express Bus Alternative — Yr of Base Year $ 2007

Conceptual Engineering — Yr of Revenue Ops 2011

	Quantity	Total Base Year Dollars (X000)	Cat. 80 Prof. Svc. spread proportionally over Cats. 10 - 50 (X000)	Spread Cat. 90 Unalloc. Cont. according to perceived risks (X000)	Revised Total Base Year Dollars (X000)	Years of Useful Life	Annualization Factor (based on 7% rate) [.07/1 - (1.07)^-no. yrs]	**Annualized Cost (X000)**
10 GUIDEWAY & TRACK ELEMENTS (route miles)	**0.00**	**1,458,783**	**412,342**	**0**	**1,871,125**			**144,600**
10.01 Guideway: At-grade exclusive right-of-way	0.00	0	0		0	125	0.0700	0
10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)	0.00	0	0		0	30	0.0806	0
10.03 Guideway: At-grade in mixed traffic	0.00	0	0		0	20	0.0944	0
10.04 Guideway: Aerial structure	0.00	0	0		0	80	0.0703	0
10.05 Guideway: Built-up fill	0.00	0	0		0	80	0.0703	0
10.06 Guideway: Underground cut & cover	0.00	0	0		0	125	0.0700	0
10.07 Guideway: Underground tunnel	0.00	0	0		0	125	0.0700	0
10.08 Guideway: Retained cut or fill	0.00	0	0		0	125	0.0700	0
10.09 Track: Direct fixation		0	0		0	30	0.0806	0
10.10 Track: Embedded		0	0		0	20	0.0944	0
10.11 Track: Ballasted		1,438,776	406,687		1,845,463	35	0.0772	142,532
10.12 Track: Special (switches, turnouts)		20,007	5,655		25,662	30	0.0806	2,068
10.13 Track: Vibration and noise dampening		0	0		0	30	0.0806	0
20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)	**0**	**4,048,807**	**1,144,442**	**0**	**5,193,249**			**366,745**
20.01 At-grade station, stop, shelter, mall, terminal, platform	0	4,048,807	1,144,442		5,193,249	70	0.0706	366,745
20.02 Aerial station, stop, shelter, mall, terminal, platform	0	0	0		0	70	0.0706	0
20.03 Underground station, stop, shelter, mall, terminal, platform	0	0	0		0	125	0.0700	0
20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.	0	0	0		0	70	0.0706	0
20.05 Joint development		0	0		0	70	0.0706	0
20.06 Automobile parking multi-story structure		0	0		0	50	0.0725	0
20.07 Elevators, escalators		0	0		0	30	0.0806	0
30 SUPPORT FACILITIES: YARDS, SHOPS, ADMIN. BLDGS		**7,376,190**	**2,084,965**	**0**	**9,461,155**			**683,624**
30.01 Administration Building: Office, sales, storage, revenue counting		675,000	190,797		865,797	50	0.0725	62,735
30.02 Light Maintenance Facility		6,000,000	1,695,969		7,695,969	50	0.0725	557,649
30.03 Heavy Maintenance Facility		0	0		0	50	0.0725	0
30.04 Storage or Maintenance of Way Building		0	0		0	50	0.0725	0
30.05 Yard and Yard Track		701,190	198,199		899,389	80	0.0703	63,239
40 SITEWORK & SPECIAL CONDITIONS		**25,891,808**	**7,318,617**	**2,922,000**	**36,132,425**			**3,275,158**
40.01 Demolition, Clearing, Earthwork		1,987,471	561,782		2,549,253	125	0.0700	178,486
40.02 Site Utilities, Utility Relocation		0	0		0	125	0.0700	0
40.03 Haz. mat'l, contam'd soil removal/mitigation, ground water treatments		33,750	9,540		43,290	125	0.0700	3,031
40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks		0	0		0	125	0.0700	0
40.05 Site structures including retaining walls, sound walls		0	0		0	80	0.0703	0
40.06 Pedestrian / bike access and accommodation, landscaping		2,831,016	800,219	500,000	4,131,235	20	0.0944	389,959
40.07 Automobile, bus, van accessways including roads, parking lots		18,721,551	5,291,862	2,422,000	26,435,413	20	0.0944	2,495,316
40.08 Temporary Facilities and other indirect costs during construction		2,318,020	655,215		2,973,235	100	0.0701	208,367
50 SYSTEMS		**742,500**	**209,876**	**0**	**952,376**			**79,462**
50.01 Train control and signals		0	0		0	30	0.0806	0
50.02 Traffic signals and crossing protection		337,500	95,398		432,898	30	0.0806	34,886
50.03 Traction power supply: substations		0	0		0	50	0.0725	0
50.04 Traction power distribution: catenary and third rail		0	0		0	30	0.0806	0
50.05 Communications		0	0		0	20	0.0944	0
50.06 Fare collection system and equipment		405,000	114,478		519,478	25	0.0858	44,577
50.07 Central Control		0	0		0	30	0.0806	0
Construction Subtotal (10 - 50)		**39,518,088**	**11,170,242**	**2,922,000**	**53,610,330**			**4,549,590**
60 ROW, LAND, EXISTING IMPROVEMENTS		**11,174,225**		**1,671,000**	**12,845,225**			**899,357**
60.01 Purchase or lease of real estate		11,174,225		1,671,000	12,845,225	125	0.0700	899,357
60.02 Relocation of existing households and businesses		0			0	125	0.0700	0
70 VEHICLES (number)	**0**	**30,000,000**		**0**	**30,000,000**			**3,777,060**
70.01 Light Rail	0	0			0	25	0.0858	0
70.02 Heavy Rail	0	0			0	25	0.0858	0
70.03 Commuter Rail	0	0			0	25	0.0858	0
70.04 Bus	0	30,000,000			30,000,000	12	0.1259	3,777,060
70.05 Other	0	0			0	12	0.1259	0
70.06 Non-revenue vehicles	0	0			0	12	0.1259	0
70.07 Spare parts	0	0			0	12	0.1259	0
80 PROFESSIONAL SERVICES		**11,170,242**						
80.01 Preliminary Engineering		1,181,531						
80.02 Final Design		2,756,905						
80.03 Project Management for Design and Construction		1,742,857						
80.04 Construction Administration & Management		3,938,435						
80.05 Insurance		0						
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.		1,550,515						
80.07 Surveys, Testing, Investigation, Inspection		0						
80.08 Start up		0						
Subtotal (10 - 80)		**91,862,555**						
90 UNALLOCATED CONTINGENCY		**4,593,000**						
Subtotal (10 - 90)		**96,455,555**	11,170,242	4,593,000	**96,455,555**			**9,226,006**

The range for buses is 12 to 18 years. Provide supporting documentation for an estimated useful life of more than 12 years.

CALTRAIN EXTENSION ALTERNATIVE OPERATING AND MAINTENANCE COST ESTIMATES

Operating Plan for Caltrain Extension Alternative

The Caltrain Extension Alternative would extend existing and programmed Caltrain commuter rail service between Gilroy and Salinas with intermediate stops at Pajaro/Watsonville and Castroville. The Peninsula Corridor Joint Powers Board (JPB) currently operates 96 daily trains between San Jose and San Francisco. Six of these trains operate between Gilroy and San Francisco. Prior to 2006, eight trains operated between Gilroy and San Francisco on weekdays.

The Santa Clara Valley Transportation Authority (VTA) is the lead agency for Caltrain program development between San Jose and Gilroy. As part of its long-term Transit Capital Investment Program, VTA has negotiated an agreement with UPRR which grants VTA/JPB rights to operate up to 20 trains (10 round trips) between Gilroy and San Jose upon completion of $35 million of capacity improvements. These improvements include construction of 8.5 miles of double track (addition of a second track) between San Jose and Gilroy on UPRR property. VTA also plans to construct a Gilroy yard facility to accommodate storage of 10 commuter rail train sets.

Extension of the Caltrain service to Salinas would reduce or completely remove the need for expansion of the Caltrain layover yard in Gilroy.

Table 6-7 displays an illustrative timetable for 10 round trip trains operating between San Jose and Gilroy[6]. For planning purposes, the schedules have been extended north to Mountain View and south to Salinas to indicate potential departure/arrival times. Trains indicated as “proposed service” would best meet the needs of Monterey County commuters.

To illustrate a more complete operating schedule, Table 6-8 reproduces a portion of the Caltrain public timetable, effective January 1, 2006. This table highlights the extension of three existing “Gilroy” round trip trains to/from Salinas. A fourth round trip train is also extended from San Jose to Gilroy and Salinas for planning purposes.

These schedules are preliminary and are based on train simulation/capacity modeling undertaken for UPRR. Factors which might affect scheduling include electrification of the Caltrain line north of San Jose; upgrades to the UPRR coast line track between Salinas and Gilroy; Caltrain/Amtrak schedule coordination south of Gilroy; and schedule recovery “padding” to ensure reliability of Caltrain service north of Gilroy. These schedule refinements would be expected to have minor impact on the Caltrain Extension Alternative operating and maintenance (O&M) cost estimate.

[6]The San Jose–Gilroy portion of the schedule was developed in October 2004 and served as the basis of the agreement between UPRR and VTA.

Table 6-7
Commuter Service between Salinas and Mountain View—Depart Times

Schedule ID	*10*	*1*	*6*	2	5	3	*4*	7	*8*	*9*
Train #	*215*	*121*	*New*	227	New	231	*235*	New	*239*	*141*
Northbound, a.m.										
Lv Salinas	*3:54*	*4:21*	*4:44*	5:07	5:30	5:50	*6:07*	6:30	*6:54*	*7:21*
Lv Gilroy	*4:49*	*5:16*	*5:39*	6:02	6:25	6:45	*7:02*	7:25	*7:49*	*8:16*
Lv San Jose	*5:39*	*6:06*	*6:29*	6:52	7:15	7:37	*7:52*	8:15	*8:39*	*9:06*
Ar Mountain View	*6:03*	*6:25*	*6:48*	7:11	7:37	8:03	*8:13*	8:34	*8:58*	*9:25*
Schedule ID	*8*	*7*	1	*6*	5	2	3	*4*	*9*	*10*
Train #	*258*	*New*	160	*262*	New	164	270	*172*	*278*	*284*
Southbound, p.m.										
Lv Mountain View	*3:39*	*4:00*	4:21	*4:44*	5:04	5:27	5:50	*6:27*	*6:50*	*7:39*
Lv San Jose	*4:01*	*4:23*	4:45	*5:06*	5:28	5:51	6:16	*6:49*	*7:16*	*8:01*
Lv Gilroy	*4:52*	*5:15*	5:36	*5:57*	6:20	6:42	7:07	*7:41*	*8:08*	*8:53*
Ar Salinas	*5:47*	*6:10*	6:31	*6:52*	7:15	7:37	8:02	*8:36*	*9:03*	*9:48*

Proposed service

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Other possible services

Table 6-8
Caltrain Public Timetable

Gilroy/San Jose to San Francisco—Northbound

Train #	101	103	305	207	309	211	313	215	217	319	221	323	225	227	329	231	233	135
Salinas									5:12		5:35			6:10		6:37		
Castroville									5:22		5:45			6:20		6:47		
Pajaro									5:36		5:59			6:34		7:01		
Gilroy									6:07		6:30			7:05		7:32		
San Martin									6:16		6:39			7:14		7:41		
Morgan Hill									6:22		6:45			7:20		7:47		
Blossom Hill									6:35		6:58			7:33		8:00		
Capitol									6:41		7:04			7:39		8:06		
Tamien	—	4:58	—	5:50	5:56	—	—	—	6:49	6:56	7:12	—	—	7:47	7:56	8:14	8:33	—
San Jose Diridon	4:30	5:05	5:45	5:57	6:03	6:22	6:45	6:50	6:57	7:03	7:20	7:45	7:50	7:55	8:03	8:22	8:40	9:10
College Park	—	—	—	—	—	—	—	—	—	—	—	—	—	7:58	—	—	—	—
Santa Clara	4:35	5:10	—	6:02	—	6:27	—	—	7:02	—	7:25	—	—	8:02	—	8:27	8:45	9:15
Lawrence	4:40	5:15	—	6:12	—	—	—	—	7:12	—	7:30	—	—	8:12	—	—	8:50	9:20
Sunnyvale	4:44	5:19	—	6:18	6:13	—	—	7:00	7:18	7:13	—	—	8:00	8:18	8:13	—	8:54	9:24
Mountain View	4:49	5:24	5:57	6:23	—	6:37	6:57	7:05	7:23	—	7:37	7:57	8:05	8:23	—	8:37	8:59	9:29
San Antonio	4:53	5:28	—	6:27	—	—	—	—	7:27	—	—	—	—	8:27	—	—	9:03	9:33
California Avenue	4:57	5:32	—	6:31	—	—	—	7:11	7:31	—	—	—	8:11	8:31	—	—	9:07	9:37
Palo Alto	5:01	5:36	6:05	6:36	6:23	—	7:05	7:16	7:36	7:23	—	8:05	8:16	8:36	8:23	—	9:11	9:41
Menlo Park	5:04	5:39	—	6:39	—	6:45	—	—	7:39	—	7:45	—	—	8:39	—	8:45	9:14	9:44
Redwood City	5:09	5:44	—	6:45	6:30	6:51	—	—	7:45	7:30	7:51	—	—	8:45	8:30	8:51	9:19	9:49
San Carlos	5:13	5:48	—	—	—	6:55	—	7:24	—	—	7:55	—	8:24	—	—	8:55	9:23	9:53
Belmont	5:16	5:51	—	—	—	6:58	—	—	—	—	7:58	—	—	—	—	8:58	9:26	9:56
Hillsdale	5:19	5:54	6:16	6:51	—	7:02	7:16	7:28	7:51	—	8:02	8:16	8:28	8:51	—	9:02	9:29	9:59
Hayward Park	5:22	5:57	—	—	—	7:05	—	—	—	—	8:05	—	—	—	—	9:05	—	10:02
San Mateo	5:25	6:00	—	—	6:39	7:08	—	7:32	—	7:39	8:08	—	8:32	—	8:39	9:08	9:33	10:05
Burlingame	5:28	6:03	—	—	—	7:11	—	7:35	—	—	8:11	—	8:35	—	—	9:11	9:36	10:08
Millbrae	5:33	6:08	6:24	6:59	6:45	7:17	7:24	—	7:59	7:45	8:17	8:24	—	8:59	8:45	9:17	9:41	10:13
San Bruno	5:37	6:12	—	—	—	7:21	—	7:42	—	—	8:21	—	8:42	—	—	9:21	9:45	10:17
So. San Francisco	5:41	6:16	—	7:05	—	7:25	—	—	8:05	—	8:25	—	—	9:05	—	9:25	—	10:21
Bayshore	5:47	6:22	—	—	—	7:33	—	—	—	—	8:33	—	—	—	—	9:31	—	10:27
22nd Street	5:52	6:27	—	—	—	7:40	—	—	—	—	8:40	—	—	—	—	9:37	—	10:32
San Francisco	6:01	6:36	6:42	7:19	7:02	7:48	7:42	7:57	8:19	8:02	8:48	8:42	8:57	9:19	9:02	9:45	10:02	10:41

San Francisco to San Jose/Gilroy—Southbound

Train #	154	256	158	260	362	264	266	368	270	372	274	276	378	280	382	284	386	288
San Francisco	2:07	2:37	3:07	3:37	4:09	4:19	4:27	4:33	4:56	5:14	5:20	5:27	5:33	5:56	6:14	6:27	6:33	6:56
22nd Street	2:12	—	3:12	—	—	—	4:32	—	—	—	—	5:32	—	—	—	6:32	—	—
Bayshore	2:17	—	3:17	—	—	—	4:40	—	—	—	—	5:40	—	—	—	6:40	—	—
So. San Francisco	2:23	—	3:23	—	—	—	4:48	—	5:08	—	—	5:48	—	6:08	—	6:48	—	7:08
San Bruno	2:27	2:51	3:27	3:51	—	4:33	4:52	—	—	—	5:34	5:52	—	—	—	6:52	—	—
Millbrae	2:31	2:55	3:31	3:55	4:25	—	4:56	4:49	5:14	5:30	—	5:56	5:49	6:14	6:30	6:56	6:49	7:14
Burlingame	2:35	2:59	3:35	3:59	—	4:38	5:00	—	—	—	5:39	6:00	—	—	—	7:00	—	—
San Mateo	2:38	3:02	3:38	4:02	—	4:42	5:04	4:57	—	—	5:43	6:04	5:57	—	—	7:04	6:57	—
Hayward Park	2:41	—	3:41	—	—	—	5:07	—	—	—	—	6:07	—	—	—	7:07	—	—
Hillsdale	2:44	3:06	3:44	4:06	4:33	4:47	5:11	—	5:22	5:38	5:48	6:11	—	6:22	6:38	7:11	—	7:22
Belmont	2:47	3:09	3:47	4:09	—	—	5:14	—	—	—	—	6:14	—	—	—	7:14	—	—
San Carlos	2:50	3:12	3:50	4:12	—	4:51	5:18	—	—	—	5:52	6:18	—	—	—	7:18	—	—
Redwood City	2:55	3:17	3:55	4:17	—	—	5:22	5:06	5:28	—	—	6:22	6:06	6:28	—	7:22	7:06	7:28
Menlo Park	3:00	3:22	4:00	4:22	—	—	5:28	—	5:34	—	—	6:28	—	6:34	—	7:28	—	7:34
Palo Alto	3:03	3:25	4:03	4:25	4:44	5:01	—	5:12	5:38	5:49	6:02	—	6:12	6:38	6:49	—	7:12	7:38
California Avenue	3:07	3:29	4:07	4:29	—	5:05	—	—	5:42	—	6:06	—	—	6:42	—	—	—	7:42
San Antonio	3:11	3:33	4:11	4:33	—	—	—	—	5:46	—	—	—	—	6:46	—	—	—	7:46
Mountain View	3:15	3:37	4:15	4:37	4:51	5:11	5:36	—	5:50	5:56	6:12	6:36	—	6:50	6:56	7:36	—	7:50
Sunnyvale	3:20	3:42	4:20	4:42	—	5:16	—	5:21	5:55	—	6:17		6:21	6:55	—	—	7:21	7:55
Lawrence	3:24	3:46	4:24	4:46	—	—	—	—	6:01	—	—	6:43	—	7:01	—	—	—	7:59
Santa Clara	3:29	3:51	4:29	4:51	—	—	5:47	—	6:08	—	—	6:48	—	7:08	—	7:47	—	8:04
College Park	—	—	4:32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
San Jose Diridon	3:38	4:00	4:39	5:00	5:06	5:27	5:55	5:32	6:16	6:11	6:28	6:56	6:32	7:16	7:11	7:55	7:32	8:12
Tamien	—	4:07	4:45	5:07	—	5:33	—	5:39	6:22	—	—	7:02	6:39	7:23	—	—	7:39	8:19
Capitol			4:52			5:40			6:29			7:09						
Blossom Hill			4:58			5:46			6:35			7:15						
Morgan Hill			5:11			5:59			6:48			7:28						
San Martin			5:17			6:05			6:54			7:34						
Gilroy			5:30			6:18			7:07			7:47						
Pajaro			6:01			6:49			7:38			8:18						
Castroville			6:15			7:03			7:52			8:32						
Salinas			6:25			7:13			8:02			8:42						

Gilroy/Salinas service

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Operating and Maintenance Cost Estimates for Caltrain Extension Alternative

Operating and maintenance cost estimates have been developed for the Caltrain Extension Alternative based on JPB experience with operating Caltrain service between Gilroy and San Francisco.

Table 6-9 reports actual and forecast O&M history for Caltrain service between FY 2001 and FY 2007 (projected). The table indicates that operating expenses remained relatively constant from FY 2001 through FY 2004, but have increased during the past three years as the number of trains operated has increased. FY 2007 service is forecast to remain unchanged from FY 2006 levels.

Given this well established cost basis, O&M expense for the Caltrain extension of service to Salinas is based on the incremental addition of service associated with the operation of two, three or four round trip trains between Salinas and Gilroy. Train service between Gilroy and San Francisco would be unchanged by the Caltrain Extension Alternative extension of service.

Table 6-10 indicates the anticipated increase in O&M expense associated with two, three or four round trip trains between Gilroy and Salinas. Fully allocated costs are assumed for all expense categories except shuttle bus service on the peninsula and head end power debt service. An allowance is included under “rail operator extra work” for basing train crews in Salinas rather than Gilroy.

Table 6-9
Peninsula Corridor Joint Powers Board Expense Budget (FY 2001–2007)

Expense Description	FY 2001 Actual	FY 2002 Actual	FY 2003 Actual	FY 2004 Actual	FY 2005 Actual	FY 2006 Revised	FY 2007 Proposed
Operating Expense							
Rail operator service	$39,152,888	$39,978,701	$42,750,000	$42,105,709	$45,444,945	$50,644,650	$54,814,110
Shuttle service	4,759,804	4,724,215	4,232,360	3,236,339	2,725,038	2,929,231	2,929,231
Fuel	4,652,707	3,669,723	3,594,540	4,570,479	7,364,964	8,485,531	10,147,799
Timetables and tickets	366,846	188,627	323,000	257,708	171,921	280,000	275,000
Insurance	3,041,018	3,649,321	3,436,540	3,251,469	3,607,201	4,042,000	3,810,078
Facilities and equipment	1,031,271	1,483,738	1,523,340	1,348,755	1,626,485	1,965,957	1,546,600
Utilities	707,050	982,880	1,109,810	693,053	793,690	896,345	937,260
Total Operating Expense	$53,711,584	$53,677,205	$56,969,590	$55,463,512	$61,734,243	$69,243,714	$74,460,078
Administrative Expense							
Wages and benefits	$ 2,869,128	$ 3,612,613	$ 3,934,310	$ 4,269,643	$ 4,223,298	$ 4,227,642	$ 5,009,905
Board of Directors	22,693	23,236	22,000	17,758	19,453	18,800	19,300
Professional services	1,814,749	2,056,790	1,833,440	1,674,472	2,280,049	1,211,886	1,322,568
Marketing	255,593	191,251	369,400	358,627	304,244	316,900	298,400
Other expenses	1,518,682	1,975,596	1,286,430	1,302,535	1,545,263	1,634,036	1,884,278
Total Administrative Expense	$ 6,480,845	$ 7,859,486	$ 7,445,580	$ 7,623,034	$ 8,372,308	$ 7,409,264	$ 8,534,451
Head End Power Debt Service	$ 341,434	$ 365,546	$ 365,800	$ 367,235	$ 364,617	$ 363,200	$ 366,190
Capital Contingency Fund							
Mainline	$ 960,000	$ 960,000	$ 960,000	$ 960,000	$ 960,000	$ 660,000	$ 660,000
Gilroy	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Total Capital Contingency Fund	$ 1,010,000	$ 1,010,000	$ 1,010,000	$ 1,010,000	$ 1,010,000	$ 710,000	$ 710,000
Total Expense	*$61,543,863*	*$62,912,237*	*$65,790,970*	*$64,463,781*	*$71,481,168*	*$77,726,178*	*$84,070,719*

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Table 6-10
Caltrain Extension Alternative Operating and Maintenance Cost ($ FY 2007)

Expense Category	FY 2007 Cost Basis	Variable	Weekday Round Trip Trains		
			Two	Three	Four
Rail operator	$54,814,110	Train hours	$1,409,983	$2,115,002	$2,819,966
Rail operator extra work	Included	LS	225,000	337,500	450,000
Shuttles	2,929,231	LS	—	—	
Fuel	10,147,799	Train miles	291,465	437,198	582,930
Timetables and tickets	275,000	Passengers	17,669	26,503	35,338
Insurance	3,810,078	Train miles	109,433	164,150	218,866
Facilities and equipment	1,546,600	Stations	159,993	159,993	159,993
Utilities	937,260	Stations	96,958	96,958	96,958
Administrative expense	8,534,451	% allocation	548,338	822,508	1,096,676
Head end power debt service	366,190	LS	—		
Total	**$83,360,719**		**$2,633,839**	**$3,822,312**	**$5,010,727**
UPRR track use charge		Train miles	528,841	793,262	1,057,682
UPRR slot fees		RT trains	1,098,000	1,647,000	2,196,000
			$4,485,680	***$6,600,074***	***$8,714,409***

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In addition to JPB fees for the assumed purchase of service described in Chapter 4, Table 6-10 includes UPRR fees for the use of its track between Gilroy and Salinas. First, a track use charge is included based on the number of Caltrain train miles operated annually over the extended route to Salinas. Recent experience of the San Joaquin Regional Rail Commission with UPRR related to the ACE service forms the basis of this track use charge. The fee would cover train scheduling, track maintenance and repair, and capital investment recovery. Second, a "slot fee" is included with the O&M cost estimate. This fee would be negotiated with UPPR—hence, the precise cost is unknown. The amount indicated in Table 6-10 is based on the VTA purchase of Caltrain trackage rights from UPRR in southern Santa Clara County. The slot fees have been annualized for 15 years at a discount rate of seven percent.

EXPRESS BUS ALTERNATIVE OPERATING AND MAINTENANCE COST ESTIMATES

Operating and maintenance cost estimates have been developed for the Express Bus Alternative based on MST experience with operating local and longer distance fixed route, fixed schedule bus service throughout Monterey County.

Table 6-11 reports actual and forecast O&M cost parameters for MST fixed route bus service between FY 2002 and FY 2007 (proposed). The table indicates that operating expenses per hour and mile rose gradually between FY 2002 and FY 2005, but have risen at a faster rate in FY 2006 and FY 2007 (projected) due to increases in retirement benefits, fuel and purchased transportation[7].

[7] Additional routes and existing shuttle services contracted to MV Transportation, Inc., which operates 17 passenger vans.

Table 6-11
Monterey–Salinas Transit Fixed Route Bus Operating and Maintenance Cost Parameters

	FY 2002 Actual	FY 2003 Actual	FY 2004 Actual	FY 2005 Actual	FY 2006 Budgeted	FY 2007 Proposed
Total operating expense	$13,913,880	$15,678,182	$16,580,573	$17,074,778	$19,122,802	$21,584,207
Employees	212	220	218	214	216	223
Fixed route vehicles	77	79	95	99	98	100
Vehicle revenue miles	2,878,871	3,082,365	2,878,702	2,929,738	2,905,878	3,120,443
Vehicle revenue hours	204,921	210,871	197,416	196,699	198,581	205,371
Vehicle revenue hours/employee	967	959	906	919	919	921
Expense/mile	$4.83	$5.09	$5.76	$5.83	$6.58	$6.92
Expense/hour[1]	$67.90	$74.35	$83.99	$86.81	$96.29	$105.10
Operating cost/hour[2]	$55.26	$64.54	$65.78	$72.65	$87.50	$102.31

[1]Fully allocated and loaded
[2]Fully allocated cost for new service

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For new service, MST has established a "fully allocated cost per vehicle hour" which is less than its fully allocated and loaded expense per vehicle hour. The fully allocated cost for service in FY 2007 is proposed to be $102.31 per vehicle hour for new service. This unit cost assumes that the fundamental nature of the new service will be similar to the existing Monterey–Salinas Transit fixed route bus operations.

In the case of the Express Bus Alternative, the fundamental nature of the proposed service is different from normal Monterey–Salinas Transit fixed-route, fixed-schedule operations. Whereas virtually all Monterey–Salinas Transit service operates under relatively low speed, and therefore low mileage per hour conditions, the express bus alternative would incur high mileage per hour of operation. A cost model based on multiple parameters, such as cost per revenue vehicle hour, mile, and vehicles operated was developed to more accurately forecast operations and maintenance costs for the Express Bus Alternative.

Table 6-12 provides a historical and projected overview of Monterey–Salinas Transit's operating and maintenance expenses by major cost object for FY 2005 actual through FY 2007 proposed. Table 6-13 provides additional detail, with expenses broken down by both object and function. Functions are defined as follows:

Vehicle Operations — Includes operating buses, and scheduling the buses and drivers.

Vehicle Maintenance — Includes preventive and corrective maintenance on revenue and support vehicles, as well as updating vehicle records, and servicing and fueling vehicles.

Facilities Maintenance — Includes maintenance of grounds, buildings, and bus stops.

General Administration — Includes transit planning, customer services, marketing, finance and accounting, computer system, personnel administration, and legal services.

Each of the object and function combinations can be described as (1) fixed in the short run, (2) variable proportional to mileage, or (3) variable proportional to hours of service. A cost forecasting model, sensitive to changes in the quantity of service operated, can then be developed.

