

5.12 TRANSPORTATION

5.12.1 Significance Criteria

According to California Environmental Quality Act (CEQA) guidelines, a project would have a significant impact if it would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. This assessment was performed at a regional level and impacts are identified in terms of their potential to substantially change traffic volumes, and hence a specific numerical criterion was not applied.

5.12.2 Impacts and Mitigation

The proposed enhancement of the ferry system would expand transportation options for Bay Area commuters. In general, this may result in lower use of the automobile and or nonferry transit as commuters shift to ferries. Table 5.12.1 presents the Vehicle Miles Traveled (VMT) breakdown by county for the different project alternatives. There are very few differences (0.1 percent overall reduction) in VMT, at this regional scale of analysis, between the 2025 No Project Alternative (Alternative 4) and the project alternatives. The largest reductions in VMT occur in counties where ferries are competing with congested highway facilities, such as San Francisco, San Mateo, and Marin. However, an increase in drive access to transit VMT is expected due to increases in drive access to ferry ridership at new terminals (as discussed in Impact T-1). Similarly, there would be small increases in bus VMT associated with access to ferry terminals.

Table 5.12.2 shows the effect of the project alternatives on the vehicle trips by purpose and vehicle type. As expected, only auto trips would be affected because they are the greatest transportation mode affected by commute improvements. Truck trips would remain constant for 2025 regardless of the project alternative. Among the auto trips, the addition of ferry routes and vessels would mostly affect trips to work and for recreation, where ferry travel presents a real option for Bay Area residents. However, as Table 5.12.3 indicates, the percentage change in total vehicle trips from Alternative 4 is minimal for all project alternatives.

Changes in nonferry transit ridership due to expansion of ferry system, both increases and decreases, could result from the different project alternatives. As Table 5.12.3 indicates, these changes would be minimal and insignificant (below 0.1 percent).

Focusing the scale of transportation analysis to the screenline areas mentioned in Section 3.12.1 shows that ferry expansion would facilitate a greater reduction in auto VMT over Alternative 4. Table 5.12.4 presents daily person trips across Bay Area screenlines for the different project alternatives. The table shows that screenlines may experience relatively small increases or decreases in the number of person trips. For example, under Alternative 1, an overall small increase in the number of daily person trips across both the Bay Bridge and Golden Gate Bridge corridors is predicted, while at the same time ferries would divert some passengers from other transit and highways. The introduction of ferry service across screenlines that do not currently have ferry service, such as the San Francisco-San Mateo County Line and the San Mateo Bridge, would have a greater effect of diverting passengers from other modes, primarily from highways.

The screenline analysis included a \$2 parking charge at ferry terminals for all alternatives. This reduces overall ridership for the alternatives compared to the 2025 No Project Alternative, which does not include a parking charge at ferry terminals. This effect is on all ferry routes, but improvements in service outweigh this effect, yielding more riders in the alternatives than in the base, except for the Carquinez/Benicia Bridge Corridor screenline, where a slight ridership reduction is observed.

This diversion is more evident when considering daily auto trips across screenlines for the different project alternatives. As shown in Table 5.12.5, while the total number of daily vehicle trips in Bay Area screenlines would experience the greatest reduction (0.8 percent) under Alternative 1, Alternative 2 would result in the largest decreases in vehicular movement along the Bay Bridge and Golden Gate Bridge corridors.

Impact T-1 **New and existing ferry terminals would require access by car or transit. This could result in potential localized increases in traffic in the vicinity of the terminals.**

Existing and new terminals would be accessed by ferry riders by foot, car and/or transit. Expanded ferry service would require additional access to terminals by car or transit. Table 5.12.6 shows the ridership access mode for the most aggressive ferry expansion alternative (Alternative 1). Of a total daily ridership of 49,210, 66 percent would access the terminals by car, 16 percent by bus or rail, and 18 percent on foot. Ridership would be lower for the other alternatives: 46,295 for Alternative 2, 25,385 for Alternative 3, and 23,238 for Alternative 4 (No Project). Similar percentages of mode of access are expected for these alternatives.

