# Summary

The Alameda-Contra Costa Transit District (AC Transit) proposes to implement the East Bay Bus Rapid Transit (BRT) Project, a 14.7- to 16.8-mile BRT line connecting Berkeley, Oakland, and San Leandro. The project would include the following features:

- Dedicated bus lanes along arterial streets connecting Downtown Berkeley, the University of California, Downtown Oakland, Downtown San Leandro, and the Bayfair Center in San Leandro;
- Transit signal priority treatments and signal coordination throughout the BRT project alignment;
- BRT service operating at 3.6- to 5.0-minute headways during peak periods;
- Stations spaced 1/4- to 1/2-mile apart (wider spacing than local buses, comparable to light rail service);
- Station features including: shelters, boarding platforms, benches, security features, fare machines, real-time bus arrival information, and other amenities;
- Pre-paid ticketing and proof-of-payment fare verification and enforcement; and
- Low-floor, multi-door, low-emission BRT vehicles.

The proposed BRT service would be supported by the existing local bus network; bus routes along the proposed BRT project alignment serve approximately 24,000 boardings a day—nearly 12 percent of AC Transit's total ridership.

The project location and vicinity are shown in Chapter 1, Figure 1.1-1.

## S.1 Purpose and Need

Recognizing the importance of the Berkeley/Oakland/San Leandro transit corridor, AC Transit proposes a project that is designed to:

- Improve transit service and better accommodate high existing bus ridership.
- Increase transit ridership by providing a viable and competitive transit alternative to the private automobile.
- Improve and maintain efficiency of transit service delivery and lower AC Transit's operating costs per rider.
- Support local and regional planning goals to organize development along transit corridors and around transit stations.

Meeting the four-fold project purpose described above would respond to the following corridor and AC Transit needs:

- Improve transit schedule reliability and reduce transit travel times.
- Improve transit service efficiency by reducing AC Transit's operating cost per rider.

- Enhance accessibility by public transit to jobs and corridor activity centers by expanding transit capacity and making transit more competitive with the automobile.
- Improve boarding and alighting of buses and make transit more convenient for passengers with disabilities or other mobility restrictions.
- Expand travel options and reduce reliance on automobile travel along the increasingly congested roadways, thereby helping to improve the capacity and efficiency of the local transportation network.
- Support transit-oriented residential and commercial development of the project corridor.
- Better serve low-income and transit-dependent populations.

## S.2 Project Alternatives

Various alternatives considered as part of this project were developed as part of the Alameda-Contra Costa Transit District Major Investment Study (MIS) conducted by AC Transit between 1999 and 2002. The MIS considered three modal alternatives: Light Rail Transit (LRT), BRT, and Enhanced Bus. The MIS concluded that the LRT was not cost-effective in the immediate future, while Enhanced Bus did not generate sufficient levels of ridership to warrant further consideration. BRT offered substantial gains in ridership at a lower cost than LRT. It was chosen as the mode for the Locally Preferred Alternative (LPA), with the understanding that LRT service would be considered the long-term goal in the corridor. The MIS also considered two primary alignment alternatives, as well as alignment variations to serve specific activity centers. The alignment proposed for the Build Alternatives described in this Draft Environmental Impact Statement/Environmental Impact Report (DEIS/DEIR) was identified as the LPA alignment on the basis of several evaluation factors, principally ridership, engineering feasibility, and impacts including additional right-of-way requirements. Further discussion of the vehicle/mode and alignment alternatives and variations considered in developing the strategy for the East Bay BRT Project is in Section 2.4, Alternatives Considered and Withdrawn.

### S.2.1 No-Build Alternative

The No-Build Alternative includes all planned and programmed projects in the project corridor, as described in Section 2.2.1, No-Build Alternative. The No-Build Alternative also includes low-cost enhancements to bus services currently in operation in the study corridor and represents the best that can be done to meet the basic project purpose without a major investment. Services that will be improved as part of the No-Build Alternative include:

- Route 40/40L (Telegraph Avenue/Foothill Boulevard-Bancroft Avenue);
- Route 43 (Shattuck Avenue-Telegraph Avenue); and
- Route 82/82L (International Boulevard/East 14th Street).

Capital and service enhancements to these routes would be carried out under AC Transit's Rapid Bus Program, which is the primary transit improvement planned and programmed for the proposed BRT corridor. The following improvements will be carried out as part of this program:

- Addition of low-floor buses;

- Improvements to bus stops (benches, shelters, improved signage and mapping, bus arrival information); and
- Transit signal priority.

The No-Build Alternative includes implementation of a new Rapid Bus route in the corridor, Route 1R (replacing Route 40/40L in the north and Route 82L in the south). Route 1R will operate in mixed-traffic lanes in a route that mostly follows the proposed Build Alternative. Rapid Bus stops will be spaced approximately ½-mile apart, and the route will operate at 12-minute peak period headways. The proposed route is estimated to save 14 minutes of travel time compared to the current bus travel time of 92 minutes between Berkeley and San Leandro. The service will be implemented in early to mid-2007, with incremental improvements as the service matures and ridership grows.

## S.2.2 Build Alternatives

### S.2.2.1 BRT Alignment

The BRT alignment would use primarily Telegraph Avenue in the northern portion of the corridor and International Boulevard/East 14th Street in the southern portion. The route would begin on Shattuck Avenue in Downtown Berkeley, proceed east to the south side of the UC Berkeley campus, and then continue on Telegraph Avenue to Downtown Oakland. It would turn onto 20th Street before continuing southward on Broadway, and then would follow 11th Street (southbound) and 12th Street (northbound) to International Boulevard. The East Bay BRT would enter San Leandro on East 14th Street, which is a continuation of International Boulevard. The southern terminus of the BRT service would be either the BayFair BART station at the southern San Leandro boundary or the San Leandro BART station just west of the city's central business district.

Two operating plans are under consideration for bus services along the project alignment:

- ***Separate BRT and Local Service.*** Two services would operate along the project alignment. BRT buses would operate along the BRT transitway; regular bus services would operate in adjacent mixed-flow lanes as a supplemental service. BRT peak period headways would be five minutes and stations would be spaced between 0.4 to 0.5 miles apart. Local bus peak period headways would be 12 to 15 minutes and stops would be located at the curb, every two to three blocks.
- ***Combined BRT and Local Service Option.*** All bus service along the project alignment would be operated along the BRT transitway—as express service. The only routes that would use mixed-flow lanes would be those that operate along short segments of the alignment before continuing onto other streets. Peak period BRT headways would be 3.6 minutes. Stations would be spaced 0.25 to 0.35 miles apart to be better-suited for local trips.

The various combinations of service operating plans and possible project termini in San Leandro define the four Build Alternatives under consideration for the East Bay BRT Project:

Alt 1: Separate BRT and Local Service to BayFair BART (16.8 miles in length)

Alt 2: Separate BRT and Local Service to San Leandro BART (14.7 miles)

Alt 3: Combined BRT and Local Service to BayFair BART (16.8 miles)

Alt 4: Combined BRT and Local Service to San Leandro BART (14.7 miles)

Several alignment variations are under consideration for each of the Build Alternatives in Downtown Berkeley, Berkeley Southside, and the Eastlake District of East Oakland. Alignment variations are not dependent upon the Build Alternative selected or upon the alignment variation selected in another location. They are independent options for all Build Alternatives. Table S.2-1 summarizes the BRT alignment variations, which are described in detail and depicted by alignment segment in Section 2.2.3, Build Alternative: Alignment Variations.

This DEIS/DEIR describes the characteristics and potential environmental effects of each of the Build Alternatives and their possible alignment variations.

### S.2.2.2 Transitway

The BRT transitway would typically consist of dedicated lanes for transit only. Other traffic with the exception of emergency vehicles would be prohibited from using the transit way. Median transitways would be 22 to 24 feet in width for two-directional travel and side-running transitways would be 11 to 12 feet in width for single direction travel. Transitways would be separated from mixed-flow traffic lanes by a mountable curb. Along several roadways, transit lanes would be established by converting mixed-flow traffic lanes to transit-only lanes. The main roadways where this is proposed include Telegraph Avenue, from UC-Berkeley to 20th Street in Oakland; International Boulevard, from 1st Avenue in Oakland to the Oakland/San Leandro city limit; and, under Build Alternatives 1 and 3 only, East 14th Street from the Oakland/San Leandro city limit to Bayfair Drive in San Leandro (with the exception of Downtown San Leandro where dedicated BRT lanes are not proposed). Chapter 2, Project Alternatives, Section 2.2.2.3, provides detail on BRT alternatives and Figure 2.2-9 and Figure 2.2-10, show the limits of the alignment types.

### S.2.2.3 Stations

Depending on the Build Alternatives, BRT service would offer 31 to 51 stations (see Section 2.2.2.3, Figures 2.2-3 through 6 and Table 2.2-3). Alternatives offering combined BRT and local service (Alternatives 3 and 4) would have more stations per mile than alternatives offering separate BRT and local service (Alternatives 1 and 2). BRT stations typically would be 60 feet in length, with passenger access ramps connecting to crosswalks at nearby intersections. In limited segments along the alignment, such as Downtown Berkeley, Berkeley Southside, and Downtown Oakland, where local service would also operate along the BRT transitway, station platforms would be extended to 120 feet to accommodate two buses.