Table 6-12
Monterey–Salinas Transit Fixed Route Bus Operating Expense Recap

Account	Object	FY 2005 Actual	FY 2006 Budgeted	FY 2007 Proposed
501	Labor	$ 7,941,660	$ 8,068,833	$ 8,724,377
502	Fringe benefits	4,523,988	5,450,872	6,342,440
503	Services	730,135	1,056,160	1,077,870
504	Materials and supplies	2,178,374	2,520,428	2,789,280
505	Utilities	233,007	224,829	233,106
506	Casualty and liability	291,688	597,108	472,108
507	Taxes	120,989	151,242	174,845
508	Purchased transportation	828,864	789,283	1,528,833
509	Miscellaneous	218,175	223,347	224,948
512	Leases and agreements	7,898	40,700	16,400
	Total Expenses	***$17,074,778***	***$19,122,802***	***$21,584,207***

The cost forecasting model is of the form:

$$C_{(m,h,v)} – m\,C_m + h\,C_h + v\,C_v$$

Where

$C_{(m,v,h)}$ = the estimated cost for a service consisting of
- m = operating miles,
- h = operating hours, and
- v = peak operating vehicles

C_m = the expected incremental operating cost of an additional mile
C_h = the expected incremental operating cost of an additional hour
C_v = the expected incremental operating cost of an additional peak vehicle

Of these, the peak hour vehicle cost is the most difficult to apply in practice. Many transit costs, such as administration and utilities, are fixed in the short run and an additional number of vehicles (within some small range) can be operated without adding to the staff of general management, accounting, legal, planning and marketing functions. However, after a period of time, these costs will rise in response to increased service. While the addition of a single bus cannot be causally linked to a specific increase in these costs, the Express Bus Alternative requires the addition of 10 or more vehicles—a level of sufficient scale as to think of the short run fixed costs as variable.

All Monterey–Salinas Transit costs for FY 2005 through FY 2007 were assigned to one of the three cost drivers—miles, hours and peak vehicles (fixed) as shown in Table 6-11.

From this table, one can estimate the coefficients for the cost model by dividing the cost totals by the value of the cost drivers (miles, hours and vehicles). The estimates are:

	FY 2005	FY 2006	FY 2007
C_m =	$ 1.58	$ 1.78	$ 1.82
C_h =	$45.29	$48.45	$56.23
Cv =	$55,948	$67,606	$68,055

Table 6-13
Allocation of Monterey–Salinas Transit FY 2005–FY 2007 Operating Costs to Cost Drivers

Function and Object	Basis	FY 2005 Actual Amount	FY 2006 Budget Amount	FY 2007 Proposed Amount
Vehicle Operations				
Salaries and wages	Hours	$ 5,317,181	$ 5,213,521	$ 5,970,888
Fringe benefits	Hours	3,055,844	3,909,141	4,578,099
Services	Fixed	88,673	142,600	102,378
Materials and supplies	Miles	1,439,424	1,807,191	1,996,817
Taxes	Miles	85,333	104,174	125,533
Leases and rentals	Fixed	4,974	30,500	7,500
Subtotal		*$ 9,991,430*	*$11,207,126*	*$12,781,216*
Vehicle Maintenance				
Salaries and wages	Miles	$ 1,386,218	$ 1,396,868	$ 1,395,921
Fringe benefits	Miles	821,084	959,436	975,231
Services	Miles	91,751	101,960	104,853
Materials and supplies	Miles	434,516	428,386	465,213
Casualty and liability	Miles	63,442	45,000	45,000
Taxes	Miles	26,398	38,068	40,312
Leases and rentals	Miles	0	3,000	2,000
Subtotal		*$ 2,823,409*	*$ 2,972,718*	*$ 3,028,530*
Facilities Maintenance				
Salaries and wages	Fixed	$ 190,602	$ 240,619	$ 252,112
Fringe benefits	Fixed	113,283	118,456	134,626
Services	Fixed	205,147	325,800	394,839
Materials and supplies	Fixed	70,837	85,750	97,050
Leases and rentals	Fixed	106	1,800	1,500
Subtotal		*$ 579,974*	*$ 772,425*	*$ 880,127*
General Administration				
Salaries and wages	Fixed	$ 1,047,659	$1,142,684	$ 1,105,456
Fringe benefits	Fixed	533,777	664,082	654,484
Services	Fixed	344,564	485,800	475,800
Materials and supplies	Fixed	233,597	199,000	230,200
Utilities	Fixed	233,007	224,829	233,106
Casualty and liability	Fixed	228,246	427,108	427,108
Taxes	Fixed	9,258	9,000	9,000
Purchase transportation	Hours	535,938	498,852	1,000,041
	Miles	292,926	290,431	528,792
Miscellaneous	Fixed	218,175	223,347	224,948
Leases and rentals	Fixed	2,818	5,400	5,400
Subtotal		*$ 3,679,965*	*$ 4,170,533*	*$ 4,894,335*
Total		***$17,074,778***	***$19,122,802***	***$21,584,207***

Source: Monterey-Salinas Transit FY 2007 Budget, Parsons

Table 6-14 lists the operating parameters associated with Year 2030 conditions, with the express bus fleet transporting just under 2000 passengers in the peak commute direction during the AM and PM peak periods. This scenario is equivalent to the four-train Caltrain Extension scenario.

Table 6-14
Express Bus Alternative Operating Parameters (2030 Conditions)

Origin–Destination	Revenue Round Trip		Frequency (Minutes)	Daily Trips	Maximum Vehicles	Revenue Miles		Revenue Hours		Average Passenger Load/ Vehicle†
	Miles	Hours				Daily	Annual	Daily	Annual	
Pajaro–Santa Clara Mid	107	3.08	30	8	4	856	218,280	24.67	6,291	41.75
Pajaro–Santa Clara North*	128	3.97	30	16	8	2,048	522,240	63.47	16,185	45.25
Pajaro–San Mateo/San Francisco	205	6.17	60	4	2	820	209,100	24.67	6,291	30.0
Marina/Castroville–Santa Clara Mid	125	3.67	60	4	2	500	127,500	14.67	3,741	25.0
Marina/Castroville–Santa Clara North	146	4.55	30	8	4	1,168	297,840	36.40	9,282	27.25
Marina/Castroville–San Mateo/San Francisco	223	6.75	60	4	2	892	227,460	27.00	6,885	9.5
Salinas–Santa Clara Mid**	132	4.00	30	16	8	2,112	538,560	64.00	16,320	42.5
Salinas–Santa Clara North*	153	4.88	15	32	16	4,896	1,248,480	156.27	39,849	45.94
Salinas–San Mateo/San Francisco	230	7.08	30	8	4	1,840	469,200	56.67	14,450	30.50
Totals					**50**	**14,722**	**3,858,660**	**467.82**	**119,294**	**39.26**

*Includes two stop groups—Mountain View and San Antonio; California and Palo Alto
**Includes two stop groups—Diridon and Santa Clara; Lawrence and Sunnyvale
†Peak direction

Table 6-15 indicates the anticipated O&M expense associated with MST operating various increments of express buses to/from Santa Clara, San Mateo, and San Francisco counties each weekday, excluding holidays. None of MST's vehicle operators work straight, eight-hour shifts by design of its Union contract. Therefore, round trips to/from the San Francisco Bay Area would be split into two work pieces, with separate drivers working the morning and afternoon shifts.

Average round trip travel time between Monterey County park-and-ride lots and San Francisco Bay Area sets of Caltrain stations is computed to be 5.31 hours per shift, comprised of driver report/inspection times, revenue service, driver recovery, and deadhead to/from the operations center. Some driver shifts would be less, some more, depending on the station sets served by the express bus routes. Run time estimates are based on anticipated 2030 conditions. Year 2010 run times, and therefore O&M costs, would be less.

The O&M expenses identified in Table 6-15 assume that express bus vehicles have a seated capacity of 45 passengers per vehicle, and operate with an average load of 39 passengers per vehicle, equal to 87 percent of their seated capacity.[8] Lower or higher utilization rates and fewer or more average pay hours per shift would affect these cost estimates. A minimum floor of eight vehicles operated in maximum service is reflected in the table, representing two trips per peak period operating from each park-and-ride facility in Monterey County. Increasing ridership levels could be matched closely by capacity increases given the relatively small size of the express bus units (45 passengers per vehicle versus 550 to 700 passengers per four- or five-car train.

[8] Average load = 1963 passengers/50 trips = 39.26 passengers/bus in peak direction.

Table 6-15
Express Bus Alternative Operating and Maintenance Cost

Weekday Ridership Level (Monterey County Boardings)	Vehicles Operated in Maximum Service	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Annual Operating Expense
300	8	617,386	19,087	2,741,346
500	13	1,003,252	31,016	4,454,687
1,000	25	1,929,330	59,647	8,566,707
1,250	32	2,469,542	76,348	10,965,384
1,500	38	2,932,582	90,663	13,021,393
1,750	44	3,395,621	104,979	15,077,403
2,000	50	3,858,660	119,294	17,133,413

PASSENGER REVENUES

Estimated passenger revenues are based on the ridership forecasts reported in Chapter 4 and the JPB Caltrain fare structure effective as of January 1, 1996. Caltrain currently operates with a six zone fare system. The limits of the fare zones along with the proposed extension of Caltrain service (or express bus) to Salinas are illustrated on Figure 6-1. The Caltrain Extension Alternative and Express Bus Alternative would expand the fare structure from six to eight zones. Zone 7 would be reserved for future (potential) service to Hollister, while Zone 8 would cover northern Monterey County. Table 6-16 reports the existing fares as of January 1, 2006 with the inclusion of two additional zones to serve San Benito (Hollister) and Monterey counties. Table 6-17 provides a comparison of the maximum ride distances within and between Caltrain fare zones for reference.

Based on the daily ridership estimated in Chapter 4 and the proposed eight zone fare structure, annual passenger revenue has been computed for various levels of ridership. These estimates of passenger revenue are reported in Table 6-18 and are based on all riders purchasing a monthly adult ticket which is utilized for 40 one-way rides per month. Forecasts denoted as Year 2000 are now viewed to be appropriate for the opening year, 2010 planning horizon[9].

[9]Chapter 2 of this Alternatives Analysis discusses commuting trends observed between 2000 and 2005 insofar as gateway traffic volumes and regional rail ridership. Based on this information, it appears that 2006 travel demand conditions are similar to Year 2000 travel demand conditions with respect to long distance commutes from outlying counties to Silicon Valley employers. Thus, references to Year 2000 demand and ridership projections are assumed to be now realized in 2010. Year 2020 ridership projections are assumed to be now realized in 2030.

Figure 6-1
Caltrain Map and Fare Zones

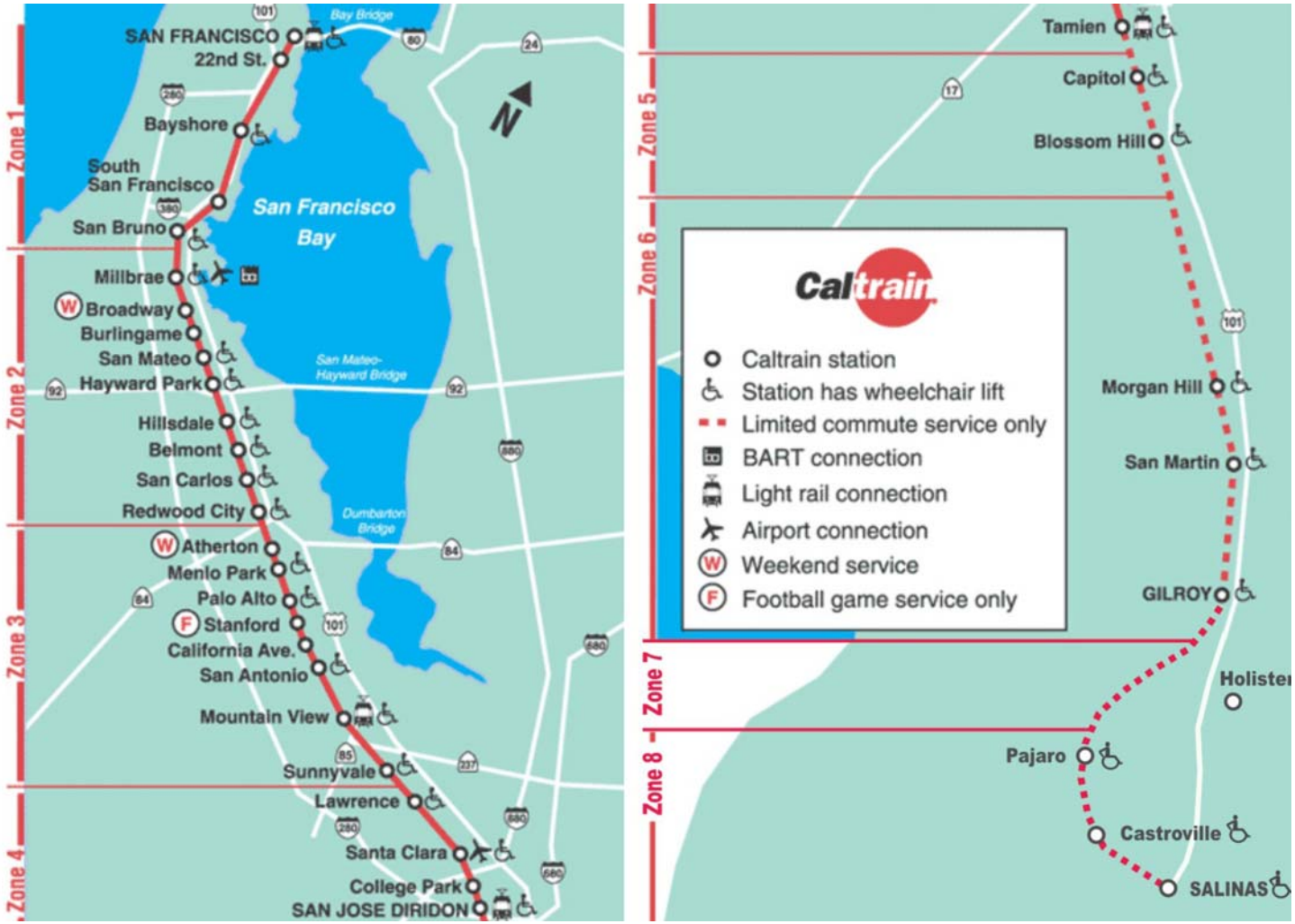

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Table 6-16
Proposed Fares and Zones ($ 2006)

	Number of Fare Zones in Journey							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Adult								
One-Way	$2.25	$3.75	$5.25	$6.75	$8.25	$9.75	$11.25	$12.75
Day Pass	$4.50	$7.50	$10.50	$13.50	$16.50	$19.50	$22.50	$25.50
10-Ride Ticket	$19.25	$32.00	$44.75	$57.50	$70.25	$83.00	$97.75	$108.50
Monthly Ticket	$59.75	$99.50	$139.25	$179.00	$218.75	$258.50	$298.25	$338.00
Monthly ÷ 40 Rides*	($1.4937)	($2.4875)	($3.4813)	($4.475)	($5.4687)	($6.4625)	($7.4563)	($8.45)
Senior/Disabled/Youth								
One-Way	$1.00	$1.75	$2.50	$3.25	$4.00	$4.75	$5.50	$6.25
Day Pass	$2.25	$3.75	$5.25	$6.75	$8.25	$9.75	$11.25	$12.75
10-Ride Ticket	$9.50	$16.00	$22.25	$28.75	$35.00	$41.50	$47.75	$54.25
Monthly Ticket	$29.75	$49.75	$69.50	$89.50	$109.25	$129.25	$149.25	$169.25

*One way cost assuming 40 trips

Zone upgrade	$1.50
Senior/Disabled/Youth Zone Upgrade	$0.75

Zone	Caltrain Stations	Milepost Limits
1	4th/King; 22nd Street; Paul Avenue; Bayshore; South San Francisco; San Bruno	0–11.6
2	Millbrae; Broadway; Burlingame; San Mateo; Hayward Park; Bay Meadows; Hillsdale; Belmont; San Carlos; Redwood City	13.7–25.4
3	Atherton; Menlo Park; Palo Alto; Stanford; California Avenue; San Antonio; Mountain View; Sunnyvale	27.8–38.8
4	Lawrence; Santa Clara; College Park; San Jose Diridon; Tamien	40.8–49.1
5	Capitol; Blossom Hill	52.4–55.7
6	Morgan Hill; San Martin; Gilroy	67.5–77.2
7	No Stations	—
8	Pajaro; Castroville; Salinas	97.1–114.9

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Table 6-17
Maximum Caltrain Zone Ride Distance (Miles)

Zone	1	2	3	4	5	6	7	8
1	11.6	25.4	38.8	49.1	55.7	77.2	—	114.9
2	25.4	11.7	25.1	35.4	42.0	63.5	—	101.2
3	38.8	25.1	11	21.3	27.9	49.4	—	87.1
4	49.1	35.4	21.3	8.3	14.9	36.4	—	73.3
5	55.7	42.0	27.9	14.9	3.3	24.8	—	62.5
6	77.2	63.5	49.4	36.4	24.8	9.7	—	47.4
7	—	—	—	—	—	—	—	—
8	114.9	101.2	87.1	73.3	62.5	47.4	—	17.8

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Table 6-18
Passenger Revenue (Eight-Zone Fare Structure—$ 2006)

Egress	Fare Zone	Daily Boardings in Monterey County	Annual 2-Way Riders	Average Fare	Annual Revenue
2000[1]					
Santa Clara-Mid	1	291	148,410	$5.4687	$ 811,610
Santa Clara-North	2	632	322,320	$6.4625	2,082,993
San Mateo	3	72	36,720	$7.4563	273,795
San Francisco	4	33	16,830	$8.45	142,214
	Total	***1,028***	***524,280***		***$3,310,612***
2006					
Santa Clara-Mid	1	395	201,450	$5.4687	$1,101,670
Santa Clara-North	2	854	435,540	$6.4625	2,814,677
San Mateo	3	97	49,470	$7.4563	368,863
San Francisco	4	44	22,440	$8.45	189,618
	Total	***1,390***	***708,900***		***$4,474,828***
2010					
Santa Clara-Mid	1	492	250,920	$5.4687	$1,372,206
Santa Clara-North	2	1,064	542,640	$6.4625	3,506,811
San Mateo	3	121	61,710	$7.4563	460,128
San Francisco	4	54	27,540	$8.45	232,713
	Total	***1,731***	***882,810***		***$5,571,858***
2020[2]					
Santa Clara-Mid	1	557	284,070	$5.4687	$1,553,494
Santa Clara-North	2	1,206	615,060	$6.4625	3,974,825
San Mateo	3	137	69,870	$7.4563	520,972
San Francisco	4	63	32,130	$8.45	271,499
	Total	***1,963***	***1,001,130***		***$6,320,790***
2025					
Santa Clara-Mid	1	579	295,290	$5.4687	$1,614,852
Santa Clara-North	2	1,253	639,030	$6.4625	4,129,731
San Mateo	3	143	72,930	$7.4563	543,788
San Francisco	4	64	32,640	$8.45	275,808
	Total	***2,039***	***1,039,890***		***6,564,179***
2030					
Santa Clara-Mid	1	600	306,000	$5.4687	$1,673,422
Santa Clara-North	2	1,300	663,000	$6.4625	4,284,638
San Mateo	3	147	74,970	$7.4563	558,999
San Francisco	4	67	34,170	$8.45	288,737
	Total	***2,114***	***1,078,140***		***$6,805,796***

[1]2000 forecast applies to Year 2010 planning horizon

[2]2020 forecast applies to Year 2030 planning horizon

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CHAPTER 7: FINDINGS FROM PUBLIC AND STAKEHOLDER WORKSHOPS ON ALTERNATIVES

Public meetings and stakeholder workshops have been held during the course of the project development process to solicit input regarding facility design and environmental impact mitigation. This public involvement has focused on the Caltrain Extension Alternative/Express Bus Alternative facilities (stations, park-and-ride, layover base) within the context of the Caltrain Extension to Monterey County/Salinas.

Insofar as the Caltrain Extension Alternative service (two to four round trips of Caltrain commuter rail service), no public comments have been received regarding operation of the train service over the Union Pacific Railroad (UPRR) Coast Line track between Salinas and Gilroy. All public comment and input has related to facility location and design.

As part of the Monterey County Fixed Guideway Study, the provision of passenger rail service to the Monterey Peninsula via the Monterey Branch line has been examined. Public input has been received regarding this alignment and is reported in this section.

The public involvement program has focused on the Caltrain Extension Alternative service and facilities as the Express Bus Alternative facilities are a subset of the Caltrain Extension Alternative, with the exception of the Marina/CSUMB (California State University–Monterey Bay) MST (Monterey–Salinas Transit) Transit Center.

As part of the environmental document scoping process, community meetings regarding the provision of passenger rail service, the proposed location of stations and support facilities, and the conceptual design of Caltrain facilities were held in Pajaro (March 31, 2003), Castroville (January 15, 2003) and Salinas (March 31 and April 2, 2003). Public comments received during these meetings were included as part of the Initial Study prepared for the project. Summaries of these community and public meetings comments are included below.

PAJARO COMMUNITY

The community of Pajaro is located on the edge of the city of Watsonville. Its population fluctuates between approximately 3,400 in the winter months and approximately 7,000 in the summer months. Watsonville's population numbered 44,265 at the time of the 2000 census and is now estimated by the Association of Monterey Bay Area Governments to be 52,716 as of Year 2005. In 2000, the Pajaro Station Area Feasibility Analysis indicated that new passenger and freight train activity provides the opportunity to create mixed-use and industrial development to generate jobs for local residents and to achieve a balanced community. Such a development could be based around a passenger rail station and expanded freight-handling capabilities.

The existing facility is located at the UPRR Watsonville junction just east of the intersection of Salinas Road and Railroad Avenue and just north of Lewis Road. It was constructed in 1948 and consists of a 7,600-quare-foot wood and stucco-wood building and an asphalt concrete platform. The existing platform is adjacent to the Santa Cruz branch line tracks. There is no platform adjacent to the Coast Line tracks that could be used for the proposed passenger service. There is also a 40,000-square-foot asphalt concrete parking area at the station.

Freight activity at the Pajaro Valley station is currently generated by through traffic, loading and unloading of freight on the team track and spurs, storage of tank cars, maintenance of freight cars,

and switching of local trains. In addition, UPRR crews are based in Pajaro and the yard is used for a subregional switching yard.

A community meeting concerning train service to Pajaro was held on March 31, 2003 at Pajaro Middle School, 250 Salinas Road, Pajaro. There were approximately 60 members of the Pajaro community in attendance. Translation to Spanish was provided to ensure full participation. Comments were taken and recorded to be incorporated into the Initial Study. Comments and concerns included remediation of the station site, rail service times, stops and passenger services at the depot, circulation, bike and pedestrian access and safety, security, noise and traffic issues.

A public information/presentation of the Draft Environmental Impact Report (EIR) findings and question and answer session was held at an Action Pajaro Valley meeting on May 10, 2006. Comments/ suggestions received included looking at design features that could reduce potential flooding and its disruption of service; adding a station/stop in Aromas; designing with drought-resistant landscaping; reusing the old Watsonville Junction sign on the site; and concerns over peak hour traffic on Salinas Road adjacent to the site. It was noted that Caltrain service would depart in the morning prior to the peak hour of traffic volumes, and return in the evening following the peak period of afternoon traffic.

CASTROVILLE COMMUNITY

Castroville is an unincorporated community with a Year 2000 population of 6,700 and a 2005 population of 7,099. Currently no station facilities exist in Castroville. The proposed site for the Castroville facility is located immediately north of State Route (SR) 156 at Castroville Boulevard on land currently used for agriculture. The site lies between downtown Castroville and a residential neighborhood about one-half mile to the east, which also houses North (Monterey) County High School. The Monterey County General Bikeways Plan (2001) includes a pedestrian/bicycle trail through the site that connects Salinas Street with Castroville Boulevard along with a grade separated pedestrian and bicycle crossing. The site is included within the community area boundaries defined in the Castroville Community Plan and has been identified as a potential location for mixed-use transit-oriented development. The site would be accessed from SR 156, which connects Monterey Bay communities with U.S. 101 and Salinas Street/Benson Road. The city of Marina is seven miles (nine minutes) southwest of Castroville and is connected to the station site via a four-lane freeway. Marina's estimated 2005 population is 23,172.

A community meeting concerning train service to Castroville was held on January 15, 2003 at Gambetta Elementary School in Castroville. There were approximately 70 members of the Castroville community in attendance. Comments were taken and recorded to be incorporated into the Initial Study. Comments and concerns included a desire for weekend service, the need for a pedestrian undercrossing, connection of the bike route through the site to the high school, improvements to SR 156, building aesthetics and creating a station design that blends in, security, passenger services, parking, noise issues, and energy efficiency. Three goals of the meeting were to integrate the project with the Community Plan, minimize traffic impacts and include a pedestrian path to the high school.

A follow-up public information/presentation of the Draft EIR findings and question and answer session was held at a Castroville Community Plan Advisory Committee meeting held on May 24, 2006. No comments on the Draft EIR or proposed project were received from the public other than support for the overall service and proposed station facilities.

SALINAS PROPERTY OWNERS MEETING

Salinas is the county seat of Monterey County with a Year 2000 population of 143,920. The Association of Monterey Bay Area Governments estimates its 2005 population at 146,687. Although agriculture is the economic base of Salinas, the city is also home to more than 100 manufacturing firms and several government offices.

The proposed Salinas Intermodal Transportation Center (ITC) expansion would take place on the site of the current Amtrak station. The city of Salinas has been making improvements on this property since 1999. The current Amtrak station building was constructed in 1942. A new parking area and bus berths were constructed in 2000. A historical train exhibit that will serve as a focal point for the station area is also being constructed at this site.

A 2003 U.S. Transportation Authorization bill appropriated $1.2 million for additional improvements to the station building to address access requirements by the Americans with Disabilities Act and other miscellaneous deficiencies.

The existing Amtrak station includes the equivalent of a Type 150B station building with adjacent administrative space currently used for UPRR operations; a 10-bus-berth/circulation and passenger drop-off/pickup roadway; 155 parking spaces available for overnight and commuter passenger use; two rail-side boarding platforms; pedestrian-scale and security lighting; and landscaping.

A meeting concerning train service to Salinas was held on March 31, 2003, with owners of properties in the Salinas area. The meeting was held at Chapala's Restaurant, 438 Salinas Street, Salinas. Approximately 40 property owners attended the meeting. Comments were taken and recorded to be incorporated into the Initial Study. Comments and concerns included a time schedule for taking of property, viability of state and federal funding for the project, transportation management issues, truck traffic on Market Street, the effect of closing business on nearby businesses, parking calculations and the movement and layover of trains.

SALINAS COMMUNITY MEETING

A meeting concerning Caltrain service to Monterey County was held on April 2, 2003 at the Steinbeck Center in Salinas. There were approximately 30 members of the Salinas community in attendance. Comments were taken and recorded to be incorporated into the Initial Study. Comments and concerns included the cost of fares for train service, delays due to shared track utilization, whether to impose parking fees to park in the parking structure/lots, security concerns, more frequent weekday and weekend service, passenger services in the stations, design and aesthetics of station buildings, development of local commercial businesses surrounding the station site, traffic circulation, pedestrian access, and access into the Oldtown area.

In addition to the single meeting with Salinas property owners in March 2003, a series of meetings were held with affected property owners from August 2004 through September 2005. Input received from these meetings influenced the layout of the ITC expansion and layover facilities, as ultimately reflected in Salinas ITC Expansion Design Options 17A, 17B, 18A and 18B.

MONTEREY PENINSULA COMMUNITIES

The Monterey Peninsula Communities of Marina, Seaside, Sand City and Monterey lie to the southwest of Castroville along the Pacific Ocean, adjacent to the Monterey branch line railroad right-of-way. The Monterey branch line right-of-way has been purchased over time by the Transportation

Agency for Monterey County (TAMC), from Castroville to Seaside; and by Seaside and Monterey through their communities.

As part of the Monterey County Fixed Guideway Study, public meetings were held in Marina, Seaside and Monterey to explore fixed guideway transit reuse of this right-of-way.

A summary of public opinions expressed during the aforementioned public meetings is summarized by topic below.

Service

- Express, high-speed service with limited stops on the Monterey branch line is unacceptable.
- Frequent service with frequent stations and all day service is desirable.
- Opportunities for adding intercity passenger rail service to San Francisco should be preserved.
- Funding availability will likely necessitate phased implementation.
- MST bus service should integrate with light rail transit/bus rapid transit service, without duplication.

Alignment

- Monterey branch line service should extend between Washington Street in Monterey and Armstrong Ranch in Marina at a minimum.
- Intergarrison Road should be preserved as a future transit corridor, eventually linking Marina with Salinas, possibly via Davis Road.

Equipment

- Large, locomotive hauled passenger trains are unacceptable to Monterey branch line community leaders and residents.
- Electric propulsion is not required. Overhead electric lines are considered to be unsightly.
- Diesel light rail transit and bus rapid transit vehicles are acceptable to community leaders and residents if air quality and noise impacts are generally equal to electric propulsion.

