Chapter 5
Alternatives Analysis

5.1 Introduction
This chapter presents the alternatives analysis for the 2003 Proposed Project and describes the general CEQA requirements for alternatives analysis in an EIR and an SEIR. Additionally, the previous 1992 Proposed Project alternatives are summarized, and the relevance of these alternatives to the 2003 Proposed Project is discussed. Finally, alternatives to the 2003 Proposed Project are described and evaluated.

5.1.1 General CEQA Requirements for Alternatives Analysis
CEQA requires that an EIR contain a reasonable range of feasible alternatives that meet most or all project objectives while reducing or avoiding one or more significant effects of the project. According to CEQA Guidelines Section 15126.6(f), the range of alternatives required in an EIR is governed by a "rule of reason" that requires an EIR to set forth only those alternatives necessary to permit a reasoned choice.

The range of alternatives may include alternatives to the project or its location. Where a potential alternative was examined but not chosen as one of the range of alternatives, the CEQA Guidelines require that the EIR briefly discuss the reasons the alternative was dismissed. In addition to a range of alternatives, the EIR must discuss the "No-Project Alternative," which describes the reasonably foreseeable probable future conditions if the project is not approved (CEQA Guidelines, Section 15126.6).

The lead agency must consider the alternatives discussed in an EIR before acting on a project. The agency is not required to adopt an alternative that may have environmental advantages over the project if specific economic, social, or other conditions make the alternative infeasible (Public Resources Code, section 21002).

5.1.2 Addressing Alternatives in Supplemental EIRs
Neither CEQA nor the CEQA Guidelines specifically describe when it may be necessary to analyze new alternatives in an SEIR. Furthermore, a supplement to an EIR need only contain the information necessary to make the previous EIR adequate for the project as revised (CEQA Guidelines Section 15163). Because the purpose of the alternatives analysis is to identify feasible means to "avoid or substantially lessen any of the significant effects of the project" (CEQA Guidelines, Section 15126.6[a]), a reasonable approach to determining whether to discuss new alternatives in an SEIR is

to apply the criteria contained in Section 15162 of the CEQA Guidelines, relating to preparation of an SEIR. Under this approach, new alternatives must be discussed if either of the following occur.

- There will be new significant environmental effects or substantially more severe significant effects as a result of the changes that have occurred since certification of the prior EIR that could be avoided or substantially lessened by one or more feasible alternatives to the project or its location (Sections 15162[a][1] and 15162[a][2]).
- New information of substantial importance that was not known and could not have been known at the time the prior EIR was certified shows that:
  - there will be new significant environmental effects or substantially more severe significant effects as a result of the changes that have occurred since certification of the prior EIR that could be avoided or reduced by one or more feasible alternatives to the project or its location (Section 15162[a][3][A] and 15162[a][3][B]);
  - an alternative previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the alternative (Section 15162[a][3][C]); or
  - alternatives that are considerably different from those analyzed in the prior EIR would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the alternative (Section 15162[a][3][D]).

5.2 Summary of Alternatives Analyzed in the 1992 EIR

1992 Adopted Project (Alternative 5: 5.4-Mile Extension with Two Stations)

Alternative 5 consisted of a 5.4-mile, two-station extension which would have traveled southeasterly from the Fremont BART Station on a raised embankment over Walnut Avenue. The alignment would have continued on an embankment through Tule Pond. Midway between Walnut Avenue and Stevenson Boulevard, the alignment would have continued on an aerial structure through Central Park, skirting the eastern edge of Lake Elizabeth. (This alignment plan was referred to as Design Option 2A.) From Lake Elizabeth, the alignment would have continued on an aerial structure between the former SP and WP tracks, crossed over Paseo Padre Parkway, and transitioned to a below-grade crossing under Washington Boulevard to arrive at the Irvington Station. From the Irvington Station, the alignment would have risen to grade and continued to the Auto Mall Parkway overpass, then transitioned to an aerial structure to cross Grimmer Boulevard and continue to the elevated Warm Springs Station. The Warm Springs Station was proposed to accommodate approximately 2,300 parking spaces. The alignment would have then transitioned to grade and continued on approximately 3,000 feet of trail track south of the Warm Springs Station. The tail track area was proposed to contain a rail-car wash facility and a small emergency maintenance and inspection pit.

As an alternative to Design Option 2A (aerial alignment through Fremont Central Park), the BART Board also included Design Option 2S (subway through Fremont Central Park, described below) in the 1992 Adopted Project. The subway design option was to be constructed in place of the aerial alignment if appropriate funding was obtained.

5.2.1 1992 Alternatives

The 1992 EIR examined a reasonable range of feasible alternatives, including 11 alignments and 6 design options. The following briefly summarizes each of the alternatives and design options.

Alternative 1: No Project and No Transportation Improvements (1991 Status Quo)

Alternative 1 did not include any extension of BART and assumed that transit service provided by AC Transit would continue at 1991 levels, with limited improvements in service frequency. In 1991 AC Transit operated regular fixed-route services and a contracted transbay service between Union City and Palo Alto. No improvements to the highway system within the study area were assumed except that I-880 would be widened.

Alternative 2: No Project, Programmed Transportation Improvements

Alternative 2 did not include a BART Warm Springs extension, but did include highway and transit improvements that were programmed in the 1990 State Transportation Improvement Program (STIP), as well as those funded by the Alameda County Measure B sales tax revenues. Transit improvements would have included the Dublin, West Pittsburg, and Colma BART extensions, as well as implementation of AC Transit's Comprehensive Service Plan (CSP).

Some of the highway improvements included modifications to the interchanges at Dixon Landing Road and I-880/SR 262 in Fremont, and at I-880 and Durham Road (now Auto Mall Parkway). A road widening on I-880 from Niles Road to SR92 was also programmed.

The AC Transit CSP assumed that a full timed transfer system would be implemented throughout the Fremont/Newark service area. A timed transfer system involves the collection and dispersion of several bus routes from a hub called at a transit center. All buses would arrive at the transit center at the same time to facilitate easy transferring for passengers. In the CSP, two new timed transfer transit centers were assumed within this service area; at the site of the proposed Irvington BART Station, and in Newark.

The CSP also assumed a new route that would have operated between the proposed Irvington Transit Center and the South Main Transit Center in Milpitas, to facilitate a connection between AC Transit and VTA services. A new express route between the proposed Warm Springs Station and the Fremont BART Station, operating on I-680 was also included in the CSP.

Alternative 3: Transportation Systems Management

The Transportation Systems Management (TSM) Alternative included the benefits of various existing or programmed transit and highway improvements, as in Alternative 2, and also included the BART extension to the San Francisco International Airport and the Tasman Corridor Light Rail Transit (LRT) system from east San Jose to Sunnyvale or Mountain View. Additional transit improvements would have included changes to AC Transit's services, as defined previously, in the CSP. In addition, changes to the Santa Clara County Transit District's (now Santa Clara Valley Transportation Authority or VTA) bus-route network to complement the BART extension were proposed. Highway improvements in the study area included in this alternative were high occupancy vehicle (HOV) lanes on I-880, from SR 238 south to the Montague Expressway.

Alternative 4: 5.4-Mile Extension with Two Stations and Relocated Railroad

Alternative 4 consisted of a 5.4-mile, two-station extension to Warm Springs, with stations at Warm Springs and Irvington. Leaving the Fremont BART Station proceeding southeasterly on a raised embankment over Walnut Avenue, the alignment would have continued on an embankment through Tule Pond. Midway between Walnut Avenue and Stevenson Boulevard, the alignment would have transitioned to an aerial structure over Stevenson Boulevard, through Fremont Central Park, and over the east arm of Lake Elizabeth. The aerial alignment would have crossed to the east side of both the former SP and WP tracks, which were to be relocated. As proposed, Alternative 4 traveled under Washington Boulevard and remained below grade until reaching the proposed Irvington Station. It then continued at grade until it rose on an embankment or aerial structure to cross over the Grimmer Boulevard underpass to arrive at the proposed elevated Warm Springs Station. From the Warm Springs Station, tailtracks would have been extended at grade for approximately 3,000 feet. The tailtrack area would have contained a rail-car wash facility and a small emergency maintenance and inspection pit. The Central Park design options and vertical alignment option at Paseo Padre Parkway described below were applied to this alternative.

The Irvington Station in this alternative was proposed as a below grade, center-platform station with an at-grade concourse on the east side of the right-of-way. The Warm Springs Station was proposed to accommodate more parking (approximately 2,300 spaces total) than is being currently proposed in the 2003 Proposed Project.

Alternative 6: 7.8-Mile Extension with Two Stations (No Irvington Station)

Alternative 6 was described as a 7.8-mile extension with no station in the Irvington District. From the Fremont BART Station south to Washington Boulevard, the alignment would have been the same as described in Alternative 4. However, a vertical alignment variation or design option was introduced at Washington Boulevard. Since there would have been no Irvington Station, the design option would have provided an aerial crossing over Washington Boulevard as an alternative to the sub-grade crossing. In either case, the former SP and WP tracks would have remained at grade at Washington Boulevard. From Washington Boulevard to the Warm Springs Station, the alignment would have been the same as described above under Alternative 4. Leaving the Warm Springs

Station site, the alignment would have proceeded southward at grade on new tracks placed just east of the UP tracks. The alignment would have crossed over grade separations at Mission Boulevard and Warren Avenue. In addition to the Warm Springs Station, a station was proposed at South Warm Springs. The South Warm Springs Station was to have been located approximately 2,000 feet north of Kato Road between Warm Springs Boulevard between the former SP and WP tracks, on a 42-acre site. South of this station, BART tailtracks would have extended at grade for approximately 3,000 feet crossing over a depressed Kato Road. Vehicle maintenance facilities were to be located in this vicinity.

Alternative 7: 7.8-Mile Extension with Two Stations (No Irvington Station)

Alternative 7 was described as a 7.8-mile, two-station extension, mostly on an aerial structure, with no Irvington Station, and running east of the UP tracks outside of railroad rights-of-way, from south of Washington Boulevard to the end of the line. From the Fremont BART Station, the alignment would have been the same as described in Alternative 4. Beginning at Paseo Padre Parkway, the alignment would have continued on an aerial structure crossing Washington Boulevard. After crossing Washington Boulevard below grade, it would have transitioned over to the east of the UP tracks and outside of the railroad rights-of way. The alignment would then have lowered to at grade, passing under the existing overpass at Durham Road, at which point it would have risen to an aerial structure crossing over Grimmer Boulevard, and continued to an elevated Warm Springs Station. From Warm Springs Station to South Warm Springs Station, the Alternative 7 alignment was proposed to be the same as described under Alternative 6.

Alternative 8: 7.8-Mile Extension along Osgood Road and Warm Springs Boulevard, with Two Stations (No Irvington Station)

Alternative 8 was described as a 7.8-mile, two-station extension of BART south from the Fremont Station. The alignment of this alternative was similar to that described under Alternative 7 through Central Park and Lake Elizabeth, and past Paseo Padre Parkway. From Paseo Padre Parkway, the alignment would have stayed on an aerial structure, crossed over Washington Boulevard and the UP tracks, and continued on an aerial structure to the center of Osgood Road. On the aerial structure, the alignment would have crossed over Durham Road (now Auto Mall Parkway) and Grimmer Boulevard to the Warm Springs Station, which would have been located west of Warm Springs Boulevard.

From the Warm Springs Station, the alignment would have continued on an aerial structure (in the center of Warm Springs Boulevard) over Mission Boulevard and Warren Avenue and turned to the west just north of Whitney Place, terminating at an elevated station south of Whitney Place, between Warm Springs Boulevard and the UP tracks.

Alternative 8 would have continued on past the proposed Warm Springs Station to a South Warm Springs Station. A total of 2,100 parking spaces at Warm Springs were proposed under this alternative. The South Warm Springs Station site proposed was the same as that proposed under Alternative 7, except for the omission of one parcel at the intersection of Scott Creek/Kato Road and

Warm Springs Boulevard, and the addition of parcels northeast of the site. A total of 2,400 parking spaces were proposed at this station.

Alternative 9: 5.4-Mile Extension with One Station (Warm Springs)

Alternative 9 was described as a 5.4-mile, one-station extension along the same route as described under Alternative 4. The single proposed station was at Warm Springs, where a total of 2,300 parking spaces would have been provided. Since this alternative included no Irvington Station, the aerial crossing design option at Washington Boulevard was included. The Central Park design options and the vertical alignment design option described below also applied to this alternative.

Alternative 10: 7.8-Mile Extension with One Station (South Warm Springs)

Alternative 10 was described as a 7.8-mile, one-station extension along the same route as described under Alternative 8, with a single proposed station to be located in South Warm Springs, near Scott Creek/Kato Road. The vertical alignment with this alternative was essentially the same as that of Alternative 9, with the same tailtrack and ancillary facilities. Like Alternative 6, a vertical design option applied at Washington Boulevard. The Central Park design options, the vertical alignment design options at Paseo Padre Parkway and Warren Avenue, and the UP relocation option south of Warren Avenue all applied to this alternative. Total parking supply under this alternative would have been approximately 3,400 spaces.

Alternative 11: 7.8-Mile Extension with Two Stations (No Warm Springs Station)

Alternative 11 was described as a 7.8-mile, two-station extension with no Warm Springs Station. From the existing Fremont BART Station south to the Alameda County line, this alternative would have been the same as in Alternative 10, except for the deletion of the Warm Springs Station. The aerial crossing of the UP tracks and Grimmer Boulevard would have been the same. Other station locations and alignment characteristics would also have been the same as previously described. The Central Park design options, vertical alignment design options at Paseo Padre Parkway and Warren Avenue, and UP relocation option south of Warren Avenue also applied to this alternative.

5.2.2 Central Park Design Options

In the Fremont Central Park area, several variations in the vertical and horizontal alignment of the BART extension were considered. These design options were as follows.

Design Option 1 (Subway)

Under this design option, the vertical alignment would have been a subway alignment through Central Park and Lake Elizabeth. From the Fremont BART Station, the alignment would have been on an embankment over Walnut Avenue, as in the 1992 Adopted Project, but would have transitioned to a subway that would have been under Stevenson Boulevard, and Paseo Padre Parkway. Although

this alignment is similar to that of the 2003 Proposed Project, the key difference is that it would have crossed over the former SP tracks. This design option would have been applicable to Alternatives 4 through 11.

Design Option 2A (Aerial)

Under this design option, the BART alignment would have been moved east around Lake Elizabeth. North of Central Park, the alignment would have been on an embankment over Walnut Avenue, and an aerial structure over Stevenson Boulevard. This design option was routed over a slightly more easterly section of Central Park, and would have avoided Lake Elizabeth, and continued south, crossing over Paseo Padre Parkway. This design option would have been applicable to Alternatives 4 through 11. As noted previously, this design option, combined with Alternative 5, represented the 1992 Adopted Project.

Design Option 2S (Subway)

Under this design option, the proposed BART alignment would have moved around Lake Elizabeth similar to Design Option 2A. The vertical alignment north of Central Park would have been on an embankment over Walnut Avenue and transitioned to a subway under Stevenson Boulevard. After Stevenson Boulevard, the vertical alignment would have continued in a subway, following the same route as Design Option 2A. The alignment would have also traveled under a section of Central Park that was further east and would have skirted Lake Elizabeth and continued south, crossing under Paseo Padre Parkway. The option was also applicable to all Alternatives 4 through 11.

Design Option 3 (Aerial)

Under this design option, the BART vertical alignment would have been on an embankment over Walnut Avenue and an aerial structure over Stevenson Boulevard. The alignment would have proceeded over a portion of Central Park that was further east, and would have avoided Lake Elizabeth. Finally, the alignment would have continued south on the west side of the UP track and crossed over Paseo Padre Parkway. This design option would have been applicable to Alternatives 4 through 11.

Other Design Options (4–6)

These variations represent vertical and horizontal changes along the alignment in locations other than the Fremont Central Park area.

Design Option 4 – Paseo Padre Parkway Design Option

Under this design option, the alignment would have been at grade at Paseo Padre Parkway, with the parkway going over the BART alignment and the former SP and WP tracks. This design option would have been applicable to Alternatives 4 through 11 and to the Central Park design options.

Design Option 5 – Washington Boulevard Design Option

A vertical design option at Washington Boulevard would have provided for an aerial crossing over Washington Boulevard instead of a crossing below Washington Boulevard, which would have been raised. This design option would have been applicable to Alternatives 6, 9, and 10 only.

Design Option 6 – Warren Avenue Design Option

At Warren Avenue, the alignment would have been on an aerial structure over the roadway, with Warren Avenue remaining at grade instead of being depressed in an underpass. This design option would have been applicable to Alternatives 6, 7, 10, and 11 only.

Design Option 7 – UP Relocation or "End" Design Option

Under this design option, a horizontal alignment would have relocated the UP tracks to the west between 0.5 mile south of Warren Avenue to just north of Dixon Landing Road would have relocated the UP tracks to the west, allowing BART to utilize the existing UP right-of-way. This design option would have been applicable to Alternatives 6, 7, 10, and 11 only.

5.2.3 Conclusions Regarding Alternatives Analyzed in the 1992 EIR

A discussion of the modal and alignment alternatives undertaken for the 1992 EIR is included in this document to provide clarification and because several comments regarding alternatives were received in response to the NOP for this SEIR.

In approving the 1992 Adopted Project, BART evaluated a range of feasible alternatives in accordance with the CEQA Guidelines criteria for alternatives analysis. Alternative 5 with the aerial alignment was chosen as the 1992 Adopted Project, with an alternative subway alignment if the additional cost of construction could be funded.

The following is a discussion of the current feasibility of the previous range of alternatives, taking into consideration changes that have occurred in the project area since the 1992 EIR was certified, as well as the Findings of Fact made by the BART Board of Directors at the time the project was approved and adopted.

Alternative 1: No Project and No Transportation Improvements (1991 Status Quo)

Several transportation improvements have been implemented since the previous project was evaluated. The I-880 widening, which was already under construction at the time of the 1992 EIR, has since been completed, with the addition of two HOV lanes. There have been other changes and additions to the roadway network in the project area as well. AC Transit implemented a restructuring of its bus service within the area encompassing the Cities of Fremont, Newark, and Union City.

Alternative 2: No Project, Programmed Transportation Improvements

The proposed BART extensions described under this alternative have all been completed. However, because of funding constraints, AC Transit's CSP was never implemented in this area. In 1999, AC Transit implemented the Fremont–Newark Transportation Development Plan, which revised existing bus routes and added new services in areas that were not previously served. The level of bus service in this plan was not as extensive as that assumed in the CSP, which included a total of 19 routes. An extensive timed transfer network at the BART stations in the area, and an express route from Warm Springs to the Fremont BART Station via Interstate 680 (I-680) were also assumed. A transit center was also proposed at the Irvington Station site. Some of the highway improvements programmed in the 1990 STIP have also been completed.