All BRT stations would feature lighted platforms that allow convenient boarding of buses. Stations would include:

- Ticket vending machines and validators;
- Passenger information kiosks with passive and active data display (maps, schedules) and audio capability for information such as actual bus-arrival time;
- Windscreens and steel tube-framed canopy shelters with benches;
- ADA-compliant features and facilities;
- Telephones/intercoms at all major transfer stations; and,
- Tactile warning strips along platform edges.

| Table S.2-1: Summary of BRT Alignment and Alignment Variations | | |
|---|---|---|
| **Segment** | **Alignment / Variations** | **Description** |
| **Downtown Berkeley Segment** | ***Two Alignment Variations Are Under Consideration*** | |
| University Avenue to Bancroft Way/Durant Avenue | *Two-Way Transitway via Shattuck Avenue* | Two-way transitway with dedicated lanes in median of Shattuck Avenue. |
| | *One-Way Transitway via Shattuck Avenue-Oxford Street Loop* | One-way transitway loop running clockwise on Bancroft Way, Shattuck Avenue, University Avenue, and Oxford Street/Fulton Street. Side-running transitways on Bancroft Way and Oxford/Fulton streets; Shattuck and University Avenues would use combination of median-running, single-lane transitways and mixed-flow lanes. |
| **Berkeley Southside Segment** | ***Four Alignment Variations Are Under Consideration*** | |
| Oxford Street/Fulton Street to Dwight Way | *Two-Way Transitway via Bancroft Way and Two-Way Transitway via Telegraph Avenue* | Bancroft Way: two-way operations in a dedicated transitway or in mixed-flow lanes.<br>Telegraph Avenue, Bancroft Way to Haste Street: transit/pedestrian zone restricted during daytime hours to transit vehicles and access by delivery vehicles only.<br>Telegraph Avenue, Haste Street to Dwight Way: shared transitway northbound and bus-only lane southbound. |
| | *Two-Way Transitway via Bancroft Way and One-Way Transitway via Telegraph Avenue-Dana Street Couplet* | Bancroft Way from Oxford Street/Fulton Street to Dana Street: two-way operations in a dedicated transitway or in mixed-flow lanes.<br>Dana Street from Bancroft Way to Dwight Way: southbound, side running, single lane transitway, proceeding to eastbound single lane transitway on Dwight Way.<br>Telegraph Avenue, Bancroft Way from Dana Street to Dwight Way: side-running, single-lane transitway in northbound/westbound direction adjacent a single mixed-flow traffic lane. |
| | *One-Way Transitway via Bancroft Way-Durant Avenue Couplet and Two-Way Transitway via Telegraph Avenue* | One-way couplet of Bancroft Way and Durant Avenue west of Telegraph Avenue. Side-running, single-lane transitways on both of these streets.<br>Telegraph Avenue: Two-way transitway south of Durant Avenue; Transit/pedestrian zone along Telegraph between Bancroft Way and Haste Street. |
| | *One-Way Transitway via Bancroft Way-Durant Avenue and Telegraph Avenue-Dana Street Couplets* | One-way couplets of side-running, single-lane transitways as described in previous variations. |

**Table S.2-1: Summary of BRT Alignment and Alignment Variations**

| Segment | Alignment / Variations | Description |
|---|---|---|
| **Berkeley–North Telegraph Avenue Segment**<br>Telegraph Avenue/Dwight Way to Berkeley/Oakland city limit | **One Alignment:** Telegraph Avenue | Two-way median transitway along entire segment. |
| **North Oakland/Downtown Oakland Segment**<br>Berkeley/Oakland city limit to Broadway at 11th/12th Streets | **One Alignment:** Telegraph Avenue to 20th Street (Thomas Berkley Way), 20th Street from Telegraph to Broadway, Broadway from 20th Street to 11th Street | Two-way median transitway along entire segment of Telegraph Avenue.<br>Side-running transitway in each direction along 20th Street between Telegraph Avenue and Broadway.<br>Mixed-flow operations along Broadway |
| **Downtown Oakland/Lake Merritt Segment**<br>Broadway to 1st Avenue | **One Alignment**: 11th Street southbound and 12th Street northbound between Broadway and Oak Street, 12th Street from Oak Street to 1st Avenue | Side-running transitway along couplet of 11th Street southbound and 12th Street northbound between Broadway and Oak Street<br>Mixed-flow operations along 12th Street crossing the Lake Merritt estuary from Oak Street to 1st Avenue |
| **Oakland–Eastlake District Segment**<br>1st Avenue to 14th Avenue | ***Two Alignments Variations Are Under Consideration*** | |
| | *Two-Way Transitway via International Boulevard* | Two side-running transitways next to the parking lanes on International Boulevard. |
| | *One-Way Transitway via International Boulevard-12th Street Couplet* | One-way transitways in the median of 12th Street (southbound) and International Boulevard (northbound); BRT lane on 14th Avenue between 12th St. and International. |
| **East Oakland Segment**<br>14th Avenue to Oakland/San Leandro city limit | **One Alignment**: International Boulevard | Two-way transitway in the median of International Boulevard. |
| **San Leandro Segment**<br>Oakland/San Leandro city limit to BayFair BART or San Leandro BART | **Alternatives 1 and 3, One Alignment:** East 14th Street, Bayfair Drive and BayFair BART access road | East 14th Street: Two-way median transitway from city limit to Davis Street, mixed-flow lanes from Davis Street to Blossom Way, two-way median transitway from Blossom Way to Bayfair Drive<br>Bayfair Drive and BayFair BART access road to terminus at BayFair BART Station: median transitway along BayFair Drive transitions to mixed flow. |
| | **Alternatives 2 and 4, One Alignment:** East 14th Street, Davis Street and San Leandro Boulevard to San Leandro BART | Mixed-flow lanes along East 14th Street, Davis Street, and San Leandro Boulevard, terminating at the San Leandro BART Station. |

A station normally would include both southbound and northbound platforms. Southbound is defined as proceeding from Berkeley to Oakland to San Leandro and northbound as proceeding from San Leandro to Oakland to Berkeley. BRT platforms would be placed either in the roadway median or along the curb, depending on the type of transitway.

Median platforms would serve transitways constructed in the middle of the street, while curbside platforms would serve transitways running along the right or outside lane. A median station would have two 10-foot-wide platforms, one serving each direction of travel. All stations would be on the right side of the transitway for right-side vehicle boarding. Curbside platforms would be integrated into existing sidewalks and pedestrian plazas and would extend outward from the curb approximately eight feet to serve BRT vehicles operating in the right or outside travel lane. At some of these locations, existing parking lanes would be displaced. All BRT platforms would be a minimum of 10 inches above the top of the street pavement at the platform edge, allowing convenient passenger loading and unloading of low-floor buses.

#### S.2.2.4 Other Elements

The standard BRT vehicle would be a 60-foot articulated bus, similar to the Van Hool coach currently in AC Transit's fleet. Low-floor buses would allow passengers to board and alight more quickly. Off-board, proof-of-payment fare collection with on-station ticket vending machines would eliminate the delay associated with on-board fare collection and allow passengers to board and alight from any door on the vehicle. Advanced transit signal priority, where the green phase of a traffic signal could be extended for BRT vehicles, would minimize stopped delay at intersections. These features of the East Bay BRT Project would result in faster, more reliable transit service.

Stations would display and announce bus arrival information. Schedule and other system information would also be available on the internet.

## S.3 Transportation Impacts

### S.3.1 Changes to Corridor Transit Services with Proposed Build Alternatives

Table S.3-1 summarizes the changes to the AC Transit bus routes currently providing service along the study corridor. Route 1R will be implemented as part of the No-Build Alternative. Under the Build Alternatives, Route 1R would be replaced with East Bay BRT service, which would provide more frequent headways than Route 1R. No major changes to BART, San Leandro Links, Emery Go-Round, UC Berkeley Bear Transit, AirBART, or paratransit services are planned under any of the Build Alternatives, although minor schedule adjustments may be made in response to shifts in ridership demand.

Tables S.3-2a through S.3-2d summarize proposed changes in bus service along the project alignment with implementation of each of the Build Alternatives. AC Transit would replace certain routes with new BRT service and modify other routes to ensure convenient connections to BRT service. However, the overall levels of bus service (revenue hours and miles operated daily) in the project corridor and within each city along the corridor would not be reduced from the No-Build condition.

**Table S.3-1: 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 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 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.

**Table S.3-2a: 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 S.3-2b: 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 S.3-2c: 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 S.3-2d: 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

### S.3.2 Transit Performance

Table S.3-3 summarizes the changes in selected patronage and quality of transit service parameters under the No-Build Alternative and Build Alternatives.

