Chapter 3 Transportation Analysis

This chapter describes existing transit, traffic, and parking conditions within the East Bay BRT Project corridor and discloses the transportation impacts of the No-Build and Build Alternatives. It includes the following four sections: 3.1, Transit Conditions; 3.2, Vehicular Traffic; 3.3, Non-Motorized Transportation; and 3.4, Parking. The transit section describes existing and future transit facilities and services in the project corridor and evaluates the Build Alternatives' potential impacts to operations, including travel times, speeds, and patronage. The vehicular traffic section describes the existing and future roadway network and project-related impacts. The non-motorized transportation section focuses on existing pedestrian and bicycle conditions and identifies anticipated changes to pedestrian and bicycle facilities and access as a result of the proposed project. The parking section describes existing and future parking conditions and project-related changes in parking facilities and access.

The transportation analysis of existing conditions in the project corridor is based on data provided by the cities of Berkeley, Oakland, and San Leandro, and by regional transportation planning and operating agencies. The data are supplemented by surveys conducted by AC Transit during preparation of this document. Future 2025 conditions are based on forecasts using the May 2003 version of the Alameda County Congestion Management Agency (ACCMA) *Alameda Countywide Travel Demand Model*, and land use data obtained from the metropolitan planning agencies (Metropolitan Transportation Commission [MTC], Association of Bay Area Governments [ABAG]), supplemented by data provided by corridor cities. Transportation modeling approaches, assumptions, and projections are described in detail in the *AC Transit East Bay BRT Transit Patronage and Forecasting Methodology Report* (2006), the *AC Transit East Bay BRT Traffic Analysis Report* (2006), and the *AC Transit East Bay BRT Screening Analysis of MTS Roadways Technical Memorandum* (2006), which are available for review at the AC Transit District office.

3.1 Transit Conditions

This section describes existing and future bus and rail transit facilities and services in the project corridor and assesses potential impacts under the No-Build and Build Alternatives. Specific areas addressed include existing and future transit operations, patronage and demand, and travel times and speeds.

3.1.1 Existing Transit Services

The primary transit services in the proposed BRT corridor are bus services provided by AC Transit and heavy rail services provided by BART.

3.1.1.1 ALAMEDA-CONTRA COSTA TRANSIT DISTRICT (AC TRANSIT)

AC Transit provides local, express, and commuter bus service in western Alameda County and western Contra Costa County. Systemwide, AC Transit has 206,500 passenger boardings on an

average weekday, including boardings on its Transbay services.[1] Transbay services connect the AC Transit service area in Alameda and Contra Costa counties with San Francisco.

Existing AC Transit Service Operations

Of AC Transit's 104 routes, three offer service along the alignment for the Build Alternatives through Berkeley-Oakland-San Leandro, as shown in Figures 3.1-1a and 3.1-1b and described below:

- **Route 40/40L: Downtown Berkeley to Downtown Oakland.** The primary bus route in the northern half of the proposed BRT corridor from downtown Berkeley to Downtown Oakland is Route 40/40L. The 40/40L offers 24-hour service and operates strictly as a local service on the Telegraph Avenue portion of the proposed BRT corridor, operating every 15 minutes during the peak and midday periods, 20 minutes in the evenings, and every 60 minutes between approximately 12:00 midnight and 5:00 a.m. (commonly referred to as the "owl" period).[2] Route 40/40L boards a total of 10,591 passengers on a typical weekday, of whom 4,531 board within the segment of the proposed BRT corridor from Downtown Berkeley to Downtown Oakland. Outside of the BRT corridor, between Downtown Oakland and the BayFair BART Station, Route 40L operates as a limited stop service (hence the "L" [limited] designation), primarily along the Foothill Boulevard and Bancroft Avenue corridors in east Oakland and San Leandro.
- **Route 43: Shattuck Avenue/Telegraph Avenue to Downtown Oakland.** Route 43 operates along Telegraph Avenue between the Telegraph Avenue/Shattuck Avenue intersection and Downtown Oakland. Service is provided between 5:00 a.m. and 12:30 a.m., with 15-minute headways during the peak and midday periods and 20-minute headways during the evening. Route 43 boards a total of 7,000 passengers on a typical weekday, of whom 1,584 board within the segment of the proposed BRT corridor between the Telegraph Avenue/Shattuck Avenue intersection and Downtown Oakland.
- **Route 82/82L: Downtown Oakland to the BayFair BART Station.** Routes 82 and 82L currently provide local service within the southern half of the proposed BRT corridor from downtown Oakland to the BayFair BART Station. Route 82 provides 24-hour local service. During peak and midday periods, it operates from Downtown Oakland to the San Leandro BART. During the evening and owl periods, it operates from Downtown Oakland to the BayFair BART Station and beyond. Peak period headways average 12 minutes. Route 82L provides limited stop service from 6:00 a.m. to 6:30 p.m. with 12-minute headways during peak periods. Routes 82 and 82L together board a total 20,055 passengers per typical weekday, of which 17,791 board within the segment of the project corridor between Downtown Oakland and the BayFair BART Station.

[1] Boardings refer to unlinked passenger transit trips. Bus transit data provided by AC Transit. See the *AC Transit East Bay BRT Transit Patronage and Forecasting Methodology Report*, 2006.

[2] Peak refers to weekday commute hours, generally from 5 a.m. to 9 a.m. and from 3 p.m. to 7 p.m. for transit services. Midday, or base, is the period between the peak periods. Evening is the period from 7 p.m. to 12:00 p.m. and owl the period from 12:00 p.m. to 5 a.m.

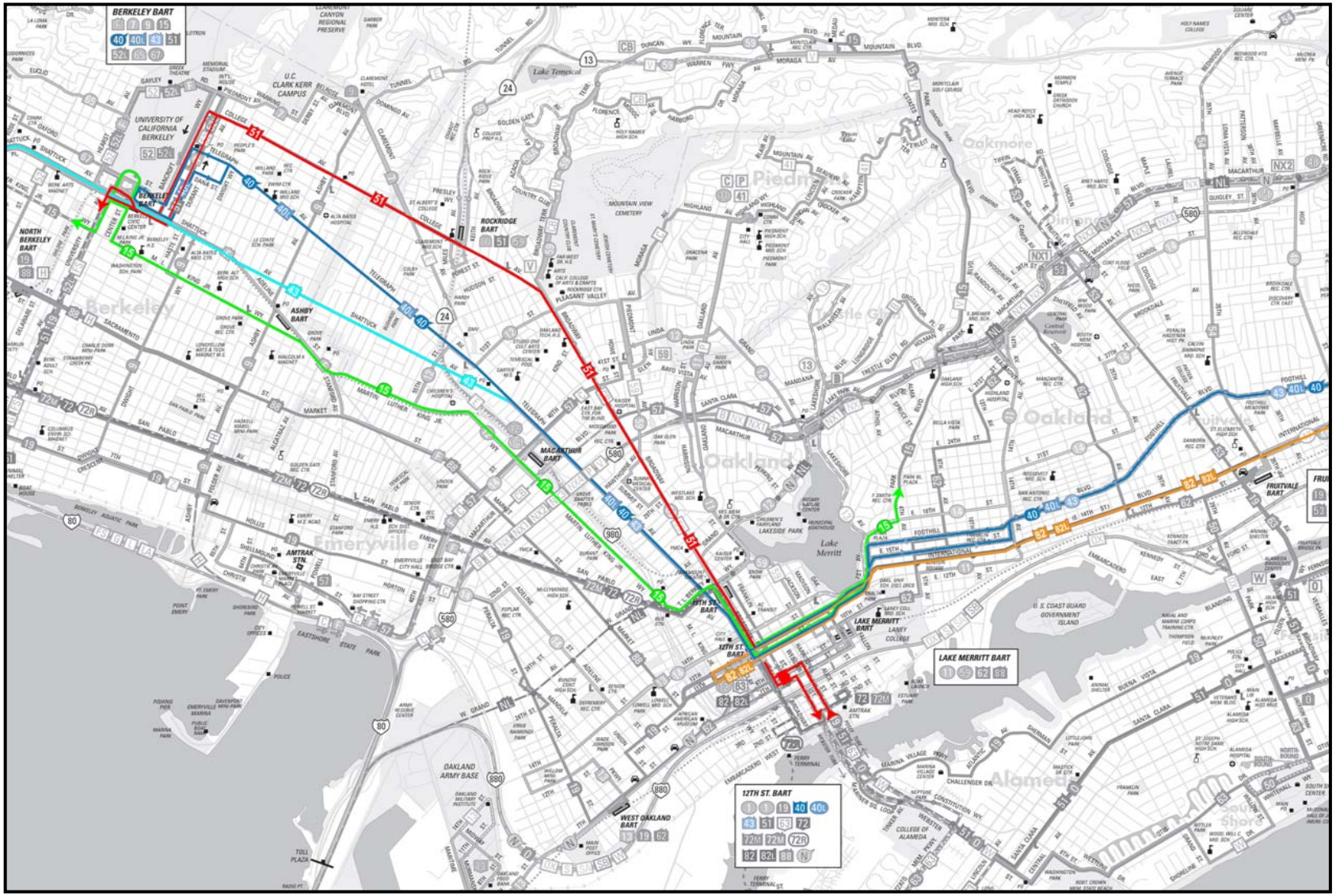

Figure 3.1-1a: AC Transit Service Area, Northern Portion of Project Corridor

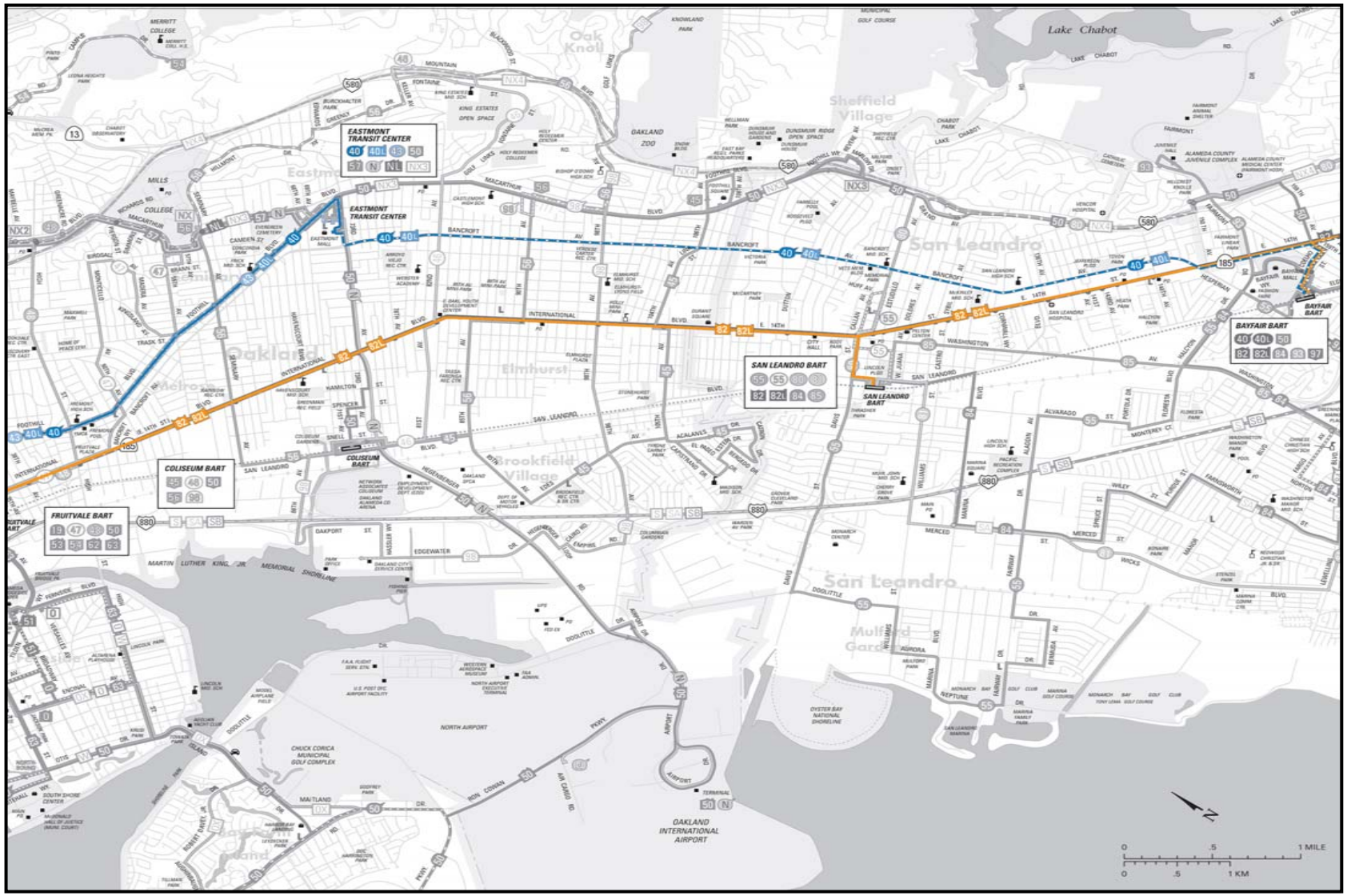

Figure 3.1-1b: AC Transit Service Area, Southern Portion of Project Corridor

Current weekday and weekend services along the proposed BRT alignment are shown in Table 3.1-1. Boardings are shown in Table 3.1-2.

Boardings (as well as alightings, which will be similar to boardings) on the three AC Transit routes operating along the proposed alignment for the East Bay BRT Project vary geographically. The highest number of weekday boardings occurs in Downtown Oakland, the largest activity center along the alignment, followed by East Oakland, an area of high transit dependency and growing neighborhood commercial districts. Average weekday bus boardings in 2003 for various geographical areas along the project alignment are shown in Figure 3.1-2.

Table 3.1-1: Existing AC Transit Service Along the Proposed East Bay BRT Alignment (pre-August 2005)

Segment	Route	Stops	Peak Travel Time (min)	Weekday Headway in Minutes				Weekend Headway in Minutes			
				Peak	Midday	Evening	Owl	Peak	Midday	Evening	Owl
Downtown Berkeley to Shattuck Avenue/ Telegraph Avenue	40/40L	24-27	20	15	15	20	60	20	20	20	60
Shattuck Avenue/ Telegraph Avenue to Downtown Oakland	40/40L	16	13	15	15	20	60	20	20	20	60
	43	16	13	15	15	20	n/a	20	20	20	n/a
Downtown Oakland to Downtown San Leandro	82	53	47	12	15	20	60	15	15	20	60
	82L	26-28	43	12	15	n/a	n/a	15	15	n/a	n/a
Downtown San Leandro to BayFair Station	82	15-16	17	n/a	n/a	20	60	n/a	n/a	20	60
	82L	15-16	17	12	15	n/a	n/a	15	15	n/a	n/a

Source: Alameda-Contra Costa Transit District Schedules, 2003; Alameda-Contra Costa Transit District run time data, 2003.

Table 3.1-2: Existing AC Transit Boardings Along the Proposed East Bay BRT Alignment (pre-August 2005)

Route	Segment Within BRT Corridor	Weekday Boardings	
		Route Total	Within BRT Corridor
40/40L	Downtown Berkeley to Downtown Oakland	10,591	4,531
43	Shattuck Avenue/ Telegraph Avenue to Downtown Oakland	7,000	1,584
82/82L	Downtown Oakland to BayFair Station	20,055	17,791
TOTAL		37,646	23,906

Source: Alameda-Contra Costa Transit District boarding data, 2003-2004.

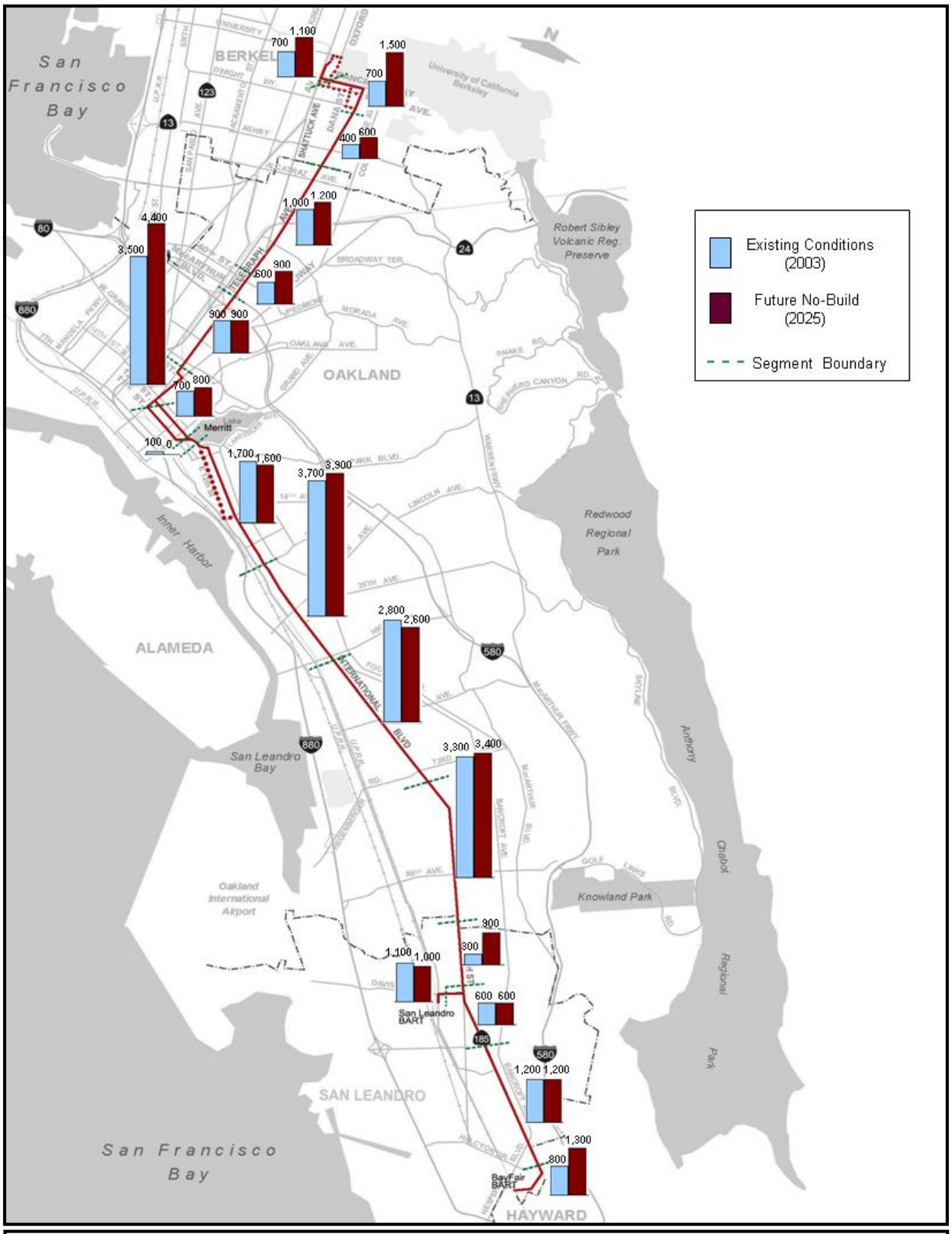

Figure 3.1-2: AC Transit Boardings by Segment, along Proposed Project Alignment

Several other AC Transit routes operate within the project corridor, as follows:

- In and near Downtown Berkeley and Berkeley Southside, these include: Local Routes 7, 9, 15, 51, 52, 65, and 67, and Transbay Route F.
- In and near Downtown Oakland, these include: Local Routes 11, 12, 15, 19, 45, 46, 47, 48, 51, 56, 59, 62, 63, 72, 72R, 72M, and 88, and Transbay Route NL.
- In San Leandro, these include: Local Routes 50, 55, 80, 81, 84, 85, 93, and 97.

Existing AC Transit Travel Times and Speeds

The current weekday travel time by bus from Downtown Berkeley at the northern end of the proposed BRT corridor to the BayFair BART Station at the southern end is 92 minutes during peak periods, 90 minutes at midday, and 75 minutes during the evening. The average bus speeds during these three periods are 10.9 mph, 11.2 mph and 13.5 mph, respectively. Because no AC Transit bus routes currently operate along the entire length of the Telegraph Avenue-International Boulevard-East 14th Street alignment, these times and speeds reflect a combination of the times for Route 40/40L between Downtown Berkeley and Downtown Oakland and Route 82L between Downtown Oakland and the BayFair BART Station.

Existing AC Transit Fares

The current base (adult) cash fare for AC Transit local service is $1.75. The Youth (age 5-17), Senior (65 and over) and Disabled fare is $0.85. Discounted 31-day tickets are also available (e.g., $70 for adults; $15 for Youth, and $20 for Seniors and the Disabled). Bus-to-bus transfers are $0.25 for all individuals paying cash fares. These fares apply to the local and express services operated in the study area.

AC Transit Transbay fares are $3.50 for adult cash and $1.70 for Youth, Seniors and the Disabled. A 10-ride adult ($35) and 31-day ticket $116 are also available.

3.1.1.2 BAY AREA RAPID TRANSIT DISTRICT (BART)

The Bay Area Rapid Transit District (BART) provides heavy rail passenger service in the metropolitan San Francisco Bay Area. BART operates five lines, listed below, with a description of the services falling within the general limits of the proposed BRT corridor.

- Richmond-Fremont Line: Provides service between the Downtown Berkeley and BayFair BART stations;
- Richmond-Daly City Line: Provides service between the Downtown Berkeley and Oakland City Center/12th Street BART stations;
- Fremont-Daly City Line: Provides service between the BayFair and Lake Merritt BART stations;
- Dublin/Pleasanton-Millbrae Line: Provides service between the BayFair and Lake Merritt BART stations; and

- Pittsburg/Bay Point-Daly City: Provides service between the Rockridge and Oakland City Center/12th Street BART stations.

These five lines and the entire BART system are shown in Figure 3.1-3.

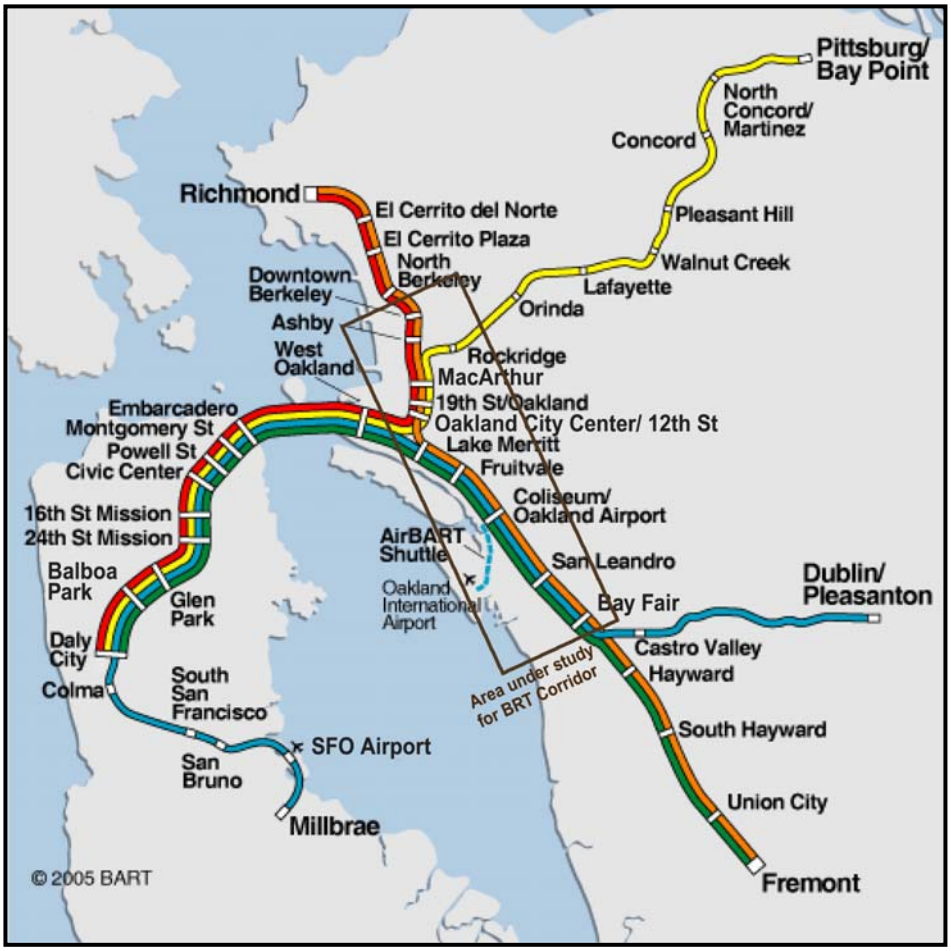

Figure 3.1-3: BART System Map

Systemwide, BART has approximately 305,000 boardings on an average weekday. There are 72,938 average weekday boardings for the 11 BART stations within one mile of the project corridor (shown in the boxed area of Figure 3.1-3).

Existing BART Travel Times and Average Speeds

BART service within the project area operates at average speeds of 35 mph, with stations approximately every two miles. As a result, BART patronage is weighted heavily toward interregional travel between Bay Area counties as opposed to intra-corridor trips. Travel time between the Downtown Berkeley and BayFair BART stations is 30 minutes on the Richmond-Fremont Line.

3.1.1.3 OTHER TRANSIT SERVICES

Amtrak California

Amtrak California, a partnership between Amtrak and Caltrans, provides intercity rail and bus service within California. The Capitol Corridor route provides daily round trips between San Jose, Oakland, and Sacramento. Other stations are located in Santa Clara, Fremont, Hayward, Oakland Coliseum (near BART station), Emeryville, Berkeley, Richmond (at the BART station), Martinez, Suisun/Fairfield, and Davis. Service is provided on weekdays from 4:30 a.m. to 11:59 p.m. Weekend and holiday service hours are from 5:40 a.m. to 11:59 p.m.

Table 3.1-3: Average Weekday BART Boardings in the Corridor[1]

BART Station	Weekday Exits
Downtown Berkeley	10,850
Ashby Avenue	3,693
Rockridge	4,518
MacArthur	5,910
19th Street	7,474
12th Street	11,910
Lake Merritt	4,787
Fruitvale Avenue	6,210
Coliseum	7,989
San Leandro	4,809
BayFair	4,788
TOTAL	72,938

Notes:
[1] Estimated by exits recorded at fare gates at listed corridor stations

Source: BART Weekday Average Exits, July-September 2003.

San Leandro Links

San Leandro Links is a free shuttle service operated by the City of San Leandro. The shuttles link the San Leandro BART Station with west San Leandro employment centers. Service is provided Monday through Friday mornings from 6:00 a.m. to 10:00 a.m. and afternoons from 3:00 p.m. to 7:00 p.m., except for national holidays. During the morning and afternoon commute hours, the system's three shuttle buses provide service every 15 minutes.

Emery Go Round

The Emery Go Round provides free shuttle service connecting Emeryville's employment and shopping centers with the MacArthur BART Station and Emeryville Amtrak station. It has two lines that run seven days a week, with more limited service on weekends and reduced or no service on holidays. The Emery Go Round is funded by commercial property owners in the citywide Emeryville Property Improvement District and is a service of the Emeryville Transportation Management Association.

On weekdays, service is provided from 5:50 am until 9:50 p.m., with a frequency of 10-12 minutes during weekday commute hours. The "Hollis Loop" begins and ends at the MacArthur BART Station, running primarily along 40th Avenue and Hollis Street. The "Powell Loop" runs between the MacArthur BART Station and shopping destinations on 40th Avenue, Shellmound Avenue, Christie Avenue, and Powell Street.

On Saturdays, the Shopper Express runs from 9:15 a.m. until 9:00 p.m. and the City Loop runs from 10:00 a.m. until 5:30 p.m. On Sundays, the Shopper Express runs from 10:15 a.m. until 7:30 p.m.; no City Loop service is provided.

UC Berkeley BearTransit

BearTransit is UC Berkeley's shuttle system that serves the Berkeley campus and vicinity and is available for use by students and the general public. BearTransit is operated by the UC Berkeley Parking and Transportation Department.

Lines C, H, P, and R provide daytime shuttle service between points on campus, the Downtown Berkeley BART Station, parking lots, Clark Kerr campus, the Lawrence Berkeley Lab complex, and residence halls. Line RFS provides service between the main campus and the City of El Cerrito, the Richmond Field Station, and points in between. Fares for the general public range from 50 cents to $1.00 for daytime shuttle service; service is provided free to passengers with a valid University of California ID.

The Night Safety Shuttle service is an extension of BearTransit daytime service, and provides safe nighttime transit to and from the campus for classes, study, research and meetings. Night Safety shuttles are operated in partnership with the UC Berkeley Police Department. Routes run from points on campus to BART, Clark Kerr campus and residence halls. Night Safety Shuttles are free to all including non-campus affiliates, and operate specified routes from 7:30 p.m. to 2:30 a.m. The Owl Line operates from 3 a.m. to 6 a.m. 365 days a year. Night Safety routes designated as "To-Your-Door" make a circuit of all indicated bus stops, and then continue in a prescribed service area. These shuttles pick up at designated stops and drop off anywhere within service area boundaries. Owl Line service picks up and drops off passengers by phone request between 3 a.m. and 6 a.m. within service area boundaries, 365 days a year.

UC Berkeley student IDs serve as semester-long passes for AC Transit buses, thus, the AC Transit bus routes effectively supplement and expand the services available to students at no out-of-pocket cost.

AirBART

AirBART is a shuttle that links the Coliseum/Oakland Airport BART Station and Oakland International Airport. Service is provided at 10 to 20 minute intervals from 5:00 a.m. to 12:05 a.m., Monday through Saturday, and from 8:00 a.m. to 12:05 a.m. on Sundays. Total travel time is 15 to 30 minutes depending on traffic. Fares are $2.00 for adult riders and $.50 for children (11 and under), seniors (over 65), and disabled passengers (with ID).

Paratransit Services

Americans with Disabilities Act (ADA) paratransit services for persons with disabilities are provided by the East Bay Paratransit Consortium, which is a partnership between BART and AC Transit. ADA paratransit offers a complementary service to AC Transit's fixed-route services and BART's train service and operates in the same area, on the same days and during the same hours. Before using paratransit, a person must be determined eligible because his or her disability prevents use of regular buses or trains for some or all of the trips. Riders who need extra assistance beyond what the driver provides may bring an assistant—or "attendant"—with them at no additional charge.

3.1.2 Future Transit Services

3.1.2.1 AC TRANSIT

Proposed AC Transit Route 1R Service

AC Transit is planning several modifications to the project corridor bus service. The one with the greatest effect on the East Bay BRT Project is the planned addition of a new route, Route 1R, which would provide Rapid Bus service in the project corridor. Route 1R is included in the No-Build Alternative and described in Chapter 2, Section 2.2.1, No-Build Alternative.

Proposed Route 1R (shorthand for *Rapid*) service would follow the approximate alignment of the proposed East Bay BRT Project, with termini at the Downtown Berkeley and BayFair BART stations. (The route 1R alignment is shown in Figure 2.2-2a and Figure 2.2-2b of Chapter 2.) Route 1R service would operate during weekday and weekend peak, midday, and evening periods (local service would continue to operate during the owl period). AC Transit considers Route 1R service to be an initial step towards implementation of full BRT service, as many of the features of the Rapid Bus system would be incorporated into the BRT system.

Two features differentiate Rapid Bus service from regular bus service:

- **Wider Stop Spacing.** A substantial portion of total bus travel time is due to stops, including deceleration, passenger boarding and alighting, acceleration, and yielding while merging into traffic. As a result, reducing the number of stops can improve bus travel time substantially. Route 72R, which provides Rapid Bus service along San Pablo Avenue from Downtown Oakland to Contra Costa College in the city of San Pablo, has an average stop spacing of approximately two-thirds of a mile, which has resulted in increased travel speed. Route 1R would have an average stop spacing of one-half to two-thirds of a mile. Local buses would continue to serve all local stops.

- **Transit Signal Priority (TSP).** TSP improves bus operations by allowing TSP-equipped buses to benefit from early green or extended green times at signalized intersections. TSP is in use along the 72R Rapid Bus route. The Alameda County Congestion Management Agency (ACCMA) and AC Transit are working with the cities of Berkeley, Oakland, and San Leandro to implement TSP along the proposed Rapid Bus Route 1R.

AC Transit would need to make adjustments to several existing bus routes to implement Route 1R service, as shown in Table 3.1-4 and described below:

Table 3.1-4: Proposed AC Transit Service in the Project Corridor (No-Build Alternative)

Segment	Route	Stops	Peak Travel Time (min)	Weekday Headway in Minutes				Weekend Headway in Minutes			
				Peak	Midday	Evening	Owl	Peak	Midday	Evening	Owl
Downtown Berkeley to Shattuck Avenue/ Telegraph Avenue	1R	8	14	12	15	20	n/a[1]	15	15	20	n/a[1]
	40/40L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	"Line X"[3]	24-27	20	15	15	20	60	20	20	20	60
Shattuck Avenue/ Telegraph Avenue to Downtown Oakland	1R	5	12	12	15	20	n/a[1]	15	15	20	n/a[1]
	40/40L[4]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	43	16	13	15	15	20	60	20	20	20	60
Downtown Oakland to Downtown San Leandro	1R	17	36	12	15	20	n/a[1]	15	15	20	n/a[1]
	82	53	47	12	15	20	60	15	15	20	60
	82L[5]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
Downtown San Leandro to BayFair BART Station	1R	5	15	12	15	20	n/a[1]	15	15	20	n/a[1]
	82	15-16	17	12	15	20	60	15	15	20	60
	82L[5]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced

Notes:
[1] Not Applicable (does not operate).
[2] Route 40/40L local bus service between Downtown Berkeley and the Shattuck Avenue/Telegraph Avenue would be eliminated and replaced by "Line X" local bus service.
[3] "Line X" would replace Route 40/40L local bus service between Downtown Berkeley and Shattuck Avenue/Telegraph Avenue, possibly as an extension of another AC Transit route.
[4] Route 40/40L local bus service between the Shattuck Avenue/Telegraph Avenue and Downtown Oakland would be eliminated and replaced by Route 1R Rapid Bus service.
[5] Route 82L bus service between Downtown Oakland and the BayFair BART Station would be eliminated and replaced by Route 1R Rapid Bus Service.

Source: *AC Transit Technical Memorandum: East Bay BRT EIS/EIR Operating Plan and Cost Analysis,* November 2005, by Nelson\Nygaard Consulting Associates.

- **Route 40/40L: Downtown Berkeley to the BayFair BART Station.** Route 40/40L currently offers 24-hour service between Downtown Berkeley and the BayFair BART Station. With implementation of Route 1R service, the following changes would be made to Route 40/40L service:
    - **Downtown Berkeley to Shattuck Avenue/Telegraph Avenue:** The segment of Route 40/40L that runs between downtown Berkeley and the Shattuck Avenue/Telegraph Avenue intersection would be eliminated and replaced by a new, as yet unspecified local bus route, hereinafter referred to as "Line X." This line would provide complementary local service to Route 1R along the alignment between Berkeley and the Shattuck Avenue/Telegraph Avenue intersection. "Line X" could be an extension of another route; its configuration would be determined following additional planning studies and solicitation of public comment.

- **Shattuck Avenue/Telegraph Avenue to Downtown Oakland.** The segment of Route 40/40L that currently runs between the Shattuck Avenue/Telegraph Avenue intersection and Downtown Oakland would be eliminated and replaced by Route 1R service, which would operate along the approximate alignment of the proposed East Bay BRT project.
- **Downtown Oakland to the BayFair BART Station:** The segment between Downtown Oakland and the BayFair BART Station (which operates primarily on Foothill Boulevard and Bancroft Avenue) would continue to operate as it does today.

- **Route 43: Shattuck Avenue/Telegraph Avenue to Downtown Oakland.** Route 43 currently operates between El Cerrito Plaza BART Station and the Eastmont Transit Center in East Oakland. This route would continue to operate and have its service hours expanded to include owl service. This route would provide local bus service between the Shattuck Avenue/Telegraph Avenue intersection and Downtown Oakland to complement Route 1R service.
- **Route 82: Downtown Oakland to the BayFair BART Station.** Route 82 currently operates 24 hours a day, seven days a week, between downtown Oakland and the San Leandro BART Station during weekday peak and midday periods and between Downtown Oakland and Downtown Hayward during other periods. This route would be retained to provide local bus service to complement Route 1R service. During peak and midday periods, this route would be extended to include service from the San Leandro BART Station to the BayFair BART Station.
- **Route 82L: Downtown Oakland to the BayFair BART Station.** Route 82L currently operates between Downtown Oakland and Downtown Hayward during the weekday peak and midday periods, seven days a week. It does not serve the San Leandro BART Station. The segment of this route between Downtown Oakland and BayFair BART Station would be eliminated and replaced by Route 1R. The segment of this route between the BayFair BART Station and Downtown Hayward would continue to operate, possibly as the extension of another existing AC Transit route.

Other Proposed AC Transit Service Changes

Another initiative that would affect bus services in the proposed BRT corridor is AC Transit's Strategic Vision effort, which plans service improvements along some of AC Transit's busiest corridors. In Phase I of this effort, AC Transit plans to improve bus operations by increasing frequencies, consolidating bus stops, or installing TSP as appropriate along the following corridors:

- San Pablo, serving Oakland, Emeryville, Berkeley, Albany, El Cerrito, Richmond, and San Pablo (Route 72R service is in operation);
- Foothill Boulevard-MacArthur, serving Oakland, East Oakland, and San Leandro;
- MacArthur-Airport, serving East Oakland and the Oakland International Airport;

- University Avenue, College Avenue, Broadway, and Webster Street, serving Albany, Berkeley, Oakland, and Alameda;
- Hesperian Boulevard, serving Hayward and San Leandro;
- 6th Street-Hollis Street, serving Berkeley, Oakland, and Emeryville;
- Sacramento Street-Market Street, serving Berkeley and Oakland; and
- East 14th Street-Mission Boulevard, serving San Leandro and Hayward.

Improved feeder service and/or competing service along these corridors would potentially affect ridership for the proposed East Bay BRT Project.

3.1.2.2 FUTURE BAY AREA RAPID TRANSIT (BART)

BART is planning the following two service enhancements that could affect ridership on the proposed East Bay BRT system:

Proposed BART Extension to Fremont Warm Springs and to Santa Clara County

Existing BART service in southern Alameda County terminates at the Fremont BART Station. BART has completed an environmental document and is completing the engineering phase for an extension to the Warm Springs area in southern Fremont. The Santa Clara Valley Transportation Authority (VTA) in coordination with BART is preparing an EIS/EIR to extend BART service from Warm Springs southward to Downtown San Jose and Downtown Santa Clara in Santa Clara County. It is assumed the Warm Springs and San Jose/Santa Clara BART extensions will be implemented in the next 10 to 15 years.

Proposed BART Oakland Airport Connector

BART is soliciting bids for the design and construction of an automated guideway transit system connecting the Coliseum BART Station and the Oakland International Airport. It is assumed the Oakland Airport Connector will be implemented in the next five to 10 years.

3.1.3 2025 No-Build Alternative Conditions

This section summarizes the transit operations, fleet requirements, and ridership associated with the No-Build Alternative in 2025. The No-Build Alternative would include the transit improvements described in Sections 3.1.1, Existing Transit Services, and 3.1.2, Future Transit Services.

3.1.3.1 TRANSIT OPERATIONS

In 2025, AC Transit is projected to provide 2,257,000 annual revenue vehicle miles and 205,000 annual revenue vehicle hours of transit service along the proposed alignment for the East Bay BRT Project. These estimates include service provided by Route 1R, as well as those portions of Routes 40/40L, 43, 82, and 82L that would operate along the Route 1R alignment. A total of 36 vehicles would be needed to provide corridor service during peak periods. Compared to existing conditions, future revenue miles would increase by 30 percent, future revenue hours by 18 percent, and future peak vehicles by 16 percent.

3.1.3.2 TRANSIT PATRONAGE

Transit patronage is expected to increase from current levels primarily because of population and employment growth in the project corridor. Under the No-Build Alternative, as shown in Table 3.1-5, AC Transit boardings on Rapid Bus or other bus services operating along the proposed BRT alignment are projected to increase to 28,050 per average weekday by 2025, a 17 percent rise from 2003 levels. This equates to a gain of slightly less than one percent per year and takes into account the effects of AC Transit's planned Route 1R Rapid Bus service. Figure 3.1-2 (page 3-6) shows projected areas of patronage growth along the Route 1R alignment. Systemwide, AC Transit weekly boardings are projected to increase to 259,800 by 2025, a 26 percent rise from 2003 levels, which equates to a gain of slightly more than one percent per year.

Under the No-Build Alternative, BART systemwide weekday boardings are projected to increase to 400,000 by 2025, an increase of 31 percent from 2003 levels.

Table 3.1-5: Average Weekday Transit Patronage, Existing Conditions and 2025 No-Build Alternative

Patronage Measure	Existing (2003) Conditions — Boardings	2025 No-Build	
		Boardings	Percent Increase Over 2003
Boardings along BRT Alignment	23,910	28,050	17%
AC Transit Systemwide Boardings[1]	206,300	259,800	26%
BART Systemwide Boardings	304,900	400,000	31%

Notes:
1. Includes Transbay services.

Source: AC Transit boarding data, 2003-2004; BART Weekday Average Exits, July-September 2003; *AC Transit East Bay BRT Transit Patronage and Forecasting Methodology Report*, May 2006.

3.1.3.3 TRANSIT TRAVEL SPEEDS AND TIMES

As shown in Table 3.1-6 average bus travel speeds would improve by 2 mph during the peak period and by 4 mph during the evening period. These improvements would be comparable to what AC Transit experienced when it implemented 72R Rapid Bus service in the San Pablo corridor.

Table 3.1-6 AC Transit Travel Speeds between Downtown Berkeley and BayFair BART, Existing Conditions and 2025 No-Build Alternative

Time Period	Existing (2003) Conditions	2025 No-Build Alternative	
	Average Speed (mph)	Average Speed (mph)	Percent Increase over 2003
Peak	10.9	12.9	18%
Midday	11.2	13.6	21%
Evening	13.5	17.0	26%

Source: Nelson\Nygaard Consulting Associates, *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005.

As shown in Table 3.1-7 end-to-end AC Transit travel times along the proposed East Bay BRT corridor are expected to improve under No-Build conditions due to the implementation of Rapid Bus Route 1R service. Compared to existing conditions, bus travel time would be reduced by 15 percent during peak periods, 18 percent during the midday period, and 21 percent during the evening period.

Table 3.1-7 AC Transit Travel Times from Downtown Berkeley to BayFair BART, Existing Conditions and 2025 No-Build Alternative

Time Period	Existing (2003) Conditions	2025 No-Build Alternative	
	Travel Time (minutes)	Travel Time (minutes)	Percent Decrease from 2003
Peak	92	78	15%
Midday	90	74	18%
Evening	75	59	21%

Source: Nelson\Nygaard Consulting Associates, *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005.

