

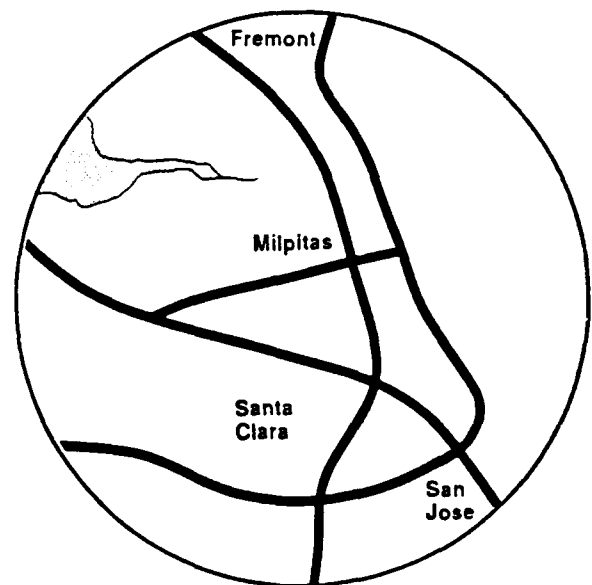
Fremont-South Bay Corridor

Draft Patronage Report

prepared for
Metropolitan Transportation
Commission

by
DKS Associates
and associated consultants

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Patronage

The MTC regional travel demand models were used for the FSB Corridor patronage forecasts. Basic input assumptions about auto ownership, trip generation and trip distribution were documented in 1993 by MTC.¹ Beyond these assumptions, the base transit and highway networks used are consistent with those used for the Regional Transportation Plan. The MTC travel demand model forecasts for year 2010 are based on ABAG's Projections '92.

Alternatives 1 through 4 were modeled as a part of the Regional Transportation Plan analysis by MTC. Alternatives 5 through 8 were modeled by the consultant generally consistent with the model assumptions for Alternative 4. Alternatives 4 through 8 therefore have a generally consistent regional background for both transit and highway networks (as compared to Alternatives 1 through 3 which reflect different transit and highway networks as appropriate for the RTP Alternatives.

Representation of the FSB Corridor alternatives in the model included coding of the station-to-station rail links, auto access connectors from all nearby zones, transfers between modes and walk access from all zones within a 1/2 mile radius. Generally, guidelines established by MTC for the Regional Transportation Plan analyses were applied to determine the network details that best represent the proximity of new rail service to households and employment in Santa Clara County.

Upon development of the alternative FSB Corridor networks, the MTC modal choice models were run to produce the number of work and non-work transit trips between every zone pair in the region. Checks against the RTP modeling outputs confirmed that the transit trips increased as expected.

Corridor Person Trips

Santa Clara County is unique in the bay area as a County where approximately 90 percent of residents live and work in Santa Clara County. The job market in the Silicon Valley provides ample job opportunities for Santa Clara County residents. There are however an increasing number of in-commuting employees to the County. An analysis of the person trips that cross between Alameda County and Santa Clara County is shown in Table 1. Over two thirds of the people commuting to work between Alameda County and Santa Clara County are entering Santa Clara County.

The ABAG "Projections '90" had shown an even higher number of trips entering Santa Clara County from Alameda County: 125,000 work trips instead of the 116,000 currently projected.

¹ *Bay Area Travel Forecasts for Years 1990, 1996 and 2010*, Metropolitan Transportation Commission, September 1993.

The previous projections showed just the reverse for work trips leaving Santa Clara County for Alameda County: 23,000 work trips instead of the 47,000 currently projected.

Transit Trips

There are a number of variations between alternatives (particularly the RTP Alternatives 1 through 4) that make it difficult to calculate linked transit trips in the FSB Corridor. Consequently an approach to analyzing ridership in the corridor was developed based on an analysis of transit trips crossing the county line between Alameda County and Santa Clara County. Table 2 provides a comparison of the alternatives in terms of transit usage between the Counties. One adjustment was necessary for Alternative 3 due to a modeled increase in CalTrain service which transferred riders between the Capitol Corridor service and CalTrain. Ridership for Alternative 3 was adjusted to assume CalTrain service comparable with the other alternatives.