**Table S.3-3: Summary of Performance of No-Build and Build Alternatives**

| Criterion | Existing Conditions | 2025 No-Build | 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 Weekday Boardings Along BRT Alignment | 23,190 | 28,050 | 43,750 | 42,050 | 49,230 | 47,540 |
| Increase in Regionwide Trips (Compared to No-Build) | N/A | N/A | 5,320 | 4,580 | 9,320 | 8,020 |
| Peak Period Transit Travel Times: Downtown Berkeley to BayFair BART Station (minutes) | 92 | 78 | 59 | 66 | 66 | 72 |
| Peak Period Average Travel Speeds (mph) | 10.9 | 12.9 | 16.9 | 15.1 | 15.2 | 13.9 |

All Build Alternatives would represent a major improvement in transit service and patronage compared to No-Build conditions. The Build Alternatives would:

- Increase corridor ridership by 56 to 76 percent;
- Reduce peak period transit travel times by 22 to 36 percent compared to existing transit travel times;
- Reduce peak period transit travel times by 8 to 24 percent compared to the No-Build Alternative;
- Increase corridor average peak period transit travel speeds by 28 to 55 percent compared to existing conditions; and,
- Increase corridor average peak period transit travel speeds by 8 to 31 percent compared to the No-Build Alternative.

Build Alternatives that offer Combined BRT and Local Service (Alternatives 3 and 4) would generate higher ridership than Build Alternatives that offer separate BRT and local service (Alternatives 1 and 2). The different BRT alignment variations in Downtown Berkeley (two variations possible), Berkeley Southside (four), and East Oakland (two) would not produce major differences in travel times or ridership.

### S.3.3 Traffic Impacts

Traffic impacts along the study corridor with and without the Build Alternatives were evaluated at 36 intersections in the morning peak and 88 intersections in the afternoon peak. Intersections and roadway segments were identified for evaluation in consultation with the Alameda County Congestion Management Agency (ACCMA) and the Cities of Berkeley, Oakland, and San Leandro and were

analyzed in accordance with ACCMA and City of Oakland criteria.[1] Thresholds of significance and significance of impacts before and after feasible mitigations are applied are presented in Chapter 6, California Environmental Quality Act Evaluation.

As a result of the operational analysis, it was determined that, under the Build Alternatives:

- Seven to eight roadway segments would experience degradation in operations exceeding established level of service (LOS) criteria during the afternoon peak.
- Four to six intersections would experience degradation in operations exceeding LOS and vehicle delay thresholds during the morning peak; and
- Twenty-one to 26 intersections would experience degradation in operations exceeding LOS and vehicle delay thresholds during the afternoon peak.

The majority of these impacts would be mitigated to acceptable levels. Effective mitigation of traffic impacts at the following four intersections would require substantial acquisition of additional right-of-way, which would have severe impacts on the developed urban environment through which the proposed BRT corridor would run. Such mitigation was deemed impractical.

- Fulton Street/Bancroft Way in Berkeley. Under the *One-way Transitway via Shattuck Avenue-Oxford Street* alignment variation, impacts would occur during both the morning and afternoon peak hours. This impact would be avoided by selecting a different alignment variation for this alignment segment. Impacts would be mitigated to below threshold levels under all other BRT alignment variations in this segment.
- Telegraph Avenue/Alcatraz Avenue in Oakland. An impact exceeding threshold would occur during the afternoon peak hour.
- International Boulevard/High Street in Oakland. An impact exceeding threshold would occur during the afternoon peak hour.
- San Leandro/High Street in Oakland. An impact exceeding the threshold would occur during the afternoon peak hour.

Traffic impacts and proposed mitigation measures are described in Section 3.2.4, Avoidance, Minimization and/or Mitigation Measures.

## S.3.4 Pedestrian Impacts

The Build Alternatives would improve the pedestrian environment in the corridor in two major ways:

- **Slowing or reducing traffic along the BRT alignment segments with BRT lanes** would make these streets more desirable as walking areas. The presence of BRT stations (both curbside and median) and their associated crosswalks would act as traffic calming devices, improving the safety of pedestrian crossings in the corridor.
- Under some of the alignment variations under consideration in Berkeley, **creation of a pedestrian/transit zone along Telegraph Avenue** in an area noted for its high volumes of

[1] With the concurrence of Berkeley and San Leandro, City of Oakland traffic impact criteria were used for all intersection level of service analyses.

pedestrians would enhance pedestrian conditions and benefit the many pedestrian-oriented retail activities in the area.

The Build Alternatives would not change existing sidewalks except at locations where existing curbs or curb bulb-outs would have to be removed or cut back to accommodate BRT station platforms or to construct a BRT lane along the curb. In these cases, locally established minimum sidewalk widths would be maintained, and the benefits of BRT stations and lanes cited above would offset the impacts of sidewalk narrowing to pedestrian comfort and safety. No mitigation measures are proposed for these impacts. Sidewalks along Telegraph Avenue between Dwight Way and Bancroft Way, which are used by street merchants holding permits from the City of Berkeley, would not be narrowed.

### S.3.5 Bicycle Impacts

In general, the East Bay BRT Project would improve accessibility for bicycles and the overall environment for bicycling in the corridor. BRT stations would be designed to allow level boarding of bicycles and 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 improve the bicycle friendliness of the street.

The East Bay BRT Project would require minor modifications to the bike lane along Telegraph Avenue, from Dwight Way in Berkeley to SR 24 in Oakland, to accommodate proposed traffic and transit lane improvements. These modifications would occur primarily through intersections and where BRT stations are located. These modifications would apply accepted standards for bicycle crossings at intersections and would not degrade the quality of bicycle access. Project modifications would be needed to accommodate the City of Oakland's planned Telegraph Avenue Bicycle Lane; see Section 3.3.2, Bicycle Conditions, and Chapter 5, Cumulative Impacts.

No mitigation measures for bicycle traffic impacts are proposed. AC Transit would continue to coordinate with corridor cities on the integration of bike and bus facilities.

### S.3.6 Parking Impacts

Existing on-street parking would be preserved along most portions of the alignment. Parking spaces would need to be removed in station areas and at signalized intersections with dedicated left-turn lanes. Existing bicycle lanes would be preserved along most portions of the alignment, except at station areas and at signalized intersections. Table S.3-4 summarizes parking conditions, impacts, and proposed mitigation for parking impacts under the Build Alternatives. A full discussion of localized impacts to parking is provided in Section 3.4, Parking.

An estimated 7,056 curb parking spaces were surveyed along the project alignment. Spaces included those on roadways under consideration for BRT improvements and on 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 945 to 1,300 of the spaces. This amounts to about 13 to 18 percent of existing supply. The most spaces would be displaced in Oakland, with

approximately 750 to 785 spaces removed, followed by Berkeley, with approximately 180 to 315 spaces removed, and then San Leandro, with 15 to 200 spaces removed.

The range in displacements depends upon the Build Alternatives and associated alignment variation. Alternatives 1 and 3 would have somewhat higher displacements than Alternatives 2 and 4. The latter alternatives displace fewer spaces because they would terminate improvements at San Leandro BART and operate in mixed-flow lanes. Alternatives 1 and 3 continue to BayFair BART largely in dedicated transit lanes and would displace additional parking near station areas and where left-turn lanes are retained. The selection of alignment variation would affect total parking displacements somewhat but would not be a distinguishing factor among the Build Alternatives.[2]

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 the Build Alternatives 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. Spaces currently designated for residential use would not be affected. The number of spaces proposed for mitigation would range from approximately 16 to 29 percent of total spaces displaced.

[2] Alignment variations are independent from individual Build Alternatives (i.e., all alignment variations are possible options for each Build Alternative).

**Table S.3-4: Summary of Build Alternative Parking Impacts and Proposed Mitigation by Major Area**

| Geographic Area | Parking Supply | | | Total Parking Displaced (Number / % of Supply)[1] | | Spaces Proposed for Mitigation (Number / % of Displaced Parking)[1] | | Mitigation Measure[2] |
|---|---|---|---|---|---|---|---|---|
| | Total Spaces | Total Occupied (weekday p.m.) | | | | | | |
| Downtown Berkeley (Area 1) (University Avenue to Bancroft Way/Durant Avenue) | 272 | 206 | 76% | 19–54 | 7%–20% | 0–20 | 0%–37% | Replace with New Parking |
| Berkeley Southside (Area 2) (Oxford/Fulton Street to Dwight Way) | 328 | 270 | 82% | 15–116 | 5%–35% | 7–101 | 32%–87% | Replace with New Parking |
| Berkeley: Telegraph Avenue North (Area 3) (Dwight Way to Berkeley-Oakland city limit) | 577 | 433 | 75% | 142–146 | 25%–25% | 65–70 | 46%–48% | Meter / Restrict Substitute Spaces |
| North Oakland and Downtown Oakland (Areas 4-8) (Berkeley-Oakland city limit to Broadway at 11th/12th Street) | 2,257 | 1,567 | 69% | 303–311 | 13%–14% | 25–36 | 8%–12% | Meter / Restrict Substitute Spaces |
| Downtown Oakland/Lake Merritt and East Oakland (Areas 9-14) (Broadway to Oakland-San Leandro city limit) | 2,981 | 2,050 | 69% | 445–475 | 15%–16% | 82–107 | 17%–23% | Meter / Restrict Substitute Spaces |
| San Leandro (Areas 15-18) (Oakland-San Leandro city limit to BayFair BART) | 641 | 327 | 51% | 14–200 | 2%–31% | 0–0 | 0%–0% | No Mitigation Proposed |
| **Total** | **7,056** | **4,853** | **69%** | **945–1,300[3]** | **13%–18%** | **190–320[3]** | **16%–29%** | |

Notes:
[1] The ranges reflect the minimum and maximum for the four Build Alternatives and the alignment variations under consideration.
[2] 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.
[3] Totals are rounded.