Alternative 3: Transportation Systems Management

BART is currently completing construction on the four-station extension from Colma to the San Francisco International Airport in San Mateo County, with a terminal station in Millbrae, California. VTA's Tasman Corridor LRT system was extended to provide service to Mountain View in 1999. The extension of service to east San Jose is now under the second phase of construction and is scheduled for completion in the summer of 2004. Additional highway improvements in the project area included in this alternative were HOV lanes on I-880 from SR 238 south to the Montague Expressway, which have not been completed. As described above under Alternative 2, the programmed highway and transit improvements have already been completed, with the exception of AC Transit's CSP.

In 1992, the BART Board of Directors made Findings of Fact regarding Alternatives 1, 2 and 3, in accordance with CEQA. The findings were as follows.

- Both Alternatives 1 and 2 resulted in an increase in regional emissions, and a concomitant deterioration in regional air quality. Alternative 1 was inconsistent, and Alternative 2 partially inconsistent, with the 1991 Draft Bay Area Clean Air Plan required by the California Clean Air Act. The Metropolitan Transportation Commission (MTC) had also adopted Transportation Control Measures (TCMs) designed to improve regional air quality, in compliance with both state and federal Clean Air Act requirements. The Proposed Project itself was identified as a TCM. Because Alternative 1 did not include the Proposed Project, it was inconsistent with the legislative mandates. Alternatives 2 and 3 did, however, include some projects that were in compliance with the state and federal Clean Air Acts, such as HOV lanes, so they were deemed as being partially inconsistent. But the lack of the Proposed Project in these alternatives made them inconsistent with Clean Air Act implementation plans in 1992. Because the Proposed Project remains a TCM in 2003, it would still be true that these alternatives would still be inconsistent with the federal and state programs.
- The alternatives did not support the anticipated population growth in the *Fremont General Plan*.
- The Alameda County Measure B sales tax which was approved by voters in 1986, provided funding for the Proposed Project. Because Alternatives 1, 2 and 3, did not include the Proposed Project, the Board found that the alternatives did not satisfy the mandate of Measure B.

For these and other reasons set forth in the findings, Alternatives 1, 2 and 3 were removed from further consideration. All of these findings are still applicable, and these alternatives were not further analyzed in this SEIR.

Alternatives 4–11 and Design Options 1–7

Since the 1992 EIR was certified, there have been extensive changes in the project setting and project circumstances. These changes include the implementation of grade-separation projects by the City of Fremont. As a result of these changes, the following build alternatives and design options are not feasible or could result in more significant environmental impacts than the 2003 Proposed Project.

- Alternative 4 required the UP tracks to be relocated slightly westward. Due to the track relocations that are part of the City of Fremont's grade separations project, this action would not be feasible. The BART Board of Directors found that restricted railroad access to customers on the eastern side of the alignment made this alternative infeasible. In addition, the Board found that the visual impacts of the alternative would be greater than those of the 1992 Adopted Project. These impacts would also be greater than those of the 2003 Proposed Project.
- Alternative 9 included a vertical design option with an aerial crossing over Washington Boulevard. Washington Boulevard will now be reconfigured as a vehicular overpass as part of the city's grade separations project. The proposed at-grade BART alignment would pass beneath Washington Boulevard, and through the site proposed for the optional Irvington Station. Since Washington Boulevard will be reconfigured as an overpass, an aerial crossing would not be feasible or necessary.
- Central Park Design Option 3 located the alignment on the west side of the UP tracks. This option is not feasible because of the track relocations that are part of the city's grade separations project.
- Paseo Padre Parkway will be reconfigured as a vehicular underpass as part of the city's grade separations project. With completion of the city's Paseo Padre Parkway underpass, the BART alignment would be able to proceed at grade, and cross over Paseo Padre Parkway on a new bridge. The original Paseo Padre Parkway aerial crossing design option would not be feasible or necessary due to the underpass configuration.

In addition to the changes in project setting and circumstances, the BART Board of Directors found several other alternatives to be infeasible for the following reasons.

- The Board found that Alternatives 6, 7, 8, 10, and 11 as 7.8-mile extensions, were longer than the 1992 Adopted Project, and would have resulted in greater environmental impacts. The environmental impacts of a longer BART extension are the subject of the EIS/EIR being prepared by the Santa Clara Valley Transportation Authority (VTA) for the study of the 16.3-mile BART extension to Santa Clara County from the proposed Warm Springs Station.
- With Alternative 7, significant visual impacts would have resulted due to the aerial BART structure over Washington Boulevard and through the Irvington district. The unmitigable visual impacts of the structure and of the associated soundwalls in the vicinity of Washington Boulevard and the surrounding Irvington redevelopment area also contributed to the Board's

finding that Alternative 7 was infeasible. Additionally, the aerial structure over Washington Boulevard could have resulted in the increased risk of structural damage or collapse during strong seismic activity. For the 2003 Proposed Project, the Washington Boulevard overpass that is included in the city's grade separations project may not preclude an aerial BART structure at this location. However, such a structure would be unwarranted with the availability of railroad right-of-way for the BART alignment that occurs as a result of the grade separation at Washington Boulevard. Since Washington Boulevard will be reconfigured as an overpass, an aerial crossing would not be feasible or necessary.

- The Board found that Alternative 8 was infeasible due to the significant visual impacts that would have occurred. The alternative required that the Pacific, Gas & Electric Company transmission towers along Osgood Road and Warm Springs Boulevard be raised to provide clearance over the BART structure. In addition, the aerial structure associated with this alternative would have resulted in unavoidable adverse visual impacts south of Washington Boulevard along Osgood Road and Warm Springs Boulevard. The city's grade separations project has enabled an at-grade alignment for BART to be considered as part of the 2003 Proposed Project. This would substantially reduce these significant visual impacts.
- The Board found that Alternative 9 was infeasible because it did not include an Irvington Station, which was inconsistent with BART's Extension Staging Policy. BART's current System Expansion Policy, adopted by the BART Board of Directors in 1999 effectively supercedes the Extension Staging Policy. The new policy includes goals to demonstrate a commitment to transit-supportive growth and development and to develop projects in partnership with communities that will be served. The Irvington Concept Plan being developed by the City of Fremont incorporate the principles of transit-oriented development. Therefore, the optional Irvington Station is included in this SEIR, and can be included in the Proposed Project when funding is secured.

The BART Board of Directors also made findings with regard to the design options that were analyzed in the 1992 EIR, as follows.

- Design Option 1 (Subway) was found to be infeasible because of the significant impacts to biological resources near Lake Elizabeth, and because of the short-term construction impacts to Lake Elizabeth itself. Although there is a slight difference in the alignment, Design Option 1 is very similar to the 2003 Proposed Project. The changes in the alignment which occur due to the city's grade separations project now make a subway alignment under Lake Elizabeth feasible. The impacts to Lake Elizabeth and to biological resources are now evaluated in this SEIR.
- Design Option 3 (Aerial) was found to be infeasible because of the alignment's incompatibility with a land use proposed by the city, as well as the proximity of this aerial alignment to residences along the western side of the 1992 Proposed Project corridor. The 2003 Proposed Project alignment would reduce these impacts.
- Design Option 4 (Paseo Padre Parkway) was found to be infeasible because of the significant visual impacts that would result from the high overpass that would be required to clear the at-grade BART alignment and the railroad tracks. The city's grade separations project will place Paseo Padre Parkway below grade and allow the BART alignment to pass over the depressed roadway, which would reduce these impacts.

- Design Option 5 (Washington Boulevard) was found to be infeasible because of significant visual impacts. The BART aerial structure and raised embankment would have affected view from surrounding residential neighborhoods, and would have also posed a potential risk of structural damage or collapse during seismic activity. The city's grade separations project has enabled an at-grade alignment for BART to be considered as part of the 2003 Proposed Project. This would substantially reduce significant visual impacts.
- Design Option 6 (Warren Avenue) was found to be infeasible because this option was not applicable to a project that is only 5.4 miles in length. Warren Avenue is located outside of the limits of the 2003 Proposed Project, which is also 5.4 miles in length.
- Design Option 7 (UP Relocation) was also not applicable to a 5.4-mile project, and therefore was found to be infeasible. This would also be true regarding the 2003 Proposed Project.

Design Option 2A (aerial) was incorporated in the 1992 Adopted Project. This option is considered to be infeasible because of the significant visual impacts of the aerial alignment to Fremont Central Park and Lake Elizabeth. In addition, the design option has not been supported by the local community and the City of Fremont. The city has expressed support for the Proposed Project with a subway alignment under Lake Elizabeth, instead.

In conclusion, the 2003 Proposed Project would result in less significant environmental impacts than those of the 1992 EIR alternatives and design options, even if they were still feasible. However, changed circumstances, which include the city's grade separations project make most of these infeasible. The criteria set forth in Section 15162 of the CEQA guidelines (as discussed in Section 5.1.2 of this chapter) have not been met, and these alternatives do not warrant further consideration in this SEIR.

5.3 2003 Proposed Project Alternatives Considered but Rejected

During the scoping process, several modal alternatives to the 2003 Proposed Project were recommended for further analysis in the SEIR. Section 15126.6 (a) of the CEQA Guidelines states that an EIR need not consider every conceivable alternative to a project, but rather it must consider a range of potentially feasible alternatives, and is not required to consider alternatives which are infeasible. The following suggested alternatives were recommended for analysis but rejected as infeasible for the reasons described below. Additionally, it has been determined that these alternatives would not achieve the project goals and objectives.

- Taxi service from Warm Springs to Fremont.
- Chauffeur driven limousine from Warm Springs to Fremont.
- Capitol Corridor passenger rail service.
- Commuter rail.

- Light rail transit (LRT).
- Bus alternative using local street system exclusively.

Taxi service is private automobile transportation that would likely be cost prohibitive and not economically viable for most passengers. This would not provide transportation services in an equitable manner to all segments of the population. Similarly, chauffeur driven limousines are also privately operated and use a mode of transportation not operated by BART or other public transit carriers. Because these services operate with automobiles as private transportation, they do not offer the opportunity to achieve the goal of relieving automobile congestion on regional roadways. In addition, they would not provide transportation services that would make efficient and effective use of financial resources.

The Capitol Corridor interregional rail service is operated by BART along with several other agencies through the Capitol Corridor Joint Powers Agency (CCJPA). BART provides day-to-day management support to the CCJPA. The service operates through two regions and several counties throughout Northern California, from San Jose to Sacramento. The alignment of the Capitol Corridor rail service currently includes a stop at Fremont/Centerville, to the north and west of the BART alignment. There has been no proposed discontinuance of this interregional rail service, so the BART alignment could not replace this service. There have also not been any proposals to alter the route of the Capitol Corridor from Union City to San Jose from its current Alviso route to a Warm Springs route on the UP right-of-way. Given the mandate of the Capitol Corridor to provide only inter-city service, a spur route from Union City to Warm Springs would not be permitted. Therefore, such an alternative would be infeasible.

Commuter rail is defined as “long-haul rail passenger service operating between metropolitan and suburban areas, whether within or across the geographical boundaries of a state, usually characterized by reduced fares for multiple rides, and commutation tickets for regular, recurring riders” (American Public Transportation Association 2002). BART operates long-haul rail passenger service within the metropolitan and suburban communities in the greater Bay Area. BART serves four Bay Area counties; San Francisco, Alameda, Contra Costa, and San Mateo. BART provides reduced fares on high-value ticket purchases. As such, BART fulfills the definition of commuter rail service. A commuter rail alternative in the project area is already being considered with the Proposed Project.

Commuter rail service between Union City and San Jose using the UP right-of-way has been considered and rejected in the past. Unlike the Union City BART Station, the Fremont BART Station does not have standard gauge railroad tracks in close proximity. A commuter rail alternative from the Fremont Station would be the Proposed Project as described above. VTA completed a major investment study (MIS) in November 2001 and rejected a commuter rail alternative between Warm Springs and San Jose. Before finishing this study, VTA also considered commuter rail service between Union City and San Jose with a station at Warm Springs. Of the six alternatives studied in depth in the MIS, the commuter rail alternative in the UP alignment had the lowest ranking and was rejected from further consideration. Some of the reasons for its low ranking included low ridership, noise impacts of commuter trains running in residential areas, and strong opposition by residents along the UP railroad corridor. These reasons also apply to commuter rail service between Union City and Warm Springs.

A proposed LRT alternative would not be a feasible alternative to the Proposed Project. An LRT alternative most likely would consist of an alignment extending approximately 5.4 miles from the Fremont BART Station to a station in Warm Springs and an optional intermediate station at Irvington. Although LRT can run on surface streets without requiring grade separations, the availability of the UP right-of-way between Warm Springs and Paseo Padre Parkway would make this the preferred alignment in this segment. Between Paseo Padre Parkway and the Fremont Station, the LRT alignment would most likely follow the UP alignment north to Stevenson Boulevard, turn west on Stevenson Boulevard to run in the median, and then follow the Proposed Project alignment between Stevenson Boulevard and Walnut Avenue. This alignment along Stevenson Boulevard would eliminate the median and require intrusion into the sidewalk and likely require acquisition of additional right-of-way.

An LRT would be affected by several factors not associated with either the Proposed Project or the Bus Alternative. Northbound commuters would have to transfer from bus or automobile to the LRT at Warm Springs and subsequently transfer from LRT to BART at the Fremont BART Station. Southbound riders also would have to transfer twice between Fremont and Warm Springs (BART to LRT, LRT to bus/automobile). Transit studies have demonstrated that the more mode transfers passengers must make to reach their destinations, the less likely they are to use transit. This double mode-transfer penalty for LRT users would decrease ridership compared to both the Proposed Project and the Bus Alternative. Further ridership reduction would occur due to the longer travel time for LRT compared to BART over the same distance.

Typically, one of the primary reasons that LRT costs are less than heavy rail is LRT's minimal grade separation requirements. In the UP corridor, grade separations are not an issue. Capital costs for LRT, including cost of right-of-way, construction, vehicles, and maintenance facilities would be less than costs for the Proposed Project; however, LRT ridership also would be significantly less than the Proposed Project ridership. In particular, LRT would require an entirely new fleet of vehicles for the system, as well as maintenance facilities; whereas BART and bus operators would be augmenting their existing vehicle fleet and could use existing maintenance facilities. Additional consideration would also be necessary at the LRT interface at the Fremont BART Station. LRT traveling at grade along the proposed BART alignment or city streets would require a ramp and elevated platform to allow cross platform transfers to BART, or with an at-grade LRT station design, additional vertical circulation (stairs, escalators, elevators) between the LRT terminus and the BART platform. Both designs would require modification of the existing BART station, including changing auto and bus circulation and loss of station parking.

Future extension of LRT south of Warm Springs, and a commensurate increase in ridership, is unlikely. For practical purposes, selection of a 5.4-mile, Fremont BART-to-Warm Springs LRT system would not allow for future non-LRT transit extensions in the UP railroad corridor. Construction of LRT would preclude a future BART extension southward, unless the LRT system (and LRT financial investment) was removed. Also, there is no reasonable likelihood of an LRT extension in the regional corridor south from Warm Springs. LRT was examined in VTA's MIS and rejected as a transit alternative. The primary reasons for the elimination of LRT by VTA were that LRT in Santa Clara County would be limited to 2- and 3-car trains due to constraints on the Tasman and Downtown East Valley light rail line, slower guideway speeds (55 miles per hour maximum), and traffic congestion and LRT coordination problems at the East Julian Street and East Santa Clara

Street grade crossings. In addition, an LRT project in Santa Clara County would require voter approval to use VTA's Measure A funding. VTA is currently developing an EIS/EIR and is evaluating either a BART extension or bus extension as its build alternative from Warm Springs to Santa Clara County. Considering the ridership reductions due to required transfers and the cost to construct, operate, and maintain the facilities and equipment for a short 5.4-mile rail line, the LRT is an impractical alternative for the Fremont BART-to-Warm Springs connection.

A bus alternative that would operate exclusively on local city streets was also considered for analysis in this SEIR. The 1992 EIR did not analyze such an alternative, and considered expanded local bus service within the context of the No-Project and TSM alternatives. However, in developing a reasonable and feasible alternative to the 2003 Proposed Project that would rely on bus transit, it was recognized that the service would need to be more competitive with the rail transit alternative in terms of travel time savings, as travel time efficiency is a key determinant of ridership. A bus alternative operating on local streets could be constrained by delays due to operating within the local traffic stream. During scoping, it was suggested that the project funds be provided to expand local bus service. These funds could be used to enhance local bus service, with the use of such features as limited stops, signal pre-emption and bus transit priority treatments. However, even with these enhancements, the travel time savings that could be realized by buses on local streets would not be competitive with transit that operates within an exclusive right-of-way. In previous studies of the regional corridor, express bus and expanded local bus options were analyzed, and these enhancements were considered[1]. Local and express buses showed only marginal improvements with these additions, since traffic conditions within Fremont at the time of the analysis showed acceptable levels of services along key arterials. It was determined that express buses would not achieve the ridership levels of a rail transit alternative, unless HOV lanes and busways were added to reduce travel times. In 2003, with increased traffic congestion, and the availability of HOV lanes, exclusive right-of-way and transit priority treatments, it was determined that a more reasonable and feasible alternative to the Proposed Project, would be an alternative based on newer bus rapid transit technology, rather than a local bus option. The criteria set forth in Section 15162 of the CEQA Guidelines have been met by that alternative and it is included for analysis in this SEIR.

5.4 Alternatives to Be Analyzed in the 2003 SEIR

The following section describes the alternatives to the 2003 Proposed Project and presents an analysis of the alternatives in comparison to the 2003 Proposed Project. The alternatives described and analyzed in this section include the 2003 No-Project Alternative and the proposed Bus Alternative.

5.4.1 2003 No-Project Alternative

An EIR must evaluate and analyze the impacts of the No-Project Alternative. The purpose of evaluating the No-Project Alternative is to allow decision-makers to compare the impacts of approving the project with the impacts of not approving the project. For the purposes of this

[1] Bus options were considered in the Fremont-South Bay Corridor Final Report prepared by DKS Associates in 1993 and the Santa Clara Valley Transportation Authority Silicon Valley Rapid Transit Corridor Major Investment Study Final Report (MIS) prepared by Earth Tech, Inc. in November 2001.

analysis, the No-Project Alternative does not include a BART extension to Warm Springs, and assumes that transit services offered by BART will continue at current levels, except for limited improvements in service frequency. Because the circumstances regarding both prior No-Project Alternatives have changed in the last decade, the 2003 No-Project Alternative represents the conditions that would be reasonably expected to occur in the foreseeable future if the Proposed Project were not approved. These conditions are based upon current plans and are consistent with available infrastructure and community services. For the purposes of this analysis, this would include current transit services provided by BART, AC Transit, and VTA. Programmed highway improvements included in MTC's 2001 Regional Transportation Plan, such as the addition of an HOV lane to Interstate 680 over the Sunol Grade, are also included in this alternative. The city's grade separations project has also been assumed in this alternative, for the purposes of analysis in this SEIR, because it will be a part of the existing conditions by the time the Proposed Project is constructed.