Stations

- An intercity passenger rail station north of Marina at Highway 1 and Lapis Road should be dropped from further consideration. This site is too distant from existing or future development.
- All other proposed stations should be retained for continued project development investigations. Platform or stop locations may shift in the future to reflect community input.
- Pedestrian and bicycle access to stations should be emphasized, with park-and-ride limited to select locations.

OTHER PUBLIC INFORMATION MECHANISMS

Design concepts, status, issues and public input were regularly presented to policy boards and advisory committees and as public outreach to interested parties within the community. These public forum presentations included:

- May 10, 1999 – Caltrain Extension Task Force Meeting with VTA, City of Salinas, San Benito County, Caltrain JPB, City of Watsonville, Santa Cruz County Regional Transportation Commission (SCCCRTC), MST, AMBAG, Caltrans District 5, and TAMC to discuss goals and current plans.
- August 26, 1999 – Caltrain Extension Task Force Meeting to discuss preparation of business plan, equipment capacity, Salinas layover facility.
- August 15, 2000 – Meeting with JPB and VTA staff to discuss *Extension of Caltrain Commuter Service to Monterey County Business Plan.*
- October 6, 2000 – Meeting with City of Salinas Council Facilities Committee, Redevelopment Agency and staff to discuss Caltrain Extension implementation and action plan.
- February 25, April 23, and June 25, 2001 – Meetings with Monterey County, City of Watsonville, Santa Cruz Metropolitan Transit District, Monterey–Salinas Transit, and Caltrans staff representatives to discuss Pajaro Valley Station project development.
- March 29, 2001 – VTA/TAMC coordination meeting regarding Salinas layover facility, funding, unknown UPRR capacity improvements, TAMC funding, initial train service schedules.
- May 24, 2001 – Meeting with JPB staff to discuss Caltrain Extension project.
- May 30, 2001 – Caltrain Extension project discussed with three members of the Santa Clara County Board of Supervisors who sit on the VTA Board.
- June 7, 2001 – Formal presentation of Caltrain Extension project to JPB Board (public meeting).
- June 11, 2001 – Presentation on TCRP funding application to Rail Policy Committee (public meeting).
- November 1, 2001 – TAMC presentation to PCJPB Board regarding Caltrain extension to Salinas.
- April 4, June 6, and October 22, 2002 – Caltrain Extension project and proposed stations design discussed with UPRR staff.
- May 8, 2002 – Meeting with JPB staff to discuss Caltrain Extension project and Monterey Intercity Passenger Rail project.
- May 16, 2002 – Meeting with Caltrans environmental staff to scope Caltrain Extension NEPA environmental document.
- June 10, 2002 – Presentation on qualifying Caltrain Extension to Monterey County for federal funding and additional public outreach to Rail Policy Committee (public meeting).
- January 22 and 30, 2003 – Caltrain Extension project discussed with UPRR staff.
- May 5, 2003 – Rail Policy Committee tours Salinas project site (public meeting).
- June 9, 2003 – Presentation on Salinas Station and Pajaro Station to MST Board (open to public).
- June 25, 2003 – Presentation to the TAMC Board (public meeting).

- June 26, 2003 – Caltrain Extension project discussed with UPRR staff.
- August 28, 2003 – Caltrain Extension project discussed with Federal Transit Administration (FTA) staff.
- September 2, 2003 – Notice of Preparation for the *Caltrain Extension to Monterey County Project Draft Environmental Impact Report.*
- September 15, 2003 – Caltrain Extension project presented to MST Board and Facilities Sub-committee (public meeting).
- December 9, 2003 – Presentation on Pajaro station and Caltrain Extension to Watsonville City Council (public meeting).
- April 19, 2004 – JPB, VTA and TAMC Caltrain Extension to Monterey County coordination meeting.
- April 26, 2004 – Federal Transit Administration staff tour of project sites.
- May 3, 2004 – Presentation on Salinas site to Rail Policy Committee (public meeting).
- June 23, 2004 – Castroville Community Plan Citizens Advisory Committee on Castroville station. Approximately 30 members of public in attendance.
- June 30, 2004 – Caltrain Extension project discussed with Coastal Commission staff.
- August 2004 through December 2005 – Affected property owners in Salinas met individually with TAMC (dates and minutes available for review at TAMC office).
- October 12, 2004 – Study session with Marina City Council regarding Monterey County Fixed Guideway Alternatives.
- November 4, 2004 – Presentation to Oldtown Salinas Association on Salinas ITC (public presentation).
- November 8, 2004 – Presentation to MST Facilities Committee on Salinas project site (open to public).
- December 13, 2004 – MST Board presentation on Salinas project site (open to public).
- January 18, 2005 – Meeting with concerned citizens on the Salinas freight building. Organized by Salinas Redevelopment Agency. Public meeting – approximately 50 people attended to ask questions. The group expressed that they did not want the freight building removed or relocated.
- February 1, 2005 – Salinas project site on agenda for Salinas City Council at a regularly scheduled City Council meeting (open to the public). Public input was received on the project and entered into the record. American Supply Company (a business within the project area) opposed the project, and City Council members stated their opinions for the record. City Council approved Salinas ITC Expansion Configurations 17 and 18 for environmental review.
- February 18, 2005 – Meeting with Coastal Commission staff to discuss footprint of Castroville Station parking supply.
- March 3, 2005 – Presentation to Seaside City Council of Monterey County Fixed Guideway Alternatives (open to public).
- March 15, 2005 – Presentation to Monterey City Council of Monterey County Fixed Guideway Alternatives (open to public).
- March 23, 2005 – Presentation to TAMC Board on Salinas ITC Expansion Options 17 and 18 (open to public).

- April 5, 2005 – Televised interview regarding fixed guideway investment options on KNRY/AMP.
- April 5, 2005 – Presentation to Sand City Council of Monterey County Fixed Guideway Alternatives (open to public).
- April 5, 2005 – Presented options for rail service to Monterey County and announced April public meetings on KNRY and Access Monterey Peninsula (AMP).
- April 6, 2005 – Public informational meeting/open house regarding Monterey County Guideway Alternatives at Seaside Community Center, 7 PM to 9 PM.
- April 27, 2005 – Public informational meeting/open house regarding Monterey County Guideway Alternatives at Monterey Conference Center, 7 PM to 9 PM.
- June 10, 2005 – Presented rail projects and 14-year plan on KNRY and AMP.
- July 11, 2005 – Rail Policy Committee deliberations regarding the shortlisting of Monterey County Fixed Guideway Alternatives (open to public).
- July 26, 2005 – Presentation to LandWatch Monterey County on the Castroville rail station in the context of the Community Plan.
- August 3, 2005 – Teleconference with FTA staff regarding project status.
- August 8, 2005 – Presentation to Rail Policy Committee on Monterey County Fixed Guideway mode technology and deployment options. Continued deliberation on shortlisting of alternatives (open to public).
- September 12, 2005 – Presentation of bus rapid transit technologies, FTA Alternatives Analysis process, and Rail Policy Committee selection of four shortlisted alternatives for Highway 101 Corridor and Monterey Peninsula Fixed Guideway/express bus transit service (open to the public).
- October 10, 2005 – Presentation to MST Board regarding transit-oriented development opportunities at Fort Ord/University Villages site.
- November 2, 2005 – Teleconference with FTA staff regarding project status, need for MST on-board rider survey.
- November 7, 2005 – Discussed the benefits of Amtrak Thruway bus service to Monterey County and TAMC rail projects at the Amtrak Thruway bus ribbon-cutting ceremony.
- December 8, 2005 – Discussed TAMC's 14-year plan, rail program and transit-oriented development program with the Monterey Bay chapter of the Association of Environmental Professionals.
- January 9, 2006 – Rail Policy Committee discussion of Caltrain Extension demonstration service to accelerate implementation (open to public).
- February 6, 2006 – Coordination meeting with Caltrans Division of Rail, Amtrak, UPRR and TAMC to discuss Coast Line capacity improvements and Caltrain extension.
- February 6, 2006 – Rail Policy Committee continued discussion of Caltrain Extension demonstration service (open to public).
- February 14, 2006 – Discussed Transit-Oriented Development/Transit Villages/"Smart Growth," Rail projects and the 14-year plan on KNRY and AMP.

- April 3, 2006 – Presentation to Rail Policy Committee of Caltrain Extension Draft Environmental Impact Report. Rail Policy Committee approves Draft Environmental Impact Report for public review (open to public).
- April 7, 2006 – Federal Transit Administration staff tour of project sites.
- April 26, 2006 – *Caltrain Extension to Monterey County Passenger Rail Stations Draft Environmental Impact Report* circulation for public review.
- May 9, 2006 – Discussed Caltrain project and transit-oriented development on KNRY and AMP.
- May 10, 2006 – Informational presentation of Caltrain Extension Draft Environmental Impact Report to Action Pajaro public meeting.
- May 16, 2006 – Caltrain Extension Draft Environmental Impact Report informational briefing on agenda for Salinas City Council regularly scheduled City Council meeting (open to the public). Public input was received on the project. American Supply Company opposed the taking of their lands for the project, but supported the Caltrain Extension to Monterey County/Salinas. Council persons asked questions regarding ITC Expansion integration with the First Mayor's (Harvey-Baker) House.
- May 24, 2006 – Caltrain Extension Draft Environmental Impact Report Public Hearing on TAMC regularly scheduled Board Meeting. No public comment was made at the meeting.
- May 24, 2006 – Informational presentation of Caltrain Extension Draft Environmental Impact Report to Castroville Development Citizens Advisory Subcommittee (public meeting).
- May 30, 2006 – Federal Transit Administration staff tour of project sites.
- June 5, 2006 – Presentation to Rail Policy Committee of Caltrain Extension Alternatives Analysis study findings (open to the public).
- June 7, 2006 – VTA/TAMC coordination meeting regarding Draft Environmental Impact Report and summary of business plan assumptions.
- July 12, 2006 – Meeting with JPB and VTA staff to review project status and summary of business plan assumptions.
- August 23, 2006 – TAMC Board of Directors public hearing and certification of the Final Environmental Impact Report.
- August 29, 2006 – Discussed Caltrain project Final Environmental Impact Report on KNRY and AMP.
- September 22, 2006 – Distribution of *Draft Caltrain Extension to Monterey County Alternatives Analysis* study report to public agencies and TAMC Rail Policy Committee.
- October 2, 2006 – TAMC Rail Policy Committee discussion of Draft Caltrain Extension to Monterey County Alternatives Analysis and endorsement of the Build Alternative as the Locally Preferred Alternative (open to the public).
- October 2, 2006 – Distribution of the Alternatives Analysis report to the public via TAMC's web site.
- January 31, 2007 – TAMC Board adoption of the Caltrain Extension to Monterey County as the Locally Preferred Alternative (open to the public).

CONSULTATIONS

A series of monthly Project Development Team meetings were held between March 2002 and June 2006. Meetings were held at either the offices of the Monterey County Redevelopment Agency or TAMC. Discussion topics included review of scope of work and schedules, design of project and project components, integration with existing data (traffic, noise, ridership expectancy, etc.), negotiations with other agencies and parties, parking options, status reports and funding requirements and updates. Project Development Team members included staff from the following agencies:

Transportation Agency for Monterey County
State of California Department of Transportation
Monterey–Salinas Transit
Santa Clara Valley Transportation Authority
Peninsula Corridor Joint Powers Board
Union Pacific Railroad
City of Salinas
Salinas Redevelopment Agency
County of Monterey
Parsons Transportation Group

SUMMARY OF PUBLIC AND STAKEHOLDER INPUT

- All Highway 101 Corridor communities (Pajaro/Watsonville, Castroville, Salinas) support the Caltrain Extension Alternative.
- One affected property owner in Salinas, American Supply, supports the project, but opposes the acquisition of its property.
- Monterey Peninsula communities support the Caltrain Extension Alternative as well as local service along the Monterey Peninsula, connecting to Caltrain service at Castroville.
- Public agencies internal to Monterey County support the Caltrain Extension Alternative. These include TAMC, Monterey–Salinas Transit, the Monterey County Resource Management Agency, and the City of Salinas.
- Public agencies external to Monterey County support the Caltrain Extension Alternative. These include the State of California Department of Transportation, the Association of Monterey Bay Area Governments, the Santa Cruz County Regional Transportation Commission, the San Francisco Bay Area Metropolitan Transportation Commission, the Santa Clara Valley Transportation Authority, the Peninsula Corridor Joint Powers Board, and the City of San Jose.
- The Union Pacific Railroad has developed a draft term sheet for extending Caltrain service to Salinas and has approved the conceptual design plans for Monterey County station facilities.
- The California Coastal Commission staff supports the Caltrain Extension Alternative and seeks to reduce the size of the parking footprint at the Castroville Station.
- No public opposition to the Caltrain Extension Alternative has arisen in four years of project development informational meetings or circulation of the CEQA Draft Environmental Impact Report.

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CHAPTER 8: EVALUATION OF ALTERNATIVES

The Caltrain Extension Alternative and Express Bus Alternative have been evaluated based on the "Tier Two" evaluation criteria and performance measures identified in Chapter 1 (see Figure 1-4). Performance information reported in this chapter is organized into two sections. The first section presents an economic evaluation of the two alternatives using benefit/cost analysis methodologies. This analysis includes estimates of user benefits including travel time savings, reductions in out-of-pocket travel expenses, and reduced accident costs. Estimates of revenue transfers (reduced public tax revenue collections) are included in the analysis. The economic analysis also measures external costs such as the health cost of motor vehicle emissions and accident costs which are not perceived by users.

The second portion of this chapter measures social performance criteria. These include cost effectiveness, equity, land use, environmental and public acceptance issues.

ECONOMIC PERFORMANCE OF THE CALTRAIN EXTENSION AND EXPRESS BUS ALTERNATIVES

The economic performance evaluation of the alternatives is patterned on traditional benefit/cost analysis techniques. The California Life-Cycle Benefit/Cost Analysis Model (Cal-B/C) and the Surface Transportation Efficiency Analysis Module (STEAM 2.0) provide the framework for the economic analysis of alternatives which is described below.

Travel Time Savings

Automobile Travel Time
As reported in Table 2-5, travel time between a representative origin–destination pair (Morgan Hill to Santa Clara) improved by approximately 20 minutes between 2000 and 2005. This decrease in travel time resulted from capacity improvements to U.S. 101 between Morgan Hill and San Jose, and a reduction in travel demand caused by lower employment in the technology sector. In the future, highway travel times are forecast to increase, returning to and exceeding those experienced in the dotcom boom of 2000/2001.

Table 8-1 indicates existing (2005) measured travel times and estimated, future year travel times. These times exclude "terminal" access/egress times, assumed to be 10 minutes for each one-way journey to work or home.

Table 8-1
Existing and Estimated Travel Times

City Pair	Highway Distance (mi)	Travel Time (min)		
		2005	2010	2030
Salinas–Gilroy	27.6	30	30	41
Castroville–Gilroy	24.1	27	27	36
Pajaro–Gilroy	15.0	23	25	28
Gilroy–Morgan Hill	9.0	9	9	13
Morgan Hill–San Jose	23.5	30	35	40
San Jose–Santa Clara	7.1	24	29	33
Santa Clara–Mountain View	8.2	15	18	34

Source: Valley Transportation Authority, Caltrans, Parsons

Transit Travel Time

Transit travel time includes time while on board the commuter rail train or express bus, time expended to access the origin station, wait for the transit vehicle to arrive or depart, and time expended to reach the journey's final destination. Table 8-2 indicates the various station mode of arrival/egress assumptions; weighted access/egress travel times; weighted transfer times; and on board transit vehicle travel times for the line haul portion of the trip (e.g., Salinas Intermodal Transportation Center (ITC) to Mountain View Caltrain station). Travel times by express bus and commuter rail are assumed to be comparable for year 2010 operations.

Time expended outside a transit vehicle for walking or bicycle access to or from a station, and time expended outside waiting for a transit vehicle to arrive is weighted by a factor of 2.0 to account for the inconvenience of these delays.

Table 8-2
Station Mode of Arrival/Egress Assumptions

Parameter	Origin Station		
	Pajaro	Castroville	Salinas
Monterey County station mode of arrival (percent)			
Auto	86%	73%	60%
Other	14%	27%	40%
Weighted access time (minutes)	11.4	12.7	14.0
Weighted transfer time (minutes)			
AM—6	13	13	13
PM–20			
Santa Clara County station mode of egress (percent)			
Walk/bicycle	50%	50%	50%
Bus/auto	50%	50%	50%
Weighted egress time (minutes)	15	15	15
On board train (2010 and 2030)			
San Jose Diridon	81	95	105
Mountain View	107	121	131
On board express bus (2010)			
San Jose Diridon	81	95	105
Mountain View	107	121	131
On board express bus (2030)			
San Jose Diridon	93	111	123
Mountain View	121	139	151

Source: Parsons

Total Travel Time (Minutes)

Total travel times by automobile, commuter rail, and express bus modes are reported in Table 8-3 for the 2010 and 2030 planning horizons. All times include in- and out-of-vehicle terminal times and transfer wait times. For the transit modes, out-of-vehicle times are weighted by a factor of 2.0 to reflect user inconvenience.

Travel Time Savings

While commuting by automobile, it is difficult to productively utilize the travel time expended during the journey. Cellular telephone conversations, listening to books on tape and putting on cosmetics are marginally productive uses of time which may, however, lead to higher incidents of auto crashes.

Table 8-3
Total Travel Times (minutes) for Auto/Caltrain/Express Bus Journeys

Destination Station	Origin Station		
	Pajaro	Castroville	Salinas
2010			
San Jose (Santa Clara–Mid)	79/120/120	81/136/136	84/147/147
Mountain View (Santa Clara–North)	126/146/146	128/162/162	131/173/173
2030			
San Jose (Santa Clara–Mid)	91/120/132	99/136/152	104/147/165
Mountain View (Santa Clara–North)	158/146/160	166/162/180	171/173/193

Automobile travel times (includes 10 minutes of terminal time)
Caltrain travel times (includes out-of-vehicle time weighted × 2.0)
Express bus travel times (includes out-of-vehicle time weighted × 2.0)

Source: Parsons

By comparison, traveling by Caltrain or express bus will free the commuter to read, work, write and/or relax. This recovered time can be viewed to be a travel time "savings."

For the purpose of this benefit calculation, travel time savings, i.e., time which can be put to productive use, is computed to be time on-board the line haul transit vehicle (Caltrain or express bus), minus the time difference of the overall journey by transit versus automobile (Method 1).

Figure 8-1 illustrates this travel time savings concept. Table 8-4 reports the findings of this analysis.

An alternative and more conservative approach to calculating travel time savings (Method 2) is to base the savings on the total travel time difference between the highway and transit for the Caltrain Extension project scenario. The Cal-B/C[1] utilizes this approach.

> "If the difference in travel time is negative (i.e., the travel time is smaller on the parallel highway than on transit), the benefit is assumed to be zero. The new transit riders must have shifted models for reasons other than travel time savings. Assuming that these new riders are rational in their decision making, the sum of these benefits must be positive. Since Cal-B/C is unlikely to capture all of the benefits (e.g., the value of reducing one's stress by not having to drive, the improved reliability of transit, etc.), the model conservatively estimates that the new transit riders do not receive a benefit."

A third approach (Method 3) is to recognize some useful benefit to the on-board line haul portion of the transit trip. This method weighs the in-vehicle travel time by a factor, typically 75 percent, and then calculates the total travel time difference. Table 8-5 reports the findings of this analysis.

Value of Time

Consistent with U.S. Department of Transportation guidance for the valuation of travel time in economic analysis, local personal travel was assumed to be valued at 50 percent of the local median wage rate. Monterey County's mean wage for all occupations was reported by the California Employment Development Department to be $18.01 per hour for the third quarter of 2005, or $37,458 when expressed as an annual wage or salary. Using this wage rate as a basis, the value of time would equal $9.00 per hour.

Most people who commute to Silicon Valley (Santa Clara County) do so to earn a higher wage, however. Why else would a worker commute 60 to 100 miles from home to work to earn the same wage found locally.

[1] *Technical Supplement to User's Guide*, Booz • Allen & Hamilton, Inc., September 1999.

Figure 8-1
Travel Time Utilization—Method 1

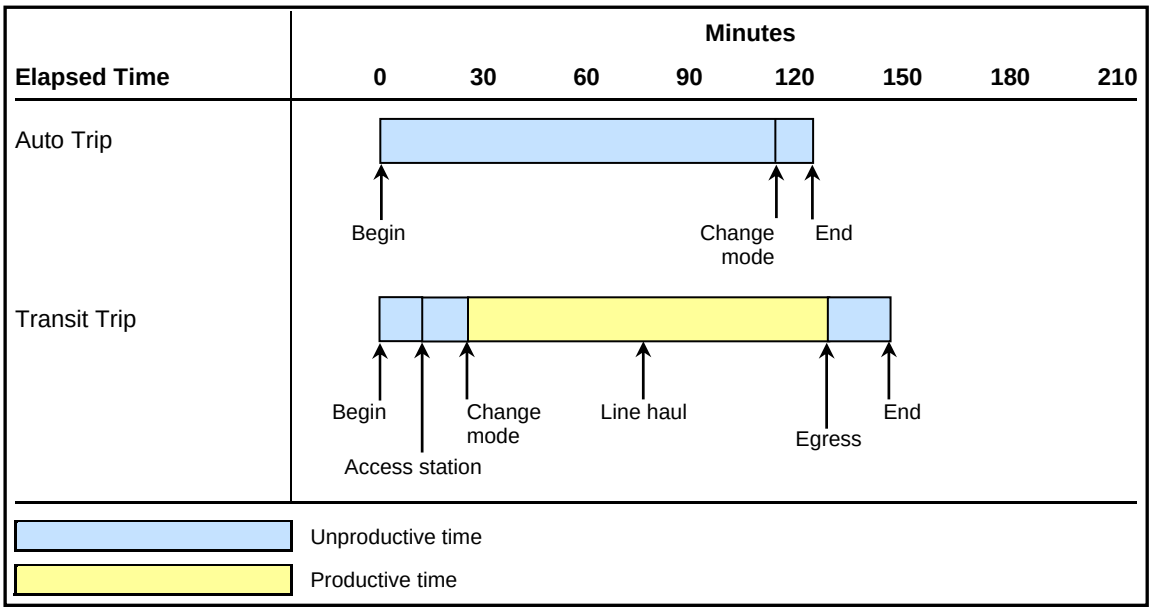


Table 8-4
Travel Time Savings (minutes per one-way trip)—Method 1

Destination Station	Time Component	Origin Station: Pajaro Caltrain	Pajaro Express Bus	Castroville Caltrain	Castroville Express Bus	Salinas Caltrain	Salinas Express Bus
2010							
San Jose Santa Clara–Mid	On-board	81	81	95	95	105	105
	Δ time	(41)	(41)	(55)	(55)	(63)	(63)
	Net	40	40	40	40	42	42
Mountain View Santa Clara–North	On-board	107	107	121	121	131	131
	Δ time	(20)	(20)	(34)	(34)	(42)	(42)
	Net	87	87	87	87	89	89
2030							
San Jose Santa Clara–Mid	On-board	81	93	95	111	105	123
	Δ time	(29)	(41)	(37)	(53)	(43)	(61)
	Net	52	52	58	58	62	62
Mountain View Santa Clara–North	On-board	107	121	121	139	131	151
	Δ time	12	(2)	4	(14)	(2)	(22)
	Net	119	119	125	125	129	129

According to a report published by the American Electronics Association, *California Cybercities 2006*, San Jose/Silicon Valley is home to 214,900 high-tech jobs as of the end of 2004, which pay $126,729 per year on average. (The average wage for all private sector workers in San Jose/Silicon Valley was $72,225.)

Table 8-6 reports selected wage rates for comparison.

Table 8-5
Travel Time Savings (minutes per one-way trip)—Method 3

Destination Station	Origin Station: Pajaro		Castroville		Salinas	
	Caltrain	Express Bus	Caltrain	Express Bus	Caltrain	Express Bus
2010						
San Jose (Santa Clara–Mid)	0	0	0	0	0	0
Mountain View (Santa Clara–North)	7	7	0	0	0	0
2030						
San Jose (Santa Clara–Mid)	0	0	0	0	0	0
Mountain View (Santa Clara–North)	39	28	34	21	31	16

Source: Parsons

Table 8-6
Selected Wage Rates (2004 unless noted)

Job Location and Type	Average Annual Wage	Hourly Wage
Santa Clara County—High Tech	$126,729	$60.93
Santa Clara County—All Private	$ 72,225	$34.72
Monterey County—All Industries (Q3 2005)	$ 37,459	$18.01
Statewide—High Tech	$ 90,554	$43.54
Statewide—All Private	$ 44,045	$21.18

Source: American Electronics Association, California Development Department

Based on the ridership assessment of likely origin–destination patterns, the average wage rate of all Silicon Valley workers is assumed as the basis for commuting value of time. At $34.72 per hour, 50 percent of this amount equals $17.36.

Value of Travel Time Savings

The number of annual passengers forecast for the Caltrain Extension and Express Bus alternatives is reported in Table 8-7.

Table 8-7
Annual Passengers—Caltrain Extension to Salinas

Egress/Access	Annual Passengers: Pajaro	Castroville	Salinas	Total
2010				
Santa Clara–Mid	48,960	10,200	89,250	148,410
Santa Clara–North	106,590	22,440	193,290	322,320
San Mateo	12,240	2,550	21,930	36,720
San Francisco	5,610	1,020	10,200	16,830
	173,400	36,210	314,670	524,280
2030				
Santa Clara–Mid	85,170	25,500	173,400	284,070
Santa Clara–North	184,620	55,590	374,850	615,060
San Mateo	20,910	6,120	42,840	69,870
San Francisco	9,690	3,060	19,380	32,130
	300,390	90,270	610,470	1,001,130

Source: Parsons

Combining these ridership levels with the value of in-vehicle transit travel time ($17.36/hour) and the minutes of travel time "savings" yields the following computations of user benefits.

Table 8-8
User Time Benefits—Method 1

Egress/Access	Pajaro	Castroville	Salinas	Total
2010				
Santa Clara–Mid	$ 566,630	$118,048	$1,084,566	$ 1,769,244
Santa Clara–North	2,683,083	564,860	4,977,346	8,225,289
San Mateo*	308,105	64,189	564,712	937,006
San Francisco*	141,215	25,675	262,657	429,527
	$3,699,033	$772,772	$6,889,281	$11,361,086
2030				
Santa Clara–Mid	$1,281,411	$ 427,924	$ 3,110,565	$ 4,819,900
Santa Clara–North	6,356,590	2,010,565	13,990,901	22,357,996
San Mateo*	719,945	221,340	1,598,960	2,540,245
San Francisco*	333,633	110,670	723,339	1,167,642
	$8,691,579	$2,770,439	$19,423,765	$30,885,783

Source: Parsons
*Travel time savings/rider assumed to be equal to Santa Clara–North.

Table 8-9
User Time Benefits—Method 3

	Pajaro		Castroville		Salinas		Total	
Egress/Access	Caltrain	Express Bus	Caltrain	Express Bus	Caltrain	Express Bus	Caltrain	Express Bus
2010								
Santa Clara–Mid	—	—	—	—	—	—	—	—
Santa Clara–North	$ 215,880	$ 215,880	—	—	—	—	—	—
San Mateo*	$ 24,790	$ 24,790	—	—	—	—	—	—
San Francisco*	$ 11,362	$ 11,362	—	—	—	—	—	—
	$ 252,032	**$ 252,082**	—	—	—	—	**$ 252,032**	**$ 252,082**
2030								
Santa Clara–Mid	—	—	—	—	—	—	—	—
Santa Clara–North	2,083,252	1,495,668	546,857	337,765	3,362,154	1,735,305	5,992,263	3,568,738
San Mateo*	235,948	169,399	60,204	37,185	384,246	198,321	680,398	404,905
San Francisco*	109,342	78,502	30,102	18,593	173,826	89,716	313,270	186,811
	$2,428,542	**$1,743,569**	**$637,163**	**$393,543**	**$3,920,226**	**$2,023,342**	**$6,985,931**	**$4,160,454**

*Travel time savings/rider assumed to be equal to Santa Clara–North.

Vehicle Operating Costs

Vehicle operating costs were calculated for the No Build and Caltrain Extension/Express Bus alternatives using estimates of vehicle miles traveled (VMT) reported in Table 8-10.