Source: Parsons, 2005

## S.4 Affected Environment, Impacts, and Mitigation Measures

Table S.4-1 summarizes the long-term environmental impacts of the Build Alternatives other than traffic and parking, and identifies the proposed avoidance, minimization and/or mitigation measures for each impact. A detailed description of the impacts and mitigation measures for each impact category is presented in Chapter 4.

**Table S.4-1: Summary of Build Alternatives Long-Term Impacts and Proposed Mitigation Measures**

| Impact Category | Impacts of Build Alternatives[1] | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| **Long-Term Impacts** | | |
| **Land Use** | Proposed project would not result in conversion of existing land to transportation uses. Project would support intensified corridor development that is consistent with regional Smart Growth and transit-oriented development policies rather than contribute to land use changes. Land use benefits would tend to focus on the downtown centers where densities are highest and there is the greatest potential for more intensified land use development. | None required. |
| **Growth Inducement** | Project would support infill growth strategies of corridor cities and would be consistent with regional Smart Growth policies and transit-oriented development objectives that call for the development of higher-density, mixed-use activity nodes around rapid transit stations and along major transit corridors in the region. | None required. |
| **Agricultural/ Farmland Impacts** | There are no agricultural lands present in the project corridor and no impacts to agricultural lands. | None required. |
| **Community Impacts** | The Build Alternatives would result in community cohesion benefits as station areas would provide focal points for community activity and development. The project would be constructed on existing roadways; it would not disrupt community cohesion.<br>The Build Alternatives would improve access to community facilities, which would benefit corridor communities. No community facilities would be displaced or moved under the Build Alternatives.<br>Low-income and minority populations in the corridor would benefit from the improved transit access. There would be no outstanding Environmental Justice issues with the proposed Build Alternatives. | None required. |

**Table S.4-1: Summary of Build Alternatives Long-Term Impacts and Proposed Mitigation Measures**

| Impact Category | Impacts of Build Alternatives[1] | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| **Utilities** | The Build Alternatives would not create new demands on water supply, stormwater, or wastewater infrastructure. Build Alternatives may require relocation of underground utilities in areas of major improvements (e.g. stations) and where maintenance activities would conflict with BRT operations. Utilities that pose potential conflicts with the BRT project are identified in Tables 4.5-1 and 4.5-2. Relocation of parallel utilities under the BRT transitway is not planned.<br>Temporary utility impacts would occur during construction, as described in Table S.4-2. | During detailed design of the East Bay BRT project, AC Transit would coordinate closely with utility providers to ensure that all existing utilities are identified and to develop utility relocation plans. Initial plans showing utility locations, potential conflicts, and proposed relocations and improvements would be developed during preliminary engineering and preparation of the final EIS/EIR for the East Bay BRT Project, and then further refined during final design. |
| **Visual/Aesthetics** | In general, the visual quality of the corridor would change only where landscaping or streetscape elements would be removed to accommodate the BRT stations or transitway. Some streetscape elements in Downtown Berkeley and Fruitvale would be removed under all Build Alternatives. A public art structure at the Shattuck Square west sidewalk would be relocated under all Build Alternatives when operating two-way along Shattuck Avenue. The City of San Leandro monument near Durant Avenue could be affected and require relocation under Alternatives 1 and 3 only. | The Build Alternatives would be designed to include streetscape elements similar to those being removed.<br>Station amenities would be designed in accordance with urban design guidelines and in coordination with the cities of Berkeley, Oakland, and San Leandro.<br>The BRT Transitway would be reclassified and East 14th Street widened to avoid impacts to the City of San Leandro monument. |
| **Archaeological Resources** | The Build Alternatives would be constructed largely on the surface of existing streets and sidewalks and disturbance of existing pavement would not extend below levels previously disturbed; therefore, the potential for impacts to archaeological resources is extremely low. | An archeologist would monitor construction work in sensitive locations identified in the *Site Treatment Plan for the Alameda-Contra Costa Transit District's East Bay Rapid Transit Project in Berkeley, Oakland, and San Leandro.* If buried cultural materials are encountered during construction, work would stop and measures would be taken as specified in Section 4.16.6, Cultural Resources, within Section 4.16, Construction Impacts. |
| **Historic Resources** | No historic properties would be altered or destroyed for the Build Alternatives. The proposed project would not result in noise or vibration impacts to historic properties. Changes to the setting of eligible historic resources would be in keeping with the dense, urban setting of the area and would not substantially alter features of the properties that render them eligible for listing in the National Register of Historic Places or the California Register of Historic Places. | None required. |

| Table S.4-1: Summary of Build Alternatives Long-Term Impacts and Proposed Mitigation Measures | | |
|---|---|---|
| **Impact Category** | **Impacts of Build Alternatives[1]** | **Proposed Avoidance, Compensation and Minimization Measures** |
| **Section 4(f)**<br>**[49 U.S.C. Section 303]** | This provision of the Department of Transportation Act of 1966 (DOT Act), and its amendments, is intended to preserve the beauty and integrity of publicly owned public parks, recreational areas and wildlife refuges, and historic sites (cultural resources) considered to have national, state, or local significant. The East Bay BRT project would not adversely affect any "Section 4(f)" resource temporarily or long term with the possible exception of cultural sites that may be encountered during construction. The State Historic Preservation Officer in a letter to the federal transit administration, dated March 15, 2006, concurred with this determination. | None required except as noted above.<br>Proposed improvements would not disrupt, displace or otherwise adversely affect known resources. |
| **Floodplain/ Hydrology** | The Build Alternatives would cross creeks, channels, and canals on existing bridges in areas that are fully developed; therefore, impacts or encroachments on these bodies of water are not anticipated. No encroachments or impacts to the floodplain are anticipated as a result of the Build Alternatives. | None required. |
| **Water Quality/ Stormwater** | No special requirements or concerns have been raised by the San Francisco Bay Regional Water Quality Control Board regarding this project. As the Build Alternatives would add landscaping and require little or no widening of pavement along the shoulders, there would be no increase in impervious surfaces. Incorporation of permanent Best Management Practices would result in an improvement in water quality from street runoff. | Best Management Practices (BMPs) would be implemented to reduce the discharge of pollutants from the storm drain system. BMPs to be implemented for the project would include mechanical devices such as catch basin inserts or other in-line filtering devices. |
| **Geology/Soils/ Seismicity** | Although no active faults cross the project corridor, it is located in a seismically active region which has been subjected to several strong earthquakes. In the portions of the study corridor south of Lake Merritt and at International Boulevard at 13th Avenue, there is a high susceptibility to liquefaction. No substantial geologic hazard impacts have been identified which would not be fully addressed by design requirements. | Project would be designed to current seismic and geotechnical design standards. No additional mitigation measures are proposed. |

**Table S.4-1: Summary of Build Alternatives Long-Term Impacts and Proposed Mitigation Measures**

| Impact Category | Impacts of Build Alternatives[1] | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| **Hazardous Waste/Materials** | 80 environmental risk sites were identified in the study corridor (44 along the proposed BRT alignment, 14 in close proximity to the proposed alignment, and 22 within ¼-mile or less upgradient from the proposed alignment). | Mitigation measures for potential hazardous waste-related impacts will include:<br>• Preconstruction field surveys of identified environmental risk sites to observe current conditions.<br>• Regulatory file review of environmental risk sites to determine current status of sites and extent of contamination.<br>• Subsurface exploration of segments of the project alignment next to or downgradient from any environmental risk site. (If construction of the project warrants.) |
| **Air Quality** | Carbon monoxide concentrations would not exceed state and federal one- and eight-hour standards in 2010 or 2025. $PM_{10}$ concentrations in 2010 and 2025 would not exceed the federal 24-hour standard under the Build Alternatives. $PM_{2.5}$ concentrations would exceed the federal 24-hour standard in 2010 under both the No-Build and Build Alternatives, but the effect of the Build Alternatives would not constitute an adverse impact. $PM_{2.5}$ concentrations in 2025 would not exceed the federal 24-hour standard under the No-Build and Build Alternatives.<br>Complies with federal transportation conformity criteria (40 CFR Part 93). | None required. |
| **Noise and Vibration** | The project would generally reduce noise levels along the BRT alignment. Project noise levels would exceed FTA Category 2 Land Use impact criteria in one area in Berkeley with the *Two-Way Transitway via Bancroft Way* variation, where bus lanes on Bancroft Way would displace car traffic to Durant Avenue, which is parallel to the alignment. The Category 2 severe impact criteria would not be exceeded at any location. There are no impacts or severe impacts for Category 3 land uses with the project. See Section 4.13.1.1, Noise Methodology and Criteria for more information on FTA impact and severe impact criteria.<br>Because buses have rubber tires and suspension systems that isolate vibrations from the ground, no vibration impact is anticipated. | Noise barriers would not be feasible in the Berkeley location experiencing moderate impacts at Category 2 land uses. No abatement is proposed. |
| **Energy** | Energy consumption under the Build Alternatives is comparable to that under the No-Build Alternative. | None required. |