Table 5.12.7 indicates that VMT to access ferry terminals would increase by 155 percent from the 1998 baseline to the 2025 No Project conditions. Implementation of the project alternatives would increase the ridership and, consequently, the daily driving to and from those terminals by commuters, resulting in higher VMT. This increase holds true for all terminals except for some of the existing terminals (i.e., Larkspur, Vallejo, Jack London Square, and Tiburon) where decreases in drive access VMT are expected. Such decreases are the result of a potential introduction of parking fees and additional transit service to terminals (included in the alternatives but not in the No Project calculations) that may coax some commuters into transit.

There is a potential that traffic impacts could be significant on a site-specific level, where access and circulation are not adequate to accommodate riders attracted to the terminal and system.

Summary of Impact T-1

- Alternative 1 could result in increased car and bus traffic to and from existing ferry terminals, depending on local access and traffic conditions. This impact could be potentially significant on a site-specific level.
- Alternative 2 could result in increased car and bus traffic to and from existing ferry terminals, depending on local access and traffic conditions. This impact could be potentially significant on a site-specific level.

- Alternative 3 could result in increased car and bus traffic to and from existing ferry terminals, depending on local access and traffic conditions. This impact could be potentially significant on a site-specific level.
- Alternative 4 would not involve additional ferry terminals and would not require additional car or bus access to new terminals. Therefore, there would be no impact.

Mitigation T-1.1: Traffic mitigation measures would depend on site-specific conditions, including design of vehicular access to terminal, major access routes, parking availability, and traffic patterns. For some cases, where access is problematic or presents serious community concerns, the viability of the terminal would need to be further evaluated.

Impact After Mitigation: Impacts after mitigation must be determined on a case-by-case basis after mitigation measures are considered. Impact T-1 could be potentially significant.

Impact T-2 **Additional car drive access to existing and new ferry terminals would require parking. This could result in potential localized parking problems and conflicts in the vicinity of the terminals.**

Ridership increases would result from new and expanded ferry service. It is expected that more commuters would drive their cars to access ferry terminals. As discussed in Impact T-1, up to 66 percent of the ferry riders, under the most aggressive ferry service enhancement (Alternative 1), are expected to drive to the terminals. While some of the additional cars may be accommodated in terminal parking structures, it is the intention of the WTA to limit parking in an effort to encourage transit use to access existing and new terminals. The demand for parking as a percentage of available parking is listed in Table 5.12.8. Generally, it is expected that parking availability will exceed demand. In some locations, due to lack of sufficient space or desire to avoid paying parking fees, commuters would chose to park off-site, along local streets in the vicinity of the ferry terminals. This can lead to enforcement of restrictions on local street parking, which can inconvenience local residents and businesses.

Summary of Impact T-2

- Alternative 1 would result in increased car traffic to and from new ferry terminals and lead to an increased demand for parking. The WTA would seek to encourage and increase transit access to terminals. The impact would be localized and site-specific, and its significance cannot be determined at the programmatic level. Therefore it is potentially significant.
- Alternative 2 would result in increased car traffic to and from new ferry terminals and lead to an increased demand for parking. Parking demand would exceed parking availability for all project alternatives, as the WTA would seek to encourage and increase transit access to terminals. The impact would be localized and site-specific, and its significance cannot be determined at the programmatic level. Therefore it is potentially significant.
- Alternative 3 would result in increased car traffic to and from new ferry terminals and lead to an increased demand for parking. Parking demand would exceed parking availability for all project alternatives, as the WTA would seek to encourage and increase transit access to terminals. The impact would be localized and site-specific, and its significance cannot be determined at the programmatic level. Therefore it is potentially significant.

- Alternative 4 (No Project) would involve additional ferry terminals or expanded service and would not require additional parking. Therefore, there would be no impact.

Mitigation T-2.1: The WTA and ferry terminal authorities, in conjunction with local and regional transit agencies, should study and develop a terminal-specific plan to ensure that potential driving ferry patrons can be adequately served by transit in locations with limited parking and currently insufficient transit access.