A second portrayal of the relative ridership within the FSB Corridor is to look at station activity. Table 3 provides a comparative analysis of station activity (entering and exiting activity). This table is modal specific and transfers between modes appear in both modes. This table is useful to understand the level of activity at each of the stations in the FSB Corridor.

Fare Box Revenues

An estimate of fare box revenues based on the screenline data contained in Table 1 is calculated for each Alternative. Fare box revenue is shown in Table 4. Two key assumptions are contained in the projected revenues. The first assumption is that the daily screenline totals from Table 1 are multiplied by 300 to reflect approximate annual ridership (generally consistent with BART and Santa Clara County Transit factors). The second assumption has to do with anticipated average fares for the different transit modes. For purposes of fare estimation the following average revenues were used:

BART	\$1.35
SCC LRT	\$0.50
EXP BUS	\$1.00
Capitol	\$1.25
Com Rail	\$1.25

These values are approximately 1/2 of the full adult fare, to reflect the impact of discount fares and transfers between routes and modes.

Table 1
Santa Clara County Person Trip Table - Year 2010 Projections
Between Santa Clara County, Alameda County and Contra Costa County

Trip Type	Trips Within Santa Clara County	Trips From Santa Clara County			Trips to Santa Clara County		
		to Alameda	to Contra Costa	Total	from Alameda	from Contra Costa	Total
Home to Work	1,312,430	45,387	1,434	46,821	104,264	11,680	115,944
Home to Shop	1,465,550	34,563	5,867	40,430	9,665	443	10,108
Home to Social	810,158	12,202	1,421	13,623	11,967	3,285	15,252
Non-Home Base	1,721,465	18,469	2,797	21,266	14,880	2,082	16,962
Total	5,309,603	110,621	11,519	122,140	140,776	17,490	158,266

Source: Bay Area Travel Forecasts for Years 1990, 1996 and 2010. MTC, September 1993.

Table 2
Daily Transit Riders Across Screenline at County Line
Between Alameda and Santa Clara Counties

Transit Mode	Alternative									
	No Project	Alt. 1 RTP Project	Alt. 2 BART to Warm Springs	Alt. 3 Capitol Corridor	Alt. 4 LRT to Fremont	Alt. 5 BART to Tasman	Alt. 6 BART to Warm Springs LRT to Tasman	Alt. 7 Commuter Rail Capitol	Alt. 8 Commuter Rail SP	Alt. 8 Commuter Rail UP
<i>Total Transit Trips for Each Alternative</i>										
BART	0	0	1,251 ¹	0	0	6,881	901 ¹	0	0	0
Santa Clara LRT	0	0	0	0	5,564	0	4,539	0	0	0
Express Bus	960	1,300	1,349	948	0	0	0	398	398	398
Capitol Corridor	1,796	2,552	1,384	2,861 ²	1,285	928	1,187	1,344 ³	1,344	1,479
Commuter Rail	0	0	0	0	0	0	0	2,341 ³	2,407	2,140
Total	2,756	3,852	3,984	3,809	6,849	7,809	6,627	4,083	4,149	4,017
<i>Incremental Transit Trips for Each Alternative Over No Project</i>										
BART		0	1,251	0	0	6,881	901	0	0	0
Santa Clara LRT		0	0	0	5,564	0	4,539	0	0	0
Express Bus		340	389	-12	-960	-960	-960	-562	-562	-562
Capitol Corridor		756	-412	1,065 ²	-511	-868	-609	-452 ³	-452	-317
Commuter Rail		0	0	0	0	0	0	2,341 ³	2,407	2,140
Total		1,096	1,228	1,053	4,093	5,053	3,871	1,327	1,393	1,261
¹ Auto trips from Santa Clara County to BART Warm Springs Station. ² Adjusted from model results to increase Capitol Corridor service based on regular CalTrain service rather than 15-minute CalTrain frequency as assumed in model run for this Alternative. ³ Estimated split between Capitol Corridor and Commuter Rail service components.										