**Table S.4-1: Summary of Build Alternatives Long-Term Impacts and Proposed Mitigation Measures**

| Impact Category | Impacts of Build Alternatives[1] | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| **Landscaping/Trees** | Trees would be removed in segments where existing medians or landscaped bulb-outs from the normal street curb line are to be reconstructed for BRT transitway improvements. No large, mature healthy trees are intended for removal. The East Bay BRT Project would include substantial new landscaping that would replace affected existing landscaping and trees wherever possible. Some design concepts would result in a net overall increase in landscaped areas. See Chapter 4, Section 4.6.2.5, Roadway Landscaping and Other Urban Design Features. | None required. Cities would be consulted by AC Transit before removing major landscaping or trees. Replacement/restoration plans would be prepared and be subject to local approvals. |
| **Biological Environment** | Vicinity of the Build Alternatives is fully developed; no sizable natural habitats remain and no wetlands are present within the construction area. The proposed project would be constructed along existing roadways and bridges. Crossings of San Leandro Creek and Estudillo Canal would not widen existing structures or pavement. | None required. Best Management Practices would be followed to avoid effects to surface water. In compliance with the Executive Order on Invasive Species, E.O. 13112, landscaping included in the proposed project would not use species listed as noxious weeds. |

Notes:
1. Impacts other than traffic and parking

Source: Parsons, 2006

Table S.4-2 summarizes the temporary, construction phase impacts of the Build Alternatives and identifies proposed avoidance, minimization and/or mitigation measures for each impact.

**Table S.4-2: Summary of Build Alternatives Construction Impacts and Proposed Mitigation Measures**

| Impact Category | Build Alternative Impacts | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| **Construction Stages, Schedule, and Work Hours** | Construction stages would include: utility relocation, removal of existing pavement, BRT transitway construction (pavement, curbs, and medians, where proposed), BRT station construction, replacement of existing curbs and sidewalks (where applicable), and the addition or update of signals, signage, and pavement markings.<br>Major work would be localized to station areas and roadway segments where the full pavement cross section would be reconstructed and should not disrupt any individual area for more than a few weeks at a time. Elsewhere, construction would be confined largely to the area of the median or side-running transitway, with at least one traffic lane open at all times.<br>Several non-contiguous areas could be constructed simultaneously to minimize impacts and shorten the duration of construction. Most work would be accomplished during daylight hours; however, some night work may be necessary to minimize traffic impacts. | All construction would be planned and staged to minimize disruption of traffic and utility service. Specific construction staging would be developed during final design. |
| **Traffic** | Traffic disruption would be due largely to the closure of one lane of traffic in each direction. Sidewalks and bikeways may be temporarily closed during construction of BRT stations and the transitway.<br>Depending upon agreements with local jurisdictions, individual intersections along the BRT alignment could be closed fully or in part for a few weeks. | One lane of vehicular traffic would be maintained in each direction during business hours. Pedestrian access (including wheelchair accessible ramps and temporary sidewalks) would be maintained during construction.<br>Traffic detours would be designated.<br>Bicycle traffic may have to be rerouted to parallel facilities during construction.<br>AC Transit would establish traffic, pedestrian, and bicycle control plans for the construction period. These plans would be approved by local cities. |

**Table S.4-2: Summary of Build Alternatives Construction Impacts and Proposed Mitigation Measures**

| Impact Category | Build Alternative Impacts | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| **Community Impacts** | Project construction would result in short-term impacts to automobile accessibility and on-street parking along the project alignment, which could temporarily affect certain types of business activity in certain locations and the passage of emergency vehicles through the work area. | Impacts to area public services and facilities during construction would be minimized by implementing the following measures:<br>• AC Transit would coordinate with local emergency service providers in developing detour plans<br>• Emergency service providers would be provided with advance notice of road closures and detour routes. |
| **Utilities/Service Systems** | Existing utilities would be identified and necessary relocations accomplished in advance of construction for each of the proposed station locations. Short-term scheduled and unscheduled interruptions of utility services may occur or unanticipated utilities may be encountered. | AC Transit and its contractors would coordinate closely with utility providers to give advance notice of any required short-term interruptions of service to customers. Contingency plans would be developed in coordination with utility providers to address unanticipated encounters with buried utilities and/or unscheduled interruptions in service. |
| **Visual/Aesthetics** | Construction will take place in the existing roadway in an urbanized area. Transportation improvements such as the proposed BRT project have become an accepted aspect of the urban scene. No substantial adverse impacts are anticipated. | Materials would not be stockpiled on site, and demolition materials would be hauled away. Debris would be cleared daily. Best Management Practices would be implemented to protect mature trees, other vegetation, and the existing streetscape during construction. |
| **Cultural Resources** | The East Bay BRT Project would be constructed largely within the surface of existing streets and sidewalks. There is little potential to disturb subsurface areas not previously disturbed for construction of the original street or utilities. No historic resources would be affected during construction. | During construction, an archeologist would monitor work in sensitive locations identified in the Site Treatment Plan. If buried cultural materials are encountered during construction, work would stop until a qualified archaeologist could evaluate the find. If applicable, AC Transit and FTA would comply with 36 CFR 800.13 regarding late discoveries. |
| **Section 4(f)** | Project construction would not adversely affect any known section 4(f) resources. | None required other than monitoring in sensitive locations, as proposed above. |

**Table S.4-2: Summary of Build Alternatives Construction Impacts and Proposed Mitigation Measures**

| Impact Category | Build Alternative Impacts | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| **Hydrology and Water Quality** | The Build Alternatives would remove roadway pavement and excavate and grade along the transitway and in station areas. Exposure and loosening of soils and subsurface materials have potential to affect stormwater runoff into storm drains along the BRT alignment. | Best Management Practices would be implemented to prevent dust, debris, and sediment from entering runoff. Drain basins would be equipped with temporary devices to collect any sediment and debris that does enter runoff during construction. AC Transit would require the contractor to develop and implement a Storm Water Pollution Prevention Plan, Erosion and Sediment Control Plan, and a Spill Prevention, Contaminant and Clean-up Plan (SPCCP). The SPCCP would address containment of fuels, oils, lubricants and other construction materials that could enter runoff. |
| **Hazardous Waste/Materials** | Construction activities in a densely developed urban area have potential to affect workers and surrounding residents, business owners, employees, and others as well as resources if hazardous materials used in construction are released to the surrounding environment. | AC Transit would require the contractor to develop and implement a Worker Health and Safety Plan (WH&SP) to address the handling and storage of hazardous construction materials. A plan that effectively protects those in closest proximity to the source of contaminants would protect corridor residents and others. |
| **Air Quality** | Under the Build Alternatives, It is estimated that up to 1.65 acres would be under construction along the alignment at any time, potentially releasing up to 84 pounds of $PM_{10}$ and 81 pounds of $PM_{2.5}$ emissions per day, in addition to exhaust from construction equipment. | Emissions control measures described in Section 4.16.9.2 would be implemented to ensure that there would be no adverse air quality impacts from construction. |
| **Noise and Vibration** | Noise impacts are anticipated at any residential location within 25 to 90 feet of construction activities, depending on the construction phase. Night time construction may be necessary. Vibration impacts will need to be mitigated if construction equipment operates in close proximity to wood-framed buildings along the project alignment (close proximity is defined by the vibration impact distances for construction equipment listed in Table 4.16.10-5.) | Contractor would:<br>• Conduct noise and vibration testing and monitor and inspect equipment to ensure that they meet noise standards;<br>• Place temporary noise barriers for asphalt cutting and other noisy activities;<br>• Turn off idling equipment; |

**Table S.4-2: Summary of Build Alternatives Construction Impacts and Proposed Mitigation Measures**

| Impact Category | Build Alternative Impacts | Proposed Avoidance, Compensation and Minimization Measures |
|---|---|---|
| | | • Choose haul routes and conduct loading and unloading operations to minimize noise in residential and other sensitive areas;<br>• Minimize construction activities during nights, weekends, and holiday periods;<br>• Adhere to local and FTA noise thresholds and ordinances.<br>Mitigation measures are detailed in Section 4.16.10.3. |
| **Biological Environment** | No construction phase impacts to the biological environment are anticipated as there are few biological resources in the project area. | Best Management Practices described in Section 4.16.7 would avoid impacts to waterways connecting to biological resources outside the project area. |
| Source: Parsons, 2006 | | |

## S.5 Cumulative Impacts

NEPA defines cumulative impact as “the impact...which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” CEQA defines cumulative impacts as "two or more individual effects which, when considered together are considerable," and suggests that “cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355).

The environmental document has evaluated cumulative effects of the East Bay BRT Project and other past, present, and reasonably foreseeable future project in the study area. Because the proposed project would use existing paved street right-of-way, there is no potential for it to contribute to cumulative impacts on land use, neighborhood character or cohesion, or biological and wetlands resources in the general project corridor. Its primary impacts would be to travel demand, including mode choices, parking, and traffic circulation.