In lieu of calculating fuel consumption per gallon based on average link speeds and vehicle miles traveled per link, an average rate of vehicle fuel economy was used based on Environmental Protection Agency (EPA) laboratory data adjusted downward by about 15 percent to better represent real-world driving conditions. In its annual report released on July 17, 2006, the EPA said the industry-wide fuel economy of 2006 model-year vehicles was 21 miles per gallon, the same as a year ago.[10]

The resulting average fuel consumption of 0.0476 gallons/mile corresponds reasonably well with the estimates of average fuel consumption for the Year 2000 obtained from the California Air Resources Board's Motor Vehicle Emission Inventory models. These rates, used in the California Life-Cycle Benefit/Cost Analysis Model, are reported in Table 8-11.

The price-per-gallon of regular grade gasoline was assumed to be $2.995 per gallon, based on prices prevailing in Salinas, California in March 2007.[11] This cost was separated into tax and non-tax components, using the tax portion to compute "revenue transfers." The tax rate per gallon of gasoline was assumed to be 18.4 cents federal, 18.0 cents state excise, 18.1 cents state sales, 3.8 cents county sales, and 1.2 cents per gallon UST fee. These taxes total 59.5 cents per gallon.

Non-fuel costs for vehicle maintenance and tire expense were assumed to be $0.061 per mile for automobiles based on Center for Transportation Analysis, Department of Energy statistics for calendar year 2004. This cost does not include mileage-based depreciation.

The resulting vehicle operating cost benefits of the Caltrain Extension and Express Bus alternative improvements, computed for Year 2030 passenger volumes, are estimated to be $12 million annually as shown in Table 8-12. Revenue transfers and fuel taxes not collected as a result of these benefits amount to $1.7 million annually in 2030.

Transit User Fees

The transit user vehicle operating cost savings reported above must be offset by the fares users pay to ride the proposed transit service. Table 6-13 lists the anticipated fare revenues for different levels of ridership. For the 2010 and 2030 planning horizons, the anticipated revenue from passenger fares (user fees) are as follows, based on the Caltrain fare structure in place as of January 1, 2006.

- Year 2010 annual passenger revenue = $3,310,612
- Year 2030 annual passenger revenue = $6,320,790

[10] Washingtonpost.com, "Gas Prices Are Up but Not Fuel Economy," July 18, 2006.
[11] www.fuelgaugereport.com for March 7, 2007.

Table 8-10
2010 and 2030 Annual Passengers, Passenger Miles, and Vehicle Equivalents—Caltrain Extension to Salinas

Egress/Access	2010 Pajaro	2010 Castroville	2010 Salinas	2010 Total
Annual Passengers				
Santa Clara–Mid	48,960	10,200	89,250	148,410
Santa Clara–North	106,590	22,440	193,290	322,320
San Mateo	12,240	2,550	21,930	36,720
San Francisco	5,610	1,020	10,200	16,830
	173,400	36,210	314,670	524,280
Annual Vehicle Equivalents*				
Santa Clara–Mid	44,509	9,273	81,136	134,918
Santa Clara–North	96,900	20,400	175,718	293,018
San Mateo	11,127	2,318	19,936	33,381
San Francisco	5,100	927	9,273	15,300
	157,636	32,918	286,063	476,617
Vehicle Mile Equivalents				
Santa Clara–Mid	44.7	53.8	57.4	
Santa Clara–North	60.4	69.5	73.1	
San Mateo	74.6	83.7	87.3	
San Francisco	92.2	101.3	104.9	
Annual Vehicle Mile Equivalents**				
Santa Clara–Mid	1,989,552	498,887	4,657,206	7,145,645
Santa Clara–North	5,852,760	1,417,800	12,844,985	20,115,545
San Mateo	830,074	194,017	1,740,413	2,764,504
San Francisco	470,220	93,905	972,738	1,536,863
	9,142,606	2,204,609	20,215,342	31,562,557

*Assumes average auto occupancy of 1.10 for peak hour commuters.
**Reflects highway travel distances

Egress/Access	2030 Pajaro	2030 Castroville	2030 Salinas	2030 Total
Annual Passengers				
Santa Clara–Mid	85,170	25,500	173,400	284,070
Santa Clara–North	184,620	55,590	374,850	615,060
San Mateo	20,910	6,120	42,840	69,870
San Francisco	9,690	3,060	19,380	32,130
	300,390	90,270	610,470	1,001,130
Annual Vehicle Equivalents*				
Santa Clara–Mid	77,427	23,182	157,636	258,245
Santa Clara–North	167,836	50,536	340,773	559,145
San Mateo	19,009	5,564	38,945	63,518
San Francisco	8,809	2,782	117,618	29,209
	273,081	82,064	554,972	910,117
Vehicle Mile Equivalents				
Santa Clara–Mid	44.7	53.8	57.4	
Santa Clara–North	60.4	69.5	73.1	
San Mateo	74.6	83.7	87.3	
San Francisco	92.2	101.3	104.9	
Annual Vehicle Mile Equivalents**				
Santa Clara–Mid	3,460,987	1,247,192	9,048,306	13,756,485
Santa Clara–North	10,137,294	3,512,252	24,910,506	38,560,052
San Mateo	1,418,071	465,707	3,399,899	5,283,677
San Francisco	812,190	281,817	1,848,128	2,942,135
	15,828,542	5,506,968	39,206,839	60,542,349

*Assumes average auto occupancy of 1.10 for peak hour commuters.
**Reflects highway travel distances

Table 8-11
Fuel Consumption Rates (gallons/mile)

Speed	Auto	Truck
5	0.182	0.310
10	0.123	0.181
15	0.089	0.135
20	0.068	0.118
25	0.054	0.120
30	0.044	0.133
35	0.037	0.156
40	0.034	0.185
45	0.033	0.223
50	0.033	0.264
55	0.034	0.316
60	0.037	0.374
65	0.043	0.439
70	0.052	0.511

Source: Cal-B/C, California Air Resources Board

Table 8-12
Vehicle Operating Cost Savings

Parameter	2010	2030
Annual VMT reduction (miles)	31,562,557	60,542,349
Annual fuel savings (gallons)	1,502,378	2,881,816
Annual motorist cost of fuel savings	$4,499,622	$ 8,631,039
Annual non-fuel motorist cost savings (excluding mileage-based depreciation)	$1,925,316	$ 3,693,083
Total vehicle operating cost savings	**$6,424,938**	**$12,324,122**
Revenue transfers	($893,915)	($1,714,681)

Crash Benefits

To compute benefits associated with the Caltrain Extension and Express Bus alternatives versus the No Build Alternative, the number of vehicle miles traveled over the highway system was computed for each alternative.

Rates of crash occurrences resulting in fatalities, personal injuries, and property damage only were obtained from Caltrans for year 2004. Statewide rates were used in the calculation of benefits. These rates are listed in Table 8-13.

Table 8-13
California Crash Rates on State Highways (2004)*

Functional Classification	PDO Crash Rate	Injury Crash Rate	Fatal Crash Rate
All	100.90	61.96	1.13

Source: California Highway Patrol, California Department of Transportation
*Crash rates per 100 million vehicle miles.

The values of loss associated with accidents were obtained from the National Safety Council and a 1991 Urban Institute/Federal Highway Administration (FHWA) study. Periodically, the National Safety Council estimates the average cost of fatal and non-fatal injuries due to motor vehicle crashes. These estimates are made using comprehensive or willingness to pay method. These costs include economic costs such as wage and productivity losses, medical expenses, motor vehicle damage, and a value reflecting lost quality of life.

In 2001, the National Safety Council estimated the following average comprehensive costs on a per injured person basis:

Death	$3,340,000
Incapacitating injury	$ 165,000
Non-incapacitating evident injury	$ 42,500
Possible injury	$ 20,200

These per injured person costs were converted to per vehicle crash costs using formulas published in FHWA Technical Advisory T 7570 (June 30, 1988). The resulting costs per vehicle crash were computed to be the following, expressed in Year 2006 dollars:

Fatal accident	$4,314,665
Injury accident	$ 97,240

Property damage only (PDO) accident costs were computed using a cost value obtained from the Cal-B/C model. This model uses a value for PDO accidents estimated by the 1991 Urban Institute/ FHWA study. The Urban Institute/FHWA calculated its estimate taking two primary factors into account:

1. Unreported accidents—Automobile accident surveys indicate that roughly 40 to 50 percent of all PDO accidents are not reported.
2. Combined property value—PDO accidents frequently involve more than one vehicle.

The value of an average non-fatal, non-injury accident was calculated primarily using records of vehicle and property damage payments made by insurance companies. Some additional cost categories, such as travel delay and lost wages, were included to make minor contributions to the final estimate.

After adjusting the Urban Institute/FHWA estimate to Year 2006 using the gross domestic product deflator, a value of $8,067 per reported PDO accident was derived.

Taking inflation into account, these estimates of accident costs compare favorably with values used in four computerized benefit-cost models, as reported in Table 8-14.

One of the benefit-cost models, STEAM 2.0, calculates separate internal and external accident costs. Internal accident costs are defined as costs inflicted upon and perceived by transportation facility users. External costs are defined as costs inflicted on users, but not perceived by users. Table 8-15 identifies the breakdown of these accident cost assumptions.

Overall, the Caltrain Extension Alternative provides $7 million of highway accident avoidance cost savings annually, assuming current year dollars and year 2030 ridership levels.

Details of these computations are provided in Table 8-16.

Table 8-14
Accident Cost Estimates

Accident Type	CSI* ($ 1993)	StratBENCOST** ($ 1996)	STEAM† ($ 1997)	Raildec‡ ($ 1997)	TAMC¶ ($ 2006)
Fatality	$3,325,095	$3,521,359	$2,726,350	$3,613,137	$4,314,665
Injury	$ 78,903	$ 83,848	$ 59,718	$ 86,033	$ 97,240
PDO	$ 5,651	$ 5,806	$ 3,322	$ 5,957	$ 8,067

* Cambridge Systematics, Inc. (CSI), Approaches for Developing Nationwide Estimates of Congestion Delay, Accidents, Emissions, and Noise Impacts: Interim Report, 1995.
** NCHRP Project 2-18(3), Development of an Innovative Highway User Cost Estimation Procedure. Midrange of costs reported.
† FHWA, Surface Transportation Efficiency Analysis Model, 1997. Total of internal and external costs.
‡ Companion to StratBENCOST which estimates the reduction in accident costs as the change in highway accidents between the base and alternative (rail) case. StratBENCOST values inflated by 2.6 percent for all accident types.
¶ Parsons, based on California Life-Cycle Benefit/Cost Analysis Model, Technical Supplement to User's Guide.

Table 8-15
Accident Cost Assumptions for TAMC ($ 2006)

Accident Type	Internal Cost	External Cost	Total Cost
Fatality	$3,667,465	$647,200	$4,314,665
Injury	$ 82,654	$ 14,586	$ 97,240
PDO	$ 6,857	$ 1,210	$ 8,067

Source: Parsons

Table 8-16
Crash Avoidance Benefits of Caltrain Extension and Express Bus Alternatives

Parameter	2010	2030
Annual VMT equivalents	31,562,557	60,542,039
Fatality crash equivalents	0.357	0.684
Injury crash equivalents	19.556	37.512
PDO crash equivalents	31.847	61.087
Fatality crash costs	$1,540,335	$2,951,231
Injury crash costs	1,901,625	3,647,667
PDO crash costs	256,910	492,789
Total accident costs	**$3,698,870**	**$7,091,687**
Internal costs	3,144,040	6,027,934
External costs	554,830	1,063,753

Transit Accidents

Reductions in automobile accidents resulting from increased transit use will be offset to a small extent by increases in transit accidents. Transit accidents and costs can be computed as a function of vehicle miles operated. Table 8-17 lists accident rates based on U.S. Department of Transportation national averages, as reported for the Cal-B/C analysis model.[12]

Table 8-17
Default Fatality, Injury and Accident Rates per Million Vehicle-Miles

Incidents	Passenger Train	Light Rail	Bus
Fatalities	0.24	0.23	0.05
Injuries	0.94	12.8	12.2
All accidents	1.09	11.13	14.73

Source: U.S. DOT, average of 1994, 1995 and 1996 data.

These accident rates are by event rather than accident type. Therefore, the fatality accident rate represents the number of **fatalities** per million vehicle-miles rather than the number of **fatal accidents** per million vehicle-miles. For rail modes, train-miles must be converted to vehicle-miles using the average number of vehicles per train.

Total transit accident costs are calculated by multiplying the accident rate by the cost for each incident and summing across incident types. Property damage costs are multiplied by the total accident rate, since all transit accidents result in some level of property damage. Fatality and injury costs are viewed as user disbenefits, inflicted upon and perceived by transportation system users (internal costs). Property damage to transit vehicles and non-transit users are considered to be external accident costs.

Table 8-18 shows the costs that Cal-B/C uses for each type of transit incident based on 1995 National Safety Council estimates. The cost of property damage for transit vehicles are based on estimates provided by the Federal Railroad Administration, the California Public Utilities Commission, and the Journal of Safety Research. All costs have been updated to Year 2006 dollars using the gross domestic product (GDP) deflator.

Table 8-18
Fatality, Injury and Property Damage Costs for Transit Accidents

Incidents	Passenger Train	Light Rail	Bus
Fatality	$2,986,700	$2,986,700	$2,986,700
Injury	$ 72,290	$ 72,290	$ 72,280
Property damage	$ 68,275*	$ 11,850**	$ 11,600*

Sources:
* National Safety Council, Federal Railroad Administration, and Journal of Safety Research, Winter 1994, Volume 25, No. 4, page 193.
** California Public Utilities Commission, 1997, *Annual Report of Railroad Accidents Occurring in California,* Appendix III-C—Light Rail, Rapid Rail and Cable Car Accidents, 1997.

[12] California Life-Cycle Benefit/Cost Analysis Model, Booz-Allen & Hamilton, Inc., September 1999; and System Metrics Group, Inc., June 2004.

Based on these rates, the number of transit accidents and costs resulting from implementation of the Caltrain Extension or Express Bus alternatives is presented in Table 8-19.

Table 8-19
Transit Accident Disbenefits of Caltrain Extension and Express Bus Alternatives

Parameter	2010		2030	
	Caltrain	Express Bus	Caltrain	Express Bus
Revenue vehicle miles	193,290	867,970	386,580	1,664,915
Fatalities	0.046	0.043	0.093	0.083
Injuries	0.182	10.589	0.363	20.068
All accidents	0.211	12.785	0.421	24.52
Fatality costs	$137,388	$ 128,428	$277,763	$ 247,896
Injury costs	$ 13,157	$ 765,479	$ 26,241	$1,450,716
Property damage costs	$ 14,406	$ 148,306	$ 28,744	$ 284,432
Total accident costs	**$164,951**	**$1,042,213**	**$332,748**	**$1,983,044**
Internal (user) costs	$150,545	$ 893,907	$304,004	$1,698,612
External costs	$ 14,406	$ 148,306	$ 28,744	$ 284,432

Source: Parsons

Environmental Costs

Environmental costs are computed based on methodologies reported in the Cal-B/C Technical Supplement to User's Guide.[13] As surmised by the Cal-B/C research investigation,

> "Transportation investments have consequences for the natural environment. Environmental effects belong to the category of externalities—costs that fall on people other than those who generate them.
>
> "Transportation investments affect the environment because of the construction process, impacts of the facility itself, and resulting changes in travel behavior. … Travel changes, such as increased travel speeds, increased vehicle trip-making, or diversion of trips, have implications for air pollution, greenhouse gas emissions, and noise.
>
> "The adverse health effects of vehicle emissions are probably the most significant environmental costs of travel. Enough is known about these effects to incorporate them readily into benefit-cost analyses. Vehicle emissions generally fall into two categories:
>
> - **Air Pollutant Emissions –** Motor vehicles emit pollutants, such as carbon monoxide (CO), oxides of nitrogen (NO_x), volatile organic compounds (VOC), particulate matter (PM), and oxides of sulfur (SO_x). These emissions, in turn, can react in the atmosphere to form other pollutants. Ozone is formed through the combination of NOX and VOC in sunlight. NO_x, VOC, and SO_x can react in the atmosphere to form secondary particulates. Air pollutants can cause damage to human health, building materials, and agriculture and vegetation, as well as limit visibility.

[13] Booz • Allen & Hamilton, Inc., September 1999; Volume 2: System Metrics Group, Inc., June 2004.

- **Greenhouse Gas Emissions –** Fuel consumption releases gases that trap heat within the Earth's atmosphere, of which carbon dioxide is the most important. Increasing concentrations of greenhouse gases in the atmosphere may be causing changes in the Earth's climate that could potentially impose substantial costs on society in terms of flooding, crop loss, and increased incidence of disease.

"The physical volumes of air-pollutants and greenhouse gas emissions resulting from travel are readily quantified, as the processes that result in these emissions are well understood. …As a result, many benefit-cost models include environmental costs resulting from air-pollutant emissions. Information on the effects of greenhouse gases is currently insufficient to support a meaningful range of cost estimates.

"Other environmental effects are less significant, less understood, or difficult to quantify and value. As a result, these effects tend to be excluded from benefit-cost models. Ignored effects include:

- Noise…
- Hazardous Materials Incidents…
- Upstream Fuel Effects….

"Transportation investments may result in increases or decreases in vehicle emissions. …As a result, transportation projects can result in environmental benefits or disbenefits."

Air quality impacts resulting from station construction, Caltrain operation, commuter access to stations, and emissions credit from commuters using train service rather than auto trip making are documented in *Caltrain Extension to Monterey County Passenger Rail Stations, Volume 1 Draft Environmental Impact Report* (EIR). This analysis addressed emissions and emission credits occurring with the Monterey Bay Unified Air Pollution Control District's area of interest, i.e., the North Central Coast Air Basin—per the environmental scoping effort. The Caltrain Extension and Express Bus alternatives impact a larger area, however, extending northward to the San Francisco Bay Air Basin. For this reason, environmental costs are determined generically below, using the emission rates cited in the Caltrain Extension Draft EIR for passenger trains and commuter vehicles. The urban bus emission rates are from the California Air Resource Board model, EMFAC2002 version 2.2, computed for the North Central Coast Air Basin.

The discussion that follows pertains to operational emissions as opposed to construction emissions.

Operational emissions consist of emissions directly from new operations of trains or express buses and indirect emissions from passenger vehicles traveling to the train stations/platforms. The emissions decrease resulting from commuters taking the train or express bus rather than driving to work is also calculated as an emissions credit. The above emissions are calculated below for the 2010 and 2030 planning horizons.

Emissions from Train Operation

The estimated one-way trip distance traveled by train between Salinas and Gilroy is 37.9 miles. It is assumed that by 2010 there would be two round trip trains a day in operation, and by 2030 there would be four round trip trains a day in operation. Therefore, the total miles traveled by train each year would be 38,658 miles by 2010 and 77,316 miles by 2030.

The emissions from train operations can be calculated by multiplying the emission factors listed in EPA documents (USEPA, 1992 and USEPA, 1997) to the inverse of mileage of the train as derived from the most recent information provided on the website of Bureau of Transportation Statistics

(Bureau of Transportations Statistics, 2002), and total daily miles traveled. For the train emissions calculations, it was conservatively assumed that the train will haul six cars. In addition, trains would emit criteria air pollutants while idling. This idling currently occurs in Gilroy and San Francisco under the No Project scenario. Under the Caltrain Extension Alternative, idling would occur in Salinas rather than Gilroy. The net difference in idling emissions is expected to be minimal. The calculated results of train cruising emissions are presented in Table 8-20.

Table 8-20
Emissions from Train Operation

	VOC**‡ (g/mile)	CO** (g/mile)	NO_X** (g/mile)	PM_{10}**¶ (g/mile)	SO_X† (g/mile)
Year 2010 Scenario					
Emissions rates*	13.65	41.1	244.5	8.55	24.45
Cruising emissions (tons/year)	0.58	1.75	10.42	0.36	1.04
Year 2030 Scenario					
Emission rates*	13.05	41.1	230.1	8.1	24.45
Cruising emissions (tons/year)	1.11	3.50	19.61	0.69	2.08

* Based on data published on BTS website from year 1995 to 1999 of Amtrak operation (http://199.79.179.77/publications/national_transportation_statistics/2002/html/table_rail_profile.html). It was conservatively assumed that the train will haul six cars. Year 2030 scenario based on year 2014 emission rates.
** Based on Technical Highlights of Emission Factors for Locomotives (USEPA, 1997).
† Based on Procedures for Emission Inventory Preparation Volume IV: Mobile Sources (USEPA, 1992).
‡ Assume all hydrocarbons are VOC (volatile organic compounds).
¶ Assume all PM are PM_{10} (particulate matter up to 10 microns in size).

Emissions from Express Bus Operation

The estimated one-way trip mileage traveled by an average express bus trip between Monterey County and the San Francisco Peninsula is 68 miles. Vehicles are assumed to deadhead (return empty) to the Monterey Bay Area Operations Center between the morning and afternoon commute periods. Year 1020 bus mileage is estimated to be 1,735,940 (revenue plus deadhead) miles. Year 2030 bus mileage is estimated to be 3,329,830.

The emission rates used for buses are based on a blend of uncongested and congested speeds which average 35 mph for 2010 conditions and 30 mph for 2030 conditions. The calculated results of express bus operations are presented in Table 8-21.

Table 8-21
Emissions from Express Bus Operation

	VOC (g/mile)	CO (g/mile)	NO_X (g/mile)	PM_{10} (g/mile)	SO_X (g/mile)
Year 2010 Scenario					
Emissions factor (g/mile)	2.245	17.963	12.277	0.128	0.016
Cruising daily emissions (tons/year)	4.30	34.37	23.49	0.24	0.03
Year 2030 Scenario					
Emission factor (g/mile)	2.752	20.56	12.31	0.149	0.017
Cruising daily emissions	10.10	75.46	45.18	0.55	0.06

Commuter Vehicles Emissions from Home to Train Station

Each working day, passengers will commute to the train or express bus stations from home using various modes of transportation such as walking, bicycling, taking bus transit, driving to parking lot then riding on the train or bus, or being dropped off and taking the express bus or train. No air emissions are associated with walking and bicycling. Changes in local bus transit emissions, if any, as a result of the project, would be expected to be minimal. Therefore, only park-and-ride and auto drop off will have air emissions associated with the proposed project. The emissions from commuter vehicles traveling from home to train stations were calculated based on emission factors of grams per mile multiplied by total daily miles traveled by vehicles from home to each of the three train stations or platforms. Emission factors were derived from running the latest EMFAC2002 model version 2.2. EMFAC2002 is the emission factor model developed by CARB that calculates vehicle emissions inventory and emission factors. The input parameters of EMFAC2002 include speed, temperature, humidity and other default data. The output of the EMFAC2002 contains emission rates or emission factors of criteria air pollutants. The total daily miles traveled by vehicles from home to each of the three train stations/platforms were based on the average distance from home to each of the three stations/platforms and the mode of access. Table 8-22 specifies the percentage of commuters expected to walk or bicycle, or take a bus, park-and-ride, or be dropped off.

Table 8-22
Estimated Mode of Arrival by Station

Mode	Pajaro Valley	Castroville	Salinas
Walk	4%	18%	20%
Transit	54%	2%	15%
Bicycle	5%	7%	5%
Taxi	—	—	—
Auto drop-off	13%	9%	13%
Park-and-ride	73%	64%	47%

Source: Parsons, *Caltrain Extension to Monterey County Project Study Report*, Appendix B-2, Station Program Requirements

Calculated emissions for park-and-ride and to be dropped off category are presented in Table 8-23 and Table 8-24 for year 2010 and year 2030, respectively.

Table 8-23
Emissions from Auto Access Commuter Vehicles (2010)

	VOC	CO	NO_X	PM_{10}	SO_X
Emission factor (grams/mile)—2010	0.169	3.833	0.487	0.014	0.003
Daily emissions (pounds/day) at Pajaro location with total daily miles of 2,726	1.02	23.04	2.93	0.08	0.02
Daily emissions (pounds/day) at Castroville location with total daily miles of 1,125	0.42	9.51	1.21	0.03	0.01
Daily emissions (pounds/day) at Salinas location with total daily miles of 4,846	1.36	30.83	3.92	0.11	0.02
Total (pounds/day)	**2.79**	**63.38**	**8.06**	**0.22**	**0.05**
Total (tons/year)	**0.36**	**8.08**	**1.03**	**0.03**	**0.01**

Table 8-24
Emissions from Auto Access Commuter Vehicles (2030)

	VOC	CO	NO_X	PM_{10}	SO_X
Emission factor (grams/mile)—2014	0.094	2.438	0.303	0.013	0.003
Daily emissions (pounds/day) at Pajaro location with total daily miles of 4,722	0.98	25.38	3.15	0.13	0.03
Daily emissions (pounds/day) at Castroville location with total daily miles of 2,805	0.58	15.08	1.87	0.09	0.02
Daily emissions (pounds/day) at Salinas location with total daily miles of 9,401	1.82	47.45	5.90	0.26	0.05
Total (pounds/day)	**3.38**	**87.91**	**10.92**	**0.48**	**0.10**
Total (tons/year)	**0.43**	**11.21**	**1.39**	**0.06**	**0.01**

Emissions Credit from Commuter Vehicles

Once the proposed project starts in 2010, the commuters in the neighborhood of Pajaro, Castroville, and Salinas will have the option to travel by train or express bus to the Santa Clara, San Mateo, and San Francisco areas to work. Therefore, the VMT would be greatly reduced. The reduction of VMT as a result of using train or bus to commute instead of driving was estimated for year 2010 and 2030. The annual reductions of VMT for 2010 and 2030 are 31.56 million and 60.54 million miles, respectively. The reduced VMT were multiplied by emission factors as derived from EMFAC2002 model to calculate the reduction of emissions in tons per year. Table 8-25 presents the results of emission rate reductions.

Table 8-25
Emissions Reduction (Credit) from Commuter Vehicles

	VOC	CO	NO_X	PM_{10}	SO_X
Year 2010					
Emission factor (grams/mile)	0.132	3.330	0.457	0.010	0.003
Total annual emission reduction (tons/year) due to VMT reduction of 31,562,557 miles	4.59	115.86	15.90	0.35	0.10
Year 2030					
Emission factor (grams/mile)	0.073	2.108	0.283	0.010	0.003
Total annual emission reduction (tons/year) due to VMT reduction of 60,542,349 miles	4.87	140.68	18.89	0.67	0.20

Total Operational Net Increase of Project Emissions

The total operational net increase of the Caltrain Extension or Express Bus alternative emissions are calculated by adding the train/express bus operational emissions to the home to station commuter emissions and then subtracting the commuter emissions credit as a result of commuters taking the train or express bus instead of driving to work. Tables 8-26 and 8-27 present the calculated results which show the operational total net increase (decrease) of air pollutants.

Table 8-26
Net Change of Operational Emissions Associated with Caltrain Extension Caltrain Extension Alternative (tons/year)

	VOC	CO	NO_X	PM_{10}	SO_X
Year 2010					
Train emissions	0.58	1.75	10.42	0.36	1.04
Commuter vehicle emissions from home to train station	0.36	8.08	1.03	0.08	0.01
Commuter emission reductions	(4.59)	(115.86)	(15.90)	(0.35)	(0.10)
2010 Total Net Change of Operational Omissions	**(3.65)**	**(106.03)**	**(4.45)**	**0.04**	**0.95**
Year 2030					
Train emissions	1.11	3.50	19.61	0.69	2.08
Commuter vehicle emissions from home to train station	0.43	11.21	1.39	0.06	0.01
Commuter emission reductions	(4.87)	(140.68)	(18.89)	(0.67)	(0.20)
2030 Total Net Change of Operational Emissions	**(3.33)**	**(125.97)**	**2.11**	**0.08**	**1.89**

Table 8-27
Net Change of Operational Emissions Associated with Express Bus Alternative (tons/year)

	VOC	CO	NO_X	PM_{10}	SO_X
Year 2010					
Express bus emissions	4.30	34.37	23.49	0.24	0.03
Commuter vehicle emissions from home to station	0.36	8.08	1.03	0.03	0.01
Commuter emission reductions	(4.59)	(115.86)	(15.90)	(0.35)	(0.10)
2010 Total Net Change of Operational Omissions	**0.07**	**(73.41)**	**8.62**	**(0.08)**	**(0.06)**
Year 2030					
Express bus emissions	10.10	75.46	45.18	0.55	0.06
Commuter vehicle emissions from home to station	0.43	11.21	1.39	0.06	0.01
Commuter emission reductions	(4.87)	(140.68)	(18.89)	(0.67)	(0.20)
2030 Total Net Change of Operational Emissions	**5.66**	**54.01**	**27.68**	**(0.06)**	**(0.13)**

Health Cost of Motor Vehicle Emissions

The net change in motor vehicle emissions were calculated for the Caltrain Extension Alternative and the Express Bus Alternative as discussed above. Emission factors were derived from running the latest EMFAC2002 model version 2.2 for the North Central Coast Air Basin. These rates were applied to the total journey, which includes the San Francisco Bay Air Basin, as a simplifying assumption. For the passenger rail, express bus and auto modes, 2010 emission rates were applied to the 2010 operating scenario. For the 2030 operating scenario, 2014 emission rates were applied for the passenger rail and auto modes; while 2010 rates, reflecting a 5 mph overall speed reduction, were applied to the express bus mode. Thus, motor vehicle emissions for the 2030 scenario are overstated.

