Section 3.9
Transportation

3.9.1 Introduction

This section describes the existing transportation conditions in the study area, analyzes the Proposed Project's potential transportation-related impacts, and identifies mitigation measures associated with the significantly adverse impacts. The existing conditions for roadways, traffic, transit services, pedestrian and bicycle facilities are reviewed. The primary areas of analysis for project-related impacts are transit, traffic and parking. The traffic-related impacts resulting from construction of the Proposed Project are also presented in this section. 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.

3.9.2 Environmental Setting

Assessment of Existing Conditions

In preparing this analysis, the transportation analysis prepared for the 1992 EIR was reviewed. The changes in transportation conditions and transportation impact analysis procedures since the 1992 EIR was certified have also been reviewed. The setting, with respect to transportation conditions, has changed substantially since the preparation of the 1992 EIR. Therefore, this analysis does not include transportation-related setting information from the 1992 EIR in detail. In general, vehicular traffic has increased throughout the transportation study area, which is the same as the Proposed Project area, as described in Chapter 1 (*Introduction*). Also, the level of service (LOS) at local intersections has deteriorated, and traffic congestion on local roadways has increased. Part of this analysis specifically focuses on the localized (microscale) traffic circulation impacts at the station sites, as opposed to generally beneficial impacts on the rest of the roadway system.

Existing Conditions 2002

For the study area in general, regional roadway access, regional transit services, and the methodology for assessing existing traffic conditions (through LOS analysis) are described below, as well as specific changes that have taken place since the 1992 EIR was prepared. Detailed setting information is provided for the areas near the proposed Warm Springs Station and the optional Irvington Station, including information on local pedestrian, bicycle, bus, shuttle, and parking facilities.

Regional Roadway Access

Several types of roadways serve Fremont, according to the Fremont General Plan. Freeways (including interstate highways and state routes) are defined as high-speed, high-capacity facilities with grade-separated intersections that are intended to meet the need for longer trips. Freeways are under Caltrans jurisdiction. Arterials are high-capacity local facilities that meet demand for longer, through trips in the community. Arterials have controlled access, can be divided, and typically have two to three lanes in each direction. The other types of streets in the city are parkways, collectors, and local roadways.

The regional roads in the Proposed Project area are listed and described below and shown in Figure 3.9-1: I-880, I-680, Mission Boulevard (includes SR 262 and SR 238), Stevenson Boulevard, Auto Mall Parkway/Durham Road, Fremont Boulevard, Grimmer Boulevard, and Warm Springs Boulevard/Washington Boulevard/Osgood Road. Table 3.9-1 and Figure 3.9-2 summarize the traffic volumes of the roadways. Use of these regional roadways for access to the proposed BART stations is discussed below under *Proposed Project Conditions*.

Interstate Highways

I-880 runs generally north–south (northwest–southeast) through the East Bay just west of the study area. On a regional level, the interstate passes through Fremont as it runs between San Jose and Oakland. The segment of I-880 closest to the study area is an eight-lane facility, including one lane in each direction designated as a high-occupancy-vehicle (HOV) lane during peak periods.

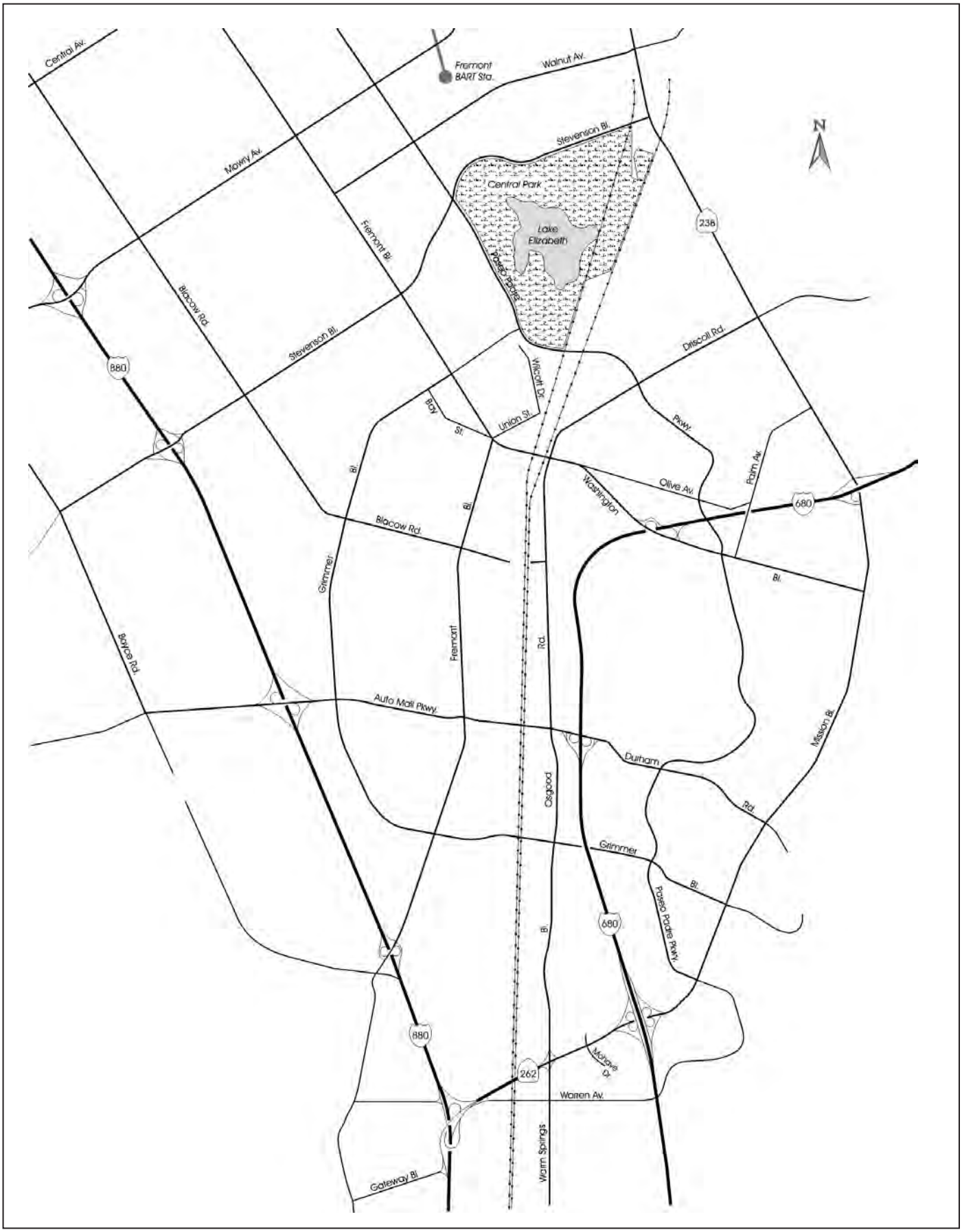
I-680 runs north–south, then east–west, east of the study area. On a regional level, the interstate passes through Fremont as it runs between San Jose and eastern Alameda and Contra Costa Counties (eventually to Fairfield). The segment of I-680 in the Proposed Project vicinity is a six-lane facility. Along this corridor, Caltrans has recently completed a HOV lane in the southbound direction between the SR 237 and SR 84 interchanges with I-680. An auxiliary lane in the southbound direction between the Auto Mall Parkway and SR 262 interchanges with I-680 was completed last year. There are plans to build a northbound HOV lane when funding becomes available.

State Routes

Mission Boulevard (includes SR 238 and SR 262) is a four-lane facility in southern and eastern parts of the Proposed Project area. Mission Boulevard runs east from its interchange with I-880, intersects with I-680, after which it gradually turns northward, intersecting with another portion of I-680 and continuing to the north. Two parts of Mission Boulevard are designated as state routes: SR 262 between I-880 and the southern intersection with I-680, and SR 238 north of the northern intersection with I-680. (To minimize confusion, these segments are referenced by their state route designations in this chapter.)