### S.5.1 Assessment of Cumulative Impacts: Regional Context

The primary method for assessing cumulative impacts in these areas was projections based. The assessment used summaries contained in adopted general plans or related planning documents of planned and programmed development to characterize regional conditions. The Alameda County Congestion Management Agency (ACCMA) countywide model was used to develop travel forecasts for development and growth in the region through the year 2025. The model estimates future traffic and

transit travel demand for traffic analysis zones within Alameda County and other San Francisco Bay Area counties and external counties. The use of regional forecasts incorporates the cumulative impacts of the project and other planned and programmed development so that additional analysis of cumulative effects related to specific development and transportation improvement projects within the region is not necessary.

### S.5.2 Assessment of Cumulative Impacts: Local Context

The proposed BRT alignment would overlap the proposed Telegraph Avenue Bicycle Lane Project between Aileen Street/SR 24 and 20th Street. The assessment of the cumulative impacts of the two projects determined there would be sections of Telegraph Avenue between SR 24 and 20th Street that would not have enough street right-of-way to stripe a Class II bike lane on each side while accommodating the presence of the BRT lanes. These areas would make up about 22 percent of the feasible length of the striped bikeway excluding intersections and areas immediately adjacent to intersections. If the bike lane were extended by displacing curbside parking, up to 280 more parking spaces might be displaced on Telegraph Avenue between SR 24 and 20th Street, for a total loss of 498 spaces or 26 percent of the total supply before mitigation was applied.

Implementation of the proposed bicycle lane could also contribute to cumulative circulation impacts, primarily through prohibition of additional left turns along Telegraph Avenue, resulting in additional out-of-direction travel to make right turns to navigate around the restrictions.

Moving the proposed bike lane to parallel roadways to allow for development of a more continuous lane without displacement of parking would avoid these cumulative impacts.

In the south portion of the corridor (Oakland to San Leandro), two projects in San Leandro might contribute to cumulative impacts of the East Bay BRT project under Build Alternatives 1 and 3 only:

- East 14th Street North Area Study
- East 14th Street South Area Development Strategy.

In San Leandro, the East 14th Street North Area Study project, in detailed design, and the East 14th Street South Area Development Strategy, which includes median improvements from 136th to 143rd Avenue, currently under permit review, both have the potential, when combined with the East Bay BRT Project, to result in substantial cumulative impacts on access and circulation. Under the East 14th Street North Area Study, a second northbound lane, from Hays Street to Georgia Way, would not be compatible with the East Bay BRT Project alternatives terminating at BayFair BART. The lane would be replaced by one of the proposed BRT-only lanes in the street median. Throughput capacity of East 14th Street for regular auto and truck traffic would be reduced as a result.

The East 14th Street South Area Development Strategy, depending upon the final configuration of streetscape improvements and lane reconfigurations, would result in alternative uses of the street right-of-way in south San Leandro. Proposed streetscape median improvements, scheduled for implementation in mid to late 2007, would be substantially modified by the East Bay BRT Project. The East 14th Street South Area Development Strategy would possibly alter lane capacities and cross street access relative to future year conditions assumed in the traffic analyses conducted for this environmental document. For

this reason, in combination with the East Bay BRT Project, it has the potential to contribute to cumulative access and circulation impacts.

## S.6 California Environmental Quality Act Evaluation

The impacts evaluated in Chapters 3 and 4 of this document were also evaluated under California Environmental Quality Act (CEQA) significance criteria defined in Table 6.2-1. Impacts at various roadway segments and intersections would rise to the level of significance under CEQA. Most are mitigable to a less than significant level; however, the proposed BRT project would result in unavoidable (unmitigable) significant adverse impacts on traffic operations at three to four intersections during the afternoon peak hour:

- Fulton Street/Bancroft Way (*One-Way Transitway via Shattuck Avenue–Oxford Street* variation only; also applies to the morning peak hour.)
- Telegraph Avenue/Alcatraz Avenue
- International Boulevard/High Street
- San Leandro Street/High Street

The impact at the Fulton Street/Bancroft Way intersection would be avoided by selecting the *Two-Way Transitway via Shattuck Avenue* alignment variation rather than the *One-Way Transitway via Shattuck Avenue–Oxford Street* variation for this segment of the BRT alignment. Impacts at intersections other than those listed above would be mitigated to less than significant with proposed measures.

Based on results of both the intersection and roadway levels of service analyses, the project would also result in unavoidable significant impacts at the following roadway segments:

- Telegraph Avenue near Alcatraz Avenue
- International Boulevard near High Street

Significance of all traffic operational impacts before and after proposed mitigation is applied is reported in Tables 6.3-1 through 3 in Section 6.3, Mitigation Measures for Significant Impacts under CEQA.

No other impacts of the proposed BRT project would rise to the level of significance under CEQA.

## S.7 Consultation and Coordination

### S.7.1 Project Organization and Public Participation

Consultation with the general public and appropriate public agencies began during the Major Investment Study (MIS) for this project, conducted from 1999 to 2002 and continued during preparation of this environmental document. In all, over a dozen public information meetings were held along the corridor, over 70 stakeholder interviews and meetings were conducted, and about 15 presentations were made to community organizations. A particular focus of the public participation process was to inform low income and ethnic minority communities about the project and obtain comment on issues of concern. The East Bay BRT project is aligned through neighborhoods with higher than average concentrations (compared to the AC Transit service area and Alameda County as a whole) of low income, mobility dependent, and minority populations. These populations could substantially benefit from proposed

project improvements; however, they could also be affected by long-term project impacts on traffic and parking and short-term construction impacts.

Another focus of outreach was businesses in the corridor. Small businesses especially are subject to the effects of parking displacements and access disruption from construction. Meetings were held with business associations and merchant groups along the corridor. Outreach to communities and businesses is described, including a chronology of coordination from 2002 through 2006, in Chapter 7, Consultation and Coordination.

Meetings were announced through direct-mail flyers, telephone calls to community organizations, newspaper advertisements and announcements posted in AC Transit buses. A Policy Steering Committee (PSC) and Technical Advisory Committee (TAC) continue to advise the project team on strategic directions and technical issues in project development and environmental review. The Citizens Advisory Committee (CAC) met three times during the MIS phase.

The AC Transit Board of Directors adopted the Locally Preferred Alternative (LPA), calling for BRT along an alignment using Telegraph Avenue and International Boulevard/East 14th Street, on August 2, 2001. The LPA was carried forward into this DEIS/EIR for further evaluation.

Public comments at the community meetings and received in writing have urged consideration of the following alternatives:

- Providing service to Jack London Square;
- Reviewing ways in which Chinatown in Oakland can be better served;
- Enhancing service to the university staff and student population at UC Berkeley;
- Considering streets other than Telegraph in Berkeley for the project alignment; and,
- Using a Davis Street/San Leandro Boulevard alignment to bypass Downtown San Leandro.

These alignment variations and options were considered during the studies, and are discussed in Section 2.2, Project Alternatives, and 2.4, Alternatives Considered and Withdrawn.

### S.7.2 Agency Consultations

FTA and AC Transit have coordinated with the State Historic Preservation Officer (SHPO) to delineate the Area of Potential Effects (APE) for archaeological and historic resources. A Historic Properties Survey Report (HPSR), a Finding of Effect (FOE), and a Site Treatment Plan to address unanticipated encounters of archaeological resources were prepared and submitted to the SHPO, with a request for SHPO's concurrence in the findings. SHPO's letter concurring with these findings is presented in Appendix D.

The Native American Heritage Commission (NAHC) was contacted to perform a Sacred Lands file search and for Native American contacts who may have interests or concerns regarding potential project effects in the proposed corridor. All Native American interested parties identified by the NAHC were contacted directly and only Andrew Galvan of the Ohlone Indian Tribe replied (by telephone). He indicated that he knew of no Native American resources in the project area. No other replies were received. A full chronology of coordination activities may be found in Section 7.6, Chronology of Coordination.

# S.8 Financial Analysis

## S.8.1 Capital Costs and Funding Options

The East Bay BRT Project is estimated to cost between $310 million and $400 million (year of expenditure) to design and construct, depending upon the Build Alternative selected. Committed funding of $102.05 million has been identified. Of the total identified funding, $42.73 million has been committed to expenditures on Rapid Bus related items as well as BRT design and environmental studies. The remaining $59.32 million is available for the construction of the BRT system. The funding sources are summarized in Table S.8-1 and described in more detail in Section 8.2., Funding for Construction Costs.