5.4.2 Proposed Bus Alternative

During the scoping process, it was suggested that a bus alternative be considered for further analysis in the SEIR. Although bus alternatives had been previously analyzed in earlier studies, such an alternative was not analyzed in the 1992 EIR[2]. Changes in the circumstances underlying the previous environmental analysis, including advancements in bus operations known as "Bus Rapid Transit" (BRT), have arisen since 1992. This has created conditions that support the analysis of this option at this time. The 2003 proposed Bus Alternative represents the recognition of new information that was not known and could not have been known at the time the 1992 EIR was certified. The environmental effects of a BRT alternative have not been previously analyzed, and are now subject to the criteria contained in Section 15162 of the CEQA Guidelines, as discussed in section 5.1.2 of this chapter.

Developed in conjunction with AC Transit and VTA, the proposed Bus Alternative was designed to provide high-quality service similar to the Proposed Project. The proposed Bus Alternative incorporates several BRT components, with transit centers at the proposed Warm Springs BART Station site and the optional Irvington Station site. Relatively minor changes associated with fare collection and information systems are proposed for the Fremont BART Station, and no parking spaces would be lost at this site. The service along the busway would include a limited number of stops between the proposed Warm Springs Transit Center and the Fremont BART Station. These features, and the conceptual operating plan, ridership projections, and estimated capital costs are described in the following sections.

Bus Rapid Transit

Bus Rapid Transit (BRT) is a rubber-tired vehicle operation that is configured to offer speeds and capacity similar to rail transit, with exclusive travel lanes, busways or HOV lanes, limited stops and

[2] Bus options were considered in the Fremont-South Bay Corridor Final Report prepared by DKS Associates in 1993 and the Santa Clara Valley Transportation Authority Silicon Valley Rapid Transit Corridor Major Investment Study Final Report (MIS) prepared by Earth Tech, Inc. in November 2001.

signal preemption. Section 65088.1 of the California Government Code defines a BRT corridor as a bus service that includes at least four of the following characteristics.

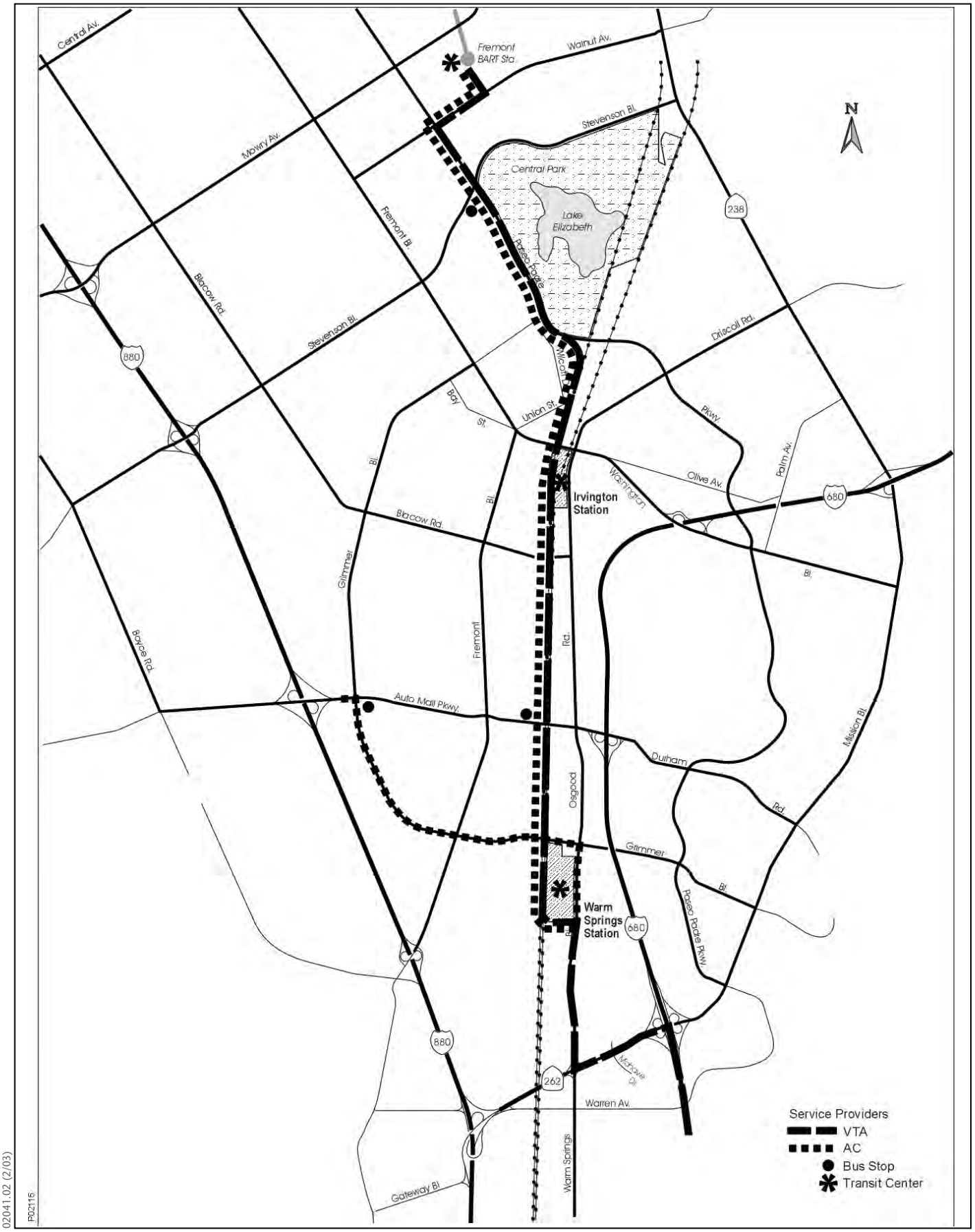
- Coordination with land use planning.
- Exclusive right-of-way.
- Improved passenger boarding facilities.
- Limited stops.
- Passenger boarding at the same height as the bus.
- Prepaid fares.
- Real-time passenger information.
- Traffic priority at intersections.
- Signal priority.
- Unique vehicles.

BRT is most appropriate in corridors with high ridership where there is sufficient right-of-way available to provide exclusive lanes. With the exclusive right-of-way, buses would now be separated from other vehicles using public roadway rights-of-way. Using limited stops, buses would stop less frequently. With both of these elements of BRT in place, travel times would be generally reduced. The addition of traffic priority at intersections and/or signal priority throughout the Proposed Project corridor would further reduce bus travel times. The elements of BRT that are the most quantifiable using regional travel forecasting methods are traffic signal priority systems, limited bus stops, and exclusive bus lanes. The effects of BRT elements have been shown to provide up to a 30% improvement in travel time savings and a similar growth in ridership.

The following describes those elements of BRT that are included in the proposed Bus Alternative. It should be noted that not all BRT elements are included in the proposed Bus Alternative. Coordination with land use planning has not been included, as local plans are supportive of the Proposed Project. Unique vehicles have not been included, as both bus operators would use rolling stock that is similar to their current fleet. Articulated buses, similar to the ones currently in operation, would be needed for the county-to-county bus trips. However, many other elements, including exclusive right-of-way, limited stops, improved passenger boarding facilities, prepaid fares, real-time passenger information, traffic priority at intersections, passenger boarding at the same height as the bus, and signal priority are included.

Proposed Busway

Because of the availability of the UP alignment for an exclusive right-of-way to separate buses from other vehicles, the Proposed Project corridor is suitable for bus rapid transit. The proposed busway would include the creation of a paved busway within the UP right-of-way in place of the 2003 Proposed Project (Figure 5-1). The busway would run along the Proposed Project alignment in the UP right-of-way from South Grimmer Boulevard to Paseo Padre Parkway, for a length of



Source: DKS Associates 2003.

Figure 5-1
Proposed Bus Routes

approximately 3 miles. Access to the busway at Paseo Padre Parkway would be provided by flyover ramps that would pass over the adjacent at-grade UP railroad track. The two-way flyover from the busway would provide access to both directions of travel on Paseo Padre Parkway. One leg of the flyover would provide access from eastbound Paseo Padre Parkway to the southbound direction on the busway. The second leg of the flyover would provide access from the northbound direction on the busway over Paseo Padre Parkway merging with westbound Paseo Padre Parkway. Gates will be required at the beginning and end of the exclusive right-of-way, such as at the proposed Warm Springs Transit Center and at Paseo Padre Parkway, to prohibit non-transit vehicles from accessing the right-of-way.

The busway would carry both VTA and AC Transit routes. Passengers would board and alight on any bus operating in the busway, with stops located at the Fremont BART Station and at two proposed transit centers, which would be located on the same sites as the proposed Warm Springs Station and the optional Irvington Station. These facilities could provide the opportunity for connections to other local bus routes within Fremont. Additional stops would be located at Paseo Padre Parkway and Stevenson Boulevard, and at Auto Mall Parkway and Grimmer Boulevard, and Auto Mall Parkway and Warm Springs Boulevard. Both the transit centers and regular stops would facilitate connections to other local bus routes within Fremont.

Access to the busway for transit vehicles could be constrained because arterial roadways in the area of the Proposed Project corridor are congested in the peak direction. The congestion is most significant on north-south roadways and roadways that intersect I-680. Examples of congested roadways include Warm Springs Boulevard, Mission Boulevard south of Palm Avenue, and Mission Boulevard between I-880 and I-680. The addition of HOV lanes to the Proposed Project corridor would improve access to and from the busway from both freeways. A new bridge (or enhancements to the existing bridge) will need to be made at Grimmer Boulevard because the busway will pass over the roadway, as with the Proposed Project.

The opening of the HOV lanes will improve the ability of express buses to use I-680, but benefits will be limited. The I-680 southbound HOV lane will be completed first, and a northbound HOV lane is also funded. A constraint for southbound buses using these lanes is that they do not continue through into Santa Clara County, and that buses exiting the roadway would have to merge with mixed-flow traffic because no connecting local arterial ramps are provided.

Travel time estimates show that buses would take between 10 and 11 minutes to travel southward between the Fremont BART Station and the Warm Springs Transit Center during peak hours using the proposed busway. Allowances of up to 1 minute of dwell time to account for boarding and alighting activity at each stop, as well as for acceleration and deceleration of the buses are included in the travel time estimate. The suggested travel time between the Fremont BART Station to the Warm Springs Transit Center would be approximately 15 minutes with the additional stops identified above. If either route were extended beyond the Warm Springs area, travel times would be lengthened.

According to this analysis, there does not seem to be a travel time advantage north of Paseo Padre using the proposed busway. North of Paseo Padre, the right-of-way runs perpendicular to the Fremont BART Station. Therefore continuing on the right-of-way would not improve travel times,

when compared to current travel times. Specifically, following the right-of-way to Mission Boulevard near Stevenson Boulevard, and then using Walnut Avenue or Stevenson Boulevard to reach the Fremont BART Station proves to be more circuitous with longer travel times than using the existing arterial roadway network. Additionally, the construction of a busway through Fremont Central Park would be considered an incompatible land use that would also be inconsistent with the *Fremont General Plan,* and therefore infeasible under CEQA Guidelines (Section 15126.6 (f) (1)). Accordingly, between Paseo Padre Parkway and the Fremont BART Station, buses would operate on local streets.

However, to further reduce travel times, the proposed Bus Alternative includes signal preemption and upgrades to eight intersections along the path of the proposed bus routes. Passengers would be informed of bus schedules through the use of "next-bus" technology which would announce the impending arrival of the buses at each bus shelter and passenger waiting area.

Proposed Bus Routes and Operating Plan

The proposed busway would be open to both transit operators. Two routes would provide service along the proposed busway, with eight buses an hour in each direction (for an average headway of 7.5 minutes) between Fremont BART and the Warm Springs area. This service level would be equivalent to the service provided under the operating plan for the Proposed Project with the optional Irvington Station. In addition, other services provided by these operators would continue.

VTA express buses would operate from Santa Clara County to the Warm Springs Transit Center via I-680, Mission Boulevard and Warm Springs Boulevard. This includes Routes 140, 180, and 520, which now serve the Fremont BART Station. Route 140 currently operates from the City of Sunnyvale to the Fremont BART Station and would provide service during the peak periods on a 15-minute headway. Route 520 provides service from the City of Mountain View to the Fremont BART Station and would operate during the a.m. and p.m. peak periods with a 20-minute headway. Route 180 begins at the Diridon Caltrain Station in San Jose and terminates at the Fremont BART Station. Route 180 is an all-day express service that would be upgraded to 15-minute headways throughout the entire day. As only VTA Route 180 is proposed to operate a daily schedule in either 2010 or 2025, this route would be the only VTA service using the busway. The other VTA routes would continue to use their existing routes to access the Fremont BART Station. Under the proposed Bus Alternative, Route 180 would operate from the Caltrain station to the proposed Warm Springs Transit Center, where it would enter the busway. Route 500 would be an all-day VTA express route operating to downtown San Jose using local streets from the Fremont BART Station.

AC Transit would maintain local service along Warm Springs Boulevard, as well as a new AC Transit route. Route 215 would continue to operate with 15-minute headways during the peak periods and 30-minute headways during the off-peak period. Route 253 would continue to operate with 60-minute headways during the peak period. A new AC Transit route could operate in addition to VTA Route 180 on the busway, at a 15-minute headway at peak hours and 30-minute headways midday. This route could serve areas to the east of the transit center, once it reaches Warm Springs. The new route would follow the path described above, but would start and finish at Grimmer Boulevard and Auto Mall Parkway.

The paths of the proposed bus routes are shown in Figure 5-1, and would operate as follows.

- The VTA Route 180 would start at the San Jose Caltrain Station, traveling along 1st Street to I-880, along I-880 to Main and Calaveras, along Jacklin Street to I-680. Stops that currently exist today would still be serviced by the VTA Route 180.
- VTA buses would travel along the I-680 corridor to Mission Boulevard, turning left onto westbound Mission Boulevard after exiting the freeway.
- VTA buses would then travel west along Mission Boulevard to Warm Springs Boulevard and turn right onto Mission Boulevard.
- The new AC Transit route would begin at Auto Mall Parkway and Grimmer Boulevard. AC transit buses would operate along Grimmer Boulevard to Warm Springs Boulevard.
- All buses would access the Warm Springs Transit Center at a newly created intersection (which would also be used a driveway for vehicles parking at the transit center).
- All buses would access the dedicated right-of-way and continue along the busway, stopping at Auto Mall Parkway and Warm Springs Boulevard and at the proposed Irvington Transit Center.
- All buses would travel along Paseo Padre Parkway to Stevenson Boulevard (making a stop in the vicinity of the Civic Center/Fremont Public Library/Senior Center) and then travel along Stevenson Boulevard to Civic Center Drive and then access the existing Fremont BART Station.

For the routes using I-680, the opening of the HOV lanes will improve the ability to use I-680 for express buses, but the benefits will be limited. The I-680 southbound HOV lane will be completed first, and a northbound HOV lane is also funded. A significant problem in using these lanes is that they do not continue through in Santa Clara County, and that exiting buses would have to merge with mixed-flow traffic because no connecting local arterial ramps are provided.

Warm Springs Transit Center

A bus *transit center* is defined as a fixed location where passengers change from one route or vehicle to another. A bus transit center has significant infrastructure such as a waiting room, benches, restrooms, sales outlet, ticket or pass vending machines, and/or other services. (American Public Transportation Association 2002.)

In order to provide a comparable level of passenger convenience and access for BRT passengers, improved passenger boarding facilities in the form of two transit centers are proposed along the dedicated busway at the proposed Warm Springs Station site and the proposed optional Irvington Station site, as described below. Facilities that would be provided at both of these locations would be reflective of the proposed station designs. To facilitate comparison between the proposed Bus Alternative and the Proposed Project (with the optional Irvington Station) the same amount of parking was assumed at each of the transit center sites as described in the Proposed Project station plans.

The Warm Springs Transit Center would serve as a regional park-and-ride facility, as well as providing a major transfer opportunity for transit users. The proposed design of the transit center would include canopies, restrooms, boarding platforms, landscaping, information systems, benches, fare machines, and lighting. The transit center would occupy the 34-acre site and would include a loading area for buses with seven bus bays, as in the Proposed Project.

Osgood Road and Warm Springs Boulevard would provide the principal north-south access to the transit center. South Grimmer Boulevard would serve as the primary east-west access to the site. Parking would be available at the site, including disabled, daily and midday parking. Auto drop-off, bicycle and taxi parking would also be provided.

As noted previously, a connection between Warm Springs Boulevard and the exclusive right-of-way will need to be provided near the parking area at Warm Springs Transit Center.

Auto Mall Parkway Transfer Center

A transfer center is proposed along the busway at Auto Mall Parkway, where local bus services and employer shuttles would converge. The employer shuttles serve the Pacific Commons area and the industrial parks that are located along the Auto Mall Parkway corridor. At this proposed site, three diagonal or "sawtooth" bus bays with a reinforced concrete bus pad is proposed, with benches, shelters and lighting. The bus pad is proposed to support the weight of the buses stopped at the transfer center. An outdoor pedestrian waiting area with a canopy, and fare machines would also be provided. The transfer center would be smaller in scale than the two transit centers, but would also represent improved passenger boarding facilities for BRT riders.

Irvington Transit Center

A transit center is also proposed for the optional Irvington Station site. The design of this transit center would occupy the same acreage as proposed for the optional station with the Proposed Project. The facility would accommodate five bus bays, as in the Proposed Project with the optional station included. Canopies, restrooms, boarding platforms, landscaping, information systems, benches, fare machines and lighting would also be provided.

Vehicular access to the Irvington Transit Center would be provided from Washington Boulevard, Fremont Boulevard, and Olive Avenue from the east and west. Driscoll Road and Osgood Road would provide the principal north-south access. Parking would be available at the site, including disabled, daily and midday parking. Auto drop-off, bicycle, and taxi parking would also be provided.

Pedestrian bridges, with full ADA requirements, would be provided at two locations; one over Osgood Road from the eastern side to the western side of the street, and another over the adjacent UP tracks from the western side of the right-of-way.

Projected Ridership Comparison

Changes in regional travel patterns associated with the proposed Bus Alternative were estimated using the VTA-Modified MTC Model that was developed by MTC and VTA. The analysis in this

section is based on the *Transportation Technical Report for the Proposed BART Warm Springs Extension*, included as Appendix N to this document. Tables 5-1 and 5-2 present regional rail ridership levels in the area for the Proposed Project with optional Irvington Station compared with the projected ridership on the buses using the proposed busway in the years 2010 and 2025. These two modes are shown on the same tables, as they are effectively serving the same patrons. Passengers who would use rail transit (BART, CalTrain, or ACE) are assumed to be making a regional commute. It is assumed that the proposed Bus Alternative would provide the capability for regional commutes via bus transit. While one of the bus routes (VTA Route 180) would continue to provide service into Santa Clara County, the segments shown in these tables are only those segments that are comparable to the Proposed Project with the optional Irvington Station.