Monetary values for the motor vehicle emissions were obtained from the Cal-B/C model as updated in 2004. These health costs are listed in Table 8-28 and have been updated from 2003 to 2006 using the GDP deflator (1.0412).

Table 8-28
Health Cost of Motor Vehicle Emissions ($/ton)*

Emission		Value
Volatile organic compounds	VOC	$ 993
Carbon monoxide	CO	$ 62
Fine particulates	PM_{10}	$114,801
Nitrogen oxides	NO_X	$ 14,208
Sulfur dioxide	SO_2	$ 57,338

Source: California Life-Cycle Benefit/Cost Analysis Model, Technical Supplement to User's Guide, 2004
* California urban areas

The resulting health cost of transportation emissions associated with the Caltrain Extension and Express Bus alternatives are itemized in Table 8-29.

Table 8-29
Health Cost of Caltrain Extension and Express Bus Alternatives

	VOC	CO	NO_X	PM_{10}	SO_X	Total
Year 2010						
Caltrain	($3,624)	($6,574)	($63,226)	$4,592	$54,471	($14,361)
Express bus	$70	($4,551)	$122,473	($9,184)	($3,440)	$105,368
Year 2030						
Caltrain	($3,307)	($7,810)	$ 29,979	$9,184	$108,369	$136,415
Express bus	$5,620	($3,349)	$393,277	($6,884)	($7,454)	$381,210

Net Operating Costs

Fares (user fees) paid by riders to utilize the Caltrain Extension or Express Bus services will be insufficient to fully cover the operations and maintenance (O&M) costs of the services. The O&M costs for the Caltrain Extension and Express Bus alternatives were listed in Tables 6-8 and 6-10. Passenger revenues were listed in Table 6-13. The resulting net operating cost, i.e., the difference between O&M costs and passenger revenues, are summarized in Table 8-30 for the 2010 and 2030 planning horizons.

Table 8-30
Net Operating Costs

Parameter	Caltrain Extension Alternative		Express Bus Alternative	
	2010	2030	2010	2030
Annual O&M cost ($ 2007)	$4,485,680	$8,714,409	$8,566,707	$17,133,413
Annual fare revenue	$3,310,612	$6,320,790	$3,310,612	$ 6,320,790
Annual net public operating cost	$1,175,068	$2,393,619	$5,256,095	$10,812,623

Summary of Benefits

The Caltrain Extension Alternative and Express Bus Alternative will both produce net savings in travel time, crashes, and vehicle operating expense. These findings are summarized in Table 8-31 and are sorted by benefit type. The benefits monetized in Table 8-31 are expressed as positive dollars, while costs are expressed as (negative) dollars. Table 8-31 demonstrates that the benefits of the Caltrain Extension Alternative exceed the benefits of the Express Bus Alternative in both 2010 and 2030.

Table 8-31
Summary of Caltrain Extension and Express Bus Alternative Benefits

	2010		2030	
Benefit Type	**Caltrain**	**Express Bus**	**Caltrain**	**Express Bus**
User Benefits				
In-vehicle travel time (Method 3)	$ 252,032	$ 252,032	$ 6,985,931	$ 4,160,454
Fuel costs	4,499,622	4,499,622	8,631,039	8,631,039
Non-fuel operating savings	1,925,316	1,925,316	3,693,083	3,693,083
Transit user fees	(3,310,612)	(3,310,612)	(6,320,790)	(6,320,790)
Internal accident costs or savings—Highway	3,144,040	3,144,040	6,027,934	6,027,934
	(150,545)	(893,907)	(304,004)	(1,698,612)
Revenue Transfers (fuel taxes)	(893,915)	(893,915)	(1,714,681)	(1,714,681)
Reduction in External Costs				
Emissions	14,361	(105,368)	(136,415)	(381,210)
Highway accidents	554,830	554,830	1,063,753	1,063,753
Transit accidents	(14,406)	(148,306)	(28,744)	(284,432)
Net Public Operating Costs	(1,175,068)	(5,256,095)	(2,393,619)	(10,812,623)
Total	**$4,845,655**	**($232,363)**	**$15,503,487**	**$2,363,915**

Life-Cycle Benefits and Costs

The Caltrain Extension and Express Bus alternatives are assumed to be implemented by 2010, with the initiation of service occurring in 2011. The Caltrain Extension Alternative assumes that rolling stock for the JPB Caltrain fleet will be purchased in 2010[14]. The Express Bus Alternative assumes that rolling stock will be purchased in 2010 and at five-year increments thereafter, to increase the fleet size from 30 to 60 vehicles over time. Replacement express bus vehicles are assumed to be required at 12-year intervals. All FY 2007 dollar capital costs reported in Chapter 6 have been assumed to reflect year end 2006 dollars.

Tables 8-32 and 8-33 report comparisons of life-cycle benefits and costs for the Caltrain Extension and Express Bus alternatives, with each compared to the No Build Alternative. Total benefits and

[14]Additional trainset capacity (additions of coaches to consists) required to accommodate riders boarding/deboarding in Monterey County are assumed to be addressed through Federal Transit Administration grant requests, with TAMC providing the local funding match contribution. Acquisition of rolling stock to accommodate the initial (two round trip) service plan for extending Caltrain to Salinas has not been identified as a near-term requirement by this Alternatives Analysis. At some time in the future, TAMC anticipates the need to participate in JPB's rolling stock acquisition program. For the purpose of the Alternatives Analysis Study, the Caltrain Extension Alternative assumes the acquisition of four bi-level passenger coaches, one for each of the trainsets operating to/from Salinas. This rolling stock may not be required to accommodate peak passenger loads. The capital cost of this equipment is included as a risk element for comparison with the Express Bus Alternative.

costs and the net present values of the overall system improvements assume a discount rate of seven percent. Benefits are computed for a 20-year period from 2011 to 2030.

For the Caltrain Extension Alternative, these findings indicate the following:

1. Total benefits ($203,491,430) exceed total costs ($102,098,450) by $101,392,980 (FY 2007 dollars). This benefit/cost (B/C) ratio is 1.99.
2. The net present value of these benefits, assuming a discount rate of seven percent is $77,412,425. The net present value of implementation costs is $87,840,176. This B/C ratio is 0.88.
3. The payback[15] period, at a discount rate of seven percent, is 23.5 years.

Table 8-32
Life-Cycle Benefits and Costs of Caltrain Extension Alternative

Year	Total Benefits	Total Costs	Net Present Value	Net Present Value Benefits	Net Present Value Costs
2007	—	3,995,243	1.000		3,995,243
2008	—	18,273,704	0.935		17,085,913
2009	—	28,102,208	0.873		24,533,227
2010	—	51,747,296	0.816		42,225,793
2011	4,845,655	—	0.763	3,697,235	—
2012	5,406,594	—	0.713	3,854,902	—
2013	5,967,532	—	0.666	3,974,376	—
2014	6,528,471	—	0.623	4,067,237	—
2015	7,089,409	—	0.582	4,126,036	—
2016	7,650,348	—	0.544	4,161,789	—
2017	8,211,286	—	0.508	4,171,333	—
2018	8,772,225	—	0.475	4,166,807	—
2019	9,333,163	—	0.444	4,143,924	—
2020	9,894,102	—	0.415	4,106,052	—
2021	10,455,040	—	0.388	4,056,556	—
2022	11,015,978	—	0.362	3,987,784	—
2023	11,576,916	—	0.339	3,924,575	—
2024	12,137,854	—	0.317	3,847,700	—
2025	12,698,792	—	0.296	3,758,842	—
2026	13,259,730	—	0.277	3,672,945	—
2027	13,820,668	—	0.258	3,565,732	—
2028	14,381,606	—	0.242	3,480,349	—
2029	14,942,544	—	0.226	3,377,015	—
2030	15,503,487	—	0.211	3,271,236	—
	203,491,430	**102,098,450**		**77,412,425**	**87,840,176**

Source: Parsons

For the Express Bus Alternative, the benefit-cost findings are as follows:

4. Total benefits ($21,315,517) are less than total costs ($116,455,555) by 95,140,038 (FY 2007 dollars). This B/C ratio is 0.18.

[15] The payback period is the amount of time measured in years to recover the life-cycle investments (capital and net public operating costs).

5. The net present value of these benefits, assuming a payback period of 20 years and a discount rate of seven percent is $6,638,766. The net present value of implementation costs is $84,246,711. This B/C ratio is 0.08.

6. At a discount rate of seven percent, user benefits and external costs do not pay back the public investment in the Express Bus Alternative due to the high net public cost of express bus operations and the need for periodic replacement of the bus fleet.

Table 8-34 compares these life-cycle benefits and costs for the Caltrain Extension and Express Bus alternatives.

Table 8-33
Life-Cycle Benefits and Costs of Express Bus Alternative

Year	Total Benefits	Total Costs	Net Present Value	Net Present Value Benefits	Net Present Value Costs
2007	—	3,200,903	1.000	—	3,200,903
2008	—	11,765,434	0.935	—	11,000,680
2009	—	19,472,413	0.873	—	16,999,416
2010	—	47,016,805	0.816	—	38,365,712
2011	(232,363)	—	0.763	(177,293)	—
2012	(95,717)	—	0.713	(68,246)	—
2013	40,929	—	0.666	27,259	—
2014	177,575	5,000,000	0.623	110,629	3,115,000
2015	314,222	—	0.582	182,877	—
2016	450,868	—	0.544	245,272	—
2017	587,514	—	0.508	298,457	—
2018	724,160	10,000,000	0.475	343,976	4,750,000
2019	860,807	—	0.444	382,198	—
2020	997,453	—	0.415	413,943	—
2021	1,134,099	—	0.388	440,030	—
2022	1,270,745	15,000,000	0.362	460,010	5,430,000
2023	1,407,391	—	0.339	477,106	—
2024	1,544,038	—	0.317	489,460	—
2025	1,680,684	—	0.296	497,482	—
2026	1,817,330	5,000,000	0.277	503,400	1,385,000
2027	1,953,976	—	0.258	504,126	—
2028	2,090,622	—	0.242	505,931	—
2029	2,227,269	—	0.226	503,363	—
2030	2,363,915	—	0.211	498,786	—
	21,315,517	**116,455,555**		**6,638,766**	**84,246,711**

Source: Parsons

Table 8-34
Summary of Benefit Cost Analysis Results

	Caltrain Extension	Express Bus
Life-cycle benefits/total costs ratio	$203 M/$102 M = 1.99	$21 M/$116 M = 0.18
Net present value of benefits/costs at 7% discount rate	$77 M/$88 M = 0.88	$7 M/$84 M = 0.08
Payback period at 7% discount rate	23.5 years	Not paid back*

* The payback period is the amount of time measured in years to recover the life-cycle investments (capital and net public operating costs). The table shows that public investment in the Express Bus Alternative will never be paid back.

SOCIAL PERFORMANCE OF THE CALTRAIN EXTENSION AND EXPRESS BUS ALTERNATIVES

The social or societal performance evaluation of the alternatives is intended to provide additional information for decision making, other than economic performance. Included in this section are quantitative and/or qualitative measurements of criteria often used for transit investment decision making.

Daily Transit Riders

Transit ridership for the Caltrain Extension and Express Bus alternatives is a key ingredient of determining both cost effectiveness and societal feasibility, which includes very limited transit service between Monterey County and the San Francisco Bay Area, is assumed to carry negligible ridership (less than 50 riders per day) insofar as determining the beneficial impacts of Caltrain Extension or Express Bus investments. Hence, virtually all ridership attracted to the Caltrain Extension and Express Bus alternatives is considered to be "new" riders.

The estimate of Caltrain Extension/Express Bus Alternative ridership is assumed to be equal, as reported earlier. Annual patrons along with annual passenger miles are reported in Table 8-35 for reference. The table indicates that 524,280 passengers are anticipated as of year 2010; increasing to 1,001,130 by 2030. Expressed on a daily basis, these equate to 2,056 riders per weekday in 2010 (1,028 each direction), and 3,926 riders per weekday in 2030 (1,963 each direction).

Table 8-35
2010 and 2030 Annual Passengers and Annual Passenger Miles

Egress/Access	2010				2030			
	Pajaro	Castroville	Salinas	Total	Pajaro	Castroville	Salinas	Total
Annual Passengers								
Santa Clara–Mid	48,960	10,200	89,250	148,410	85,170	25,500	173,400	284,070
Santa Clara–North	106,590	22,440	193,290	322,320	184,620	55,590	374,850	615,060
San Mateo	12,240	2,550	21,930	36,720	20,910	6,120	42,840	69,870
San Francisco	5,610	1,020	10,200	16,830	9,690	3,060	19,380	32,130
	173,400	36,210	314,670	524,280	300,390	90,270	610,470	1,001,130
Annual Passenger Miles								
Santa Clara–Mid	2,428,416	601,800	6,015,450	9,045,666	4,224,432	1,504,500	11,687,160	17,416,092
Santa Clara–North	6,960,327	1,676,268	16,062,399	24,698,994	12,055,686	4,152,573	31,150,035	47,358,294
San Mateo	973,080	226,695	2,133,789	3,333,564	1,662,345	544,068	4,168,332	6,374,745
San Francisco	544,731	108,630	1,171,980	1,825,341	940,899	325,890	2,226,762	3,493,551
	10,906,554	2,613,393	25,383,618	38,903,565	18,883,362	6,527,031	49,232,289	74,642,682

These ridership levels are modest by comparison with many "new starts" proposals. When expressed as equivalent riders, based on passenger miles traveled, these ridership levels are impressive.

Listed in Table 8-36 are statistics culled from the 2004 National Transit Database regarding average trip lengths of transit riders. The table also lists rider equivalents for the Caltrain Extension or Express Bus alternatives.

Interpretation of the table is as follows. The average transit rider trip length for the proposed Monterey County service is 74.2 one-way miles. Compared to the national commuter rail average of 23.5 miles, the Monterey County service will attract trips which are 3.16 times as long on average. The 2,056

daily trips on the Caltrain Extension or Express Bus service to Monterey County would be equal to nearly 6,500 average commuter rail riders, more than 12,000 daily Bay Area Rapid Transit (BART) riders, or nearly 35,000 riders on Santa Clara Valley Transportation Authority's (VTA) bus and light rail system based on passenger miles traveled.

Table 8-36
Daily Caltrain Extension Transit Rider Equivalents Based on Trip Length (2004)

Mode/Service	Average Trip Length (miles)	Trip Length Ratio*	Daily Rider Equivalent†
Monterey County Caltrain Extension/Express Bus (2010)	74.2	1	2,056
National			
Commuter rail	23.5	3.16	6,497
Heavy rail	5.2	14.27	29,339
Light rail	4.5	16.49	33,903
Bus	3.7	20.05	41,223
San Francisco Bay Area			
Caltrain Peninsula Corridor Joint Powers Board (JPB)	20.07	3.70	7,607
Altamont Commuter Express (ACE)	47.92	1.55	3,187
Bay Area Rapid Transit (BART)	12.59	5.89	12,110
Santa Clara Valley Transportation Authority (VTA)	4.42	16.79	34,520

Source: 2004 National Transit Database, Parsons
*Trip Length Ratio = Monterey County Average Trip Length ÷ Average Trip Length
†Daily Rider Equivalent = Trip Length Ratio × Monterey County Daily Rider Equivalent

Cost per Rider

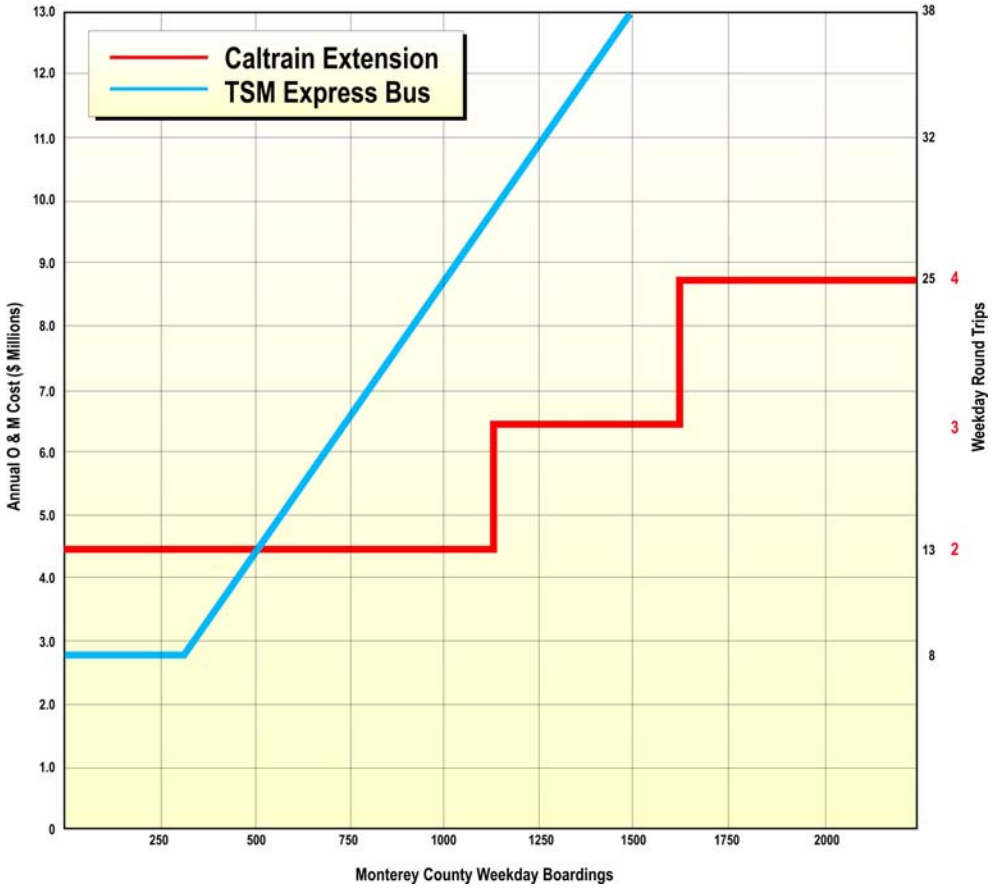
Table 8-37 compares ridership and passenger miles with annualized capital costs, O&M costs, and net public (subsidy) costs. Information is presented for 2010 and 2030 ridership levels for the Caltrain Extension Alternative and the Express Bus Alternative.

Table 8-37
Capital and Operating Costs per Rider and per Passenger Mile

Parameter	Caltrain Extension Alternative		Express Bus Alternative	
	2010	2030	2010	2030
Annual ridership	524,280	1,001,130	524,280	1,001,130
Annual passenger miles	38,903,565	74,642,682	38,903,565	74,642,682
Annualized capital cost ($ 2007)	$7,150,000	$7,905,137	$7,337,476	$9,226,006
Annualized capital cost per rider	**$13.64**	**$7.90**	**$14.00**	**$9.22**
Annualized capital cost per passenger mile	**$0.184**	**$0.106**	**$0.189**	**$0.124**
Annual O&M cost ($ 2007)	$4,485,680	$8,714,409	$8,566,7071	$17,133,413
O&M cost per rider	$8.56	$8.70	$16.34	$17.11
O&M cost per passenger mile	$0.115	$0.117	$0.220	$0.230
Annual fare revenue	$3,310,612	$6,320,790	$3,310,612	$6,320,790
Annual net public operating cost	$1,175,068	$2,393,619	$5,256,095	$10,812,623
Net public operating cost per rider	**$2.24**	**$2.39**	**$10.03**	**$10.80**
Net public operating cost per passenger mile	**$0.030**	**$0.032**	**$0.135**	**$0.145**

Insofar as O&M cost per rider and net public cost per rider, differences between the Caltrain Extension and Express Bus alternatives are less pronounced than indicated by the table. Figure 8-2 illustrates that Caltrain costs are based on capacity increments which are far greater than Express Bus capacity increments. At low levels of ridership, under 500 boardings per day in Monterey County (1,000 daily riders round trip), Express Bus is more cost-effective from an O&M cost per rider perspective. At higher levels of ridership, commuter rail service is more cost-effective.

Figure 8-2
Annual Operating and Maintenance Expense ($ 2007) versus Weekday Ridership Levels



Farebox Recovery

The farebox recovery ratio for the overall Caltrain service ranges between 30 and 40 percent as indicated below.

Caltrain Farebox Recovery Rates			
	Fare Revenue	**Operating Expense**	**Percentage of Recovery**
FY 2006 Budgeted	$29,760,000	$76,540,321	38.88%
FY 2005 Unaudited	$23,036,916	$70,574,877	32.64%
FY 2004	$19,257,579	$63,817,729	30.18%
FY 2003	$20,792,652	$61,557,117	33.78%
FY 2002	$22,555,383	$61,536,691	36.65%
FY 2001	$23,916,036	$63,172,430	37.86%

Source: Peninsula Corridor Joint Powers Board Staff Report, February 2, 2006

The proposed extension of Caltrain service to Salinas will recover approximately twice this rate (73.8 percent). This higher recovery rate is due to three factors:

1. The incremental increase in operating expense is based on the operation of trains over 37 miles of UP track between Salinas and Gilroy.
2. The incremental increase in fare revenue is based on riders paying fares reflecting an average passenger trip length of 74.2 miles.
3. The ratio of average fare to operating expense is twice that of existing Caltrain service.

Insofar are the Express Bus Alternative, the farebox recovery projected for 2010 operations and ridership is 38.6 percent, equal to existing Caltrain service. This lower than Caltrain Extension Alternative recovery rate is due to the following:

1. The incremental increase in operating expense is based on the operation of buses to service an average passenger grip length of 74.2 miles.
2. The incremental increase in fare revenue is based on riders paying fares reflecting an average trip length of 74.2 miles
3. The Express Bus Alternative ratio of average fare to operating expense is 1.0, equal to that of existing Caltrain service.

Population Served

The Caltrain Extension and Express Bus Alternatives will serve commuters traveling to jobs in Silicon Valley; students attending colleges and universities in the San Francisco Bay Area; business and recreational travelers using the San Jose and San Francisco airports; and residents accessing health care facilities, sports venues, recreational destinations and shopping attractions in the San Francisco Bay Area.

As of 2000, more than 233,000 residents of Monterey County and southern Santa Cruz County lived within 4.5 miles of one of the three Caltrain Extension Alternative commuter rail stations. By 2025, more than 330,000 residents of these counties will be served by these three stations. Additional residents in Marina and Seaside would be served by the Marina/CSUMB (California State University–Monterey Bay) Transit Center and park-and-ride facility proposed for the Express Bus Alternative.

Figure 8-3 illustrates the station access buffers for the three Caltrain Extension Alternative stations located in Pajaro/Watsonville, Castroville and Salinas. Household population statistics for the three stations are reported in Table 8-38.

Racial and Ethnic Population Served

Monterey County
The communities of Pajaro and Castroville are unincorporated areas of Monterey County. According to the findings of the 2000 U.S. Census, approximately 47 percent of Monterey County's population (unincorporated and incorporated areas) was identified as being of Hispanic/Latino background. Of the total 401,762 persons reported in the 2000 U.S. Census data for Monterey County, 187,969 identified themselves as of Hispanic/Latino background and the remaining 213,793 persons were identified as non-Hispanic/Latino (Monterey County, 2003).

Figure 8-3
Monterey County Station Locations and Access Buffers

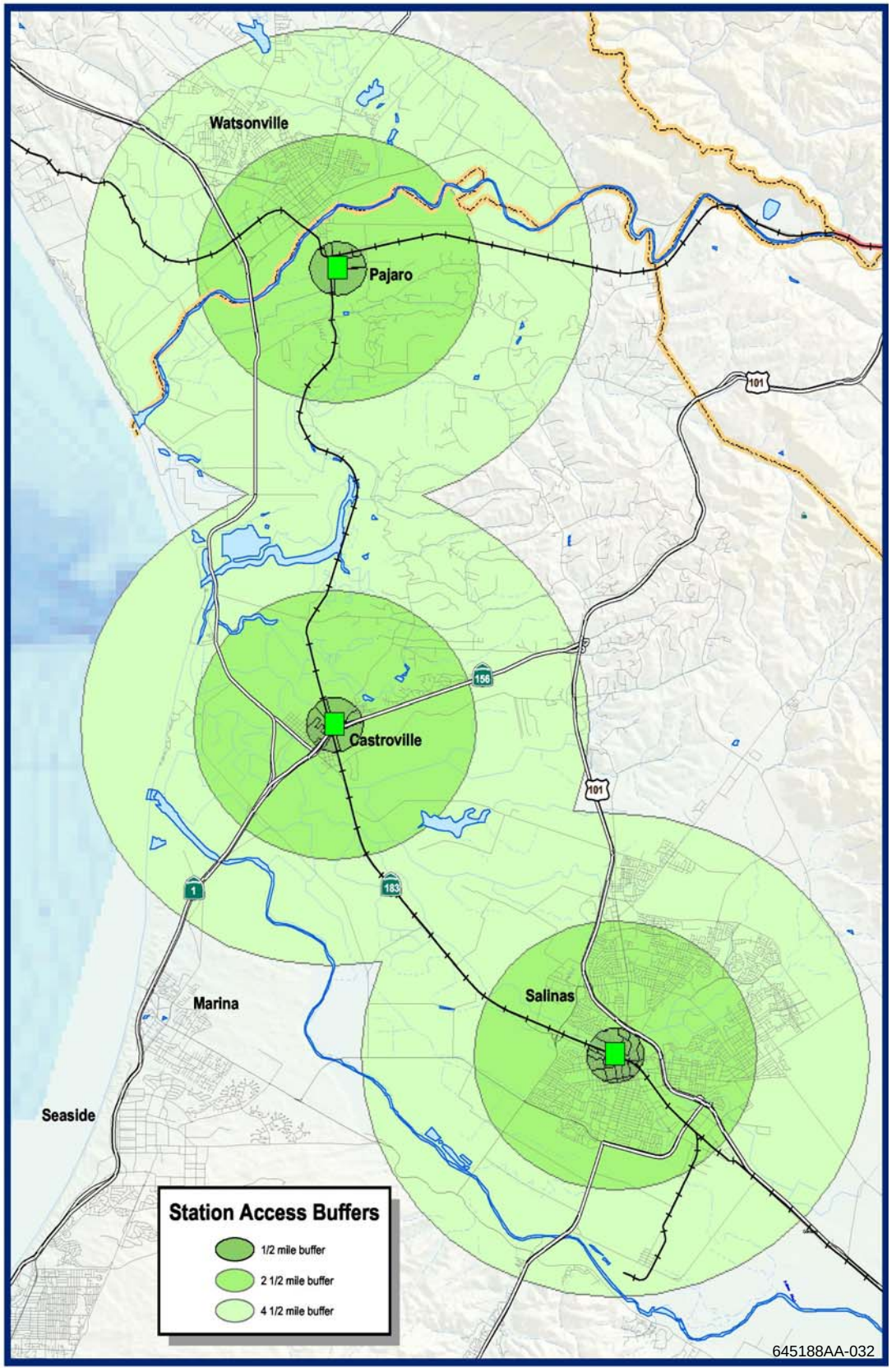


Table 8-38
Socio-Economic Data with Buffer Information around Stations

	2000		2010		2020		2025	
Stations/Buffers	**Household Population**	**Percent Share**	**Household Population**	**Percent Share**	**Household Population**	**Percent Share**	**Household Population**	**Percent Share**
Castroville								
0.5-mile buffer	7,682		8,003		8,196		8,510	
2.5-mile buffer	4,920		5,424		5,850		6,155	
4.5-mile buffer	3,917		8,516		12,986		15,125	
Subtotal	16,519	7%	21,943	8%	27,032	9%	29,790	9%
Pajaro								
0.5-mile buffer	5,296		5,485		5,587		5,643	
2.5-mile buffer	39,407		43,405		47,081		48,988	
4.5-mile buffer	33,065		36,529		39,733		41,430	
Subtotal	77,768	33%	85,419	31%	92,401	30%	96,061	29%
Salinas								
0.5-mile buffer	13,256		14,742		16,001		16,119	
2.5-mile buffer	99,493		114,641		127,929		145,795	
4.5-mile buffer	25,970		35,050		43,566		42,969	
Subtotal	138,719	60%	164,433	60%	187,496	61%	204,883	62%
Total	**233,006**	**100%**	**271,795**	**100%**	**306,929**	**100%**	**330,734**	**100%**

Source: Parsons 645188-033

Salinas

Based on the 2000 U.S. Census, the city's population is 64 percent Hispanic, 45 percent Caucasian, 6 percent Asian, 3 percent African-American, and 1 percent Native American.