Arterials

Stevenson Boulevard runs generally east–west just north of the optional Irvington Station. Stevenson Boulevard and Blacow Road would provide access to I-880 from the optional Irvington Station area. Stevenson Boulevard is generally a four-lane arterial. It becomes six lanes immediately west of the Civic Center Drive intersection, but narrows back to four lanes immediately east of the



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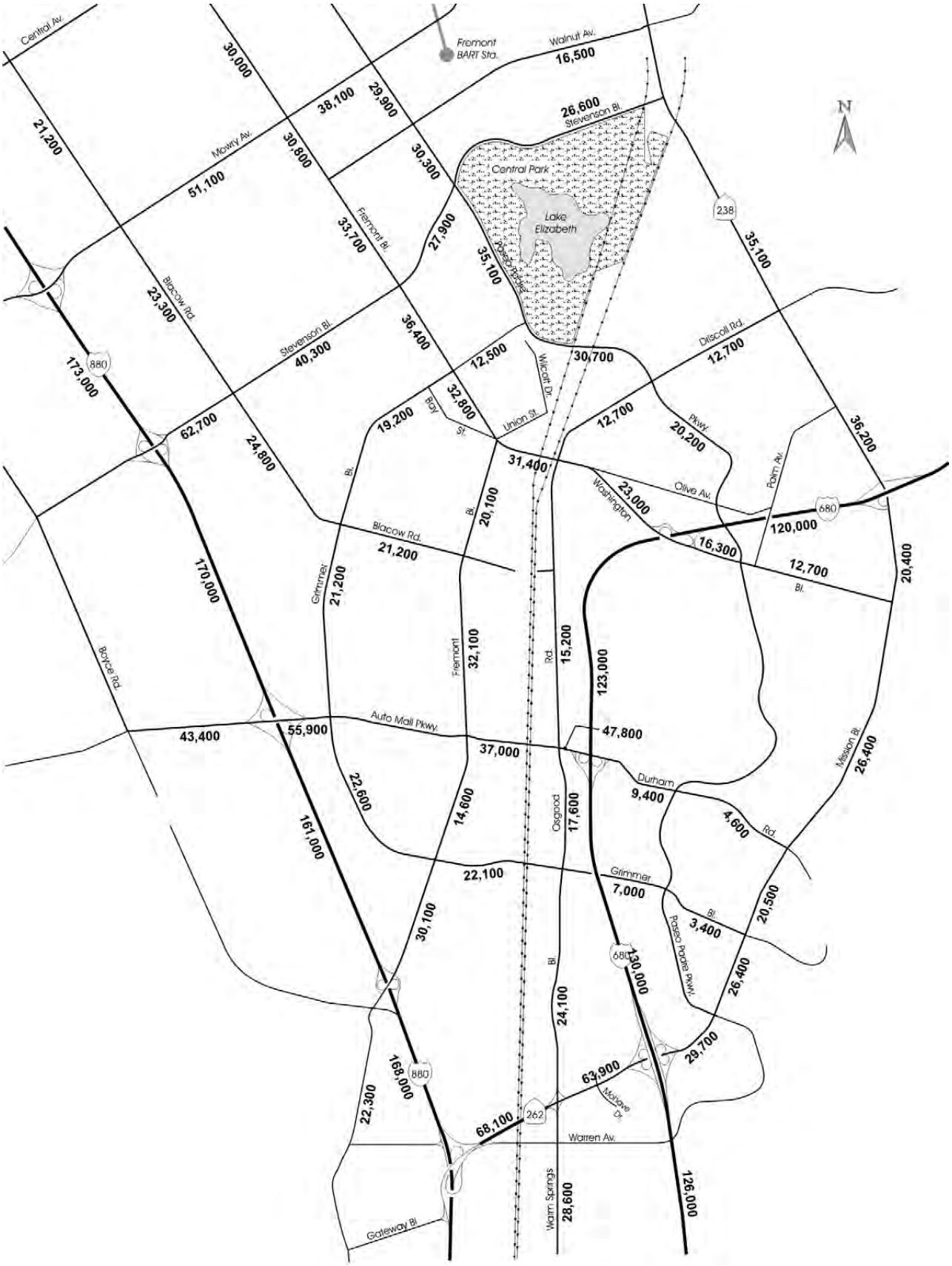
Source: DKS Associates 2002

Figure 3.9-1
Regional Roads

Table 3.9-1. 2000 Traffic Volumes in Fremont

Street	Segment From	Segment To	2000 Average Daily Traffic Volume
I-880	SR 262/Mission Boulevard	Auto Mall Parkway	161,000
	Auto Mall Parkway	Stevenson Boulevard	170,000
	Stevenson Boulevard	Mowry Avenue	173,000
I-680	SR 262/Mission Boulevard	Durham Road	147,000
	Durham Road	Washington Street	136,000
	Washington Street	Mission Boulevard/SR 238	131,000
Auto Mall Parkway	I-680	Osgood Road	47,800
	Osgood Road	Grimmer Boulevard	37,000
	Grimmer Boulevard	I-880	55,900
Blacow Road	Fremont Boulevard	Grimmer Boulevard	16,600
	Grimmer Boulevard	Stevenson Boulevard	24,800
	North of Stevenson Boulevard		23,300
Durham Road	Mission Boulevard	Paseo Padre Parkway	4,600
	Paseo Padre Parkway	I-680	9,400
Fremont Boulevard	W. Warren Avenue	Lakeview Boulevard	15,000
	I-880	W. Warren Avenue	22,300
	Grimmer Boulevard	I-880	30,100
	Auto Mall Parkway	Grimmer Boulevard	14,600
	Blacow Road	Auto Mall Parkway	32,100
	Washington Boulevard	Blacow Road	20,100
	Grimmer Boulevard	Washington Boulevard	32,800
	Stevenson Boulevard	Grimmer Boulevard	36,400
Grimmer Boulevard	Auto Mall Parkway	Blacow Road	21,200
	Blacow Road	Fremont Boulevard	19,200
	Fremont Boulevard	Paseo Padre Parkway	12,500
Mission Boulevard	I-880	Warm Springs Boulevard	68,100
	Warm Springs Boulevard	I-680	63,900
	I-680	Paseo Padre Parkway	29,700
	Grimmer Boulevard	Paseo Padre Parkway	26,400
	Durham Road	Grimmer Boulevard	20,500
	Washington Boulevard	Durham Road	26,400
	I-680	Washington Boulevard	20,400
	Driscoll Road	I-680	36,200
	Stevenson Boulevard	Driscoll Road	35,100
	Walnut Avenue	Stevenson Boulevard	33,000
	Mowry Avenue	Walnut Avenue	30,800
Osgood Road	Auto Mall Parkway	Grimmer Boulevard	17,600
	Washington Boulevard	Auto Mall Parkway	15,200
South Grimmer Boulevard	Mission Boulevard	Paseo Padre Parkway	3,400
	Paseo Padre Parkway	Warm Springs Boulevard	7,000
	Warm Springs Boulevard	Fremont Boulevard	22,100
	Fremont Boulevard	Auto Mall Parkway	22,600
Stevenson Boulevard	Paseo Padre Parkway	Fremont Boulevard	27,900
	Fremont Boulevard	Blacow Road	40,300
	Blacow Road	I-880	62,700
Warm Springs Boulevard	Grimmer Boulevard	Mission Boulevard	24,100
Washington Boulevard	Mission Boulevard	Paseo Padre Parkway	12,700
	Paseo Padre Parkway	I-680	16,300
	I-680	Osgood Road	23,000
	Osgood Road	Fremont Boulevard	31,400

Source: City of Fremont 2000



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Source: DKS Associates 2002 and City of Fremont 2000.

Figure 3.9-2
Average Daily Traffic Volumes (2000)

Fremont Boulevard intersection. There is an interchange where Stevenson Boulevard intersects I-880.