3.1.3.4 BUS FARES

Future bus fares are assumed to be equivalent to the fares on existing services, adjusted to reflect changes in the consumer price level (inflation). Therefore, the future adult cash fare on Rapid Bus Route 1R would be equivalent to $1.75 in today's prices.

3.1.4 2025 Build Alternatives

This section describes transit operations, patronage, and travel times and speeds associated with the four Build Alternatives under consideration for the East Bay BRT Project in 2025. The physical and operational features of the Build Alternatives and the alignment variations in Berkeley and East Oakland are described in detail in Chapter 2, Project Alternatives.

3.1.4.1 TRANSIT OPERATIONS

Under each of the Build Alternatives, AC Transit would upgrade proposed Route 1R service described in Section 3.1.2.1 to full BRT service by adding the following features:

- **Dedicated bus lanes.** The addition of dedicated bus lanes would allow BRT vehicles to operate outside of the regular traffic flow, thus avoiding congestion and intersection queues.
- **Rail-like BRT stations with near-level boarding platforms and proof-of-payment ticketing.** These features would allow passengers to enter and exit buses more quickly and easily than under existing conditions. There stations also would improve amenities and user convenience.
- **Improved service frequency.** The bus lanes and speedier boarding would shorten round trip BRT travel times and, thus, cost-effectively allow for more frequent bus service.

- **Advanced, more reliable transit signal priority.** Traffic signal timing would be refined to enhance BRT operations. Since BRT buses would operate primarily in dedicated lanes, their movements would be more reliable and therefore predictable. Improved progression of buses would be possible without major disruption of other traffic.

The combination of these features of the East Bay BRT Project would improve service reliability as well as BRT travel time.

3.1.4.2 SERVICE CHARACTERISTICS OF BUILD ALTERNATIVES

Proposed AC Transit bus services along the alignment for the East Bay BRT Project are summarized in Tables 3.1-8a through d. Each table describes for a particular Build Alternative the bus routes that would be operated, number of stops, peak period travel time, and headways by time of day attributes for the four Build Alternatives

Alt 1: Separate BRT and Local Service to BayFair BART

Proposed service characteristics of Alternative 1 are shown in Table 3.1-8a. East Bay BRT service would replace Rapid Bus Route 1R throughout the corridor and operate every 5 minutes during peak periods, 7.5 minutes midday, and every 20 minutes in the evening. In the north, between Berkeley and Oakland, Route 40/40L would be replaced by complementary local service that would continue to operate in the mixed flow lanes alongside the BRT transitway as a combination of a new Route X (specific name is yet to be designated) and Route 43. Both routes would operate on 15-minute headways during the peak and midday and 20 minutes in the evening. The two routes would also provide owl service, when express BRT service is to be discontinued, between approximately midnight and 5:00 a.m.

In the south, between Oakland and San Leandro at BayFair BART, Route 82L would be replaced by East Bay BRT service but Route 82 would be retained and provide complementary local service every 12 minutes during the peak, 15 minutes midday, 20 minutes in the evening, and 60 minutes during late night and early morning. From Berkeley to BayFair BART, express stops at BRT stations would total 35 and local stops at the curb would vary from 108 to 112, depending upon the direction of travel.

Fifty peak buses, an increase of 14 over the No-Build Alternative, would be required to provide Alternative 1 services. On an annual basis, approximately 3 million revenue vehicle miles and 236,000 revenue vehicle hours would be operated, a 33 percent and 15 percent increase, respectively, compared to the No-Build Alternative. The operating parameters for Build Alternatives are shown in Table 3.1-9.

Alt 2: Separate BRT and Local Service to San Leandro BART

Proposed service characteristics of Alternative 2 are shown in Table 3.1-8b. Services in the north are the same as for Alternative 1 and in the south are the same except in San Leandro. Under Alternative 2, BRT terminates at San Leandro BART. A new Rapid Bus Route Y (specific name is yet to be designated) would be operated between San Leandro BART and BayFair BART on the same headways as former Route 1R. This would result in a comparable level of full corridor service under Alternative 2 as under Alternative 1.

Table 3.1-8a: Proposed AC Transit Service: Alt 1 Separate BRT and Local Service to BayFair BART (2025)

Segment	Route	Stops	Peak Travel Time (min)	Weekday Headway in Minutes				Weekend Headway in Minutes			
				Peak	Midday	Evening	Owl	Peak	Midday	Evening	Owl
Downtown Berkeley to Shattuck Avenue/ Telegraph Avenue	**East Bay BRT (Replaces 1R)**	**8**	**10**	**5**	**7.5**	**20**	**n/a**	**15**	**15**	**20**	**n/a**
	40/40L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	"Line X"[1]	24-27	24	15	15	20	60	20	20	20	60
Shattuck Avenue/ Telegraph Avenue to Downtown Oakland	**East Bay BRT**	**5**	**9**	**5**	**7.5**	**20**	**n/a**	**15**	**15**	**20**	**n/a**
	40/40L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	43	16	16	15	15	20	60	20	20	20	60
Downtown Oakland to Downtown San Leandro	**East Bay BRT**	**17**	**26**	**5**	**7.5**	**20**	**n/a**	**15**	**15**	**20**	**n/a**
	82	53	53	12	15	20	60	15	15	20	60
	82L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
Downtown San Leandro to BayFair BART Station	**East Bay BRT**	**5**	**13**	**5**	**7.5**	**20**	**n/a**	**15**	**15**	**20**	**n/a**
	82	15-16	20	12	15	20	60	15	15	20	60
	82L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced

Notes:

[1] This segment could operate as the extension of some other AC Transit route.

[2] This segment would be replaced with implementation of Rapid Bus Route 1R service (No-Build). East Bay BRT service replaces Route 1R.

Source: *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005, by Nelson\Nygaard Consulting Associates

Table 3.1-8b: Proposed AC Transit Service: Alt 2 Separate BRT and Local Service to San Leandro BART (2025)

Segment	Route	Stops	Peak Travel Time (min)	Weekday Headway in Minutes				Weekend Headway in Minutes			
				Peak	Midday	Evening	Owl	Peak	Midday	Evening	Owl
Downtown Berkeley to Shattuck Avenue/ Telegraph Avenue	**East Bay BRT (Replaces 1R)**	**8**	**10**	**5**	**7.5**	**20**	**n/a**	**15**	**15**	**20**	**n/a**
	40/40L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	"Line X"[1]	24-27	24	15	15	20	60	20	20	20	60
Shattuck Avenue/ Telegraph Avenue to Downtown Oakland	**East Bay BRT**	**5**	**9**	**5**	**7.5**	**20**	**n/a**	**15**	**15**	**20**	**n/a**
	40/40L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	43	16	16	15	15	20	60	20	20	20	60
Downtown Oakland to Downtown San Leandro	**East Bay BRT**	**18**	**33**	**5**	**7.5**	**20**	**n/a**	**15**	**15**	**20**	**n/a**
	82	53	53	12	15	20	60	15	15	20	60
	82L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
Downtown San Leandro to BayFair BART Station	"Line Y"[1]	5	15	12	15	20	n/a	15	15	20	n/a
	82	15-16	17	12	15	20	60	15	15	20	60
	82L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced

Notes:

[1] This segment could operate as the extension of some other AC Transit route.

[2] This segment would be replaced with implementation of Route 1R Rapid Bus Service (No-Build). East Bay BRT service replaces Route 1R.

Source: *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005, by Nelson\Nygaard Consulting Associates

Table 3.1-8c: Proposed AC Transit Service: Alt 3 Combined BRT and Local Service to BayFair BART (2025)

Segment	Route	Stops	Peak Travel Time (min)	Weekday Headway in Minutes				Weekend Headway in Minutes			
				Peak	Midday	Evening	Owl	Peak	Midday	Evening	Owl
Downtown Berkeley to Shattuck Avenue/ Telegraph Avenue	**East Bay BRT (Replaces 1R)**	**10**	**11**	**3.6**	**5**	**10**	**60**	**8**	**8**	**10**	**60**
	40/40L[1]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	"Line X"	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
Shattuck Avenue/ Telegraph Avenue to Downtown Oakland	**East Bay BRT**	**7**	**10**	**3.6**	**5**	**10**	**60**	**8**	**8**	**10**	**60**
	40/40L[1]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	43	16	16	15	15	20	n/a	20	20	20	n/a
Downtown Oakland to Downtown San Leandro	**East Bay BRT**	**26**	**30**	**3.6**	**5**	**10**	**60**	**8**	**8**	**10**	**60**
	82	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	82L[1]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
Downtown San Leandro to BayFair BART Station	**East Bay BRT**	**8**	**14**	**3.6**	**5**	**10**	**60**	**8**	**8**	**10**	**60**
	82	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	82L[1]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced

Notes:

[1] This segment would be replaced with implementation of Route 1R Rapid Bus Service (No-Build). East Bay BRT service replaces Route 1R.

Source: *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005, by Nelson\Nygaard Consulting Associates

Table 3.1-8d: Proposed AC Transit Service: Alt 4 Combined BRT and Local Service to San Leandro BART (2025)

Segment	Route	Stops	Peak Travel Time (min)	Weekday Headway in Minutes				Weekend Headway in Minutes			
				Peak	Midday	Evening	Owl	Peak	Midday	Evening	Owl
Downtown Berkeley to Shattuck Avenue/ Telegraph Avenue	**East Bay BRT (Replaces 1R)**	**10**	**11**	**3.6**	**5**	**10**	**60**	**8**	**8**	**10**	**60**
	40/40L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	"Line X"	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
Shattuck Avenue/ Telegraph Avenue to Downtown Oakland	**East Bay BRT**	**7**	**10**	**3.6**	**5**	**10**	**60**	**8**	**8**	**10**	**60**
	40/40L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	43	16	16	15	15	20	n/a	20	20	20	n/a
Downtown Oakland to Downtown San Leandro	**East Bay BRT**	**27**	**36**	**3.6**	**5**	**10**	**60**	**8**	**8**	**10**	**60**
	82	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	82L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
Downtown San Leandro to BayFair BART Station	"Line Y"[1]	5	15	12	15	20	n/a	15	15	20	n/a
	"Line Z"[1]	15-16	17	12	15	20	60	15	15	20	60
	82	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced
	82L[2]	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced	Replaced

Notes:

[1] This segment could operate as the extension of some other AC Transit route.

[2] This segment would be replaced with implementation of Route 1R Rapid Bus Service (No-Build). East Bay BRT service replaces Route 1R.

Source: *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005, by Nelson\Nygaard Consulting Associates

Table 3.1-9 Proposed AC Transit Operations (2025), No-Build and Build Alternatives

Operating Service Parameter	2025 No-Build	2025 Build Alternatives							
		Alt 1 Separate BRT and Local Service to BayFair BART		Alt 2 Separate BRT and Local Service to San Leandro BART		Alt 3 Combined BRT and Local Service to BayFair BART		Alt 4 Combined BRT and Local Service to San Leandro BART	
		Operating Parameter	Percent Increase over No-Build	Operating Parameter	Percent Increase over No-Build	Operating Parameter	Percent Increase over No-Build	Operating Parameter	Percent Increase over No-Build
Annual Revenue Vehicle Miles	2,257,000	3,005,000	33%	3,020,000	34%	2,866,000	27%	2,881,000	28%
Annual Revenue Vehicle Hours	205,000	236,000	15%	249,000	21%	216,000	5%	229,000	12%
Peak Vehicles	36	50	39%	51	42%	46	28%	47	31%

Source: Nelson\Nygaard Consulting Associates, *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005.

Fifty-one peak buses would be required for the service, or one more than for Alternative 1, due to the slower and slighter longer service to be operated between the San Leandro and BayFair BART stations. (All routes, express and local, would operate in and out of San Leandro BART, which is west of the East 14th Street alignment for express BRT service under Alternative 1.) Annual revenue vehicle miles and hours of service would also be slightly higher than for Alternative 1, as shown in Table 3.1-9.

Alt 3: Combined BRT and Local Service to BayFair BART

Proposed service characteristics of Alternative 3 are shown in Table 3.1-8c. East Bay BRT service would replace Rapid Bus Route 1R throughout the corridor and operate every 3.6 minutes during peak periods, 5 minutes midday, every 10 minutes in the evening, and every 60 minutes for owl service. There would be no complementary local bus service operated along the BRT alignment except for Route 43 service, which would continue on 15- to 20-minute frequencies along Telegraph Avenue between the Shattuck Avenue at Telegraph Avenue intersection and Downtown Oakland. Routes 40/40L and X in the north and Routes 82 and 82L in the south would be discontinued. The peak, midday, and evening BRT frequencies along the project alignment would be comparable to the combined frequencies of BRT and local service frequencies under Alternatives 1 and 2 . BRT service hours would be extended through the owl period to ensure 24-hour service coverage.

Forty-six peak buses would be required for Alternative 3 service. Annual revenue vehicle miles and hours of service would be approximately 2.9 million and 216,000, respectively. These figures are somewhat higher than under the No-Build Alternative but are the lowest of the Build Alternatives. Providing fast, reliable express service end-to-end through the corridor would be the most efficient of

the Build Alternatives for AC Transit to operate and maintain the same level of capacity (for example, bus seat miles of service).

Alt 4: Combined BRT and Local Service to San Leandro BART

Proposed service characteristics of Alternative 4 are shown in Table 3.1-8d. Services in the north are the same as for Alternative 3 and in the south are the same except in San Leandro. Under Alternative 4, BRT terminates at San Leandro BART. A new Rapid Bus Route Y and a new local Route Z (specific names are yet to be designated) would be operated between San Leandro BART and BayFair BART on the same headways as former Route 1R and 82, respectively. Route Y would have fewer stops than Route Z, which would operate as a local bus route. This would result in a comparable level of full corridor service under Alternative 4 as under Alternative 3.

Forty-seven peak buses would be required for the service, or one more than for Alternative 3, due to the slower and slighter longer service to be operated between the San Leandro and BayFair BART stations. (All routes, express and local, would operate in and out of San Leandro BART, which is west of the East 14th Street alignment for express BRT service under Alternative 3.) Annual revenue vehicle miles and hours of service would also be slightly higher than for Alternative 3, although lower than for Alternatives 1 and 2, as shown in Table 3.1-9.

3.1.4.3 Transit Travel Times and Speeds

The East Bay BRT Project is expected to substantially improve bus travel time and speed in the project corridor, compared to the No-Build Alternative, by incorporating the dedicated transitway, rail-like stations, and advance signal priority features described in Chapter 2 and Section 3.1.4.1, above.

The project would not affect travel times or speeds for BART or other transit operations.

Projected Travel Speeds and Times

Actual BRT travel speeds and times would depend on time of day as well as the number of stations and BRT operating plan, as distinguished by the Build Alternatives. Travel speeds and times for each of the Build Alternatives, compared to the No-Build, are shown in Tables 3.1-10 and 3.1-11 and described below. Speeds are the average for BRT buses only. Times are shown for travel the full length of the project corridor, Downtown Berkeley to BayFair BART.

Alt 1: Separate BRT and Local Service to BayFair BART

Compared to the No-Build Alternative, BRT travel speeds, thereby travel times, and schedule reliability are expected to greatly improve under Alternative 1. BRT travel speeds in 2025 (Table 3.1-10) are expected to average 17 mph during peak periods, 18 mph during the midday, and 19 mph during evening hours. This would compare to 13, 14 and 17 mph under the No-Build Alternative and 11, 11 and 14 mph for existing conditions. The underlying local service in Alternative 1 would continue to operate in mixed-flow traffic and experience slow travel times operating at speeds approximately the same as under existing conditions and schedule unreliability associated with operations in mixed-flow traffic.

With a direct connection to BayFair BART and fewer station stops relative to alternatives with Combined BRT and Local Service, the estimated one-way peak period express service travel time (Table 3.1-11) in 2025 would be reduced from 78 minutes under the No-Build Alternative to 59 minutes; weekday midday travel times would be reduced from 74 minutes to 57 minutes; and weekday evening travel times would be reduced from 59 minutes to 53 minutes. The improvement is expected to be greatest during peak periods when traffic congestion is at its worst, which would increase the benefit of providing dedicated bus lanes.

Alt 2: Separate BRT and Local Service to San Leandro BART

End-to-end bus average speeds are slightly slower than for Alternative 1 due to the slower traffic conditions associated with mixed-flow operations in San Leandro. For passengers not traveling the whole length of the corridor, and not within San Leandro, travel times and BRT speeds would be comparable to those on Alternative 1. Compared to Alternative 1, travel times to BayFair BART under Alternative 2 would be longer, mainly due to the transfer time at San Leandro BART required by the absence of direct service to BayFair but also due to slower, mixed-flow operations through north San Leandro. Peak period times would average 66 minutes, still substantially improved over the No-Build condition.

Alt 3: Combined BRT and Local Service to BayFair BART

Build Alternatives proposing combined BRT and local service would have more BRT stops per mile, on average. This would tend to lower average BRT bus speeds and increase travel times somewhat. Under Alternative 3, bus travel speeds are expected to average 15 mph during peak periods, 16 mph midday, and 17 mph during evening hours. (These are comparable to the average speeds for Alternative 2.) Since no local buses would operate along the alignment, all passengers would benefit from the faster bus speeds and, consequently, lower travel times. Peak travel times would be reduced in 2025 from 78 minutes under No-Build conditions to 66 minutes; midday travel times would be reduced from 74 minutes to 63 minutes; and evening travel times would be reduced from 59 minutes to 58 minutes. Schedule reliability would be greatly improved over No-Build conditions.

Alt 4: Combined BRT and Local Service to San Leandro BART

Alternative 4 would have the lowest average vehicle speeds and longest in-vehicle travel times of the four Build Alternatives. Average end-to-end vehicle speeds during the peak would be 14 mph. This is 8 percent higher than the No-Build Alternative Route 1R bus speed in 2025. The end-to-end travel time from Berkeley to BayFair BART is estimated to be 72 minutes, a 7 percent improvement over the No-Build condition. As with Alternative 3, the underlying local buses would be combined with the BRT service and operate in the bus lanes as a single combined service. There would be no distinction between BRT and local service under this option. The overall schedule reliability would be greatly improved compared to No-Build conditions.

Projected AC Transit Travel Speeds and Times: Alignment Variations

The East Bay BRT local alignment variations, described in Section 2.2.3, Build Alternatives: Alignment Variations, would have little or no impact on BRT travel speeds and times under any of the Build Alternatives.

Table 3.1-10: AC Transit Travel Speeds under Existing, 2025 No-Build, and 2025 Build Alternatives: Downtown Berkeley to BayFair BART Station

Time Period	2003 Conditions	2025 No-Build		2025 Build Alternatives							
				Alt 1 Separate BRT and Local Service to BayFair BART		Alt 2 Separate BRT and Local Service to San Leandro BART		Alt 3 Combined BRT and Local Service to BayFair BART		Alt 4 Combined BRT and Local Service to San Leandro BART	
	Average Speed (mph)	Average Speed (mph)	Percent Change from 2003[1]	Average BRT Speed (mph)	Percent Change from No-Build[2]	Average BRT Speed[3] (mph)	Percent Change from No-Build[2]	Average BRT Speed (mph)	Percent Change from No-Build[2]	Average BRT Speed[3] (mph)	Percent Change from No-Build[2]
Peak	10.9	12.9	18%	16.9	31%	15.1	17%	15.2	18%	13.9	8%
Midday	11.2	13.6	21%	17.6	30%	16.2	19%	15.8	16%	14.7	8%
Evening	13.5	17.0	26%	19.0	12%	17.9	6%	17.3	2%	16.4	-3%

Notes:
[1] Positive % indicates improvement relative to 2003.
[2] Positive % indicates improvement/faster speed relative to 2025 No-Build.
[3] Route Y Rapid Bus between Downtown San Leandro and BayFair BART.
Source: Nelson\Nygaard Consulting Associates, *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005.

Table 3.1-11: AC Transit Travel Times under Existing, 2025 No-Build, and 2025 Build Alternatives: Downtown Berkeley to BayFair BART Station

Time Period	2003 Conditions	2025 No-Build		2025 Build Alternatives							
				Alt 1 Separate BRT and Local Service to BayFair BART		Alt 2 Separate BRT and Local Service to San Leandro BART		Alt 3 Combined BRT and Local Service to BayFair BART		Alt 4 Combined BRT and Local Service to San Leandro BART	
	Travel Time (minutes)	Travel Time (minutes)	Percent Change from 2003[1]	BRT Travel Time (minutes)	Percent Change from No-Build[2]	BRT Travel Time[3] (minutes)	Percent Change from No-Build[2]	BRT Travel Time (minutes)	Percent Change from No-Build[2]	BRT Travel Time[3] (minutes)	Percent Change from No-Build[2]
Peak	92	78	-16%	59	-24%	66	-15%	66	-15%	72	-7%
Midday	90	74	-18%	57	-23%	62	-16%	63	-14%	68	-7%
Evening	75	59	-21%	53	-11%	56	-5%	58	-2%	61	3%

Notes:
[1] Negative % indicates improvement relative to 2003.
[2] Negative % indicates improvement/shorter travel time relative to 2025 No-Build.
[3] Route Y Rapid Bus between Downtown San Leandro and BayFair BART.
Source: Nelson\Nygaard Consulting Associates, *AC Transit Technical Memorandum: East Bay BRT Operating Plan and Cost Analysis,* November 2005.

Build and No-Build Service in 2025

The East Bay BRT Project is expected to substantially improve AC Transit operations over 2025 No-Build conditions, as measured by service frequencies and proposed annual revenue vehicle miles and annual revenue vehicle hours. At minimum, revenue vehicle (service) hours would increase by 5 percent and revenue vehicle miles by 27 percent. The higher service frequencies would likely be viewed by passengers as the biggest benefit of the proposed project, as wait times between bus arrivals would be reduced and overall travel times would be more competitive with the automobile.

3.1.4.4 TRANSIT PATRONAGE

AC Transit Patronage for Build Alternatives

Implementing the East Bay BRT Project would cause route corridor boardings, AC Transit systemwide boardings, and regionwide transit trips shown in Table 3.1-12, to increase over future No-Build conditions for the following reasons:

- Improved transit travel time;
- Improved service frequency;
- Improved reliability; and
- Improved amenities and convenience.

The extent of the increase would vary by Build Alternatives, as follows:

Alt 1: Separate BRT and Local Service to BayFair BART

In 2025 East Bay BRT Project boardings and AC Transit systemwide boardings under Alternative 1 would increase as follows:

- **BRT:** There would be 34,950 average weekday BRT boardings, as compared to 13,530 under the No-Build Alternative with the 1R Rapid Bus in operation, an increase of 158 percent. A substantial portion of the 21,420 increase would be due to riders shifting from other AC Transit corridor bus routes to the BRT route.

- **Alignment:** There would be 43,750 average weekday boardings along the BRT alignment, as compared to 28,050 under the No-Build Alternative, an increase of 56 percent. A portion of the increase would be riders shifting from AC Transit bus lines paralleling the alignment, such as Route 15 and Route 51.

- **Systemwide:** AC Transit systemwide average weekday boardings would increase by 9,600 to 269,400 as compared to 259,800 under the No-Build Alternative, an increase of 4 percent. The increase represents trips by new AC Transit riders who previously would have traveled by other modes, including autos, BART, and other transit services.

- **Regional:** The net increase in regional trips on transit ("new transit trips") would be approximately 5,320, and represents individuals previously traveling primarily by auto.

Alt 2: Separate BRT and Local Service to San Leandro BART

In 2025 East Bay BRT Project boardings and AC Transit systemwide boardings under Alternative 2 would increase as follows:

- **BRT:** There would be 32,530 average weekday BRT boardings, an increase of 140 percent over the No-Build. A substantial portion of the 19,000 increase would be due to riders shifting from other AC Transit corridor bus routes to the BRT route.
- **Alignment:** There would be 42,050 average weekday boardings along the alignment, a 50 percent increase over the No-Build. A portion of the increase would be riders shifting from parallel AC Transit bus lines.
- **Systemwide:** AC Transit systemwide average weekday boardings would increase by 7,300 compared to the No-Build Alternative, an increase of 3 percent. The increase represents trips by new AC Transit riders who previously would have traveled by other modes, including autos, BART, and other transit services.
- **Regional:** The net increase in regional trips on transit ("new transit trips") would be approximately 4,580, and represents individuals previously traveling primarily by auto.

Alt 3: Combined BRT and Local Service to BayFair BART

Year 2025 East Bay BRT Project boardings and AC Transit systemwide boardings would increase as follows:

- **BRT:** There would be 46,670 average weekday BRT boardings in 2025 compared to 13,530 under the No-Build Alternative (Rapid Bus Route 1R), an increase of 245 percent. A substantial portion of the 33,140 increase would be riders shifting from other AC Transit corridor bus routes.
- **Alignment:** There would be 49,230 average weekday boardings along the alignment, an increase of 76 percent over the No-Build Alternative. A substantial portion of the 21,180 increase would be riders shifting from AC Transit bus lines paralleling the alignment.
- **Systemwide:** AC Transit systemwide average weekday boardings would be 275,900, an increase of 16,100 or 6 percent compared to the No-Build. The increase represents trips by new AC Transit riders who previously would have traveled by other modes, including autos, BART, and other transit services.
- **Regional:** The net increase in regional trips on transit would be approximately 9,320, and represents individuals previously traveling primarily by auto.

Alt 4: Combined BRT and Local Service to San Leandro BART

Year 2025 East Bay BRT Project boardings and AC Transit systemwide boardings would increase as follows:

- **BRT:** There would be 44,240 average weekday BRT boardings in 2025, an increase of 227 percent over the No-Build. A substantial portion of the 30,710 increase would be due to riders shifting from other AC Transit corridor bus routes.

Table 3.1-12: Average Weekday Bus and Rail Transit Boardings, under 2025 No-Build, and 2025 Build Alternatives

Patronage Measure	2025 No-Build	2025 Build Alternatives							
		Alt 1 Separate BRT and Local Service to BayFair BART		Alt 2 Separate BRT and Local Service to San Leandro BART		Alt 3 Combined BRT and Local Service to BayFair BART		Alt 4 Combined BRT and Local Service to San Leandro BART	
	Number	Number	Percentage Increase over No-Build	Number	Percentage Increase over No-Build	Number	Percentage Increase over No-Build	Number	Percentage Increase over No-Build
BRT Service Boardings	13,530	34,950	158%	32,530	140%	46,670	245%	44,240	227%
Boardings along BRT Alignment	28,050	43,750	56%	42,050	50%	49,230	76%	47,540	69%
AC Transit Systemwide Boardings[1]	259,800	269,400	3.7%	267,100	2.8%	275,900	6.2%	273,700	5.3%
BART Systemwide Boardings	400,000	396,000	-1.0%	398,000	-0.5%	394,200	-1.5%	396,200	-1.0%
Increase in Regionwide Transit Trips[2]		5,320		4,580		9,320		8,020	

Notes:

[1] Includes Transbay services

[2] Increase in new linked (door-to-door) transit trips over future No-Build

Source: *AC Transit East Bay Bus Rapid Transit, Transit Patronage and Forecasting Methodology Report, May 2006*.

- **Alignment:** There would be 47,540 average weekday boardings along the alignment, an increase of 69 percent over the No-Build Alternative. A substantial portion of the 19,490 increase would be riders shifting from AC Transit bus lines paralleling the alignment.
- **Systemwide:** AC Transit systemwide average weekday boardings would be 273,700, an increase of 5.3 percent compared to the No-Build. The increase represents trips by new AC Transit riders who previously would have traveled by other modes, including autos, BART, and other transit services.
- **Regional:** The net increase in regional trips on transit would be approximately 8,020, and represents individuals previously traveling primarily by auto.

Figure 3.1-4 compares the projected number of AC Transit boardings along the East Bay BRT Project alignment in 2025, by alternative. Existing boardings are also shown. For the No-Build Alternative and Build Alternatives, both express (Rapid Bus Route 1R or BRT) and local boardings are shown to provide a comparable indication of total alignment boardings. Local boardings are on routes that would continue to operate along the alignment for Route 1R and proposed East Bay BRT services. These include portions of Route 40/40L, Line "X," Route 43, Route 82/82L, Route "Y" and Route "Z", as appropriate. Figure 3.1-5 compares estimated new regionwide transit trips for the four Build Alternatives under consideration. Alternative 3, Combined BRT and Local Service to BayFair, would generate the most new transit trips; it therefore has the potential to divert the most auto trips to transit. Alternative 2, Separate BRT and Local Service to San Leandro BART, would generate the fewest new transit trips, about half the number for Alternative 3.

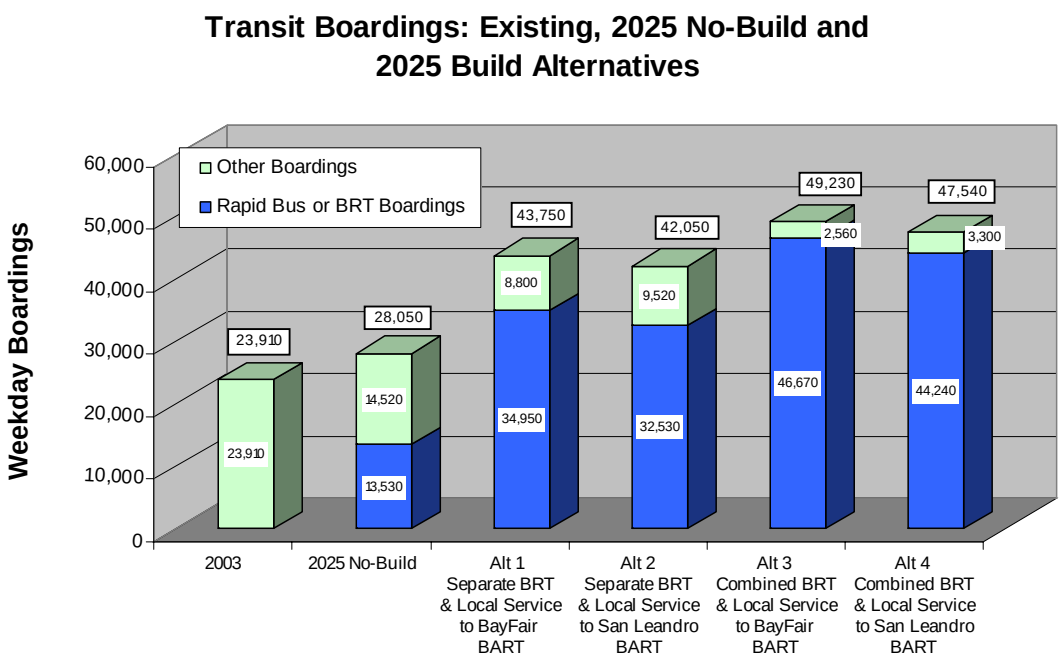

Figure 3.1-4: AC Transit Boardings Along Project Alignment, Existing and 2025 Forecast

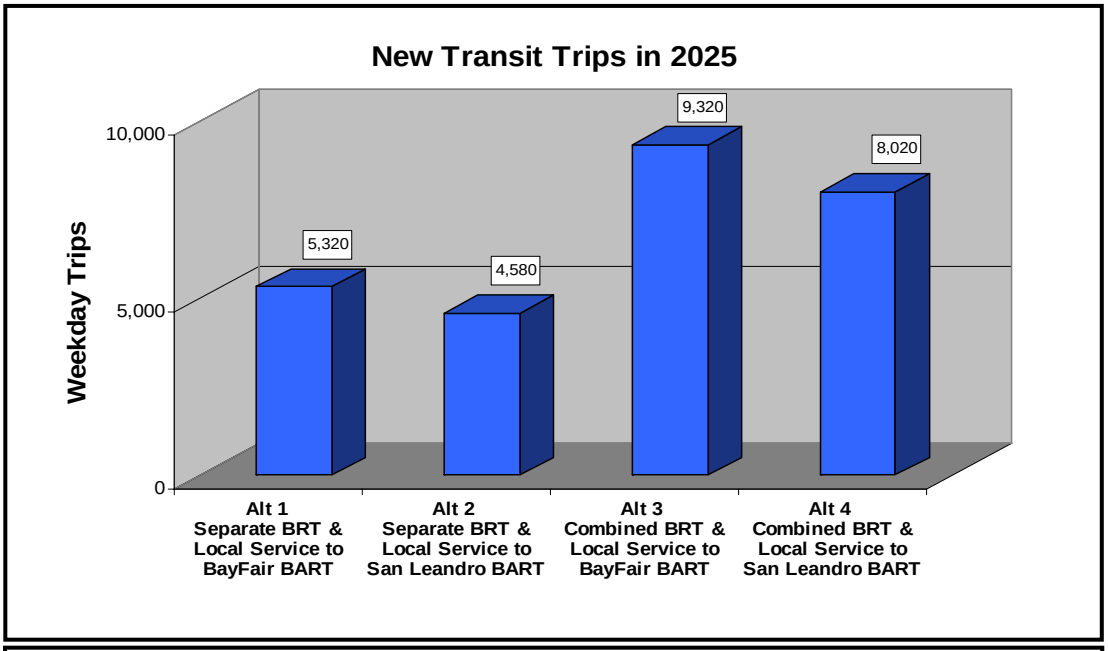

Figure 3.1-5: New Trips on Transit by Build Alternative

Patronage Effects of Alignment Variations

As described in Section 2.2 of Chapter 2, Project Alternatives, AC Transit is evaluating several alignment variations for the East Bay BRT Project. Most alignment variations would have little impact on transit patronage. The differences between alignment variation in Downtown Berkeley, Berkeley Southside or East Oakland would affect total corridor boardings on an average weekday by less than 1 percent.

As shown in Table 3.1-13, an alignment following the *Two-Way Transitway on Shattuck Avenue* variation combined with the *Two-Way Transitway via Bancroft Way and Telegraph Avenue* variation in Berkeley and the *Two-Way Transitway via International Boulevard* in Oakland would have the highest patronage. It is the basis of the ridership forecasts presented previously for each of the Build Alternatives, generating approximately 9,320 new transit trips under Alternative 3, 8,020 new trips under Alternative 4, 5,320 new trips under Alternative 1, and 4,580 new trips under Alternative 2.An alignment following the *One-Way Transitway via Shattuck Avenue-Oxford Street* variation, combined with the *One-Way Transitway via Bancroft Way-Durant Avenue and Telegraph Avenue-Dana Street Couplets* variation, and the *One-Way Transitway via International Boulevard-12th Street Couplet* would generate approximately 115 to 415 fewer new transit trips under each of the Build Alternatives. The decrease in patronage is attributed to station locations in Berkeley and East Oakland that are less convenient for access to certain major activity centers and slightly longer travel times, which makes transit less attractive to potential users. Table 3.1-15 summarizes the estimated change in regionwide transit trips associated with individual alignment variations.

BART Patronage

Improved corridor bus service also would cause a shift in BART ridership. The three largest effects would be:

Table 3.1-13: Weekday Regionwide Transit Trips Under East Bay BRT Alignment Variations (2025)

Alignment Variation	Change in Regionwide Transit Trips[1]			
	Alt 1 Separate BRT and Local Service to BayFair BART	**Alt 2** Separate BRT and Local Service to San Leandro BART	**Alt 3** Combined BRT and Local Service to BayFair BART	**Alt 4** Combined BRT and Local Service to San Leandro BART
Downtown Berkeley				
Two-Way Transitway via Shattuck Ave.	**5,320**	**4,580**	**9,320**	**8,020**
One-Way Transitway via Shattuck Ave.-Oxford St.	5,295	4,555	9,295	7,995
Berkeley Southside				
Two-Way Transitway via Bancroft Way and *Telegraph Ave.*	**5,320**	**4,580**	**9,320**	**8,020**
Two-Way Transitway via Bancroft Way and *One-Way Transitway via Telegraph Ave.-Dana St. Couplet*[2]	5,160 to 5,280	4,420 to 4,540	9,160 to 9,280	7,860 to 7,980
One-Way Transitway via Bancroft Way-Durant Ave. Couplet and *Two-Way Transitway via Telegraph Ave.*[2]	5,240 to 5,300	4,500 to 4,560	9,240 to 9,300	7,940 to 8,000
One-Way Transitway via Bancroft Way-Durant Ave. Couplet and *Telegraph Ave.-Dana St. Couplet*[2]	5,080 to 5,260	4,340 to 4,520	9,080 to 9,260	7,780 to 7,960
East Oakland				
Two-Way Transitway via International Blvd.	**5,320**	**4,580**	**9,320**	**8,020**
One-Way Transitway via International Blvd.-12th St. Couplet[2]	5,170 to 5,290	4,430 to 4,550	9,170 to 9,290	7,870 to 7,990

Notes:
*Figures in **Bold** indicate maximum estimated increase in new transit trips is associated with that alignment variation.*
[1] Increase in new linked (door-to-door) transit trips over No-Build Alternative in 2025
[2] Range in transit trips derives from ridership estimation process.

Source: Cambridge Systematics, 2005.

- **Increased BART trips between central Contra Costa County and the corridor.** Because the combination of BART and BRT improves transit service to major activity centers in the corridor, some travelers would choose to ride BART, rather than using other modes (such as auto) from central Contra Costa County, and transfer to BRT to reach their final destination in the corridor.
- **Increased BART trips between San Francisco and the corridor.** Some travelers would choose to use BART and BRT to travel between San Francisco and the corridor.
- **Decreased BART trips along the corridor.** Because East Bay BRT stations would be located near or adjacent to key activity centers in the corridor, such as UC Berkeley, Oakland Temescal, and Downtown San Leandro, among others, and BART stations are located somewhat farther away, some travelers would choose to use BRT instead of BART.

The net effect on BART of the Build Alternatives would be a small reduction in BART systemwide boardings, approximately 0.5 percent to 1.5 percent, on an average weekday in 2025. As shown in Table 3.1-12 (page 3-28), Alt 2: Separate BRT and Local Service to San Leandro BART would divert

approximately 2,000 boardings a day from BART; Alt 3: Combined BRT and Local Service to BayFair BART would reduce BART boardings by 5,800, with other alternatives falling in between.

3.2 Vehicular Traffic

This section presents results of an assessment of potential impacts of the East Bay BRT Project on vehicular traffic in the study area. The section is divided into four major subsections.

- **Existing Conditions.** This section describes the existing roadway network, roadway traffic volumes, and intersection level-of-service.
- **2025 No-Build Alternative.** This section reports anticipated traffic conditions in 2025 under the No-Build Alternative, which assumes implementation of Route 1R Rapid Bus service, a substantial enhancement of current bus service in the corridor.
- **Traffic Impacts: Build Alternatives.** This section analyzes the traffic impacts of the four Build Alternatives under consideration and any specific impacts associated with alignment variations. Included are anticipated changes to traffic volumes; travel speeds, times, and delays; and roadway and intersection levels-of-service. With the exception of San Leandro, traffic impacts in the study area are for the most part the same for each of the Build Alternatives. Exceptions are noted. In San Leandro, intersection operational performance differs depending whether the East Bay BRT Project capital improvements end at the BayFair BART (Alternatives 1 and 3) or San Leandro BART (Alternatives 2 and 4) stations.
- **Avoidance, Minimization, and/or Mitigation Measures.** This section sets forth mitigation measures for addressing roadway and intersection impacts as a result of the project.

Methodology

Roadway and intersection operations analyses were performed for existing conditions (year 2003) and future No-Build and Build conditions (year 2025). Where proposed improvements to transit under the Build Alternatives are anticipated to negatively affect traffic operations (i.e., worsen 2025 conditions relative to the No-Build Alternative) to below thresholds for service levels established by local agencies, mitigation measures are proposed, where feasible, to reduce impacts to an acceptable level. Acceptable impacts are those that would not result in a worsening of traffic operations below locally accepted thresholds.

Although improvements proposed by the East Bay BRT Project would be concentrated along streets that constitute the 15- to 17-mile Build alignments through the cities of Berkeley, Oakland, and San Leandro, the project would also affect traffic operations on other roadways. To include these effects, traffic studies analyzed both roadways and intersections on- and off-alignment to evaluate current and future traffic operations and levels-of-service.

The roadway analysis evaluated the performance of key roadway segments that would be affected by the BRT project. Roadway analysis is relatively easy to conduct and provides an initial assessment of locations that could experience traffic impacts as a consequence of the BRT project. The intersection analysis evaluated the performance of specific intersections. Intersection analysis is a more detailed

level of evaluation and can provide information on the specific causes of traffic impacts, as well as guidance on how to mitigate for them.

A two-level approach was used to analyze traffic impacts, including an initial screening analysis of roadway segments followed by a detailed analysis of individual intersections. The screening analysis was conducted on 48 roadway segments, shown in Figure 3.2-1, and was consistent with Alameda County Congestion Management Agency (ACCMA) procedures for roadway analysis. The results of the screening analysis were used to identify roadway segments that would be negatively affected by the East Bay BRT Project, described in Section 3.2.3.1, Roadway Impacts: Build Conditions.

Potential roadway operational impacts of the East Bay BRT Project include increases in stopped delay at intersections and running time delays between intersections. Running time delays occur only when roadway volumes approach mid-block roadway capacities. For urban streets, intersections are typically the major capacity constraints and their performance degrades substantially before traffic volumes reach mid-block capacities. Therefore, where the roadway screening analysis identified locations likely to experience running time delays due to limited mid-block capacities, nearby intersections were selected for detailed analyses.

The analysis was performed for the AM and PM peak periods.

The intersection analysis focused on the afternoon peak period, and covered 88 locations (as opposed to 36 locations during the morning peak period), because this is generally the most congested period of the day. The results of the intersection analysis are described in Section 3.2.3.2, Intersection Impacts: Build Alternatives.

3.2.1 Existing Conditions

Major roadways in the vicinity of the East Bay BRT Project, including state highways and urban streets, are shown in Figure 3.2-1. The highlighted roadways are part of the Metropolitan Transportation System (MTS) for Alameda County. MTS facilities include state highways, principal streets, and transit corridors identified by the Metropolitan Transportation Commission (MTC).

Five major freeways serve the study area. Interstate 80 (I-80), which connects San Francisco to the East Bay and points east, passes near the western end of the study area. State Route 24 (SR 24), an east-west regional traffic route, connects Berkeley and Oakland to Contra Costa County via the Caldecott Tunnel. Interstate 580 (I-580) and Interstate 880 (I-880) run parallel to International Boulevard/East 14th Street in the southern half of the study area. Interstate 980 (I-980) runs parallel to Telegraph Avenue between SR 24 and I-880 in the Oakland portion of the study area.

Within Berkeley, major streets on or parallel to the project alignment include Shattuck Avenue, College Avenue, and Telegraph Avenue. Major cross streets include University Avenue, Bancroft Way, Durant Avenue, Dwight Way, and Ashby Avenue.