Figure 8-4 illustrates the distribution of population and race by census block group relative to the Caltrain Extension Alternative and Express Bus Alternative station sites. The graphic illustrates relatively high concentrations of racial and ethnic populations that would be served by the proposed investments.

Income Levels of Population Served

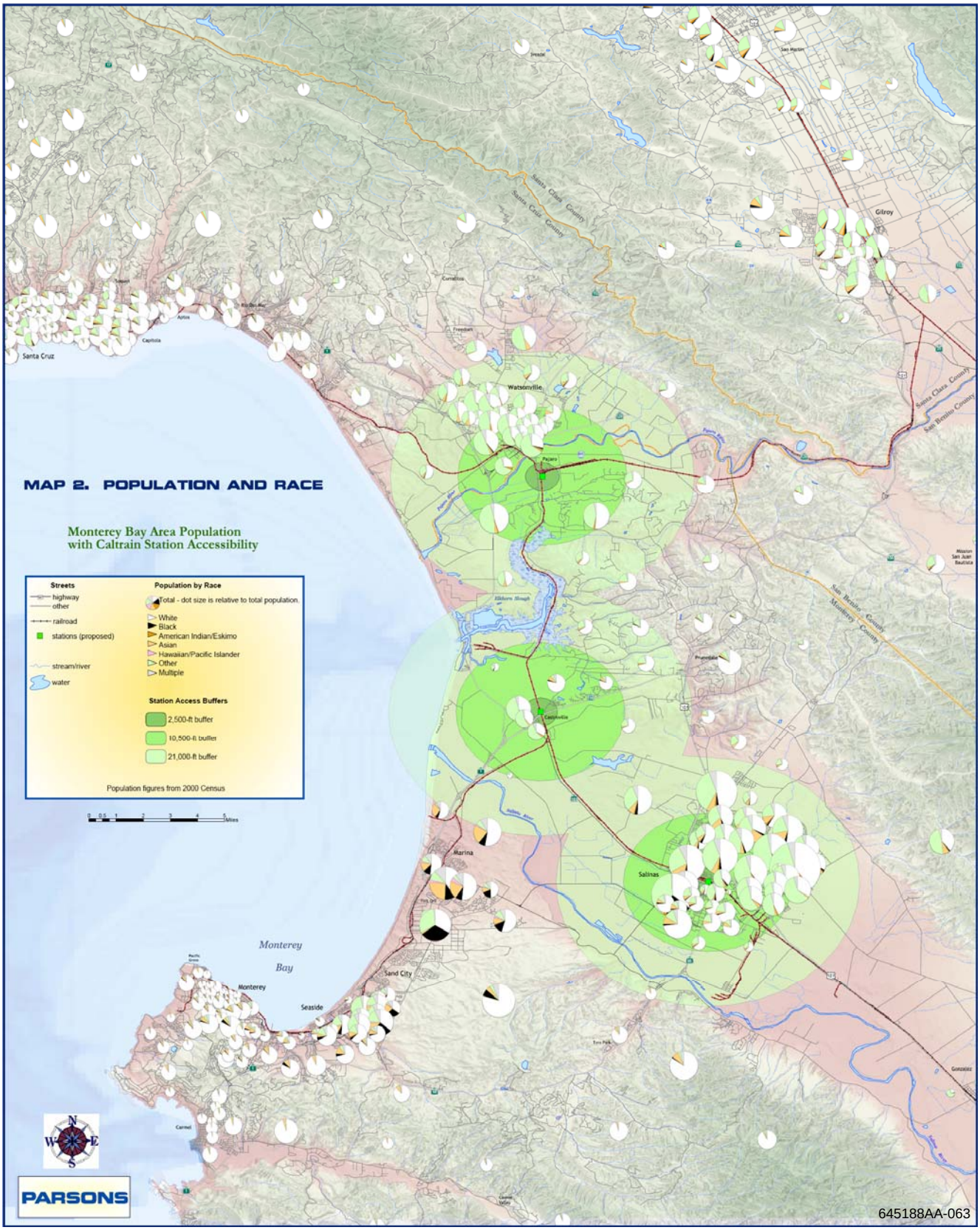
Monterey County

The 2000 U.S. Census data reports median income for the calendar year 1999. According to that data, the median household income for Monterey County was $48,305 annually. The information below compares Monterey County's median household income with that of neighboring counties and the state (Monterey County, 2003).

Geographic Area	1999 Median Household Income
Monterey County	$48,305
Santa Cruz County	$53,998
San Luis Obispo County	$42,428
Santa Clara County	$74,335
State of California	$47,493

Source: U.S. Census, 2000 645188AA-096

Figure 8-4
Monterey Bay Area Population and Race



At the time that the Monterey County Housing Element was prepared (2003), the 2000 U.S. Census data regarding household income according to the income categories of lower, moderate and above moderate was not yet available. Based on 1990 U.S. Census Data for the County of Monterey (unincorporated and incorporated areas), approximately 22 percent of all households could be considered very low income and another 19 percent of households as low income.

The State of California, Department of Finance, has estimated that there were 34,762 households as of January 1, 2002 in the unincorporated areas of Monterey County. The chart below demonstrates the estimated number of households by income category using the 1990 household income percentage distributions as applied to the 2002 Department of Finance household estimates.

Household Income:	Very Low	Low	Moderate	Above Moderate	Unincorporated Area Total
Number of Households	7,648	6,605	8,690	11,819	34,762
(Percentage of Total)	22%	19%	25%	34%	100%

645188AA-097

Information provided in the Housing Element (Monterey County, 2003) indicates that the two major industries in Monterey County are tourism and agriculture. The average annual wage in the "agricultural industry cluster" in Monterey County is approximately $18,608, which is considered very low income for households of two persons or more. Tourism related jobs also pay very low wages. Households with members who rely on employment in either or both of these fields could be expected to qualify as either very low or low income, depending on household size.

Salinas

The 1990 U.S. Census indicates that 49.85 percent of Salinas' population is of low and moderate income. The city of Salinas' economy is predominantly agriculturally oriented, with relatively low-skilled, low-paying jobs (City of Salinas, 2002).

Figure 8-5 illustrates the distribution of population by block group above and below income poverty levels according to the 2000 census. The graphic illustrates concentrations of lower income families which would be served by the proposed transit investment.

Similar to the assessment of household population served by the Caltrain Extension Alternative stations located in Monterey County, a tabulation of jobs within easy access of existing Caltrain stations was undertaken. Buffers of 0.5-mile, 1-mile, and 2-mile radii were drawn around each of the Caltrain stations located within Santa Clara County. Data from surveys of Caltrain and Altamont Commuter Express (ACE) riders indicate that existing riders of commuter rail travel to jobs well beyond the 0.5-mile radius typically assumed by Federal Transit Administration (FTA) for its "New Starts" mobility criteria. In Santa Clara County, the presence of shuttle bus service provided by major employers and the VTA greatly increases the accessibility of these commuter rail stations to jobs.

Figures 8-6 and 8-7 illustrate the commuter rail station locations and accessibility buffers within Santa Clara County. Figure 8-6 includes an ACE station at the Great America theme park within the city of Santa Clara for reference.

Table 8-39 presents a tabulation of jobs accessible to Caltrain stations. Caltrain provides transit access to 572,737 jobs within Santa Clara County as of Year 2000 estimates. Jobs in San Mateo and San Francisco counties would be in addition. Please note that the tabulation of jobs served by the stations excludes double counting due to overlaps of the buffers.

Figure 8-5
Monterey Bay Area Population by Poverty Level

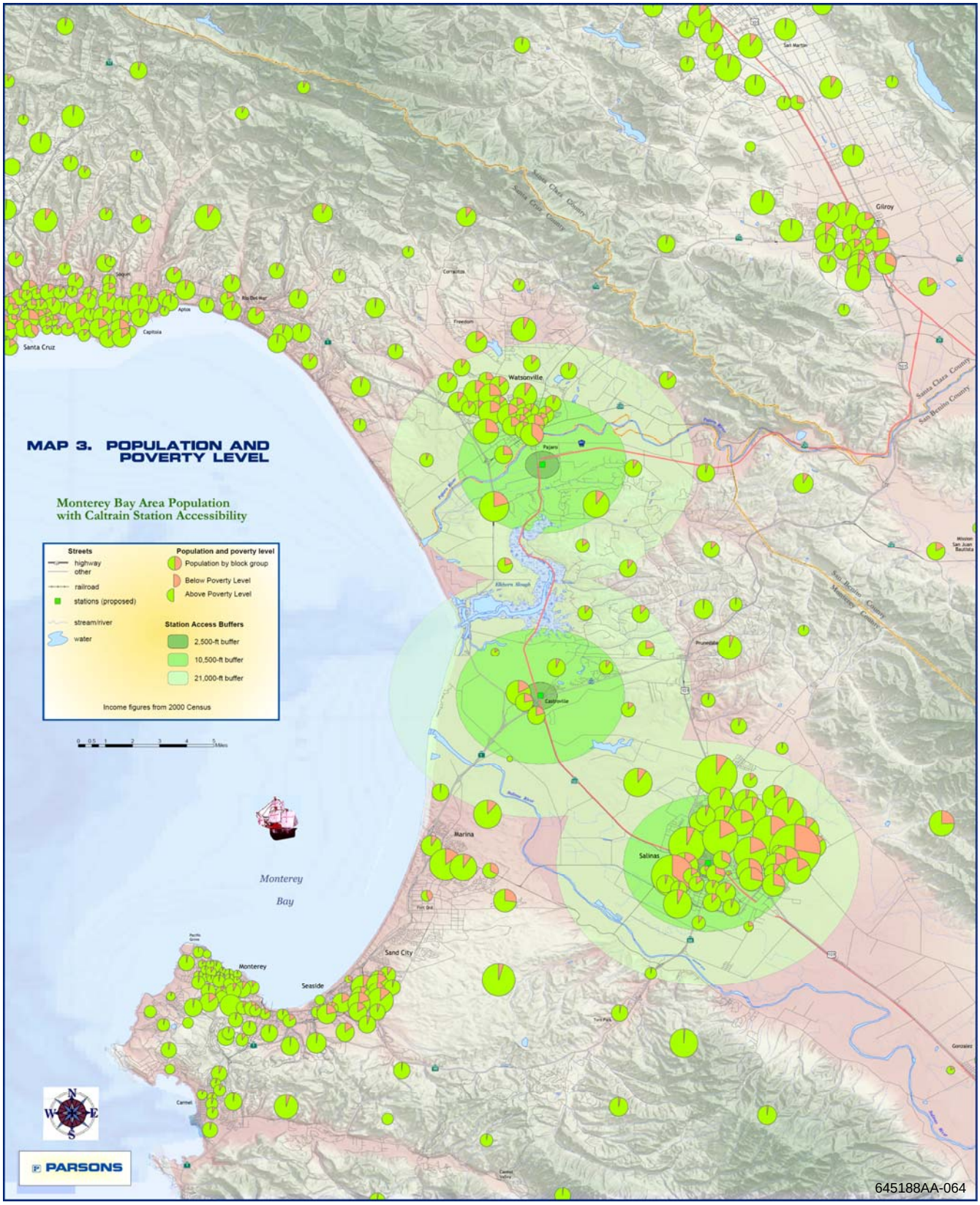
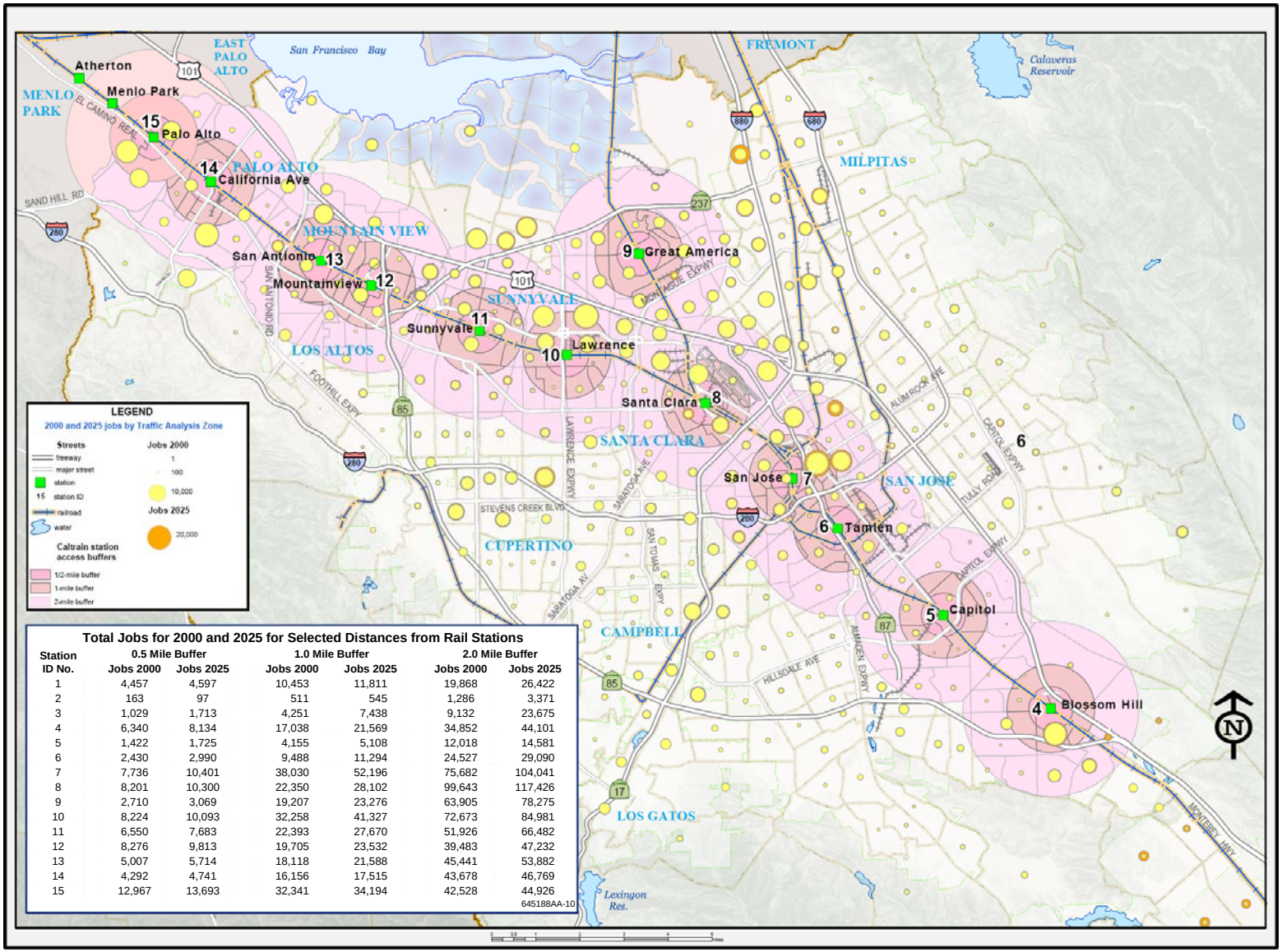


Figure 8-6
Santa Clara County Station Locations and Access Buffers—North County

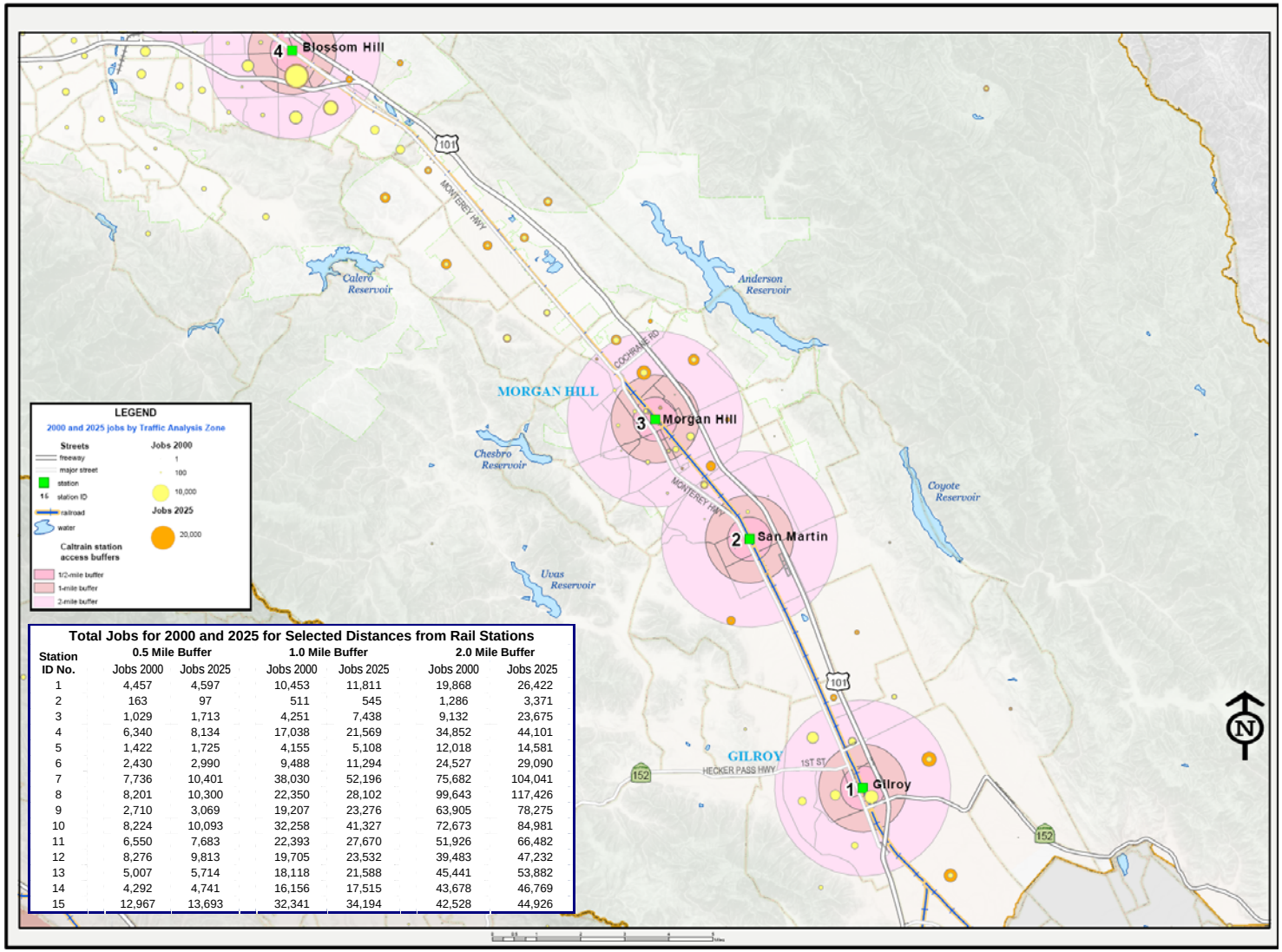


Total Jobs for 2000 and 2025 for Selected Distances from Rail Stations

Station ID No.	0.5 Mile Buffer		1.0 Mile Buffer		2.0 Mile Buffer	
	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025
1	4,457	4,597	10,453	11,811	19,868	26,422
2	163	97	511	545	1,286	3,371
3	1,029	1,713	4,251	7,438	9,132	23,675
4	6,340	8,134	17,038	21,569	34,852	44,101
5	1,422	1,725	4,155	5,108	12,018	14,581
6	2,430	2,990	9,488	11,294	24,527	29,090
7	7,736	10,401	38,030	52,196	75,682	104,041
8	8,201	10,300	22,350	28,102	99,643	117,426
9	2,710	3,069	19,207	23,276	63,905	78,275
10	8,224	10,093	32,258	41,327	72,673	84,981
11	6,550	7,683	22,393	27,670	51,926	66,482
12	8,276	9,813	19,705	23,532	39,483	47,232
13	5,007	5,714	18,118	21,588	45,441	53,882
14	4,292	4,741	16,156	17,515	43,678	46,769
15	12,967	13,693	32,341	34,194	42,528	44,926

645188AA-034

Figure 8-7
Santa Clara County Station Locations and Access Buffers—South County



Total Jobs for 2000 and 2025 for Selected Distances from Rail Stations

Station ID No.	0.5 Mile Buffer		1.0 Mile Buffer		2.0 Mile Buffer	
	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025	Jobs 2000	Jobs 2025
1	4,457	4,597	10,453	11,811	19,868	26,422
2	163	97	511	545	1,286	3,371
3	1,029	1,713	4,251	7,438	9,132	23,675
4	6,340	8,134	17,038	21,569	34,852	44,101
5	1,422	1,725	4,155	5,108	12,018	14,581
6	2,430	2,990	9,488	11,294	24,527	29,090
7	7,736	10,401	38,030	52,196	75,682	104,041
8	8,201	10,300	22,350	28,102	99,643	117,426
9	2,710	3,069	19,207	23,276	63,905	78,275
10	8,224	10,093	32,258	41,327	72,673	84,981
11	6,550	7,683	22,393	27,670	51,926	66,482
12	8,276	9,813	19,705	23,532	39,483	47,232
13	5,007	5,714	18,118	21,588	45,441	53,882
14	4,292	4,741	16,156	17,515	43,678	46,769
15	12,967	13,693	32,341	34,194	42,528	44,926

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Table 8-39
Commuter Rail Access to Employment in Santa Clara County

ID No.	Station	Range	0.5 Mile		1.0 Mile		2.0 Miles	
			2000	2025	2000	2025	2000	2025
15	Palo Alto		12,967	13,693	32,341	34,194	42,528	44,296
14	California		4,292	4,741	16,156	17,515	43,678	46,769
13	San Antonio		5,007	5,714	18,118	21,588	45,441	53,882
12	Mountain View		8,276	9,813	19,705	23,532	39,483	47,232
11	Sunnyvale		6,550	7,683	22,393	27,670	51,926	66,482
10	Lawrence		8,224	10,093	35,258	41,327	72,673	84,981
8	Santa Clara		8,201	10,300	22,350	28,102	99,643	117,426
7	San Jose		7,736	10,401	38,030	52,196	75,682	104,041
6	Tamien		2,430	2,990	9,488	11,294	24,527	29,090
5	Capitol Expressway		1,422	1,725	4,155	5,108	12,018	14,581
4	Blossom Hill		6,340	8,134	17,038	21,569	34,852	44,101
3	Morgan Hill		1,029	1,713	4,251	7,438	9,132	23,675
2	San Martin		163	97	511	545	1,286	3,371
1	Gilroy		4,457	4,597	10,453	11,811	19,868	26,422
Station buffer totals			**77,094**	**91,694**	**250,247**	**303,889**	**572,737**	**706,349**
Countywide			**1,362,948**	**1,724,585**	**1,362,948**	**1,724,585**	**1,362,948**	**1,724,585**
Percent of county totals			**5.7%**	**5.3%**	**18.4%**	**17.6%**	**42.0%**	**41.0%**

Source: Parsons

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As noted in Table 8-6, access to higher paying jobs in Santa Clara County is important for Monterey County residents. The average wage of all private workers in Santa Clara County is nearly twice that of jobs located in Monterey County. The average wage of high tech workers in Santa Clara County is 238% higher than the average wage paid by Monterey County employers.

Growth Inducement/Economic Development Potential

Growth inducement is defined by the California Environmental Quality Act (CEQA) Guidelines as the fostering of economic or population growth, or the construction of new housing. Growth inducement may result from direct employment, population, or housing growth; secondary or indirect growth; or provision of new infrastructure that removes obstacles to population growth.

The project is located in both urban and rural areas, surrounded by commercial development or farmland and county parcels. With the development of the proposed station facilities, construction of a new commuter rail or express bus passenger transportation infrastructure would directly foster economic and population growth. The project could help to accommodate the population projected in the City of Salinas and Monterey County General Plan, who reside in these areas but work elsewhere, by providing efficient public transportation options.

The proposed project could have an indirect affect on the local population near the proposed stations. Beneficial impacts to community cohesion and quality of life would also occur for residents and businesses near the proposed rail stations or park-and-ride facilities. Residential property values could potentially increase slightly near transit stations. Higher density housing and mixed use developments would most likely occur near rail stations, which could provide additional affordable housing units to the communities.

Employment growth at the proposed station sites would result mostly from a redistribution of existing employment. Access to regional jobs and educational and entertainment opportunities would increase for residents living near proposed stations, including environmental justice populations. As noted above, under employment served, the proposed project will provide access to higher paying jobs in Santa Clara County/Silicon Valley, as well as jobs located in San Mateo and San Francisco counties. Currently, there is no reasonably priced public transportation between Monterey County and the San Francisco Bay Area. In addition to jobs, educational opportunities which provide entry level access to these higher paying jobs will be accessible by the proposed Caltrain Extension and Express Bus alternatives.

Higher wages earned by Monterey County residents in the San Francisco Bay Area will likely create secondary employment opportunities located within the Monterey Bay region.

FUNDING AVAILABILITY

TAMC is the local agency that distributes state and federal money for local and regional transportation projects in Monterey County. TAMC is responsible for administering specific funding programs created under the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. These funding programs have been continued under the Transportation Equity Act of the 21st Century and the Safe Accountable Flexible Efficient Transportation Equity Act (SAFETEA of 2003: A Legacy for Users). TAMC is responsible for distributing money for public transit, rail, local and street and road maintenance, highway, bicycle and pedestrian facilities.

Table 8-40 lists the proposed capital budget for the Caltrain Extension to Monterey County project. The total estimated project cost is $99.5 million, expressed in year-of-expenditure dollars, divided as $10.4 million for the Salinas MST bus facility and $89.0 million for the rail project, including a layover facility and commuter parking in Salinas, a platform and parking in Castroville, a platform and parking in Pajaro, and main line UPRR track upgrades in Gilroy and between Gilroy and Salinas. This budget amount does not include an allowance for the purchase of Caltrain rolling stock, as sufficient passenger capacity exists to implement both the two train and four train scenarios without need for additional passenger coaches.

Funding for the Caltrain Extension project includes the state Traffic Congestion Relief Program, the Proposition 116 rail bond funds, State Transportation Improvement Program–Public Transportation Account funds, Regional Surface Transportation Program-Interest, a federal earmark, Congestion Mitigation and Air Quality Improvement funding, and contributions by local partner agencies. A proposed application for Federal Transit Administration New Starts funding in the amount of $45 million fills the gap between the available funding and the estimated total project cost.

These fund sources and amounts are preliminary and are subject to change.

Insofar as funds required to meet net public operating costs (i.e., subsidize transit operations and maintenance expense), three sources of funding are anticipated. These are Local Transportation Funds, State Transit Assistance funds, and local sales tax funds.[16]

[16] A local transportation sales tax is proposed as a November 2008 ballot initiative.

Table 8-40
Proposed Capital Budget for Caltrain Extension to Monterey County Project

Tasks	Fiscal Years	Phase Costs	Funding Sources	Identified Funds Available	Secured	Proposed	Cumulative Cost
Prior Work & Current Phase: Environmental Review, Alternatives Analysis, New Starts, Conceptual Design			Federal Earmark	$990,644	$990,644	$0	
			P116	$352,187	$352,187	$0	
			RSTPI	$285,000	$285,000	$0	
			TCRP	$1,000,000	$1,000,000	$0	
			Local	$665,000	$665,000	$0	
	2003-07	$3,292,831	**Total**	**$3,292,831**	**$3,292,831**	**$0**	**$3,292,831**
Caltrain Extension – Next Phases							
Preliminary engineering, PS&E/final design, UPRR support, force account			CMAQ	$975,000	$975,000	$0	
			P116	$580,000	$580,000	$0	
			STIP	$4,520,000	$4,520,000	$0	
			TCRP	$4,258,000	$4,258,000	$0	
	2007-08	$10,333,000	**Total**	**$10,333,000**	**$10,333,000**	**$0**	**$13,625,831**
ROW			TCRP (Salinas station/platform/parking & layover faci	$14,742,000	$14,742,000	$0	
			Federal New Starts (Salinas bus; Castroville)	$4,967,000	$0	$4,967,000	
			RSTPI	$30,000	$30,000	$0	
	2007-09	$19,739,000	**Total**	**$19,739,000**	**$14,772,000**	**$4,967,000**	**$33,364,831**
Construction, construction engineering & management			P116	$2,067,813	$2,067,813	$0	
			Fed Bus Earmark	$7,528,800	$0	$7,528,800	
			Fed Bus local match	$1,882,200	$0	$1,882,200	
			Other Local Match	$5,700,000	$0	$5,700,000	
			SCCRTC/Watsonville (Pajaro)	$10,000,000	$0	$10,000,000	
			County (Castroville Undercrossing)	$500,000	$500,000	$0	
			Federal New Starts	$40,033,200	$0	$40,033,200	
	2008-10	$67,712,013	**Total**	**$67,712,013**	**$2,567,813**	**$65,144,200**	**$101,076,844**
TOTAL				**$101,076,844**	**$30,965,644**	**$70,111,200**	**$101,076,844**

Funding Sources	Identified Funds Available	Secured	Proposed	Grand Total
RSTPI	$315,000	$315,000	$0	$315,000
FED Earmark	$990,644	$990,644	$0	$990,644
CMAQ	$975,000	$975,000	$0	$975,000
Prop 116	$3,000,000	$3,000,000	$0	$3,000,000
STIP	$4,520,000	$4,520,000	$0	$4,520,000
TCRP	$20,000,000	$20,000,000	$0	$20,000,000
Local contributions	$16,865,000	$1,165,000	$15,700,000	$16,865,000
MST Fed grant/local match	$9,411,000	$0	$9,411,000	$9,411,000
Federal New Starts	$45,000,200	$0	$45,000,200	$45,000,200
TOTAL REVENUES	**$101,076,844**	**$30,965,644**	**$70,111,200**	**$101,076,844**

* Budget numbers and timelines subject to change.