Auto Mall Parkway/Durham Road runs east–west through Fremont between Mission Boulevard and the Tri-Cities Landfill. It is a major, four- to six-lane arterial with interchanges at I-880 and I-680. Auto Mall Parkway was formerly known as Durham Road west of I-680; Durham Road is still the roadway designation east of I-680.

Fremont Boulevard extends from the southern part of Fremont, where there is an interchange with I-880, to a second interchange with I-880 in the northern part of Fremont. Fremont Boulevard is a primary north–south circulation route in Fremont. Currently, the roadway alternates between four and six lanes throughout the Proposed Project vicinity.

Grimmer Boulevard is a four-lane arterial. It begins at Paseo Padre Parkway and extends south past Auto Mall Parkway where it curves east past Fremont Boulevard and I-680 to end at Mission Boulevard. There is no access to I-680 from Grimmer Boulevard.

Warm Springs Boulevard/Osgood Road is a two-lane road that runs north–south from the City of Milpitas to Washington Boulevard in Fremont. Osgood Road extends from Washington Boulevard to Grimmer Boulevard. Warm Springs Boulevard extends south from Grimmer Boulevard to the City of Milpitas where it turns into Milpitas Boulevard.

Washington Boulevard extends from Fremont Boulevard to Mission Boulevard. It provides access from I-680 to the proposed optional Irvington Station. Washington Boulevard currently has four lanes.

Driscoll Road is a four-lane road that runs generally east–west (northeast–southwest) from SR 238 to Washington Boulevard. At Washington Boulevard, Driscoll Road becomes Osgood Road.

Changes to Roadway System

Specific differences from the 1992 EIR in the roadway system in terms of capacity are listed below.

- I-880 north of Mission Boulevard (to SR 92 in Hayward) is now an eight-lane facility, including an HOV lane in each direction. It was a six-lane facility between San Leandro and Mission Boulevard in 1992.
- I-880 south of Mission Boulevard (to Montague Expressway in San Jose) is now a six-lane facility. It was a four-lane facility in 1992.
- Fremont Boulevard south of Washington Boulevard (to the northbound I-880 on /off ramps) has been widened from two lanes to four lanes. North of Washington Boulevard to north of Mowry Ave, it has been widened from four lanes to six lanes.
- Grimmer Boulevard east of Warm Springs Boulevard (to Paseo Padre Parkway) has been widened from two lanes to four lanes.
- Washington Boulevard east of Olive Avenue to the I-680 interchange has been widened from two lanes to four lanes.

Traffic Conditions

The level of traffic congestion on roadways and at intersections is generally expressed in terms of volume-to-capacity (V/C) ratio and level of service (LOS). The methods for measuring V/C ratios and the LOS assigned to particular V/C ratios are typically based on Transportation Research Board Circular 212 (1980), a nationally recognized methodology for LOS Analysis.

For the Proposed Project, LOS calculations were made using Fremont's adopted methodology, a variant of the Circular 212 methodology. The V/C ratio represents the ratio of traffic using a given intersection to the overall carrying capacity of that intersection (hence, a V/C ratio of 1.00 indicates that the intersection is at its maximum carrying capacity). LOS is indicated by a letter grade of A–F, which is assigned based on the V/C ratio. Table 3.9-2 shows the correlation between the V/C ratio and LOS under the Circular 212 methodology, and presents a general description of each LOS letter grade. Fremont's adopted methodology represents an increase in lane capacity per local conditions.

Table 3.9-2. Signalized Intersections LOS Criteria

Level of Service	Volume-to-Capacity Ratio	Description
A	0.00-0.60	Free Flow/Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.
B	0.61-0.70	Stable Operation/Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	0.71-0.80	Stable Operation/Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	0.81-0.90	Approaching Unstable/Tolerable Delays: Drivers may have to wait through more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.
E	0.91-1.00	Unstable Operation/Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream of intersection.
F	> 1.00	Forced Flow/Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: Transportation Research Board 1980

For the intersections in the project study area, LOS calculations were made for the weekday a.m. and p.m. peak hours. The a.m. peak hour represents the one hour period with the highest traffic volumes between 7:00 a.m. and 9:00 a.m.. The p.m. peak hour is the one hour period with the highest traffic volumes between 4:00 p.m. and 6:00 p.m..

Intersection Operations

The intersections analyzed in the 1992 EIR affecting access to either the Warm Springs or optional Irvington Station areas were re-analyzed for this SEIR. The intersections that were analyzed have been separated by their respective station area (Warm Springs and the optional Irvington Station).

While the intersections have been placed in these two study areas for description purposes, all intersections have been analyzed under all project scenarios, as any of the study intersections may potentially be impacted under each scenario.

The locations of the intersections are shown in Figure 3.9-3. The numbers attached to each of the study area intersections correspond directly to the numbers on each figure. In addition, these numbers are used throughout the impacts and mitigation section for ease of reference.

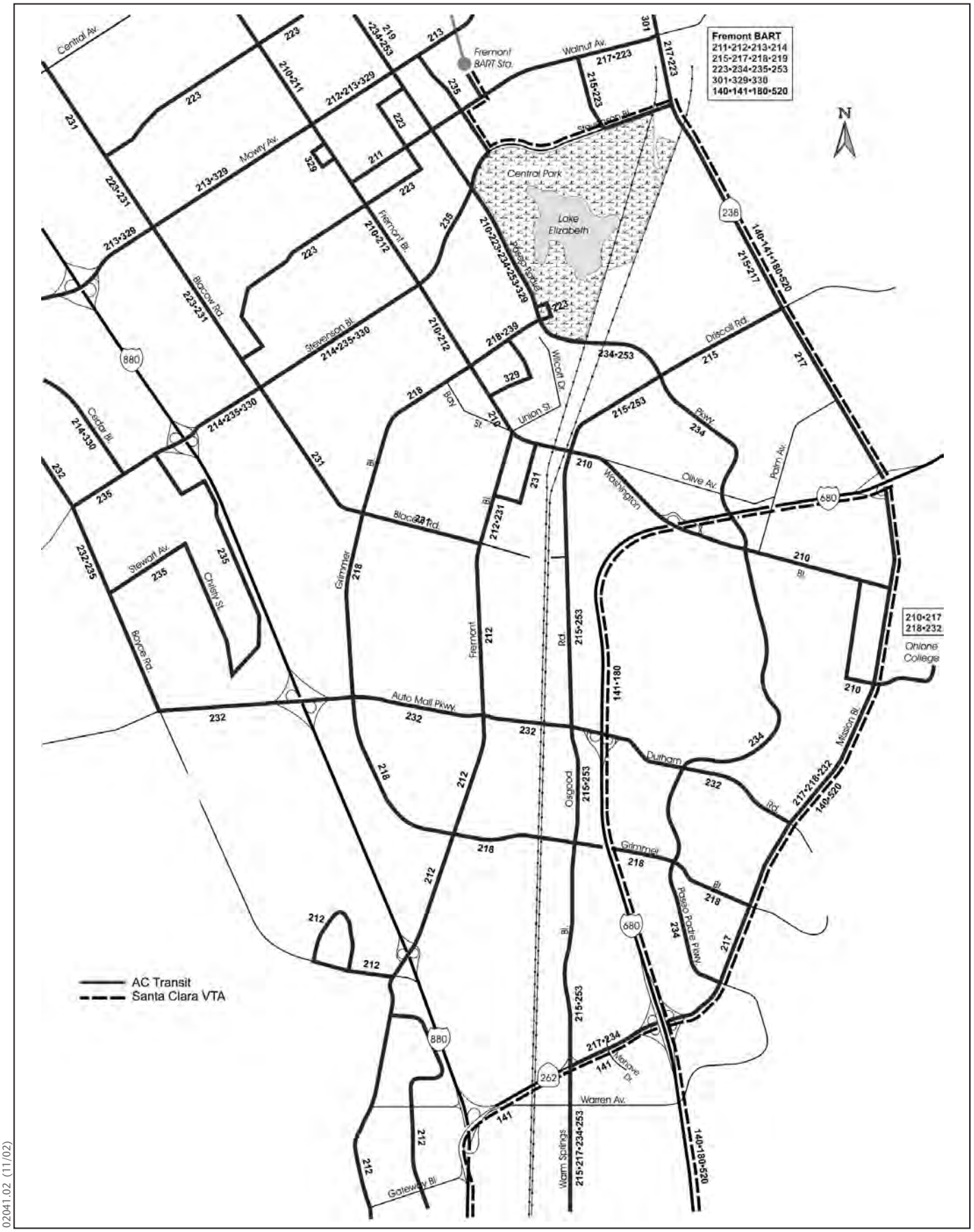
The existing intersection lane configurations are shown in Figure 3.9-4. The existing turning-movement volumes are shown in Figure 3.9-5. The existing turning-movement volumes were used to calculate the existing LOS at these intersections.