**Table S.8-1: Summary of Committed Funding Sources**
($ 2005, millions)

| Funding Source | Amount ($) ($2005 in millions) |
|---|---|
| Regional Measure 2 (Bridge Tolls) | 65.00 |
| Alameda County Measure B (Sales Tax) | 20.23 |
| CMA TIP | 9.39 |
| Federal Grant | 2.73 |
| Federal STIP | 2.70 |
| SAFETEA-LU | 2.00 |
| **Total** | **$102.05** |

Source: AC Transit, 2006

Other potential sources of funding will be identified and may include:

- State Infrastructure Bonds
- State Transportation Improvement Program (STIP)
- State Traffic Congestion Relief Program (TCRP)
- FTA Section 5307 – Urbanized Area Formula Funds
- FTA Section 5309 – Capital Program – Discretionary Funds
- Transportation Fund for Clean Air

## S.8.2 Operating Costs and Funding Options

Annual operating and maintenance costs for the proposed BRT service in 2025 are estimated at between $35.5 and $39.4 million (2005 dollars), depending on the Build Alternative selected. These costs are from $4.9 to $8.8 million higher than annual costs under the 2025 No-Build Alternative, which is $30.6 million. Increases in fare revenue under the Build Alternatives will offset this increase in costs, reducing the operating subsidy required to operate the system to between $1.2 and $7.1 million, depending on the Build Alternatives. Alternative 3 would require the lowest subsidy while Alternative 2 would require the highest subsidy.

Three million dollars in additional committed operations and maintenance funding from Regional Measure 2 (RM-2) has been identified to operate Rapid Bus service in the East Bay corridor and would

also be used to offset the operating costs of the BRT service. The $3 million in funding does not escalate over time and sunsets in 2040.

No other committed sources of operations and maintenance funding have yet been identified to cover the additional operational costs associated with BRT service. Other potential funding sources include:

- Vehicle license fees
- Local streets and roads program
- Private sector funding

See Section 8.3, Funding for Operations and Maintenance Costs, for further information.

### S.8.3 Cash Flow Analysis

A cash flow analysis was used to determine AC Transit's financial capacity to implement and operate the proposed East Bay BRT Project. This analysis forecasts operating and capital revenues and expenditures that AC Transit is likely to incur in maintaining existing transit services and increasing service as specified in the 2003-2012 Short Range Transit Plan (SRTP). The 25-year cash flow included in the SRTP does not show a deficit (inadequate revenues to meet projected expenditures) in any future year, demonstrating AC Transit's financial capacity to operate and maintain existing service and fund existing capital programs other than the East Bay BRT Project.

The SRTP cash flow analysis does not include the costs of constructing or operating the proposed East Bay BRT Project, which by 2025 is projected to increase net annual operating and maintenance costs by $1.2 to $7.1 million. AC Transit must also identify additional sources of capital funding for the approximately $250 million to $340 million of project costs for which committed funds are not available. At this point, AC Transit has not demonstrated the financial capacity to construct and operate the project although it is anticipated that sufficient resources to construct and operate a project would be secured prior to completion of the final environmental document (FEIS/R).

### S.8.4 Risk Analysis

A risk analysis takes the cash flow analysis one step further by accounting for variations in the key underlying assumptions. The financial feasibility of building and operating the East Bay BRT Project is dependent upon several significant revenue assumptions that are not without risk:

- Funding sources for the remaining $250 million to $340 million required to construct the BRT system need to be identified and secured. AC Transit assumes a substantial source of construction funding could be recently passed (November 2006) state infrastructure bonds or new infrastructure bond initiatives. AC Transit must qualify a project and compete for bond funds with other projects. It is not certain whether the East Bay BRT Project would be awarded infrastructure bond funds.

  Much of the assumed non-federal funding for the East Bay BRT Project is derived from the collection of sales taxes and bridge tolls. The amount of revenue from these sources is highly dependent on economic conditions and could fall short of expectations. Therefore, these sources of funds include risk.

  Other federal transportation program funds could become available for projects with demonstrated mobility benefits. However, the East Bay BRT Project would have to compete with many other major investment proposals for these funds.

- Funding for the remaining $1.2 million to $7.1 million (2005 dollars) required to operate and maintain the BRT system needs to be identified and secured annually. While farebox revenue for existing routes is expected to increase, this is not a certainty. Should ridership levels fall short of predicted levels, additional funding would be required to cover the funding gap.
- Should AC Transit proceed to implement the East Bay BRT Project, it would need to balance investment in the new BRT service with ongoing efforts to re-grow base bus service. While new funding streams may be secured for East Bay BRT operations, the implementation of the new service should not lead to further curtailment of either existing bus routes or existing growth plans.

### S.8.5 Financial Analysis Conclusion

The cash flow and risk analyses present preliminary information to evaluate whether AC Transit has the ability to fund the construction and subsequent operation of the East Bay BRT project while continuing to operate and maintain existing bus service. At this early stage in the project, AC Transit lacks the explicit commitment from sufficient sources to fund both the capital construction and operations of the service. As the project progresses, however, AC Transit's ability to pay for these costs will become clearer.

## S.9 Evaluation of Alternatives

Figure S.9-1 presents a qualitative comparison of the Build Alternatives based on project features and performance measures that follow from the project Purpose and Need presented in Chapter 1. Chapter 8, Financial Analysis and Alternatives Evaluation, provides additional detail on the comparison of alternatives based on the information included in this environmental document.

Unless noted, comparisons in Figure S.9-1 are relative to the No-Build Alternative, assuming 2025 conditions.

The assessment is for 24 measures, categorized under the four basic purposes established for the East Bay BRT Project and a fifth category covering environment impacts.

### S.9.1 Improve Transit Service in Project Corridor

- All Build Alternatives show improvement in corridor **transit service frequency, capacity, speed and travel time**, as quantified in Chapter 8, Table 8.7-1. The best performing alternatives for express bus frequency and capacity would be Alternatives 3 and 4, which propose peak period BRT headways averaging 3.6 minutes and, compared with the No-Build Alternative, would offer approximately 12 more express bus trips each direction each peak hour. Alternatives 1 and 2 propose headways averaging 5.0 minutes during the peak and would offer seven more bus trips per peak hour. The best performing alternative in terms of bus speed and transit travel time would be Alternative 1. Average bus speeds for this alternative would increase by approximately 4 mph compared to the No-Build Alternative. The speed and travel time improvements for Alternative 2 would be less favorable because BRT passengers would need to transfer to a slower Rapid Bus service to reach BayFair BART. Average speeds and transit travel times would not improve as substantially under Alternatives 3 and 4 due to the additional station stops BRT buses would make.

## Figure S.9-1: Comparison of Build Alternatives

| Measure | 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 |
|---|---|---|---|---|
| **Improve Transit Service in the Project Corridor** | | | | |
| Express buses per hour (frequency) | + | + | ++ | ++ |
| Capacity - Bus seat-miles operated | ++ | ++ | +++ | +++ |
| - Roadway auto capacity | – | – | – | – |
| - Roadway person-trip capacity | O | O | O | O |
| Speed - BRT bus average speed | ++ | ++ | + | + |
| - Auto average speed | – | – | – | – |
| Express bus travel time (Berkeley to BayFair BART) | +++ | ++ | ++ | + |
| Express bus boarding time | + | + | + | + |
| Reliability | + | + | ++ | ++ |
| Security, comfort and cleanliness | + | + | + | + |
| **Increase Transit Ridership by Providing Transit Alternative to Automobile** | | | | |
| Weekday boardings - New trips and total corridor/system | ++ | + | ++++ | +++ |
| - Auto vehicle VMT/trips | + | + | + | + |
| **Improve and Maintain Efficiency of Transit Service Delivery** | | | | |
| Capital costs--total | – – – | – | – – – – | – – |
| Net operating costs--total[1] | – – – | – – – – | – | – – |
| Net operating costs--per trip[1] | + | O | +++ | ++ |
| Annualized total cost--per new transit trip[2] | + | + | ++ | ++ |
| **Support Local and Regional Planning Goals** | | | | |
| Weekday express buses between key activitiy centers (trips) | + | + | ++ | ++ |
| Point-to-point peak-period express bus travel time between key activity centers | ++ | ++ | + | + |
| Potential for transit-oriented development | + | + | ++ | ++ |
| **Environmental Impacts** | | | | |
| Parking displaced | – – | – – | – – | – – |
| Intersection and roadway LOS | – | – | – | – |
| Construction impacts (traffic,utilities) | – | – | – | – |
| Environmental Justice (effect on low-income/ transit dependent) | + | + | + | + |
| Other environmental effects (air quality,land use,hazardous materials) | O | O | O | O |

**Notes:**

[1] Net Operating Cost accounts for fare revenue on BRT service and change in fare revenue on other AC Transit bus routes.

[2] A measure of cost-effectiveness. Comparison is among build alternatives rather than relative to No-Build.

**Legend**

| – | O | + |
|---|---|---|
| *Worse / Greater Impact than No-Build* | *No Change / Similar Impact as No-Build* | *Better / Lesser Impact than No-Build* |

Build Alternatives would result in a decrease in **roadway auto capacity** as a result of converting traffic lanes to transit-only lanes. Each Build Alternative would have the same order of magnitude impact. The total **person-trip capacity** of arterials along the alignment for the East Bay BRT Project, however, would be approximately the same after implementation of the project as before implementation due to the substantially higher vehicle capacity of buses versus autos. The "carrying capacity" of BRT roadways would not change.

- The **average speed of autos** would degrade somewhat and to the same extent under each of the Build Alternatives. This would be due to increased congestion in mixed-traffic lanes and at intersections resulting from the project.