**Table 3
Fremont-South Bay Corridor
Station Activity by Mode and Alternative - Daily Entries and Exits**

<i>BART</i> Station	Alternative									
	No Project	Alt. 1 RTP Project	Alt. 2 BART to Warm Springs	Alt. 3 Capitol Corridor	Alt. 4 LRT to Fremont	Alt. 5 BART to Tasman	Alt. 6 BART to Warm Springs LRT to Tasman	Alt. 7 Commuter Rail Capitol	Alt. 8 Commuter Rail SP	Alt. 8 Commuter Rail UP
Hayward	6,366	6,447	6,642	6,308	6,546	6,288	6,426	6,205	6,341	6,342
So. Hayward	4,459	4,770	4,885	4,641	4,940	5,086	5,022	4,557	4,752	4,746
Union City	4,508	6,194	5,213	5,262	5,515	5,382	5,211	5,955	6,959	6,911
Fremont	5,938	6,107	4,872	5,588	6,249	5,488	4,929	5,009	4,978	4,956
Irvington						682				
Warm Springs			3,214			1,130	3,378			
So. Warm Springs						847				
Calaveras						1,207				
Great Mall						6,184				
Total	21,271	23,518	24,826	21,799	23,250	32,294	24,966	21,726	23,030	22,955
Increment over No Project		2,247	3,555	528	1,979	11,023	3,695	455	1,759	1,684

<i>LRT</i> Station	Alternative									
	No Project	Alt. 1 RTP Project	Alt. 2 BART to Warm Springs	Alt. 3 Capitol Corridor	Alt. 4 LRT to Fremont	Alt. 5 BART to Tasman	Alt. 6 BART to Warm Springs LRT to Tasman	Alt. 7 Commuter Rail Capitol	Alt. 8 Commuter Rail SP	Alt. 8 Commuter Rail UP
Fremont					2,692					
Irvington					732					
Warm Springs					2,256		4,107			
So. Warm Springs					817		748			
Calaveras		638	602	390	799	2,698	616	616	954	213
Great Mall		1,166	1,151	945	1,218	1,116	921	1,107	853	1,121
Montague										
Total		1,804	1,753	1,335	9,546	3,814	7,362	1,723	1,807	1,334
Increment over No Project		1,804	1,753	1,335	9,546	3,814	7,362	1,723	1,807	1,334

Table 3 (continued)
Fremont-South Bay Corridor
Station Activity by Mode and Alternative - Daily Entries and Exits

<i>Capitol Corridor</i> Station	Alternative									
	No Project	Alt. 1 RTP Project	Alt. 2 BART to Warm Springs	Alt. 3 ¹ Capitol Corridor	Alt. 4 LRT to Fremont	Alt. 5 BART to Tasman	Alt. 6 BART to Warm Springs LRT to Tasman	Alt. 7 ² Commuter Rail Capitol	Alt. 8 Commuter Rail SP	Alt. 8 Commuter Rail UP
Hayward		350	332	486	310	285	300	297	297	299
Union City		1,705	465	2,032	635	350	438	292	292	396
Fremont	1,072	916	996	1,129	918	832	898	929	929	954
Great America	703	969	524	1,264	516	221	350	555	555	648
Santa Clara		435	373	584	411	405	417	408	408	406
Cahill	1,127	832	441	882	558	394	510	218	218	270
Tamien		623	232	698	170	130	150	120	120	109
Total	2,902	5,830	3,363	7,075	3,518	2,617	3,063	2,819	2,819	3,082
Increment over No Project		2,928	461	4,173	616	(285)	161	(83)	(83)	180