Within Oakland, major streets on or parallel to the project alignment include Martin Luther King Jr. Way, Telegraph Avenue, Broadway, International Boulevard, and San Leandro Street. Major cross streets include 51st Street, MacArthur Boulevard, 40th Street, Grand Avenue, 23rd Avenue, Fruitvale Avenue, 35th Avenue, High Street, Seminary Avenue, Hegenberger Road/73rd, and 98th Avenue.

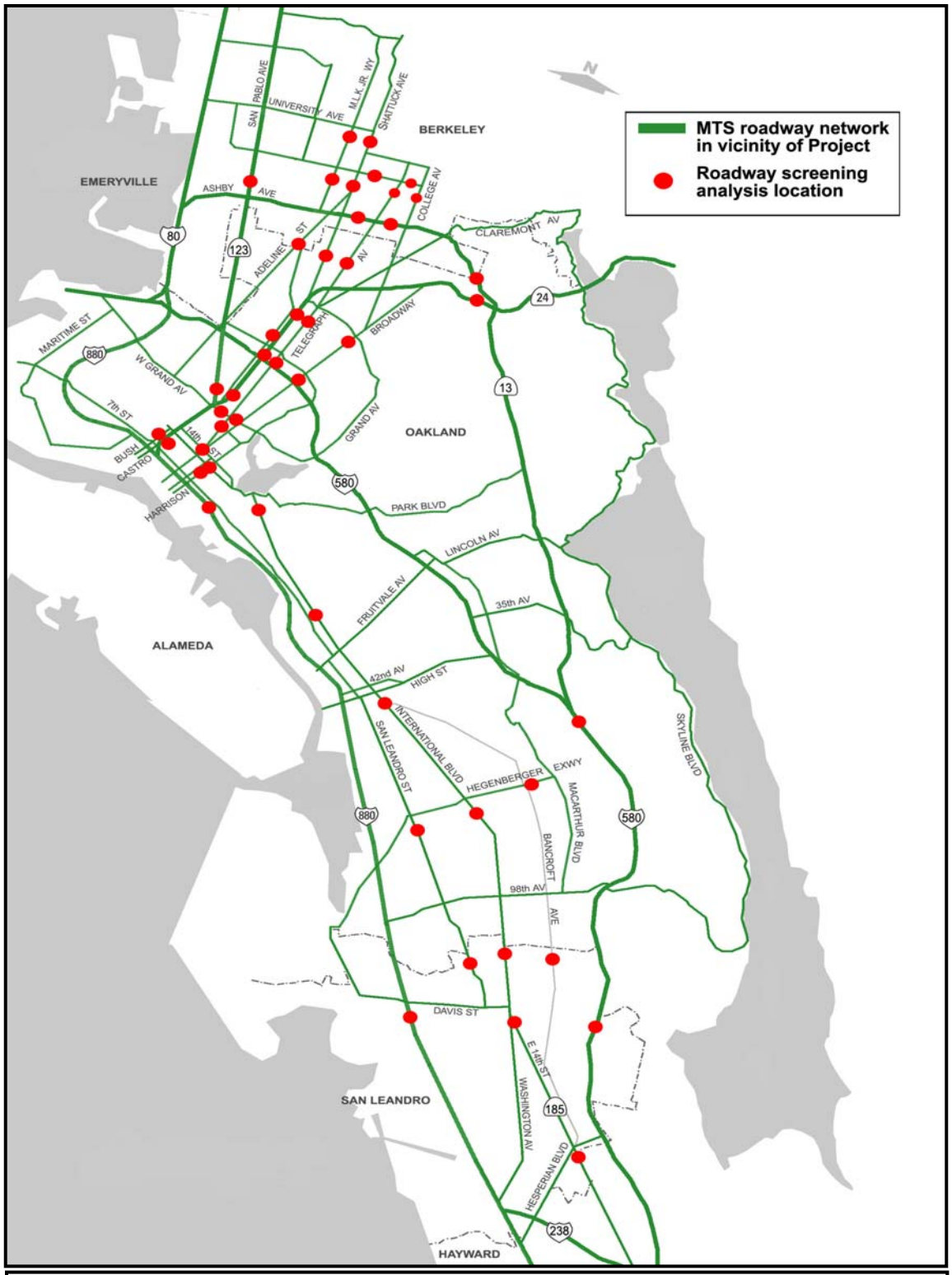

Figure 3.2-1: Roadway Network Including MTS Facilities

Within San Leandro, the major street used by the project alignment is East 14th Street, a continuation of International Boulevard. East 14th Street extends from the Oakland-San Leandro border to the southern project limit. Major cross streets include Davis Street, San Leandro Boulevard, Fairmont Drive, and Hesperian Boulevard/Bancroft Avenue.

3.2.1.1 ROADWAY TRAFFIC VOLUMES: EXISTING CONDITIONS

Traffic volumes along the streets within the proposed BRT corridor were calculated using data from traffic counts by various cities, supplemented by traffic counts conducted for the project in 2004 and 2005. Five roadway segments were subject to extensive analysis because they are the major streets proposed for BRT improvements. These are Shattuck Avenue and Telegraph Avenue in Berkeley, Telegraph Avenue and International Boulevard in Oakland, and East 14th Street in San Leandro.

Morning and afternoon peak period volumes are described below. Figure 3.2-2 displays afternoon volumes in each direction along the key roadways constituting the East Bay BRT Project alignment.

Existing Traffic Volumes: Morning Peak Period

- Shattuck Avenue, City of Berkeley. Southbound traffic volumes on Shattuck Avenue between University Avenue and Durant Avenue average around 750 to 950 vehicles per hour (vph). Northbound volumes are lower, ranging from 550 to 850 vph.

- Telegraph Avenue, City of Berkeley. Volumes on upper Telegraph Avenue between Bancroft Way and Dwight Way are between 400 and 600 vph. South of Dwight Way to Alcatraz Avenue, traffic volumes rise steadily. In general, morning peak traffic volumes are greater in the northbound than the southbound direction.

- Telegraph Avenue, City of Oakland. Along the Oakland portion of Telegraph Avenue, traffic counts were conducted at selected locations. Morning peak traffic volumes generally are lower than afternoon peak volumes, except for immediately north of SR 24 in the northbound direction.

- International Boulevard, City of Oakland. Along International Boulevard, traffic counts were conducted at selected locations. Morning peak traffic volumes generally are comparable to or lower than afternoon peak volumes.

- East 14th Street, City of San Leandro. Along East 14th Street, traffic was counted at selected locations. Morning peak volumes generally are lower than the afternoon peak period.

Existing Traffic Volumes: Afternoon Peak Period

- Shattuck Avenue, City of Berkeley. Traffic volumes between University Avenue and Durant Avenue are heavier during the afternoon peak than the morning peak. In the southbound direction, afternoon volumes are approximately 1,300 vph; in the northbound direction, traffic volumes are generally a bit lower.

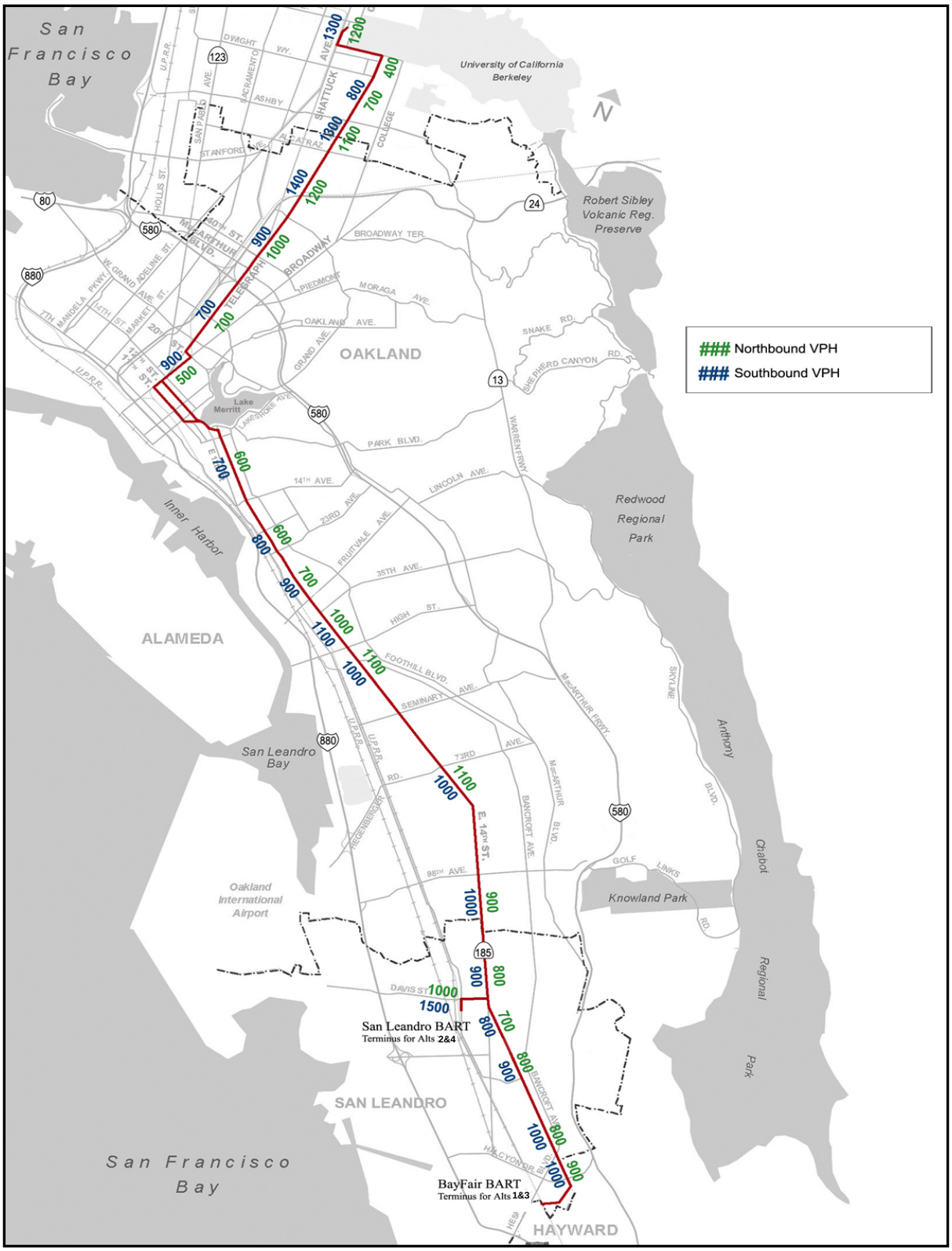

Figure 3.2-2: Existing P.M. Peak Hour Volumes along Proposed BRT Alignment

- Telegraph Avenue, City of Berkeley. All sections of the Berkeley segment of Telegraph Avenue have higher traffic volumes during the afternoon peak hours than during the morning peak hours, with the exception of the section between Woolsey Street and Ashby Avenue in the northbound direction. Afternoon peak volumes generally are greater in the southbound than the northbound direction. Southbound peak volumes range from about 800 vph near Dwight Way to about 1,400 near Alcatraz Avenue.

- Telegraph Avenue, City of Oakland. Volumes along Telegraph Avenue between Alcatraz Avenue and Claremont Avenue/51st Street are around 900 to 1,400 vph southbound and 1,000 to 1,200 vph northbound. Between Claremont Avenue/51st Street and downtown, traffic drops to approximately 700 vph in each direction north of West Grand Avenue and continues to decrease heading southward, averaging about 450 to 500 vph in each direction at 20th Street.

- Broadway, Downtown Oakland. In the afternoon, volumes are heaviest, approximately 900 vph southbound (towards I-880), and substantially less, about 500 vph, northbound.

- International Boulevard, City of Oakland. Southbound traffic generally exceeds northbound traffic on International Boulevard. Volumes increase from about 600 to 700 vph in each direction near 1st Avenue to about 700 to 900 vph near 35th Avenue in the Fruitvale District. South of 35th Avenue to 42nd Avenue, there is a large increase in traffic. Between 42nd Avenue and 82nd Avenue, afternoon peak period traffic volumes average 900 to 1,100 vph in each direction.

- East 14th Street, City of San Leandro. Volumes average 700 to 900 vph in each direction in north and downtown San Leandro, between Durant Avenue and south of Estudillo Avenue. Between Estudillo Avenue and San Leandro Boulevard, traffic volumes drop to about 600 vph in each direction. Between San Leandro Boulevard and Bayfair Center, traffic volumes rise to 800 to 1,000 vph in each direction. Generally, afternoon peak traffic is greater in the southbound direction than the northbound direction along these segments.

3.2.1.2 INTERSECTION LEVELS-OF-SERVICE: EXISTING CONDITIONS

While street traffic conditions are characterized in terms of volumes and lane capacities, intersection conditions are characterized in terms of specific performance statistics that are combined into an overall measure designated “level-of-service” (LOS).

To determine intersection LOS, operational characteristics of various signalized intersections in the project alignment were assessed for service parameters such as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and average control delay. Control delay refers to the time lost to vehicles decelerating, stopping, and accelerating at traffic signals.

Roadway geometrics, traffic counts, and signal timing data were collected and used as inputs to conduct the operational analysis. The inputs were applied to Synchro Version 5.0 and Vissim 4.0 software packages used to implement the methodology of the 2000 Highway Capacity Manual.

Based on the operational characteristics of various intersections, each was assigned an LOS designation from "A" to "F," using the following criteria:

- **LOS A**—Negligible delays. No approach phase is fully utilized and no vehicle waits longer than one red indication. Average control delay is less than 10 seconds per vehicle.
- **LOS B**—Minimal delays. An occasional approach phase is fully used. Drivers begin to feel restricted. Average control delay is 10 to 20 seconds per vehicle.
- **LOS C**—Acceptable delays. Major approach phase may become fully used. Most drivers feel somewhat restricted. Average control delay is 20 to 35 seconds per vehicle.
- **LOS D**—Tolerable Delays. Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays. Average control delay is 35 to 55 seconds per vehicle.
- **LOS E**—Major Delays. Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues form in advance of the signal. Average control delay is 55 to 80 seconds per vehicle.
- **LOS F**— Excessive delays. Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections. Average control delay is greater than 80 seconds per vehicle.

Intersections both on and off the BRT alignment were analyzed for the morning and afternoon peak period. The intersections for analysis were selected based on: (1) selection criteria developed by the cities of Berkeley, Oakland, and San Leandro and described in the *AC Transit East Bay Bus Rapid Transit Traffic Analysis Report* (May 2006), and (2) initial assessment of locations that might experience negative traffic impacts identified by the roadway analysis (See Section 3.2.3.1).

Due to the large number of intersections analyzed, the discussion of existing (and future) intersection levels of service focuses only on intersections operating at possibly poor levels of service. The criterion used to distinguish poor LOS was operations worse than LOS D. Within urban areas, LOS D or better is usually considered acceptable operation. Operating worse than LOS D is undesirable, although not necessarily unacceptable.

Intersections operating at LOS E or F generally represent areas of concern. Therefore, for the discussion of existing conditions LOS, intersections currently operating at these levels are identified. (In the discussion of future No-Build and Build conditions, the same convention is followed. It is important to note, however, that this does not mean that conditions would not change for intersections operating at LOS D or better. The East Bay BRT project could, for example, result in a change in operations from LOS C to LOS D at a particular location. This would be a project-related impact. The impact does not rise to a level of concern, however. The impacts discussion is limited to effects that result in conditions worse than locally accepted standards of intersection performance (See Sections 3.2.2.2 and 3.2.3.2).

Morning Peak Intersection LOS: Existing Conditions

For the morning peak period, 36 intersections were analyzed. All currently operate at generally acceptable levels-of-service, LOS D or above.

Afternoon Peak Intersection LOS: Existing Conditions

For the afternoon peak period, when traffic volumes generally are higher, 88 intersections were analyzed, with locations as shown in Figure 3.2-3.[3] Appendix A, Intersection and Roadway Traffic Condition Tables, includes a list of the intersections, by number, and indicates whether they are on- or off-alignment. Detailed results of the intersection LOS analysis are also presented in Appendix A, Table A3.2-1, Existing LOS and Delay in Berkeley, Oakland and San Leandro.

Of the 88 intersections that were analyzed during the afternoon peak period, all but the following six operate at LOS D or better. Listed by city, intersections operating at LOS E or F include:

- City of Berkeley
  - Adeline Street/Alcatraz Avenue (location 20, off-alignment)—LOS E
- City of Oakland
  - Telegraph Avenue/Alcatraz Avenue (location 24, on-alignment)—LOS E
  - International Boulevard/14th Avenue (location 41, on-alignment)—LOS E
  - College Avenue/Claremont Avenue (location 53, off-alignment)—LOS E
  - Shattuck Avenue/55th Street (location 54, off-alignment)—LOS F
  - Foothill Boulevard/Fruitvale Avenue (location 67, off-alignment)—LOS F
- City of San Leandro
  - No intersections analyzed operate worse than LOS D.

3.2.2 2025 No-Build Alternative

This section reports anticipated traffic conditions in 2025 for the No-Build Alternative. It identifies planned and programmed additions to the roadway network in the project corridor, describes forecast future roadway performance, and summarizes estimated intersection LOS performance for the same intersections analyzed under Section 3.2.1.2, Existing Conditions.

The No-Build Alternative includes transportation improvements that are planned and programmed for the project alignment except for the East Bay BRT Project itself. The No-Build Alternative assumes the implementation of Rapid Bus Route 1R, a substantial enhancement of current corridor bus service. The service would include transit traffic signal priority through most signalized intersections along Route 1R. A list of planned or programmed projects in the study area that could affect roadway geometrics and traffic operation under 2025 No-Build conditions is provided in Table 3.2-1.

[3] Two locations analyzed have split configurations: #1-University Avenue at Shattuck Avenue (West) and #2-University Avenue at Shattuck Avenue (East); #39-East 12th Street at 14th Avenue (East) and #40-East 12th Street at 14th Avenue (West). Each location was analyzed as a separate but coordinated intersection with the other.

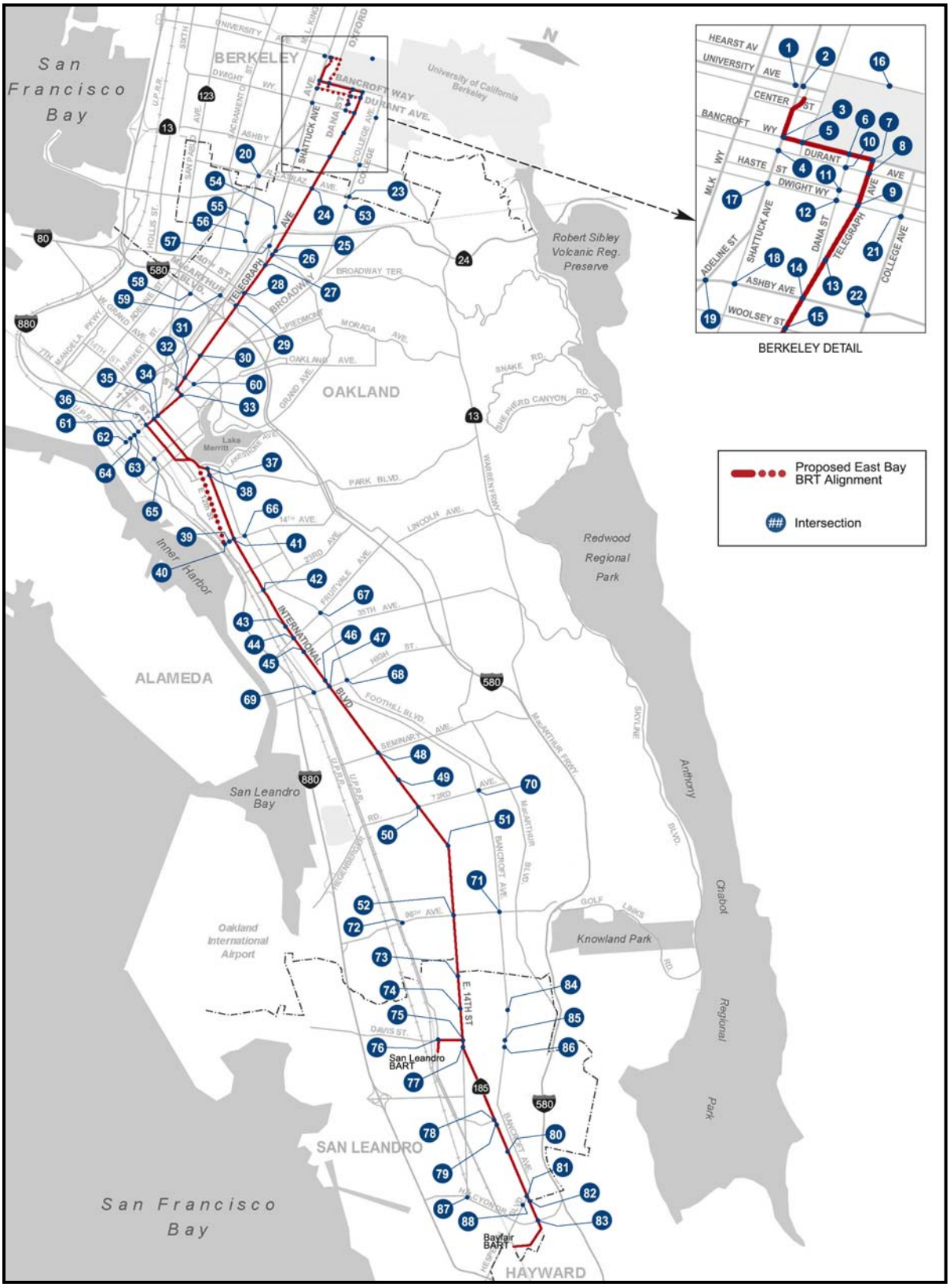

Figure 3.2-3: Intersection Locations for P.M. Peak Hour LOS Analysis

Table 3.2-1: Planned and Programmed Projects	
Project	**Roadway Changes Affecting BRT Travel Analysis**
City of Berkeley	
Southside Plan	Dana Street and Ellsworth Street converted to two-way between Bancroft Way and Dwight Way; dedicated right-turn-lane from westbound Bancroft Way to northbound Fulton Street eliminated; traffic signals added at Bancroft Way and Dana Street and at Bancroft Way and College Avenue
University of California Long-Range Development Plan	Traffic signals added at several intersections, including Oxford Street at Addison Street, Allston Way, and Kittridge Street; Bancroft Way at Ellsworth Street; Piedmont Avenue at Durant Avenue and Bancroft Way (the latter intersection to include turn and through-lane improvements); and Derby Street at Warring Street (also including turn and through-lane improvements)
Caldecott Tunnel Improvement Project	Construction of a fourth bore of the Caldecott Tunnel to improve mobility, reduce travel times, and improve safety along State Route 24 between Alameda and Contra Costa counties
City of Oakland	
Telegraph Avenue Streetscape Improvements	Telegraph Avenue between 16th and 20th Street converted to one lane in each direction without center left-turn lane
Uptown Project	Traffic signals retimed at several intersections as mitigation
Jack London Square Development	Roadway lane re-striping at several intersections as mitigation measures
12th Street Reconstruction	Existing network of roadways crossing Lake Merritt estuary replaced by six-lane boulevard (three lanes in each direction), Lakeshore Avenue terminated before reaching 12th Street, 1st Avenue expanded to two lanes in each direction
Foothill Boulevard Bike Lanes	Foothill Boulevard between 36th Avenue and 55th Avenue converted to one lane in each direction with center turn lane
42nd Avenue-High Street Reconstruction	New ramps at the State Route 77/42nd Avenue/High Street interchange
City of San Leandro	
San Leandro Triangle	Second left-turn lane added to Hesperian Boulevard northbound approach to East 14th Street, new transition lane from northbound East 14th Street onto Bancroft Avenue
Source: Cambridge Systematics, 2005, in consultation with staff of the cities of Berkeley, Oakland, and San Leandro.	

3.2.2.1 ROADWAY LEVELS-OF-SERVICE: NO-BUILD CONDITIONS

The operational characteristics of roadway segments in the vicinity of the proposed project are described in terms of roadway LOS, a qualitative description of traffic flow based on factors including speed, travel time, delay, and freedom to maneuver. As defined by the ACCMA, roadway LOS (which differs from intersection LOS), are as follows:

- **LOS A**—High quality of service; free traffic flow with low volumes; little or no restriction on maneuverability or speed; no delay.
- **LOS B**—Stable traffic flow, speed becoming slightly restricted; low restriction on maneuverability; no delay.

- **LOS C**—Stable traffic flow, but less freedom to select speed or change lanes; minimal delay.
- **LOS D**—Approaching unstable flow; speeds tolerable, but subject to sudden and considerable variation, less maneuverability and driver comfort; minimal delay.
- **LOS E**—Unstable traffic flow and rapidly fluctuating speeds and flow rates; low maneuverability and low driver comfort; substantial delay.
- **LOS F**—Forced traffic flow; speed and flow may drop to zero; considerable delay.

Roadway LOS is determined based on average travel speed, which itself reflects the relationship of traffic volume to roadway capacity, or V/C ratios. The ACCMA standard for acceptable roadway performance is generally LOS E or better, indicating an average travel speed of at least 30 mph (and V/C ratio not exceeding 1.0) on freeway sections and at least seven mph on signalized streets with normal, unrestricted speeds of 25 to 35 mph.

Of the road segments that were analyzed (see Figure 3.2-1 for locations of roadway analysis), all but the following are projected to operate at LOS E or better under 2025 No-Build conditions. (None are located on the proposed East Bay BRT alignment.) Listed by city, road segments projected to operate at LOS F under 2025 No-Build conditions include:

City of Berkeley

Five street segments are projected to operate at LOS F in at least one direction under 2025 No-Build conditions, including:

- Ashby Avenue near Telegraph Avenue
- Tunnel Road near SR 24
- Shattuck Avenue near Dwight Way
- Adeline Street near Alcatraz Avenue, and
- San Pablo Avenue near Ashby Avenue.

City of Oakland

One street segment and three freeway segments are projected to operate at LOS F in at least one direction under 2025 No-Build conditions, including:

- Telegraph Avenue near Alcatraz Avenue
- I-880 near Oak Street
- I-580 near SR 13, and
- SR 24 near SR 13.

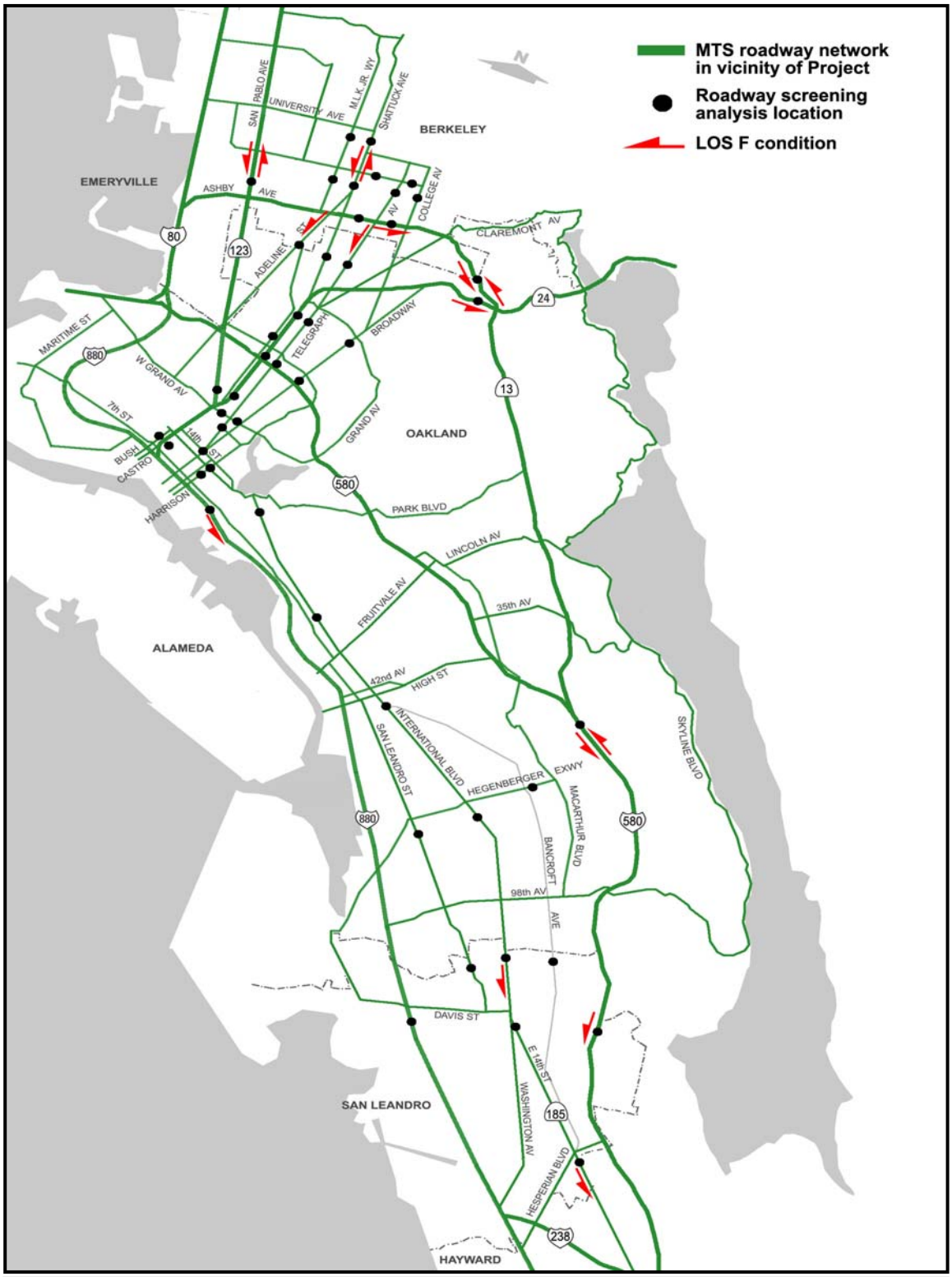

Figure 3.2-4: Projected PM Peak Hour Roadway Conditions 2025 No-Build Alternative (At Survey Locations)

City of San Leandro

Two street segments and one freeway segment are projected to operate at LOS F in the southbound direction under 2025 No-Build conditions, including:

- East 14th Street near Durant Avenue
- East 14th Street near 150th Avenue, and
- I-580 near Estudillo Avenue.

The No-Build Alternative roadway LOS is compared to the Build Alternatives LOS in Section 3.2.3.1 to identify where conditions are estimated to change and where impacts exceed accepted thresholds.

3.2.2.2 INTERSECTION LEVELS-OF-SERVICE: NO-BUILD CONDITIONS

The No-Build Alternative includes changes to local roadways (identified in Table 3.2-1, page 3-41), some of which would improve traffic flow and others which would attempt to improve conditions for transportation modes other than the private car. However, even with the proposed improvements, intersection levels-of-service in the project alignment are expected to deteriorate under 2025 No-Build conditions. Worsening LOS results from continuing growth in auto travel, which occurs as the population and employment increases, and there is little or no shift from using autos as the primary travel mode to other modes, such as transit.

Of the 36 intersections analyzed for the morning peak period, all but one are projected to operate at generally acceptable intersection levels of service, LOS D or better, under 2025 No-Build conditions.

Of the 88 intersections analyzed for the afternoon peak period, the number of intersections operating worse than LOS D is projected to increase from six under current conditions to 18 under 2025 No-Build conditions.

Existing morning and afternoon peak period levels-of-service for intersections operating at congested levels (LOS E or LOS F) within the project alignment and projected 2025 No-Build conditions are shown in Table 3.2.2. Additional data on intersection levels-of-service are included in Appendix A, Intersection and Roadway Traffic Condition tables.

The intersections that would be at LOS E or F under 2025 No-Build conditions are described below; with locations shown in Figure 3.2-5 (refer to the location reference number included with the intersection description).

City of Berkeley

Morning Peak Period: Of the intersections analyzed during the morning peak period, all are projected to operate at generally acceptable levels of service, LOS D or better, under 2025 No-Build Conditions.

Table 3.2-2: Intersections Operating at LOS E or F under Existing (2003) and No-Build (2025) Conditions

Intersection Location		Morning Peak Intersection LOS					Afternoon Peak Intersection LOS				
		No. of Intersections Analyzed	Existing (2003)		No-Build (2025)		No. of Intersections Analyzed	Existing (2003)		No-Build (2025)	
			No. at LOS F	No. at LOS E	No. at LOS F	No. at LOS E		No. at LOS F	No. at LOS E	No. at LOS F	No. at LOS E
Berkeley	On-Alignment	15	0	0	0	0	15	0	0	0	2
	Off-Alignment	4	0	0	0	0	8	0	1	2	1
	Total	19	0	0	0	0	23	0	1	2	3
Oakland	On-Alignment	9	0	0	0	0	34	0	2	2	2
	Off-Alignment	3	0	0	0	0	15	2	1	3	2
	Total	12	0	0	0	0	49	2	3	5	4
San Leandro	On-Alignment	4	0	0	0	1	11	0	0	1	1
	Off-Alignment	1	0	0	0	0	5	0	0	0	2
	Total	5	0	0	0	1	16	0	0	1	3
Corridor Total	On-Alignment	28	0	0	0	1	60	0	2	3	5
	Off-Alignment	8	0	0	0	0	28	2	2	5	5
	Total	**36**	**0**	**0**	**0**	**1**	**88**	**2**	**4**	**8**	**10**

Source: *AC Transit East Bay Bus Rapid Transit Traffic Analysis Report*, Cambridge Systematics, May 2006.

Afternoon Peak Period: Of the intersections analyzed during the afternoon peak period, five would experience a high level of congestion under 2025 No-Build conditions, with three intersections operating at LOS E and two intersections operating at LOS F, including:

- Shattuck Avenue/University Avenue (West) (location 1, on-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS E under 2025 No-Build conditions.
- Shattuck Avenue/University Avenue (East) (location 2, on-alignment)— Intersection operations would deteriorate from LOS D under existing conditions to LOS E under 2025 No-Build conditions.
- Shattuck Avenue/Dwight Way (location 17, off-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS F under 2025 No-Build conditions,
- Adeline Street /Ashby Avenue (location 19, off-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS E under 2025 No-Build conditions; and
- Adeline Street/Alcatraz Avenue (location 20, off-alignment)— Intersection operations would deteriorate from LOS E under existing conditions to LOS F under 2025 No-Build conditions.

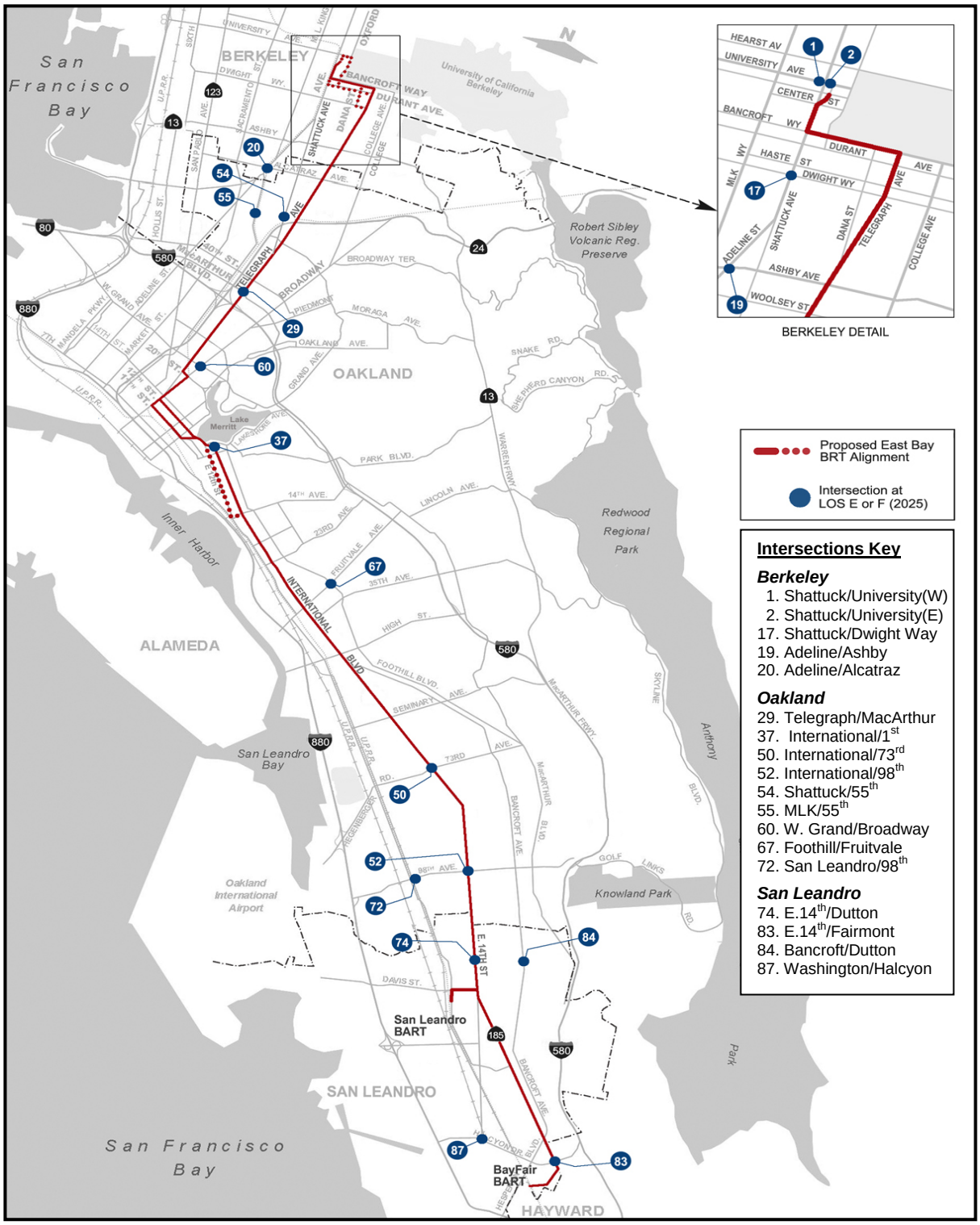

Figure 3.2-5: LOS E and F Intersections, No-Build Conditions (2025)

City of Oakland

Morning Peak Period: Of the intersections analyzed during the morning peak period, all are projected to operate at generally acceptable levels of service, LOS D or above, under 2025 No-Build Conditions.

Afternoon Peak Period: Of the intersections analyzed during the afternoon peak period, nine would experience a high level of congestion under 2025 No-Build conditions, with four operating at LOS E and five operating at LOS F, including:

- Telegraph Avenue/MacArthur Boulevard (location 29, on-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS E under 2025 No-Build conditions.
- International Boulevard/1st Avenue (location 37, on-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS F under 2025 No-Build conditions.
- International Boulevard/73rd Avenue-Hegenberger Road (location 50, on-alignment)— Intersection operations would deteriorate from LOS D under existing conditions to LOS E under 2025 No-Build conditions.
- International Boulevard/98th Avenue (location 52, on-alignment)— Intersection operations would deteriorate from LOS D under existing conditions to LOS F under 2025 No-Build conditions.
- Shattuck Avenue/55th Street (location 54, off-alignment)— Intersection operations would be LOS F under both existing and 2025 No-Build conditions, but average vehicle delay would increase from approximately 94 to 169 seconds.
- Martin Luther King Jr. Way/55th Street (location 55, off-alignment)— Intersection operations would deteriorate from LOS D under existing conditions to LOS E under 2025 No-Build conditions.
- Broadway/West Grand Avenue (location 60, off-alignment)—Intersection operations would deteriorate from LOS C under existing conditions to LOS E under 2025 No-Build conditions.
- Foothill Boulevard/Fruitvale Avenue (location 67, off-alignment)— Intersection operations would be LOS F under both existing and 2025 No-Build conditions, but average vehicle delay would increase from approximately 134 to 276 seconds; and
- San Leandro Street/98th Avenue (location 72, off-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS F under 2025 No-Build conditions.

City of San Leandro

Morning Peak Period: Of the intersections analyzed during the morning peak period, one would experience a high level of congestion under 2025 No-Build conditions:

- East 14th Street/Dutton Avenue (location 74, on-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS E under 2025 No-Build conditions.

Afternoon Peak Period: Of the intersections analyzed during the afternoon peak period, four would experience a high level of congestion under 2025 No-Build conditions, with three operating at LOS E and one operating at LOS F, including:

- East 14th Street/Dutton Avenue (location 74, on-alignment)— Intersection operations would deteriorate from LOS D under existing conditions to LOS F under 2025 No-Build conditions.
- East 14th Street/Fairmont Drive (location 83, on-alignment)— Intersection operations would deteriorate from LOS D under existing conditions to LOS E under 2025 No-Build conditions.
- Bancroft Avenue/Dutton Avenue (location 84, off-alignment)— Intersection operations would deteriorate from LOS C under existing conditions to LOS E under 2025 No-Build conditions, and
- Washington Avenue/Halcyon Drive (location 87, off-alignment)— Intersection operations would deteriorate from LOS D under existing conditions to LOS E under 2025 No-Build conditions.

3.2.3 Traffic Impacts: Build Alternatives

The Build Alternatives would include a full complement of BRT improvements in the project alignment, including transit priority at signalized intersections; new, light rail-like passenger stations; and dedicated bus lanes along most of the project alignment. The Build Alternatives would affect traffic circulation within the project corridor by eliminating some through travel lanes and left turns along various roadway segments. Also, in certain areas in Berkeley, additional restrictions on auto access would be implemented. All of these changes would result in the following traffic circulation impacts:

- **Reduction in Roadway Capacity.** The East Bay BRT Project includes the conversion of traffic lanes into dedicated bus lanes along several major streets. The addition of BRT-only lanes within the existing right-of-way would allow for faster bus travel; however, it also would reduce roadway traffic capacity on streets on the project alignment.[4] Figure 2.2-9 and Figure 2.2-10 in Chapter 2, Section 2.2.2.3, Definition of Build Alternatives, indicate where along the proposed alignments for the Build Alternatives dedicated transit lanes are proposed. The decrease in roadway capacity along the project alignment would result in increased congestion and delay in certain locations and have a ripple effect on traffic patterns along nearby roadways. A number of motorists would take alternate routes to avoid traveling on roadways with BRT facilities. The traffic analysis has quantified the operational impacts of diversions by evaluating LOS at key intersections along alternate roadways most likely to experience an increase in traffic.

[4] Implementation of BRT-only lanes would not always result in reduction of roadway capacity. Along Shattuck Avenue the transitway would not reduce the number of through lanes. In some other locations, typically short congested roadway segments, lane capacity is also retained. See Chapter 2.