Mitigation T-2.2: Non-drive access could be encouraged through measures such as charging fees for parking, provision of preferential parking for carpools and vanpools, comprehensive shuttle access, land use scenarios that encourage non-drive access, and encouraging bicycle and pedestrian access.

Impact After Mitigation: Traffic access impacts can typically be mitigated through design or operational improvements. Mitigation improvements would be defined with each proposed new terminal or terminal improvement. This is a potentially significant impact.

**Table 5.12.1
Vehicle Miles Traveled (VMT) Under the WTA Ferry Expansion Project Alternatives**

County	1998 Vehicle Miles Traveled	2025 No-Project Vehicle Miles Traveled	2025 Alt 1 Vehicle Miles Traveled	Percentage Change from No Project	2025 Alt 2 Vehicle Miles Traveled	Percentage Change from No Project	2025 Alt 3 Vehicle Miles Traveled	Percentage Change from No Project
San Francisco	8,017,759	9,075,385	9,008,509	-0.007	9,015,828	-0.007	9,066,584	-0.001
San Mateo	18,458,290	20,838,110	20,704,505	-0.006	20,733,300	-0.005	20,793,944	-0.002
Santa Clara	33,671,029	45,696,564	45,675,552	0.000	45,677,089	0.000	45,683,006	0.000
Alameda	30,534,137	40,021,231	39,981,340	-0.001	39,975,671	-0.001	40,013,094	0.000
Contra Costa	17,249,251	23,702,339	23,680,594	-0.001	23,693,740	0.000	23,706,802	0.000
Solano	9,320,419	16,317,037	16,320,101	0.000	16,320,363	0.000	16,322,159	0.000
Napa	3,085,129	5,038,273	5,036,882	0.000	5,038,031	0.000	5,037,252	0.000
Sonoma	7,785,717	11,045,667	11,034,889	-0.001	11,033,789	-0.001	11,050,163	0.000
Marin	7,335,401	8,539,503	8,480,530	-0.007	8,480,453	-0.007	8,535,238	0.000
Intrazonal VMT	1,347,897	2,112,613	2,112,531	0.000	2,112,544	0.000	2,112,558	0.000
Transit Drive Access VMT	984,344	1,892,977	1,966,608	0.039	1,965,901	0.039	1,918,770	0.014
Bus VMT	268,239	323,225	333,497	0.032	333,497	0.032	333,497	0.032
TOTAL BAY AREA	138,057,611	184,602,925	184,335,538	-0.001	184,380,207	-0.001	184,573,066	0.000

**Table 5.12.2
Vehicle Trips by Purpose and Vehicle Type Under the Project Alternatives**

Purpose/Vehicle Type	1998 Vehicle Trips	2025 No-Project Vehicle Trips	2025 Alt 1 Vehicle trips	Percent Change from No Project	2025 Alt 2 Vehicle trips	Percent Change from No-Project	2025 Alt 3 Vehicle trips	Percent Change from No Project
Car								
Home Based Work	3,707,297	5,103,132	5,094,566	-0.2%	5,096,452	-0.1%	5,100,121	-0.1%
Home Based Shop	3,277,781	4,030,835	4,030,399	0.0%	4,030,347	0.0%	4,030,072	0.0%
Home Based Social/Recreation	1,302,011	1,607,989	1,605,341	-0.2%	1,605,594	-0.1%	1,607,596	0.0%
Non-Home Based	3,610,424	4,738,388	4,737,265	0.0%	4,737,488	0.0%	4,738,077	0.0%
Internal-External	458,523	913,203	913,203	0.0%	913,203	0.0%	913,203	0.0%
Truck								
Small Truck	192,446	264,732	264,732	0.0%	264,732	0.0%	264,732	0.0%
Medium Trucks	18,633	25,580	25,580	0.0%	25,580	0.0%	25,580	0.0%
Large Trucks	40,851	56,647	56,647	0.0%	56,647	0.0%	56,647	0.0%
TOTAL	12,607,967	16,740,507	16,727,733	-0.1%	16,730,045	-0.1%	16,736,029	0.0%

Source: Cambridge Systematics (2002)