Warm Springs Station Area

Compared to the 1992 EIR, an additional intersection in the proposed Warm Springs Station area was analyzed (Fremont Boulevard and the I-880 southbound off-ramps). The intersections analyzed are listed below and shown in Figure 3.9-4. Two of the intersections presented in this list, numbers 11 and 12, will only be analyzed under Proposed Project conditions as they do not exist in the existing condition and would exist only under future conditions when the Proposed Project is in place.

1. Osgood Road/Durham Road-Auto Mall Parkway.
2. I-680 southbound ramps/Durham Road-Auto Mall Parkway.
3. I-680 northbound ramps/Durham Road-Auto Mall Parkway.
4. Osgood Road/Warm Springs Boulevard-South Grimmer Boulevard.
5. Fremont Boulevard/South Grimmer Boulevard.
6. Fremont Boulevard/I-880 northbound ramps.
7. Fremont Boulevard/I-880 southbound on-ramp/Cushing Parkway.
8. Fremont Boulevard/I-880 southbound off-ramps.
9. Warm Springs Boulevard/SR 262 (Mission Boulevard).
10. Mojave Drive/SR 262 (Mission Boulevard).
11. Warm Springs Boulevard/proposed Warm Springs Station north driveway (project conditions only).
12. Warm Springs Boulevard/proposed Warm Springs Station south driveway (project conditions only).

Table 3.9-3 lists the existing LOS for each intersection in the proposed Warm Springs Station area. Four intersections have a V/C ratio greater than 0.85 (the Fremont target), and one has a V/C ratio of 0.85. There are no intersections in the proposed Warm Springs Station area that currently operate at LOS E or F.



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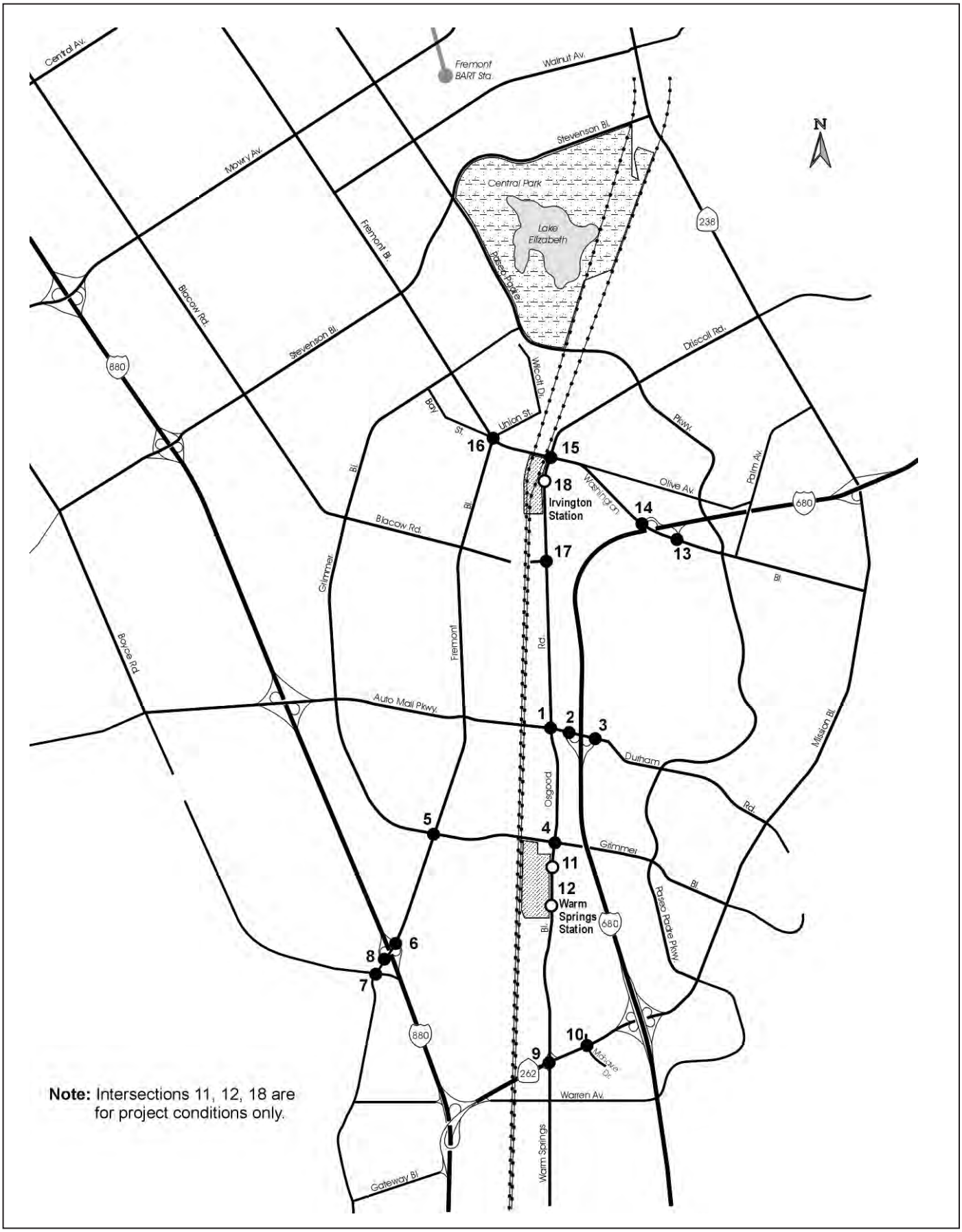
Source: DKS Associates 2002