- **Left-Turn Prohibitions and Cross Street Through-Movement Restrictions.** The presence of a dedicated bus lane would also prohibit left-turn movements between on-alignment streets and many minor, unsignalized cross streets. Through movements crossing the BRT alignment along these minor streets would also be restricted. As a result, drivers wishing to execute the prohibited left-turn and through movements at the affected intersections would need to make a right turn and then proceed to the next signalized intersection and make a U-turn. The additional U-turn movements would increase traffic volumes at signalized intersections and degrade operations.

- **Prohibition of Through Traffic in Telegraph Pedestrian/Transit Zone.** Under the *Two-Way Transitway via Bancroft Way and Telegraph Avenue* variation and the *One-Way Transitway via Bancroft Way-Durant Avenue Couplet* and *Two-Way Transitway via Telegraph Avenue* variation, a pedestrian/transit zone would restrict through traffic on the three blocks of Telegraph Avenue between Haste Street and Bancroft Way between 7:00 a.m. and 7:00 p.m. This restriction would increase traffic on other streets, affecting the operations at related intersections. Commercial deliveries would be allowed on Telegraph Avenue at all times, as is the current situation. There are currently loading zones within this three-block area, but curb parking currently is not allowed.

- **Circulation Changes on Bancroft Way.** One of the alignment variations would affect traffic circulation on Bancroft Way and Durant Avenue. The *Two-Way Transitway via Restricted Bancroft* variation would convert both Bancroft Way and Durant Avenue between Shattuck Avenue and Piedmont Avenue to two-way traffic. In addition, auto traffic would be prohibited on Bancroft Way in the vicinity of Telegraph Avenue, introducing cul-de-sacs just east of Telegraph Avenue and east of Dana Street (see Chapter 2, Figure 2.2-12). Only buses and delivery vehicles would be allowed to continue between the two cul-de-sacs. Through traffic in the vicinity would move over to Durant Avenue.

The traffic analysis has quantified the potential impacts of changes in circulation by (1) incorporating the proposed travel lane reductions and turn restrictions in the 2025 roadway network for the Build Alternative, (2) forecasting future traffic volumes on this network, and (3) analyzing the performance of streets and intersections to determine how operations would likely be affected. The street and intersection level-of-service analyses, therefore, describe from a traffic operations standpoint the impacts of both changes in traffic volumes and changes in circulation likely to result from the East Bay BRT Project.

The following sections analyze the cumulative traffic impacts of the four Build Alternatives and alignment variations, describing anticipated changes to traffic volumes; travel speeds, times, and delays; and roadway and intersection levels-of-service. The assessment of roadway impacts provides information that is suggestive of potential impacts that are analyzed more definitively under Section 3.2.3.2, Intersection Impacts.

As previously noted, traffic impacts would be essentially the same for all Build Alternatives under consideration as part of the East Bay BRT Project except for impacts in San Leandro. Alt 2: Separate BRT and Local Service to San Leandro BART and Alt 4: Combined BRT and Local Service to San Leandro BART do not propose dedicated transit lanes or other improvements that would reduce roadway capacity in San Leandro. Because of capacity constraints on International Boulevard in

Oakland resulting from the conversion of two traffic lanes to BRT-only lanes, some moderate diversion of through traffic otherwise continuing along International Boulevard in northern San Leandro would likely result. However, in general, traffic patterns under Alternatives 2 and 4 would not differ substantially from the No-Build condition. Intersection operations impacts, including LOS, would be very similar to those of the No-Build Alternative.

The following discussions do not distinguish impacts by Build Alternatives except in San Leandro or other locations where there is a substantial change in conditions attributable to a particular Build Alternative or Build Alternative alignment variation.

3.2.3.1 ROADWAY IMPACTS: BUILD CONDITIONS

This section identifies on- and off-alignment roadway segments that are projected to experience impacts under the Build Alternative. The focus is on impacts that would degrade operations relative to No-Build conditions and result in changes in LOS to below acceptable standards.

Impacts would occur, as described previously, due to 1) a reduction in roadway capacity along the alignment for the East Bay BRT Project, and 2) a resulting diversion of traffic to other, typically parallel roadways as well as some diversion of trips previously made by auto to transit. As a consequence of reducing the capacity of on-alignment roadways and increasing volumes on parallel roadways, congestion could increase to undesirable levels. The traffic analysis for the East Bay BRT Project estimated the potential changes in traffic patterns for on- and off-alignment roadways and analyzed impacts on roadway segments and intersection operations.

Screenline Volume Changes

The shifts in traffic resulting from the East Bay BRT Project are apparent when comparing peak hour volumes of people traveling along the project corridor before and after BRT improvements would be implemented. Afternoon peak volumes in 2025 at two representative locations are shown in Tables 3.2-3a and 3.2-3b. These locations are designated screenlines, which designate survey points for comparing traffic volumes along (imaginary) lines drawn essentially perpendicular to the BRT alignment and parallel roadways. The screenlines capture the major north-south movements through the corridor at the designated locations.

At the screenline in the north portion of the project corridor, just north of Ashby Avenue in Berkeley, auto trips (drivers/passengers and total vehicles) on Telegraph Avenue would drop substantially and increase moderately on parallel roadways such as Martin Luther King Junior Way, Adeline Street, Shattuck Avenue and College Avenue. The largest volume increases would be on Adeline Street and College Avenue but are not substantial—accounting for less than 210 person trips, which is equivalent to 175 vehicle trips, during the 60-minute p.m. peak. The volume changes on parallel roadways are small to moderate for two reasons. Trips diverted from Telegraph Avenue are spread across several roadways; and, the total volume of individuals traveling by auto would decrease, by approximately 611 (equivalent to 509 vehicle trips), as these individuals would shift to transit or possibly, in a few instances, decide to make their trips outside the corridor.

Table 3.2-3a: Change in P.M. Peak Hour Volumes (Person Trips) Crossing Screenline North of Ashby Avenue (2025) with Implementation of East Bay BRT Project

Mode	Roadways Crossing the Screenline						BART	Total Person Trips [Autos]
	Sacramento St.	MLK Way	Adeline St.	Shattuck Ave.	Telegraph Ave.	College Ave.		
Automobile[1]	-79 *[-66]*	53 *[44]*	209 *[174]*	55 *[46]*	-1,045 *[-871]*	197 *[164]*	NA	-611 *[-509]*
Transit	-2	-24	-1	-101	1,278	-494	-284	372
All Modes	**-81**	**28**	**207**	**-46**	**233**	**-297**	**-284**	**-239**

Notes:
Volumes are persons traveling in either direction along the listed facilities at the point of the screenline.
[1]Automobile volumes assume auto occupancy of 1.2 persons. Vehicle trips are indicated in brackets [xx]
Source: Cambridge Systematics, 2006

Table 3.2-3b: Change in P.M. Peak Hour Volumes (Person Trips) Crossing Screenline South of 98th Avenue (2025) with Implementation of East Bay BRT Project

Mode	Roadways Crossing the Screenline						BART	Total Person Trips [Autos]
	I-880	San Leandro St.	International Blvd.	Bancroft Ave.	MacArthur Blvd.	I-580		
Automobile[1]	-71 *[-59]*	118 *[98]*	-864 *[-720]*	301 *[251]*	13 *[11]*	170 *[142]*	NA	-332 *[-277]*
Transit	0	0	533	-179	-31	0	-198	125
All Modes	**- 71**	**118**	**-331**	**122**	**-17**	**170**	**-198**	**-207**

Notes:
Volumes are persons traveling in either direction along the listed facilities at the point of the screenline.
[1]Automobile volumes assume auto occupancy of 1.2 persons. Vehicle trips are indicated in brackets [xx]
Source: Cambridge Systematics, 2006

The number of transit trips on AC Transit and BART are shown in Table 3.2-3a for comparison with trips by auto.

At the screenline in the south portion of the project corridor, located just south of 98th Avenue, similar shifts in travel volumes would occur following implementation of the East Bay BRT Project. Auto trips would decrease substantially on International Boulevard and increase primarily on Bancroft Avenue, I-580 and San Leandro Street. The maximum increase is projected to be on Bancroft Avenue, with on the order of 300 more persons traveling by auto, equivalent to about 250 vehicle trips, during the p.m. peak hour. Across the screenline, person trips by auto would decrease by 332 and vehicle trips by 277.

Roadway Levels of Service (LOS)

The effects of changes in roadway traffic attributable to the East Bay BRT Project, specifically the potential for increased congestion, were quantified in terms of changes in roadway LOS. Section 3.2.2.1 identified MTS and other study corridor roadway segments where congestion is forecast to be severe in 2025. LOS under 2025 Build conditions was similarly estimated and compared to No-Build conditions to identify segments where congestion would worsen and projects impacts would occur.

The ACCMA has adopted LOS E as the acceptable level of service for roadways on the CMP system.[5] Consistent with this standard, two criteria were used to identify impacts to roadways under Build conditions:

- For roadway segments at LOS E or better under 2025 No-Build conditions, degradation to LOS F under Build conditions; and
- For roadway segments at LOS F under 2025 No-Build conditions, an increase in the volume to capacity (V/C) ratio of five percent under Build conditions.

The second criterion is included to identify impacts to roadway segments operating at a very poor LOS under 2025 No-Build conditions. A five percent change in the V/C ratio is the threshold at which travelers perceive an increase in the level of congestion.

The traffic analysis assessed the potential impacts to roadway LOS during the afternoon peak period, which generally experiences higher traffic volumes than the morning peak period and therefore represents a worst case condition. Afternoon peak period roadway LOS and impacts under the Build Alternatives, for all roadway segments analyzed, are included in Appendix A, Intersection and Roadway Traffic Condition Tables. This section addresses only those segments that would not meet the roadway LOS criteria described above.

Of the roadway segments that were analyzed during the afternoon peak period, all but eight are projected to operate at levels of service that meet LOS criteria. Five on-alignment roadways (one in Berkeley, three in Oakland, one in San Leandro) would experience worsening traffic conditions, primarily due to increased roadway volume resulting from the reduction of roadway capacity under the project, and not operate at levels of service that meet LOS criteria. An additional three off-alignment roadways, all located in Berkeley, would experience worsening conditions, primarily due

[5] An exception is made for roadway segments that operated at LOS F in 1991.

to increased traffic resulting from diversions from roadways on the project alignment with reduced capacity, and not meet LOS criteria.

Listed by city, the on- and off-alignment roadway segments that are projected to experience worsening traffic conditions during the afternoon peak period under the Build Alternatives are:

City of Berkeley (Alternatives 1, 2, 3 and 4)

- Telegraph Avenue near Dwight Way (on-alignment)
- Shattuck Avenue near Dwight Way (off-alignment)
- College Avenue near Dwight Way (off-alignment)
- Adeline Street near Alcatraz Avenue (off-alignment)

City of Oakland (Alternatives 1, 2, 3 and 4)

- Telegraph Avenue near Alcatraz Avenue (on-alignment)
- International Boulevard near High Street (on-alignment)
- International Boulevard near 73rd Avenue (on-alignment)

City of San Leandro (Alternatives 1 and 3 only)

- East 14th Street near 150th Avenue (on-alignment)

These locations are shown in Figure 2.3-6 (designated by red arrows). The location on East 14th Street south of 150th Avenue would experience an impact under Build Alternatives 1 and 3 only.

3.2.3.2 INTERSECTION IMPACTS: BUILD ALTERNATIVES

This section presents the projected impacts to intersections on the project alignment (on-alignment intersections) and to intersections on other streets (off-alignment intersections) under the Build Alternatives. Impacts discussed are those that worsen operations relative to the No-Build condition and do not meet locally established standards (or exceed thresholds) for LOS. For intersections, the city of Oakland has developed specific guidance and criteria for establishing intersection impacts.[6] The other corridor cities of Berkeley and San Leandro do not have comparable specific guidance. In consultation with these other cities, it was agreed that the Oakland criteria are reasonable and would provide for a common standard to apply to intersection performance throughout the corridor.

The Oakland criteria define impacts as:

- At intersections outside of downtown areas:
  - For intersections at LOS D or better under No-Build conditions (2025 in the case of this analysis), degradation to LOS E or worse under Build conditions;
  - For intersections at LOS E under 2025 No-Build conditions, degradation to LOS F or an increase in average vehicle delay of four or more seconds under Build conditions;

For intersections at LOS F under 2025 No-Build conditions, an increase in average vehicle delay of two or more seconds per vehicle under Build conditions.

[6] Criteria are derived from *City of Oakland CEQA Thresholds/Criteria of Significance*, April 2002.

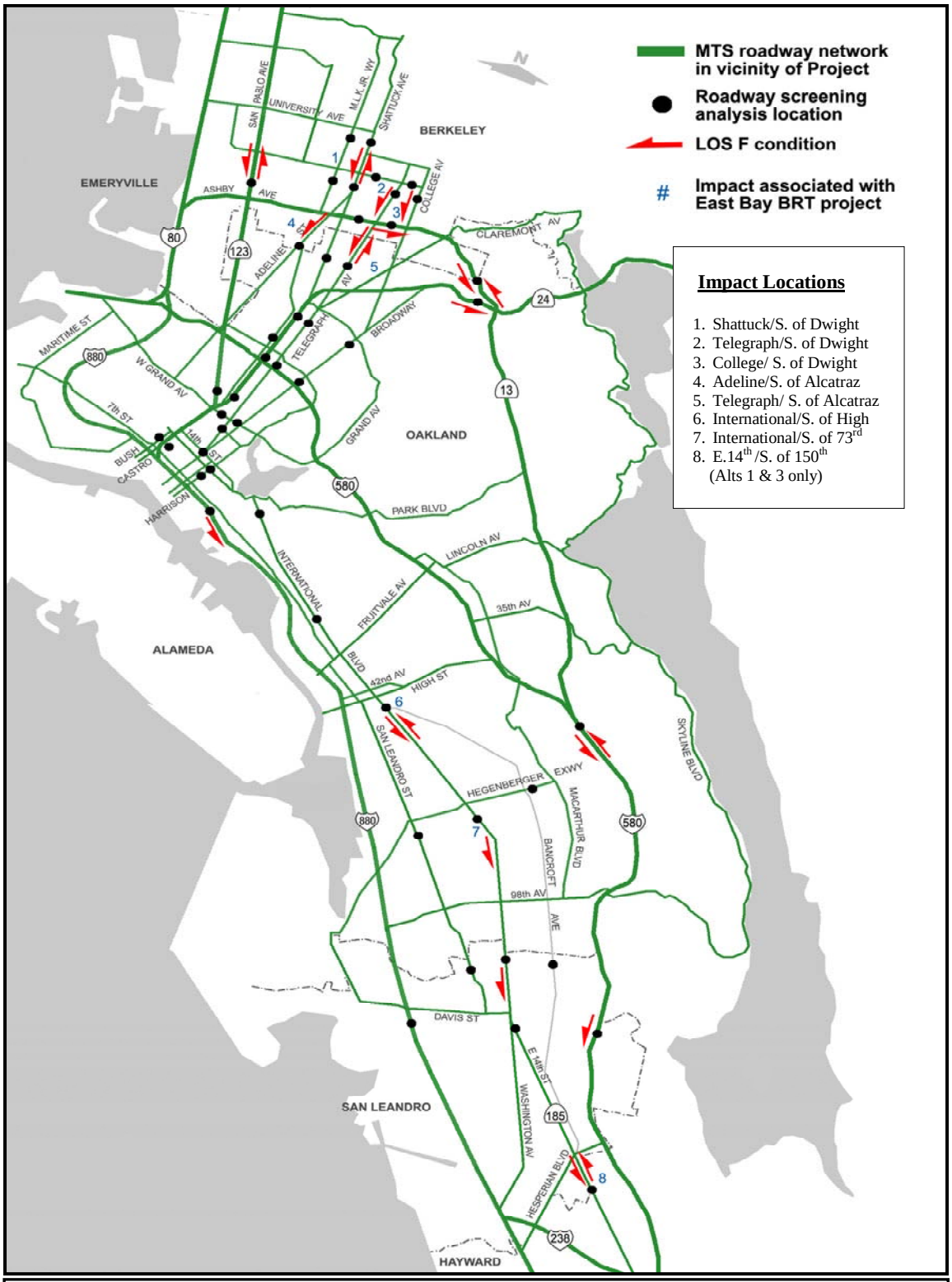

Figure 3.2-6: Projected PM Peak Hour Roadway Conditions 2025 Build Alternatives (At Survey Locations)

- At intersections within downtown areas:
  - For intersections at LOS E or better under 2025 No-Build conditions, degradation to LOS F under Build conditions;
  - For intersections at LOS F under 2025 No-Build conditions, an increase in average vehicle delay of two or more seconds per vehicle under Build conditions.

The primary source of impacts to on-alignment intersections would be the loss of roadway capacity for general traffic by the conversion of traffic lanes to exclusive transit use. Secondary sources of impacts would include the addition of protected left-turn signal phasing, additional U-turn volumes, and potential delays to traffic on cross streets and minor delays from traffic signal priority along the project alignment. The primary source of impacts to off-alignment intersections would be diversion of traffic.

Depending on the alignment variation, between 22 and 27 intersections are projected to experience worsening traffic conditions under the Build Alternatives and not meet LOS standards, as shown in Figure 3.2-7, and Tables 3.2-4 thru 3.2-6. Intersection LOS and impacts under the Build Alternatives are included in Appendix A, Intersection and Roadway Traffic Conditions, and are summarized below.

City of Berkeley: Intersection Impacts of Build Alternatives

Morning Peak Period: Of the 19 intersections analyzed for the morning peak, zero or one would experience an impact under the Build Alternative, depending on the alignment variation selected. The one intersection projected to experience an impact under most conditions is:

- Fulton Street/Bancroft Way (location 5, on-alignment). This intersection is projected to drop from LOS C under 2025 No-Build conditions to LOS F, with an approximately six-fold increase in delay, under all Build Alternatives and alignment variations except for the *Two-Way Transitway via Restricted Bancroft Way* variation through Berkeley Southside. That variation would reconfigure Bancroft Way as a two-way arterial, allowing BRT vehicles and autos to operate in mixed traffic but restricting autos from passing through Bancroft Way at the Telegraph Avenue intersection. Under this alignment variation, traffic volumes on Bancroft Way would decrease in 2025 relative to the No-Build Alternative and intersection operations at Fulton Street/Bancroft Way would improve somewhat.

  A major contributor to delay at the Fulton Street/Bancroft Way intersection under all other alignment variations would be the elimination of the existing dedicated right-turn-lane, which currently allows vehicles to turn right off westbound Bancroft Way onto northbound Oxford Street without stopping. This lane is proposed for removal by the city as part of another project. It would be replaced by a dedicated right-turn-lane from which vehicles could turn on red. With the exception of the *Two-Way Transitway via Restricted Bancroft Way* variation, a dedicated bus lane or lanes to the right of the general traffic lanes on Bancroft Way are proposed by the East Bay BRT Project, in which case right turns at red lights would not be possible, as this would conflict with the operation of the proposed bus lane(s).

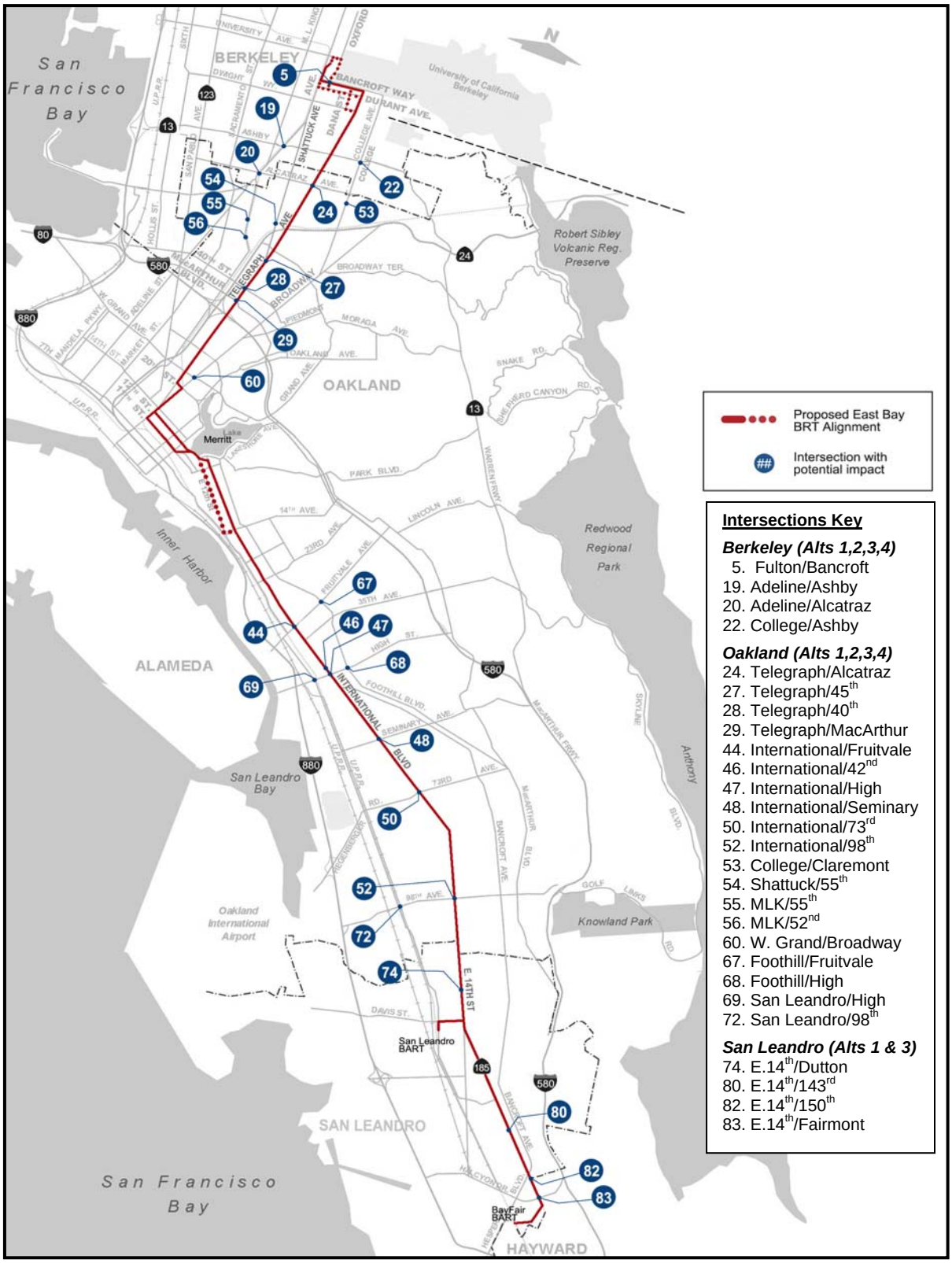

Figure 3.2-7: Intersections Potentially Experiencing Impacts under the Build Alternatives

Table 3.2-4: Summary of Intersections Adversely Affected: Existing Conditions, 2025 No-Build, and 2025 Build Alternatives and Their Alignment Variations, City of Berkeley

Intersection			Existing Conditions (2003)		No Build Alternative (2025)		Build Alternatives (2025)[2]							
							----------Berkeley Southside Variation----------							
							Two-Way Transitway via Bancroft Way and *Telegraph Ave.*		*Two-Way Transitway via Bancroft Way* and *One-Way Transitway via Telegraph Ave.-Dana St. Couplet*		*One-Way Transitway via Bancroft Way-Durant Ave.* and *Two-Way Transitway via Telegraph Ave.*		*One-Way Transitway via Bancroft Way-Durant Ave. and Telegraph Ave.-Dana St. Couplet*	
No.	**Main Street**	**Cross Street**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**
Morning Peak Period														
On-Alignment Intersections														
5	Fulton St.	Bancroft Way	8.5	A	22.5	C	17.2[1] - 160.9	B[1]-F	*	*	98.7	F	**	**
Afternoon Peak Period														
5	Fulton St.	Bancroft Way	9.6	A	24.6	C	29.3[1]- 163.0	C[1]-F	*	*	189.4	F	**	**
Off-Alignment Intersections														
19	Adeline	Ashby Ave.	32.8	C	76.0	E	92.7	F	*	*	*	*	*	*
20	Adeline St.	Alcatraz Ave.	60.9	E	199.2	F	201.6	F	*	*	*	*	*	*
22	College Ave.	Ashby Ave.	33.8	C	48.9	D	61.3	E	*	*	*	*	*	*

Notes
[1] Delay and LOS associated with the *Two-Way Transitway via Restricted Bancroft Way* Variation.
[2] All variations are possible under all Build Alternatives (Alts 1-4).
* Delay and LOS at this intersection expected to be similar to the *Two-Way Transitway via Bancroft Way and Telegraph Ave.* variation.
** Delay and LOS at this intersection expected to be similar to the *One-Way Transitway via Bancroft Way-Durant Ave. and Two-Way Transitway via Telegraph Ave.* variation.

Source: AC Transit East Bay Bus Rapid Transit Traffic Analysis Report, Cambridge Systematics, May 2006

Table 3.2-5: Summary of Intersections Adversely Affected: Existing Conditions, 2025 No-Build, and 2025 Build Alternatives and Their Alignment Variations, City of Oakland

Intersection			Existing Conditions (2003)		No Build Alternative (2025)		Build Alternatives (2025)[1]			
							Two-Way Transitway via International Blvd.		*One-Way Transitway via International Blvd. -12th St. Couplet*	
No.	**Main Street**	**Cross Street**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**
Morning Peak Period										
On-Alignment Intersections										
46	International Boulevard	42nd Avenue	46.4	D	36.8	D	70.3	E	*	*
50	International Boulevard	73rd Avenue (Hegenberger Road)	34.7	D	53.2	D	77.1	E	*	*
52	International Boulevard	98th Avenue	39.4	D	54.9	D	108.7	F	*	*
Off-Alignment Intersections										
53	College Avenue	Claremont Avenue	36.0	D	51.2	D	69.9	E	*	*
Afternoon Peak Period										
On-Alignment Intersections										
24	Telegraph Avenue	Alcatraz Avenue	57.7	E	52.1	D	134.7	F	*	*
27	Telegraph Avenue	45th Street/Shattuck Avenue	17.3	B	14.6	B	55.6	E	*	*
28	Telegraph Avenue	40th Street	30.7	C	48.4	D	117.6	F	*	*
29	Telegraph Avenue	MacArthur Boulevard	23.7	C	59.4	E	99.8	F	*	*
44	International Boulevard	Fruitvale Avenue	21.7	C	33.0	C	66.9	E	*	*
46	International Boulevard	42nd Avenue	36.8	D	48.4	D	119.4	F	*	*
47	International Boulevard	High Street	15.7	B	30.3	C	92.8	F	*	*
48	International Boulevard	Seminary Avenue	19.1	B	44.8	D	160.2	F	*	*
50	International Boulevard	73rd Avenue (Hegenberger Road)	42.2	D	73.2	E	121.1	F	*	*
52	International Boulevard	98th Avenue	52.5	D	106.0	F	153.3	F	*	*
Off-Alignment Intersections										
54	Shattuck Avenue	55th Street	94.1	F	169.0	F	200.0	F	*	*

Table 3.2-5: Summary of Intersections Adversely Affected: Existing Conditions, 2025 No-Build, and 2025 Build Alternatives and Their Alignment Variations, City of Oakland

Intersection			Existing Conditions (2003)		No Build Alternative (2025)		Build Alternatives (2025)[1]			
							Two-Way Transitway via International Blvd.		*One-Way Transitway via International Blvd. -12th St. Couplet*	
No.	**Main Street**	**Cross Street**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**
55	MLK Way	55th Street	50.1	D	63.5	E	77.6	E	*	*
56	MLK Way	52nd Street	29.8	C	45.5	D	68.7	E	*	*
60	Broadway	West Grand Avenue	20.4	C	77.6	E	193.2	F	*	*
67	Foothill Boulevard	Fruitvale Avenue	134.2	F	275.6	F	322.8	F	*	*
68	Foothill Boulevard	High Street	19.1	B	48.7	D	108.5	F	*	*
69	San Leandro Street	High Street	16.4	B	47.6	D	191.9	F	*	*
72	San Leandro Street	98th Avenue	34.2	C	143.1	F	193.9	F	*	*

Notes
* Delay and LOS at this intersection are expected to be similar to the *Two-Way Transitway via International Boulevard* variation.
[1] Both variations are possible under all Build Alternatives (Alts 1-4).
Source: *AC Transit East Bay Bus Rapid Transit Traffic Analysis Report*, Cambridge Systematics, May 2006

Table 3.2-6: Summary of Intersections Adversely Affected: Existing Conditions, 2025 No-Build, and 2025 Build Alternatives and Their Alignment Variations, City of San Leandro

Intersection			Existing Conditions (2003)		No Build Alternative (2025)		Build Alternatives (2025)							
							Alt 1 Separate BRT and Local Service to BayFair BART		Alt 2 Separate BRT and Local Service to San Leandro BART		Alt 3 Combined BRT and Local Service to BayFair BART		Alt 4 Combined BRT and Local Service to San Leandro BART	
No.	**Main Street**	**Cross Street**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**	**Delay (seconds)**	**LOS**
Morning Peak Period														
On-Alignment Intersections														
74	E 14th Street	Dutton Ave	25.0	C	56.5	E	127.9	F	*(No Impact)*	-	*	*	*(No Impact)*	-
Afternoon Peak Period														
On-Alignment Intersections														
74	E 14th Street	Dutton Ave	43.9	D	172.0	F	217.9	F	*(No Impact)*	-	*	*	*(No Impact)*	-
80	E 14th Street	143rd Ave	13.8	B	18.8	B	72.5	E	*(No Impact)*	-	*	*	*(No Impact)*	-
82	E 14th Street	150th Ave	24.3	C	30.2	C	64.9	E	*(No Impact)*	-	*	*	*(No Impact)*	-
83	E 14th Street	Fairmont Dr	52.4	D	66.2	E	161.3	F	*(No Impact)*	-	*	*	*(No Impact)*	-

Notes
* Delay and LOS at this intersection are expected to be similar to Alt 1: Separate BRT and Local Service to BayFair BART.
(No Impact) indicates delay and LOS at this intersection are expected to be similar to the No-Build Alternative. There would be no adverse impact under this situation.

Source: *AC Transit East Bay Bus Rapid Transit Traffic Analysis Report,* Cambridge Systematics, May 2006

Afternoon Peak Period: Of the 23 intersections analyzed for the afternoon peak period, zero or one on-alignment and three off-alignment intersections would experience impacts under the Build Alternatives:

- Fulton Street/Bancroft Way (location 5, on-alignment), which would degrade from LOS C under 2025 No-Build conditions to LOS F, with average vehicle delay increasing approximately six-fold under the Build Alternatives and alignment variations with one exception. Delay would not exceed local standards under the *Two-Way Transitway via Restricted Bancroft Way* variation, as described above, and LOS would remain at LOS C as under No-Build conditions. Delays associated with other alignment variations are largely due to the prohibition of right-turns on red from westbound Bancroft Way to northbound Fulton Street. The one exception to this finding is when Bancroft Way would be configured as a two-way street under the Two-Way Transitway via Restricted Bancroft Way variation. The Fulton Street/Bancroft Way intersection would then operate at LOS C.
- Adeline Street/Ashby Avenue (location 19, off-alignment), which is projected to degrade from LOS E under 2025 No-Build conditions to LOS F, with average delay increasing from 76 to 93 seconds.
- Adeline Street/Alcatraz Avenue (location 20, off-alignment), which would operate at LOS F, with average vehicle delay increasing from approximately 199 to 202 seconds.
- College Avenue/Ashby Avenue (location 22, off-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS E under Build conditions, with average vehicle delay increasing from approximately 49 to 61 seconds.

Morning and afternoon peak period intersection impacts under 2025 Build conditions in the City of Berkeley are summarized in Table 3.2-4 (back).

City of Oakland: Intersection Impacts of Build Alternatives

Morning Peak Period: Of the 12 intersections analyzed for the morning peak period, three on-alignment and one off-alignment intersections would experience impacts under the Build Alternatives:

- International Boulevard/42nd Avenue (location 46, on-alignment), which is projected to degrade from LOS D under 2025 No-Build conditions to LOS E, with average vehicle delay increasing from approximately 37 to 70 seconds.
- International Boulevard/73rd Avenue (Hegenberger Road) (location 50, on-alignment), which is projected to degrade from LOS D under 2025 No-Build conditions to LOS E under Build conditions, with average vehicle delay increasing from approximately 53 to 77 seconds.
- International Boulevard/98th Avenue (location 52, on-alignment), which is projected to degrade from LOS D under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 55 to 109 seconds.

- College Avenue/Claremont Avenue (location 53, off-alignment), which is projected to degrade from LOS D to LOS E, with average vehicle delay increasing from approximately 51 to 70 seconds. The decrease in LOS would result primarily from the increase in approach volume at eastbound Claremont Avenue, due to the reduction in auto capacity on Telegraph Avenue.

Afternoon Peak Period: Of 49 intersections analyzed for the afternoon peak period, 10 on-alignment and eight off-alignment intersections would experience impacts under the Build Alternatives:

- Telegraph Avenue/Alcatraz Avenue (location 24, on-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 52 to 135 seconds.
- Telegraph Avenue/45th Street (Shattuck Avenue) (location 27, on-alignment), which would degrade from LOS B under 2025 No-Build conditions to LOS E under Build conditions, with average vehicle delay increasing from approximately 15 to 56 seconds.
- Telegraph Avenue/40th Street (location 28, on-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 48 to 118 seconds.
- Telegraph Avenue/MacArthur Boulevard (location 29, on-alignment), which would degrade from LOS E under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 59 to 100 seconds.
- International Boulevard/Fruitvale Avenue (location 44, on-alignment), which would degrade from LOS C under 2025 No-Build conditions to LOS E under Build conditions, with average vehicle delay increasing from approximately 33 to 67 seconds.
- International Boulevard/42nd Avenue (location 46, on-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 48 to 119 seconds.
- International Boulevard/High Street (location 47, on-alignment), which would degrade from LOS C under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 30 to 93 seconds.
- International Boulevard/Seminary Avenue (location 48, on-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 45 to 160 seconds.
- International Boulevard/73rd Avenue (Hegenberger Road) (location 50, on-alignment), which would degrade from LOS E under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 73 to 121 seconds.

- International Boulevard/98th Avenue (location 52, on-alignment), which would operate at LOS F under 2025 No-Build and Build conditions, with average vehicle delay increasing from approximately 106 to 153 seconds.
- Shattuck Avenue/55th Street (location 54, off-alignment), which would operate at LOS F under 2025 No-Build and Build conditions, with average vehicle delay increasing from approximately 169 to 200 seconds.
- Martin Luther King Jr. Way/55th Street (location 55, off-alignment), which would operate at LOS E under 2025 No-Build and Build conditions, with average vehicle delay increasing from approximately 64 to 78 seconds.
- Martin Luther King Jr. Way/52nd Street (location 56, off-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS E under Build conditions, with average vehicle delay increasing from approximately 46 to 69 seconds.
- Broadway/West Grand Avenue (location 60, off-alignment), which would degrade from LOS E under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 78 to 193 seconds.
- Foothill Boulevard/Fruitvale Avenue (location 67, off-alignment), which would operate at LOS F under 2025 No-Build and Build conditions, with average vehicle delay increasing from approximately 276 to 323 seconds.
- Foothill Boulevard/High Street (location 68, off-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 49 to 109 seconds.
- San Leandro Street/High Street (location 69, off-alignment), which would degrade from LOS D under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 48 to 192 seconds.
- San Leandro Street/98th Avenue (location 72, off-alignment), which would operate at LOS F under 2025 No-Build and Build conditions, with average vehicle delay increasing from approximately 143 to 194 seconds.

Morning and afternoon peak period intersection impacts under 2025 Build conditions in the City of Oakland are summarized in Table 3.2-5 (page 3-59).

City of San Leandro: Intersection Impacts of Build Alternatives

Alternatives 1 and 3. Under the two Build Alternatives with BRT service terminating at BayFair BART (Alt 1: Separate BRT and Local Service to BayFair BART and Alt 3: Combined BRT and Local Service to BayFair BART), impacts would occur at four locations.

Morning Peak Period: Of the five intersections analyzed for the morning peak period, one on-alignment intersection would experience impacts:

- East 14th Street/Dutton Avenue (location 74, on-alignment): This intersection is projected to degrade from LOS E under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 57 to 128 seconds.

Afternoon Peak Period: Of the 16 intersections analyzed for the afternoon peak period, four on-alignment intersections and no off-alignment intersections are projected to experience impacts:

- East 14th Street/Dutton Avenue (location 74, on-alignment), the most congested intersection, which would operate at LOS F under No-Build and Build conditions, with average vehicle delay increasing from approximately 172 to 218 seconds.
- East 14th Street/143rd Avenue (location 80, on-alignment), which would degrade from LOS B under 2025 No-Build conditions to LOS E under Build conditions, with average vehicle delay increasing from approximately 19 to 72 seconds.
- East 14th Street/150th Avenue (location 82, on-alignment), which would degrade from LOS C under 2025 No-Build conditions to LOS E under Build conditions, with average vehicle delay increasing from approximately 30 to 65 seconds.
- East 14th Street/Fairmont Drive (location 83, on-alignment), which would degrade from LOS E under 2025 No-Build conditions to LOS F under Build conditions, with average vehicle delay increasing from approximately 66 to 161 seconds.

Alternatives 2 and 4. Under the two Build Alternatives with BRT service terminating at San Leandro BART (Alt 2: Separate BRT and Local Service to San Leandro BART and Alt 4: Combined BRT and Local Service to San Leandro BART), roadway and intersection configurations and capacities in San Leandro are mostly unchanged. In addition, traffic volumes along International Boulevard in Oakland as it approaches San Leandro are expected to decrease. The decrease in volumes would likely continue onto East 14th Street in San Leandro. Therefore, LOS conditions in 2025 are anticipated to be the same as or, in some cases, slightly improved from the No-Build Alternative. Consequently, no traffic impacts degrading operations to below standards are expected.

Morning and afternoon peak period intersection impacts under 2025 Build conditions in the City of San Leandro are summarized in Table 3.2-6 (page 3-60).

3.2.4 Avoidance, Minimization, and/or Mitigation Measures

This section discusses mitigation measures to avoid or reduce permanent traffic impacts that would occur as a result of the project. Mitigation is undertaken when impacts cannot be avoided through project redesign. Effective mitigation measures should result in a physical change that would actually reduce or eliminate impacts.

3.2.4.1 Mitigation of Roadway Impacts under the Build Alternatives

Mitigation of Arterial Impacts

Eight roadway segments were found to experience impacts from the implementation of the East Bay BRT Project, as described in Section 3.2.3.1. There are two fundamental reasons for street impacts:

intersection delay and running time delay between intersections. Running time delay occurs only if traffic volumes approach the mid-block roadway capacities. This would not be the case under the Build Alternatives because no locations were identified where the mid-block volume-to-capacity ratio approaches 1.0. Therefore, the appropriate strategy for mitigating adverse street impacts would be to address the intersection delay, as described in Section 3.2.4.2, Mitigation of Intersection Impacts under the Build Alternatives.

Mitigation of Freeway Impacts

No freeway segments were found to experience impacts resulting in operations below standards from the implementation of the East Bay BRT Project, thus, no mitigation measures are proposed.

3.2.4.2 MITIGATION OF INTERSECTION IMPACTS UNDER THE BUILD ALTERNATIVES

This section proposes measures to mitigate impacts to on- and off-alignment intersections as a result of the Build Alternatives. Only impacts not within accepted local standards, as described in Section 3.2.3.2, would be subject to mitigation.

Considered mitigations have been limited to measures that are feasible and do not generate substantial adverse impacts as a consequence of their implementation. For a developed urban area, guidelines for practicable mitigations were set as follows:

- Implement operational improvements, such as improved signal timing and phasing, in preference to physical improvements.
- Minimize right-of-way requirements and avoid displacement of residences and businesses. Re-striping traffic lanes and other geometric improvements within existing curb-to-curb street cross sections would be considered before roadway widening.
- Avoid measures that would adversely affect the movement and safety of pedestrians and other non-motorized travel, and possibly diminish the pedestrian-, bicycle-, and transit-friendly features of the corridor or that would limit the ability to enhance those features.

In accordance with these guidelines, mitigation measures that would (1) require the acquisition of considerable right-of-way and/or the displacement of existing active businesses or residences, or (2) result in unsafe or undesirable conditions for other modes of travel were not considered feasible.

Overview

In general, the mitigation measures considered are designed to address afternoon peak period impacts, which tend to be more severe than morning peak period impacts and therefore represent a worst case scenario. As a result, mitigation measures for afternoon peak period impacts are generally applicable to morning conditions. The sole exception is the College Avenue/Claremont Avenue intersection (location 50, off-alignment) in the City of Oakland, where an intersection impact exists during the morning peak period but not the afternoon peak period.

In the northern portion of the corridor, from Downtown Berkeley to Downtown Oakland, impacts can be mitigated by adopting various measures, including adjusting signal timing, increasing signal cycle length, and/or adding right- or left-turn lanes with the exception of one location (Telegraph Avenue at Alcatraz Avenue). All mitigations involving lane additions could be constructed within the existing street curb-to-curb width and would not affect facilities outside of the existing curb line.

In the southern portion of the corridor, from Downtown Oakland to BayFair BART under Alternatives 1 and 3 and to San Leandro BART under Alternatives 2 and 4, more substantial mitigation measures would sometimes be necessary. These include adding multiple right and left-turn lanes, or through-lanes. Not all mitigations would fit within the existing street curb-to-curb widths; some would require narrowing sidewalks and others acquisition of right-of-way to retain minimally acceptable sidewalk widths. As such, the mitigations would not be fully consistent with the guidelines described above. However, the considered mitigations would be the only measures that would adequately address LOS impacts while minimizing secondary impacts to pedestrian facilities or adjacent land uses. The locations where these circumstances apply are specifically noted below.

As with the discussion of traffic impacts, mitigation measures are applicable to all Build Alternatives and alignment variations except in San Leandro. Because no LOS impacts were identified in San Leandro under Alternatives 2 and 4, no mitigation measures would be warranted for those two alternatives.

Morning Peak

Four to six intersections are expected to experience impacts during the morning peak hour. Morning peak impacts can be mitigated for all Build Alternatives to improve delay and LOS so that they are better than the standard for impacts at all locations except for the Fulton Street/Bancroft Way intersection. At this intersection, the morning peak impact can be mitigated for all Build Alternatives under all of the alignment variations except for the *Shattuck Avenue-Oxford Street Loop* variation.

Afternoon Peak

From 21 to 26 intersections are expected to experience impacts during the afternoon peak hour depending upon the Build Alternatives and alignment variation. Impacts can be mitigated to improve delay and LOS to meet established impact standards at all but three to four of these locations.