- Improved **travel time** and improved **reliability** are two of the most important factors that attract transit riders. Primary causes of unreliability in bus service, as in the case of the No-Build Alternative, are buses operating in mixed-flow traffic and delays occurring during passenger boarding, fare collection, and alighting. Because BRT buses would operate along exclusive transitways and have transit signal priority along with self-service, proof-of-payment fare collection, BRT service would be more reliable compared with the No-Build Alternative.

- Service characteristics such as **safety and security, convenience and comfort** are those aspects of transit directly experienced by the passengers. The ticket vending machines, real-time arrival information, shelters, benches, security features, boarding platforms, and other amenities that would be included in BRT station areas would ensure a higher degree of security and comfort when compared to standard bus service under the No-Build Alternative. Under the Build Alternatives, modern, aesthetically pleasing, low-floor buses with multiple doors would stop at low-level boarding platforms and thereby offer easy entry and exit for all transit riders, including persons with disabilities. Compared to the No-Build Alternative, all Build Alternatives are expected to lead to favorable improvement in these areas.

### S.9.2 Increase Transit Ridership

- All Build Alternatives would increase **transit boardings**, along the project alignment, in the project corridor, and systemwide for AC Transit. Alternative 3 performs best, increasing corridor boardings in 2025 by 16,100 relative to the No-Build Alternative, followed by Alternative 4 with 13,900 more boardings than the No-Build. A number of passengers would tend to find highly frequent express operations with convenient spacing of full BRT stations preferable to a combination of express and local operations as proposed under Alternatives 1 and 2, which would increase corridor boardings by 9,600 and 7,300 boardings, respectively.

  In terms of **new transit trips** ("new riders" formerly using autos or other non-transit modes) that would be generated by the Build Alternatives, Alternative 3 would perform best, increasing transit system ridership in the region by 9,300 per weekday, followed by Alternative 4 (8,000 new trips), Alternative 1 (5,300), and Alternative 2 (4,600 new trips).

- As transit ridership goes up, auto use, reflected in **auto vehicle miles traveled (VMT)**, tends to go down. This would occur under all Build Alternatives. The decrease in auto VMT would be

proportional to the increase in (new) riders on the East Bay BRT Project. Alternative 3, which generates the greatest increase in both corridor trips and new transit trips, would decrease weekday auto use by approximately 20,700 VMT. Alternative 2, which generates the smallest increase in corridor and new transit trips, would decrease weekday auto use by 10,200 VMT. However, because the decrease in VMT, measured within Alameda County, is not likely to be large compared to total VMT generated on an average weekday the improvement in this measure, as shown in Figure 8.7-1, is moderate under all Build Alternatives.

### S.9.3 Improve and Maintain Efficiency of Transit

- Implementation of the East Bay BRT Project would require a major capital investment to obtain the benefits described. Alternative 3 would have the highest **capital cost** to implement and therefore performs lowest among the alternatives by this performance measure. Alternative 2 would have the lowest cost to implement and performs best.

- **Net operating costs** to AC Transit would also increase as a result of implementing the East Bay BRT Project. Total net operating costs, and their increase relative to the No-Build Alternative, would be lowest for Alternative 3 and highest for Alternative 2. Net costs account for the fare revenue from users that offsets a portion of total operating costs. Fare revenue is calculated to include revenue gained or lost on all bus transit services operated by AC Transit systemwide.

- **Net operating cost per trip** (or per boarding) for most of the Build Alternatives would improve relative to the No-Build Alternative. The net cost per trip, which adjusts for the change in fares systemwide, would decrease most under Alternative 3, by approximately $0.96, followed by Alternative 4, by approximately $0.71. The cost per trip under Alternative 1 would decrease by approximately $0.26. The net cost per trip under Alternative 2 would increase somewhat, by $0.07 compared with the No-Build Alternative. Alternative 2 performs least well on this measure of the four Build Alternatives.

- The **annualized cost per new transit trip,** which historically was a measure used by the Federal Transit Administration to assess cost effectiveness of a major transit investment, is comparable for Alternatives 3 and 4, which perform better than Alternatives 1 and 2 on this measure. This is attributable to the high number of new riders generated by alternatives that combine BRT and local service as well as their lower annual operating costs, factors that offset the effects of higher capital costs in the calculation of cost effectiveness.

### S.9.4 Support Local and Regional Planning Goals

- **Express buses operated between key activity centers** and **point-to-point travel times** were quantified, relative to the No-Build Alternative. All Build Alternatives would increase the number of express bus trips operated between key activity centers. However, the increase is greater for Alternatives 3 and 4. Alternatives 1 and 2 would offer somewhat better (i.e., faster) in-vehicle express bus travel time as a consequence of making fewer BRT station stops.

- Facilitation of **transit oriented development** is a very key measure for many policy makers and individuals when deciding whether or not to make major investments in transportation infrastructure. Cities along the project alignment, in particular Berkeley and Oakland, have adopted transit-supportive land use policies. The East Bay BRT Project could help cities achieve these objectives. BRT infrastructure would provide transit a strong identity, with stations offering locations for organizing development. All Build Alternatives have more potential than the No-Build Alternative to facilitate development. Due to the importance of stations for transit oriented development, Alternatives 3 and 4, because they have more BRT stations, would be viewed as having more potential to facilitate this type of development when compared to Alternatives 1 and 2.

### S.9.5 Environmental Impacts

- All Build Alternatives would degrade **intersection and roadway performance**, measured in terms of level of service. However, mitigation can reduce the number of adversely affected locations substantially. No more than four intersections out of 88 evaluated would experience impacts that could not be mitigated to meet locally established thresholds. All Build Alternatives would be comparable in their impacts.

- All Build Alternatives would result in **displacements of on-street parking**. From 945 to 1,300 spaces, out of 7,056 spaces surveyed, would be displaced, depending on the Build Alternatives and alignment variation selected. Approximately 16 to 29 percent of displaced spaces would be mitigated through parking replacement or metering of currently unrestricted parking in commercial districts to ensure availability for local business customers. Parking loss is possibly the most evident long-term impact of the East Bay BRT Project. The loss is generally comparable across each of the Build Alternatives. However, because corridor automobile use would decrease and transit boardings would increase, demand for parking along the project alignment would decrease with the East Bay BRT Project in place.

- **Construction impacts** would be temporary but include roadway closures in limited segments, traffic disruption, and access restrictions. Utilities would be relocated if in conflict with proposed improvements although no major interruption in services is anticipated. All Build Alternatives would have comparable effects relative to the No-Build Alternative.

- The project corridor has large populations of low-income, minority, and transit dependent individuals (see Section 4.4.4, Environmental Justice). The East Bay BRT Project would substantially improve transit access and mobility for disadvantaged populations. From an **environmental justice** standpoint, the project would have more long-term benefits than long-term adverse impacts and would be an improvement relative to the No-Build condition. All Build Alternatives would offer comparable mobility benefits.

- **Other environments impacts** would be minor to non-existent. The Build Alternatives are not viewed as resulting in permanent, adverse environmental effects after implementation in such areas as air quality, noise, energy, natural habitat, cultural resources, and other environmental areas described in Chapter 4.

## S.10 Issues to be Resolved

Two issues remain to be resolved during the course of further environmental and engineering studies for the proposed East Bay BRT Project: (1) the specific alignment for and limits of BRT improvements, and (2) identifying sufficient capital and operating funding for project implementation. With respect to the project alignment and limits, four Build Alternatives and several minor alignment variations are presented in this document. Two alternatives are shorter than the other two alternatives; alignment variations propose construction and operations along different roadways in Downtown Berkeley, Berkeley Southside, and the Eastlake District of East Oakland. The preferred project alignment and limits will be determined with input from project corridor cities, local agencies, the public, and other interested parties as part of the outreach process for this environmental document.

With respect to capital funding, AC Transit is continuing to pursue funding to implement one of the Build Alternatives (see Section 8.2.2, Potential Sources of Funding). However, if upon completing the current DEIS/EIR phase of the project sufficient funds are not available to construct a full Build Alternative, including all associated facilities, consideration may be given to a smaller project (i.e., a project shorter than from Berkeley to San Leandro) or to phased improvement of a Build Alternative.

A phased project could include an initial, independent segment along the selected preferred project alignment, which would be extended in stages as funds become available. Or, a phased project could involve constructing first the stations, intersection improvements, and other key infrastructure for a project and delaying full reconstruction of the BRT transitway between stations (for example, existing pavement could be painted or otherwise designated for BRT-only use). If such options were to be pursued, they would be described in the final EIS/EIR for the East Bay BRT Project.

It is possible, therefore, that changes to the length and alignment for the preferred alternative could be proposed that differ from those specifically considered in this document. The preferred alternative could, in such an instance, become a subset of the BRT improvements described in this DEIS/EIR. However, this DEIS/EIR, by analyzing the full scope of possible BRT improvements, presents the “worst case” environmental impacts for public and agency review. The analysis encompasses any impacts associated with a lesser project. The analysis establishes, therefore, the basis for making a sound, reasoned decision on the preferred BRT project whether implemented in its entirety or as a lesser project.

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