Figure 3.9-3
Existing Transit Service



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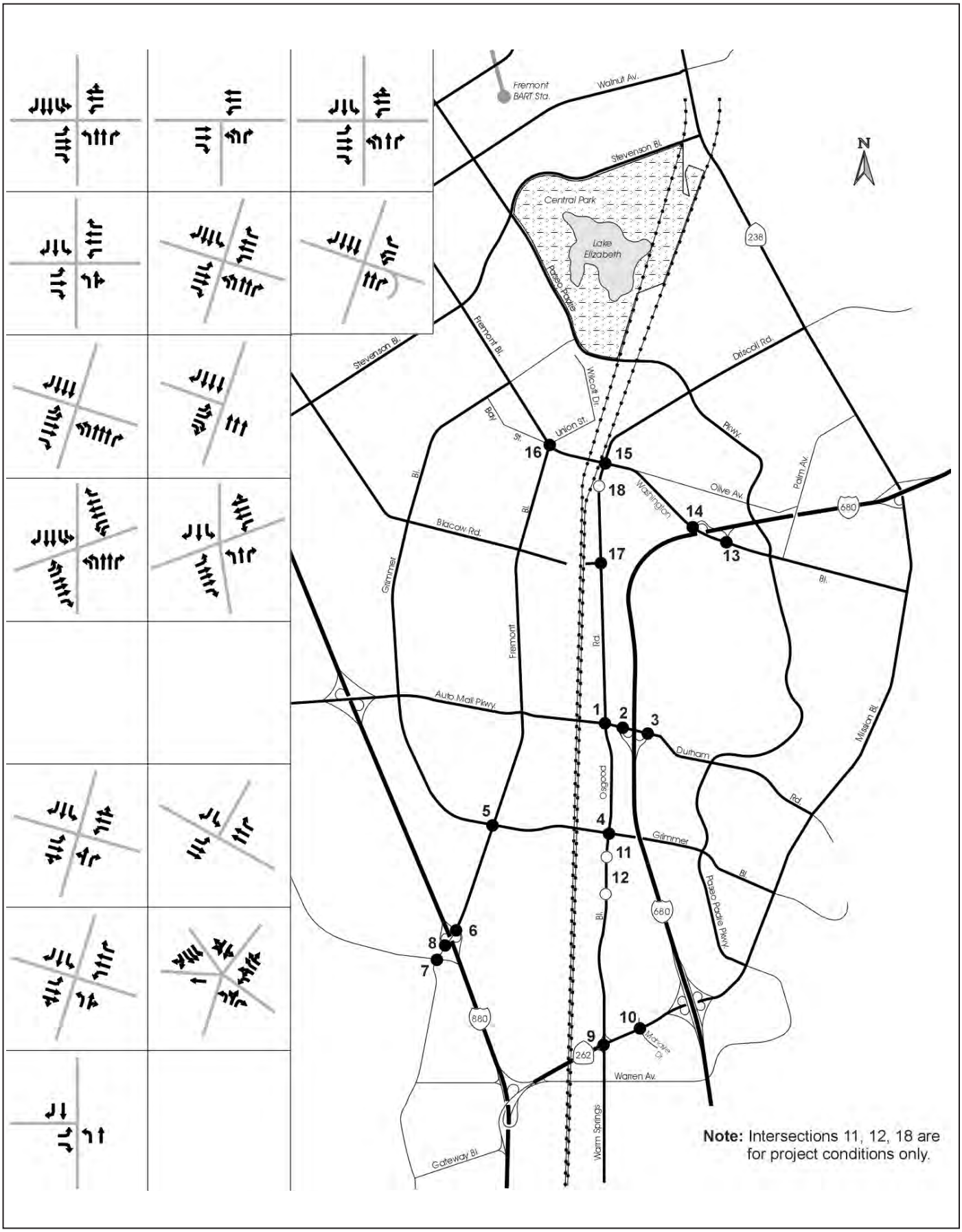
Source: DKS Associates 2002

Figure 3.9-4
Existing Study Intersections



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Source: DKS Associates 2002

Figure 3.9-5
Existing Intersection Configuration

Table 3.9-3. Results of the Level of Service Analysis: Existing Conditions – Warm Springs Station Area

Intersection[a]	a.m. Peak Hour LOS [b]	a.m. Peak Hour V/C [c]	p.m. Peak Hour LOS [b]	p.m. Peak Hour V/C [c]
1. Osgood Road/Durham Road/Auto Mall Parkway	D	0.84	D	0.87
2. I-680 SB Ramps/Durham Road/Auto Mall Parkway	D	0.88	C	0.75
3. I-680 NB Ramps/Durham Road/Auto Mall Parkway	A	0.54	A	0.39
4. Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard	B	0.62	C	0.74
5. Fremont Boulevard/South Grimmer Boulevard	D	0.85	A	0.44
6. Fremont Boulevard/I-880 NB Ramps	A	0.57	A	0.33
7. Fremont Boulevard/I-880 SB On Ramp/Cushing Parkway	C	0.76	A	0.42
8. Fremont Boulevard/I-880 SB Off Ramps	D	0.90	A	0.39
9. Warm Springs Boulevard/Mission Boulevard	D	0.87	D	0.81
10. Mohave Drive/Mission Boulevard	B	0.66	D	0.81

Notes:

[a] Numbers correspond with the numbers on the intersection diagrams.

[b] LOS = Level of Service.

[c] V/C = Volume-to-capacity ratio.

Source: DKS Associates 2002

Optional Irvington Station Area

One intersection (Osgood Road/Blacow Road, number 17), will be analyzed under future scenarios only, including the 2010 No-Project condition and the 2025 No-Project conditions. At present this intersection has very low traffic turning into and out of Blacow Road, and currently operates as an unsignalized intersection. The City of Fremont is building a city maintenance facility along Blacow Road in the immediate vicinity of this intersection. This facility will increase the turning movements turning in and out of Blacow Road. In order to ease these turning movements, the intersection is currently being signalized. The access intersection into the optional Irvington Station will be analyzed under project conditions only as the intersection does not currently exist.

13. I-680 northbound ramps/Washington Boulevard.
14. I-680 southbound ramps/Washington Boulevard.
15. Osgood Road/Driscoll Road/Washington Boulevard.
16. Fremont Boulevard/Washington Boulevard/Union Street/Bay Street.
17. Osgood Road/Blacow Road (future-year analysis only).
18. Osgood Road/proposed optional Irvington Station access road (project conditions only).

Table 3.9-4 lists the existing LOS for each intersection in the optional Irvington Station area. Only the Osgood Road/Driscoll Road/Washington Boulevard intersection currently operates at a V/C ratio below Fremont standard of 0.85. No intersections are operating at LOS E or F.

Table 3.9-4. Results of Level of Service Analysis: Existing Conditions – Optional Irvington Station Area

Intersection[a]	a.m. Peak Hour LOS [b]	a.m. Peak Hour V/C [c]	p.m. Peak Hour LOS [b]	p.m. Peak Hour V/C [c]
13. I-680 NB Ramps/Washington Boulevard	A	0.6	A	0.56
14. I-680 SB Ramps/Washington Boulevard	A	0.41	A	0.40
15. Osgood Road/Driscoll Road/Washington Boulevard	D	0.86	C	0.72
16. Fremont Boulevard /Washington Boulevard/Union Street/Bay Street	A	0.60	C	0.74

Notes:
[a] Numbers correspond with the numbers on the intersection diagrams.
[b] LOS = Level of Service.
[c] V/C = Volume-to-capacity ratio.
Source: DKS Associates 2002

Public Transit Services

BART, AC Transit, and VTA provide public transit (commuter rail, light rail, and bus) services in the transportation study area. The service area for transit routes is shown in Figure 3.9-6. AC Transit provides the primary local bus service to the Fremont BART Station; 17 routes serve the station. AC Transit operates within Alameda and Contra Costa Counties, including a number of existing services throughout the transportation study area. The existing AC Transit services surrounding both the Warm Springs and the optional Irvington Station vicinities are discussed in later sections of this section.

VTA provides both light rail and local bus services in the area known as Silicon Valley. VTA operates four express bus routes that connect Santa Clara County to the Fremont BART Station, only one of which (Route 180) operates throughout the day seven days per week.