Table 5.12.3

Ridership Changes in Non-Ferry Transit Under the Project Alternatives

Transit Mode	2025 No Project Riders (Alt 4)	2025 Alt 1 Riders	Percentage Change from No Project	2025 Alt 2 Riders	Percentage Change from No Project	2025 Alt 3 Riders	Percentage Change from No Project
Bus	1,728,641	1,628,111	-0.06	1,713,997	-0.01	1,732,195	0.00
Light Rail (Muni, SCVTA)	240,818	235,668	-0.02	240,026	0.00	240,426	0.00
BART	890,084	872,632	-0.02	882,870	-0.01	889,839	0.00
Commuter Rail (Caltrain, ACE, Amtrak)	133,896	135,561	0.01	136,608	0.02	137,918	0.03

Source: Cambridge Systematics (2002)

Note: Cambridge Systematics modified the MTC model to allow for expanded catchment of drive access to commuter rail terminals for the project alternatives. This modification was performed to make drive access to non-ferry transit equivalent to the drive access allowed for ferry transit in the model. This modification has resulted in project alternatives (Alternatives 1 through 3) showing an increase in ridership over the no project alternative (Alternative 4). However, as the ferry ridership expands from Alternative 3 to Alternative 2 and Alternative 1, the commuter rail ridership is shown to decrease.

**Table 5.12.4
Daily Person Trips Across a Screenline**

Screenline		Screenline 2025 No Project	2025 Alternative 1	Difference from No Project	Percent Change from Total	2025 Alternative 2	Difference from No Project	Percent Change from Total	2025 Alternative 3	Difference from No Project	Percent Change from Total
Bay Bridge	BART	262,671	256,073	-6,598	-0.9%	256,073	-6,598	-0.9%	256,073	-6,598	-0.9%
	AC Transit	3,812	3,682	-130	0.0%	3,682	-130	0.0%	3,682	-130	0.0%
	Ferry Transit	3,058	15,212	12,154	1.7%	15,053	11,995	1.7%	4,367	1,309	0.2%
	Highway	451,521	446,498	-5,023	-0.7%	446,168	-5,353	-0.7%	451,659	137	0.0%
	Subtotal	721,062	721,465	403	0.1%	720,976	-86	0.0%	715,781	-5,282	-0.7%
Golden Gate	Golden Gate Transit	14,055	13,471	-584	-0.3%	13,471	-584	-0.3%	13,471	-584	-0.3%
	Ferry Transit	14,247	17,432	3,185	1.6%	17,364	3,117	1.6%	16,083	1,836	0.9%
	Highway	168,637	166,476	-2,162	-1.1%	166,307	-2,331	-1.2%	167,720	-917	-0.5%
	Subtotal	196,939	197,379	439	0.2%	197,142	202	0.1%	197,274	335	0.2%
SF/San Mateo County Line	Caltrain, BART and Samtrans	99,129	98,099	-1,030	-0.2%	98,099	-1,030	-0.2%	98,099	-1,030	-0.2%
	Ferry Transit	0	4,544	4,544	0.9%	2,006	2,006	0.4%	-	0	0.0%
	Highway	380,252	375,745	-4,507	-0.9%	377,223	-3,029	-0.6%	379,788	-464	-0.1%
	Subtotal	479,381	478,388	-993	-0.2%	477,328	-2,053	-0.4%	477,887	-1,494	-0.3%
San Mateo Bridge	Ferry Transit	0	1,214	1,214	0.0%	617	617	0.0%	-	0	0.0%
	Highway	161,611	161,208	-403	-0.2%	161,271	-340	-0.2%	161,590	-21	0.0%
	Subtotal	161,611	162,422	811	0.5%	161,888	277	0.2%	161,590	-21	0.0%
Dumbarton Bridge	Highway	161,796	161,643	-153	-0.1%	161,765	-30	0.0%	161,912	117	0.1%
Richmond-San Rafael Bridge	Highway	90,986	90,579	-407	-0.4%	91,103	117	0.1%	90,941	-44	0.0%
Carquinez/Benicia Bridges	Ferry Transit	5,933	5,555	-378	-0.2%	4,319	-1,614	-0.9%	4,935	-998	-0.6%
	Highway	176,634	176,484	-151	-0.1%	176,471	-163	-0.1%	176,667	33	0.0%
	Subtotal	182,567	182,039	-529	-0.3%	180,790	-1,777	-1.0%	181,602	-965	-0.5%
TOTAL		1,994,342	1,992,700	-1,642	-0.1%	1,990,375	-3,967	-0.2%	1,986,987	-7,355	-0.4%