As shown in Tables 5-1 and 5-2, the proposed Bus Alternative would generate fewer riders than the Proposed Project with optional Irvington Station. This is true for both the 2010 and 2025 scenarios.

Table 5-1 presents ridership projections for the proposed Bus Alternative in the year 2010. With the proposed Bus Alternative, the ridership on the Union City BART Station to the Fremont BART Station segment would be lower than in either the Background (2010 No-Project) condition or in the 2010 Proposed Project with optional Irvington Station. Compared to the 2010 Proposed Project with optional Irvington Station rail segments (between the Irvington and Fremont Stations, and the Warm Springs and Irvington Stations), there would be fewer riders on comparable busway segments. On the segment between the Fremont Station and the Irvington Station, the proposed Bus Alternative would only carry 54% of the ridership projected for the Proposed Project with optional Irvington Station. In the segment between the Warm Springs and the Irvington Stations, the proposed Bus Alternative would carry about 64% of the ridership projected for the Proposed Project with optional Irvington Station.

As shown in Table 5-2, in year 2025, when the proposed Bus Alternative is operating, there would be more ridership on the Union City BART Station to the Fremont BART Station segment than in the 2025 No-Project condition. Compared to the 2025 Proposed Project with optional Irvington Station rail segments (between the Irvington and Fremont Stations, and the Warm Springs and Irvington Stations), there would be fewer riders on comparable busway segments. The 2025 proposed Bus Alternative would have fewer riders traveling between the Warm Springs and Irvington Stations and the Irvington and Fremont Stations than the 2025 Proposed Project with optional Irvington Station. On the segment between the Fremont and Irvington Stations, the proposed Bus Alternative would only carry 56% of the ridership projected for the Proposed Project with optional Irvington Station. Between the Warm Springs and Irvington Stations, the proposed Bus Alternative would carry about 48% of the ridership projected for the Proposed Project with optional Irvington Station.

Some of the ridership that the proposed Bus Alternative would gain would come from the local AC Transit services providing service between the proposed Warm Springs Transit Center and the Fremont BART Station. This ridership pattern would occur in both 2010 and 2025.There would be increases in the ridership levels on the VTA express buses, with the daily VTA Route 180 service increasing its ridership levels by 200% when the 2010 proposed Bus Alternative is compared to the Background (2010 No-Project) condition. The VTA Route 140 (peak hour service only) would experience a decrease in riders when comparing the 2010 proposed Bus Alternative to both the Background (2010 No-Project) condition and the 2010 Proposed Project with optional Irvington

Station scenario. The VTA Route 520, which would only operate in the peak periods, would have a decrease in ridership, as would the VTA Route 500.

Table 5-1. Projected Ridership – 2010 Proposed Bus Alternative Compared to Proposed Project with Optional Irvington Station

Station A	Station B		2010 No Project	2010 Proposed Project with optional Irvington Station	2010 Proposed Bus Alternative
Union City	Fremont		13,500	16,900	13,400
Fremont	Irvington[a]		N/A	12,800	6,900
Irvington	Warm Springs[b]		N/A	11,100	7,100
Alameda County/Santa Clara County Line (approx.)		ACE	8,000	7,900	8,200
Alameda County/Santa Clara County Line (approx.)		Capitol Corridor	3,300	1,900	2,500

Notes:
[a] Ridership taken along Paseo Padre.
[b] Ridership taken between Warm Springs Transit Station and Auto Mall Parkway.

Source: DKS Associates 2002

Table 5-2. Projected Ridership – 2025 Proposed Bus Alternative Compared to Proposed Project with Optional Irvington Station

Station A	Station B		2025 No Project	2025 Proposed Project with optional Irvington Station	2025 Proposed Bus Alternative
Union City	Fremont		17,400	23,400	18,100
Fremont	Irvington[a]		N/A	18,200	10,200
Irvington	Warm Springs[b]		N/A	15,900	7,700
Alameda County/Santa Clara County Line (approx.)		ACE	10,900	10,900	11,700
Alameda County/Santa Clara County Line (approx.)		Capitol Corridor	2,500	2,100	2,800

Notes:

[a] Ridership taken along Paseo Padre.
[b] Ridership taken between Warm Springs Transit station and Auto Mall Parkway.

Source: DKS Associates 2002

With the exception of the VTA Route 180, there would be lower ridership on all other VTA express buses when the 2025 proposed Bus Alternative is compared to both the 2025 No Project and the 2025 Proposed Project with optional Irvington Station. However, it appears that there would be large increases on the VTA Route 180.

There would also be increases in the ridership levels on the VTA express buses, with the daily VTA Route 180 service increasing its ridership levels by 240% when the 2025 proposed Bus Alternative is compared to the 2025 No-Project condition. The VTA Routes 140 and 520 (peak hour service only) would have the same number of riders when compared to the 2025 No-Project Alternative.

New Transit Ridership

An examination of changes to linked transit trips indicates the number of new patrons attracted to a new transit service. A "linked trip" consists of all modes used from the beginning of the trip to the end of the trip. For example a person leaves home, walks to their car, drives to the BART station, catches BART, and then walks from the BART station to work. As transit is involved in this example, it is considered a linked transit trip. Similarly, if the trip involved walking to the local bus stop, catching a bus, transferring to BART at a BART station, and then walking to the final destination, this would also be considered a linked transit trip. However, if the trip involved the person simply driving to work, it is still a linked trip (due to the walk connections at either end of the trip), but it is not considered a linked transit trip.

Table 5-3 lists the number of projected linked transit trips (rounded to the nearest hundred) from areas that would logically use the service in 2010. Table 5-4 lists the number of projected transit trips for 2025. These tables show the linked transit trips for four broad areas within the network: people staying within the Fremont/Newark/Union City area; people traveling to Union City, Newark, and Fremont; people traveling from Newark, Fremont, and Union City to other areas; and people traveling through the Fremont/Newark/Union City area. People traveling through the area would include patrons from the East Bay who are traveling to Santa Clara County.

Two cumulative scenarios are also presented in Tables 5-4 and 5-6 (2025 conditions). First, projected linked transit trips for Proposed Project (with optional Irvington station) together with the SVRTC project's BART Alternative are provided for comparison with the Proposed Project (see Section 3.9 for detailed analysis). Second, projected linked transit trips are presented for the proposed Bus Alternative together with a bus alternative being considered for the SVRTC project, the "SVRTC Enhanced Bus." (Note that the term "SVRTC Enhanced Bus" is used in this document to refer to the "Baseline Alternative" in VTA's Major Investment Study [MIS] for the SVRTC project. The MIS identified an extension of the BART system as the Preferred Investment Strategy for that project, which will be analyzed in VTA's forthcoming EIS/EIR. In addition, the SVRTC EIS/EIR will examine a "Baseline Alternative" as required by federal law, which incorporates an enhanced level of bus service to the BART Warm Springs Station using existing roads and highways. The Baseline Alternative also includes dedicated bus ramps between Fremont Boulevard and I-880, South Grimmer Boulevard and I-680, and I-880 and Montague Expressway. To avoid confusion between the baseline conditions and No-Project Alternative applicable to BART's Proposed Project and the Baseline Alternative for VTA's SVRTC project, the Baseline Alternative is referred to here as the "SVRTC Enhanced Bus.")

Table 5-3. 2010 Linked Transit Trips

Trips	No Project	Proposed Project with Optional Irvington Station	Proposed Bus Alternative
Intra	9,800	10,600	11,000
To	7,700	9,000	8,800
From	21,400	24,100	23,600
Through	9,600	10,400	9,500
Total WSX Corridor Transit Trips	**48,600**	**54,200**	**52,800**
Change from No Project	--	**5,700**	**4,200**
Intra Santa Clara Transit Trips	214,700	216,000	216,500

Notes:

Intra: Trips solely within Southern Alameda County (MTC Super District 16: Fremont, Union City and Newark).
To: Trip attractions to SD 16.
From: Trip productions from SD 16.
Through: Trips passing through SD 16 (e.g., Hayward to San Jose).

All numbers have been independently rounded to the nearest hundred. Totals may not sum to displayed volumes.

Source: DKS Associates, 2002 from VTA-modified MTC model

Tables 5-4 and 5-6 present the cumulative consequences for new transit ridership and mode of access if both agencies were to adopt their respective bus alternatives; i.e., if BART adopts its Bus Alternative for the Warm Springs project and VTA adopts its Enhanced Bus Alternative for the SVRTC project. If the proposed Bus Alternative is implemented by BART and the Enhanced Bus alternative is implemented by VTA, it is assumed that the Enhanced Bus routes would utilize the dedicated busway to travel to the Fremont BART Station, eliminating the requirement to transfer at the Warm Springs Transit Center.

Table 5-4. 2025 Linked Transit Trips

Trips	No Project	Proposed Project with Optional Irvington Station	Proposed Bus Alternative	Proposed Project with Optional Irvington Station plus SVRTC	Proposed Bus Alternative with SVRTC Enhanced Bus
Intra	11,100	12,300	12,800	12,500	14,300
To	8,600	11,000	10,400	15,500	12,100
From	25,300	29,100	27,900	37,800	28,800
Through	11,800	13,400	12,000	24,100	15,200
Total WSX Corridor Transit Trips	**56,700**	**65,800**	**63,000**	**89,900**	**70,400**
Change from No Project	--	**9,100**	**6,300**	**33,200**	**13,700**
Intra Santa Clara Transit Trips	243,000	246,800	245,200	253,300	245,000

Notes:
Intra: Trips solely within Southern Alameda County (MTC Super District 16: Fremont, Union City and Newark).
To: Trip attractions to SD 16.
From: Trip productions from SD 16.
Through: Trips passing through SD 16 (.e.g., Hayward to San Jose).
Cumulative analysis of the Proposed Project together with the SVRTC BART alternative, if it is adopted, is discussed below in Section 3.9.6. For convenience of comparison, this table presents results for the Proposed Project and for the Proposed Project together with the SVRTC BART alternative.

All numbers have been independently rounded to the nearest hundred. Totals may not sum to displayed volumes.

Source: DKS Associates, 2002 from VTA-modified MTC model

The following information summarizes the information presented in the previous tables.

- In 2010, with implementation of the proposed Bus Alternative Project, there would be nearly a 9% increase in transit riders compared to the No-Project scenario. The largest increase for linked transit trips is for those people that travel from the Fremont/Newark/Union City area to other Bay Area locations. Transit through movements would remain the same as for the 2010 No-Project Condition. When the proposed Bus Alternative is compared to the Proposed Project with optional Irvington Station, all movements with the exception of the internal movement would show a decline in the number of linked transit trips.

- In 2025, with implementation of the proposed Bus Alternative, there would be an increase of 11% in linked transit trips. The largest increase is for those transit riders traveling within the Fremont/Newark/Union City. When the proposed Bus Alternative is compared to the Proposed Project with optional Irvington Station scenario, there are fewer transit trips overall, with the exception of the internal trips.
- In 2025, with implementation of the proposed Bus Alternative with the SVRTC Enhanced Bus, there would be an increase of more than 24% in new transit riders in the area when compared to the 2025 No-Project condition, with increases in all directions. When the proposed Bus Alternative with the SVRTC Enhanced Bus is compared to the Proposed Project with optional Irvington Station with SVRTC there would be fewer riders overall, except for the internal trips.

Mode of Access/Egress

The mode of access/egress analysis provides the potential demands for parking, auto drop-off locations, walk access, and the need for transit facilities for transfers among bus routes or between BART and buses at each of the stations. Tables 5-5 and 5-6 list the mode of access/egress to each of the stops along the proposed Bus Alternative route for 2010 and 2025, respectively. For comparison purposes, the mode of access/egress for the BART stations is also shown.

In 2010 and 2025, almost one half of riders using the proposed Bus Alternative would transfer between BART and buses at the Fremont BART Station or between buses at the Irvington and Warm Springs Transit Centers, according to Tables 5-5 and 5-6. More than one-quarter of the proposed Bus Alternative riders would walk or use bicycles to either access or egress the buses, and slightly less than one-quarter of the proposed Bus Alternative riders would park-and-ride or kiss-and-ride to either the Irvington or Warm Springs Transit Centers. Users of the proposed Bus Alternative would not be permitted to park-and-ride from the Fremont BART Station because only BART riders are allowed to use these parking facilities. Under the 2025 proposed Bus Alternative with SVRTC Enhanced Bus, the proportion of riders walking or bicycling to or from bus stops would increase while the proportion of riders using automobiles to access buses would decrease compared to the proposed Bus Alternative. The proportion of BART-to-bus transfers and bus-to-bus transfers would continue to be almost half of the users, with a noticeable increase of bus-to-bus transfers at the Warm Springs Transit Center under the 2025 proposed Bus Alternative with SVRTC Enhanced Bus.

The proposed Bus Alternative would have fewer people going to or coming from the stations than the Proposed Project with the optional Irvington Station in either 2010 or 2025. While the proportion of riders transferring between buses or between BART and buses would be larger under the proposed Bus Alternative compared to the Proposed Project with the optional Irvington Station, the actual number of transfers would be slightly larger under the Proposed Project with the optional Irvington Station. The total number of riders walking or bicycling to or from the stations would be virtually equal between the proposed Bus Alternative and the Proposed Project with the optional Irvington Station. The proposed Bus Alternative with SVRTC Enhanced Bus would have a greater number of riders going to or coming from the stations than the Proposed Project with the optional Irvington Station plus SVRTC. The number of riders transferring to buses, especially at the Fremont BART Station, would be greater under the proposed Bus Alternative with SVRTC Enhanced Bus than under the Proposed Project with optional Irvington Station plus SVRTC. The Fremont BART Station would serve as the end-of-the-line station (where bus riders transfer) for the proposed Bus

Alternative with SVRTC Enhanced Bus, while BART riders could travel to locations in Santa Clara County under the Proposed Project with optional Irvington Station plus SVRTC.

Table 5-5. 2010 Mode of Access/Egress for Proposed Bus Alternative

	Mode of Access/Egress				
Station	PNR	KNR	Walk/Bike	Transit XFER	Total
2010 No Project					
Fremont BART Station	5,000	1,500	1,600	5,100	13,200
Irvington BART Station	0	0	0	0	0
Warm Springs BART Station	0	0	0	0	0
Southern Alameda Total	5,000	1,500	1,600	5,100	13,200
2010 Proposed Project with Optional Irvington Station					
Fremont BART Station	3,100	600	2,200	2,100	8,200
Irvington BART Station	1,900	400	1,100	1,200	4,500
Warm Springs BART Station	2,300	500	1,300	7,100	11,000
Southern Alameda Total	7,300	1,500	4,600	10,400	23,700
2010 Proposed Bus Alternative					
Fremont BART station*	0	0	500	8,600	9,100
Paseo Padre / Stevenson	0	0	300	0	300
Irvington Transit Station	2,000	400	1,300	500	4,200
Auto Mall Parkway	0	0	300	0	300
Warm Springs Transit Center	2,200	500	2,100	600	5,300
Southern Alameda Total	4,200	900	4,500	9,700	19,200

Notes:
*Does not include the mode of access/egress for BART patrons. Only the Proposed Bus Alternative patrons are included.

PNR – Park-and-ride
KNR – Kiss-and-ride
Xfer – Transfer
Extra stops have been included in the proposed Bus Alternatives.
All numbers have been independently rounded to the nearest hundred. Totals may not sum up to displayed volumes.

Source: DKS Associates, 2002 from VTA-modified MTC model

Table 5-6. 2025 Mode of Access/Egress for Proposed Bus Alternative

Station	Mode of Access/Egress				
	PNR	KNR	Walk/Bike	Transit XFER	TOTAL
2025 No Project					
Fremont BART Station	5,100	2,600	1,800	7,500	17,100
Irvington BART Station	0	0	0	0	0
Warm Springs BART Station	0	0	0	0	0
Southern Alameda Total	5,100	2,600	1,800	7,500	17,100
2025 Proposed Project with Optional Irvington Station					
Fremont BART Station	4,100	800	2,600	2,900	10,500
Irvington BART Station	2,500	500	1,600	1,700	6,200
Warm Springs BART Station	3,600	800	2,500	8,900	15,700
Southern Alameda Total	10,200	2,100	6,700	13,500	32,400
2025 Proposed Bus Alternative					
Fremont BART station	0	0	500	12,200	12,700
Paseo Padre/Stevenson	0	0	500	0	500
Irvington Transit Station	1,600	900	2,000	600	5,100
Auto Mall Parkway	0	0	700	0	700
Warm Springs Transit Center	2,800	1100	3,800	600	8,400
Southern Alameda Total	4,400	2,000	7,500	13,400	27,400
2025 Proposed Project with Optional Irvington Station plus SVRTC					
Fremont BART Station	5,000	1,000	3,400	4,500	14,100
Irvington BART Station	3,200	700	2,300	3,200	9,400
Warm Springs BART Station	2,000	400	5,300	7,700	15,400
Southern Alameda Total	10,200	2,100	11,000	15,400	38,900
2025 Proposed Bus Alternative with SVRTC Enhanced Bus					
Fremont BART station	0	0	600	17,400	18,000
Paseo Padre/Stevenson	0	0	3,400	0	3,400
Irvington Transit Station	1,200	600	3,400	700	5,900
Auto Mall Parkway	0	0	900	0	900
Warm Springs Transit Center	3,000	1400	5,000	2,200	11,600
Southern Alameda Total	4,200	2,000	13,400	20,300	39,900

Notes:
PNR – Park-and-ride
KNR – Kiss-and-ride
Xfer – Transfer
Extra stops have been included in the proposed Bus Alternatives.
All numbers have been independently rounded to the nearest hundred. Totals may not sum up to displayed volumes.

Source: DKS Associates, 2002 from VTA-modified MTC model

Capital Costs

The estimated capital costs of the proposed Bus Alternative are shown in Table 5-7. The table groups costs in three categories: construction, right-of-way, and non-construction costs. Right-of-way procurement for the busway, would include the UP right-of-way, other parcels related to the transit centers, and other ancillary property acquisitions.

The construction elements include a 3-mile busway with access control at both entrances; three bus stops and two transit center facilities; aerial ramp structures at Paseo Padre Parkway; a new bridge structure at Grimmer Boulevard, which would be similar to the one included in the Proposed Project; and upgrades to the AC Transit's bus maintenance facility, to accommodate the additional vehicles.

Traffic signal preemption at eight intersections is also assumed, in addition to a computer control center for the "next-bus" technology, and preemption equipment for 18 buses (six AC Transit buses, 12 VTA buses). Other construction cost elements include the provision of engineering design and construction management. Capacity enhancements and modifications to the existing bus interface at the Fremont BART Station are also included in the estimated construction costs.

An additional six new buses would be purchased to expand AC Transit's bus fleet to provide the new service along the busway.