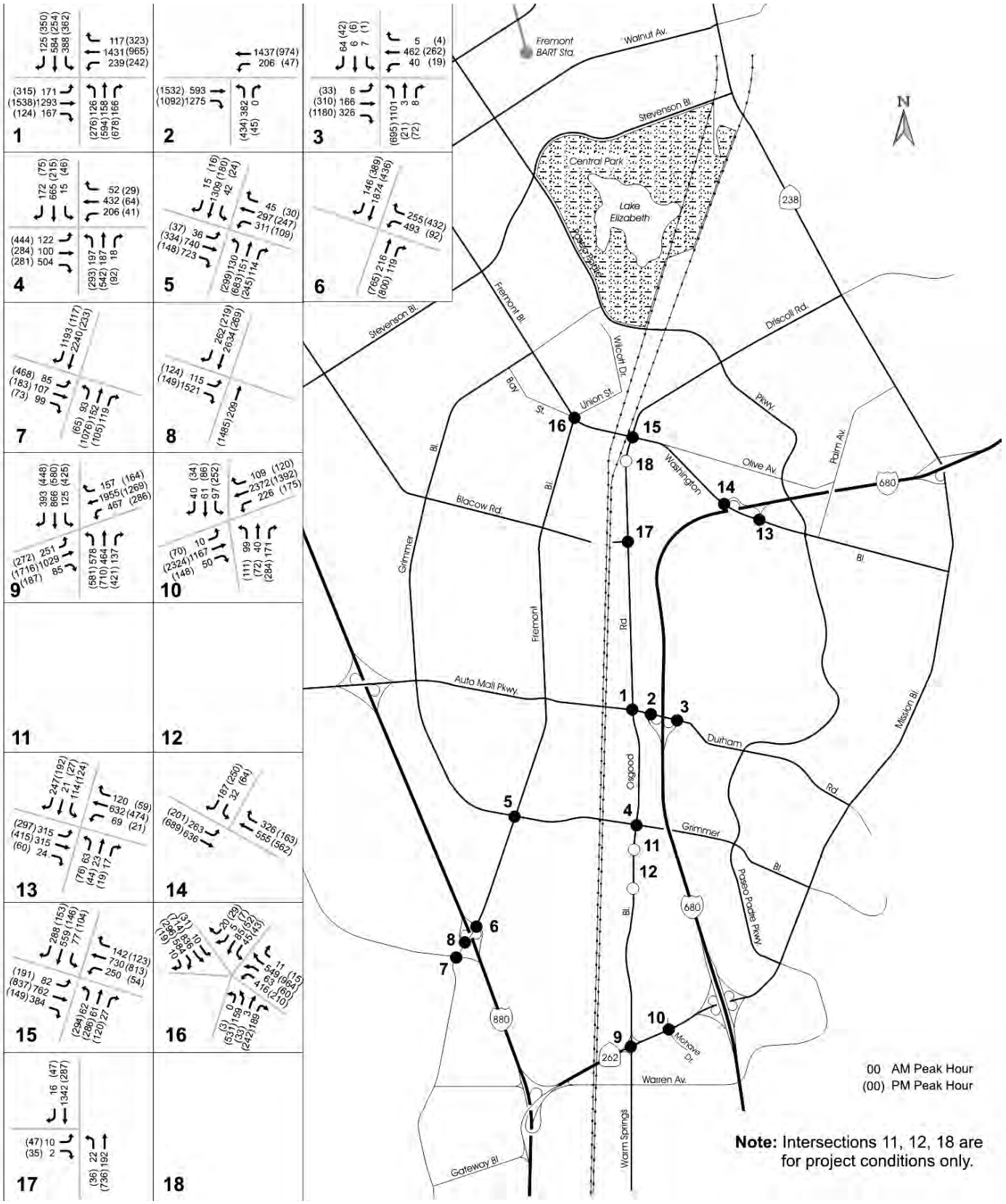
BART operates train service from the Fremont BART Station to Richmond in Contra Costa County and Daly City in San Mateo County. The daily ridership at the Fremont BART Station is approximately 12,800. Headways[1] on the Daly City and Richmond lines are each 15 minutes on weekdays and 20 minutes after 7:15 p.m. on weekday evenings and weekends. Direct service to Daly City is not offered evenings and Sundays, but passengers can transfer to the Dublin/Pleasanton–Daly City line at the Bay Fair Station in San Leandro.

Both AC Transit and VTA have increased transit services in the transportation study area since the 1992 EIR. AC Transit implemented a major restructuring of its bus service in Fremont, Newark, and Union City based on its Fremont–Newark Transportation Development Plan. The plan revised existing routes and added new services in areas that were not previously served.

Warm Springs Station Area

AC Transit Routes 215 and 218 serve the area near the proposed Warm Springs Station, as shown in Figure 3.9-3. Route 215 serves Newpark Mall, Central Avenue, the Fremont BART Station, and the

[1] A *headway* is defined as the time interval between two vehicles moving in the same direction on a particular route



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Source: DKS Associates 2002

Figure 3.9-6
Existing Turning Movement Counts

Warm Springs District via Mission Boulevard, Driscoll Road, and Warm Springs Boulevard. Service along the portion of Route 215 between the Fremont BART Station and the Warm Springs District on weekdays operates from 6:00 a.m. to 10:00 p.m. Buses operate every 30 minutes during the peak hours and every 60 minutes at other times. There is no weekend service. The entire route serves about 530 passengers per day. Route 218 serves Ohlone College and the Fremont BART Station via Paseo Padre Parkway, Grimmer Boulevard, and Mission Boulevard. The route operates weekdays every 30 minutes from 6:00 a.m. to 10:00 p.m.; it does not operate on the weekend. The route averages about 400 passengers per day. (Alameda–Contra Costa Transit District 2002.)

Optional Irvington Station Area

AC Transit Route 215 serves the area close to the optional Irvington Station, as shown in Figure 3.9-3. Route 215 serves the Fremont BART Station and the Warm Springs District via Mission Boulevard, Driscoll Road, and Warm Springs Boulevard. It operates on weekdays every 30 minutes from 6:00 a.m. to 10:00 p.m., and on weekends every hour from 7:00 a.m. to 7:00 p.m. Route 210 also travels along Fremont Boulevard/Washington Boulevard between South Hayward BART Station and Ohlone College (located west of I-680).

Parking

There are currently 2,330 spaces available at the Fremont BART station for BART patrons. This parking area is often filled to capacity. There are approximately 30 spaces available for the Hertz BART car-sharing program, nearly 20 spaces available for disabled person parking, more than 60 spaces available for designated carpool vehicles, and nearly 50 spaces available for parking after 10:00 a.m.

There is no parking allowed on any of the roads surrounding the proposed Warm Springs Station site. Close to the optional Irvington Station site, parking is not allowed on Washington Boulevard in the vicinity of the station. Parking is allowed on the southern leg of Osgood Road near the optional Irvington Station. This parking is unrestricted at present. There is no off-street parking in the station study areas.

Pedestrian Facilities

In general, the access roads to the proposed Warm Springs Station are not pedestrian oriented. There are no sidewalks on Warm Springs Boulevard south of Grimmer Boulevard, though sidewalks on the other streets would provide access to the station. At present there is a sidewalk on the north side of Grimmer Boulevard between Parkwood Drive and Fremont Boulevard.

The optional Irvington Station area is generally not pedestrian oriented. There are sidewalks on Washington Boulevard and Fremont Boulevard in the vicinity of the proposed optional station. At present, sidewalks on Washington Boulevard between Fremont Boulevard and Osgood Road cross the existing rail lines at grade. Osgood Road has no sidewalks.

Bicycle Facilities

According to the 2002 City of Fremont Bicycle and Pedestrian Plan, the proposed Warm Springs Station area contains the bicycle facilities described below. Bicycle lanes marked on the pavement are present on Auto Mall Parkway between I-880 and Mission Boulevard, South Grimmer Boulevard between Fremont Boulevard and Mission Boulevard, and Fremont Boulevard between Blacow Road and I-880. Signed bicycle lanes (a 15-foot travel lane with prohibited parking and no markings on the pavement) are located on Warm Springs Boulevard between Auto Mall Parkway and north of Mission Boulevard, and Auto Mall Parkway between Boyce Road and I-880.

According to the 2002 City of Fremont Bicycle and Pedestrian Plan, the optional Irvington Station area contains several bicycle facilities. There are bicycle lanes marked on the pavement on Driscoll Road between Washington Boulevard and Mission Boulevard, and on Paseo Padre Parkway east of Driscoll Road. There are signed bicycle lanes (15-foot travel lanes with prohibited parking and no markings on the pavement) on Fremont Boulevard between Grimmer Boulevard and Washington Boulevard, and on Washington Boulevard between Mission Boulevard and I-680. There are frontage road facilities (roads running parallel to the main thoroughfare and separated by a median) on Fremont Boulevard between Walnut Avenue and Grimmer Boulevard, and on Blacow Road west of Grimmer Boulevard.

3.9.3 Description of Analysis Scenarios

List of Scenarios

The scenarios addressed in the impact analysis are listed below. Existing conditions (2002) are described under *Environmental Setting* above.