**Table 5.12.5
2025 Daily Vehicle Trips (Auto Modes only) Across a Screenline**

Screenline	2025 No Project	2025 Alternative 1	Difference from No Project	Percent Change from Total	2025 Alternative 2	Difference from No Project	Percent Change from Total	2025 Alternative 3	Difference from No Project	Percent Change from Total
Bay Bridge	383,245	379,296	-3,950	-1.0%	379,009	-4,236	-1.1%	383,430	185	0.0%
Golden Gate	143,510	141,626	-1,884	-1.3%	141,493	-2,017	-1.4%	142,646	-864	-0.6%
SF/SM County line	327,759	324,050	-3,709	-1.1%	325,264	-2,496	-0.8%	327,359	-400	-0.1%
San Mateo Bridge	137,838	137,495	-343	-0.2%	137,547	-291	-0.2%	137,808	-30	0.0%
Dumbarton Bridge	133,989	133,857	-132	-0.1%	133,971	-18	0.0%	134,073	84	0.1%
Richmond-San Rafael Bridge	78,984	78,640	-344	-0.4%	79,101	117	0.1%	78,960	-24	0.0%
Carquinez/Benecia Bridges	157,122	156,994	-129	-0.1%	156,975	-147	-0.1%	157,161	39	0.0%
TOTAL	1,362,447	1,351,958	-10,490	-0.8%	1,353,359	-9,088	-0.7%	1,361,438	-1,010	-0.1%

Table 5.12.6**Daily Ridership According To Access Mode To Terminals By Ferry Corridor For Alternative 1**

Corridor	Ferry Route	Walk Access	Drive Access	Transit Access
Solano	Vallejo to San Francisco	327	3,589	367
Solano	Benicia/Martinez to San Francisco	98	1,131	43
Contra Costa	Antioch/Pittsburg to San Francisco	19	976	5
Contra Costa	Hercules/Rodeo to San Francisco	177	613	104
Contra Costa	Richmond-San Francisco	263	1,449	133
Alameda	Berkeley-SF-Mission Bay	57	2,048	645
Alameda	Alameda Point-Mission Bay-SF	543	904	733
Alameda	Oakland to San Francisco	126	1,467	681
Alameda	Harbor Bay to San Francisco	487	903	34
Alameda	San Leandro to San Francisco	98	1,185	66
Alameda	Oakland Army Base to San Francisco	10	296	68
Peninsula	Harbor Bay to So. San Francisco	23	418	22
Peninsula	Harbor Bay to Redwood City	5	70	3
Peninsula	Harbor Bay to Moffett Field	4	31	3
Peninsula	Harbor Bay to Hunters Pt	48	339	13
Peninsula	Harbor Bay to Coyote Pt	6	37	6
Peninsula	Harbor Bay to Foster City	8	64	1
Peninsula	Harbor Bay to East Palo Alto	15	95	3
Marin	Sausalito to San Francisco	2,651	2,442	241
Marin	Tiburon to San Francisco	1,402	1,092	328
Marin	Larkspur to San Francisco	845	5,453	1,523
Sonoma	Port Sonoma to San Francisco	5	1,382	68
San Mateo	South San Francisco to San Francisco	91	1,449	123
San Mateo	Redwood City to San Francisco	74	973	47
San Mateo	Coyote Point to San Francisco	1	1,484	19
San Mateo	Foster City to San Francisco	28	712	58
Santa Clara	Moffett Field to San Francisco	15	475	15
Santa Clara	East Palo Alto to San Francisco	16	569	58
Treasure Island	Berkeley to Treasure Island	19	378	148
Treasure Island	Oakland to Treasure Island	73	293	212
Treasure Island	San Francisco to Treasure Island	1,467	0	2,123
	TOTAL	9,000	32,317	7,893