Proposed measures to mitigate impacts to intersections under the Build Alternatives are described below. With the exception of College Avenue/Claremont Avenue, the proposed mitigation measures address afternoon impacts, which are generally more severe than morning impacts and, therefore, represent worst case conditions. Proposed mitigation measures for the College Avenue/Claremont Avenue intersection address morning impacts, which represent worse case conditions.

Table 3.2-7 summarizes LOS conditions for the 26 afternoon peak and six morning peak intersections experiencing impacts that warrant consideration of mitigation. For comparison, LOS under the No-Build Alternative is listed. Build Alternatives LOS before and after mitigation is described, along with an indication of whether the mitigation would improve operations to a level meeting established LOS standards.

Table 3.2-7: Intersection Levels-of-Service Before and After Mitigation, Build Alternatives (2025)

No.	Main Street	Cross Street	No Build Alternative		Alt 1 - Separate BRT and Local Service to BayFair BART Alt 3 - Combined BRT and Local Service to BayFair BART				Alt 2 - Separate BRT and Local Service to San Leandro BART Alt 4 - Combined BRT and Local Service to San Leandro BART				Meets LOS Standard After Mitigation?
					Unmitigated		Mitigated		Unmitigated		Mitigated		
			Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	
Berkeley													
5	Fulton St.	Bancroft Way	24.6	C	163.0	F	85.4	F	163.0	F	85.4	F	Yes, except for one alignment variation[2]
19	Adeline St.	Ashby Ave.	76.0	E	92.7	F	59.7	E	92.7	F	59.7	E	Yes
20	Adeline St.	Alcatraz Ave.	199.2	F	201.6	F	180.3	F	201.6	F	180.3	F	Yes
22	College Ave.	Ashby Ave.	48.9	D	61.3	E	31.6	C	61.3	E	31.6	C	Yes
Oakland													
24	Telegraph Ave.	Alcatraz Ave.	52.1	D	134.7	F	134.7	F	134.7	F	134.7	F	No
27	Telegraph Ave.	45th St./ Shattuck Ave.	14.6	B	55.6	E	18.7	B	55.6	E	18.7	B	Yes
28	Telegraph Ave.	40th St.	48.4	D	117.6	F	46.2	D	117.6	F	46.2	D	Yes
29	Telegraph Ave.	MacArthur Blvd.	59.4	E	99.8	F	60.9	E	99.8	F	60.9	E	Yes
44	International Blvd.	Fruitvale Ave.	33.0	C	66.9	E	42.8	D	66.9	E	42.8	D	Yes
46	International Blvd.	42nd Ave.	48.4	D	119.4	F	54.8	D	119.4	F	54.8	D	Yes
47	International Blvd.	High St.	30.3	C	92.8	F	92.8	F	92.8	F	92.8	F	No
48	International Blvd.	Seminary Ave.	44.8	D	160.2	F	51.4	D	160.2	F	51.4	D	Yes
50	International Blvd.	73rdAve. / Hegenberger Rd.	73.2	E	121.1	F	76.8	E	121.1	F	76.8	E	Yes
52	International Blvd.	98th Ave.	106.0	F	153.3	F	76.1	E	153.3	F	76.1	E	Yes
53	College Ave.	Claremont Ave.	51.2	D	69.9	E	51.6	D	69.9	E	51.6	D	Yes
54	Shattuck Ave.	55th St.	169.0	F	200.0	F	165.5	F	200.0	F	165.5	F	Yes
55	MLK Jr. Way	55th St.	63.5	E	77.6	E	43.6	D	77.6	E	43.6	D	Yes
56	MLK Jr. Way	52nd St.	45.5	D	68.7	E	47.4	D	68.7	E	47.4	D	Yes
60	Broadway	West Grand Ave.	77.6	E	193.2	F	67.9	E	193.2	F	67.9	E	Yes

Table 3.2-7, cont.: Intersection Levels-of-Service Before and After Mitigation, Build Alternatives (2025)

No.	Main Street	Cross Street	No Build Alternative		Alt 1 - Separate BRT and Local Service to BayFair BART Alt 3 - Combined BRT and Local Service to BayFair BART				Alt 2 - Separate BRT and Local Service to San Leandro BART Alt 4 - Combined BRT and Local Service to San Leandro BART				Meets LOS Standard After Mitigation?
					Unmitigated		Mitigated		Unmitigated		Mitigated		
			Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	Delay[1] (seconds)	LOS	
67	Foothill Blvd.	Fruitvale Ave.	275.6	F	322.8	F	155.5	F	322.8	F	155.5	F	Yes
68	Foothill Blvd.	High St.	48.7	D	108.5	F	47.6	D	108.5	F	47.6	D	Yes
69	San Leandro St.	High St.	47.6	D	191.9	F	118.2	F	191.9	F	118.2	F	No
72	San Leandro St.	98th Ave.	143.1	F	193.9	F	127.3	F	193.9	F	127.3	F	Yes
San Leandro													
74	E 14th St.	Dutton Ave.	172.0	F	217.9	F	99.4	F	*	*	N/A	N/A	Yes
80	E 14th St.	143rd Ave.	18.8	B	72.5	E	30.2	C	*	*	N/A	N/A	Yes
82	E 14th St.	150th Ave.	30.2	C	64.9	E	45.8	D	*	*	N/A	N/A	Yes
83	E 14th St.	Fairmont Dr.	66.2	E	161.3	F	64.0	E	*	*	N/A	N/A	Yes

Notes
[1] Delay and LOS indicated for worst case time period (AM peak hour for College/ Claremont, PM peak hour for all others) and worst case alignment variation. See text for delay and LOS for other alignment variations.
[2] Mitigation to below the LOS standard (impact threshold) is not practical for the Shattuck Avenue-Oxford Street Loop variation.
* No impact; delay would be the same as No-Build Alternative.

Source: *AC Transit East Bay Bus Rapid Transit Traffic Analysis Report*, Cambridge Systematics, May 2006.

Mitigation of Intersection Impacts: City of Berkeley

The following intersection would experience impacts warranting consideration of mitigation during both the morning and afternoon peak periods:

- Fulton Street/Bancroft Way (location 5, on-alignment)
  - *Proposed Mitigation*: Add an exclusive westbound right-turn-only lane on Bancroft Way.
  - *Result:* Impacts at this intersection can be mitigated to improve delay and level-of-service and meet LOS impact standards for all Build Alternatives under all Berkeley alignment variations with the exception of the *One-Way Transitway via Shattuck Avenue and Oxford Street* variation. Improvements to intersection LOS would vary by BRT alignment variation.
    - Under the *Two-Way Transitway via Restricted Bancroft Way* variation, this intersection would not experience an impact and not require mitigation.
    - Under the *Two-Way Transitway via Shattuck Avenue* variation, intersection performance would improve from LOS F to LOS D and average vehicle delay would decrease to 51 seconds during the afternoon peak period and to 55 seconds during the morning peak period. The mitigation measure would reduce delay, and LOS would be within established performance standards (i.e., no longer exceed the city of Oakland's impact thresholds).
    - Under the *One-Way Transitway via Shattuck Avenue-Oxford Street* variation, intersection operations in the morning peak would improve from LOS F to LOS E and average vehicle delay would decrease to 78 seconds. In the afternoon peak, intersection operations would remain at LOS F although delay would decrease from 163 seconds to 85 seconds. However, this mitigation measure would not reduce delay and improve LOS to within established performance standards. The implementation of additional mitigation measures to reduce delay would require the acquisition of right-of-way, which is not deemed practicable.
    - Under the *Two-Way Transitway via Bancroft Way and Telegraph Avenue* variation and the *Two-Way Transitway via Bancroft Way and One-Way Transitway via Telegraph Avenue-Dana Street* variation, intersection operations would improve from LOS F to LOS D and average vehicle delay would decrease to 51 seconds in the afternoon peak period and to 55 seconds in the morning peak period. The mitigation measure would reduce delay to be within established performance standards.
    - Under the *One-Way Transitway via Bancroft Way-Durant Avenue* and *Two-way Transitway via Telegraph Avenue* variation and the *One-Way Transitway via Bancroft Way-Durant Avenue and Telegraph Avenue-Dana Street Couplets* variation, intersection operations would improve from LOS F to LOS D and

average vehicle delay would decrease to 52 seconds in the afternoon peak period and LOS C and 30 seconds in the morning peak period. The improvement would reduce delay to be within established performance standards.

- *Additional Impacts*: None.

The following Berkeley intersections would experience impacts during the afternoon peak period only:

- Adeline Street/Ashby Avenue (location 19, off-alignment)
  - *Proposed Mitigation:* Adjust signal timing.
  - *Result:* Average vehicle delay would be reduced from 93 seconds and LOS F to 60 seconds and LOS E. These conditions would result in average vehicle delay within established performance standards.
  - *Additional Impacts:* None.
- Adeline Street/Alcatraz Avenue (location 20, off-alignment)
  - *Proposed Mitigation:* Adjust signal timing.
  - *Result:* Average vehicle delay would be reduced from 202 seconds and LOS F to 180 seconds and LOS F. These conditions would result in average vehicle delay within established performance standards.
  - *Additional Impacts:* None.
- College Avenue/Ashby Avenue (location 22, off-alignment)
  - *Proposed Mitigation:* Add a southbound left-turn lane to College Avenue.
  - *Result:* Intersection operations would improve from LOS E to LOS C and average vehicle delay would be reduced from 61 seconds to 32 seconds in the afternoon peak hour. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* Removal of several curb parking spaces.

City of Oakland

The following Oakland intersections would experience impacts during both the morning and afternoon peak periods:

- International Boulevard/42nd Avenue (location 46, on-alignment)
  - *Proposed Mitigation*: Convert the northbound, eastbound, and westbound combined through and right-turn-lanes to through-only lanes and add exclusive right-turn-lanes in each of these directions.

- *Result:* Intersection operations would improve from LOS F to LOS D and average vehicle delay would be reduced from 120 seconds to 55 seconds during the afternoon peak hour. These conditions would result in intersection LOS within established performance standards.
- *Additional Impacts:* Elimination of median landscaping and removal of parking along the western curb for the new northbound right-turn-lane; BRT lanes shifting as they cross the intersection and minor sidewalk narrowing on the westbound approach.

- International Boulevard/73rd Avenue (Hegenberger Road) (location 50, on-alignment)
  - *Proposed Mitigation*: Add a second northbound and southbound through-lane on International Boulevard and westbound and eastbound left-turn-only lanes on 73rd Avenue. The additional through-lanes on International Boulevard would merge into single through-lanes past the intersection.
  - *Result:* Intersection operations would improve from LOS F to LOS E and average vehicle delay would be reduced from more than 120 seconds to 77 seconds during the afternoon peak hour. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* Realignment of BRT lanes through the intersection and lane narrowing on the northbound and southbound approaches.
- International Boulevard/98th Avenue (location 52, on-alignment)
  - *Proposed Mitigation:* Add a second northbound and southbound through-lane on International Boulevard and move the station to 99th Avenue. The additional through-lanes would merge back into single through-lanes after 98th Avenue and before the station at 99th Avenue.
  - *Result:* Intersection operations would improve from LOS F to LOS E and average vehicle delay would be reduced from 153 seconds to 76 seconds during the afternoon peak hour. The improved level-of-service and delay would result in intersection LOS within established performance standards.
  - *Additional Impacts*: Moving the proposed BRT station to International Boulevard and 99th Street; widening International Boulevard by four to five feet along the northbound approach and northbound departure curb line and by five to six feet along the southbound approach and southbound departure curb line; removal of parking along International Boulevard near the intersection (approximately 14 spaces).

    Right-of-way would need to be acquired on each side of the roadway where the curb is realigned because the existing sidewalk area is too narrow to allow roadway widening within the International Boulevard right-of-way. The expanded right-of-way requirements would extend approximately 150 feet along each approach and departure. The areas affected are currently used for parking; no structures would be affected.

The following Oakland intersections would experience impacts during the morning peak period only:

- College Avenue/Claremont Avenue (location 53, off-alignment)—Proposed measures to improve operations at this intersection would mitigate for morning impacts, which are more severe than afternoon impacts and therefore represent the worst case condition.
  - *Proposed Mitigation*: Adjust signal timing.
  - *Result*: Intersection operations would improve from LOS E to LOS D and average vehicle delay would be reduced from 70 seconds to 52 seconds during the morning peak hour. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts*: None.

The following Oakland intersections would experience impacts during the afternoon peak period only:

- Telegraph Avenue/Alcatraz Avenue (location 24, on-alignment)
  - *Proposed Mitigation:* No practicable mitigation measures were able to reduce delay and improve LOS to meet established performance standards. To substantially reduce delay would require reconstructing the intersection and widening approach roadways to provide room for additional turn and through travel lanes. This was deemed infeasible due to excessive intrusion of the widened roadway into the pedestrian zone and the disruption to local businesses.
- Telegraph Avenue/45th Street (location 27, on-alignment)
  - *Proposed Mitigation:* Add a northbound through-lane on Telegraph Avenue.
  - *Result:* Intersection operations would improve from LOS E to LOS B and average vehicle delay would be reduced from 56 seconds to 19 seconds during the afternoon peak hour. This additional lane would become a left-turn-only lane at the Telegraph Avenue and Shattuck Avenue intersection. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* None.
- Telegraph Avenue/40th Street (location 28, on-alignment)
  - *Proposed Mitigation:* Convert an existing southbound through- and right-turn-lane on Telegraph Avenue to through-only and add a southbound right-turn-only lane.
  - *Result:* Intersection operations would improve from LOS F to LOS D and average vehicle delay would be reduced from 118 seconds to 46 seconds. This would result in intersection LOS within established performance standards.

- *Additional Impacts:* None.

- Telegraph Avenue/MacArthur Boulevard (location 29, on-alignment)
  - *Proposed Mitigation:* Add a northbound left-turn lane to Telegraph Avenue.
  - *Result:* Intersection operations would improve from LOS F to LOS E and average vehicle delay would be reduced from 100 seconds to 61 seconds in the afternoon peak period. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* None.

- International Boulevard/Fruitvale Avenue (location 44, on-alignment)
  - *Proposed Mitigation:* Add a westbound right-turn-only lane to Fruitvale Avenue.
  - *Result:* Intersection operations would improve from LOS E to LOS D and average vehicle delay would be reduced from 67 seconds to 43 seconds. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* None.

- International Boulevard/High Street (location 47, on-alignment)
  - *Proposed Mitigation:* Mitigating the impact to meet established LOS standards would require the acquisition of right-of-way on the northbound, eastbound, and westbound approaches at substantial cost and with displacement of existing businesses. The measures are not deemed feasible, and therefore the anticipated delay and LOS at this intersection cannot be mitigated.

- International Boulevard/Seminary Avenue (location 48, on-alignment)
  - *Proposed Mitigation*: Add a second northbound through-lane on International Boulevard and eastbound and westbound left-turn-only lanes on Seminary Avenue. The additional through-lane on International Boulevard would merge back into a single through-lane after the intersection.
  - *Result:* Intersection operations would improve from LOS F to LOS D and average vehicle delay would be reduced from 160 seconds to 51 seconds. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* Realignment of BRT lanes through the intersection and widening of the roadway (and narrowing of sidewalks) on International Boulevard; removal of curb parking on Seminary Avenue along the length of the new left-turn-only lanes.

- Shattuck Avenue/55th Street (location 54, off-alignment)
  - *Proposed Mitigation:* Adjust signal timing at this intersection.

- *Result:* Intersection operations would remain at LOS F but average vehicle delay would be reduced from 200 seconds to 165 seconds. These conditions would result in average vehicle delay within established performance standards.
- *Additional Impacts:* None.

- Martin Luther King Jr. Way/55th Street (location 55, off-alignment)
  - *Proposed Mitigation:* Adjust signal timing.
  - *Result:* Intersection operations would be improved from LOS E to LOS D and average vehicle delay would be reduced from 78 seconds to 44 seconds. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* None.
- Martin Luther King Jr. Way/52nd Street (location 56, off-alignment)
  - *Proposed Mitigation:* Increase the signal cycle length from 100 to 130 seconds.
  - *Result:* Intersection operations would be improved from LOS E to LOS D with average vehicle delay reduced from 69 seconds to 47 seconds of delay, which would result in intersection LOS within established performance standards.
  - *Additional Impacts:* None.
- Broadway/ West Grand Avenue (location 60, off-alignment)
  - *Proposed Mitigation:* Add a northbound left-turn-only lane to Broadway.
  - *Result:* Intersection operations would be improved from LOS F to LOS E and average vehicle delay would be reduced from 193 seconds to 68 seconds. This would result in intersection LOS within established performance standards.
  - *Additional Impacts:* None.
- Foothill Boulevard/Fruitvale Avenue (location 67, off-alignment)
  - *Proposed Mitigation:* Adjust signal timing.
  - *Result:* Intersection operations would remain at LOS F but average vehicle delay would be reduced from over 300 seconds to 156 seconds. These conditions would result in average vehicle delay within established performance standards.
  - *Additional Impacts:* None.
- Foothill Boulevard/High Street (location 68, off-alignment)
  - *Proposed Mitigation:* Adjust signal timing.

- *Result:* Intersection operations would be improved from LOS F to LOS D and average vehicle delay would be reduced from 108 seconds to 48 seconds. These conditions would result in intersection LOS within established performance standards.
- *Additional Impacts:* None.

- San Leandro Street/High Street (location 69, off-alignment)
  - *Proposed Mitigation:* Convert the northbound and southbound left-turn and through-lanes on San Leandro Street to left-turn-only lanes. Convert northbound and southbound right-turn-only lanes to through and right-turn-lanes.
  - *Result:* Intersection operations would remain at LOS F, but average vehicle delay would be reduced from over 192 seconds to 118 seconds. Although an improvement, the resulting condition would not meet established LOS and delay performance standards. A project impact would continue to exist.

    The implementation of additional mitigation measures to reduce delay and improve LOS to be within established standards would require the acquisition of right-of-way and displacement of existing structures at this intersection. These secondary impacts are not considered acceptable, given the guidelines established for mitigation of traffic impacts in the study area (see introduction to Section 3.2.4.2) and therefore additional mitigations are not practicable.

- San Leandro Street/98th Avenue (location 72, off-alignment)
  - *Proposed Mitigation:* Adjust signal timing.
  - *Result:* Intersection operations would remain at LOS F, but average vehicle delay would be reduced from 194 seconds to 127 seconds. These conditions would result in average vehicle delay within established performance standards.
  - *Additional Impacts:* None.

City of San Leandro

Alternatives 1 and 3. Implementing Alt 1: Separate BRT and Local Service to BayFair BART or Alt 3: Combined BRT and Local Service to BayFair BART would result in impacts at four on-alignment intersections.

The following San Leandro intersection would experience impacts during both the morning and afternoon peak period:

- East 14th Street/Dutton Avenue (location 74, on-alignment)
  - *Proposed Mitigation:* (1) Convert the northbound right-turn and through-lane on East 14th Street to through only; (2) Add a northbound right-turn-only lane; (3) Convert the westbound left-turn, right-turn, and through-lane on Dutton Avenue to right-turn and through only; and (4) Add a westbound left-turn-only lane.

- *Result:* Intersection operations would remain at LOS F, but average vehicle delay would be reduced from 218 seconds to 99 seconds during the afternoon peak hour. This would result in average vehicle delay within established performance standards.
- *Additional Impacts:* Removal of parking (four spaces) on the westbound approach of Dutton Avenue; realignment of the curb and narrowing of sidewalks along East 14th Street.

  The sidewalk along the northbound approach would be narrowed by three feet and along the southbound approach by four feet. This would result in sidewalk widths of eight feet on these two approaches, the minimum allowed by the city's design standards.

<u>The following San Leandro intersections would experience impacts during the afternoon peak period only:</u>

- <u>East 14th Street/143rd Avenue</u> (location 80, on-alignment)
  - *Proposed Mitigation:* Add a second southbound through-lane on East 14th Street. The additional lane would merge back into a single lane after the intersection.
  - *Result:* Intersection operations would improve from LOS E to LOS C and average vehicle delay would be reduced from 72 seconds to 30 seconds during the afternoon peak hour. These conditions would result in an intersection LOS within established performance standards.
  - *Additional Impacts:* None.
- <u>East 14th Street/150th Avenue</u> (location 82, on-alignment)
  - *Proposed Mitigation:* (1) Add a southbound through-lane on East 14th Street; (2) Convert the northbound combined right-turn and through-lane on East 14th Street to through only; and (3) Add a northbound right-turn-only lane. The additional southbound through-lane would merge back into a single lane after the intersection.
  - *Result:* Intersection operations would be improved from LOS E to LOS D and average vehicle delay would be reduced from 65 seconds to 46 seconds. These conditions would result in intersection LOS within established performance standards.
  - *Additional Impacts:* Realigned curbs and sidewalk would narrow by two feet on the northbound and southbound approaches of East 14th Street. No median landscaping or curb parking near the intersection would be proposed.

    The resulting sidewalk width would be eight feet.
- <u>East 14th Street/ Fairmont Drive</u> (location 83, on-alignment).
  - *Proposed Mitigation:* (1) Add a second southbound through-lane on East 14th Street; (2) add a second northbound left-turn lane on East 14th Street; and (3) add a third through-lane eastbound on Fairmont Drive. The additional through-lane on East 14th

Street continues to become two thru-lanes after the intersection. The additional through-lane on Fairmont Drive merges back into two through-lanes after the intersection.

- *Result:* Intersection operations would improve from LOS F to LOS E and average vehicle delay would be reduced from 161 seconds to 64 seconds. The improvements reduce congestion to below the established LOS and delay impact standard.
- Additional Impacts: Widening southbound East 14th Street along the west curb approaching the intersection by 10 to 12 feet and the west curb leaving the intersection by four to six feet; widening northbound East 14th Street along the east curb approaching the intersection by four to six feet, for a total widening of East 14th Street south of the intersection of 10 to 12 feet; reduction of median landscaping; and realignment of BRT lanes through the intersection. Right-of-way equivalent in width to proposed roadway widening would need to be acquired from approximately 153rd to 155th Avenues.

Alternatives 2 and 4. Alt 2: Separate BART and Local Service to San Leandro BART and Alt 4: Combined BRT and Local Service to San Leandro BART would not result in LOS or delay impacts warranting mitigation.

3.2.4.3 SUMMARY OF MITIGATION

Traffic operations impacts resulting in operations below established local standards would occur at 22 to 27 intersections (depending on Build Alternatives and alignment variation) in the project corridor from implementation of the East Bay BRT Project. Impacts can be mitigated to meet standards at most of these locations. Mitigation of impacts to meet established standards would not be possible at the following three to four intersections in Berkeley and Oakland:

City of Berkeley

- Fulton Street/Bancroft Way in Berkeley (location 5, on-alignment) under the *Shattuck Avenue-Oxford Street Loop* variation only, during both the morning and afternoon peak periods. Under all other BRT alignment variations, impacts could be mitigated to meet LOS standards.

City of Oakland

- Telegraph Avenue/Alcatraz Avenue in Oakland (location 24, on-alignment). An impact would occur during the afternoon peak hour and severe congestion is also anticipated in the morning peak.[7]
- International Boulevard/High Street in Oakland (location 47, on-alignment). An impact would occur during the afternoon peak hour.
- San Leandro Street/High Street in Oakland (location 69, off-alignment). An impact would occur during the afternoon peak hour and severe congestion is also anticipated in the morning peak.

[7] The traffic analysis was performed for the afternoon peak only; however, the levels of traffic and congestion are also expected to be severe during the morning peak based upon forecast link volumes.

3.3 Non-Motorized Transportation

This section describes non-motorized transportation in the project corridor, including existing and future pedestrian and bicycle conditions.

3.3.1 Pedestrian Conditions

The following subsection deals with the existing and planned pedestrian network along the project corridor, describing key pedestrian destinations, and summarizing pedestrian volumes at major intersections on the alignment. To evaluate pedestrian conditions along the corridor, the general plans of the cities of Berkeley, Oakland, and San Leandro were reviewed. In addition, pedestrian counts were conducted at several high volume locations along the project corridor.

3.3.1.1 CENTERS OF PEDESTRIAN ACTIVITY

The project corridor is characterized by mixed-use, higher-density development that has both high levels of pedestrian activity and land uses supportive of transit. Centers of pedestrian activity include the downtown central business districts of all three cities as well as several smaller but important areas of activity, including major hospital complexes, shopping districts, community colleges, high school and junior high school campuses, churches, civic centers and entertainment/recreational facilities. Major centers of pedestrian activity along the proposed East Bay BRT Project alignment are listed in Table 3.3-1.

Table 3.3-1: Major Pedestrian Activity Centers along the Project Corridor

Location of Nearest BRT Alignment Intersection	City	Activity Center Name	Activity Center Type
Shattuck Avenue/Center Street	Berkeley	Berkeley BART Station	Transit Facility
		City Hall	Government Office
		Post Office	Government Office
		Berkeley City College	Educational Institution
		Berkeley High School	Educational Institution
		Downtown Berkeley Retail District	Shopping Area
Shattuck Avenue/Durant Avenue	Berkeley	Herrick Campus, Alta Bates Medical Center	Medical Facility
Bancroft Way-Dwight Way/Telegraph Avenue	Berkeley	UC Berkeley (Sather Gate)	Educational Institution
		Upper Telegraph Avenue Retail District	Shopping Area
Telegraph Avenue/Derby Street	Berkeley	Willard Middle School	Educational Institution
Telegraph Avenue/Ashby Avenue	Berkeley	Berkeley Bowl	Shopping Area
Telegraph Avenue/Ashby Avenue	Berkeley	Alta Bates Hospital	Medical Facility
Telegraph Avenue/Ashby Avenue	Berkeley	Elmwood Shopping District	Restaurants, Retail, Services
Telegraph Avenue/State Route 24	Oakland	Rockridge BART Station	Transit Facility
		Rockridge Shopping District	Restaurants, Retail, Services
Telegraph Avenue/52nd Street-Claremont Avenue	Oakland	Department of Motor Vehicles	Government Office
		Temescal Library	Public Library

Table 3.3-1: Major Pedestrian Activity Centers along the Project Corridor

Location of Nearest BRT Alignment Intersection	City	Activity Center Name	Activity Center Type
		Children's Hospital Temescal Shopping District	Medical Facility Restaurants, Retail, Services
Telegraph Avenue/48th Street	Oakland	Verdese Carter Middle School	Educational Institution
Telegraph Avenue/40th Street	Oakland	MacArthur BART Station	Transit Facility
Telegraph Avenue/MacArthur Boulevard	Oakland	Kaiser Hospital	Medical Facility
Telegraph Avenue/30th Street	Oakland	Summit Medical Center	Medical Facility
Telegraph Avenue/Grand Avenue	Oakland	YMCA Caltrans	Recreational Facility Government Office
Broadway/20th Street	Oakland	Kaiser Center Paramount Theatre Sears	Business Offices Cultural Facility Shopping Facility
Broadway/19th Street	Oakland	19th Street BART	Transit Facility
Broadway/14th Street	Oakland	Oakland City Hall	Government Office
Broadway/11th and 12th Streets	Oakland	12th Street BART Convention Center Oakland Chinatown Federal Building State of California	Transit Facility Cultural Facility Restaurants, Retail, Services Government Office Government Office
Broadway/11 and 12th Streets	Oakland	Hall of Justice Municipal Court	Government Office Government Office
Broadway/11th and12th Streets	Oakland	Jack London Square Alameda-Oakland Ferry	Community/Retail Center Transit Facility
11th and 12th Streets/Oak Street	Oakland	Oakland Amtrak	Transit Facility
11th and 12th Streets/Oak Street	Oakland	Laney College	Educational Institution
International Boulevard/8th Avenue	Oakland	Eastlake Retail District	Shopping Area
International Boulevard/Fruitvale Avenue	Oakland	Fruitvale BART Station Fruitvale Retail District	Transit Facility Shopping Area
International Boulevard/Havenscourt Boulevard	Oakland	Havenscourt Middle School	Educational Institution
International Boulevard/78th Avenue	Oakland	Post Office	Government Office
International Boulevard/82nd Avenue	Oakland	Allen Temple Baptist Church	House of Worship
International Boulevard/90th Avenue	Oakland	Post Office Library	Government Office Public Library
International Boulevard/98th Avenue	Oakland	Elmhurst Middle School	Educational Institution
International Boulevard/105th Avenue	Oakland	Durant Square Shopping Center	Shopping Center
East 14th Street/Begier Avenue	San Leandro	San Leandro City Hall	Government Office
East 14th Street/Davis Street	San Leandro	Downtown San Leandro Retail District	Shopping Area
San Leandro Boulevard/Davis Street	San Leandro	San Leandro BART Station	Transit Facility
East 14th Street/Estudillo Avenue	San Leandro	Post Office	Government Office
East 14th Street/Blossom Way	San	San Leandro High School	Education Facility

Table 3.3-1: Major Pedestrian Activity Centers along the Project Corridor

Location of Nearest BRT Alignment Intersection	City	Activity Center Name	Activity Center Type
	Leandro		
East 14th Street/136th Avenue	San Leandro	San Leandro Hospital	Medical Facility
East 14th Street/148th Avenue	San Leandro	Library Post Office	Public Library Government Office
East 14th Street/Bayfair Drive	San Leandro	Bayfair Center	Shopping Center
East 14th Street/Bayfair Drive	San Leandro	BayFair BART Station	Transit Facility
Source: Parsons, 2005			

City of Berkeley

Within the City of Berkeley, major activity centers include Downtown Berkeley, with business, retail, and cultural uses, and the UC Berkeley campus, with its high concentration of university-related employment and large student body. The single busiest pedestrian area in the project corridor is the commercial neighborhood along Telegraph Avenue adjacent to the UC Berkeley campus.

The Elmwood District on College Avenue and the "Berkeley Bowl" area near the intersection of Shattuck Avenue and Adeline Street, both off the project alignment, have large numbers of pedestrians. There are two major medical centers with hospitals and nearby concentrations of supporting medical offices at the Alta Bates (Ashby Avenue at Telegraph Avenue area) and Herrick (Dwight Way at Shattuck Avenue area) campuses of the Alta Bates Summit Medical Center.

City of Oakland

The Oakland portion of the project corridor includes major areas of employment and commercial activity. Downtown Oakland is home to 43 percent of overall corridor employment, concentrated on just 13 percent of total corridor land area. There are large concentrations of business and government office sector employment in Oakland's central business district. The area includes corporate headquarters, professional service businesses, major federal and state government buildings, the University of California Office of the President, Alameda County Courthouse and several county administrative buildings, and Oakland City Hall and administrative buildings. Also located in the downtown are the headquarters of several regional agencies, including BART, the East Bay Municipal Utilities District (EMBUD), the MTC, and ABAG. Other downtown uses include retail, restaurant, entertainment, hotel, and convention center activities, educational and cultural activities, and service and light industrial uses. Districts and destinations downtown include Oakland's Chinatown, Jack London Square, the Amtrak train station, Laney College, Sears, and the Paramount Theatre.

North of downtown from Grand Avenue north to SR 24 there are additional business activities and employment, including the Summit campus of the Alta Bates Summit Medical Center, Oakland's Broadway Auto Row, Children's Hospital and Research Center of North Oakland, and the Kaiser Permanente hospital and medical center. In addition, vibrant neighborhood commercial activity exits

in the Rockridge district on College Avenue and in the Temescal area near the intersection of 51st Street and Telegraph Avenue.

East of Downtown Oakland, there are additional nodes of employment in the Lake Merritt, Eastlake, and Fruitvale districts. The Lake Merritt District lies on the southern shore of Lake Merritt and offers a mix of entertainment, dining, and shopping. Only seven minutes from Downtown Oakland, the district also attracts many joggers, walkers, and cyclists who recreate around the lake. The Eastlake District, located along International Boulevard and East 12th Street between 1st and 14th Avenues, comprises an eclectic collection of small businesses, including many Southeast Asian-owned stores. The Fruitvale District, located between I-580 and I-880 in the area of the Fruitvale BART Station, has emerged as a thriving multicultural commercial area with a strong Latino identity. Community-sponsored cultural events such as the annual Dia de los Muertos festival attract tens of thousands of people annually. The 255,000-square-foot, mixed-use Fruitvale Transit Village provides housing, retail, and office space surrounding a pedestrian plaza at the Fruitvale BART Station.

City of San Leandro

Downtown San Leandro, centered along East 14th Street from Davis Street to Dolores Street, includes a large concentration of business and retail sector activities, while the area surrounding the Bayfair Center includes a large amount of retail and service employment. Additional nodes of employment are located in the area of East 14th Street at Georgia Way/Begier Street, site of the San Leandro City Hall, theater and government center, and East 14th Street and 136th Avenue around San Leandro Hospital.

3.3.1.2 PEDESTRIAN VOLUMES

Pedestrian counts were conducted at several of the busiest locations along the project corridor and total hourly volumes during the afternoon peak period (approximately 4:00 p.m. to 5:00 p.m.) were estimated. The area with the highest volume of pedestrian activity is at Telegraph Avenue and Bancroft Way in Berkeley's Southside. This location is the main gateway to the south side of the UC Berkeley campus. Other intersections along Telegraph Avenue to Dwight Way are heavy pedestrian crossings, along with Bancroft Way at Dana Street. Downtown Berkeley at Shattuck Avenue and Center Street (the east and west legs of Shattuck Avenue combined), and Downtown Oakland in the vicinity of Broadway at 14th Street are other high volume locations.

Pedestrian volumes are summarized by major intersection in Table 3.3-2.

3.3.2 Bicycle Conditions

3.3.2.1 EXISTING AND PROPOSED BICYCLE FACILITIES

The project corridor has many qualities favorable to bicycle riding, including a temperate climate and scenic recreational resources along San Francisco Bay and in the hills. Given the generally flat terrain and developed street system in and around the project corridor, the most constraining element on bicycle travel is the heavy traffic on major arterials, many of which carry volumes not conducive to a friendly bicycling environment. Despite these constraints, there is considerable bicycling activity in the area and interest in expanding bicycle activity in the project corridor, which is supported by several active bicycle advocacy groups.

Existing and planned bicycling conditions were established by meeting with representatives of the biking community and consulting regional and state bicycle plans, including the *San Francisco Bay Trail Plan* and the *Alameda County Regional Bicycle Master Plan*, which contain goals and policies for maintaining and expanding the existing bicycle system. Further information on existing and planned bicycle facilities was obtained from the general plans for the cities of Berkeley, Oakland, and San Leandro as well as local bicycle plans such as the *Berkeley Bicycle Plan* (2000); *City of Oakland Bicycle Master Plan,* adopted July 1999 and currently being updated*;* and the City of San Leandro *Bicycle and Pedestrian Master Plan* completed in November 2004.

Table 3.3-2: Existing Pedestrian Volumes at Select Locations along the Project Alignment (PM Peak Period, 4:00 p.m.-5:00 p.m.)

Street Intersection	East X-Walk	South X-Walk	West X-Walk	North X-Walk	Total Volume
Downtown Berkeley					
Shattuck Avenue/Addison Street (East)	261	235	159	176	831
Shattuck Avenue/Addison Street (West)	235	188	373	134	930
Shattuck Avenue/Center Street (East)	265	762	n/a	174	1,201
Shattuck Avenue/Center Street (West)	n/a	762	725	113	1,600
Shattuck Avenue/Allston Way	399	342	201	162	1,104
Berkeley Southside					
Bancroft Way/Dana Street	668	596	759	0	2,023
Telegraph Avenue/Bancroft Way	1,260	755	1,181	71	3,267
Telegraph Avenue/Durant Avenue	705	187	868	154	1,914
Telegraph Avenue/Channing Way	605	186	731	300	1,822
Telegraph Avenue/Haste Street	424	171	472	135	1,202
Telegraph Avenue/Dwight Way	408	186	415	287	1,296
Downtown/East Oakland					
Broadway/14th Street	662	562	456	418	2,098
Broadway/12th Street	306	120	410	152	988
Broadway/11th Street	492	168	476	144	1,280
International Boulevard/Fruitvale Avenue	110	91	137	98	436
International Boulevard/33rd Avenue	341	97	505	95	1,038
International Boulevard/34th Avenue	450	177	0	216	843
International Boulevard/35th Avenue	386	327	297	258	1,267

Source: Parsons, 2005; Cambridge Systematics, 2004

Bikeway classifications are defined in Table 3.3-3. Existing and proposed bikeways, by type, in the study area are described below and shown in Figure 3.3-1.

Table 3.3-3: Bikeway Classifications

Bikeway Class	Definition
Class I Bikeway (Bike Path)	Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.
Class II Bikeway (Bike Lane)	Provides a striped lane for one-way bike travel on a street or highway.
Class III Bikeway (Bike Route)	Provides for shared use with motor vehicle traffic.
Source: *Caltrans Highway Design Manual*, February 1, 2001.	

City of Berkeley

Existing bicycle facilities in Downtown Berkeley and Berkeley Southside include Class II bike lanes (See Table 3.3-3 for bicycle classification descriptions) on Channing Way from Martin Luther King Jr. Way to east of College Avenue, Milvia Street from south of University Avenue to Dwight Way, and Bowditch Avenue from the south side of the UC Berkeley campus to Dwight Way.

The *Berkeley Bicycle Plan*, adopted in 2000, implemented the Bicycle Boulevard Network. Bicycle boulevards are intended to serve as Berkeley's primary bikeways and allow for the free-flow travel of cyclists, while also allowing motor vehicles. The Bicycle Boulevard Network includes: the Channing Way Bicycle Boulevard from Piedmont Avenue to Fourth Street; the Hillegass/Bowditch Bicycle Boulevard on Bowditch Street from Bancroft Way to Dwight Way, continuing on Hillegass Street to the Oakland border; and the Milvia Street Bicycle Boulevard from Hopkins Street in the north to Russell Street in the south.

Another proposed bikeway would run in a north-south direction along Dana Street between Bancroft Way and Derby Street south of the UC Berkeley campus and continue in an east-west direction along Derby Street between Dana Street and Telegraph Avenue. On the project alignment, the Class II bikeway along both sides of Telegraph Avenue from Dwight Way to Woolsey Street is scheduled to be widened to five feet and separated by a striped lane from adjacent parking lanes. It would connect with the existing bikeway along Telegraph Avenue from Woolsey Street to SR 24 in Oakland.

New bikeways and upgrades to existing bikeways within the general project vicinity are being considered; the exact alignment and nature of these improvements have not yet been determined by the city.