Non-construction costs include conceptual and preliminary engineering of the busway and facilities, additional environmental studies, environmental mitigation and monitoring, community relations, and other business costs.

The total estimated cost for the proposed Bus Alternative is $284 million, in 2001 dollars. The costs to operate and maintain the service in the proposed Bus Alternative would be assumed by both bus operating agencies, as part of their overall annual operating budgets.

Table 5-7. Estimated Capital Cost of Proposed Bus Alternative

Cost Category	Cost in 2001 Dollars (millions) Individual Costs	Totals
Right-of-Way (Total)		101
Construction		
Exclusive busway	54	
Transit centers and stops	48	
Paseo Padre Parkway ramp structures	23	
South Grimmer Boulevard overcrossing	5	
Other infrastructure improvements	2	
Final design and construction management	18	
Construction (Total)		150
Vehicles, including engineering	3	
Soft costs, including conceptual and preliminary design, agreements, supplemental environmental studies and mitigation, design oversight, construction management oversight, legal, insurance, administration, etc.	30	
Non-construction (Total)		33
Total Project Cost		284

Source: San Francisco Bay Area Rapid Transit District 2003

5.5 Evaluation of 2003 Project Alternatives

5.5.1 No-Project Alternative

Given that construction and operation of an extension of the BART system to Warm Springs would not occur under the No-Project Alternative, the environmental impacts associated with construction and operation of the 2003 Proposed Project described in Chapter 3 (*Environmental Setting, Impacts, and Mitigation Measures)* would not occur. However, while the No-Project Alternative would avoid environmental impacts associated with construction of the 2003 Proposed Project, it fails to address the continuing long-term traffic congestion and traffic-related air quality and energy impacts. As described in Chapter 4 (*Growth-Inducing Impacts)*, implementation of the 2003 Proposed Project would establish BART services to an area currently lacking rail transit services, and in turn would help to serve projected long-term job growth and subsequent commuting needs in the South Bay Area. If the 2003 Proposed Project were not implemented, the projected long-term job growth, and subsequent commuting needs would not be adequately served. Section 3.9 (*Transportation*) describes the deteriorated intersection level of service (LOS) and increased volumes on roadway segments under the 2010 No-Project scenario. Section 3.11 (*Air Quality*) identifies emissions that

would increase under the No-Project Alternative due to increased regional automobile and bus vehicle miles traveled (VMT) as compared to the Proposed Project. Consequently, the resulting long-term traffic congestion on local and regional roadways and resulting traffic-generated air quality impacts would continue to occur, and would potentially be greater under this alternative than under the 2003 Proposed Project. Furthermore, while the No-Project alternative would have fewer environmental impacts, it would fail to properly address the goals and objectives of the 2003 Proposed Project. Failure to construct the 2003 Proposed Project does not further BART's goals and objectives related to improving public transportation services within the Bay Area, and would not be consistent with the City of Fremont's land use and redevelopment goals (for example, Irvington redevelopment).

5.5.2 Proposed Bus Alternative

Environmental Effects of the Proposed Bus Alternative

The following analysis evaluates the potential environmental impacts associated with implementation of the proposed Bus Alternative compared to the 2003 Proposed Project.

Hazardous Materials

The proposed Bus Alternative would require some excavation to construct the busway, flyover access ramp structures at Paseo Padre Parkway, transit centers and transfer stations, potentially disturbing hazardous materials at construction sites. Use of the former WP right-of-way for the busway could disturb hazardous materials related to railroad operations. These activities would create potential for significant impacts to workers and the public during construction, similar to the Proposed Project. These construction-related impacts would not occur under the No-Project scenario. Mitigation measures similar to those defined for the Proposed Project in Section 3.2, (*Hazards and Hazardous Materials)* would reduce the potential for construction period hazardous materials impacts for the proposed Bus Alternative to less-than-significant.

Hydrology and Water Quality

In general, the proposed Bus Alternative could have more extensive effects on hydrology and water quality than the 2003 Proposed Project. The proposed paved busway, transfer, and transit centers that would be located within the UP right-of-way, as well as the access ramps at Paseo Padre Parkway, would have significant impacts due to the greater extent of impervious surfaces that would occur. Although the impacts would be similar in nature to the impacts of the paved parking and station areas of the Proposed Project, because the entire right-of-way would be paved, the amount of impervious surfaces would increase with this alternative, and could significantly impact the drainage flows in the project area.

However, unlike the 2003 Proposed Project, the proposed Bus Alternative would avoid the temporary loss of flood storage during construction. Furthermore, the proposed Bus Alternative would not involve construction activities in Lake Elizabeth or the south Tule Pond and thus would avoid the associated water quality effects of construction in those water bodies.

Other construction-related impacts between Paseo Padre Parkway and the proposed Warm Springs Transit Center could be greater than those that would occur under the 2003 Proposed Project. More extensive land clearing and grading would be required for construction of the proposed busway and access ramps. It is possible that the additional exposed soil could be eroded and that sediment would be discharged to the water bodies in the vicinity of the busway alignment. This sediment has the potential to clog the gills and filters of aquatic organisms, which is a potentially significant impact.

Biological Resources

Implementation of the proposed Bus Alternative would greatly reduce significant impacts to all habitats in the project corridor, including sensitive habitats. There would be no significant impacts to riparian woodland or wetland habitat and fewer impacts to ruderal-forb grassland than the 2003 Proposed Project.

The proposed Bus Alternative could have significant impacts on the unnamed and low-quality creeks that cross the UP right-of-way between Washington Boulevard and South Grimmer Boulevard. However, significant impacts to higher quality wetlands and streams in Tule Pond and Mission Creek would be avoided by the proposed Bus Alternative.

The footings of the access ramps at Paseo Padre Parkway may affect riparian habitat, however this area will be affected by the construction of the city's grade separations project prior to the construction of the flyover ramps, and the proposed Bus Alternative would not impact riparian habitat at this location.

The proposed Bus Alternative would have fewer impacts to special-status species than the 2003 Proposed Project because it would affect a lesser amount of habitat for these species. Similar to the 2003 Proposed Project, this alternative would remove up to three active burrowing owl nest sites at the Warm Springs Transit Center site. However, less foraging habitat (ruderal forb grassland) for burrowing owl and other raptors would be removed in this alternative than in the 2003 Proposed Project because the proposed Bus Alternative would not develop facilities in the portion of the project area between Walnut Avenue and Paseo Padre Parkway. Further, because the proposed Bus Alternative would not require the removal of trees, there would be no significant impacts on nesting raptors or swallows. The proposed Bus Alternative would also have no potential for impact on potential upland habitat for the California tiger salamander near New Marsh.

Land Use and Planning

The proposed Bus Alternative would follow much of the same alignment as the 2003 Proposed Project between the Fremont BART Station and the proposed Warm Springs Station site within the UP railroad corridor as an exclusive busway. The main exception is that the Bus Alternative would avoid land use construction impacts to Fremont Central Park (including Lake Elizabeth). Construction-related land use impacts would be minimized compared to the Proposed Project, because the construction of the proposed busway would not require the construction of a cut-and-cover subway structure. Temporary construction-related impacts to Fremont Central Park would be avoided with the proposed Bus Alternative.

As described in Section 3.5 (*Land Use and Planning)*, under state law (Government Code section 53090 et seq.), BART is not required to comply with local land use plans, policies, and zoning ordinances. BART nevertheless wishes to emphasize to the public and to local jurisdictions the extent to which the Proposed Project would be consistent with local plans, policies, and zoning ordinances. While the Proposed Project would be consistent with the City of Fremont's land use and redevelopment goals (e.g., Irvington redevelopment, Warm Springs Specific Plan), and the city's plan specifically reserves a corridor for BART, the proposed Bus Alternative would not meet these criteria. The proposed Bus Alternative would also not accommodate planned growth in Fremont nor encourage redistribution of planned growth at the Warm Springs Station area to the same degree as the Proposed Project. The Bus Alternative is also much less likely than the Proposed Project to foster development around the proposed station sites. Development of the station sites consistent with local land use and urban development polices would maximize user and community benefits from transportation investments (which is one of the primary objectives for Goal 4). Development investment benefits, including higher land values, increased rents, and greater tax income to cities, are well documented for rail transit-oriented development. One advantage of a BRT system is that it offers more flexibility than a fixed-rail system; as growth and travel patterns shift, bus routes can be shifted to accommodate these shifts. In contrast, the rail system infrastructure and stations of the BART system represent a major public investment in an area that is not movable. For this reason, private developers are more amenable to making a long-term real estate investment around a BART station than a bus center.

Population, Economics, and Housing

Similar to the Proposed Project, the busway would generally use established transportation corridors (railroad right-of-way and existing public streets) and would therefore have minimal potential to disrupt or divide existing communities. However, like the Proposed Project, the proposed Bus Alternative would result in some business, residential, and public facility displacements. The Bus Alternative would displace 4 businesses, 15 residences, and 1 public facility. Implementation of the Proposed Project without optional Irvington Station would result in approximately 24 business displacements, and implementation of the Proposed Project with optional Irvington Station would result in approximately 28 business displacements.

Implementation of the Proposed Project without optional Irvington Station would result in three residential displacements, and implementation of the Proposed Project with optional Irvington Station would result in 12 residential displacements The Bus Alternative would displace one public facility compared with two for the Proposed Project. The Bus Alternative does not represent the relocation of a substantial number of people and therefore would not be a significant impact.

The proposed Bus Alternative would result in fewer total displacements (20 displacements) than the Proposed Project without optional Irvington Station (29 displacements) or the Proposed Project with optional Irvington Station (42 displacements). The number of displacements required for the Bus Alternative would be lower than for the Proposed Project because land would not be needed to place traction power stations and other ancillary facilities associated with rail transit along the right-of-way.

Acquisitions for the proposed Irvington and Warm Springs Transit Center would be similar to those for the proposed Warm Springs Station as described in Section 3.6 (*Population, Economics, and Housing*). Acquisitions would be conducted pursuant to state and federal relocation requirements and would result in a less-than-significant impact.

Construction of the flyover access ramps under the proposed Bus Alternative would have greater impacts to residential areas adjacent to the proposed flyover ramps at Paseo Padre Parkway. Traffic access restrictions to businesses and residences would be similar to the Proposed Project, but greater than those for the No-Project Alternative. Traffic management plans for the proposed Bus Alternative would address temporary access controls. Temporary access restriction impacts for the proposed Bus Alternative would be less-than-significant.

Aesthetics

Potential impacts within each visual analysis study area related to the proposed Bus Alternative can be characterized as follows.

Implementation of the proposed Bus Alternative would avoid the impacts on views of the Tule Pond. There would be minimal visual impacts to the local streetscape between the Fremont BART Station and the busway, since the buses would operate in existing traffic lanes, as they do now, and visual impacts related to construction in Central Park would be avoided compared to the Proposed Project. However, the aerial ramps at Paseo Padre Parkway, which would rise up to 30 feet above the surrounding grade to pass over the UP tracks, would pose a significant visual impact to the residential areas on both sides of Paseo Padre Parkway, which is designated by the City of Fremont as a scenic corridor.

Under the proposed Bus Alternative, an Irvington Station would not be constructed and would be replaced by a transit center facility. During the periods of bus use, the presence of five buses at the transit center and pedestrian bridges over Osgood Road and the UP railroad tracks would dominate the street-level views. The visual impact of the transit center would therefore, be greater than under the No-Project Alternative, but less than under the Proposed Project. The transit center would occupy the same footprint as the optional Irvington Station. Elevated structures required for Americans with Disabilities Act (ADA) compliance would be similar to the optional Irvington Station. The transit center would operate until 12:00 a.m. and therefore, would be equipped with lights in the waiting area and in the parking lot. Additional light and glare could be created by the passenger waiting area and by buses parked at the transit center. Therefore, the degree of visual change in the area would be greater than that of the Proposed Project without the optional Irvington Station, but comparable to the Proposed Project with the optional Irvington Station.

The proposed Warm Springs Transit Center would appear as a typical bus transit center facility similar to the one proposed at Irvington. Because the proposed Warm Springs Transit Center is a larger facility than Irvington, the same level of effects would occur, but on a larger scale. The larger parking lot would have more lighting, and two more bus bays (for a total of seven) would be located at this site. However, these features would be similar to and not more extensive than those associated with the Proposed Project. As with the significant impacts from the proposed station, any significant impacts of the transit center would also be mitigated, as described in Section 3.7 (*Aesthetics*).

Visual impacts along the busway under the proposed Bus Alternative would be similar to those of the 2003 Proposed Project south of Paseo Padre Parkway. In most of the busway, buses would run at-grade or on structures over intersecting streets, with vehicles passing by residential and commercial properties in a similar manner. However, the aerial ramps at Paseo Padre Parkway (approximate height 30 feet) would represent a significant visual impact to the adjacent neighborhoods. Existing property fencing, landscaping, and other visual screening would not be effective in shielding views of the buses and bus flyover; therefore, visual impacts of the Bus Alternative at this location would be greater than for the Proposed Project.

Cultural Resources

The construction activities associated with the proposed Bus Alternative have the potential for the same impacts as those of the Proposed Project, particularly with regard to the proposed transit center sites at Irvington and Warm Springs, since they are located on the same sites as the proposed BART stations under the Proposed Project. Therefore, similar impacts to the historic built environment (i.e. buildings, structures, landscaping) and archaeological resources would occur under this alternative as those identified for the Proposed Project, and the mitigation of these impacts, as described in Section 3.8 (*Cultural Resources*) would apply. Because the route for the Bus Alternative would not travel through the undeveloped area between Walnut Avenue and Stevenson Boulevard, archaeological site CA-Ala-343 would not be disturbed by implementation of the Bus Alternative. However, as noted above under the discussion of *Hydrology and Water Quality* impacts, construction-related impacts between Paseo Padre Parkway and the proposed Warm Springs Transit Center could be greater than those that would occur under the 2003 Proposed Project because more extensive land clearing and grading would be required for construction of the proposed busway and access ramps. Although no archaeological resources have been identified in the busway, the proposed Bus Alternative could potentially cause disturbances to additional sensitive archaeological resources within the project area.

Transportation

The proposed Bus Alternative would provide increased transit service in the transportation study area and contribute to a reduction in traffic on MTS roadway segments within the transportation study area. A summary evaluation of the transportation performance of the proposed Bus Alternative compared to the No-Project Alternative is provided here. The optional Irvington Station is included in the proposed Bus Alternative to provide comparable BART and bus service concepts in the Irvington area.

Impacts to bicyclists and pedestrians for the proposed Bus Alternative are assumed to be the same as for the Proposed Project both with and without optional Irvington Station.

Intersection Analysis

Intersection level of service (LOS) was evaluated at 18 study intersections. This includes six additional intersections than were not analyzed under the Proposed Project, as discussed in Section 3.9 (*Transportation*) and in Appendix N, *Transportation Technical Report for the Proposed BART Warm Springs Extension.* The six additional intersections are located in the vicinity of the proposed Irvington Transit Center and would be used for bus operations. The intersection evaluation provides a basis for comparison of conditions before and after traffic associated with the proposed Bus Alternative is added to the street system. To provide a comparison of the proposed Bus Alternative

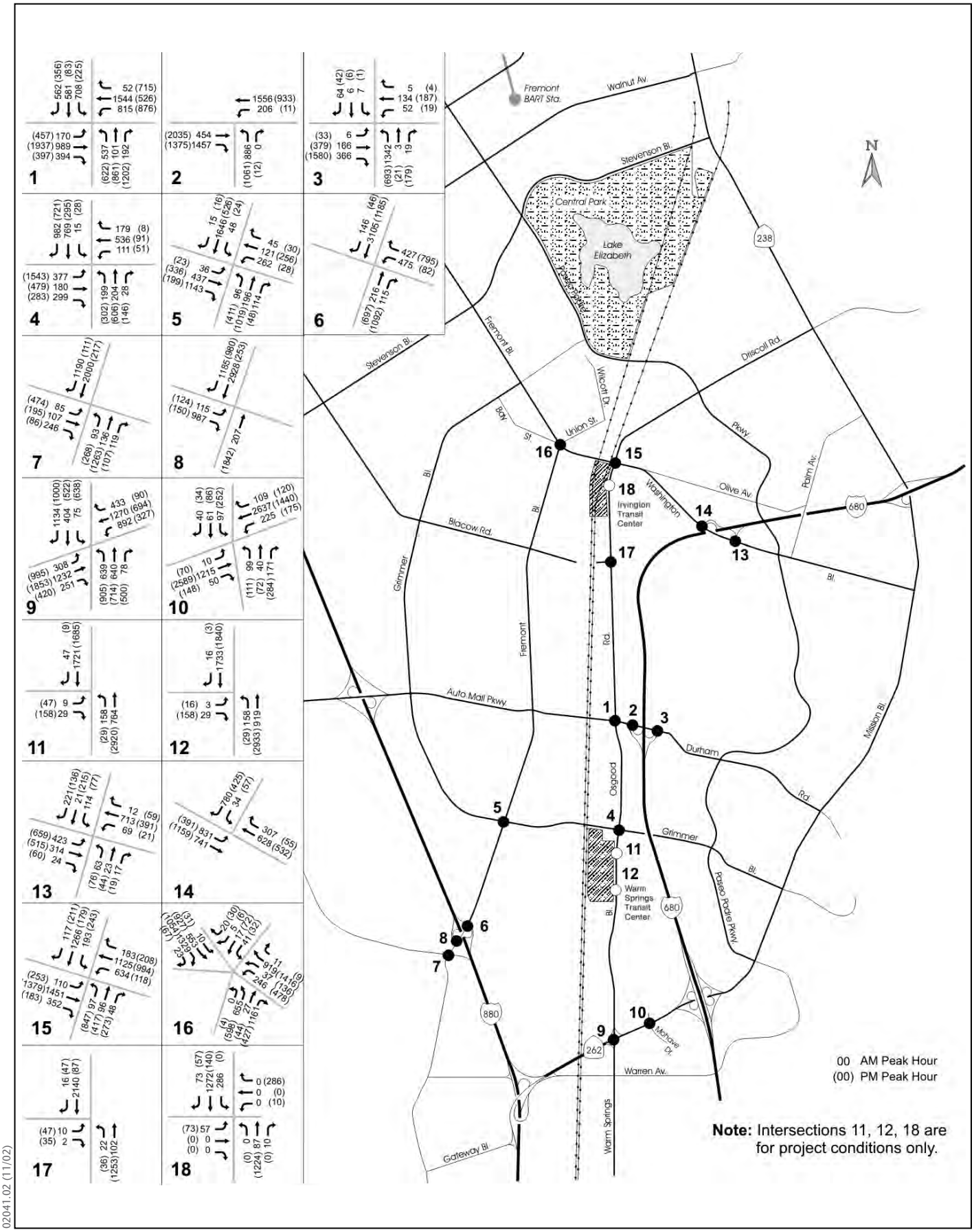
to the Proposed Project, data for the 2010 Proposed Project with the optional Irvington Station is also provided. The proposed Bus Alternative intersection analysis is based on a projection of vehicle trips from the VTA modified MTC model. The model analyzed ten intersections in both 2010 and 2025, with the addition of access intersections at the proposed Warm Springs Transit Center and Irvington Transit Center. The methodology and assumptions, including the criteria for determining significance for the intersection analysis, are discussed in Section 3.9 (*Transportation*) and in Appendix N.