The Final 2005 Monterey County Regional Transportation Plan (RTP) identifies the Caltrain-commuter rail extension to Salinas as part of its planned new passenger rail services. The RTP states, "TAMC plans to extend the existing Caltrain commuter rail service (between San Francisco and Gilroy) south to Salinas. The extension will include three new station stops: Pajaro, Castroville, and Salinas. At its inception, the service would consist of two round trips per day running from Salinas to San Francisco and will be increased to four or more round trips as demand warrants, probably within 10 years from start of service."

The RTP includes elements of the project in its overall Constrained Project List (Appendix D of the 2005 Final RTP). Elements applicable to the proposed project are shown in Table 8-41.

Table 8-41
Regional Transportation Program Constrained Projects List

RTP ID	Agency	Title/Description	Constrained Funding[1] (2005$)
MYC018	County	Castroville Boulevard Bike Path Connection under Railroad	$ 750,000
MST042	MST	Salinas Intermodal Center—Construct New ITC	$ 8,138,000
TAM006	TAMC	Castroville Rail Station	$11,150,000[2]
TAM007	TAMC	Commuter Rail Operations (operating costs to run two round trips per day, to increase to four trips within 10 years	$64,900,000[3]
TAM009	TAMC	Commuter Rail Track Access/Track Improvements between Gilroy and Salinas	$ 5,000,000
TAM012	TAMC	Gilroy Yard Improvements	$ 3,170,000
TAM016	TAMC	Pajaro Rail Station	$ 6,565,000
TAM024	TAMC	Salinas Station	$31,577,000

Source: Transportation Agency for Monterey County, Appendix D of the Monterey County Regional Transportation Plan, 2005b (Final)
[1]Funding occurs in present–2010 unless otherwise noted
[2]$5,250,000 in present–2010; $5,900,000 in 2011–2020
[3]$5,900,000 in present–2010; $29,500,000 in 2011–2020; $29,500,000 in 2021–2030

SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE

Based on the array of technical information, evaluation findings and public input, a key outcome of the detailed Alternatives Analysis is the selection of a preferred long-term strategy for the corridor. The long-term strategy is defined as investments required to address the 2030 planning horizon. As a subcomponent of the locally preferred alternative, a reduced scope alternative is defined to address near term, opening year needs. This reduced scope alternative is known as the "minimum operating segment."

The minimum operating segment must address the purpose and need for the project within the context of near-term demographic and travel conditions. For the purpose of this study, the near-term minimum operating segment is defined for 2010 conditions.

For the purpose of evaluating project worthiness, the Federal Transit Administration requires that project applicants for federal "New Starts" discretionary funding also provide comparative information on a TSM or "best bus" alternative. For this reason, performance characteristics of a "baseline" alternative have been included in this study along with those of the Caltrain Extension Alternative and the minimum operating segment of the Caltrain Extension Alternative.

The results of this Alternatives Analysis study, ongoing from 2002 through 2007, indicate that **the Caltrain Extension to Monterey County is the most cost effective alternative for serving inter-county commuters to Silicon Valley and providing access to educational and health care resources in the San Francisco Bay Area.** Selection of this option will meet the purpose and need of the proposed investment by providing additional transportation capacity in the U.S. 101 travel corridor. Further, selection of the Caltrain Extension modal option can increase capacity over and above that defined for the Caltrain Extension Alternative by increasing the length of the trains (adding more cars) and/or increasing the number of trains operated.

There is strong local support for the proposed service extension due to the projected population growth in the Monterey Bay Area and the increasing numbers of San Francisco Bay Area workers who are making their homes in San Benito, Santa Cruz, and Monterey counties. A multi-agency task force comprised of the Santa Clara Valley Transportation Authority, Transportation Agency for

Monterey County, Association of Monterey Bay Area Governments, MST, Caltrans, Santa Cruz County Regional Transportation Commission, San Benito County, and the cities of Salinas and Watsonville has been meeting to discuss and plan the initial steps to creating this train service extension. This project is an outgrowth of their multi-agency coordination.

Local and regional agencies representing the study area or portions thereof have conducted studies that serve as precursors or complements to this selection of a locally preferred alternative. The project has been coordinated with the Union Pacific Railroad, the Peninsula Corridor Joint Powers Board, Caltrans, the Santa Clara Valley Transportation Authority, the City of Salinas, the Redevelopment Agency of Monterey County, Monterey–Salinas Transit, the City of Watsonville, the Santa Cruz County Regional Transportation Commission, and the Santa Cruz Metropolitan Transit District.

In 1992, Passenger Rail Feasibility Study No. 05D423 was prepared for Caltrans to address the feasibility of passenger rail service between San Francisco, Monterey, Salinas, and Hollister. The study indicated that commuter rail could feasibly serve the existing market for work trips between Salinas and the Silicon Valley.

A locally preferred alternative was adopted in the 1994 Monterey County Regional Transportation Plan. This included the extension of one Caltrain commute train. The 2002 and 2005 Regional Transportation Plans cite growing traffic congestion between Monterey County and the San Francisco Bay Area and the demand for commuter rail services in the U.S. 101 Corridor. The 2005 Regional Transportation Plan includes the extension of Caltrain to Salinas in its list of planned projects.

In 1997, the City of Watsonville prepared a Draft Pajaro Valley Station Project Study Report, in cooperation with Monterey County, TAMC and the Santa Cruz County Regional Transportation Commission. While not finalized, this Draft project study report identified a potential site location and set of program requirements for this station.

Between 1998 and 2000, these program requirements and opportunities for adjacent site development were further refined and explored by the Monterey County sponsored Pajaro Railyards Area Feasibility Study. This study, as well as the draft project study report, sited the Pajaro Valley station adjacent to the former Southern Pacific Passenger Depot which is accessed from Salinas Road.

In 2000, TAMC sponsored the preparation of the Extension of Caltrain Commuter Service to Monterey County Business Plan. The business plan considered, but did not thoroughly evaluate, alternative sites for stations at Pajaro and Castroville and a layover yard in Salinas.

Caltrans' Transportation Concept Report for U.S. 101 in Caltrans District 5 (2001) recommends that demand be reduced on U.S. 101 in Monterey and San Benito counties by encouraging and improving alternative modes such as passenger rail, including the extension of Caltrain service from Gilroy to Salinas.

With funding supplied by TAMC, Santa Clara Valley Transportation Authority, and others, UPRR has undertaken a train simulation "capacity study" of potential freight and passenger rail operations in northern California. Based on the results of this study, UPRR has identified track, switch, and signaling improvements that may be required to implement additional passenger rail service to Monterey County. These have been documented by a "Term Sheet," dated June 26, 2003. Additional track and signaling improvements have been identified in the California Passenger Rail System Five-Year Improvement Plan.

The Peninsula Corridor Joint Powers Board includes the Caltrain extension to Salinas in the Caltrain 2004–2023 Strategic Plan along with route extensions to downtown San Francisco and across the Dumbarton Bridge to the East Bay. Each of these extensions are currently undergoing design and/or environmental study. Additionally, a project development team of Monterey and Santa Cruz County local government representatives has been meeting since September 2000 to refine station program and transportation requirements and resolve station site issues.

The *Monterey County General Bikeways Plan* (2001) includes a proposed Class I Bikeway along Castroville Boulevard and underneath the UPRR rail line in the vicinity of the proposed Castroville station. This trail will provide connectivity between the Castroville central business district, the high school to the east, and the station area.

The City of Salinas has been actively working since 1996 to develop the Intermodal Transportation Center on the site of the Amtrak passenger station. In 1999, the city's Redevelopment Agency acquired 3.5 acres of land housing the station from UPRR. Beginning in June 1996, the city considered various land acquisition strategies and conceptual plans for transportation center development. In June 1998, a site plan was finalized. The city subsequently constructed the Amtrak facility that exists today.

Specific ongoing efforts include the City of Salinas' plans for intensified transit-oriented development near the Salinas station site, Caltrans' plans for upgrading SR 156 east of Castroville Boulevard, the Castroville Community Plan, the Pajaro Community Plan, UPRR's short- and long-term plans for freight and yard operations, and the California Passenger Rail System Five-Year Improvement Plan.

Formal cooperation agreements have been established between TAMC, the Monterey County Redevelopment Agency and the City of Salinas (Rail Planning Funds Cooperation Agreement, dated February 7, 2002, amended September 13, 2002) and between TAMC and MST (Agreement for Funding Study of the Relocation of the Salinas Transit Center to the Salinas Intermodal Center as a Part of the Caltrain Extension Project, dated December 12, 2002).

Negotiations are ongoing between TAMC and the Peninsula Corridor Joint Powers Board regarding revenue and cost sharing. In addition, a purchase-of-service agreement will stipulate TAMC/Peninsula Corridor Joint Powers Board rights and powers, financial commitments, service parameters, and details of administrative procedures.

Discussions between TAMC and UPRR are also ongoing regarding main line track and signaling improvements. TAMC has met with UPRR to develop a trackage rights agreement for the extension of Caltrain from Gilroy to Salinas. On June 26, 2003 UPRR presented TAMC with a draft "Term Sheet Conditions for Salinas-Gilroy Passenger Service." This term sheet outlines operating parameters, capacity/track improvements, compensation, liability/insurance, and other terms for the minimum operating segment, subject to further discussions and negotiations during project delivery.

Based on a detailed definition of the Caltrain Extension Alternative contained in the *Caltrain Extension to Monterey County Project Study Report*, dated February 21, 2006, a draft California Environmental Quality Act Environmental Impact Report was prepared and circulated for public comment on April 26, 2006. The public review period for the Draft Environmental Impact Report ended on June 16, 2006, and a Final Environmental Impact Report was subsequently published on July 26, 2006. The TAMC Board of Directors certified the Final Environmental Impact Report on August 23, 2006.

As noted above, the minimum operating segment is the service and facilities defined in this Alternatives Analysis for the 2010 timeframe. Three stations would initially be constructed as proposed for the full Caltrain Extension Alternative. Parking supplies would be reduced, however, commensurate with ridership expectations for the 2010–2015 initial five years of service operation. Other aspects of the minimum operating segment would be as defined for the full Caltrain Extension Alternative.

CHAPTER 9: SUMMARY

An Alternatives Analysis study evaluates appropriate modal and alignment options for addressing mobility options in a given corridor. The study provides information to local officials on the benefits, costs, and impcats of alternative transportation investments developed to address the purpose and need for an improvement in a corridor. An Alternatives Analysis study is required for a project to qualify for federal Section 5309 New Starts capital funding. The study is complete when a locally preferred alternative (LPA) is selected by local and regional decision makers.

PURPOSE AND NEED

The U.S. 101 Corridor is heavily congested in the San Francisco Bay Area and portions of Monterey County. Caltrain commuter rail service currently extends from San Francisco in the north to Gilroy in the south. The proposed Caltrain Extension to Monterey County project would extend Caltrain commuter rail service from its existing terminus in Gilroy to Monterey County, including stations in Pajaro, Castroville, and Salinas. Figure 9-1 illustrates the Caltrain Extension to Monterey County project area along with the proposed station locations.

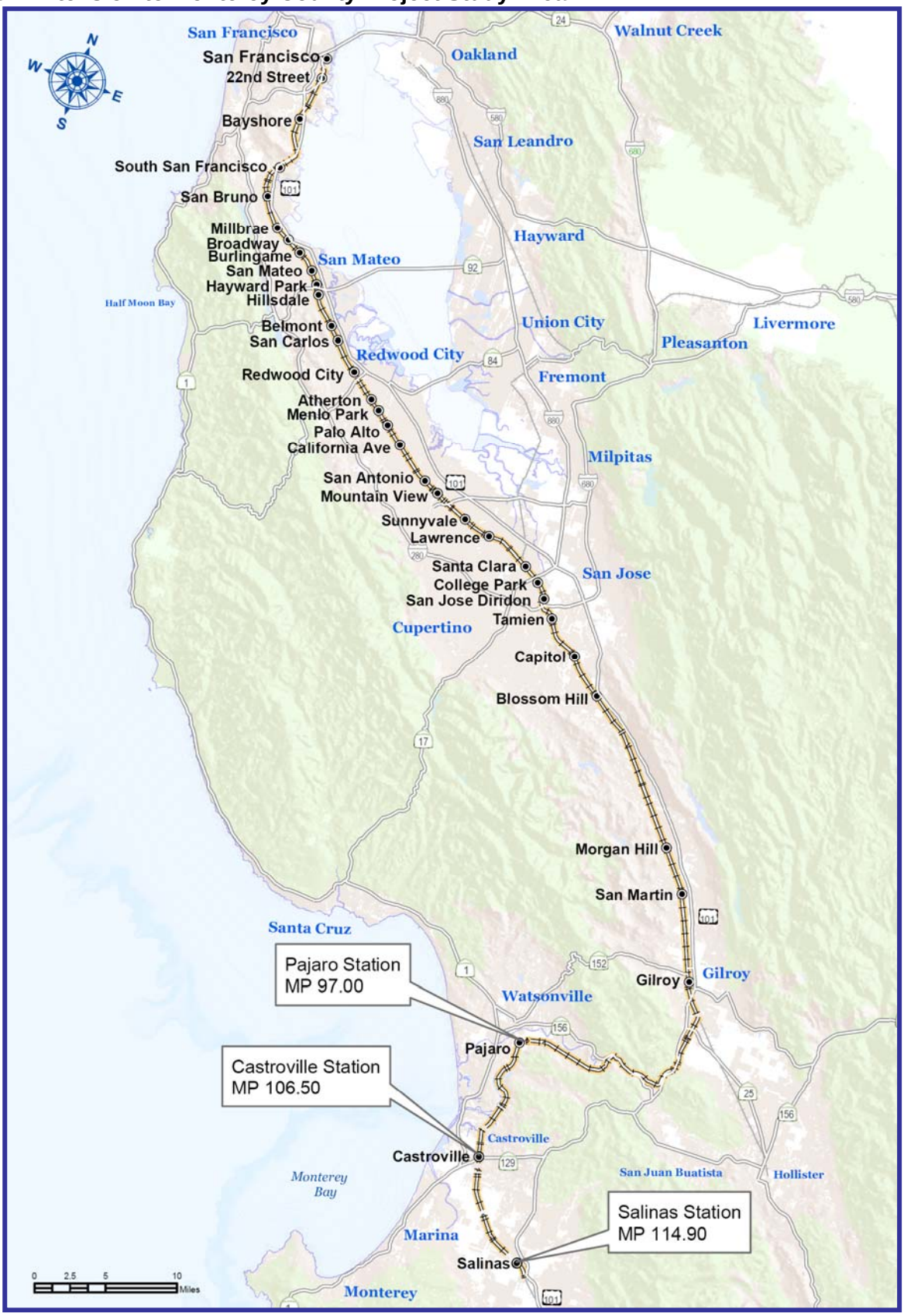
The proposed extension of Caltrain to Salinas would provide an alternative means of travel between these counties, significantly reducing congestion along U.S. 101 into Santa Clara, San Mateo, and San Francisco counties, and improving regional air quality. In addition, the proposed rail service is a cost effective alternative to widening U.S. 101.

In addition to lowering congestion on the roadways, the commuter rail extension would bring a significant increase in ridership to the existing Caltrain and the connecting Capitol Corridor services. Other benefits to this new service include an increase in job opportunities, more transportation alternatives for senior citizens and those with physical disabilities, and increased access to educational and health care resources in the San Francisco Bay Area.

Currently, job distribution and worker housing distribution patterns do not match in the Monterey County and San Francisco Bay areas. The northern counties of San Francisco and Santa Clara have large job surpluses, requiring approximately 117,000 non-San Francisco Bay Area residents to fill the available positions as of 2000 (Metropolitan Transportation Commission). This pull of workers generates a large volume of inter-regional commuter traffic, leading to highway congestion and poor air quality in the basin.

The U.S. Census for 2000 estimates that 18,073 persons living in Monterey County work in another county. Of this number, more than 30 percent are employed within Santa Clara County or other Bay Area counties. Available public transportation choices between Monterey County and Santa Clara County are limited to three northbound bus trips during the AM commute period and two southbound bus trips during the afternoon commute period. These buses are subject to traffic delays on U.S. 101 and SR 156.

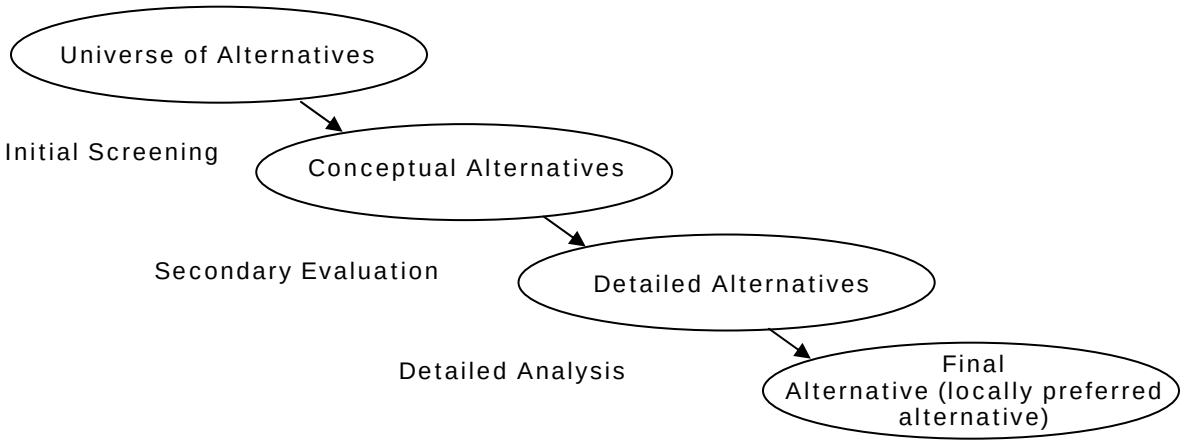
Figure 9-1
Caltrain Extension to Monterey County Project Study Area



ALTERNATIVES ANALYSIS STUDY PROCESS

The proposed project is the outgrowth of a detailed analysis of alternatives conducted over a period of five years (2002–2007). The process followed by the alternatives analysis is consistent with guidance provided by the Federal Transit Administration and is shown graphically below. This study identified unmet intra-county travel needs within Monterey County and inter-county travel needs between Monterey and southern Santa Cruz counties and the San Francisco Bay Area. To address these travel markets, eight alternatives were identified as depicted in Figure 9-3. These alternatives were conceptually defined as insofar as fixed guideway alignments, station locations, service characteristics and capital costs.

Figure 9-2
Locally Preferred Alternative Selection Process



EVALUATION OF CONCEPTUAL ALTERNATIVES

As a result of the public involvement and policy review process, four alternatives emerged for further refinement and testing. These four alternatives, labeled A through D, are listed below:

A. Caltrain to Salinas Rail Service (four roundtrips on weekdays) and **Intracounty BRT (bus rapid transit) Service** (Monterey to Castroville and Marina to Salinas).

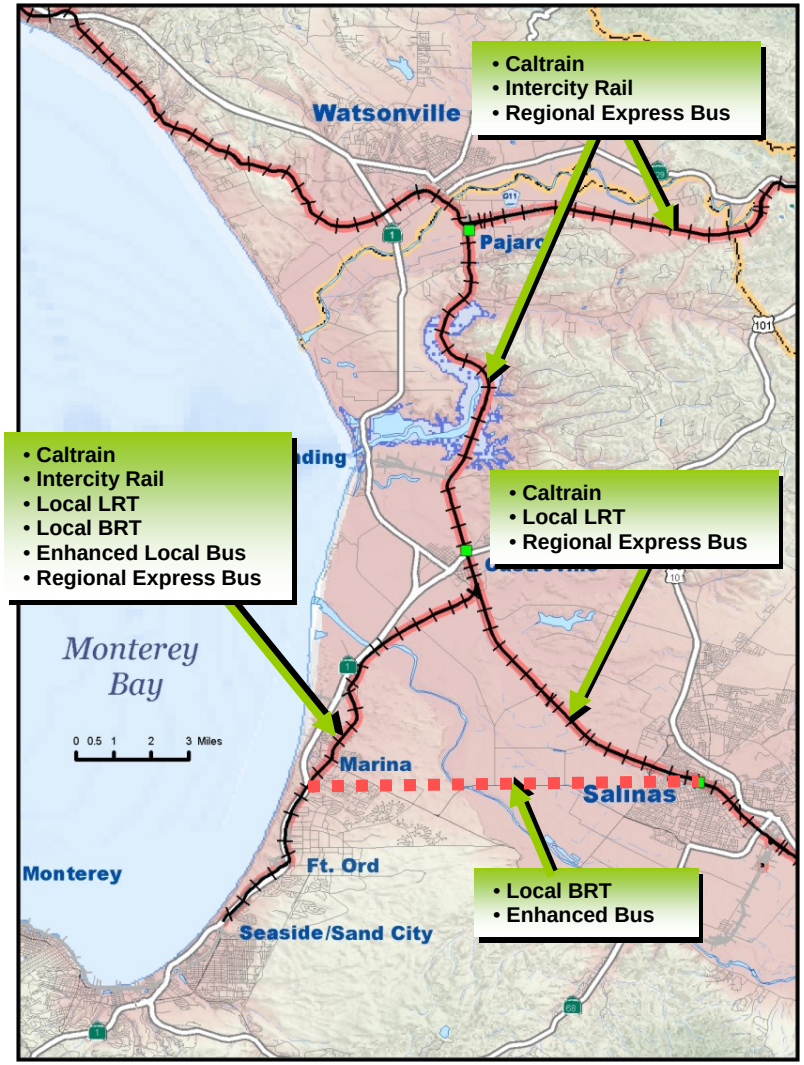
B. Intracounty BRT/LRT (light rail transit) Service (BRT from Monterey to north Marina and Marina to Salinas, LRT from Monterey to Castroville), **Monterey Peninsula to San Francisco Intercity Rail Service** (Monterey to San Francisco) and **Caltrain to Salinas Rail Service** (Commuter Rail).

C. Intracounty LRT Service (local LRT from Monterey to north Marina, LRT extension from North Marina to Castroville and Castroville to Salinas), **Monterey Peninsula to San Francisco Intercity Rail Service** (passenger rail from Monterey to San Francisco) and **Caltrain to Salinas Rail Service**.

D. Express Bus Service to San Francisco Peninsula (between Monterey County Transit Centers and Santa Clara, San Mateo and San Francisco County Caltrain Station Sets) and **Enhanced Local Bus Service** (Monterey to Marina and Marina to Salinas).

Figure 9-3
Preliminary Alternatives

ALTERNATIVE	
0	***No Build Rail Service*** Existing transit services and limited road improvements.
1	***Caltrain to Salinas Rail Service*** Extend four commuter rail roundtrips from Gilroy to Salinas.
2	***Monterey Peninsula to San Francisco Intercity Rail Service*** Operate intercity train service between the Monterey Peninsula and San Francisco 2 or 3 roundtrips per day.
3	***Monterey Peninsula to San Francisco Intercity Rail Service Plus Caltrain to Salinas and Monterey Peninsula*** Operate intercity train service between the Monterey Peninsula and San Francisco plus extend two Caltrain roundtrips from Gilroy to Salinas, and two roundtrips from Gilroy to the north side of Marina.
4	***Passenger Rail Shuttle to Castroville Plus Caltrain Service to Salinas*** Extend four Caltrain commuter rail roundtrips from Gilroy to Salinas. Operate connecting shuttle service between Seaside and Castroville to meet Caltrain service extension.
5	***Local Peninsula Rail or BRT Service Plus Caltrain Service to Salinas*** Construct LRT or BRT Guideway between Monterey and Marina, or extend LRT to Castroville. Potential intercity rail from Marina to San Francisco under sub-option 5D. Includes Caltrain extension to Salinas.
6	***Salinas to Monterey Local Rail or BRT Service Plus Caltrain Service to Salinas*** Construct LRT or BRT guideway between Monterey and Marina. Extend LRT guideway to Castroville via MBL and Salinas along Coast Mainline. Alternately, extend BRT guideway to Salinas via Blanco or Davis roads. Includes Caltrain extension to Salinas.
7	***Monterey Peninsula to San Francisco Intercity Plus Salinas to Monterey Local Rail Service and Caltrain Service to Salinas*** Construct LRT between Monterey, Castroville and Salinas. Operate intercity rail service from Monterey to San Francisco. Use FRA-compliant diesel multiple rail equipment for both services. Includes Caltrain extension to Salinas.
8	***Monterey County to San Francisco Peninsula Express Bus Service (TSM)*** Low cost transit investments to match locally preferred build alternative. Includes major roadway construction to provide capacity/reduce congestion.



Common to all Build Alternatives (A–C) was the extension of Caltrain service to Monterey County. This commonality reflects the conscious decision on the part of the Transportation Agency for Monterey County (TAMC) Rail Policy Committee to exclude from further consideration any Build Alternative which did not include the extension of Caltrain service to Salinas.

DETAILED DEFINITION OF ALTERNATIVES

Following the shortlisting of conceptual alternatives for further refinement and evaluation, the Alternatives Analysis study was divided into two projects; one serving intra-county needs and one serving inter-county (Monterey to San Francisco Bay Area) needs. **This Alternatives Analysis document addresses the inter-county commute market alternatives.**

Two alternatives were defined to address this travel market. These are labeled the Caltrain Extension to Salinas Alternative (the build alternative) and Express Bus Alternative (Transportation System Management (TSM) alternative).

In addition to the Caltrain Extension Alternative and the Express Bus Alternative, five additional alternatives were considered, but rejected for the U.S. 101 Corridor. These included:

- Shuttle bus service to Gilroy
- Limited stop bus service to San Jose
- Shuttle train service to Gilroy
- Independent train service to San Francisco
- Bus rapid transit service

These alternatives were rejected as not being sufficiently attractive to capture ridership or not being cost effective.

Caltrain Extension Alternative

The proposed project consists of four elements: commuter rail station construction at the communities of Pajaro and Castroville; renovations/expansions of an existing passenger rail station and construction of a new parking facility at Salinas; and construction of a commuter rail layover facility at Salinas. Improvements to the Union Pacific Railroad (UPRR) Coast main line between Gilroy and Salinas and institutional arrangements required for construction and operation of commuter rail service between Gilroy and Salinas are also part of the Caltrain Extension Alternative.

Under the Caltrain Extension Alternative, existing Caltrain service to Gilroy would be extended to Salinas. Initially, two round trip trains would be operated on weekdays. As ridership warrants, service would be expanded to three round trips. As Caltrain service is restored to Gilroy (four round trips) and eventually expanded, service would be extended to Salinas as demand warrants. Trainsets would lay over in Salinas in lieu of Gilroy. A Salinas layover yard would be constructed with capacity for four trainsets, but would be designed to expand to accommodate six trainsets.

Weekday boardings at Monterey County Stations (AM northbound) are forecast at 1,028 riders per day, based on Year 2000 commuting patterns. In the afternoon, an equal number of riders would

board at San Francisco Bay Area stations and ride south to Monterey County. These commuting patterns appear to hold true as of 2005/2006, and are assumed for 2010 opening year conditions. Year 2030 boardings are forecast as 2,056 riders per day traveling in each direction (4,000 passenger trips).

The physical components of the Caltrain Extension Alternative are described and detailed in the *Caltrain Extension to Monterey County Project Study Report*, dated February 21, 2006. The project study report is a "Project Initiation Document" which provides sufficient project detail and cost estimates to allow a project to be included in the State Transportation Improvement Program at the discretion of the California Transportation Commission. **The *Caltrain Extension to Monterey County Project Study Report* is included with this Alternatives Analysis by reference as the physical definition of the Caltrain Extension Alternative.** See Table 9-1 for the Caltrain Extension Alternative capital cost estimates expressed in FY 2007 and year of expenditure (YOE) dollars.