- No Project (2010 and 2025).
- Proposed Project (2010 and 2025).
- Proposed Project with optional Irvington Station (2010 and 2025).
- Proposed Project plus Silicon Valley Rapid Transit Corridor Project (SVRTC) (2025).
- Proposed Project with optional Irvington Station plus SVRTC (2025).

The last two scenarios, which predict the conditions anticipated if both the Proposed Project and the BART alternative for VTA's proposed SVRTC project are adopted and constructed, were modeled for purposes of analyzing potential cumulative impacts of the two projects under these scenarios.

No-Project Conditions

As required by CEQA, existing traffic conditions in the study area are described above. However, other projects and modifications of the roadway network will be in place before the Proposed Project is implemented, and further regional growth is anticipated during that period. Accordingly, the Proposed Project's impacts would not be accurately represented by comparison with conditions existing in 2002/2003. Instead, in accordance with professional standards for traffic impact analysis, the Proposed Project's impacts are compared to projected future conditions if the Proposed Project is

not built (i.e. No-Project conditions). For purposes of this comparison, No-Project conditions were examined for two future time periods, known as "horizon years." The two horizon years selected for this analysis are 2010, when the Proposed Project would be operational, and 2025, when SVRTC would be operational if it is adopted. No-Project conditions for 2010 and 2025 are described below.

2010 No-Project Conditions

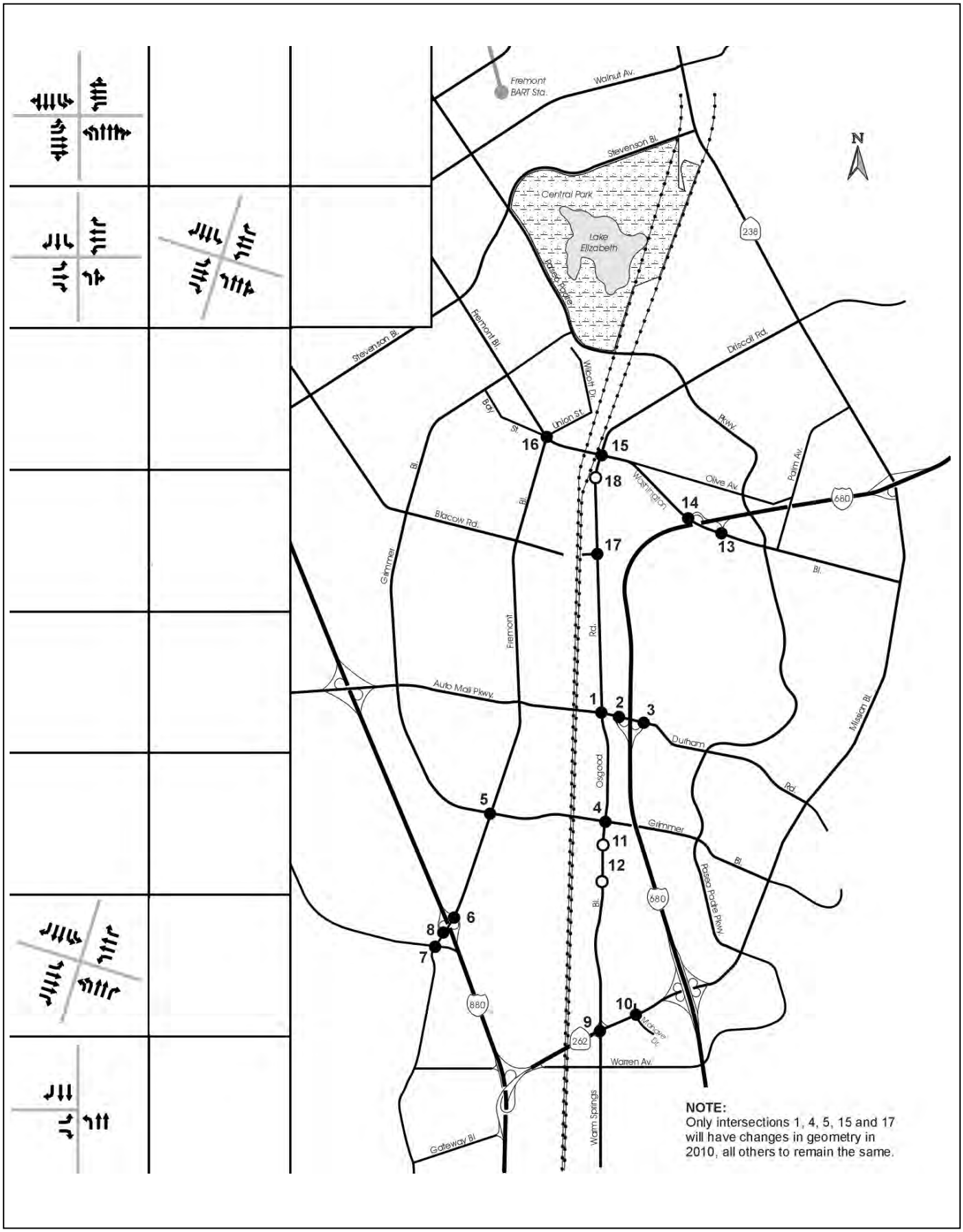
For use in future travel activity, the City of Fremont staff provided information regarding all approved and proposed projects within the study area. Only those projects that would impact at least one study intersection (Figures 3.9-4 and 3.9-7) were included in the analysis. Trips generated by these projects were assigned to the street network along the most reasonable paths based on the existing intersection locations.

There are several proposed network modification projects within the transportation study area; some are roadway changes, including widening, while others are changes to the intersection geometry. The following list outlines the projects within the transportation study area that are included in the City of Fremont's Impact Fee Program and are expected to be completed by 2010 (City of Fremont 2002).

- Roadway projects:
  - Cushing Parkway: connection between Catellus Development to Fremont Boulevard.
  - Fremont Boulevard (Washington Boulevard to Blacow Road): curb and gutter improvements, sidewalk construction.
  - Osgood Road: widening to two lanes in each direction between Washington Boulevard and South Grimmer Boulevard, along with new curb, gutter, and sidewalk construction.
- Intersection projects:
  - Osgood Road and Washington Boulevard: signal modification.
  - Osgood Road and Auto Mall Parkway: signal modification.
  - Fremont Boulevard and Grimmer Boulevard: signal modification.
  - Osgood Road and Blacow Road: new signal.

In addition, regionally funded roadway projects were identified based on discussions between the Alameda County Congestion Management Agency (ACCMA) and the City of Fremont. ACCMA has included the following list of roadway projects in its travel forecasting model.

- Widen Washington Boulevard from two lanes to four lanes between Driscoll Road/Osgood Road and I-680 interchange.
- Widen Auto Mall Parkway from four lanes to six lanes between Osgood Road and I-680 interchange.
- Widen Grimmer Boulevard from two lanes to four lanes between Warm Springs Boulevard and I-680 overpass.



02041.02 (2/03)

Source: DKS Associates 2003.

Figure 3.9-7
2010 No Project Intersection Configuration Changes

- Widen Warm Springs Boulevard from two lanes to four lanes between Grimmer Boulevard and Mission Boulevard.
- Extend Auto Mall Circle south of Boyce Road (four lanes) to join Cushing Parkway.
- Widen Cushing Parkway from four lanes to six lanes between Northport Loop West and Fremont Boulevard.

The City of Fremont has also implemented a program to eliminate existing at-grade railroad crossings (the City of Fremont's grade separations project). The following information is based on information from CCS Planning and Engineering (2002). One of the proposed grade separations will impact the intersection of Washington Boulevard/Driscoll Road/Osgood Road. Associated geometric changes at this intersection are listed below.