Turning movements in 2010 for each of the study intersections are shown in Figure 5-2, and in Figure 5-3 for the year 2025. Table 5-8 provides the LOS analysis for both the a.m. and p.m. peak periods for the 2010 No Project, Proposed Project with optional Irvington Station, and proposed Bus Alternative. Table 5-9 provides the LOS analysis for these alternatives in 2025.

Comparison to 2010 No-Project Condition – A.M. Peak Hour

Compared to the 2010 No Project, the 2010 proposed Bus Alternative would result in the following changes during the a.m. peak hour.

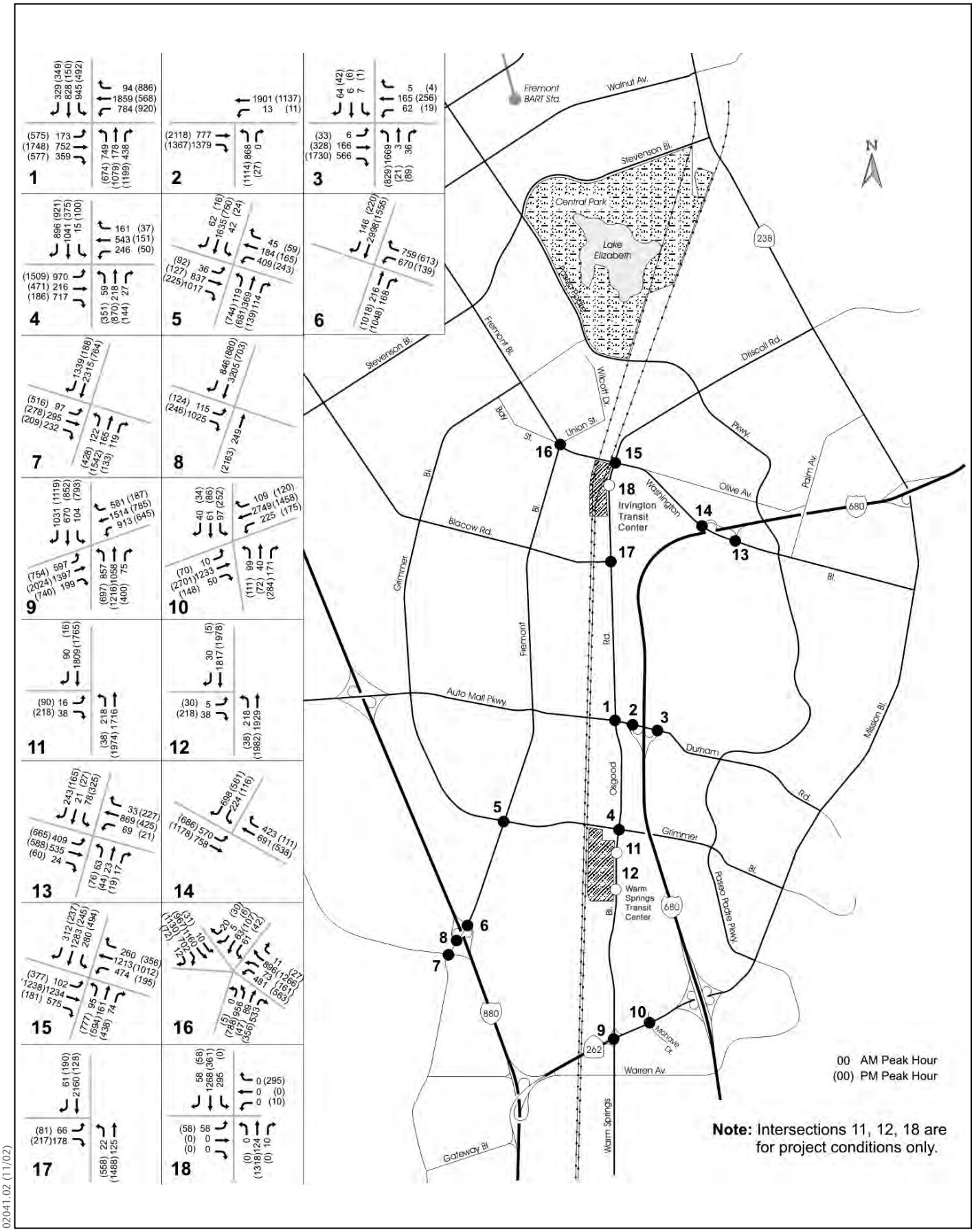
- Four intersections would show significant deterioration in LOS.
  - Osgood Road/Durham Road/Auto Mall Parkway.
  - I-680 southbound ramps/Durham Road/Auto Mall Parkway.
  - Warm Springs Boulevard/Mission Boulevard.
  - Fremont Boulevard/Washington Boulevard/Bay Street.



02041.02 (11/02)

Source: DKS Associates 2003.

Figure 5-2
2010 Proposed Bus Alternative
Peak Hour Turning Movements



Source: DKS Associates 2003.

Figure 5-3
2025 Proposed Bus Alternative
Peak Hour Turning Movements

Table 5-8. 2010 Intersection LOS

		Background (2010 No Project)				2010 Proposed Project with Irvington Station Option				2010 Proposed Bus Alternative			
		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour	
#	Intersection	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C
1	Osgood Road/Durham Road/Auto Mall Parkway	D	0.84	D	0.89	E	0.92	F	1.05	E	0.94	F	1.07
2	I-680 SB Ramps/Durham Road/Auto Mall Parkway	D	0.89	C	0.78	E	0.97	E	0.91	E	1.00	D	0.90
3	I-680 NB Ramps/Durham Road/Auto Mall Parkway	A	0.56	A	0.40	A	0.56	A	0.38	A	0.55	A	0.41
4	Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard	D	0.88	D	0.86	D	0.90	F	1.23	D	0.90	F	1.31
5	Fremont Boulevard/South Grimmer Boulevard	E	0.91	A	0.58	D	0.90	B	0.62	D	0.84	A	0.57
6	Fremont Boulevard/I-880 NB Ramps	A	0.60	A	0.37	C	0.77	A	0.36	C	0.78	A	0.33
7	Fremont Boulevard/I-880 SB On-ramp/Cushing Parkway	D	0.86	A	0.47	D	0.84	A	0.49	D	0.81	A	0.45
8	Fremont Boulevard/I-880 SB Off-ramp	E	0.91	A	0.43	D	0.85	A	0.49	D	0.85	A	0.46
9	Warm Springs Boulevard/Mission Boulevard	F	1.08	E	0.94	F	1.19	F	1.19	F	1.18	F	1.05
10	Mohave Drive/Mission Boulevard	B	0.61	C	0.74	C	0.71	D	0.85	B	0.70	D	0.85

		Background (2010 No Project)				2010 Proposed Project with Irvington Station Option				2010 Proposed Bus Alternative			
		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour	
#	Intersection	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C
11	Warm Springs Boulevard/Northern Warm Springs Station Entrance					B	0.65	B	0.63	B	0.65	D	0.87
12	Warm Springs Boulevard/Southern Warm Springs Station Entrance					B	0.65	B	0.64	B	0.65	D	0.87
13	I-680 NB Ramps/Washington Boulevard	A	0.60	A	0.56	B	0.63	B	0.66	B	0.65	C	0.74
14	I-680 SB Ramps/Washington Boulevard	A	0.41	A	0.40	D	0.87	A	0.54	C	0.75	A	0.49
15	Osgood Road/Washington Boulevard	A	0.51	A	0.58	E	0.91	C	0.74	D	0.90	C	0.80
16	Fremont Boulevard/Washington Boulevard/Bay St	F	1.27	F	1.13	F	1.27	F	1.05	F	1.45	F	1.09
17	Osgood Road/Blacow Road	A	0.51	A	0.36	B	0.67	A	0.45	B	0.68	A	0.46
18	Osgood Road/Irvington Station Entrance					A	0.45	A	0.59	A	0.47	B	0.62

Notes:
[a] LOS = level of service.
[b] V/C = volume-to-capacity ratio.

Source: DKS Associates 2002

Table 5-9. 2025 Intersection LOS

		2025 No-Project Condition				2025 Proposed Project with Optional Irvington Station				2025 Proposed Bus Alternative			
		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour	
#	Intersection	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C
1	Osgood Road/Durham Road/Auto Mall Parkway	E	1.00	F	1.06	F	1.02	F	1.09	F	1.05	F	1.10
2	I-680 SB Ramps/Durham Road/Auto Mall Parkway	E	0.98	D	0.90	E	0.97	E	0.91	D	0.89	E	0.91
3	I-680 NB Ramps/Durham Road/Auto Mall Parkway	B	0.61	A	0.42	B	0.64	A	0.44	B	0.64	A	0.43
4	Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard	F	1.14	F	1.31	F	1.25	F	1.42	F	1.26	F	1.50
5	Fremont Boulevard/South Grimmer Boulevard	F	1.07	D	0.84	E	0.99	C	0.71	E	0.94	D	0.86
6	Fremont Boulevard/I-880 NB Ramps	D	0.83	A	0.42	D	0.82	A	0.45	D	0.81	A	0.41
7	Fremont Boulevard/I-880 SB On-ramp/Cushing Parkway	D	0.87	A	0.49	D	0.89	A	0.54	D	0.87	A	0.51
8	Fremont Boulevard/I-880 SB Off-ramp	D	0.86	A	0.51	D	0.85	A	0.55	D	0.88	A	0.53
9	Warm Springs Boulevard/Mission Boulevard	F	1.42	F	1.09	F	1.20	F	1.17	F	1.18	F	1.20
10	Mohave Drive/Mission Boulevard	B	0.66	D	0.81	C	0.73	D	0.86	C	0.72	D	0.86

		2025 No-Project Condition				2025 Proposed Project with Optional Irvington Station				2025 Proposed Bus Alternative			
		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour	
#	Intersection	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C
11	Warm Springs Boulevard/Northern Warm Springs Station Entrance					C	0.73	C	0.77	C	0.71	B	0.69
12	Warm Springs Boulevard/Southern Warm Springs Station Entrance					C	0.76	C	0.77	B	0.70	C	0.71
13	I-680 NB Ramps/Washington Boulevard	A	0.58	D	0.81	B	0.69	C	0.76	B	0.67	D	0.87
14	I-680 SB Ramps/Washington Boulevard	C	0.71	B	0.86	B	0.66	B	0.62	C	0.72	B	0.69
15	Osgood Road/Washington Boulevard	D	0.89	D	0.85	D	0.86	C	0.78	D	0.86	D	0.88
16	Fremont Boulevard/Washington Boulevard/Bay St	E	0.98	F	1.13	E	0.92	F	1.13	D	0.90	F	1.14
17	Osgood Road/Blacow Rd	C	0.77	A	0.46	C	0.73	A	0.49	C	0.72	A	0.54
18	Osgood Road/Irvington Station Entrance					A	0.52	B	0.68	A	0.47	A	0.64

Notes:
[a] LOS = level of service.
[b] V/C = volume-to-capacity ratio.
Source: DKS Associates 2002

- Two intersections would experience an improvement in LOS during the a.m. peak hour in 2010.
  - Fremont Boulevard/South Grimmer Boulevard.
  - Fremont Boulevard/I-880 southbound off-ramp.
- The other study intersections would continue to operate at approximately similar LOS when compared to the 2010 No-Project a.m. peak hour condition.

Comparison to the 2010 No-Project Condition – P.M. Peak hour
Compared to the 2010 No Project, the 2010 proposed Bus Alternative would result in the following changes during the p.m. peak hour.

- Four intersections would show significant deterioration in LOS.
  - Osgood Road/Durham Road/Auto Mall Parkway.
  - I-680 southbound ramps/Durham Road/Auto Mall Parkway.
  - Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard.
  - Warm Springs Boulevard/Mission Boulevard.
- The other study area intersections would continue to operate at approximately similar LOS when compared to the p.m. peak hour 2010 No-Project condition.

Comparison to 2025 No-Project Condition – A.M. Peak Hour
Compared to the 2025 No Project, the 2025 proposed Bus Alternative would result in the following changes in the a.m. peak hour.

- Two intersections would have a significant degradation in LOS during the a.m. peak hour.
  - Osgood Road/Durham Road/Auto Mall Parkway.
  - Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard.
- Three intersections would experience an improvement in LOS during the a.m. peak hour.
  - I-680 southbound ramps/Durham Road/Auto Mall Parkway.
  - Fremont Boulevard/South Grimmer Boulevard.
  - Fremont Boulevard/Washington Boulevard/Bay Street.
- The other study intersections would continue to operate at approximately similar service levels when compared to the 2025 a.m. peak hour No-Project condition.

Comparison to 2025 No-Project Condition – P.M. Peak Hour
Compared to the 2025 No Project, the 2025 proposed Bus Alternative would result in the following changes during the p.m. peak hour.

- Three intersections would have a significant degradation in LOS during the 2025 p.m. peak hour.
  - I-680 southbound ramps/Durham Road/Auto Mall Parkway.
  - Osgood Road/Warm Springs Boulevard/south Grimmer Boulevard.
  - Warm Springs Boulevard/Mission Boulevard.
- The other study area intersections would operate at approximately similar LOS when compared to the 2025 p.m. peak hour No-Project condition.

Comparison to 2010 Proposed Project with Optional Irvington Station Condition – A.M. Peak Hour

Compared to the 2010 Proposed Project with optional Irvington Station, the 2010 proposed Bus Alternative would result in the following changes during the a.m. peak hour.

- One intersection would show significant deterioration in LOS.
  - Fremont Boulevard/Washington Boulevard/Bay Street.
- The other study intersections would continue to operate at roughly similar LOS when compared to the a.m. peak hour 2010 Proposed Project with optional Irvington Station.

Comparison to 2010 Proposed Project with Optional Irvington Station Condition – P.M. Peak Hour

Compared to the 2010 Proposed Project with optional Irvington Station, the 2010 proposed Bus Alternative would result in the following changes in LOS during the p.m. peak hour.

- Three intersections would have a significant degradation in LOS during the p.m. peak hour.
  - Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard.
  - Warm Springs Boulevard/Northern Warm Springs Station entrance.
  - Warm Springs Boulevard/Southern Warm Springs Station entrance.
- Two intersections would experience an improvement in LOS during the p.m. peak hour.
  - I-680 southbound ramps/Durham Road/Auto Mall Parkway.
  - Warm Springs Boulevard/Mission Boulevard.
- The other study intersections would continue to operate at approximately similar LOS when compared to the p.m. peak hour 2010 Proposed Project with optional Irvington Station.

Comparison to 2025 Proposed Project with Optional Irvington Station Condition – A.M. Peak Hour

Compared to the 2025 Proposed Project with optional Irvington Station, the 2025 proposed Bus Alternative would result in the following changes during the a.m. peak hour.

- Two intersections would experience an improvement in LOS.
  - I-680 southbound ramps/Durham Road/Auto Mall Parkway.
  - Fremont Boulevard/Washington Boulevard/Bay Street.
- The other study intersections would continue to operate at approximately similar LOS when compared to the 2025 a.m. peak hour Proposed Project with optional Irvington Station condition.

Comparison to 2025 Proposed Project with Optional Irvington Station Condition – P.M. Peak Hour

Compared to the 2025 Proposed Project with optional Irvington Station, the 2025 proposed Bus Alternative would result in the following changes during the p.m. peak hour.

- One intersection would have a significant degradation in LOS during the p.m. peak hour.
  - Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard.
- The other study intersections would continue to operate at approximately similar LOS when compared to the p.m. peak hour 2025 Proposed Project with optional Irvington Station.

Regional Roadway Analysis

To evaluate the existing traffic conditions, as well as provide a basis for comparison of conditions before and after project-generated traffic is added to the street system, roadway segment service levels and traffic volume changes were evaluated along 154 Metropolitan Transportation System (MTS) roadway segments. Table 5-10 indicates the number of segments that would have volume changes of plus or minus 2% and plus or minus 5%, as well as changes LOS.

2010 Proposed Bus Alternative

Compared to the 2010 No Project, the 2010 proposed Bus Alternative would result in the following changes during the p.m. peak hour.

- One of the MTS state highway segments would show deterioration in LOS.
- Seven of the MTS local roadway segments would show deterioration in LOS.
- Three of the MTS state highway segments would experience an improvement in LOS.
- One of the MTS local roadway segments would experience an improvement in LOS.
- The remaining 142 MTS roadway segments would continue to operate with similar LOS.

Compared to the 2010 Proposed Project, the 2010 proposed Bus Alternative would result in the following changes during the p.m. peak hour.

Table 5-10. MTS Roadway Segment Volume/Capacity and Intersection LOS Changes

Scenario	Roadway Volume Change				LOS Degradation		LOS Improvements	
	-5% or greater	-2% to-4%	+2% to + 4%	+5% or greater	State Highway	Local Roadway	State Highway	Local Roadway
2010 No Project	13 state highway segments and one local roadway operating at LOS E or F							
2010 Proposed Bus Alternative[a]	49	25	19	20	1	7	3	1
2010 Proposed Bus Alternative[b]	24	24	19	19	1	1	2	3
2025 No Project	31 state highway segments operating at LOS E or F							
2025 Proposed Bus Alternative[c]	34	21	10	27	6	2	—	6
2025 Proposed Bus Alternative[d]	20	18	20	33	4	3	5	8

Notes:
[a] Compared to 2010 No Project
[b] Compared to 2010 Proposed Project
[c] Compared to 2025 No Project
[d] Compared to 2025 Proposed Project

Source: DKS Associates 2002

- One of the MTS state highway segments would show deterioration in LOS.
- One of the MTS local roadway segments would show deterioration in LOS.
- Two of the MTS state highway segments would experience an improvement in LOS.
- Three of the MTS local roadway segments would experience an improvement in LOS.
- The remaining 147 MTS roadway segments would continue to operate with similar LOS.

2025 Proposed Bus Alternative

Compared to the 2025 No Project, the 2025 proposed Bus Alternative would result in the following changes during the p.m. peak hour.

- Six of the MTS state highway segments would show deterioration in LOS.
- Two of the MTS local roadway segments would show deterioration in LOS.
- Six of the MTS local roadway segments would experience an improvement in LOS.
- The remaining 140 MTS roadway segments would continue to operate with similar LOS.

Compared to the 2025 Proposed Project, the 2025 proposed Bus Alternative would result in the following changes during the p.m. peak hour.

- Four of the MTS state highway segments would show deterioration in LOS.
- Three of the MTS local roadway segments would show deterioration in LOS.
- Five of the MTS state highway segments would experience an improvement in LOS.
- Eight of the MTS local roadway segments would experience an improvement in LOS.
- The remaining 146 MTS roadway segments would continue to operate with similar LOS.