<i>Commuter Rail</i> Station	Alternative				<i>Commuter Rail</i> Station	Alternative			
	Alt. 7 ² Commuter Rail Capitol					Alt. 8 Commuter Rail SP	Alt. 8 Commuter Rail UP		
Hayward	330				Union City	1,903	1,691		
Union City	1,489				Irvington	444	459		
Fremont	559				Warm Springs	657	631		
Stevenson	410				So. Warm Springs	357	313		
Great America	1,116				Calaveras	621	569		
Santa Clara	403				Great Mall	1,081	710		
Cahill	609				Brokaw/Berryessa	124	424		
Tmaien	288				Mission/Julian	836	689		
					Cahill	387	270		
					Tamien	375	386		
Total	5,204				Total	6,785	6,142		
Increment over No Project	5,204				Increment over No Project	6,785	6,142		

¹ Adjusted from model output to reflect normal CalTrain service.

² Estimated split between Commuter Rail and base Capitol service.

Table 4
Annual Revenue from Fares and Farebox Recovery

Transit Mode	Alternative									
	No Project	Alt. 1 RTP Project	Alt. 2 BART to Warm Springs	Alt. 3 Capitol Corridor	Alt. 4 LRT to Fremont	Alt. 5 BART to Tasman	Alt. 6 BART to Warm Springs LRT to Tasman	Alt. 7 Commuter Rail Capitol	Alt. 8 Commuter Rail SP	Alt. 8 Commuter Rail UP
<i>Annual Revenue from Fares</i>										
BART			506,655			2,786,805	364,905			
Santa Clara LRT					834,600 ²		680,850 ²			
Express Bus	288,000	390,000	404,700	284,400				119,400	119,400	119,400
Capitol Corridor	673,500	957,000	519,000	1,072,875	481,875	348,000	445,125	1,381,875	504,000	554,625
Commuter Rail									902,625	802,500
Total	961,500	1,347,000	1,430,355	1,357,275	1,316,475	3,134,805	1,490,880	1,501,275	1,526,025	1,476,525
<i>Incremental Revenue Increase over No Project</i>										
BART			506,655			2,786,805	364,905			
Santa Clara LRT					834,600		680,850			
Express Bus		102,000	116,700	(3,600)	(288,000)	(288,000)	(288,000)	(168,600)	(168,600)	(168,600)
Capitol Corridor		283,500	(154,500)	399,375	(191,625)	(325,500)	(228,375)	708,375	(169,500)	(118,875)
Commuter Rail									902,625	802,500
Total		385,500	468,855	395,775	354,975	2,173,305	529,380	539,775	564,525	515,025
<i>Incremental O&M Cost</i>										
BART			3,933,357			15,501,191	3,933,357			
Santa Clara LRT					13,769,260		11,539,955			
Express Bus		790,348	721,612	790,348	(238,081)	(238,081)	(238,081)	213,394	213,394	213,394
Capitol Corridor		1,240,800 ¹		2,068,425				12,434,253		
Commuter Rail									12,478,970	10,996,793
Total		2,031,148	4,654,969	2,858,773	13,531,179	15,263,110	15,235,231	12,647,647	12,692,364	11,210,187
<i>Farebox Recovery Ratio</i>										
BART			13%			18%	9%			
Santa Clara LRT					6% ²		6% ²			
Express Bus		13%	16%	0%	n/a	n/a	n/a	n/a	n/a	n/a
Capitol Corridor		23%	n/a	19%	n/a	n/a	n/a	6%	n/a	n/a
Commuter Rail									7%	7%
Total		19%	10%	14%	3%	14%	3%	4%	4%	5%

¹ Portion attributed to Fremont-South Bay Corridor; assumed to be funded by State.

² Reflects current Santa Clara County fare structure.