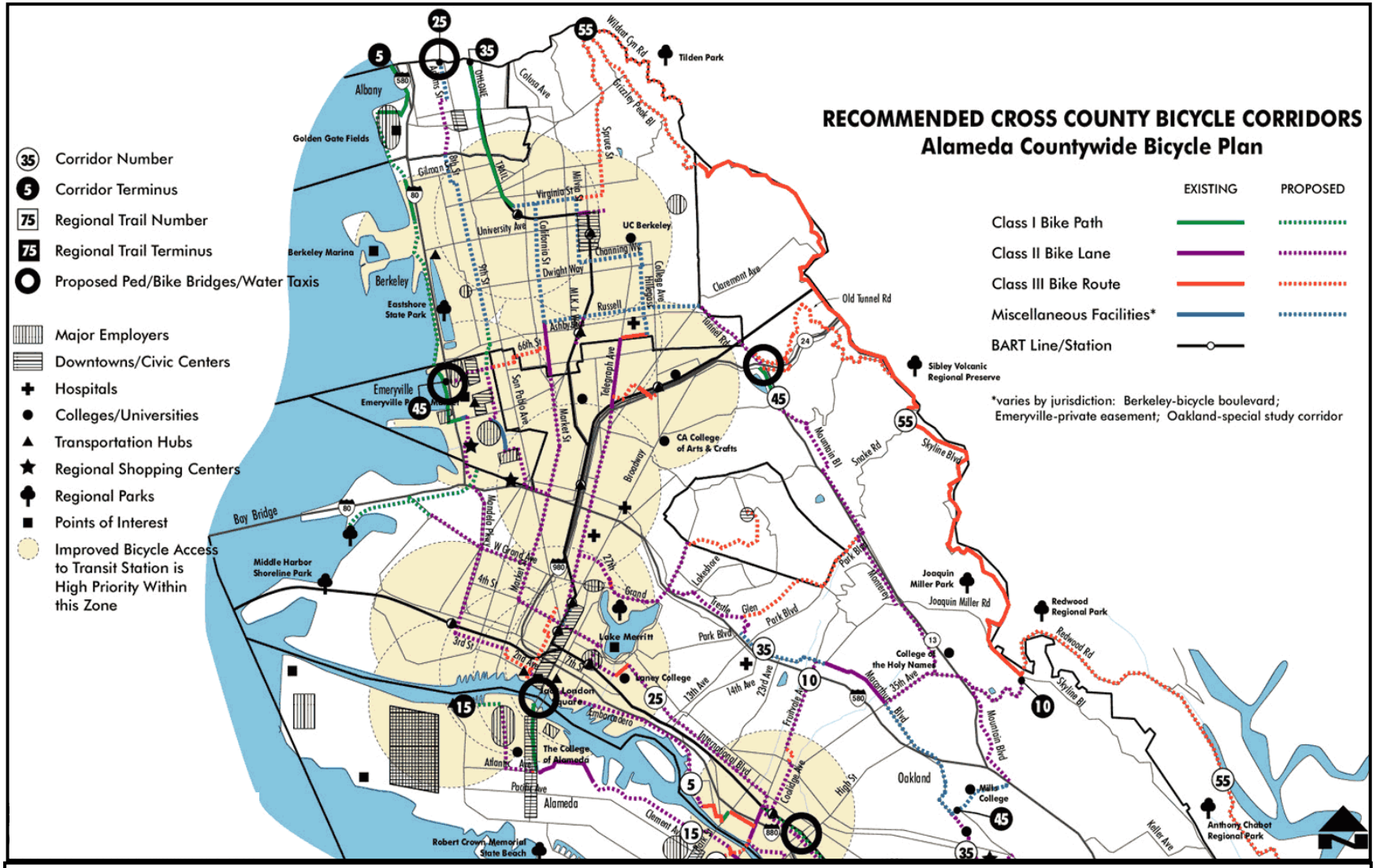

Figure 3.3-1: Bicycle Network Plan

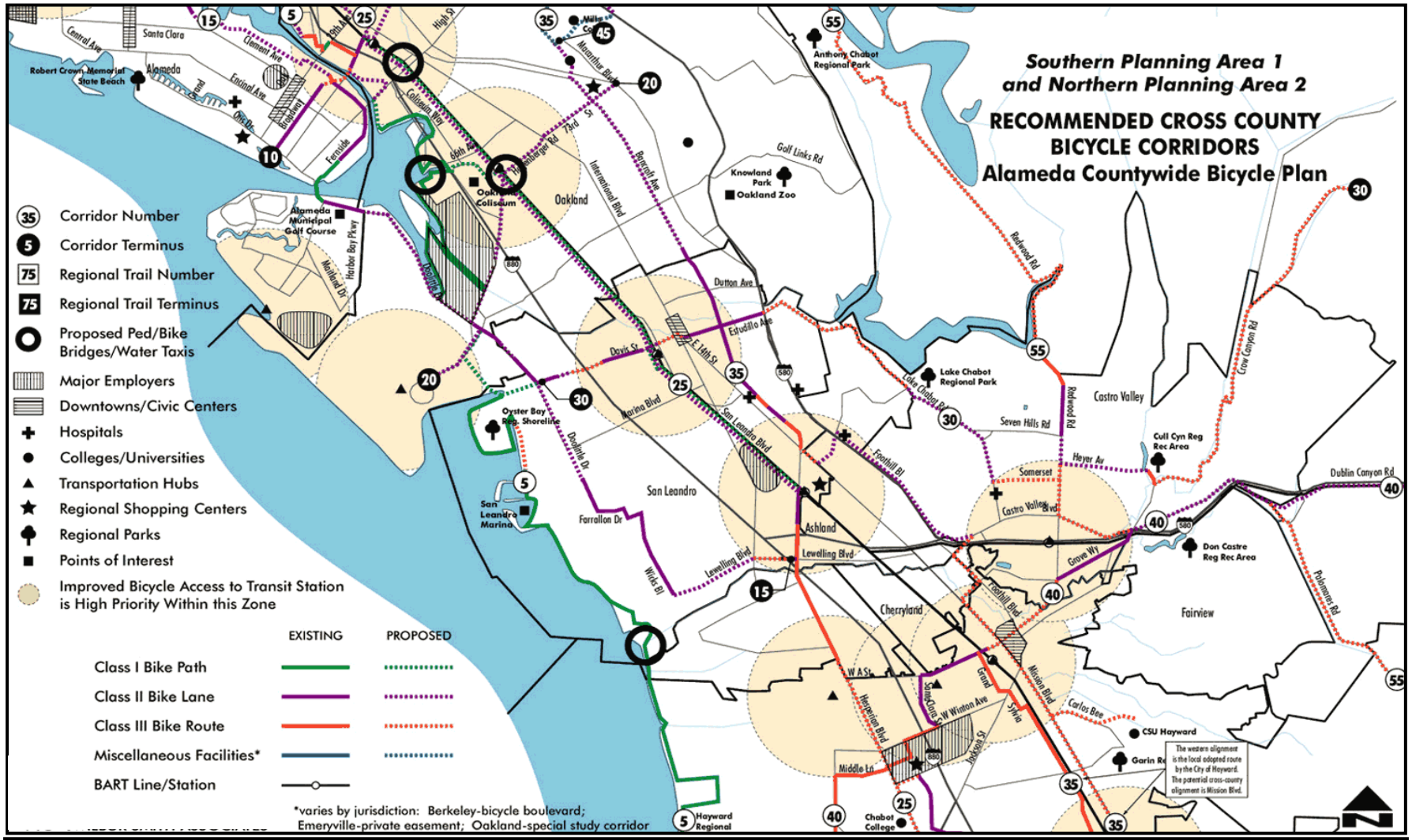

Figure 3.3-1, cont.: Bicycle Network Plan

City of Oakland

An existing north-south Class II bike lane on Telegraph Avenue runs from the Berkeley-Oakland border to SR 24 within the Oakland segment of the alignment. Two existing north-south bikeways, on 1st Avenue and 2nd Avenue, cross International Boulevard just south of Lake Merritt. In addition, a number of bicycle facilities are proposed along the alignment within Oakland. The bikeway along Telegraph Avenue would be extended from SR 24 to 20th Street. A proposed east-west Class II bike lane would run along 14th Street from Mandela Parkway to approximately Oak Street/Lakeside Drive. A number of proposed north-south bikeways would cross International Boulevard within the project limits at the following intersections *(City of Oakland 1999 Bicycle Master Plan; Alameda Countywide 2001 Bicycle Plan)*:

- 4th Avenue
- 14th Avenue
- 22nd Avenue
- Fruitvale Avenue
- 35th Avenue
- 42nd Avenue
- High Street
- 50th Avenue
- Seminary Avenue
- Havenscourt Boulevard–66th Avenue
- Hegenberger Road–73rd Avenue
- 81st Avenue–82nd Avenue
- 105th Avenue

City of San Leandro

When the *Bicycle Master Plan* was first adopted in 1997, San Leandro had just 7.4 miles of bicycle lanes on city streets. Since then, approximately nine miles of bicycle lanes have been installed and the city's bikeway network now includes 16.7 miles of bicycle lanes, 7.4 miles of bicycle paths and 1.4 miles of signed bicycle routes for a total network of approximately 25 miles. The updated *Bicycle and Pedestrian Master Plan* builds upon existing on-street and off-street bicycle facilities throughout the city, focusing on key gaps in the network, ultimately aimed at creating a 53-mile bikeway network.

Existing facilities in the project corridor include a combination of bike lanes and routes along Bancroft Avenue to East 14th Street, continuing as a bike lane along Hesperian Boulevard and Halcyon Drive west of East 14th Street; a bike lane along San Leandro Boulevard from just north of Davis Street to south of San Leandro BART; a bike lane along Estudillo Avenue east of East 14th Street to I-580; a bike lane along Davis Street from west of San Leandro BART to approximately I-880; and a bike lane along Williams Street from west of San Leandro Boulevard to west of I-880. There is an "informal," not-to-state standards, striped bike lane on East 14th Street from the Oakland-San Leandro border to Davis Street.

According to the city's 2004 *Bicycle and Pedestrian Master Plan*, proposed bicycle facilities in San Leandro within the project corridor include extensions of the Davis Street bike lane as a bike route to

East 14th Street and the San Leandro Boulevard bike lane as a bike lane to East 14th Street. The Halcyon Drive bike lane at Hesperian Boulevard would be extended from west of Washington Avenue to east of Bancroft Avenue. A bike trail is proposed in the BART/Union Pacific Railroad corridor from the north city limit to Hesperian Boulevard (it is anticipated the trail would extend into both Oakland and San Lorenzo). New bike routes are proposed along Peralta Avenue between East 14th Street and Bancroft Avenue; along Williams Street/Castro Street/Sybil Avenue from San Leandro Boulevard to I-580; and along 143rd Avenue between Washington Avenue and Bancroft Avenue.[8] Several of these facilities cross or connect to the East 14th Street BRT alignment. No formal bike lanes or routes are proposed along East 14th Street itself.

3.3.3 Environmental Consequences

The following sections discuss the impacts on pedestrian and bicycle conditions in the project corridor under the No-Build and Build Alternatives.

3.3.3.1 PEDESTRIAN IMPACTS

No-Build Alternative

The No-Build Alternative would not substantially change pedestrian pathways or circulation in the project corridor. Increased pedestrian movements at Route 1R Rapid Bus stops and connecting transit centers would be expected due to the higher volumes of riders boarding and alighting at these locations, as discussed in Section 3.1.3, 2025 No-Build Alternative Conditions. Proposed stops are along existing sidewalks and pedestrian volumes would not likely adversely affect sidewalk capacities or conditions.

Build Alternatives

The Build Alternatives would alter pedestrian environments along the alignment of the BRT transitway. On a general level, the East Bay BRT Project has the potential to improve the overall pedestrian environment. Removing a lane of traffic in each direction on Telegraph Avenue and International Boulevard/East 14th Street (to BayFair Center under Build Alternatives 1 and 3 and to the Oakland-San Leandro city limits under Build Alternatives 2 and 4) would tend to slow traffic and, in many locations, reduce traffic volumes, thus improving the pedestrian environment along and across the corridor. The concentration of bus passengers at BRT stations would add to the pedestrian-friendly atmosphere. Passenger waiting areas would be part of the station and either be separated from sidewalks and crosswalks (stations in the street median) or include extensions of these facilities (stations located curbside) so as not to adversely affect the free movement of pedestrians other than those intending to board or alight BRT vehicles.

The East Bay BRT Project under the *Two-way Transitway via Telegraph Avenue* variation through Berkeley's Southside, under all Build Alternatives, would create a pedestrian/transit zone along the three blocks of Telegraph Avenue between Haste Street and Bancroft Way. This would improve pedestrian conditions during the 7:00 a.m. to 7:00 p.m. hours when restrictions on through auto access would apply. Under the *Two-Way Transitway via Restricted Bancroft Way* variation in

[8] The facility along Williams Street would be a Class II bike lane.

Berkeley's Southside, which would prohibit the through movement of autos at the Telegraph Avenue/Bancroft Way intersection, the pedestrian/transit zone would effectively be extended to include Bancroft Way at Sproul Plaza. This would further improve pedestrian conditions on this block under all Build Alternatives.

Additional detail on pedestrian impacts is provided in the following sections. Impacts are assessed in terms of changes in pedestrian movements that could result from construction of the BRT transitway, including pedestrian crossings of BRT lanes, and movements in the vicinity of BRT stations. The discussion identifies where sidewalks and existing streetscape treatments would be modified based on the current concept design for the East Bay BRT Project.

Pedestrian Crossings of the Transitway

Pedestrian movements and access along the BRT transitway would be influenced by the type of BRT facility and/or service to be provided in the public right-of-way. There are three basic transitway configurations: mixed-flow, median transitway in dedicated lanes, and side-running transitway in restricted access lanes. Figure 3.3-2 and Figure 3.3-3 show the locations along the East Bay BRT alignment where the different types of transitways are proposed.

Mixed-Flow Operations. The major areas of mixed-flow operation include:

- Broadway in Downtown Oakland under all Build Alternatives
- East 14th Street in Downtown San Leandro under Build Alternatives 1 and 3, and
- East 14th Street, Davis Street and San Leandro Boulevard between the north San Leandro city limit and the San Leandro BART Station under Build Alternatives 2 and 4.

The segment of Bancroft Way between Telegraph Avenue and Shattuck Avenue in Berkeley Southside would be mixed-flow operation if the *Two-Way Transitway via Restricted Bancroft Way* variation were selected. There are other short roadway segments, mainly transition zones, where mixed-flow operations would occur. These include Shattuck Avenue in Downtown Berkeley between Addison Street and University Avenue under the *One-Way Transitway via Shattuck Avenue-Oxford Street Loop* variation and 12th Street at the Lake Merritt estuary in Oakland. These segments of mixed-flow operation would be possible under all of the Build Alternatives.

For Alternatives 1 and 3 only, the BRT alignment through Bayfair Center would be mixed flow.

Where BRT service would not be provided dedicated travel lanes but operate with other traffic in mixed-flow lanes, no change in pedestrian access or circulation patterns is anticipated. An increase in bus service frequencies would be the only noticeable change.

Median Transitway. A substantial portion of the East Bay BRT alignment is proposed to include median transitways under all of the Build Alternatives. Telegraph Avenue between Dwight Way in Berkeley and 20th Street in Oakland would incorporate a two-way median transitway as would International Boulevard from 14th Avenue to the Oakland-San Leandro city limit. Under Alternatives 1 and 3, a two-way median transitway is proposed in San Leandro along East 14th Street from the north city limit to Davis Street and from Blossom Way to Bayfair Center.

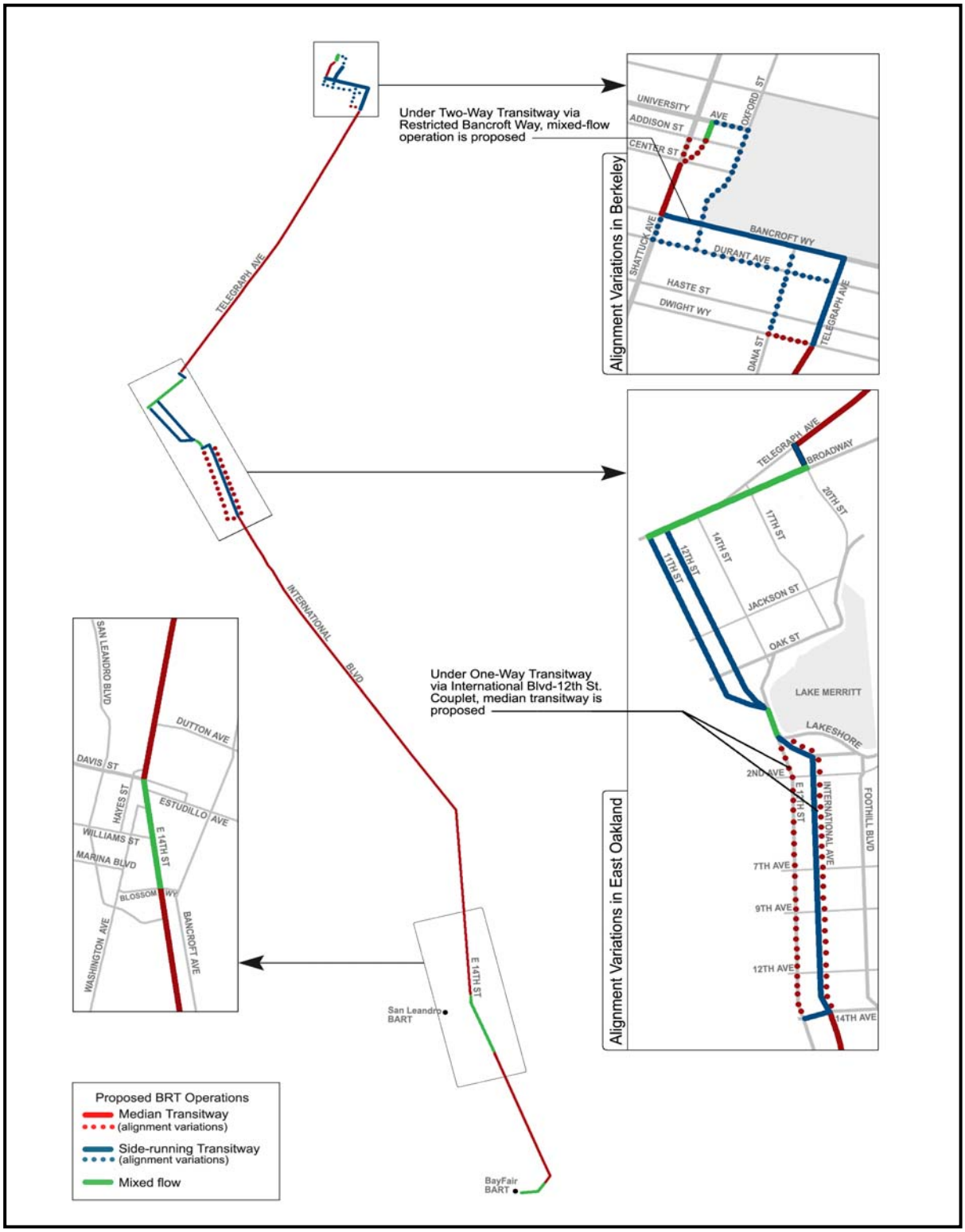

Figure 3.3-2: Transitway Configuration and BRT Operations: Alternatives 1 and 3

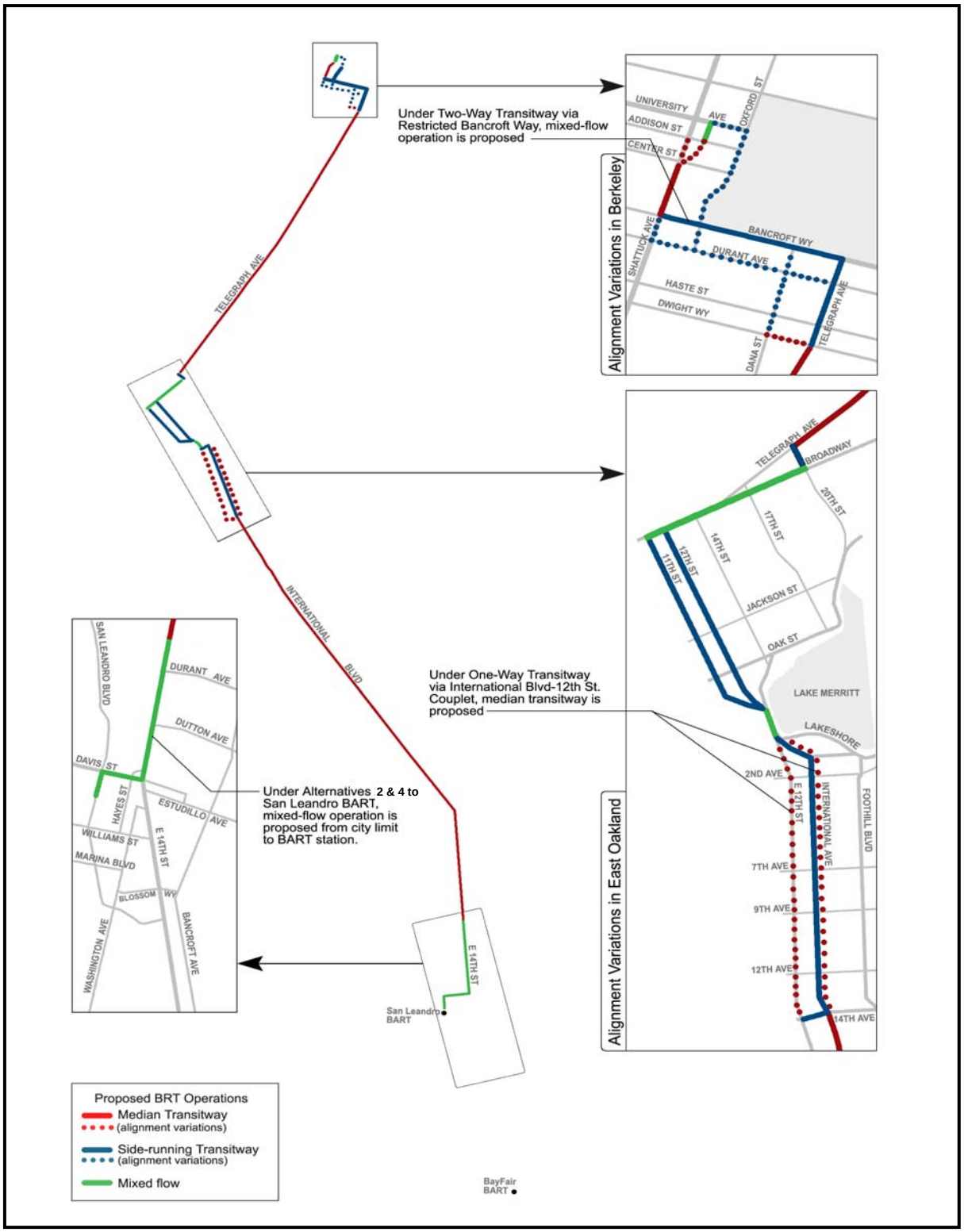

Figure 3.3-3: Transitway Configuration and BRT Operations: Alternatives 2 and 4

A single lane median transitway is proposed on International Boulevard and on East 12th Street between 1st and 14th Avenues under the *International Boulevard-12th Street Couplet* variation for all Build Alternatives.

Where BRT buses would operate in a median transitway, existing crosswalks would be retained, unless it was determined that a particular crosswalk would present a safety hazard or an alternate crosswalk offered better pedestrian access. As project design advances, additional pedestrian volume studies would be performed by AC Transit to identify the key areas for added pedestrian crossings. At intersections under traffic signal control, crosswalks would be signalized as part of the traffic signal control system. At unsignalized intersections, crosswalks would be demarcated and pedestrian signals provided, including indicators to oncoming traffic, where warranted for safety or to control high volume pedestrian movements.

Pedestrians would cross traffic lanes and the BRT transitway only at designated crosswalks. Pedestrians would be prohibited from crossing the median transitway between intersections unless a special crosswalk with warning lights for oncoming bus or auto traffic was provided. (Such "midblock" crosswalks currently exist in the vicinity of UC Berkeley.) Thus, under the Build Alternatives there would be no substantial change in pedestrian circulation or pedestrian access to surrounding land uses compared to the No-Build Alternative.

At intersections with median stations or dedicated left turn lanes, the mixed-flow traffic lane would be shifted closer to the curb than under most existing configurations. Traffic would then operate close to the sidewalk. Pedestrians would need to be aware of the proximity of traffic lanes at intersections.

Side-running Transitways. Side-running transitways are proposed on various roadway segments: Oxford Street under the *One-Way Transitway via Shattuck Avenue-Oxford Street* variation; Bancroft Way, Durant Avenue, Dana Street and Telegraph Avenue in Berkeley Southside; 11th and 12th Street in Downtown Oakland, and International Boulevard between 1st and 14th Avenues under the *Two-Way Transitway via International Boulevard* variation in East Oakland. These variations are possible under all Build Alternatives.

The construction of transit lanes next to the curb or the curbside parking lane is not anticipated to markedly affect pedestrian crossings of the transitway. The dedication of one lane of traffic to buses rather than cars would not require modifications to the street cross section; thus, pedestrian crossings would be substantially the same under this BRT configuration as under the No-Build Alternative and existing conditions. At intersections allowing right turns, right-turning autos would use the BRT lane. Pedestrians would need to be aware that both buses and autos would be using the transitway at these locations.

Pedestrian Access to BRT Stations

Impacts on pedestrian access to transit stations and pedestrian crossings of the transitway would be minimal, primarily consisting of minor modifications to existing crosswalks, pedestrian refuges, sidewalks, or traffic signals.

- **Median Stations:** Most BRT stations would be built in the center of roadway between the median bus lanes and the mixed-flow traffic lane. Access to BRT stations would be by way of existing crosswalks at signalized intersections. Some crosswalks would need to be modified or new crosswalks installed to provide access to stations. In all such cases, traffic and pedestrian signals would include features that facilitate pedestrian movements. These could include special signal displays for pedestrians, active and passive signage, additional lighting, and other features. The station would also serve as refuges for pedestrians crossing the street.
- **Curbside Stations:** Along some segments of the project alignment, buses would operate adjacent to the curb or in the lane adjacent to parking. In these cases, BRT stations would be an extension of the sidewalk and curb. Pedestrian access to the station would be via the adjacent sidewalk. Curb extension stations typically would be placed adjacent to signalized intersections, with marked pedestrian crosswalks for people needing to cross the street or to access a station. These stations would reduce the crossing distance for pedestrians.

Pedestrian safety features would be designed into the project. In future planning and detailed design of BRT facilities, AC Transit would include experts on pedestrian access and invite the public, including members of mobility-impaired communities, to provide input on pedestrian needs. Safety reviews of facility designs and safety certification of constructed facilities and systems and of proposed BRT operations would be performed.

Changes to Existing Sidewalks

Changes to existing sidewalks would not be made under the Build Alternatives except at a few locations where existing sidewalk curb-bulbs would be removed or cut back to the curb line to accommodate BRT station platforms or to construct a BRT lane. In some locations, the radii of curbs would be increased (rounded or cut back towards existing property lines) to accommodate turning vehicles entering or exiting the BRT corridor from cross streets and driveways. Minimum standard sidewalk widths would be maintained at all locations along the proposed BRT corridor. In no case would major curb cuts be proposed that would substantially reduce sidewalk widths or pedestrian staging areas at intersections. For example, the sidewalk width on Telegraph Avenue between Dwight Way and Bancroft Way that is currently shared by Berkeley's street merchants and pedestrians would not be reduced.

Locations where curb lines or sidewalks would be modified to construct the proposed project, excluding curbside station areas, would include but not be limited to the following:

Build Alternatives 1, 2, 3 and 4—

- Shattuck Avenue, Addison Street to Center Street: Landscaped curb-bulbs would be removed along the Shattuck Square east curb under all alignment variations through Downtown Berkeley and along the west curb under all *Two-Way Shattuck* alignment variations. Visual impacts are discussed in Section 4.6, Visual/Aesthetics.

- Shattuck Avenue, Allston Way to Bancroft Way/Durant Avenue: Pedestrian curb-bulbs would be cut back two to five feet, depending upon location, on both sides of the street under the Two-Way Shattuck alignment variations. Under the *Shattuck Avenue-Oxford Street One-Way Loop* variation, curb-bulbs would be cut back along the east side of Shattuck Avenue only.

- Shattuck Avenue, Allston Way to Bancroft Way: Sidewalks along both sides of Shattuck Avenue would be widened by approximately three feet under the *Two-Way Shattuck Avenue* variation that incorporates the *Unbuffered Parallel Parking Configuration* for Shattuck Avenue in these two blocks.

- Oxford Street, University Avenue to Bancroft Way: The sidewalk (the area between the curb and right-of-way line) along the west curb of Oxford Street would be narrowed by approximately two feet under the *Shattuck Avenue-Oxford Street Loop* variation.

- Bancroft Way at Dana Street: The north sidewalk of Bancroft Way would be narrowed by four to six feet as a result of realigning the north curb for approximately 200 feet under the *Two-Way Transitway via Bancroft Way and Telegraph Avenue* variation through Berkeley's Southside. Moderate realignment of the north curb and existing sidewalk would be required for the *Two-Way Transitway via Bancroft Way and Telegraph Avenue-Dana Street Couplet* and the *One-Way Transitway via Bancroft Way* alignment variations.

- Bancroft Way at Telegraph Avenue: The curb and sidewalk at the southwest corner of this intersection would be modified to provide better turning radii for southbound BRT vehicles under the *Two-Way Bancroft Way* alignment variations that included dedicated transit lanes. The northeast and southeast corners of this intersection would be improved to provide a convenient alternate pedestrian crossing.

- Durant Avenue at Telegraph Avenue: The curb and sidewalk at the southwest corner of this intersection would be modified to provide better turning radii for southbound BRT vehicles under the *One-Way Transitway via Bancroft Way-Durant Avenue Couplet and Two-Way Telegraph Avenue* variation.

- International Boulevard, 1st Avenue to 13th Avenue: The sidewalk on both sides of the roadway would be narrowed by approximately two feet and existing curb curb-bulbs would be removed as a result of street widening under the *Two-Way Transitway via International Boulevard* variation.

- International Boulevard, 3rd Avenue to 35th Avenue: The existing median would be narrowed on the southbound approach to 35th Avenue to provide a left turn traffic lane for vehicle turning east onto 35th Avenue.
- International Boulevard at 98th Avenue: The curb and sidewalk at the southwest and northeast corners of this intersection would be modified to provide better turning radii for vehicles turning from 98th Avenue onto International Boulevard.

Build Alternatives 1 and 3 only—

- East 14th Street at Durant Avenue: The curb and sidewalk at the northeast corner of this intersection would be modified to provide better turning radii for vehicles turning from Durant Avenue onto East 14th Street.

These represent the main locations of curb and sidewalk realignments. Other locations would be subject to minor curb realignments to facilitate turns from cross streets onto streets proposed for BRT improvements. Traffic mitigations that propose street widening would realign sidewalks in places but not remove them or reduce their widths below city standards. No impacts to pedestrian circulation would result from these minor modifications.

3.3.3.2 BICYCLE IMPACTS

No-Build Alternative

The No-Build Alternative would not substantially affect bike routes or bike circulation.

Build Alternatives

In general, the East Bay BRT Project has the potential to improve the overall environment for bicycling in the corridor in several ways. Because buses and cyclists travel at approximately the same speed in mixed traffic, the two modes “leap frog” back and forth competing for road space. The East Bay BRT project would remove buses, in part or entirely from the mixed-flow lanes used by cyclists, and thereby eliminate or substantially reduce this potential conflict. In addition, BRT stations would be designed to allow level boarding and easy loading of bicycles and all BRT vehicles could include bicycle racks. Street redesign to accommodate the BRT transitway and stations, including removing a lane of traffic in each direction along Telegraph Avenue and International Boulevard, would tend to slow traffic speeds and reduce the ability of motorists to pass, thereby increasing the predictability of motorists and improving the overall bicycle friendliness of the street.

The East Bay BRT Project would require minor modifications to the existing bike lane along Telegraph Avenue, from Dwight Way in Berkeley to SR 24 in Oakland, to accommodate proposed traffic and transit lane improvements. The bike lane between intersections and stations would be retained in its existing or, as in Berkeley, its proposed reconfiguration. It would be modified through intersections and station areas to accommodate the proposed reconfiguration of traffic lanes and bus lanes. The striping for the bike lane would end as the lane approached signalized intersections with left turn pockets and/or transit stations. The striping would pick up on the other side of the intersection. At these locations, bikes would share the mixed traffic lane when proceeding through

the intersection. The bike lane design through intersections proposed by the East Bay BRT Project is a common treatment on many major streets with bike lanes.

The East Bay BRT Project would incorporate planned bike lanes where feasible or, alternatively, AC Transit would coordinate with corridor cities to establish alternate routes. The City of Oakland is currently evaluating an extension of the Telegraph Avenue bike lane from SR 24 to Downtown Oakland. Because the bike lane is not a committed or programmed project at this point, the East Bay BRT Project design does not include a bike lane on Telegraph Avenue between SR 24 and 20th Street. The impacts of the East Bay BRT Project on the proposed bike lane have nevertheless been evaluated and are discussed in Chapter 5, Cumulative Impacts. Based on the findings of the City of Oakland's bike lane study and the street's ability to accommodate both BRT and bike lanes along Telegraph Avenue, the City would make a determination on the feasibility of extending the bike lane along Telegraph Avenue or designating alternate roadways for a bike route.

3.3.4 Avoidance, Minimization, and Mitigation Measures

The Build Alternatives would not adversely impact existing pedestrian facilities, pedestrian movements, or bicycle facilities in the project corridor. In many instances the pedestrian environment would improve due to the amenities provided by the East Bay BRT Project at and near station areas, and the reduction in traffic and potential auto-pedestrian conflicts along the corridor. Facilities, such as protected roadway/transitway crossings, would be added where warranted for pedestrian safety and so pedestrians would not need to travel out-of-direction or along inconvenient pathways. AC Transit intends to design the East Bay BRT Project to support the pedestrian-friendly objectives established specifically for this corridor by local cities. No mitigation of impacts is therefore warranted other than AC Transit would continue to coordinate with local cities on the integration of bike and bus facilities.

Conditions for bicyclists would generally be improved along mixed-flow lanes used by cyclists where buses are moved to dedicated lanes. As mentioned in Section 3.3.3.2, the project would require minor modifications at intersections and station areas along Telegraph Avenue to accommodate the proposed reconfiguration of traffic lanes. At intersections, the striping for the bike lane would end as the lane approached signalized intersections with left turn pockets and/or transit stations. The striping would pick up on the other side of the intersection.

Where the bike lane is proposed to be extended from SR 24 to Downtown Oakland (20th Street), the city would make a determination on the feasibility of extending the bike lane along Telegraph Avenue or designating alternate roadways for a bike route.

3.4 Parking

This section describes parking in the project corridor and potential impacts of the No-Build and Build Alternatives on the number and location of parking spaces as a result of future transit improvements.

Parking characteristics are quantified in terms of spaces available and spaces occupied within public roadway rights-of-way. The analysis is presented in terms of existing parking conditions and estimated changes to existing supply. This is because it is almost impossible to forecast changes in future supply and utilization, especially for curb parking. Existing conditions provide the most

accurate and reliable information available. Also, since few major roadway improvements are planned or programmed that are expected to substantially alter parking conditions along the proposed East Bay BRT alignment, the existing supply of street parking provides a reasonable approximation of future supply.

Another important characteristic of curb parking is that, unless specifically designated (by signage, painting or other displays), it is not dedicated to specific uses, for example, a specific business or other land use. (The number of specifically designated spaces in the project corridor is small.) There are typically various sources of parking in any area for local businesses and residences besides curb parking. Individuals wanting to park usually have several options and several alternative locations to select from, including locations of curb parking. Therefore, the parking analysis looks at parking characteristics and impacts in the context of geographic areas or districts, consistent with the fact that parking opportunities are varied and there are potentially alternative locations to park when spaces in a specific location are occupied or removed from the supply.

3.4.1 Existing Conditions

Curb parking supply was determined by defining the area of potential parking effects along the project alignment. The parking survey area consisted of two elements:

1. Roadways included in the possible alignment for the East Bay BRT Project (i.e., roadways in which BRT buses would operate and transitway improvements, if any, would be made). Where the project included two or more alignment variations, and could follow more than one street, parking supply and occupancy were established for each of the potentially affected streets or street segments.

   For example, in Downtown Berkeley, parking supply included all curb parking along Shattuck Avenue, from University Avenue to Durant Avenue; along University Avenue from Shattuck Avenue to Oxford Street; and along Oxford Street from University Avenue to Durant Avenue. Supply was similarly defined in Berkeley's Southside area and the Eastlake District of East Oakland where more than one project alignment variation is under consideration and, therefore, the proposed BRT alignment could follow two or more streets.

   Roadways under consideration for BRT improvements and subjected to curb parking surveys are shown in dark blue in Figure 3.4-1.

2. Cross streets in major commercial areas where parking supply along BRT roadways was determined to be potentially constrained and where parking on streets crossing the BRT alignment provided alternate parking locations. Cross street parking was surveyed for approximately one-half to one block beyond the main street (e.g., Telegraph Avenue, International Boulevard) in which the BRT transitway is proposed. The geographic limits for the cross street parking surveys were defined to include only those curb spaces easily accessible and directly serving the nearby commercial districts. Cross street parking was not surveyed in all commercial districts, only where substantial displacements by the East Bay BRT Project improvements were identified.

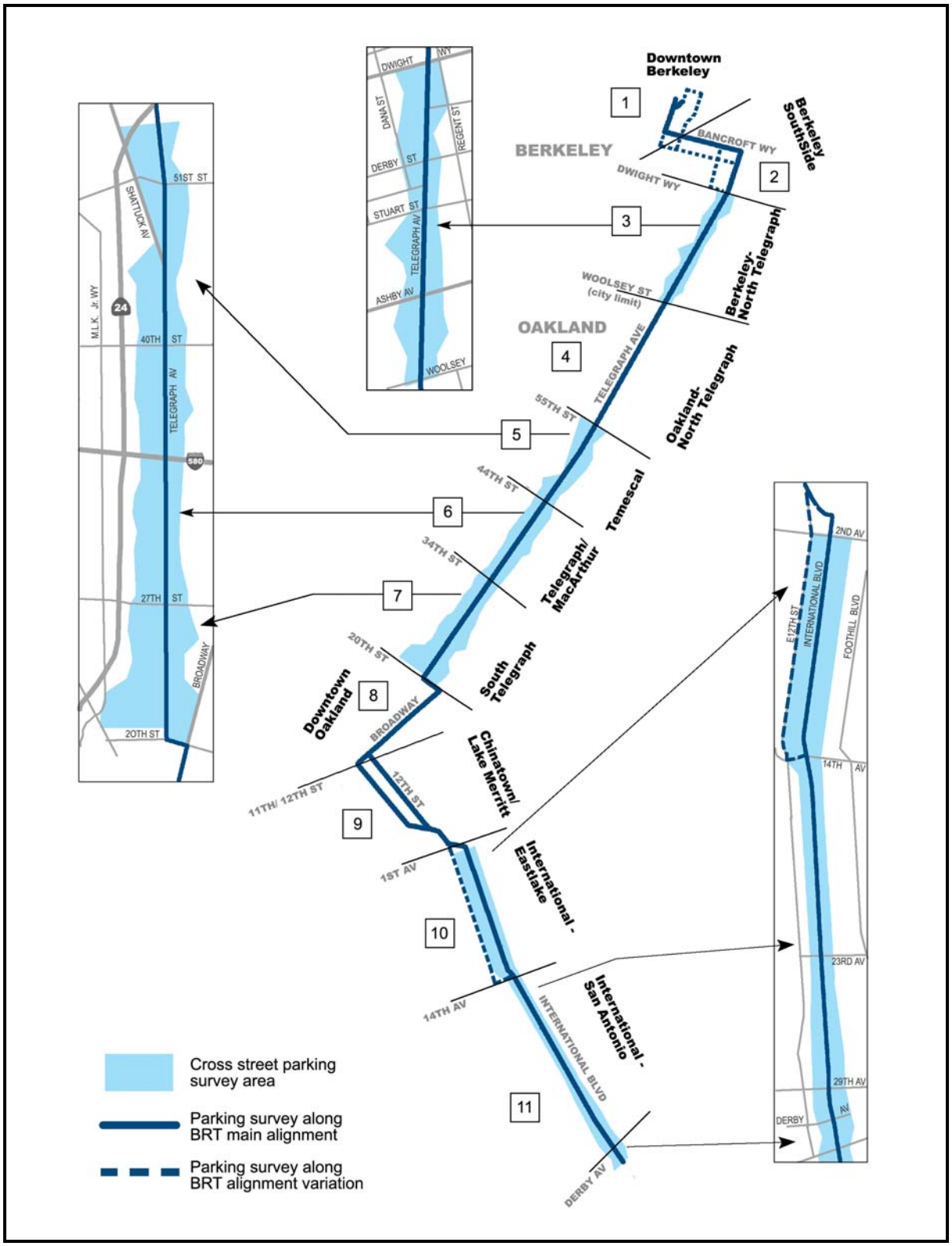

Figure 3.4-1: Parking Survey Areas

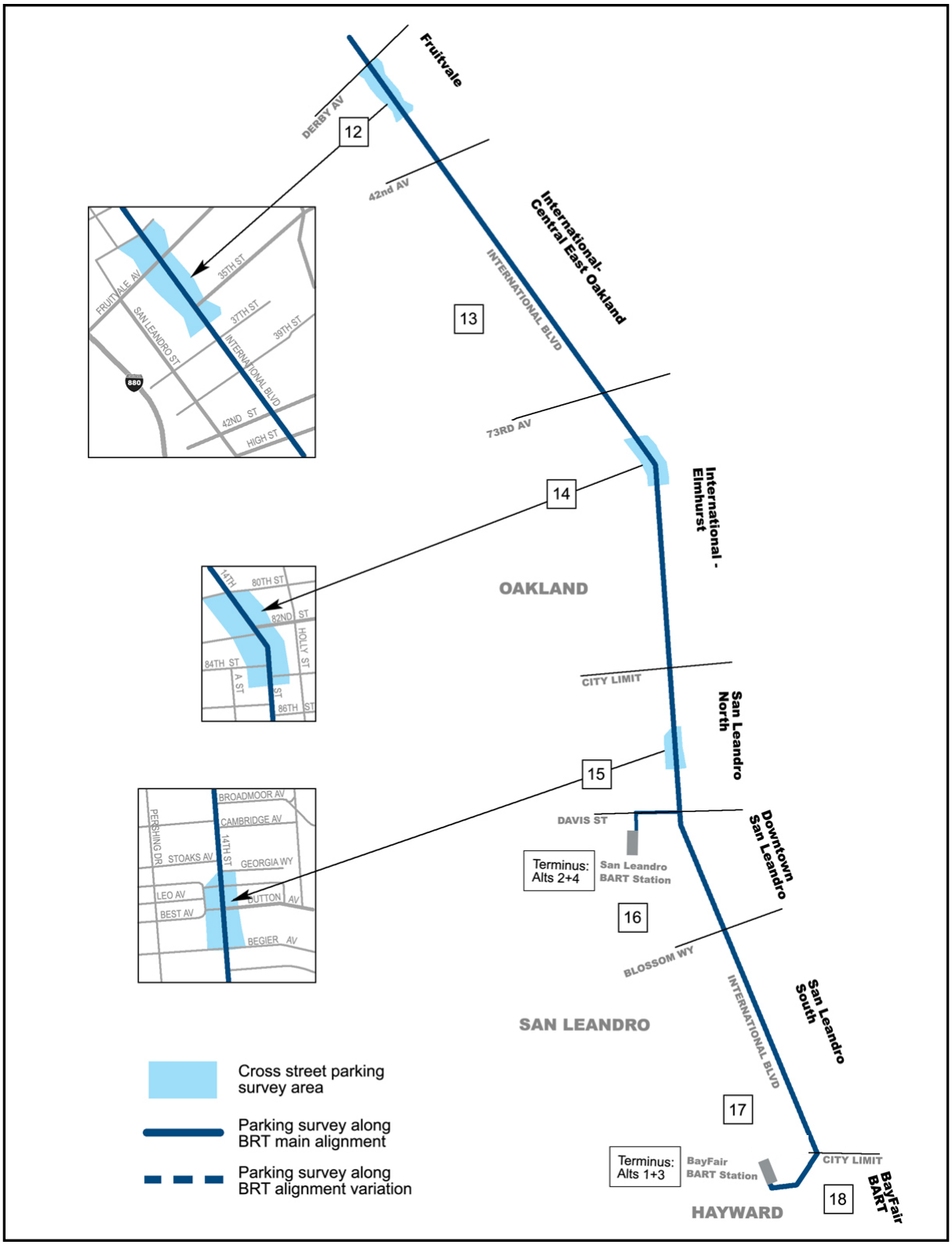

Figure 3.4-1, cont.: Parking Survey Areas

The major cross streets and commercial areas included in the parking survey area shown in Figure 3.4-1 include:

- North Telegraph Avenue in Berkeley, between Dwight Way and Woolsey Street (Area 3);
- Telegraph Avenue through the Temescal District of North Oakland (Area 5);
- Telegraph/MacArthur and South Telegraph Avenue, from 44th to 20th streets in Oakland (Areas 6 and 7);
- International Boulevard, in the Eastlake District of East Oakland (Area 10);
- International Boulevard, in the San Antonio District of East Oakland (Area 11);
- International Boulevard, in the Fruitvale District of East Oakland (Area 12);
- International Boulevard, in the Elmhurst District of East Oakland (Area 14); and
- East 14th Street, in the vicinity of the Dutton Avenue retail area of San Leandro (Area 15).

Curb parking conditions along the project corridor were surveyed in 2003 through 2005. Surveys were conducted block-by-block along streets proposed for BRT improvements. The surveys included parking capacity measurements and occupancy counts in selected locations. The occupancy counts were supplemented with the use of aerial photographs taken during times of peak parking occupancy. The parking supply inventory included both the public parking spaces (metered and non-metered), as well as non-public spaces, such as government spaces and loading zones, and limited parking areas, such as disabled parking spaces. The aerial photographs were taken in spring 2003.

Occupancy is especially dependent upon time of day, and, whenever possible, surveys were made weekdays between approximately 12 p.m. and 5 p.m. to capture maximum parking occupancy for retail and other commercial activity. Existing parking conditions are summarized in Table 3.4-1

Vehicle parking in the project corridor is a combination of on-street (curb parking, either right hand parallel, left-hand parallel or angle parking) and surface lots as well as structures off-street. On-street parking is almost entirely available to the public, either as metered or unmetered spaces. Parking meter zones typically require fee payment except during non-business hours or on Sundays and holidays. Non-metered zones can be unrestricted or restricted by limiting times when parking is allowed, the type of vehicles allowed, or by requiring vehicles to have permits. Curb parking not available to the general public includes space restricted for commercial vehicles (commercial parking spaces), government vehicles, disabled persons, and other special uses. In addition, there are residential parking permit programs in the project corridor under which residents are given long-term parking privileges.