Parking Demand

Parking demand was estimated by using the adjusted VTA modified MTC forecasts of auto spaces, divided by the auto occupancy factor for peak period auto access to park-and-ride, which is 1.06. Table 5-11 shows the estimated parking demand for each scenario, along with the number of parking spaces currently proposed. These demand figures include the demand generated by other transit services, such as bus vehicles.

Table 5-11. Parking Supply and Demand – Proposed Bus Alternative

	Fremont BART Station		Irvington Transit Center		Warm Springs Transit Center	
	Supply	Demand	Supply	Demand	Supply	Demand
2010	2,030	1,480	960	940	2,040	1,040
2025	2,030	1,510	960	760	2,040	1,370

Notes:
Parking supply based on presentation to the BART Warm Springs Extension Project Development Team Meeting, October 22, 2002. As stations are designed, actual parking supply could change.
Parking demand based on VTA-modified MTC model.

Sources: DKS Associates and San Francisco Bay Area Rapid Transit 2002

In each scenario at all locations, demand does not exceed the available supply, so there would be no significant parking impacts at the transit centers. The proposed Bus Alternative would have lower parking demand than the Proposed Project because more people would be able to walk to the intermediate stops, and most bus riders would transfer at the Warm Springs Transit Center, rather than at the Fremont BART Station, to meet the VTA Route 180.

Noise and Vibration

Noise projections for the proposed Bus Alternative were developed using methods described in the FTA guidance manual (Federal Transit Administration 1995). The noise analysis of the proposed Bus Alternative did not use the BART noise criteria to assess impacts. The BART noise criteria were developed to assess impacts from rail transit vehicles, and not from buses. Therefore, the noise analysis only uses the FTA noise impact assessment method. This analysis assumed the following.

- Buses would travel at 50 mph in the project corridor.
- A single bus operating at 50 mph on a normal roadway generates a maximum noise level of 85 dBA at 50 feet.
- Service frequencies or headways of the buses would be the same as the Proposed Project with the optional Irvington Station.

Noise projections were made for noise sensitive land uses along the proposed Bus Alternative alignment. Projections were only made for those sections of the alignment operating on the proposed busway.

Tables 5-12 and 5-13 present results of the cumulative noise impact analysis. Table 5-12 includes all residential land uses from north to south along the alignment with both daytime and nighttime sensitivity to noise (e.g. residences and hotels). Table 5-13 lists all institutional uses from north to south along the alignment consisting of sites that are not sensitive to noise at night (e.g. schools and churches). All receptors along the alignment fall into FTA Categories 2 or 3 for the purposes of the cumulative noise impact analysis.

Table 5-12. Proposed Bus Alternative Cumulative Residential Noise Impacts

Location	Civil Stn[a]	Side of Busway	Dist to Bus-way (ft)	Speed (mph)	Noise Level (Ldn, dBA)		Cumulative Noise Exposure (Ldn, dBA)[b]		# of Impacts
					Existing	Future	Increase	Impact Criterion	
Paseo Padre Parkway to Washington Blvd	2308 to 2334	SB	410	50	60	61	0.2	5.0	0
Paseo Padre Parkway to Washington Blvd	2308 to 2334	NB	20	50	54	67	13.4	7.6	2
Washington Blvd to Blacow Road	2339 to 2370	NB	340	50	54	55	0.9	7.6	0
Washington Blvd to Blacow Road	2339 to 2368	SB	95	50	66	66	0.4	3.4	0
Blacow Road to Auto Mall Parkway	2370 to 2415	SB	130	50	65	65	0.4	3.9	0
Auto Mall Parkway to South Grimmer Road	2415 to 2451	SB	230	50	61	62	0.3	4.7	0
Total:									**2**

Notes:
[a] Civil stations refer to the numerical measurements from the beginning of an alignment to the end in 100 foot increments.
[b] Increases in noise level and the impact criterion are reported to 0.1 decibels so that rounding errors in the results do not lead to confusion.

Source: HMMH 2003

Table 5-13. Proposed Bus Alternative Cumulative Institutional Noise Impacts

Location	Civil Stn[a]	Side of Busway	Dist to Busway (ft)	Speed (mph)	Noise Level (Peak Hour Leq, dBA)		Cumulative Noise Exposure (Peak Hour Leq, dBA)[b]		Impact?
					Existing	Future	Increase	Impact Criterion	
St. Anne's Episcopal Church	2324	NB	390	70	54	57	0	12.7	No
Church of Christ	2325	NB	290	70	54	58	0	12.7	No
E. M. Grimmer Elementary School	2386	SB	300	60	53	57	0.5	13.3	No
E. M. Grimmer Elementary School Playground	2386	SB	95	60	53	63	2.1	13.3	No

Notes:
[a] Civil stations refer to numerical measurements from the beginning of an alignment to the end in 100 foot increments.
[b] Increases in noise level and the impact criterion are reported to 0.1 decibels so that rounding errors in the results do not lead to confusion.
Source: HMMH 2003

Figures 5-4a through 5-4d show the areas considered in the cumulative noise impacts analysis for the proposed Bus Alternative. Significant cumulative noise impacts are predicted to occur at two single-family residences on the east side of Paseo Parkway to Washington Boulevard. The residences are located on Driscoll Road and are within 20 feet of the proposed busway for the closest residence (Figure 5-4b). There are no areas of significant noise impact predicted at any institutional uses along the proposed Bus Alternative alignment. Construction of noise barriers or implementation of sound insulation at the two residences on Driscoll Road would reduce the significant cumulative impacts to a less-than-significant level.

With the proposed Bus Alternative, there would be exposure of vibration-sensitive land uses to groundborne vibration from buses in the proposed Bus Alternative corridor. Traffic, including heavy trucks and buses, rarely create perceptible groundborne vibration unless vehicles are operating very close to buildings or there are irregularities such as potholes or expansion joints in the roadway. The pneumatic tires and suspension system of normal automobiles, trucks, and buses are sufficient to eliminate most groundborne vibration forces. Given the design of the buses and the orientation of the busway to vibration-sensitive land uses, vibration from passing buses is not predicted to result in a significant impact.

The construction-related noise and vibration impacts and mitigation measures for the proposed Bus Alternative would be the same as those for the Proposed Project with optional Irvington Station as described in Section 3.10 (*Noise and Vibration*).

Air Quality

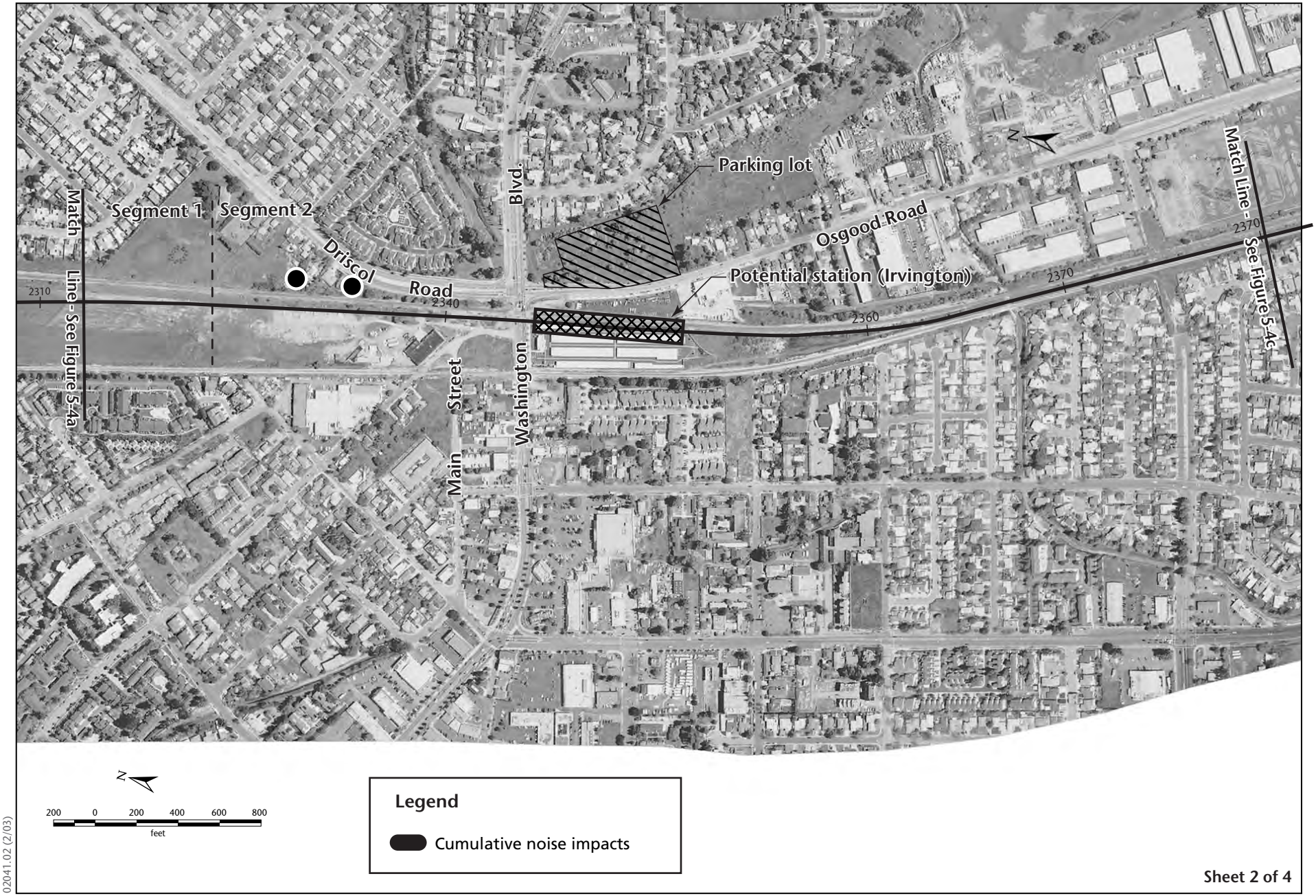
This analysis describes impacts of the Bus Alternative on regional and local air quality. In general, because bus service is assumed to remove single-occupant vehicle drivers from the road, increased pollution from new bus service under the proposed Bus Alternative would be offset by decreased pollution from the automobile trips removed from the system. The proposed operating plan would add eight buses an hour in each direction, for a total of approximately 240 bus trips per day. In the context of the total transportation system in the Bay Area (4,000 buses currently in use), this would result in a slight increase in total regional emissions. However, this increase in bus emissions would be more than offset by the reduction in regional automobile trips and associated emissions. The proposed Bus Alternative would result in a regional air quality benefit within the San Francisco Bay Area Air Basin.

The Bus Alternative would affect local air emissions and ambient pollutant concentrations. Since bus service is assumed to remove single-occupant vehicle commuters from the road, a project-level analysis would not likely result in a significant increase in VOCs, NOx, or local CO concentrations along major corridors and may result in a reduction in such emissions. A CO analysis was conducted, and the results are shown in Table 5-14. With regard to motor vehicle commute trips to the proposed transit centers, the results show that the Bus Alternative would not result in significant increases in CO concentrations near congested intersections in 2010 or 2025. Overall, the proposed Bus Alternative would result in a reduction in mobile source emissions compared to the No-Project scenario, as shown in Tables 5-16 and 5-16.

02041.02 (2/03)

Source: Harris, Miller, Miller & Hanson 2002.

Figure 5-4a
Cumulative Noise Impacts
Proposed Bus Alternative



02041.02 (2/03)

Source: Harris, Miller, Miller & Hanson 2002.

Figure 5-4b
Cumulative Noise Impacts
Proposed Bus Alternative

Source: Harris, Miller, Miller & Hanson 2002.

Figure 5-4c
Cumulative Noise Impacts
Proposed Bus Alternative

02041.02 (2/03)

Source: Harris, Miller, Miller & Hanson 2002.

Figure 5-4d
Cumulative Noise Impacts
Proposed Bus Alternative

Table 5-14. CO Modeling Results (ppm)

	2010 Bus Alternative		2025 Bus Alternative	
Intersection	1-hr	8-hr	1-hr	8-hr
Osgood Road/Durham Road/Auto Mall Parkway	5.8	4.1	5.7	4.0
Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard	5.4	3.8	5.2	3.6
Warm Springs Boulevard/Mission Boulevard	5.8	4.1	6.2	4.3
Warm Springs Boulevard/Northern Warm Springs Station Entrance	6.9	4.8	4.9	3.4
CO State Standards	20.0	9.0	20.0	9.0
	Existing		2010 & 2025	
Background	1-hr	8-hr	1-hr	8-hr
	4.2	2.94	3.48	2.44

Source: Jones & Stokes

Tables 5-15 and 5-16 show the regional mobile source emissions for the proposed Bus Alternative compared to the No Project scenario. The proposed Bus Alternative would produce fewer mobile source emissions on a daily and annual basis than the No Project scenario, which would create a regional air quality benefit. However, the proposed Bus Alternative would generate greater amounts of mobile source emissions in both 2010 and 2025 that the Proposed Project.

Table 5-15. Mobile Source Emissions (lbs/day)

	ROG	NOx	PM10
2010 No Project	154,868	131,534	151,525
2010 Bus Alternative	154,708	131,455	151,369
2010 Proposed Project with optional Irvington Station	154,632	131,328	151, 294
2025 No Project	14,029	34,232	175,548
2025 Bus Alternative	14,013	34,233	175,306
2025 Proposed Project with optional Irvington Station	13,995	43,156	175,113

Source: EMFAC 2001; Vehicle Miles Traveled, DKS Associates 2002

Table 5-16. Mobile Source Emissions (tons/year)

	ROG	NOx	PM10
2010 No Project	33,752	28,821	27,653
2010 Bus Alternative	33,717	28,802	27,625
2010 Proposed Project with optional Irvington Station	33,700	28,776	27,611
2025 No Project	3,089	7,229	32,038
2025 Bus Alternative	3,086	7,228	31,993
2025 Proposed Project with optional Irvington Station	3,082	7,213	31,958

Source: EMFAC 2001; Vehicle Miles Traveled, DKS Associates 2002

Energy

As indicated in Table 5-17, the annual automobile and truck VMT would decrease with implementation of the proposed Bus Alternative, resulting in an overall decrease in Bay Area transportation energy consumption in 2010 and in 2025 compared to the No-Project conditions. The annual VMT for automobiles and trucks would be reduced by approximately 43 million miles in 2010 compared to No-Project conditions. The net result in 2010 of implementing the Bus Alternative would be an overall annual decrease in energy consumption of 234.4 billion BTUs, or approximately 40,410 barrels of oil, which would be a net energy benefit. However, the Bus Alternative would not achieve the same VMT reduction as either the Proposed Project or the

Table 5-17. Annual Operational Energy Consumption of Proposed Bus Alternative

Vehicle Miles Traveled (VMT)	2010 No Project	2010 Proposed Bus Alternative	2010 Proposed Project with Irvington	2025 No Project	2025 Proposed Bus Alternative	2025 Proposed Project with Irvington
Daily Auto and Truck VMT	127,685,200	127,551,000	127,490,200	149,049,800	148,842,200	148,680,400
Annual Auto VMT (millions)	40,859.3	40,816.3	40,796.9	47,695.9	47,629.5	47,577.7
Daily Bus VMT	465,490	466,606	464,636	465,490	466,606	464,636
Annual Bus VMT (millions)	149.0	149.3	148.7	149.0	149.3	148.7
Daily BART VMT	30,425	30,425	31,602	39,005	39,005	40,551
Annual BART VMT (millions)	9.7	9.7	10.1	12.5	12.5	13.0
Energy Consumption (BTUs)[a] (billions)						
Annual Auto and Truck BTUs[a]	237,597	237,347	237,234	277,352	276,966	276,664
Annual Bus BTUs[a]	6,398	6,414	6,387	6,398	6,414	6,387
Annual BART BTUs[a]	695	695	722	891	891	926
Total Annual Direct BTUs (billions[b])	244,690	244,455	244,342	284,641	284,270	283,977
Total annual barrels of oil[c]	42,187,900	42,147,490	42,127,949	49,076,033	49,009,430	48,961,583
Change in BTUs vs. No Project (billions[b])		-234.38	-348		-370.96	-664
Change in barrels vs. No Project		-40,410	-59,951		-63,959	-114,451

Notes:

[a] One British thermal unit (BTU) is the quantity of energy necessary to raise one pound of water one degree Fahrenheit.
[b] Rounded.
[c] One barrel of crude oil is equal to 5.8 million BTUs.

Sources: Vehicle Miles Traveled – DKS Associates 2002; Energy Consumption Factors – Oak Ridge National Laboratory 2002

Proposed Project with the optional Irvington Station, which would reduce VMT by approximately 58.5 million miles and 62.7 million miles respectively, as discussed in Section 3.12 (*Energy*).

In 2025, the proposed Bus Alternative would also result in a decrease in automobile and truck VMT of approximately 66.4 million miles compared to the No-Project conditions, while the VMT for the Proposed Project and the Proposed Project with optional Irvington Station would reduce VMT by 73.3 million miles and 118.5 million miles, respectively. The net result for the Bus Alternative in 2025 would be an overall annual decrease in energy consumption of 371.0 billion BTUs, or approximately 63,959 barrels of oil compared to the No-Project conditions, which would be a net overall energy benefit.

As indicated in Table 5-17 and discussed above, the proposed Bus Alternative would result in an overall decrease in Bay Area transportation energy consumption in 2010 and in 2025 as compared to the No-Project conditions. Although it has been assumed that diesel-powered buses would operate under the proposed Bus Alternative, an overall decrease in the consumption of fossil fuels would result, and would not impact regional energy supply or result in the need for additional capacity. The proposed Bus Alternative would not result in the additional use of electricity over the No-Project condition and would therefore not have an impact on the peak- or base-period electricity demand.

The proposed Bus Alternative would require the construction of a paved busway within the UP right-of-way in place of the Proposed Project alignment. This alternative also proposes to construct two transit centers, at Irvington and at Warm Springs, located on the same sites as the proposed BART stations. Construction of the busway would result in the one-time, non-recoverable energy costs associated with busway construction, access ramp structures, and transportation-related facilities (transit centers and modifications to AC Transit's maintenance facility). It is assumed that there is the potential for significant energy impact during project construction. However, as discussed in Section 3.12 (*Energy*), the development and implementation of a construction energy conservation plan would reduce this to a less-than-significant impact.