Table 9-1 identifies a cost allowance of $8.8 million for vehicles. This rolling stock is not required to accommodate peak passenger loads, and is included as a risk element for comparison with the Express Bus Alternative. This potential cost is not reflected in the year of expenditure funding plan.

Table 9-1
Caltrain Extension Alternative Capital Cost Estimate ($1,000 FY 2007)

Work Description	UPRR Main Line	Gilroy Yard	Pajaro Station	Castroville Station	Salinas Station	Salinas Bus	Salinas Yard	2007 Totals	YOE Totals
Parking and access	—	—	$ 1,805	$ 2,085	$ 2,244	$1,526	—	$7,660	$8,426
Pedestrian structures	—	—	—	900	—	—	—	900	990
Platform and station amenities	—	—	1,602	1,953	2,555	1,298	—	7,408	8,149
Track and signal improvements	5,000	2,088	3,937	3,251	1,103	—	3,718	19,097	20,099
Specialty items	—	—	179	—	227	—	202	608	669
Mobilization	—	209	753	729	613	282	392	2,978	3,276
Contingencies	—	804	2,897	3,122	2,360	1,087	1,509	11,779	12,957
Construction Total	$5,000	$3,101	$11,173	$12,040	$ 9,102	$4,193	$5,821	$50,430	$54,566
Soft cost	—	1,023	3,687	3,973	3,004	1,384	1,921	14,992	15,756
Right-of-way	—	—	2,170	430	7,750	4,250	4,000	18,600	19,346
Subtotal	$5,000	$4,124	$17,030	$16,443	$19,856	$9,827	$11,742	$84,022	$89,668
Vehicles (risk element)	—	—	—	—	—	—	—	8,800	9,616
Unallocated contingency								9,282	9,871
Total	**$5,000**	**$4,124**	**$17,030**	**$16,443**	**$19,856**	**$9,827**	**$11,742**	**$102,104**	**$109,155**

Express Bus Alternative

In the Caltrain Extension to Monterey County project, the Express Bus Alternative entails express bus service from Salinas to the San Francisco Bay Area. This alternative would attempt to provide equivalent travel time savings, comfort and convenience for transit users as compared with the Caltrain Extension Alternative. Monterey–Salinas Transit (MST) express bus service would be

established as part of this alternative and would operate from four Monterey County Transit Centers to the San Francisco Bay Area. An MST Transit Center/Park-n-Ride facility would be constructed at Eighth Street in Marina as part of the University Villages redevelopment of Fort Ord. Additional transit centers with park-and-ride facilities would be located in Salinas, Castroville, and Pajaro with express bus service operating via existing surface roadways to Santa Clara and San Mateo counties, including non-stop service to selected stations.

The Express Bus Alternative also includes the construction of park-and-ride facilities to support express bus operations at comparable Caltrain Extension Alternative rail station locations. These will include Salinas, Castroville, Pajaro/Watsonville, and Marina (Fort Ord). High-speed transmission, over the road, 40-foot coaches would be acquired for this service with a capacity of 45 to 49 passengers per vehicle. Twenty-five vehicles (plus five spares) would be required to operate the service in the near term—carrying 1,028 commuters to the San Francisco Bay Area each weekday. Of these, 21 vehicles would operate to/from Santa Clara County and four vehicles would operate to/from San Mateo and San Francisco counties. This is equivalent to two Caltrain trips extended from Gilroy to Salinas. Longer term, a fleet of 60 motor coaches (50 vehicles in revenue service plus 10 spares) would be required to accommodate the four Caltrain each way ridership scenario. The same fare structure as proposed for the Caltrain Extension Alternative is assumed for the Express Bus Alternative. All fare revenues will be used to offset operating and maintenance expenses. Table 9-2 outlines the Express Bus Alternative capital cost estimates.

Table 9-2
Express Bus Alternative Capital Cost Estimate ($1,000 FY 2007)

Work Description	Pajaro Park-and-Ride	Castroville Park-and-Ride	Salinas Station	Salinas Bus	Salinas Park-and-Ride	Marina Bus	Marina Park-and-Ride	2007 Totals	YOE Totals
Parking and access	$2,227	$1,426	—	$1,215	$ 8,888	$ 485	$1,390	$15,631	$17,194
Pedestrian structures	—	900	—	—	—	—	—	900	990
Platform and station amenities	576	453	2,301	1,298	—	1,204	—	5,832	6,415
Track and signal improvements	—	605	316	—	—	—	—	921	1,013
Specialty items	50	100	75	50	—	—	—	275	303
Mobilization	285	349	269	256	889	169	139	2,356	2,592
Contingencies	1,098	1,341	1,036	987	1,955	650	535	7,602	8,362
Construction Total	$4,236	$5,174	$3,997	$3,806	$11,732	$2,508	$2,064	$33,517	36,271
Soft cost	1,398	1,707	1,319	1,256	4,106	702	681	11,169	11,741
Right-of-way	2,170	409	—	4,250	1,650	74	2,622	11,175	11,593
Subtotal	$7,804	$7,290	$5,316	$9,312	$17,488	$3,284	$5,367	$55,861	59,605
Vehicles	—	—	—	—	—	—	—	30,000	36,383
Maintenance facility	—	—	—	—	—	—	—	6,000	6,493
Unallocated contingency	—	—	—	—	—	—	—	4,593	4,866
Total	**$7,804**	**$7,290**	**$5,316**	**$9,312**	**$17,488**	**$3,284**	**$5,367**	**$96,454**	**$107,347**

DETAILED EVALUATION OF ALTERNATIVES

The Alternatives Analysis study prepared a detailed evaluation of how well each alternative/alignment option can meet the goals and objectives established for the project:

- Improve mobility
- Improve the environment
- Optimize transit operating efficiencies
- Provide a cost-effective solution
- Support local land use plans and respond to growth

The evaluation methodology was designed to ensure that both local priorities and Federal Transit Administration criteria are met. Table 9-3 shows some of the key results of the evaluation. These results compare the Caltrain Extension Alternative and the Express Bus Alternative for the selected evaluation criteria, including cost and various user benefits. The benefits monetized in Table 3 are expressed as positive dollars, while costs are expressed as (negative) dollars. Table 9-3 demonstrates that the benefits of the Caltrain Extension Alternative exceed the benefits of the Express Bus Alternative in both 2010 and 2030.

Table 9-3
Summary of Caltrain Extension and Express Bus Alternative Benefits

	2010		2030	
Benefit Type	**Caltrain**	**Express Bus**	**Caltrain**	**Express Bus**
User Benefits				
In-vehicle travel time (Method 3)	$ 252,032	$ 252,032	$ 6,985,931	$ 4,160,454
Fuel costs	4,499,622	4,499,622	8,631,039	8,631,039
Non-fuel operating savings	1,925,316	1,925,316	3,693,083	3,693,083
Transit user fees	(3,310,612)	(3,310,612)	(6,320,790)	(6,320,790)
Internal accident costs or savings—Highway	3,144,040	3,144,040	6,027,934	6,027,934
Transit	(150,545)	(893,907)	(304,004)	(1,698,612)
Revenue Transfers (fuel taxes)	(893,915)	(893,915)	(1,714,681)	(1,714,681)
Reduction in External Costs				
Emissions	14,361	(105,368)	(136,415)	(381,210)
Highway accidents	554,830	554,830	1,063,753	1,063,753
Transit accidents	(14,406)	(148,306)	(28,744)	(284,432)
Net Public Operating Costs	(1,175,068)	(5,256,095)	(2,393,619)	(10,812,623)
Total	**$4,845,655**	**($232,363)**	**$15,503,487**	**$2,363,915**

The evaluation of the Caltrain Extension and Express Bus alternatives assumed equal ridership for both the commuter rail and express bus modes. For this reason, most of the user benefits identified above are equal between the Caltrain and Express bus options. By the Year 2030, in-vehicle travel time for the Express Bus Alternative will be longer due to increased roadway congestion; however, for the most part benefits are the same or similar between the two modal options. One significant difference is “Net Public Operating Costs,” which is the difference between total operations and maintenance expense and fare revenues (transit user fees) paid to ride the service. Operation of a large bus fleet with limited seating capacity between Monterey County and San Francisco Peninsula stations is far more expensive than the incremental cost of extending Caltrain service 37 miles from Gilroy to Salinas.

This analysis includes estimates of user benefits including travel time savings, reductions in out-of-pocket travel expenses, and reduced accident costs. Estimates of revenue transfers (reduced public tax revenue collections) are included in the analysis. The economic analysis also measures external costs such as the health cost of motor vehicle emissions and accident costs which are not perceived by users.

The Caltrain Extension and Express Bus alternatives are assumed to be implemented by 2010, with the initiation of service occurring in 2011. An analysis of life-cycle benefits and costs indicates that the Caltrain Extension Alternative will have a higher benefit-cost ratio than the Express Bus Alternative over a 20-year, 2011 to 2030 payback period, as indicated in Table 9-4. Higher operating costs and the need to replace express bus vehicles more frequently result in less favorable performance for the Express Bus Alternative compared to the Caltrain Extension Alternative. The payback period is the amount of time measured in years to recover the life cycle investments (capital and net public operating costs). The table shows that public investment in the Express Bus Alternative will never be paid back.

Table 9-4
Summary of Benefit Cost Analysis Results

	Caltrain Extension	Express Bus
Life cycle benefits/total costs ratio	$203 M/$102 M = 1.99	$21 M/$116 M = 0.18
Net present value of benefits/costs at 7% discount rate	$77 M/$88 M = 0.88	$7 M/$84 M = 0.08
Payback period at 7% discount rate	23.5 years	Not paid back

*The payback period is the amount of time measured in years to recover the life cycle investments (capital and net public operating costs). The table shows that public investment in the Express Bus Alternative will never be paid back.

Selection of a locally preferred alternative is seldom based on cost/benefit information alone. For this reason, social or societal performance indicators have been included to address key issues of project feasibility.

FREQUENTLY ASKED QUESTIONS

1. **Will the fixed guideway investment attract sufficient ridership to be worthy of the investment?**
   The Caltrain Extension Alternative and Express Bus Alternative are forecast to attract approximately 1,028 riders each direction (2,056 riders per day) as of 2010, and twice this number by 2030. Spread over a two-hour commute window, this ridership would be **equivalent to approximately one-quarter of one freeway lane times 74.2 miles (equal to 18.5 lane miles) in 2010, and one-half of one freeway lane times 74.2 miles (equal to 37 lane miles) in 2030***.* Both transit alternatives would be capable of carrying additional riders as demand warrants, and could therefore provide additional freeway equivalent capacity to the U.S. 101 Corridor over and above these levels. **When compared to the cost of constructing equivalent freeway capacity (at $5 million per lane mile for freeway construction), the proposed transit fixed guideway investment will pay for itself in one year.**

   When compared to other transit investments, the Monterey County Caltrain Extension/Express Bus Alternatives **perform very well from a passenger miles traveled perspective.** Table 9-5 indicates that Monterey County's 2,056 daily riders (2010 ridership), for example, is equivalent to more than 12,000 BART (Bay Area Rapid Transit) riders.

Table 9-5
Daily Caltrain Extension Transit Rider Equivalents Based on Trip Length (2004)

Mode/Service	Average Trip Length (miles)	Trip Length Ratio*	Daily Rider Equivalent†
Monterey County Caltrain Extension/Express Bus (2010)	74.2	1	2,056
National			
Commuter rail	23.5	3.16	6,497
Heavy rail	5.2	14.27	29,339
Light rail	4.5	16.49	33,903
Bus	3.7	20.05	41,223
San Francisco Bay Area			
Caltrain Peninsula Corridor Joint Powers Board (JPB)	20.07	3.70	7,607
Altamont Commuter Express (ACE)	47.92	1.55	3,187
Bay Area Rapid Transit (BART)	12.59	5.89	12,110
Santa Clara Valley Transportation Authority (VTA)	4.42	16.79	34,520

Source: 2004 National Transit Database, Parsons
*Trip Length Ratio = Monterey County Average Trip Length ÷ Average Trip Length
†Daily Rider Equivalent = Trip Length Ratio × Monterey County Daily Rider Equivalent

2. Is the proposed fixed guideway investment cost effective?

The benefit-cost analysis summarized above indicates that the Caltrain Extension Alternative is cost effective and yields life cycle benefits which nearly equal costs. The Express Bus Alternative is one-tenth as cost effective. Table 9-6 compares ridership with annualized capital costs, operations and maintenance costs, and net public (subsidy) costs. **Relative to other (national) transit fixed guideway investments, both the Caltrain Extension and Express Bus alternatives are cost effective ($10.29 to $24.03 of public investment per rider).**

Table 9-6
Capital and Operating Costs per Rider and per Passenger Mile

Parameter	Caltrain Extension Alternative		Express Bus Alternative	
	2010	2030	2010	2030
Annual ridership	524,280	1,001,130	524,280	1,001,130
Annual passenger miles	38,903,565	74,642,682	38,903,565	74,642,682
Annualized capital cost ($ 2007)	$7,150,000	$7,905,137	$7,337,476	$9,226,006
Annualized capital cost per rider	**$13.64**	**$7.90**	**$14.00**	**$9.22**
Annualized capital cost per passenger mile	**$0.184**	**$0.106**	**$0.189**	**$0.124**
Annual O&M cost ($ 2007)	$4,485,680	$8,714,409	$8,566,7071	$17,133,413
O&M cost per rider	$8.56	$8.70	$16.34	$17.11
O&M cost per passenger mile	$0.115	$0.117	$0.220	$0.230
Annual fare revenue	$3,310,612	$6,320,790	$3,310,612	$6,320,790
Annual net public operating cost	$1,175,068	$2,393,619	$5,256,095	$10,812,623
Net public operating cost per rider	**$2.24**	**$2.39**	**$10.03**	**$10.80**
Net public operating cost per passenger mile	**$0.030**	**$0.032**	**$0.135**	**$0.145**

3. Will the proposed fixed guideway investment equitably serve Monterey County residents?

The proposed Caltrain Extension and the Express Bus alternatives will provide Monterey County residents with public transportation access to relatively high paying jobs, colleges and universi-

ties, health care facilities, sports venues, national/international airports, recreational destinations and shopping attractions in the San Francisco Bay Area.

As of 2000, more than 233,000 residents of Monterey County and southern Santa Cruz County lived within 4.5 miles of one of the three Caltrain Extension Alternative commuter rail stations. Based on the findings of the 2000 census, more than 50 percent of the population served is likely to be of Hispanic/Latino background and nearly 50 percent of the population served is classified as being of low or moderate income. The average wage of all private workers in Santa Clara County is nearly twice the average wage in Monterey County; while the average wage of high tech workers in Santa Clara County is nearly three and one-half times the average wage paid by Monterey County employers. Both the Caltrain Extension and Express Bus alternatives will provide travel time competitive, affordable transit access to these higher paying jobs.

4. Will the proposed fixed guideway investment generate economic benefits for Monterey County?

Population and housing growth is forecast for the communities and neighborhoods surrounding the proposed fixed guideway stations. Both the Caltrain Extension and Express Bus alternatives could help to accommodate this growth by providing efficient public transportation options.

Beneficial impacts to community cohesion and quality of life would also occur for residents and businesses near the proposed rail stations or park-and-ride facilities. Residential property values are expected to increase slightly near transit stations. Higher density housing and mixed use developments would most likely occur near rail stations, which could provide additional affordable housing units to the communities. (See the response to question number 5 for more on transit-oriented development.)

Employment growth at the proposed station sites would result mostly from a redistribution of existing employment. Access to regional jobs and educational and entertainment opportunities would increase for residents living near proposed stations, including environmental justice populations. As noted above, the proposed project will provide access to higher paying jobs in Santa Clara County/Silicon Valley, as well as jobs in San Mateo and San Francisco counties. Currently, there is no reasonably priced public transportation between Monterey County and the San Francisco Bay Area. In addition to jobs, educational opportunities which provide entry level access to these higher paying jobs will be accessible by the proposed Caltrain Extension and Express Bus alternatives.

Higher wages earned by Monterey County residents working in the San Francisco Bay Area will likely create secondary employment opportunities located within the Monterey Bay region.

5. Will the proposed transit centers promote localized transit-oriented development?

The Transportation Agency for Monterey County has adopted a set of guidelines for community development that encourage the siting of higher density housing and mixed-use developments around transit centers. Higher density housing near rail stations could provide additional affordable or workforce housing. The Agency will partner with jurisdictions to promote transit-oriented development around transit centers. The Transportation Agency also administers the Transportation for Livable Communities Transit-Oriented Development incentive grant program, which rewards jurisdictions who approve such developments with funds for transportation projects. Encouraging this kind of growth around transit maximizes the investment in the transportation networks by promoting transit use and infill development in walkable areas, thereby increasing living and transportation choices while reducing reliance on automobiles.

General and local community plans show higher density housing and mixed-use developments in proximity to the three proposed rail stations. The draft Castroville Community Plan proposes housing and mixed-use developments proximate to the rail station. The City of Salinas' General Plan and Downtown Rebound Plan both call for redevelopment around the intermodal transportation center. In Pajaro, the County Redevelopment and Housing office is planning for a job-training center next to the rail station. All three plans actively support the transit centers as focal points for redevelopment and infill development.

6. Is funding available to implement the proposed transit service?

Table 9-7 lists the proposed capital budget for the Caltrain Extension to Monterey County project. The total estimated project cost is $99.5 million expressed in year-of-expenditure dollars, divided as $10.4 million for the Salinas MST bus facility and $89.0 million for the rail project, including a layover facility, bus transfer center and commuter parking in Salinas, a platform and parking in Castroville, a platform and parking in Pajaro, and main line UPRR track upgrades in Gilroy and between Gilroy and Salinas. This budget amount does not include an allowance for the purchase of Caltrain rolling stock as sufficient passenger capacity exists to implement both the two-train and four-train scenarios without need for additional passenger coaches.

Funding for the Caltrain Extension project includes the State Traffic Congestion Relief Program, the Proposition 116 rail bond funds, State Transportation Improvement Program–Public Transportation Account funds, Regional Surface Transportation Program-Interest, a federal earmark, Congestion Mitigation and Air Quality Improvement funding, and contributions from local partner agencies. A proposed application for Federal Transit Administration New Starts funding in the amount of $45 million fills the gap between the available funding and the estimated total project cost. These fund sources and amounts are preliminary and are subject to change.

Three sources of funds required to meet net public operating costs (i.e., subsidize transit operations and maintenance expense), are anticipated: local transportation funds, state transit assistance funds, and local sales tax funds.[16]

Table 9-7
Caltrain Extension to Monterey County Capital Budget—Funding Element
(year of expenditure dollars)

Funding Sources	Identified Funds Available	Secured	Proposed	Grand Total
Regional Surface Transportation Program–Interest	$ 315,000	$ 315,000	$ 0	$ 315,000
Federal earmark	$ 990,644	$ 990,644	$ 0	$ 990,644
Congestion Mitigation and Air Quality Improvement	$ 975,000	$ 975,000	$ 0	$ 975,000
Proposition 116 rail bond funds	$ 3,000,000	$ 3,000,000	$ 0	$ 3,000,000
State Transportation Improvement Program	$ 4,520,000	$ 4,520,000	$ 0	$ 4,520,000
Traffic Congestion Relief Program	$ 20,000,000	$20,000,000	$ 0	$ 20,000,000
Local contributions	$ 16,865,000	$ 1,165,000	$15,700,000	$ 16,865,000
Monterey–Salinas Transit Federal grant/local match	$ 9,411,000	$ 0	$ 9,411,000	$ 9,411,000
Federal New Starts	$ 45,000,200	$ 0	$45,000,200	$ 45,000,200
Total Revenues	**$101,076,844**	**$30,965,644**	**$70,111,200**	**$101,076,844**

Source: TAMC—subject to change

[16] A local transportation sales tax is proposed as a November 2008 ballot initiative.

SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE

Based on the array of technical information, evaluation findings and public input, a key outcome of the detailed Alternatives Analysis is the selection of a preferred long-term strategy for the corridor. The long-term strategy is defined as investments required to address the 2030 planning horizon. As a subcomponent of the locally preferred alternative, a reduced scope alternative is defined to address near term, opening year needs. This reduced scope alternative is known as the "minimum operating segment." The minimum operating segment must address the purpose and need for the project within the context of near-term demographic and travel conditions. For the purpose of this study, the near-term minimum operating segment is defined for 2010 conditions.

For the purpose of evaluating project worthiness, the Federal Transit Administration requires that project applicants for federal "New Starts" discretionary funding also provide comparative information on a transportation system management or "best bus" alternative. For this reason, performance characteristics of a "baseline" alternative have been included in this study along with those of the Caltrain Extension Alternative and the minimum operating segment of the Caltrain Extension Alternative.

The results of this Alternatives Analysis study, ongoing from 2002 through 2007, indicate that **the Caltrain Extension to Monterey County is the most cost effective alternative for serving inter-county commuters to Silicon Valley and providing access to educational and health care resources in the San Francisco Bay Area.** Selection of this option will meet the purpose and need of the proposed investment by providing additional transportation capacity in the U.S. 101 travel corridor. Further, selection of the Caltrain Extension modal option can increase capacity over and above that defined for the Caltrain Extension Alternative by increasing the length of the trains (adding more cars) and/or increasing the number of trains operated. The Caltrain Extension Alternative is also superior to the Express Bus Alternative for stimulating the local economy and supporting transit-oriented development.

The Caltrain Extension Alternative proposes to extend existing Caltrain service from Gilroy to Salinas to relieve congestion and add transportation capacity during commute hours to the U.S. 101 corridor between Monterey County and the San Francisco Bay Area. This service would initially consist of two round trips per day as the minimum operating segment, and would later be expanded to four round trips per day. This project would require rights to greater track access; right-of-way acquisition; construction of parking, station tracks, platforms, access improvements, mainline track and signaling improvements; and a Caltrain layover facility. These improvements would be implemented over time between the minimum operating segment and the full Caltrain Extension Alternative.

PARTNERSHIPS AND COLLABORATION

There is strong local support for the proposed service extension due to the projected population growth in the Monterey Bay Area and the increasing numbers of San Francisco Bay Area workers who are making their homes in San Benito, Santa Cruz, and Monterey counties. A multi-agency task force comprised of the Santa Clara Valley Transportation Authority, Transportation Agency for Monterey County, Association of Monterey Bay Area Governments, MST, Caltrans, Santa Cruz County Regional Transportation Commission, San Benito County, and the cities of Salinas and Watsonville has been meeting to discuss and plan the initial steps to creating this train service extension. This project is an outgrowth of their multi-agency coordination.

Local and regional agencies representing the study area or portions thereof have conducted many studies that serve as precursors or complements to this selection of a locally preferred alternative.

The project has been coordinated with the Union Pacific Railroad, the Peninsula Corridor Joint Powers Board, Caltrans, the Santa Clara Valley Transportation Authority, the City of Salinas, the Redevelopment Agency of Monterey County, Monterey–Salinas Transit, the City of Watsonville, the Santa Cruz County Regional Transportation Commission, and the Santa Cruz Metropolitan Transit District.

In 1992, Passenger Rail Feasibility Study No. 05D423 was prepared for Caltrans to address the feasibility of passenger rail service between San Francisco, Monterey, Salinas, and Hollister. The study indicated that commuter rail could feasibly serve the existing market for work trips between Salinas and the Silicon Valley.

A locally preferred alternative was adopted in the 1994 Monterey County Regional Transportation Plan. This included the extension of one Caltrain commute train. The 2002 and 2005 Regional Transportation Plans cite growing traffic congestion between Monterey County and the San Francisco Bay Area and the demand for commuter rail services in the U.S. 101 Corridor. The 2005 Regional Transportation Plan includes the extension of Caltrain to Salinas in its list of planned projects.

In 1997, the City of Watsonville prepared a Draft Pajaro Valley Station Project Study Report, in cooperation with Monterey County, TAMC and the Santa Cruz County Regional Transportation Commission. While not finalized, this Draft project study report identified a potential site location and set of program requirements for this station.

Between 1998 and 2000, these program requirements and opportunities for adjacent site development were further refined and explored by the Monterey County sponsored Pajaro Railyards Area Feasibility Study. This study, as well as the draft project study report, sited the Pajaro Valley station adjacent to the former Southern Pacific Passenger Depot which is accessed from Salinas Road.

In 2000, TAMC sponsored the preparation of the Extension of Caltrain Commuter Service to Monterey County Business Plan. The business plan considered, but did not thoroughly evaluate, alternative sites for stations at Pajaro and Castroville and a layover yard in Salinas.

Caltrans' Transportation Concept Report for U.S. 101 in Caltrans District 5 (2001) recommends that demand be reduced on U.S. 101 in Monterey and San Benito counties by encouraging and improving alternative modes such as passenger rail, including the extension of Caltrain service from Gilroy to Salinas.

With funding supplied by TAMC, Santa Clara Valley Transportation Authority, and others, UPRR has undertaken a train simulation "capacity study" of potential freight and passenger rail operations in northern California. Based on the results of this study, UPRR has identified track, switch, and signaling improvements that may be required to implement additional passenger rail service to Monterey County. These have been documented by a "Term Sheet," dated June 26, 2003. Additional track and signaling improvements have been identified in the California Passenger Rail System Five-Year Improvement Plan.

The Peninsula Corridor Joint Powers Board includes the Caltrain extension to Salinas in the Caltrain 2004–2023 Strategic Plan along with route extensions to downtown San Francisco and across the Dumbarton Bridge to the East Bay. Each of these extensions are currently undergoing design and/or environmental study. Additionally, a project development team of Monterey and Santa Cruz County local government representatives has been meeting since September 2000 to refine station program and transportation requirements and resolve station site issues.

The *Monterey County General Bikeways Plan* (2001) includes a proposed Class I Bikeway along Castroville Boulevard and underneath the UPRR rail line in the vicinity of the proposed Castroville station. This trail will provide connectivity between the Castroville central business district, the high school to the east, and the station area.

The City of Salinas has been actively working since 1996 to develop the Intermodal Transportation Center on the site of the Amtrak passenger station. In 1999, the city's Redevelopment Agency acquired 3.5 acres of land housing the station from UPRR. Beginning in June 1996, the city considered various land acquisition strategies and conceptual plans for transportation center development. In June 1998, a site plan was finalized. The city subsequently constructed the Amtrak facility that exists today.

Specific ongoing efforts include the City of Salinas' plans for intensified transit-oriented development near the Salinas station site, Caltrans' plans for upgrading SR 156 east of Castroville Boulevard, the Castroville Community Plan, the Pajaro Community Plan, UPRR's short- and long-term plans for freight and yard operations, and the California Passenger Rail System Five-Year Improvement Plan.

Formal cooperation agreements have been established between TAMC, the Monterey County Redevelopment Agency and the City of Salinas (Rail Planning Funds Cooperation Agreement, dated February 7, 2002, amended September 13, 2002) and between TAMC and MST (Agreement for Funding Study of the Relocation of the Salinas Transit Center to the Salinas Intermodal Center as a Part of the Caltrain Extension Project, dated December 12, 2002).

Negotiations are ongoing between TAMC and the Peninsula Corridor Joint Powers Board regarding revenue and cost sharing. In addition, a purchase-of-service agreement will stipulate TAMC/Peninsula Corridor Joint Powers Board rights and powers, financial commitments, service parameters, and details of administrative procedures.

Discussions between TAMC and UPRR are also ongoing regarding main line track and signaling improvements. TAMC has met with UPRR to develop a trackage rights agreement for the extension of Caltrain from Gilroy to Salinas. On June 26, 2003 UPRR presented TAMC with a draft "Term Sheet Conditions for Salinas-Gilroy Passenger Service." This term sheet outlines operating parameters, capacity/track improvements, compensation, liability/insurance, and other terms for the minimum operating segment, subject to further discussions and negotiations during project delivery.

Based on a detailed definition of the Caltrain Extension Alternative contained in the *Caltrain Extension to Monterey County Project Study Report*, dated February 21, 2006, a *Draft California Environmental Quality Act Environmental Impact Report* was prepared and circulated for public comment on April 26, 2006. The public review period for the *Draft Environmental Impact Report* ended on June 16, 2006, and a *Final Environmental Impact Report* was subsequently published on July 26, 2006. The TAMC Board of Directors certified the *Final Environmental Impact Report* on August 23, 2006.

As noted above, the minimum operating segment is the service and facilities defined in this Alternatives Analysis for the 2010 timeframe. Three stations would initially be constructed as proposed for the full Caltrain Extension Alternative. Parking supplies would be reduced, however, commensurate with ridership expectations for the 2010–2015 initial five years of service operation. Other aspects of the minimum operating segment would be as defined for the full Caltrain Extension Alternative.

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