Off-street parking is a mix of public and private. Public spaces may be metered or unmetered while private spaces are restricted to authorized individuals. Included in the category of off-street parking are commercial and retail lots and garages accessible to the public under specific conditions. Off-street parking was not included in the capacity and occupancy surveys.

The No-Build Alternative and the Build Alternatives both would alter the existing configuration and supply of curb parking. These alternatives would not affect off-street parking, except in the case of the Build Alternatives that propose, as mitigation, to replace a portion of curb parking displaced by

BRT improvements (see Section 3.4.3). Parking conditions were established on a block-by-block basis with information summarized by geographic segments corresponding to the various commercial and neighborhood districts along the project alignment. Existing parking conditions and parking occupancy are described below.

3.4.1.1 CITY OF BERKELEY

Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue—Area 1)

This area is Berkeley's main downtown commercial district. Parking is important for access to retail stores, restaurants, offices, entertainment venues, and other uses. There are approximately 147 total spaces along Shattuck Avenue in this area, of which approximately 19 are restricted (for example, for commercial loading zones or for disabled parking). Parking along both sides of Shattuck Avenue from University Avenue to Allston Way is parallel to the curb. All public spaces are metered. Parking is not allowed in some curbside areas because of bus stops and turn lanes (e.g., northbound Shattuck Avenue, turning right onto University Avenue). On the west side of Shattuck Avenue between Center Street and Allston Way no parking is allowed to facilitate unimpeded bus stop access.

Between Allston Way and Durant Avenue, parking is angled to the curb at approximately 65 degrees. Vehicles face the curb. This is the only area of angle parking along roadways under consideration for BRT improvements. These spaces are accessible by a roadway separated from the main traffic lanes on Shattuck Avenue by a narrow landscaped buffer.

Parking along University Avenue from Shattuck Avenue to Oxford Street and along Oxford Street/Fulton Street from University Avenue to Durant Avenue is metered parallel parking. Parking on Oxford Street, particularly along the west curb, is often used by individuals going to the adjacent UC Berkeley campus or to offices along Oxford Street.

There are 272 curb parking spaces in the Downtown Berkeley survey area, with approximately 76 percent occupancy at the time of the survey.

Berkeley Southside (Oxford/Fulton Street to Dwight Way—Area 2)

Curb parking in this area serves a variety of uses: UC Berkeley campus and off-campus facilities; mixed-commercial uses, which are more concentrated near and along Telegraph Avenue; religious institutions; and residences. The majority of parking is metered, although a number of spaces are unmetered west of Ellsworth Street.

No public parking is allowed along Telegraph Avenue between Bancroft Way and Dwight Way. Commercial vehicle parking pockets are provided on each side of the street in this roadway segment. These spaces are sometimes used by the public for short-term errands. The total curb parking supply is approximately 328 spaces, with approximately 82 percent occupancy at the time of the surveys.

Berkeley—North Telegraph Avenue (Dwight Way to Woolsey Street—Area 3)

Curb parking along Telegraph Avenue south of Dwight Way serves dense mixed commercial uses in the north, and mixed commercial and other uses in the south. There are office and medical facilities

Table 3.4-1: Characteristics of Curb Parking Along and Adjacent the Project Alignment

City/Geographic Parking Area	Parking Supply				
	Total Spaces	Metered		Total Occupied Spaces (Weekday P.M.)	
Berkeley (University Avenue to Berkeley-Oakland City Limit)					
1. Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue)	272	246	90%	206	76%
2. Berkeley Southside (Oxford/Fulton Street to Dwight Way)	328	186	57%	270	82%
3. North Telegraph Avenue--Berkeley (Dwight Way to Woolsey Street)	577	222	38%	433	75%
--Along Telegraph Avenue	194	136	70%	125	64%
--Along Cross Streets	383	86	22%	308	80%
Subtotal	**1,177**	**654**	**56%**	**909**	**77%**
North Oakland and Downtown Oakland (Berkeley-Oakland City Limit to Broadway at 11th/12th Streets)					
4. North Telegraph Avenue-Oakland (Woolsey Street to Hwy 24/55th Street)	232	20	9%	124	53%
5. Temescal (55th Street to Shattuck Avenue/44th Street)	443	72	16%	263	59%
--Along Telegraph Avenue	96	59	61%	50	52%
--Along Cross Streets	347	13	4%	213	61%
6. Telegraph Avenue/MacArthur Boulevard (44th Street to I-580/34th Street)	557	122	22%	415	75%
--Along Telegraph Avenue	153	94	61%	82	54%
--Along Cross Streets	404	28	7%	333	82%
7. South Telegraph Avenue--Oakland (34th Street to 20th Street)	947	287	30%	692	73%
--Along Telegraph Avenue	188	164	87%	125	66%
--Along Cross Streets	759	123	16%	567	75%
8. Downtown Oakland (20th Street to Broadway at 11th /12th Street)	52	38	73%	50	96%
Subtotal	**2,231**	**539**	**24%**	**1,544**	**69%**
East Oakland (Broadway to Oakland-San Leandro City Limit)					
9. Chinatown/Lake Merritt (Broadway to 1st Avenue)	253	182	72%	222	88%
10. International Boulevard--Eastlake (1st Avenue to 14th Avenue)	828	0	0%	679	82%
--Along International Boulevard/12th Street	349	0	0%	281	81%
--Along Cross Streets	479	0	0%	398	83%
11. International Boulevard--San Antonio (14th Avenue to Derby Avenue/30th Avenue)	667	95	14%	432	65%
--Along International Boulevard	310	76	25%	178	57%
--Along Cross Streets	357	19	5%	254	71%
12. Fruitvale (Derby Avenue/30th Avenue to 42nd Avenue)	297	117	39%	223	75%
--Along International Boulevard	176	82	47%	110	63%
--Along Cross Streets	121	35	29%	113	93%
13. International Boulevard--Central East Oakland (42nd Avenue to 73rd Avenue)	418	0	0%	194	46%
14. International Boulevard--Elmhurst (73rd Avenue to San Leandro city limit)	544	0	0%	323	59%
--Along International Boulevard	406	0	0%	237	58%
--Along Cross Streets	138	0	0%	86	62%
Subtotal	**2,981**	**394**	**13%**	**2,050**	**69%**
San Leandro (Oakland-San Leandro City Limit to BayFair BART)					
15. San Leandro North (Oakland city limit to Davis Street)	266	22	8%	136	51%
--Along East 14th Street	180	0	0%	79	44%
--Along Cross Streets	86	22	26%	57	66%
16. Downtown San Leandro (Davis Street to Blossom Way)	119	0	0%	48	40%
17. San Leandro South (Blossom Way to Bayfair Center Access Drive)	256	0	0%	143	56%
18. Bayfair Center and BayFair BART Station	NA	NA	NA	NA	NA
Subtotal	**641**	**22**	**3%**	**327**	**51%**
Total Corridor	**7,056**	**1,609**	**23%**	**4,853**	**69%**

Source: Parsons, 2005

in the south portion of Telegraph Avenue. There are approximately 194 parallel curb spaces between Dwight Way and Woolsey Street. Average occupancy is higher in the north section of Telegraph Avenue, around 90 percent, compared to the south, where occupancy is closer to 50 percent. The average overall occupancy along this segment of Telegraph Avenue (between Dwight Way and Woolsey Street) is approximately 64 percent.

Cross-street parking extending approximately one-half to one block on each side of Telegraph Avenue was inventoried in this area. The survey area for parking was limited to areas of mixed commercial and intermittent residential uses and did not extend into primarily residential areas. Parking along cross streets is a combination of metered spaces (adjacent to Telegraph Avenue as a rule), and unmetered spaces. As residential uses predominate, unmetered parking is restricted in duration (for example, to a maximum of two hours) except to local residents, who may park for extended periods if the vehicle carries the proper permit. Residential permit requirements are in place to reduce longer term and all day parking by individuals visiting or working along Telegraph Avenue and by UC Berkeley students and visitors. The permit program has effectively increased the supply of parking spaces for residents and was put in place to address the limited parking availability (for residents and their guests) in the neighborhood.

Approximately 383 spaces are available along cross streets in close proximity to Telegraph Avenue. The total curb parking in Berkeley North Telegraph Avenue is 577 spaces, with approximately 75 percent occupied at the time of the parking survey.

3.4.1.2 CITY OF OAKLAND: NORTH OAKLAND AND DOWNTOWN

The North Oakland portion of the study area, including Downtown Oakland, was divided into five segments for the evaluation of parking characteristics: North Telegraph Avenue, Temescal, Telegraph/MacArthur, South Telegraph Avenue, and Downtown Oakland.

Oakland: North Telegraph Avenue (Woolsey Street to 55th Street—Area 4)

The segment of Telegraph Avenue from the Berkeley-Oakland border at Woolsey Street to 55th Street in Oakland is mixed commercial, residential and other uses. The density of activity is much lower than elsewhere in the corridor. As a result, there is less demand for curb parking. Of the approximately 232 curb parking spaces, about 20 are metered and the rest are predominantly unrestricted. Approximately 124 spaces (53 percent) were occupied at the time of the survey.

Temescal (55th Street to 44th Street—Area 5)

South of 55th Street, the intensity of commercial activities increases and is highest in the center of the Temescal District, between 51st Street and 44th Street. Parking is parallel and metered near 55th Street and also between 52nd Street and 44th Street. Occupancy is low, under 50 percent, in the area along Telegraph Avenue from 55th Street to 51st Street, where the commercial activity is light. Parking occupancy is high along Telegraph Avenue between 51st Street and 44th Street, approximately 80 percent.

Because commercial activity in central Temescal relies on the supply of curb parking, merchants have expressed concern about future supply constraints. In addition to Telegraph Avenue, the parking

survey included all cross streets from 55th Street to 44th Street. Cross street parking totals approximately 347 spaces, with approximately 61 percent occupancy at the time of the parking survey. Thirteen spaces are metered and the balances are unmetered.

Combining Telegraph Avenue and cross streets, there are 443 total curb parking spaces in the Temescal area, with approximately 59 percent occupancy at the time of the parking survey.

Telegraph Avenue/MacArthur (44th Street to 34th Street—Area 6)

The MacArthur District extends from 44th Street to 34th Street and is centered on the MacArthur BART Station, located one block west of Telegraph Avenue between 40th Street and MacArthur Boulevard. Curb parking serves intermittent commercial uses and some residences that face Telegraph Avenue. Approximately 153 parallel parking spaces are provided on both sides of the roadway. South of 43rd Street, parking is almost entirely metered until 36th Street where, for approximately two blocks, it is unmetered. There are a total of 94 metered curb parking spaces. The peak occupancy rate along Telegraph Avenue in the MacArthur area is approximately 54 percent.

Cross-street parking adds approximately 404 spaces, only 28 of which are metered, with approximately 82 percent occupancy.

There are 557 total curb spaces in the MacArthur survey area, with approximately 75 percent occupancy at the time of the parking survey.

South Telegraph Avenue (34th Street to 20th Street—Area 7)

The South Telegraph Avenue area extends between 34th Street and 20th Street/Thomas Berkeley Way in downtown Oakland. Parking is for medical and mixed-use commercial facilities in the "Pill Hill" area between 34th Street and 29th Street. Retail and other commercial activity characterizes the area between 29th Street and 20th Street, which includes the Koreatown area and the Grand Avenue office and commercial business corridor.

There are 188 curb spaces along Telegraph Avenue, 164 of which are metered. The remaining 24 unmetered spaces are primarily for loading and unloading. Approximately 759 curb spaces are available on adjacent cross streets, 123 of which are metered (approximately 16 percent). On the cross streets, 567 curb spaces, or approximately 75 percent, were occupied at the time of the parking survey.

There are a total of 947 curb spaces in the South Telegraph Avenue survey area, with approximately 73 percent occupancy at the time of the parking survey.

Downtown Oakland (20th Street to Broadway at 11th/12th Street—Area 8)

Roadways included in the downtown Oakland survey area include 20th Street (between Telegraph Avenue and Broadway), and Broadway (between 20th Street and 11th Street). Curb parking serves the downtown's many commercial uses. Although 24 parallel parking spaces currently exist along both sides of 20th Street, all will be displaced as part of programmed transit center improvements described in the No-Build Alternative. These spaces are excluded from the parking supply figures in Table 3.4-1. Along Broadway, there are 52 parallel parking spaces, 38 of which are metered. Others

are primarily yellow loading or green time-restricted parking zones. Parking occupancy was high at the time of the parking survey, at over 95 percent, with metered spaces normally fully occupied during business hours.

In addition to curb parking along BRT roadways, there is considerable parking on other roadways and in surface lots and structures in downtown Oakland. Parking supply is not very constrained, and therefore no surveys of cross street supply were conducted in this area.

3.4.1.3 CITY OF OAKLAND: EAST OAKLAND

East Oakland was divided into six neighborhood segments for the assessment of parking conditions: Chinatown/Lake Merritt; International Boulevard/Eastlake; International Boulevard/San Antonio; Fruitvale; International Boulevard/Central East Oakland; and International Boulevard/Elmhurst.

Chinatown/Lake Merritt (Broadway to 1st Avenue—Area 9)

11th and 12th Streets east of Broadway form a one-way couplet for eastbound and westbound traffic, respectively. Parallel parking is provided along both sides of each street, from Broadway to Madison on 11th Street and from Oak to Broadway on 12th Street. Parking on 11th Street and 12th Street serves a variety of commercial and county government land uses. Approximately 253 spaces are available along 11th Street and 12th Street, of which approximately 182 (72 percent) are metered. Parking occupancy is high, with approximately 88 percent occupancy at the time of the parking survey.

The Chinatown/Lake Merritt area west of Lake Merritt is close to, and often considered part of, Downtown Oakland. As such, considerable parking opportunities are available along the curb of parallel and cross streets to 11th and 12th streets and in surface lots and structures. Characteristics of alternate parking sources were not surveyed.

No parking is currently provided on 12th Street after the two roadways merge south of Oak Street. However, the section of 12th Street crossing the Lake Merritt estuary (between Oak Street and 1st Avenue) is being reconstructed into a six-lane roadway. The new roadway is proposed to include 26 parallel parking spaces along the north and south curbs. These spaces are included in the No-Build Alternative.

International Boulevard/Eastlake District (1st Avenue to 14th Avenue—Area 10)

Curb parking in this area of Oakland, just south of Lake Merritt, serves mixed commercial and residential uses. The two main north-south streets surveyed were International Boulevard and East 12th Street, between 1st Avenue and 14th Avenue. There are approximately 349 curb spaces on these streets, of which 281 (81 percent) were occupied during the survey period. No metered parking exists along either street. Cross-street parking conditions were also surveyed in this area, between East 12th Street and East 15th Street from 2nd Avenue to 14th Avenue. There are a total of 479 unmetered, cross-street parking spaces, with approximately 83 percent occupancy at the time of the parking survey. The total overall number of curb parking spaces surveyed in the International Boulevard/Eastlake area is 828 spaces, with an occupancy of 82 percent.

International Boulevard/San Antonio (14th Avenue to Derby Avenue/30th Avenue—Area 11)

Curb parking serves mixed commercial and some residential land uses. There are 310 total curb spaces, of which 76 are metered. Approximately 178 spaces (57 percent) were occupied during the survey period. There are 357 curb spaces available on cross streets, with fewer than 20 spaces metered and about 254 (71 percent) occupied. Total parking in the San Antonio survey area is 667 spaces, with approximately 65 percent occupied.

Fruitvale (Derby Avenue/30th Avenue to 42nd Avenue—Area 12)

The Fruitvale District is a vibrant commercial and retail district surrounded by dense residential neighborhoods. Along International Boulevard, there are 176 curb spaces, of which not quite half are metered. Parking occupancy in the center of the Fruitvale District (Fruitvale Avenue to 35th Avenue) is high, reaching 90 percent or more during business hours. However, the average parking occupancy in the district as a whole is 75 percent. Parking in the immediate vicinity of the Fruitvale BART is often constrained. Therefore, surveys were conducted of cross street curb parking. Approximately 121 spaces are available along the cross streets from Fruitvale Avenue to 36th Avenue, 35 of which are metered. Of these, 113 (93 percent) were occupied in the peak. There are a total of 297 curb spaces surveyed within the Fruitvale area, with approximately 75 percent occupancy at the time of the parking survey.

International Boulevard/Central East Oakland (42nd Avenue to 73rd Avenue—Area 13)

Parking in the area south of Fruitvale Avenue serves intermixed commercial and residential uses. There are 418 unmetered, curb spaces along International Boulevard, with approximately 46 percent occupancy at the time of the parking survey. Because of the considerable supply of curb parking and low utilization, an inventory of cross street parking was not included in the conditions survey.

International Boulevard/Elmhurst (73rd Avenue to the Oakland-San Leandro border—Area 14)

This area is similar to Central East Oakland in development patterns and supply of curb parking. Approximately 406 curb spaces are available along International Boulevard, none metered, and 237 (58 percent) were occupied in the peak. Cross-street parking was surveyed from 80th Avenue to 84th Avenue in the neighborhood commercial district. About 138 unmetered spaces are available within a half block on each side of International Boulevard, with approximately 62 percent occupancy at the time of the parking survey. Including these spaces in the parking totals for the Elmhurst District, there are 544 spaces, with approximately 59 percent occupancy at the time of the parking survey.

3.4.1.4 CITY OF SAN LEANDRO

San Leandro was divided into four segments for assessment of parking conditions: San Leandro North, Downtown San Leandro, San Leandro South, and Bayfair Center/BayFair BART Station.

San Leandro North (Oakland-San Leandro border to Davis Street and San Leandro BART—Area 15)

This segment of East 14th Street includes curb parking for mixed commercial, retail and governmental uses. Approximately 180 parallel curb spaces are available along East 14th Street and along Davis Street from East 14th Street to San Leandro Boulevard. None are metered and about 44 percent were occupied in the peak period. Cross-street parking serving the Dutton Avenue commercial area was also surveyed because the area is an important neighborhood retail center. Of the 86 spaces identified, 22 are metered. Approximately 57 were occupied during the peak period. There are a total of 266 surveyed spaces in San Leandro North, with a 51 percent occupancy rate at the time of the parking survey.

Downtown San Leandro (Davis Street to Blossom Way—Area 16)

This area includes the commercial center of San Leandro. The segment of East 14th Street from Davis Street to Blossom Way is primarily retail and mixed commercial (restaurants, office). Approximately 119 unmetered, curb spaces are available along East 14th Street, with approximately 40 percent occupancy at the time of the parking survey. The highest occupancy in the area is centered on East 14th Street and Estudillo Avenue, with close to full occupancy during peak retail hours.

San Leandro South (Blossom Way to Bayfair Center Access Drive—Area 17)

Between Blossom Way and Bayfair Drive, which is the south access road to Bayfair Center, East 14th Street includes a mix of commercial, institutional and medical uses. Retail predominates south of Hesperian Boulevard. There is considerable off-street parking available in the area. Supply is not substantially constrained and, therefore, cross street spaces were not included in the survey totals. Of the 256 unmetered, curb parking spaces on East 14th Street, approximately 56 percent were occupied at the time of the parking survey.

Bayfair Center and BayFair BART (Area 18)

The Bayfair Center mall includes large surface parking lots as does the BayFair BART Station. Mall occupancies are highly variable, depending upon the season. The mall lots have many spaces available. None are metered. The BART lots are fully occupied during weekdays. No meters or fees are charged at present. BART is exploring redevelopment of the site that may include parking structures to replace the existing surface parking lots.

3.4.2 Environmental Consequences

3.4.2.1 No-Build Alternative

The No-Build Alternative would adjust existing bus stops to establish streamlined Rapid Bus Route 1R service in the project corridor. As noted in Chapter 2, Project Alternatives, Route 1R would operate over many of the same streets as East Bay BRT service. Route 1R bus stops would be located curbside in the same general locations as the proposed stations for Alt 1: Separate BRT and Local Service to BayFair BART. Although local bus stops would largely remain at their current locations, some stops determined to be too close to other stops would be removed and some stops repositioned for better bus access and operations. Therefore, the combination of Route 1R and local bus

improvements would affect parking at some locations. The overall impact, measured in terms of spaces affected, is small. Fewer than 100 spaces would be affected over the length of the Route 1R alignment, while total curb parking along Route 1R arterials is on the order of 3,500 spaces. The parking impact of the No-Build Alternative is therefore considered negligible.

3.4.2.2 BUILD ALTERNATIVES

The East Bay BRT Project would affect the use and supply of parking in the corridor.

Parking Demand

The BRT stations would be designed for primary access by pedestrians (see Section 3.3.3.1) and would enhance the pedestrian environment accordingly. No automobile parking would be provided as part of the project at any BRT station. However, the Build Alternatives have the potential to generate additional demand for transit rider parking near BRT stations. Such parking demand is estimated to be small to moderate. No park-and-ride facilities are proposed as part of the East Bay BRT Project. It is possible, however, that informal park-and-ride activity would occur, also commonly referred to as "hide-and-ride." Hide-and-Ride parking occurs when transit riders park in neighborhoods adjacent to transit stations. In areas where parking occupancy rates might rise and thereby affect existing or proposed facilities, such as at BART stations and in retail and commercial areas near BRT stations, such activity could be discouraged with local parking restrictions.[9] Cities could restrict this parking through metering, signing, time restrictions or neighborhood parking permit programs.

It is not possible to quantify with reasonable accuracy the extent to which informal park-and-ride activity could result from the alternatives. However, AC Transit is committed to work with local jurisdictions to monitor parking activity once the system is in operation and to assist with measures, as warranted, to reduce or eliminate conflicting parking activities.

Curb Parking Displacements Resulting from BRT Facilities Construction

The parking analysis identified all locations where existing or proposed curb parking could be displaced under the Build Alternatives, which would modify the configuration of traffic lanes and parking lanes at intersections and in station areas. The evaluation included review of engineering drawings and confirmation of parking conditions through field surveys. Potential displacements were quantified block-by-block throughout the project corridor. The potential displacements were aggregated by geographic segment by city for each BRT Build Alternative and each alignment variation, as described in Section 3.4.1, Existing Conditions. Where impacts would potentially reduce the on-curb parking to a less than adequate level for the needs of nearby land uses, mitigation measures are described that would ensure an acceptable number of spaces would be provided.

[9] East Bay BRT buses, for example, would serve several BART stations and therefore have the potential to generate additional park-and-ride demand at these locations. More likely, BRT would decrease the demand for parking at some BART stations by passengers making short trips in the corridor because it will serve some destinations more effectively than BART. The impacts assessment (and the demand forecasts for the East Bay BRT service) assumes non-BART parking would be prohibited at BART stations. BART currently prohibits non-rider parking at various stations in the systems through parking permits and fees and by requiring patrons to register their parking space number upon entering a station.

Section 3.4.3, Avoidance, Minimization, and/or Mitigation Measures (Build Alternatives), provides additional detail on measures that could be undertaken to offset potential parking impacts.

The proposed BRT improvements and resulting effects on parking discussed below would apply to all Build Alternatives unless specifically noted.

Mixed Flow Operations: In roadway segments where BRT buses would operate in mixed-flow traffic lanes, parking impacts would be minimal. Lane reconfigurations or other changes to the street cross section are not proposed with the exception of constructing curbside stations at key locations. These locations would include Bancroft Way under the *Two-Way Transitway via Restricted Bancroft Way* variation through Berkeley Southside and Broadway between 20th and 11th Streets. For Alternatives 1 and 3 only, mixed-flow is proposed along East 14th Street between Davis Street and Blossom Way in San Leandro. Curbside stations would in most configurations extend from the curb into the parking lane and displace any designated parking spaces for the length of the platform in excess of the length of existing bus stops.

Median Transitway in the Vicinity of BRT Stations and Intersections with Dedicated Left Turns: To accommodate the BRT transitway and median stations within the roadway cross-section, the traffic lane adjacent to the station would be shifted near the outside curb, eliminating curb parking. Similarly, to accommodate an exclusive left-turn lane at signalized intersections (the only locations where left turns across the transitway would be allowed), the adjacent traffic lane would be shifted closer to the outside curb, eliminating the adjacent parking. The same impact—shifting of traffic lane and elimination of the parking—would occur wherever a station or a left-turn lane would be added. Parking would be retained along the street between BRT stations and/or left turn lanes. Figure 3.4-2 displays a representative design for the median BRT transitway (looking from a "bird's eye view" of the roadway) and the resulting shift of traffic lanes due to median station placement and the provision of left turn lanes.

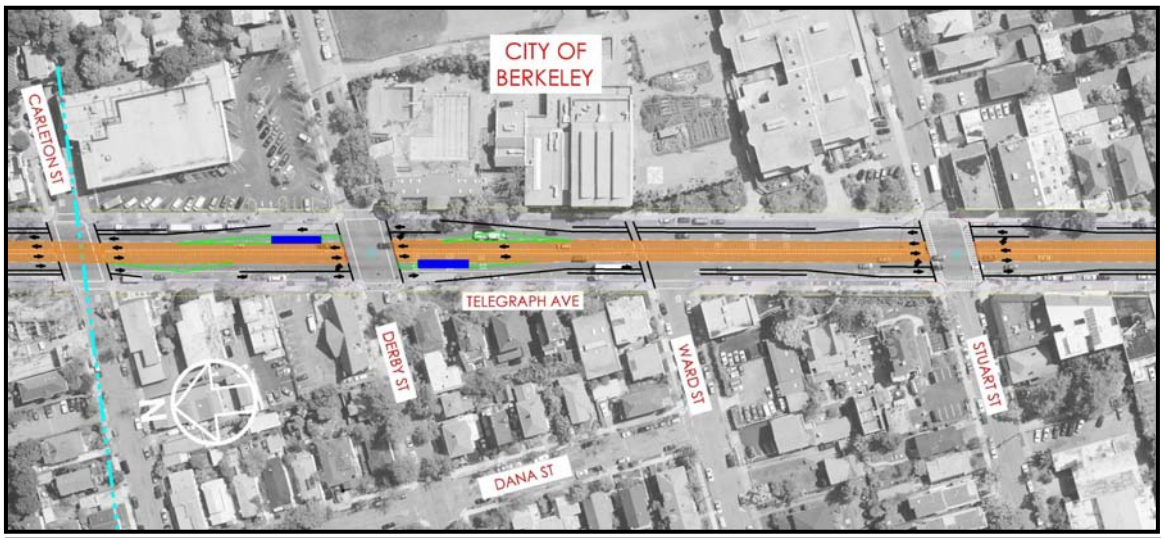

Figure 3.4-2: Median Transitway (orange) with Station (blue) and Left Turn Lanes

Side-running Transitways in Station Areas: In the typical side-running configuration for BRT service, the proposed transitway would be located next to the parking lane or, if a bike route is demarcated along the roadway, next to the bike lane and parking lane. Motorists would be allowed to enter the transitway for access and egress to curb parking spaces. Stations for the side-running transitway would be built as extensions of the curb and sidewalk area. Station platforms would extend into the parking lane, with several spaces displaced by the platform and any transitional passenger pathways connecting the ends of platforms to the sidewalk or by any transitional landscape treatments. In some cases, the stations would be built where there are existing bus stops. These stations would have little or no impact on parking. Figure 3.4-3 portrays a typical layout for a side running next to a parking lane and through a curb extension station.

In special side-running configurations in Downtown Berkeley and Berkeley Southside, the transitway would be located next to the curb rather than the parking lane. This would be the case along Oxford Street under the *One-Way Transitway via Shattuck Avenue-Oxford Street Loop v*ariation and along Bancroft Way under the *Two-Way Transitway via Bancroft Way* variation. Side running BRT in these two variations would retain the existing traffic lanes but remove all curb parking along the side of the roadway that includes the BRT transitway.

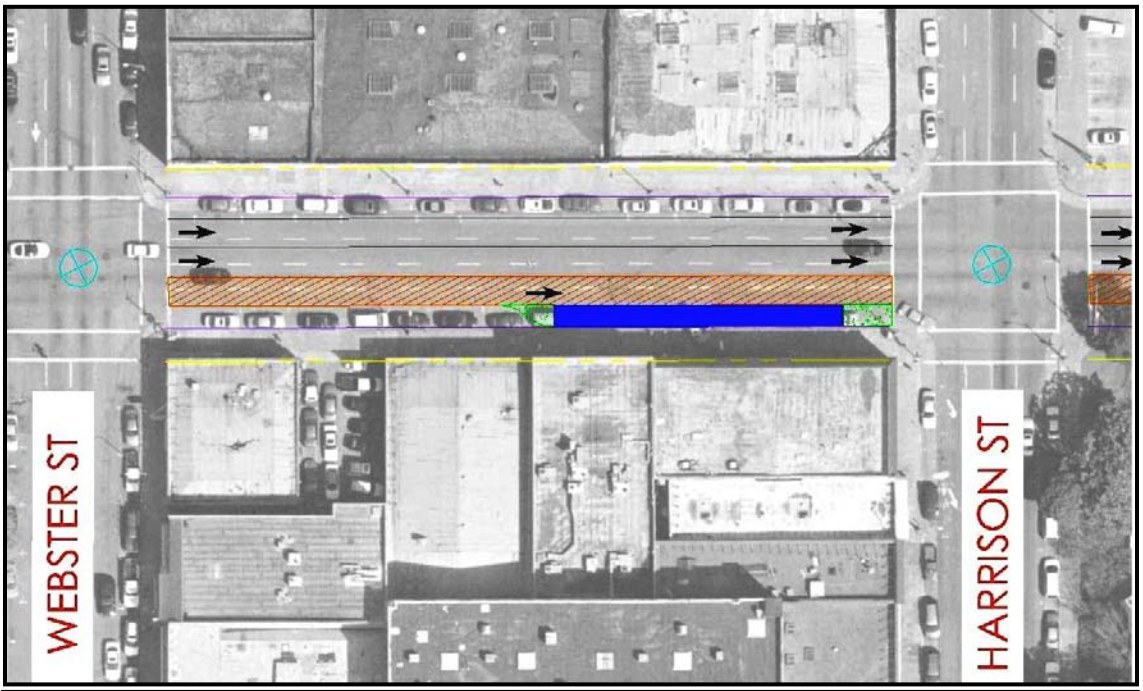

Figure 3.4-3: Side-Running Transitway (orange) with Curbside Station (blue)

Travel Lane and Other Roadway Geometric Changes for Mitigation of Traffic Impacts: Additional parking may be displaced by measures intended to mitigate adverse traffic impacts. To accommodate additional through or turning lanes at signalized intersections required to

maintain acceptable traffic operations, travel lanes and, at times, the roadway cross section may be realigned and curb parking removed.

Reconfiguration of Parking for New Streetscape Designs: Changes to parking are proposed under certain alignment variations in Downtown Berkeley and Berkeley Southside. Angle parking would be converted to parallel parking under the *Two-Way Transitway via Shattuck Avenue* variation with option (b) parallel parking configuration. This would reduce the total number of available curbside spaces in the two blocks between Allston Way and Bancroft Way by approximately 35 spaces (see Section 3.4.2.3, Tables 3.4-4 and -5). New spaces for angle parking are proposed on Bancroft Way under all four Berkeley Southside alignment variations. Approximately 10 spaces would be located just east of Telegraph Avenue on the north curb of Bancroft Way (between Telegraph Avenue and Barrow Lane) and add to the parking supply at this location.

Displacements of curb parking would be confined to the streets on which the BRT would operate. The proposed project would not affect parking on other streets or in off-street lots except in limited instances. To mitigate adverse traffic impacts along International Boulevard in Oakland, the roadway would be widened and parking in adjacent private lots and for commercial uses would be affected at Seminary Avenue and at 98th Avenue. Also, under Build Alternatives 1 and 3, East 14th Street would be widened at Fairmont Drive to mitigate traffic impacts, with a resulting reconfiguration and small loss of spaces for private retail (Bayfair Center) and commercial uses. Property owners that lose off-street parking spaces or other property would be financially compensated for the loss of use of their property.

Tables 3.4-2 and -3 summarize estimated on-street parking spaces displaced by the East Bay BRT Project by Build Alternative by segment. Tables 3.4-4 and -5 summarize parking displaced by the various alignment variations under consideration, which are the same for all Build Alternatives. (For further detail on parking supply, availability and potential displacements due to the East Bay BRT Project, see the Parking Supply and Impacts Technical Memorandum [2006], available from AC Transit.)

3.4.2.3 CITY OF BERKELEY

Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue—Area 1)

The East Bay BRT Project would displace between 19 and 54 existing curb spaces in the downtown area between University Avenue and Bancroft Way/Durant Avenue. The range would depend upon the alignment variation and parking configuration, as shown in Table 3.4-4 and Table 3.4-5. Negative numbers indicate a deficit in parking supply.

Under the *Two-Way Transitway via Shattuck Avenue* variation, parking configuration *a.Unbuffered Angle Parking,* 19 spaces would be displaced. No parking would be removed in the blocks between Allston Way and Bancroft Way as the current parking design would be retained. In the block between Addison Street and Center Street, curb parking would be displaced along both curbs of Shattuck Square to provide a dedicated transit lane and BRT station both northbound and southbound.

Under the *Two-Way Transitway via Shattuck Avenue* variation, parking configuration *b. Unbuffered Parallel Parking*, 54 spaces would be displaced. Approximately 35 spaces would be removed in the blocks between Allston Way and Bancroft Way as angle parking would be converted to parallel parking. Approximately 19 spaces in the block between Addison Street and Center Street would be displaced to provide a dedicated transit lane and BRT station in each direction.

Under the *Two-Way Transitway via Shattuck Avenue* variation, parking configuration *c. Buffered Angle Parking*, approximately 19 spaces would be displaced. No substantial changes in the parking design and traffic lanes between Allston Way and Bancroft Way are proposed. The 19 spaces would be displaced in the block between Addison Street and Center Street to provide a dedicated transit lane and BRT station in each direction.

Under the *One-Way Transitway via Shattuck Avenue-Oxford Street Loop* variation, there would be 52 curb spaces displaced. Approximately eight spaces would be removed in the block between Addison and Center streets for the northbound transitway and station. The majority of spaces displaced would be along the west curb of Oxford Street. Parking would be removed to provide a lane for the side-running transitway.

Relative to the total number of curb spaces available, displacements in downtown Berkeley would range from 7 percent (under the *Two-Way Transitway via Shattuck Avenue* variation with either *a. Unbuffered* or *c.Buffered Angle Parking*) to 20 percent (*Two-Way Transitway via Shattuck Avenue* variation with *b.Unbuffered Parallel Parking).*

Berkeley Southside (Oxford/Fulton Street to Dwight Way—Area 2)

Parking displacements in Berkeley Southside would vary substantially, ranging from 15 to 116. The range depends somewhat on the Build Alternatives but primarily on the alignment variation. The fewest displacements would be associated with the *One-Way Transitway via Bancroft Way-Durant Avenue Couplet* and *Two-Way Transitway via Telegraph Avenue* variation. This variation includes a one-way transitway westbound on Bancroft Way and eastbound on Durant Avenue and a two-way transitway on Telegraph Avenue. When included in the alignment for Alternative 1 or 2, a total of 15 parking spaces would be eliminated in station areas and to accommodate added turn lanes at specific intersections. When included in the alignment for Alternative 3 or 4, the variation would have slightly more displacements (22 parking spaces) because of an additional BRT station at Ellsworth Street. The choice of alignment variation through Downtown Berkeley would not substantially affect the number of parking spaces displaced.

The highest number of parking displacements would be associated with the *Two-Way Transitway via Bancroft Way and One-Way Transitway via Telegraph Avenue-Dana Street Couplet* variation. This variation would include a two-way transitway on Bancroft Way west of Dana Street and a one-way transitway southbound on Dana Street and Dwight Way and northbound on Telegraph Avenue and Bancroft Way to Dana Street. Parking would be displaced at BRT stations, along the north curb of Bancroft and the west curb of Dana, and at various intersections where left turn lanes would be added. When part of Alternative 1 or 2, from 79 to 113 spaces would be displaced along Bancroft Way, Dana

Street, and Dwight Way; when part of Alternative 3 or 4, displacements would range from 79 to 116 spaces. In both cases this amounts to approximately 24 to 35 percent of available on-street parking included in Berkeley Southside parking surveys. Displacements at the higher end of the ranges are associated with an alignment connecting to the *Two-Way Transitway via Shattuck Avenue* variation through Downtown Berkeley. Connecting to the *One-Way Transitway via Shattuck Avenue-Oxford Street Loop* variation would have fewer displacements. Operating BRT service along the *Two-Way Restricted Bancroft Way* in mixed-flow traffic lanes rather than in dedicated lanes would reduce parking impacts.

Other Southside alignment variations would have parking impacts that fall within the high and low ranges described. The *One-Way Transitway via Bancroft Way-Durant Avenue Couplet* and *Telegraph Avenue-Dana Street Couplet* variation would displace approximately 45 to 54 spaces. The *Two-Way Transitway via Bancroft Way and Telegraph Avenue* variation would displace approximately 32 to 77 spaces.

Berkeley: North Telegraph Avenue (Dwight Way to Woolsey Street—Area 3)

The dedicated BRT transitway would be in the median of Telegraph Avenue in this segment. The frequent spacing of signalized intersections, between Dwight Way and Woolsey Street, facilitates turns and access to/from cross streets, but has the trade-off of high numbers of curb parking spaces displaced. Contributing to parking displacements would be the provision of BRT stations at the intersections of Telegraph Avenue at Webster Street and Derby Street.[10]

Build Alternatives 1 and 2 would remove approximately 146 spaces, or 75 percent of curb parking, along Telegraph Avenue. The displacements amount to 25 percent of total estimated supply within the Berkeley/North Telegraph survey area, which includes accessible parking on cross streets. Alternatives 3 and 4 would remove approximately 142 spaces (equivalent to 73 percent and 25 percent of, respectively, Telegraph Avenue and survey area supply). Alternatives 3 and 4 would have fewer displacements because local curbside bus stops can be eliminated under this option and the space converted to metered or other curb parking along Telegraph Avenue.

3.4.2.4 CITY OF OAKLAND

North Oakland/Downtown Oakland (Berkeley-Oakland City Limit to Broadway at 11th/12th Streets—Areas 4-8)

The transitway configuration in the segment of Telegraph Avenue from the Berkeley/Oakland city limit to 20th Street in downtown Oakland would be similar to the transitway in Berkeley south of Dwight Way. One difference is that signalized intersections with exclusive turn lanes tend to be spaced farther apart in the Oakland portion of Telegraph Avenue compared to the Berkeley portion, displacing fewer curb parking spaces. Otherwise, the impacts would be similar and result from the same types of transit improvements.

[10] A station would be provided at Derby Street only for alignment variations operating two-way on Telegraph Avenue through Berkeley Southside.