5.6 Environmentally Superior Alternative

CEQA requires that an environmentally superior alternative be selected among the alternatives that were analyzed in the EIR. When the No-Project Alternative is the environmentally superior alternative, an EIR must also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6(e)(2)). In general, the environmentally superior alternative is defined as that alternative with the least adverse impacts to the project site and its surrounding environment. The No-Project Alternative would best avoid impacts identified for either the Proposed Project or the proposed Bus Alternative. In particular, the No-Project Alternative would not involve construction and operational impacts, such as disturbances to hazardous materials, increased drainage flows, temporary loss of flood storage capacity, soil erosion and sedimentation, disturbance to biological species or habitat, residential and business displacements, visual impacts, disturbances of sensitive archaeological resources, and noise and vibration effects. The No-Project Alternative would not result in construction-related land use impacts to Fremont Central Park. Therefore, the No-Project Alternative could be considered to be the environmentally superior alternative, largely because of the minimized impacts to natural resources. However, the No-Project Alternative would fail to address the continuing long-term congestion and traffic-related air quality

and energy impacts. With the No-Project Alternative, projected growth and subsequent travel patterns would not be served. Intersection level-of-service and increased traffic volumes on roadways would occur. The No-Project Alternative would not be consistent with the *Fremont General Plan*.

Overall, the proposed Bus Alternative would have fewer natural and physical environmental impacts than the Proposed Project and would require less mitigation. In particular, by avoiding construction of a subway under Fremont Central Park and Lake Elizabeth, the proposed Bus Alternative would reduce temporary, construction-period environmental impacts associated with the Proposed Project, such as temporary loss of flood storage capacity, impacts to wetland riparian woodland, and visual and land use impacts to Central Park. In addition, the Bus Alternative would reduce noise and vibration impacts and the loss of ruderal-forb and riparian habitat, and would avoid the loss of wetland and riparian forest habitat in the area of Tule Pond. The Bus Alternative would avoid the archaeological site (CA-Ala-343) that may extend into the undeveloped area between Walnut Avenue and Stevenson Boulevard. The Bus Alternative also would reduce the number of total displacements required compared to the Proposed Project but would slightly increase the number of residential displacements.

However, increased transit ridership provided by the Proposed Project compared to the Bus Alternatives would translate into greater long-term environmental benefits and improved environmental quality. As patrons transfer from auto travel to transit travel, there is a corresponding reduction in the number of automobile miles traveled, which results in regional energy savings and the conservation of non-renewable energy. The Proposed Project also would better promote displacement of air-polluting auto trips and support regional plans to meet state and federal air quality standards to a greater degree. The Bus alternative is much less likely than the Proposed Project to foster development around the proposed station sites as contemplated by the City of Fremont's land use and redevelopment goals (e.g., Irvington redevelopment, Warm Springs Specific Plan) and the *Fremont General Plan*, which specifically reserves a transit corridor for BART. In addition, by increasing the amount of impervious surface and runoff, the proposed Bus Alternative could have more extensive effects on hydrology and water quality than the Proposed Project. The visual impact of the aerial ramps for the Bus Alternative at Paseo Padre Parkway, which is designated by the City of Fremont as a scenic corridor, would also be a significant impact for the adjacent residential area.

5.7 Project Goals and Objectives

BART's goals and objectives for the Warm Springs Extension are presented in Table 5-18. In addition, goals and objectives from BART's Strategic Plan and System Expansion Criteria, presented in Tables 5-19 and 5-20 respectively, are considered as goals and objectives for the Proposed Project. The Proposed Project would meet these goals and objectives for the reasons discussed below. The effectiveness of the No-Project and Bus Alternatives, compared to the Proposed Project, in meeting project goals and objectives is also discussed.

Table 5-18. Project Goals and Objectives

Goals	Objectives
Goal 1: Improve public transportation service to increase mobility.	▪ Increase accessibility to activity centers and to the region as a whole. ▪ Relieve increasing congestion on the highway network and street system by providing choices between transportation modes (auto, bus, rail, etc.). ▪ Maximize the use of public transportation, particularly during the peak-commute periods. ▪ Increase the speed, comfort and reliability of public transportation. ▪ Reduce travel time for commuters in the corridor. ▪ Provide adequate facilities (stations, parking, etc.) to serve transfers between modes (auto, bus, rail, etc.) and between regional and local transit services.
Goal 2: Improve environmental quality.	▪ Conserve non-renewable resources such as energy and land. ▪ Support regional plans to meet state and federal air quality standards. ▪ Promote displacement of air-polluting regional auto trips to transit trips. ▪ Minimize potential negative air and noise impacts and energy consumption. ▪ Minimize the displacement of homes and businesses and impacts on existing development. ▪ Minimize impacts on existing natural resources.
Goal 3: Compatibility with adjacent land uses and planned development.	▪ Provide access to the transportation system in a manner which reinforces local and regional land use and urban development policies. ▪ Minimize displacement and disruption of existing land uses.
Goal 4: Provide transportation services that make efficient and effective use of financial resources.	▪ Maximize operating efficiency. ▪ Make the best use of existing facilities. ▪ Seek cost-effective solutions to transportation needs, taking into account capital, maintenance, operating, administrative, travel time and other related costs. ▪ Maximize user and community benefits from transportation investments.

Goals	Objectives
Goal 5: Provide transportation services that are financially attainable.	▪ Maximize the return for investment within the context of limited availability of regional, state and federal funds. ▪ Develop transportation plans which can be implemented incrementally, consistent with need and funding availability.
Goal 6: Provide transportation services equitably to all segments of the population.	▪ Increase the mobility of the transportation-disadvantaged, including the elderly and disabled. ▪ Seek a fair distribution of costs and benefits among various social groups. ▪ Develop a transportation system that will reinforce the social and economic vitality of the region's communities and neighborhoods.
Goal 7: Support community and institutional goals.	▪ Seek consistency with state, regional and local goals and objectives. ▪ Provide for a process that encourages public comment and participation and is open and understandable to the general public.

Source: San Francisco Bay Area Rapid Transit District 1991b

Table 5-19. BART Strategic Plan Goals and Policies

Goals	Objectives and Strategies
Building Partnerships for Support	
Goal 3: Residents of the Bay Area will value and take pride in BART as an integral part of their communities.	Strategy: Create area and facilities in or immediately adjacent to our stations that serve as community gathering or exhibit places.
Transit Travel Demand	
Goal 1: BART will work to understand changing transit demand patterns and be prepared to respond to them, and BART will work proactively to influence travel demand trends in the region that support transit ridership.	Objective: Increase transit ridership. Strategy: Advocate those infrastructure investments that best support transit ridership.
Goal 3: BART will encourage and facilitate improved access to and from BART stations by all modes.	Strategy: Improve access via taxis, shuttles, buses, walking, bicycles, and other transit. Strategy: Work with local communities to promote transit oriented development, enhanced destinations, and multiple purpose stops.
Goal 4: BART will work to close gaps in regional rail services between major populations and employment centers and/or corridors.	Objective: In conjunction with the development of MTC's Regional Transportation Plan, identify key corridors such as Fremont-South Bay and establish partnerships among the respective key agencies and decision-makers to achieve consensus regarding rail service enhancement strategies. Strategy: Identify transit-oriented nodes and corridors of future expansion, and outline a package of incremental future development: transit centers and transit-oriented development, busways, automated guideway transit and rail extensions.
Land Use and Quality of Life	
Goal 1: In partnership with the communities it serves, BART's properties will be used in ways that first maximize transit ridership and then balance transit-oriented development goals with community desires.	Objective: Coordinate comprehensive planning and assessment of transit-oriented development at BART stations in concert with local communities. Objective: Develop and implement a support structure to ensure that all new development around BART stations be transit-oriented.
Goal 2: In partnership with the communities BART serves, BART will promote transit ridership and enhance the quality of life by encouraging and supporting transit-oriented development within walking distance of BART stations.	Objective: Establish an approach for BART station are planning to connect with planning efforts in local communities adjacent to BART. Strategy: Establish coalitions with other transit providers to promote intermodal improvements at BART stations. Strategy: Improve communication regarding station area land use issues between BART and the communities through which BART runs.

Source: San Francisco Bay Area Rapid Transit District 1999a

Table 5-20. BART System Expansion Criteria – Framework for System Expansion

Goals	Objectives
Enhance regional mobility, especially access to jobs.	Integrate with other services and facilities in an intermodal regional network.
Generate new ridership on a cost-effective basis.	Minimize the need for operation subsidies.
	Accommodate new expansion projects without adversely affecting existing system capacity, quality, or financial health.
Demonstrate a commitment to transit-supportive growth and development.	Maximize ridership by supporting smart, efficient, and desirable growth patterns.
Enhance multi-modal access to the BART system.	Have adequate bus, bicycle, and pedestrian feeder service.
Develop projects in partnership with communities that will be served.	Seek partnerships with other transit agencies, local communities, and private entities to plan and implement service expansion.
Implement and operate technology-appropriate service.	Explore new BART and other transit-service options (i.e. commuter rail, light rail, quality bus) where appropriate and possibly as interim service.
Ensure that all projects address the needs of the District's residents.	Seek partnerships with other transit agencies, local communities, and private entities to plan and implement service expansion.

Source: San Francisco Bay Area Rapid Transit District 2002

5.7.1 Improve Public Transportation Service to Increase Mobility (Goal 1)

The Proposed Project would maximize transit ridership and new transit trips compared to the No-Project and Bus Alternatives. The optional Irvington Station would also provide an additional increase over and above that generated by the Proposed Project. The Proposed Project would generate 16,300 daily patronage trips (18,200 with the optional Irvington Station) compared to 10,200 with the Bus Alternative. The Proposed Project would also generate 8,200 new systemwide BART trips (10,800 with the optional Irvington Station) compared to 1,200 daily trips with the Bus Alternative. Increased ridership responds to several objectives of Goal 1, including relieving congestion on the highway network and street system by providing choices among transportation modes (automobile, bus, rail); maximizing the use of public transportation, particularly during peak-commute periods; and providing adequate facilities (stations, multimodal access facilities, parking, etc.) to serve transfers between modes and between regional and local transit services. Although the Bus Alternative would also promote transit goals, the Proposed Project best supports them by maximizing transit ridership and new transit trips. In addition, given that the Bus Alternative travels in traffic for part of its route, the Proposed Project would better serve the objectives of increasing the speed, comfort, and reliability of public transportation and reducing travel time for commuters in the regional corridor.

Increased ridership related to the Proposed Project also responds to the goals, objectives, and strategies of the BART *Strategic Plan*. "Increase transit ridership" is the Objective of Goal 1 (Transit Travel Demand), which includes "Advocate those infrastructure investments that best support transit ridership" as a strategy. Similarly, under the BART System Expansion Criteria, the Proposed Project would enhance regional mobility and access to jobs and would integrate well with other services and facilities in an intermodal regional network. The Proposed Project has the additional benefit of affording the opportunity for future extension of BART service into Santa Clara County, further enhancing the regional network, either by connection to the SVRTC project if it is adopted by VTA, or by future transit expansion projects if the SVRTC project is not adopted.

5.7.2 Improve Environmental Quality (Goal 2)

Increased transit ridership provided by the Proposed Project compared to the No-Project and Bus Alternatives would translate into greater long-term environmental benefits and improved environmental quality compared to either the No-Project or the Bus Alternative. As patrons transfer from auto travel to transit travel, there is a corresponding reduction in the number of automobile miles traveled, which results in regional energy savings and the conservation of non-renewable energy. The Proposed Project also would promote displacement of air-polluting auto trips and support regional plans to meet state and federal air quality standards to a greater degree. However, the Bus Alternative would reduce temporary, construction-period environmental impacts and the permanent loss of some existing resources (i.e., wetlands), by avoiding construction of a subway under Fremont Central Park and Lake Elizabeth. The Bus Alternative also would reduce the total number of displacements required compared to the Proposed Project, although it would slightly increase the number of residential displacements.

5.7.3 Compatibility with Adjacent Land Uses and Planned Development (Goal 3)

Development of the Proposed Project and associated station sites would provide access to the transportation system in a manner that reinforces local and regional land use and urban development policies. The Proposed Project and the optional Irvington Station would be consistent with local land use policies that designate the station locations as areas for focused rail transit-oriented development. In particular, the Proposed Project would be consistent with the City of Fremont's land use and redevelopment goals, and the *Fremont General Plan* specifically reserves a transit corridor for BART. The city's Housing Element also references rail transit-oriented development opportunities associated with the Proposed Project. The proposed Bus Alternative would not meet these criteria. The Bus Alternative is much less likely to foster development around the proposed station sites than is the Proposed Project. As noted above, the Bus Alternative also would reduce the total number of displacements required compared to the Proposed Project, although it would slightly increase the number of residential displacements.

5.7.4 Provide Transportation Services that Make Efficient and Effective Use of Financial Resources (Goal 4) and that Are Financially Attainable (Goal 5)

The proposed Bus Alternative requires less capital investment than the Proposed Project. The Bus Alternative also would require lower operating and maintenance cost. (Costs to operate and maintain the service in the proposed Bus Alternative would be assumed by VTA and AC Transit, the two local bus operating agencies, as part of their overall annual operating budgets.) However, the Bus Alternative is not as effective as the Proposed Project in maximizing new transit trips or the associated environmental benefits of reduced traffic congestion and energy consumption and improved air quality.

Development of the station sites consistent with local land use and urban development polices would maximize user and community benefits from transportation investments (which is one of the objectives for Goal 4). Development investment benefits, including higher land values, increased rents, and greater tax income to cities, are well documented for rail transit-oriented development. As noted above, the Bus Alternative is much less likely to foster development around the proposed station sites than is the Proposed Project.

Financing of the Proposed Project is attainable. The Proposed Project is an element of Alameda County Measure B in 2000, which was approved by voters in 2000 and provides sales tax revenues to fund a BART extension to southern Alameda County. Measure B provides the largest single source of funding for the Proposed Project and is not transferable to other alternatives, such as the Bus Alternative. Additional funding partners for the Proposed Project include the California Transportation Commission, the Alameda County Congestion Management Agency, and San Mateo County Transit District. The optional Irvington Station is not yet funded, and its inclusion in the project is contingent on the availability of funding. Inclusion of the optional Irvington Station, which could be constructed at a later date than the rest of the project, satisfies the objective of developing transportation plans which can be implemented incrementally based on need and funding availability.

5.7.5 Provide Transportation Services Equitably to All Segments of the Population (Goal 6)

The Proposed Project would extend the BART rail system to an area under-served by transit. The availability of transit and the proposed station sites, in concert with the City of Fremont's land use planning efforts, reinforce the social and economic fabric of Fremont's communities, provide growth opportunities in keeping with housing and economic development goals, and respond directly to Alameda County growth plans.

The proposed BART stations are designed as inter-modal transit hubs, providing locations where regional rail links to bus, shuttle, automobile, bicycle, and pedestrian networks. This increases mobility for the transportation-disadvantaged, including the elderly and disabled. The Bus Alternative also would improve mobility for the elderly and the disabled by providing localized service with more frequent stops and lower cost. The Proposed Project offers a different benefit to disadvantaged users, by extending the existing BART system to enhance mobility, comfort ,and reliability for those taking longer trips.

5.7.6 Support Community Goals and Institutional Objectives (Goal 7)

The Proposed Project is consistent with regional, local and institutional goals. The Proposed Project is included in MTC's Regional Transportation Expansion Policy, which identifies and prioritizes transit projects, as a Tier 1 recommended rail expansion project. The *Fremont's General Plan* specifically reserves a transit corridor for the Proposed Project, and the city's goals for enhanced transit service and for the station areas are also best supported by the Proposed Project.

The 25-year process for a Warm Springs Extension (which has been under consideration since 1979) continues to provide an open process for public comment and participation. The original EIR for the Adopted Project was certified in 1992 and involved substantial public comment. Public and agency comments during the SEIR process have been incorporated into this DSEIR and will be further considered prior to certification of the FSEIR, which will also include responses to comments received on the DSEIR.

5.7.7 Comprehensive Station Design

The proposed Warm Springs Station and the optional Irvington Station are both designed to maximize access from a variety of transportation modes, including buses, shuttles, taxis, bicycles, and pedestrians (Goal 1, Transit Travel Demand, BART *Strategic Plan*). In addition, station design and station area planning efforts reflect the *Strategic Plan* goals of improving land use and quality of life, building partnerships, and having residents value and take pride in BART as an integral part of their communities. Both station areas offer opportunities to meet these goals and objectives. The optional Irvington Station in particular responds to the need to create facilities in or immediately adjacent to stations that serve as community gathering or exhibit places (Goal 3, Building Partnerships for Support, BART Strategic Plan). Consistent with the BART *Strategic Plan* (Goal 3) and System Expansion Criteria, the Proposed Project is designed to enhance multi-modal access to

the BART system by bus, shuttle, and taxi service and by bicyclists and pedestrians in an effort to shift commuters from the use of private automobiles.

The transit centers for the proposed Bus Alternative would also incorporate the benefits of multi-modal station design. However, as noted above, the proposed Bus Alternative is unlikely to foster the same degree of transit-oriented development around the proposed station sites than is the Proposed Project.

5.7.8 Comprehensive Land Use Planning and Potential for Transit-Oriented Development

The Proposed Project responds to BART's System Expansion Criteria by demonstrating a commitment to transit-supportive growth and development, which is designed to maximize ridership by supporting smart, efficient, and desirable growth patterns. The proposed stations are designed to accommodate future transit-oriented development, both on-site and off-site, in conjunction with the Proposed Project. As noted above, the *Fremont General Plan* specifically reserves a transit corridor for the Proposed Project and designates the area surrounding the Warm Springs site as the Warm Springs BART Specific Plan Area. In anticipation of the Proposed Project, the city has the draft Irvington Concept Plan to provide the basis for a redevelopment plan amendment specifically fostering higher densities related to rail transit and is in the process of commencing the Warm Springs Specific Plan (as described in section 3.5 [*Land Use*]). By providing the opportunity to encourage transit-oriented development in conjunction with the city's planning efforts, the Proposed Project also reflects Transit Demand Goal 3 (Transit Travel Demand) of the BART Strategic Plan, which includes working with local communities to promote transit-oriented development and enhanced destinations, and Goal 4, which is to identify transit-oriented nodes and corridors of future expansion transit centers, and potential transit-oriented development, as well as Land and Quality of Life Goals 1 and 2, which both provide for coordinating comprehensive planning and assessment of transit-oriented development at BART stations in concert with local communities.

As noted above, the proposed Bus Alternative is less likely to foster development around the proposed station sites than is the Proposed Project.

5.8 References Cited in this Chapter

American Public Transportation Association. 2001. *Public Transportation Fact Book*. 52nd Edition. Washington D.C.

Federal Transit Administration. 1995. *Transit Noise and Vibration Impact Assessment.* Washington, D.C.

National Center for Transit Research (NCTR). 2002. *FSUTMS Mode Choice Modeling: Factors Affecting Transit Use and Access.* Final Report. Prepared by University of South Florida. July 2002.

DKS Associates. 1993. *Fremont–South Bay Corridor Final Report*. Oakland, CA.

Santa Clara Valley Transportation Authority. 2001. *Silicon Valley Rapid Transit Corridor Major Investment Study Final Report (MIS.)* Prepared by Earth Tech, Inc. November 2001.