Source: Cambridge Systematics (2002)

Table 5.12.7
Drive Access VMT for Project Alternatives

Terminal	1998	2025 No Project	2025 Alternative 1	2025 Alternative 2	2025 Alternative 3
Berkeley			3,814	3,817	
Martinez			2,009	2,009	
Benicia			1,502	1,457	
Redwood City			3,878	5,361	
Moffett Field			1,540	1,599	
Port Sonoma			8,519	7,972	
San Leandro			3,451	3,522	
South SF			5,048	8,651	
Alameda Point			864	836	
Pittsburg			5,366	5,366	
Hercules			1,500	1,511	
Richmond			4,038	4,070	
Larkspur	12,458	25,943	23,000	23,003	22,975
Sausalito	5,098	10,385	13,469	13,469	13,479
Alameda	278	413	-	-	411
JLS	1,114	1,980	2,535	2,859	1,675
Vallejo	12,851	42,518	33,483	33,057	35,982
Tiburon	483	1,472	1,378	1,378	1,384
Harbor Bay	409	638	2,470	2,510	2,605
Oakland Army Base			390	-	
Coyote Point			3,979	-	
Foster City			1,580	-	
East Palo Alto			1,540	-	
San Leandro for South SF routes			-	-	
Harbor Bay for South SF Routes			5,353	2,935	
Alameda Point for South SF Routes			-	-	
Berkeley for TI routes			1,930	1,512	
Oakland for TI routes			900	901	
Grand Total	32,691	83,349	133,536	127,795	78,511

**Table 5.12.8
Potential Parking Availability and Parking Demand for Project Alternatives**

Corridor	Route	Potential Available Parking	Alternative 1 Parking Demand Percentage	Alternative 2 Parking Demand Percentage	Alternative 3 Parking Demand Percentage
Transbay	Vallejo - SF	1,600	64%	63%	75%
	Benicia/Martinez - SF	500	64%	64%	
	Antioch/Pittsburg SF	300	93%	93%	
	Hercules/Rodeo - SF	500	35%	35%	
	Richmond-San Francisco	1,000	41%	42%	
	Berkeley-SF-Mission Bay	1,000	58%	59%	
	Alameda Point-Mission Bay-SF	1,000	32%	31%	
	Oakland Army Base -SF	1,000	9%		
	Oakland - SF	500	88%	102%	80%
	Harbor Bay - SF	400	80%	82%	85%
	Harbor Bay - Hunters Point	100	60%		
	San Leandro to San Francisco	250	96%	99%	
	Harbor Bay to So. San Francisco	250	59%	59%	
	East Bay (San Leandro) to Coyote Point	200	7%		
	East Bay (San Leandro) to Foster City	200	11%		
	East Bay (San Leandro) to Redwood City	200	12%	15%	
	East Bay (San Leandro) to East Palo Alto	200	17%		
	East Bay (San Leandro) to Moffett Field	200	5%		
	Subtotal Transbay Corridor	9,350			
Golden Gate	Sausalito-San Francisco	100	287%	287%	
	Tiburon-San Francisco	100	158%	158%	158%
	Larkspur-San Francisco	2,000	80%	80%	80%
	Port Sonoma-San Francisco	300	136%	129%	
	Subtotal Golden Gate Corridor	2,500			
Peninsula	South San Francisco to San Francisco	300	69%	94%	
	Coyote Point to San Francisco	200	211%		
	Foster City to San Francisco	300	68%		
	Redwood City to San Francisco	500	55%	77%	
	East Palo Alto to San Francisco	300	54%		
	Moffett Field to San Francisco	500	27%	29%	
	Subtotal Peninsula Corridor	2,100			
Treasure Island	Berkeley to Treasure Island	300	36%	31%	
	Oakland to Treasure Island	100	88%	86%	
	San Francisco to Treasure Island				
	Subtotal Treasure Island Service	400			

Source: Cambridge 2002