Table 3.4-2: Parking Displaced under Alternatives 1 and 2 (Separate BRT and Local Service)

Geographic Area *and* BRT Alignment	Parking Supply				Total Parking Displaced (Number / % of Supply)		Unoccupied after Displacements
	Total Spaces	Metered	Occupied (weekday p.m.)				
Berkeley (University Avenue to Oakland City Limit)							
1. Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue)	**272**	**246**	**206**	**76%**	19-54	7%-20%	12 - 47
Two-way Transitway or One-Way Loop Depending upon Variation							
2. Berkeley Southside (Oxford/Fulton Street to Dwight Way)	**328**	**186**	**270**	**82%**	15-113	5%-34%	(-55)[1] - 43
Two-Way Transitway or One-Way Couplets or Combination Depending upon Variation							
3. Berkeley: North Telegraph Avenue (Dwight Way to Woolsey Street)	**577**	**222**	**433**	**75%**	146	25%	(-2)[1]
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking	194	136	125	64%	146	75%	
--Cross Street Parking	383	86	308	80%	0	0%	
North Oakland/Downtown Oakland (Berkeley City Limit to Broadway at 11th/12th St.)							
4. Oakland: North Telegraph Avenue (Woolsey Street to Hwy 24/55th Street)	**232**	**20**	**124**	**53%**	93	40%	15
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking							
5. Temescal (55th St. to Shattuck/44th Street)	**443**	**72**	**263**	**59%**	66	15%	114
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking	96	59	50	52%	66	69%	
--Cross Street Parking	347	13	213	61%	0	0%	
6. Telegraph/MacArthur (44th Street to I-580/34th Street)	**557**	**122**	**415**	**75%**	66	12%	76
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking	153	94	82	54%	66	43%	
--Cross Street Parking	404	28	333	82%	0	0%	
7. South Telegraph Avenue--Oakland (34th Street to 20th Street)	**947**	**287**	**692**	**73%**	86	9%	169
Telegraph Two-Way BRT in Median--Along Telegraph Parking	188	164	125	66%	86	46%	
--Cross Street Parking	759	123	567	75%	0	0%	
8. Downtown Oakland (20th Street to Broadway at 11th/12th Streets)	**52**	**38**	**50**	**96%**	0	0%	2
Uptown Transit Center/Broadway Mixed-Flow Traffic							
East Oakland (Downtown Oakland/Broadway to San Leandro City Limit)							
9. Chinatown/Lake Merritt (Broadway to 1st Avenue)	**253**	**182**	**222**	**88%**	35	14%	(-4)[1]
One-Way Transitway via 11th and 12th Streets Couplet and E. 12th Street Mixed Flow							
10. International Boulevard--Eastlake (1st Avenue to 14th Avenue)	**828**	**0**	**679**	**82%**	114-116	14%	33-35
Two-Way Transitway or One-Way Couplet Depending upon Variation--Along International/12th Street Parking	349	0	281	81%	114-116	33%	
--Cross Street Parking	479	0	398	83%	0	0%	
11. International Boulevard--San Antonio (14th Avenue to Derby Avenue/30th Avenue)	**667**	**95**	**432**	**65%**	111	17%	124
Two-Way Transitway via International Boulevard--Along International Parking	310	76	178	57%	111	36%	
--Cross Street Parking	357	19	254	71%	0	0%	
12. Fruitvale (Derby Avenue/30th Avenue to 42nd Avenue)	**297**	**117**	**223**	**75%**	57	19%	17
Two-Way Transitway via International Boulevard--Along International Parking	176	82	110	63%	57	32%	
--Cross Street Parking	121	35	113	93%	0	0%	
13. International Boulevard--Central East Oakland (42nd Avenue to 73rd Avenue)	**418**	**0**	**194**	**46%**	100	24%	124
Two-Way Transitway via International Boulevard							
14. International Boulevard--Elmhurst (73rd Avenue to City Limit)	**544**	**0**	**323**	**59%**	56	10%	165
Two-Way Transitway via International Boulevard--Along International Parking	406	0	237	58%	56	14%	
--Cross Street Parking	138	0	86	62%	0	0%	

Table 3.4-2,cont.: Parking Displaced under Alternatives 1 and 2 (Separate BRT and Local Service)

Geographic Area *and* BRT Alignment	Parking Supply				Total Parking Displaced (Number / % of Supply)		Unoccupied after Displacements
	Total Spaces	Metered	Occupied (weekday p.m.)				
San Leandro (Oakland City Limit to Bayfair) - *Alternative 1: BayFair BART Terminus*							
15. San Leandro North (E.14th Street, City Limit to Davis Street)	**266**	**22**	**136**	**51%**	79	30%	51
Two-Way Transitway via E. 14th Street Median--Along E.14th Street Parking	180	0	79	44%	79	44%	
--Cross Street Parking	86	22	57	66%	0	0%	
16. Downtown San Leandro (Davis Street to Blossom Way) Two-Way Transitway via E.14th Street (Two-Way BRT in Mixed Flow)	**119**	**0**	**48**	**40%**	23	19%	48
17. San Leandro South (Blossom Way to Bayfair Drive) Two-Way Transitway via E.14th Street Median	**256**	**0**	**143**	**56%**	78	30%	35
18. BayFair BART Bayfair Center and BayFair BART Access	**>1000**	**NA**	**>1000**	**NA**	20	<5%	>1000
TOTALS FOR ALTERNATIVE 1 (Excluding BayFair BART)	**7,056**	**1,609**	**4,853**	**69%**	1,164-1,299	17%-18%	904-1,039
San Leandro (Oakland City Limit to Bayfair) - *Alternative 2: San Leandro BART Terminus*							
15. San Leandro North (E.14th Street, City Limit to Davis Street) Two-Way BRT in Mixed Flow via E.14th Street, Davis Street, and San Leandro Boulevard	**266**	**22**	**136**	**51%**	17	6%	113
16. through 18. San Leandro Downtown, South, and BayFair BART	**375**	**0**	**191**	**51%**	0	0%	0
TOTALS FOR ALTERNATIVE 2 (Excluding BayFair BART)	**7,056**	**1,609**	**4,853**	**69%**	981-1,116	14%-16%	1,087 - 1,222

Notes:
[1] (-xx) indicates parking deficit; not enough spaces would remain to meet parking demand.
Source: Parsons, 2005

Table 3.4-3: Parking Displaced under Alternative 3 and 4 (Combined BRT and Local Service)

Geographic Area *and* BRT Alignment Variation	Parking Supply				Total Parking Displaced (Number / % of Supply)		Unoccupied after Displacements
	Total Spaces	Metered	Occupied (weekday p.m.)				
Berkeley (University Avenue to Oakland City Limit)							
1. Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue)	**272**	**246**	**206**	**76%**	19-54	7%-20%	12 - 47
Two-way Transitway or One-Way Loop Depending upon Variation							
2. Berkeley Southside (Oxford/Fulton Street to Dwight Way)	**328**	**186**	**270**	**82%**	22-116	7%-35%	(-58)[1] - 36
Two-Way Transitway or One-Way Couplets or Combination Depending upon Variation							
3. Berkeley: North Telegraph Avenue (Dwight Way to Woolsey Street)	**577**	**222**	**433**	**75%**	142	25%	2
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking	194	136	125	64%	142	73%	
--Cross Street Parking	383	86	308	80%	0	0%	
North Oakland/Downtown Oakland (Berkeley City Limit to Broadway at 11th/12th St.)							
4. Oakland: North Telegraph Avenue (Woolsey Street to Hwy 24/55th Street)	**232**	**20**	**124**	**53%**	86	37%	22
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking							
5. Temescal (55th St. to Shattuck/44th Street)	**443**	**72**	**263**	**59%**	60	14%	120
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking	96	59	50	52%	60	63%	
--Cross Street Parking	347	13	213	61%	0	0%	
6. Telegraph/MacArthur (44th Street to I-580/34th Street)	**557**	**122**	**415**	**75%**	76	14%	66
Two-Way Transitway via Telegraph Avenue--Along Telegraph Parking	153	94	82	54%	76	50%	
--Cross Street Parking	404	28	333	82%	0	0%	
7. South Telegraph Avenue--Oakland (34th Street to 20th Street)	**947**	**287**	**692**	**73%**	81	9%	174
Telegraph Two-Way BRT in Median--Along Telegraph Parking	188	164	125	66%	81	43%	
--Cross Street Parking	759	123	567	75%	0	0%	
8. Downtown Oakland (20th Street to Broadway at 11th/12th Streets)	**52**	**38**	**50**	**96%**	0	0%	2
Uptown Transit Center/Broadway Mixed-Flow Traffic							
East Oakland (Downtown Oakland/Broadway to San Leandro City Limit)							
9. Chinatown/Lake Merritt (Broadway to 1st Avenue)	**253**	**182**	**222**	**88%**	27	11%	4
One-Way Transitway via 11th and 12th Streets Couplet and E. 12th Street Mixed Flow							
10. International Boulevard--Eastlake (1st Avenue to 14th Avenue)	**828**	**0**	**679**	**82%**	115-132	14%-16%	17-34
Two-Way Transitway or One-Way Couplet Depending upon Variation--Along International/12th Street Parking	349	0	281	81%	115-132	33%-38%	
--Cross Street Parking	479	0	398	83%	0	0%	
11. International Boulevard--San Antonio (14th Avenue to Derby Avenue/30th Avenue)	**667**	**95**	**432**	**65%**	105	16%	130
Two-Way Transitway via International Boulevard--Along International Parking	310	76	178	57%	105	34%	
--Cross Street Parking	357	19	254	71%	0	0%	
12. Fruitvale (Derby Avenue/30th Avenue to 42nd Avenue)	**297**	**117**	**223**	**75%**	64	22%	10
Two-Way Transitway via International Boulevard--Along International Parking	176	82	110	63%	64	36%	
--Cross Street Parking	121	35	113	93%	0	0%	
13. International Boulevard--Central East Oakland (42nd Avenue to 73rd Avenue)	**418**	**0**	**194**	**46%**	95	23%	129
Two-Way Transitway via International Boulevard							
14. International Boulevard--Elmhurst (73rd Avenue to City Limit)	**544**	**0**	**323**	**59%**	39	7%	182
Two-Way Transitway via International Boulevard--Along International Parking	406	0	237	58%	39	10%	
--Cross Street Parking	138	0	86	62%	0	0%	

Table 3.4-3, cont.: Parking Displaced under Alternative 3 and 4 (Combined BRT and Local Service)

Geographic Area *and* BRT Alignment Variation	Parking Supply				Total Parking Displaced (Number / % of Supply)		Unoccupied after Displacements
	Total Spaces	Metered	Occupied (weekday p.m.)				
San Leandro (Oakland City Limit to Bayfair) - *Alternative 3: BayFair BART Terminus*							
15. San Leandro North (E.14th Street, City Limit to Davis Street)	**266**	**22**	**136**	**51%**	82	31%	48
Two-Way Transitway via E. 14th Street Median--Along E.14th Street Parking	180	0	79	44%	82	46%	
--Cross Street Parking	86	22	57	66%	0	0%	
16. Downtown San Leandro (Davis Street to Blossom Way) Two-Way Transitway via E.14th Street (Two-Way BRT in Mixed Flow)	**119**	**0**	**48**	**40%**	12	10%	59
17. San Leandro South (Blossom Way to Bayfair Drive) Two-Way Transitway via E.14th Street (Two-Way BRT in Median)	**256**	**0**	**143**	**56%**	64	25%	49
18. BayFair BART Bayfair Center and BayFair BART Access	**>1000**	**NA**	**>1000**	**NA**	20	N/A	>1000
TOTALS FOR ALTERNATIVE 3 (Excluding BayFair BART)	**7,056**	**1,609**	**4,853**	**69%**	1,109-1,255	16%-18%	948 - 1,094
San Leandro (Oakland City Limit to Bayfair) - *Alternative 4: San Leandro BART Terminus*							
15. San Leandro North (E.14th Street, City Limit to Davis Street) Two-Way BRT in Mixed Flow via E.14th Street, Davis Street, and San Leandro Boulevard	**266**	**22**	**136**	**51%**	14	5%	116
16. through 18. San Leandro Downtown, South, and BayFair BART	**375**	**0**	**191**	**51%**	0	0%	0
TOTALS FOR ALTERNATIVE 4 (Excluding BayFair BART)	**7,056**	**1,609**	**4,853**	**69%**	945-1,091	13%-15%	1,112 - 1,258

Notes:
[1] (-xx) indicates parking deficit; not enough spaces would remain to meet parking demand.
Source: Parsons, 2005

Table 3.4-4: Parking Impacts of Alignment Variations to Build Alternatives 1 and 2 (Separate BRT and Local Service)

Geographic Area *and* BRT Alignment Variation	Parking Supply: Total Spaces	Parking Supply: Metered	Parking Supply: Occupied (weekday p.m.)		Total Parking Displaced (Number / % of Supply)		Unoccupied after Displacements
Berkeley							
1. Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue) **TOTAL:**	**272**	**246**	**206**	**76%**	19-54	7%-20%	12 - 47
Two-Way Transitway via Shattuck Avenue							
a. Unbuffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)					19	7%	47
b. Unbuffered Parallel Parking (Allston Way to Bancroft Way/Durant Avenue)					54	20%	12
c. Buffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)					19	7%	47
One-Way Transitway via Shattuck Avenue-Oxford Street Loop					52	19%	14
2. Berkeley Southside (Oxford/Fulton Street to Dwight Way) **TOTAL:**	**328**	**186**	**270**	**82%**	15-113	5%-34%	(-55)[1] - 43
Two-Way Transitway via Bancroft Way and Telegraph Avenue							
a. Two-Way Transitway via Bancroft Way Connecting to Two-Way Transitway via Shattuck Avenue					74	23%	(-16)[1]
b. Two-Way Transitway via Bancroft Way Connecting to One-Way Transitway via Shattuck Avenue-Oxford Street Loop					49	15%	9
c. Two-Way Transitway via Restricted Bancroft Way; Auto Cul de Sac at Telegraph Avenue					32	10%	26
Two-Way Transitway via Bancroft Way and One-Way Transitway via Telegraph Avenue-Dana Street Couplet							
a. Two-Way Transitway via Bancroft Way Connecting to Two-Way Transitway via Shattuck Avenue					113	34%	(-55)[1]
b. Two-Way Transitway via Bancroft Way Connecting to One-Way Transitway via Shattuck Avenue-Oxford Street Loop					88	27%	(-30)[1]
c. Two-Way Transitway via Restricted Bancroft Way; Auto Cul de Sac at Telegraph Avenue					79	24%	(-21)[1]
One-Way Transitway via Bancroft Way-Durant Avenue and Two-Way Transitway via Telegraph Avenue							
a. One-Way Transitway via Bancroft Way-Durant Avenue Connecting to Two-Way Transitway via Shattuck Avenue Oxford Street Loop					15	5%	43
One-Way Transitway via Bancroft Way-Durant Avenue and Telegraph Avenue-Dana Street Couplets							
a. One-Way Transitway via Bancroft Way-Durant Avenue Connecting to Two-Way Transitway via Shattuck Avenue Oxford Street Loop					45	14%	13
East Oakland							
10. International Boulevard--Eastlake (1st Avenue to 14th Avenue) **TOTAL:**	**828**	**0**	**679**	**82%**	114-116	14%	33-35
Two-Way Transitway via International Boulevard-- Along International/12th Parking					114	33%	35
--Cross Street Parking					0	0%	
One-Way Transitway via International Boulevard-12th Street Couplet-- Along International/12th Parking					116	33%	33
--Cross Street Parking					0	0%	

Notes:
[1] (-xx) indicates parking deficit; not enough spaces would remain to meet parking demand.
Source: Parsons, 2005

Table 3.4-5: Parking Impacts of Alignment Variations to Build Alternatives 3 and 4 (Combined BRT and Local Service)

Geographic Area *and* BRT Alignment Variation		Parking Supply: Total Spaces	Parking Supply: Metered	Parking Supply: Occupied (weekday p.m.)		Total Parking Displaced (Number / % of Supply)		Unoccupied after Displacements
Berkeley								
1. Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue)	**TOTAL:**	**272**	**246**	**206**	**76%**	19-54	7%-20%	12 - 47
Two-Way Transitway via Shattuck Avenue								
a. Unbuffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)						19	7%	47
b. Unbuffered Parallel Parking (Allston Way to Bancroft Way/Durant Avenue)						54	20%	12
c. Buffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)						19	7%	47
One-Way Transitway via Shattuck Avenue-Oxford Street Loop						52	19%	14
2. Berkeley Southside (Oxford/Fulton Street to Dwight Way)	**TOTAL:**	**328**	**186**	**270**	**82%**	22-116	7%-35%	(-58)[1] - 36
Two-Way Transitway via Bancroft Way and Telegraph Avenue								
a. Two-Way Transitway via Bancroft Way Connecting to Two-Way Transitway via Shattuck Avenue						77	23%	(-19)[1]
b. Two-Way Transitway via Bancroft Way Connecting to One-Way Transitway via Shattuck Avenue-Oxford Street Loop						52	16%	6
c. Two-Way Transitway via Restricted Bancroft Way; Auto Cul de Sac at Telegraph Avenue						32	10%	26
Two-Way Transitway via Bancroft Way and One-Way Transitway via Telegraph Avenue-Dana Street Couplet								
a. Two-Way Transitway via Bancroft Way Connecting to Two-Way Transitway via Shattuck Avenue						116	35%	(-58)[1]
b. Two-Way Transitway via Bancroft Way Connecting to One-Way Transitway via Shattuck Avenue-Oxford Street Loop						91	28%	(-33)[1]
c. Two-Way Transitway via Restricted Bancroft Way; Auto Cul de Sac at Telegraph Avenue						79	24%	(-21)[1]
One-Way Transitway via Bancroft Way-Durant Avenue and Two-Way Transitway via Telegraph Avenue								
a. One-Way Transitway via Bancroft Way-Durant Avenue Connecting to Two-Way Transitway via Shattuck Avenue						22	7%	36
b. One-Way Transitway via Bancroft Way-Durant Avenue Connecting to One-Way Transitway via Shattuck Avenue-Oxford Street Loop						24	7%	34
One-Way Transitway via Bancroft Way-Durant Avenue and Telegraph Avenue-Dana Street Couplets								
a. One-Way Transitway via Bancroft Way-Durant Avenue Connecting to Two-Way Transitway via Shattuck Avenue						52	16%	6
b. One-Way Transitway via Bancroft Way-Durant Avenue Connecting to One-Way Transitway via Shattuck Avenue-Oxford Street Loop						54	16%	4
East Oakland								
10. International Boulevard--Eastlake (1st Avenue to 14th Avenue)	**TOTAL:**	**828**	**0**	**679**	**82%**	115-132	14%-16%	17-34
Two-Way Transitway via International Boulevard-- Along International/12th Parking						132	38%	17
--Cross Street Parking						0	0%	
One-Way Transitway via International Boulevard-12th Street Couplet-- Along International/12th Parking						115	33%	34
--Cross Street Parking						0	0%	

Notes:
[1] (-xx) indicates parking deficit; not enough spaces would remain to meet parking demand.
Source: Parsons, 2005

Impacts were identified for five geographic areas along the proposed BRT alignment.

- ***North Telegraph Avenue (Woolsey Street to Highway 24/55th Street—Area 4)*:** Approximately 93 parking spaces along Telegraph Avenue would be displaced by the Alternatives 1 and 2 and approximately 86 spaces by Alternatives 3 and 4. The latter alternatives, which combine express and local service and operate buses only in the BRT transitway, would remove a number of local bus stops, allowing the conversion of existing bus stops to new parking spaces. The displacements would amount to approximately 37 to 40 percent of curb spaces on Telegraph Avenue. The parking assessment did not include parking supply on cross streets through this section of the alignment due to light parking occupancy and a large number of curb and off-street parking spaces available.

- ***Temescal (55th Street to 44th Street—Area 5)*:** Approximately 66 curb spaces would be displaced along Telegraph Avenue under Alternatives 1 and 2 and 60 spaces under Alternatives 3 and 4. These displacements would amount to 69 percent and 63 percent, respectively, of the curb parking on the project alignment and around 15 percent and 14 percent of the total available parking within the Temescal survey area when including cross streets.

- ***Telegraph Avenue/MacArthur Boulevard (44th Street to I-580/34th Street—Area 6)*:** Approximately 66 curb spaces would be displaced along Telegraph Avenue under Alternatives 1 and 2 and 76 spaces would be displaced under Alternatives 3 and 4. The higher displacements under Alternatives 3 and 4 would result from the additional BRT stations at 42nd Street and 34th Street. The total curb parking displaced along Telegraph Avenue would range from 43 to 50 percent. Including cross streets, displacements would range from 12 and 14 percent of total available parking in the survey area.

- ***South Telegraph Avenue (34th Street to 20th Street—Area 7)*:** Approximately 86 curb spaces would be displaced under Alternatives 1 and 2 and 81 under Alternatives 3 and 4. These parking displacements would be approximately 46 percent and 43 percent, respectively, of spaces on Telegraph Avenue, and 9 percent of total survey area parking supply, including cross streets.

- ***Downtown Oakland (20th Street to Broadway at 11th/12th Streets—Area 8)*:** The East Bay BRT alignment would leave Telegraph Avenue and follow 20th Street eastward to Broadway and southward into downtown Oakland. No parking would be displaced in this segment under any of the Build Alternatives. The segment of 20th Street between Telegraph Avenue and Broadway is being improved as a separate project (with all curb parking to be removed). Along Broadway, BRT vehicles would operate in mixed flow. No curb parking would be removed on Broadway. The station at 14th Street and Broadway would be located on the sidewalk plaza in the southbound direction and as a curb extension at an existing bus stop in the northbound direction.

East Oakland (Downtown Oakland/Broadway to San Leandro-Oakland City Limit—Areas 9-14)

The proposed BRT alignment from downtown Oakland through East Oakland would be a combination of mixed-flow, side-, and median-running design.

In general, the parking displacements would be highest in median-running segments, followed by side-running segments, and lowest in mixed-flow segments. In side-running and mixed-flow segments, displacements would be limited to those curb areas where BRT stations are proposed. Compared to the northern portion of the project alignment extending from Berkeley to Oakland, the number of displacements as a percentage of curb parking and available supply would be lower. This is due to the spacing of stations and signalized intersections and—along International Boulevard south of Fruitvale—the wider roadway cross-section that includes space to retain parking lanes.

Parking impacts along the BRT alignment from Downtown Oakland were assessed for six geographic areas:

- ***Chinatown/Lake Merritt (Broadway to 1st Avenue—Area 9)*:** BRT service under all alternatives would operate in a side-running transitway next to the parking lane along 11th Street (southbound) and 12th Street (northbound) from Broadway to Lake Merritt, where 11th Street merges with 12th Street. All curb parking would be retained in this portion of the BRT alignment except for at BRT stations along 11th and 12th Streets. These stations would be extensions of the curb into the adjacent parking lane.

  Approximately 35 spaces would be displaced under Alternatives 1 and 2 and 27 spaces would be displaced under Alternatives 3 and 4. Station platforms are proposed to extend 120 feet along 11th and 12th Streets to accommodate all AC Transit bus routes operating in this segment, which include Routes 15, 40/40L, 43, and 88. The longer station platforms would contribute to the number of parking spaces displaced. The displaced spaces represent 11 to 14 percent of curb parking along 11th and 12th Streets. BRT service would then operate in mixed-flow traffic on 12th Street and 1st Avenue to International Boulevard. No parking would be displaced on this roadway segment.

- ***International—Eastlake (1st Avenue to 14th Avenue—Area 10)*:** Two BRT alignments are under consideration in this segment. The displacements would be in different locations but the total parking spaces affected would be about the same.

  - The *Two-Way Transitway via International Boulevard* variation proposes a side running transitway from 1st Avenue to just north of 14th Avenue. Approximately 114 spaces would be displaced on International Boulevard under Alternatives 1and 2 and 132 under Alternatives 3 and 4. Parking displacements under Alternatives 3 and 4 would be higher in this segment due to two extra BRT stations.

  - The *One-Way Transitway via International Boulevard-12th Street Couplet* variation proposes median running along each arterial, with the potential for 116 spaces displaced (both streets combined) under Alternatives 1 and 2 and 115 under Alternatives 3 and 4.

Displaced parking spaces as a percentage of total curb parking along the BRT alignment through the Eastlake District would range from 33 to 38 percent, depending upon the Build Alternatives and alignment variation selected. Cross streets would offer alternate parking locations for International Boulevard and 12th Street businesses. Displacements as a percentage of total along-BRT street and cross street parking would range from 14 to 16 percent.

- ***International Boulevard—San Antonio (14th Avenue to Derby Avenue/30th Avenue—Area 11)*:** A median-running alignment is proposed in this segment. Approximately 111 spaces would be displaced at stations and signalized intersections under Alternatives 1 and 2 and 105 spaces under Alternatives 3 and 4. The displacements would be equivalent to about 34 to 36 percent of curb parking along International Boulevard and 16 to 17 percent of the overall surveyed parking spaces within the segment, when including spaces on cross streets as part of total supply.

- ***Fruitvale (Derby Avenue/30th Avenue to 42nd Avenue—Area 12)*:** This area includes the thriving Fruitvale District. There would be 57 curb parking spaces displaced, or 32 percent of supply, along International Boulevard under Alternatives 1 and 2 and 64 spaces, or 36 percent, displaced under Alternatives 3 and 4. If parking on cross streets between Fruitvale Avenue and 36th Avenue is included, displacements would range from 19 to 22 percent of the total number of surveyed parking spaces.

- ***International Boulevard—Central East Oakland (42nd Avenue to 73rd Avenue—Area 13)*:** Under Alternatives 1 and 2, 100 curb spaces would be displaced and under Alternatives 3 and 4, 95 spaces would be displaced by implementing median-running BRT along this segment of International Boulevard. This amounts to 23 to 24 percent of curb parking on International Boulevard. The parking assessment did not include parking supply on cross streets through this section of the alignment due to light parking occupancy and a large number of curb and off-street parking spaces available.

- ***International Boulevard—Elmhurst (73rd Avenue to San Leandro City Limit—Area 14)*:** A relatively small number of parking spaces would be displaced in this segment of International Boulevard. The street's wide cross section would allow retaining parking through station areas and near signalized intersections. About 56 curb spaces would be removed under Alternatives 1 and 2 and 39 spaces under Alternatives 3 and 4. The sharp decrease in estimated displacements under Alternatives 3 and 4 is due to the removal of numerous local bus stops and restoration of curb parking at those locations. When including parking on cross streets near the commercial area of International Boulevard and 82nd Avenue, the total curb parking available is around 544 spaces. The parking displacements from the East Bay BRT Project would amount to 10 percent or less of the total parking supply along the BRT alignment and cross streets.

3.4.2.5 CITY OF SAN LEANDRO

San Leandro was divided into four areas for the analysis of parking impacts. Area 15 covers northern San Leandro to Davis Street and the San Leandro BART Station. Areas 16 through 18 cover southern San Leandro from Davis Street to the BayFair BART Station.

San Leandro North (Oakland-San Leandro City Limit to Davis Street—Area 15)

Alternatives 1 and 3, which continue BRT service to BayFair BART, would displace between 79 and 82 curb spaces on East 14th Street, or 44 to 46 percent, respectively. About 20 of the spaces would be displaced near the Dutton Avenue shopping district. Approximately 86 cross street spaces were identified as potentially providing alternative parking to East 14th Street in the vicinity of the Dutton Avenue intersection. When combining cross street and East 14th Street parking spaces, displacements represent approximately 30 percent of total surveyed curb parking spaces.

Alternatives 2 and 4, which terminate BRT service at San Leandro BART, would displace from 14 to 17 spaces due to construction of curb extension stations at Durant Avenue, Georgia Way (under the Alternative 4 only), Begier Avenue, Davis Street, and the San Leandro BART Station. The San Leandro BART BRT station would be at an existing, improved bus stop. Displacements would represent less than 10 percent of available curb parking along East 14th Street, Davis Street, and San Leandro Boulevard in this segment.

Downtown San Leandro/San Leandro South (Davis Street to BayFair BART—Areas 16, 17 and 18)

Alternatives 1 and 3 would continue along East 14th Street through Downtown San Leandro, into the Bayfair Center, and terminate on the east side of the BayFair BART Station at the existing bus transit center. This portion of the corridor is divided into three geographic segments.

- ***Downtown San Leandro (Davis Street to Blossom Way—Area 16)*:** In this segment of mixed-flow BRT operations, parking would be displaced to construct curbside stations as extensions from the sidewalk. An estimated 12 (Alternative 3) to 23 spaces (Alternative 1) would be displaced, amounting to approximately 10 to 19 percent of curb parking along East 14th Street.

- ***San Leandro South (Blossom Way to Bayfair Drive—Area 17)*:** South of Blossom Way, the BRT transitway would return to median running along East 14th Street. Approximately 64 curb spaces would be displaced at stations and intersections under Alternative 3 and 78 under Alternative 1. These displacements represent 25 to 30 percent of total parking spaces along East 14th Street in this segment.

- ***Bayfair Center / BayFair BART (Area 18)*:** BRT buses would operate along Bayfair Drive and the BayFair BART access roadway to a terminus at the BayFair BART Station. Under both Alternatives 1 and 3, a Bayfair Center station along Bayfair Drive near East 14th Street is proposed and would remove about 20 spaces currently reserved for Bayfair Center parking. The spaces represent a very small percentage of total mall parking at this time. Bayfair Center is undergoing redevelopment and parking layouts could change as a result. The displacements have been estimated based on the latest available site plans.

Alternatives 2 and 4 would have no effect on parking supply in the San Leandro South segment of the corridor.

3.4.3 Avoidance, Minimization, and /or Mitigation Measures (Build Alternatives)

This section describes proposed mitigation of parking impacts attributable to the Build Alternatives. No mitigation of parking is proposed for the No-Build Alternative due to the minor number of curb parking spaces that would be displaced. Mitigation of parking displacements under the Build Alternatives is intended to ensure that a reasonable level of parking capacity remains in areas where parking is potentially constrained at present or anticipated to be constrained in the future. No mitigation of parking would be proposed where curb parking appears adequate or where ample alternate off-street parking opportunities exist. The proposed parking mitigation measures described below represent a general strategy for parking replacement or substitution. Specifics of parking mitigation for an individual geographic area would be established by AC Transit, in consultation with each of the affected cities during the next phase of project design—preliminary engineering and preparation of the final EIS/EIR. A preferred project alignment and configuration for the BRT transitway would be selected for evaluation during that phase, including a refined evaluation of parking displacements.

Table 3.4-6 and Table 3.4-7 provide a summary of the number of spaces proposed for mitigation by Build Alternative by geographic area. They also identify areas where parking mitigation is not proposed. In areas where parking impacts are targeted for mitigation, the mitigation measures would be of two possible forms:

1. *Parking replacement.* New spaces would be constructed, in surface lots or structures. AC Transit would not propose to independently develop parking but would help fund or build public parking under development or planned by other public agencies.

2. *Parking substitution.* In areas where it is not practicable to construct new parking due to lack of available space and high capital costs, replacement parking for commercial uses would be achieved by expanding the number of metered spaces or time-and-use-restricted parking spaces. Prime candidates for metered parking include unrestricted, underutilized parking along the BRT alignment or on cross streets near commercial areas, if convenient for business access. AC Transit would fund the installation of new parking meters and other parking restrictions.

Parking usage achieves optimal efficiency when occupancy is between 85 and 95 percent.[11] These mitigation measures would replace displaced parking spaces so that parking occupancy would be, at most, 85 percent for each segment of the corridor. This level would provide sufficient spare parking supply so that drivers typically would not experience excessive difficulty locating parking. An exception would be made for locations with ample off-street parking opportunities. In these locations, no mitigation is proposed. One-for-one replacement of parking (i.e., metering or funding construction of a new space for each space displaced by the project) in busy commercial areas is not proposed for several reasons:

[11] *The Dimensions of Parking, 4th edition*, Urban Land Institute and National Parking Association, 2000.

Table 3.4-6: Parking Mitigation Proposed for Alternatives 1 and 2 (Separate BRT and Local Service)

Geographic Area *and* BRT Alignment Variation	Spaces Proposed for Mitigation (Number / % of Displaced)		Mitigation Measure[1]
Berkeley (University Avenue to Oakland City Limit)			
1. Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue)			
a. Unbuffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)	0	0%	No Mitigation Proposed
b. Unbuffered Parallel Parking (Allston Way to Bancroft Way/Durant Avenue)	20	37%	Replace with New Parking
c. Buffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)	0	0%	No Mitigation Proposed
2. Berkeley Southside (Oxford/Fulton Street to Dwight Way)	0 - 98	0% - 87%	Replace with New Parking
3. Berkeley: North Telegraph Avenue (Dwight Way to Woolsey Street)	70	48%	Meter/Restrict Substitute Spaces
Berkeley Total	**70 - 188**	**39%-60%**	
North Oakland / Downtown Oakland (Berkeley City Limit to Broadway at 11th/12th St.)			
4. Oakland: North Telegraph Avenue (Woolsey Street to Hwy 24/55th Street)	5	5%	Meter/Restrict Substitute Spaces
5. Temescal (55th St. to Shattuck/44th Street)	31	47%	Meter/Restrict Substitute Spaces
6. Telegraph/MacArthur (44th Street to I-580/34th Street)	0	0%	No Mitigation Proposed
7. South Telegraph Avenue--Oakland (34th Street to 20th Street)	0	0%	No Mitigation Proposed
8. Downtown Oakland (20th Street to Broadway at 11th/12th Streets)	0	0%	No Mitigation Proposed
North Oakland Total	**36**	**12%**	
East Oakland (Downtown Oakland/Broadway to San Leandro City Limit)			
9. Chinatown/Lake Merritt (Broadway to 1st Avenue)	0	0%	No Mitigation Proposed
10. International Boulevard--Eastlake (1st Avenue to 14th Avenue)	66-68	58%-59%	Meter/Restrict Substitute Spaces
11. International Boulevard--San Antonio (14th Avenue to Derby Avenue/30th Avenue)	0	0%	No Mitigation Proposed
12. Fruitvale (Derby Avenue/30th Avenue to 42nd Avenue)	16	28%	Meter/Restrict Substitute Spaces
13. International Boulevard--Central East Oakland (42nd Avenue to 73rd Avenue)	0	0%	No Mitigation Proposed
14. International Boulevard--Elmhurst (73rd Avenue to City Limit)	0	0%	No Mitigation Proposed
East Oakland Total	**82 - 84**	**17%-18%**	
San Leandro (Oakland City Limit to Bayfair) - ***Alternative 1: BayFair BART Terminus***			
15. San Leandro North (E.14th Street, City Limit to Davis Street) *Terminate at BayFair BART (Two-Way BRT in Median)*	0	0%	No Mitigation Proposed
16. Downtown San Leandro (Davis Street to Blossom Way)	0	0%	No Mitigation Proposed
17. San Leandro South (Blossom Way to Bayfair Drive)	0	0%	No Mitigation Proposed
18. BayFair BART	0	0%	No Mitigation Proposed
San Leandro Total	**0**	**0%**	
TOTALS FOR ALTERNATIVE 1 (Excluding BayFair BART)	**188 - 308**	**16%-24%**	
San Leandro (Oakland City Limit to Bayfair) - ***Alternative 2: San Leandro BART Terminus***			
15. San Leandro North (E.14th Street, City Limit to Davis Street) *Terminate at San Leandro BART Variation (Two-Way Side-Running BRT in Mixed Flow)*	0	0%	No Mitigation Proposed
16. through 18. San Leandro Downtown, South, and BayFair BART	0	0%	No Mitigation Proposed
San Leandro Total	**0**	**0%**	
TOTALS FOR ALTERNATIVE 2 (Excluding BayFair BART)	**188 - 308**	**19%-28%**	

Notes:
[1] Parking to be replaced in Downtown Berkeley and Berkeley Southside by participating in city and UC Berkeley parking projects; metered/restricted parking to be expanded in other areas where mitigation is proposed.
Source: Parsons, 2005

Table 3.4-7: Parking Mitigation Proposed for Alternatives 3 and 4 (Combined BRT and Local Services)

Geographic Area *and* BRT Alignment Variation	Spaces Proposed for Mitigation (Number / % of Displaced)		Mitigation Measure[1]
Berkeley (University Avenue to Oakland City Limit)			
1. Downtown Berkeley (University Avenue to Bancroft Way/Durant Avenue)			
a. Unbuffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)	0	0%	No Mitigation Proposed
b. Unbuffered Parallel Parking (Allston Way to Bancroft Way/Durant Avenue)	20	37%	Replace with New Parking
c. Buffered Angle Parking (Allston Way to Bancroft Way/Durant Avenue)	0	0%	No Mitigation Proposed
2. Berkeley Southside (Oxford/Fulton Street to Dwight Way)	7 - 101	32%-87%	Replace with New Parking
3. Berkeley: North Telegraph Avenue (Dwight Way to Woolsey Street)	65	46%	Meter/Restrict Substitute Spaces
Berkeley Total	**72 - 186**	**39%-60%**	
North Oakland / Downtown Oakland (Berkeley City Limit to Broadway at 11th/12th St.)			
4. Oakland: North Telegraph Avenue (Woolsey Street to Hwy 24/55th Street)	0	0%	No Mitigation Proposed
5. Temescal (55th St. to Shattuck/44th Street)	25	42%	Meter/Restrict Substitute Spaces
6. Telegraph/MacArthur (44th Street to I-580/34th Street)	0	0%	No Mitigation Proposed
7. South Telegraph Avenue--Oakland (34th Street to 20th Street)	0	0%	No Mitigation Proposed
8. Downtown Oakland (20th Street to Broadway at 11th/12th Streets)	0	0%	No Mitigation Proposed
North Oakland Total	**25**	**8%**	
East Oakland (Downtown Oakland/Broadway to San Leandro City Limit)			
9. Chinatown/Lake Merritt (Broadway to 1st Avenue)	0	0%	No Mitigation Proposed
10. International Boulevard--Eastlake (1st Avenue to 14th Avenue)	67-84	58%-64%	Meter/Restrict Substitute Spaces
11. International Boulevard--San Antonio (14th Avenue to Derby Avenue/30th Avenue)	0	0%	No Mitigation Proposed
12. Fruitvale (Derby Avenue/30th Avenue to 42nd Avenue)	23	36%	Meter/Restrict Substitute Spaces
13. International Boulevard--Central East Oakland (42nd Avenue to 73rd Avenue)	0	0%	No Mitigation Proposed
14. International Boulevard--Elmhurst (73rd Avenue to City Limit)	0	0%	No Mitigation Proposed
East Oakland Total	**90 - 107**	**20%-23%**	
San Leandro (Oakland City Limit to Bayfair) - ***Alternative 3: BayFair BART Terminus***			
15. San Leandro North (E.14th Street, City Limit to Davis Street) *Terminate at BayFair BART (Two-Way BRT in Median)*	0	0%	No Mitigation Proposed
16. Downtown San Leandro (Davis Street to Blossom Way)	0	0%	No Mitigation Proposed
17. San Leandro South (Blossom Way to Bayfair Drive)	0	0%	No Mitigation Proposed
18. BayFair BART	0	0%	No Mitigation Proposed
San Leandro Total	**0**	**0%**	
TOTALS FOR ALTERNATIVE 3 (Excluding BayFair BART)	**187 - 318**	**17%-25%**	
San Leandro (Oakland City Limit to Bayfair) - ***Alternative 4: San Leandro BART Terminus***			
15. San Leandro North (E.14th Street, City Limit to Davis Street) *Terminate at San Leandro BART Variation (Two-Way Side-Running BRT in Mixed Flow)*	0	0%	No Mitigation Proposed
16. through 18. San Leandro Downtown, South, and BayFair BART	0	0%	No Mitigation Proposed
San Leandro Total	**0**	**0%**	
TOTALS FOR ALTERNATIVE 4 (Excluding BayFair BART)	**187 - 318**	**20%-29%**	

Notes:
[1] Parking to be replaced in Downtown Berkeley and Berkeley Southside by participating in city and UC Berkeley parking projects; metered/restricted parking to be expanded in other areas where mitigation is proposed.
Source: Parsons, 2005

The East Bay BRT Project would provide a high level of access to most locations losing parking capacity. The improved level of transit access would reduce auto use and parking demand as some travelers shift to the BRT service.

- Full replacement of parking would not be consistent with local community objectives to encourage transit use and implement "transit first" policies (which encourage public transit use as opposed to private vehicle travel). More parking would encourage travelers to drive to activity centers along the project corridor and thereby contribute to both increased traffic congestion and reduced transit use.
- Replacement of parking has its own impacts, including increasing construction costs for facilities that include parking.

In certain locations, primarily in the southern portion of the project corridor where commercial activity is less concentrated, mitigation measures would be implemented in parking critical areas only. Therefore, the percentage of displaced spaces proposed for mitigation is a smaller figure than the percentage of spaces proposed for mitigation in areas with more concentrated commercial activity (for example, along Telegraph Avenue and International Boulevard in the Eastlake and Fruitvale districts). The objective is still to ensure that parking occupancy would not exceed 85 percent in any of these locations.

In all areas, special attention would be placed on mitigation of commercial loading and unloading spaces (yellow and green zone parking) removed by the East Bay BRT Project or made more difficult to access. One-for-one or higher levels of replacement of these types of spaces is proposed. This would be done by designating new zones along the BRT alignment in the vicinity of any zones displaced or made less accessible. Also, loading and unloading zones would be designated on cross streets (to the BRT transitway) in commercial areas where additional spaces are needed.

The following summarizes the parking mitigation measures proposed along the project alignment.

3.4.3.1 City of Berkeley Parking Mitigation Measures (All Build Alternatives)

Downtown Berkeley (Area 1)

AC Transit would replace 0 to 20 of the parking spaces displaced by the project by participating in the funding of new parking spaces in the downtown area. Berkeley is expanding public parking in parking structures and in conjunction with parking to be provided in new commercial developments. The number of spaces to be replaced would depend upon alignment variation and the types of improvements along Shattuck Avenue.

Berkeley Southside (Area 2)

AC Transit would replace 0 to 101 of the parking spaces displaced by the project by funding new parking spaces in the Berkeley Southside. UC Berkeley has programmed parking lot and structure improvements. The city of Berkeley has a parking structure on Durant Avenue. The number of spaces to be replaced would depend upon the alignment variation selected for implementation.

Berkeley—North Telegraph Avenue (Area 3)

Unmetered, unrestricted cross street parking would be converted to metered parking to serve commercial uses fronting Telegraph Avenue. Approximately 65 to 70 spaces would be converted. AC Transit would coordinate with the City of Berkeley, which would have jurisdiction to affect these conversions.

3.4.3.2 CITY OF OAKLAND PARKING MITIGATION MEASURES (ALL BUILD ALTERNATIVES)

North Oakland and Downtown Oakland (Areas 4-8)

Between zero and five parking spaces displaced along North Telegraph Avenue (Area 4), from Woolsey Street to 55th Street, would be replaced. There is considerable underutilized curb parking along Telegraph Avenue and spaces on cross streets and nearby surface lots.

Parking impacts in the Temescal area (Area 5) of Telegraph Avenue would be mitigated by increasing the number of metered and time-and-use-restricted parking spaces on cross streets. Approximately 25 to 31 spaces would be converted. AC Transit would coordinate with the City of Oakland, which would have jurisdiction over these conversions.

No mitigation is proposed in the Telegraph/MacArthur area (Area 6) or the South Telegraph Avenue area (Area 7). In both locations, curb parking is considered adequate relative to the displacements caused by the East Bay BRT Project.

East Oakland (Areas 9-14)

No parking mitigation is proposed in the Chinatown/Lake Merritt District (Area 9). From 66 to 84 spaces would be mitigated in the Eastlake District (Area 10) by metering cross street parking. From 16 to 23 spaces would be similarly mitigated in the Fruitvale District (Area 12). AC Transit would coordinate with the City of Oakland, which would have jurisdiction over conversions of unmetered spaces to metered spaces.

In the Fruitvale District, if conversion of existing spaces is not practicable under the East Bay BRT project, AC Transit would participate in funding additional public parking in new lots or structures programmed as part of expansion of the Fruitvale Transit Village or other proposed projects.

No mitigation is proposed in the International Boulevard–Central East Oakland district (Area 13) or the International Boulevard–Elmhurst District (Area 14). In both locations curb parking is considered adequate relative to the displacements caused by the East Bay BRT Project.

3.4.3.3 CITY OF SAN LEANDRO PARKING MITIGATION MEASURES (AREAS 15-18)

Build Alternatives 1 and 3

Under Alt 1: Separate BRT and Local Service to BayFair BART and Alt 3: Combined BRT and Local Service to BayFair BART, from 178 to 200 parking spaces would be displaced. No replacement of parking is proposed. Parking capacity is adequate and the number of spaces displaced is small relative to the surveyed supply of 641 spaces in San Leandro, which does not exclude the substantial parking

at Bayfair Center, the BayFair BART station, and other numerous off-street parking lots along East 14th Street.

Build Alternatives 2 and 4

Under Alt 2: Separate BRT and Local Service to San Leandro BART and Alt 4: Combined BRT and Local Service to San Leandro BART, from 14 to 17 parking spaces would be displaced. No mitigation of impacts is warranted. Parking capacity is adequate and the number of spaces displaced is minor relative to overall supply.

3.4.4 Parking Summary

There are an estimated 7,056 curb parking spaces along the project corridor. The parking survey area includes roadways under consideration for BRT improvements and cross streets in major commercial areas. About 70 percent of all spaces were occupied during the periods when parking surveys were conducted.

The East Bay BRT Project would displace from 981 to 1,299 spaces under Build Alternatives 1 and 2, or 14 percent to 18 percent of surveyed supply, and from 945 to 1,255 spaces under Build Alternatives 3 and 4, or 13 percent to 18 percent of supply. By city, the breakdown is as follows:

	Supply	Displaced	Mitigated	
Berkeley	1,177	180-313	70-188	(39%-60% of displaced)
Oakland	5,238	748-786	115-132	(15%-17% of displaced)
San Leandro	641	14-200	0	(0% of displaced)
Total*	**7,056**	**945-1,299**	**187-318**	**(16%-29%of displaced)**

**Total is not simple sum of city subtotals due to impacts of differing combinations of alternatives and alignments.*

The East Bay BRT Project proposes to mitigate parking impacts by either replacing a portion of the spaces displaced or by converting remaining spaces to metered or time-restricted parking to ensure there are adequate parking opportunities in commercial districts.

Depending upon Build Alternative and alignment variation, from 187 to 318 spaces along the proposed East Bay BRT Project alignment would be replaced, metered or otherwise restricted to better serve commercial uses. The number of spaces proposed for mitigation under the Build Alternatives would range from approximately 16 to 29 percent of total spaces displaced.