- Eastbound movement (from Fremont Boulevard to I-680): one left-turn lane, three through lanes, and one dedicated right-turn lane will be provided; a merge will be required on the eastern side of the intersection.
- Northbound movement (from Osgood Road to Driscoll Road): two left-turn lanes, two through lanes, and one right-turn lane will be provided.
- Southbound movement (from Driscoll Road to Osgood Road): two left-turn lanes, two through lanes, and one right-turn lane will be provided.

In addition, a new traffic signal is proposed as part of the grade separations project for the Washington Boulevard/Meredith Avenue intersection (east of the Washington Boulevard/Driscoll Road/Osgood Road intersection). Osgood Road would be widened south of Washington Boulevard before the construction of the grade separations project. Washington Boulevard, beginning west of the Driscoll Road/Osgood Road intersection, would also be widened to four lanes (two in each direction) to the I-680 southbound and northbound on- and off-ramps.

2025 No-Project Conditions

To generate travel forecast model results for 2025 No-Project conditions, discussions were held with the City of Fremont, ACCMA, and MTC to establish the transportation network. The road projects assumed to be completed by 2025 in the VTA-modified MTC model are listed below.

- Grade separation of Paseo Padre Parkway and the existing UP railroad lines.
- Grade separation of Washington Boulevard and the existing UP railroad lines.
- Widening of Cushing Parkway between North Loop Road and Fremont Boulevard.
- Widening of Driscoll Road between Mission Boulevard and Chilton Avenue.
- Widening of Durham Road between Osgood Road and I-680.
- Widening of Mowry Avenue between I-880 and Blacow Road.
- Widening of Paseo Padre Parkway between Driscoll Road and Mowry Avenue.

- Widening of South Grimmer Boulevard between Warm Springs Boulevard and Old Warm Springs Boulevard.
- Widening of Washington Boulevard between I-680 and Mission Boulevard.

Proposed Project Conditions

This section identifies the specific transportation-related elements at the proposed Warm Springs Station and at the optional Irvington Station.

Warm Springs Station

Roadway Access

The proposed Warm Springs Station would be located on the southwest corner at the intersection of South Grimmer Boulevard and Warm Springs Boulevard. Direct access to the project site would be provided along Warm Springs Boulevard via two signalized intersections and one right-in, right-out driveway. A secondary access point would be provided via a proposed extension of Warm Springs Court.

From I-880, it is expected that regional traffic would access the station via the Fremont Boulevard interchange, then South Grimmer Boulevard (from the west) and then access the station from Warm Springs Boulevard. Between I-880 and the station, Fremont Boulevard and South Grimmer Boulevard are both four-lane facilities. East of Warm Springs Boulevard (the east edge of the station), South Grimmer Boulevard is a two-lane facility. Traffic from I-880 could also use the SR 262 (Mission Boulevard) interchange, then Warm Springs Boulevard to access the station (from the south). At the SR 262/Warm Springs Boulevard intersection, SR 262 is six lanes and is heavily congested during both the a.m. and p.m. peak periods.

From I-680, access to the station would be from the interchange with Auto Mall Parkway/Durham Road (from the north) or the interchange with SR 262/Mission Boulevard (from the south). Traffic using the Auto Mall Parkway/Durham Road interchange would use Osgood Road/Warm Springs Boulevard to access the station directly. Warm Springs Boulevard currently has two lanes, but the City of Fremont plans to widen it to four lanes.

A third access route to the proposed Warm Springs Station would be via Mission Boulevard and Paseo Padre Parkway. Paseo Padre Parkway is a two-lane residential street between Grimmer Boulevard and Mission Boulevard.

Parking Conditions

On-site parking would consist of daily parking (available for up to 24 hours), midday parking (free spaces for customers who arrive at stations after 10:00 a.m.), carpool (each car must have at least two passengers when parking), and disabled parking (which would be located adjacent to the station's east entry pavilion and concourse), with BART staff parking integrated near the station. A total of 2,040 spaces would be provided. Areas for patron pick up and drop off by private automobile would also be provided.

Bicycle Facilities

The proposed Warm Springs Station would include bicycle parking facilities adjacent to the station's conceptual entry pavilion on the north and south sides of the station. Bicycle lanes would be provided along all major driveways connecting with city streets and leading to the main station entrance. The City of Fremont has plans to expand bicycle facilities along Osgood Road/Warm Springs Boulevard to include bicycle lanes in each direction under the city's Capital Improvement Program. The city's plans for bicycle facilities will be taken into account in the provision of bicycle access facilities during the station design process.

Pedestrian Circulation

Major streets providing access to the proposed station would be designed for safe and convenient pedestrian access and would include sidewalks, landscape buffers, and enhanced crosswalks at signalized intersections. Within the proposed station site, special crosswalks would accommodate pedestrian movements and connect patron parking areas with the main station entry point provided as part of the Proposed Project. Pedestrian facilities that would be provided throughout the station include benches, stairs, escalators and waiting areas. Lighting plans would focus special illumination on these walkway and waiting areas. Pedestrian access to the Warm Springs Station would be available from Warm Springs Boulevard and Warm Springs Court. Any city plans affecting pedestrian amenities in the vicinity of the Warm Springs Station will be taken into account in the provision of pedestrian access facilities during the station design process.

Public Bus Transit Service

Future additional bus transit service is proposed to and from the proposed Warm Springs Station, when the two existing bus operators would re-structure their routes to serve the proposed Warm Springs Station. Based on conceptual plans, it is anticipated that seven bus layover bays would be provided within the station area. It is also anticipated that buses would access the station to and from the Warm Springs Boulevard/south driveway intersection with secondary access from the extended Warm Springs Court entrance.

Paratransit and Shuttle Service

Paratransit and shuttle services currently operate at the Fremont BART station. It is standard professional practice in transportation modeling to assume that these services would be provided by private companies and local employment centers at a new station. The paratransit and shuttle service stop would be located directly adjacent to the elevators at the main station entry based on conceptual plans for the Warm Springs Station.

Paratransit services are those services provided to people with disabilities who are unable to use fixed-route transit service. These services often require the patron to call ahead of time and will result in the patron being picked up at the door (for example at home) and then dropped off at the door at the other end of the trip (for example the doctor).

Shuttle services are those services that normally operate on a fixed route between two destinations with no intermediate stops along the route. The most common shuttles are employee-based shuttles that serve one employment center and the local transit center or station. Shuttles connecting with major employment centers include those proposed by Pacific Commons and the potential employee shuttle service for NUMMI. Other potential shuttles may serve educational facilities, hotels, and visitor centers in the vicinity.

Taxi Service

Similar to the provision of shuttle and paratransit services, taxis are currently provided by local taxi companies at the Fremont BART station. It is standard professional practice in transportation modeling to assume similar services would be provided at any new station. Taxi service would be provided by local taxi companies to and from the proposed Warm Springs Station. Based on conceptual plans for this station taxis would access the station from the Warm Springs Boulevard/south driveway intersection, Warm Springs Court and the right-in, right-out driveway only. Taxis would drop-off and pick-up passengers via a one-way designated road near the kiss-and-ride area. It is anticipated that taxis would exit at the north driveway with access to Warm Springs Court and Warm Springs Boulevard.

Kiss-and-Ride

Based on conceptual plans kiss-and-ride traffic would access the proposed Warm Springs Station from Warm Springs Boulevard/north driveway intersection, Warm Springs Boulevard/south driveway intersection, Warm Springs Court and the right-in, right-out driveway. It is anticipated that the kiss-and-ride area would be adjacent to the east entry pavilion.

Emergency and Maintenance Vehicle Access

Emergency and maintenance vehicles would have access to the proposed Warm Springs Station from Warm Springs Boulevard/north driveway intersection, Warm Springs Boulevard/south driveway intersection, Warm Springs Court and the right-in, right-out driveway. Emergency and maintenance vehicles would have their designated parking area directly adjacent to the platform and under the elevated pedestrian walkway according to conceptual plans for this station.

Optional Irvington Station

Roadway Access

The proposed optional Irvington Station would be located near the southwest corner of the intersection of Washington Boulevard and Driscoll Road/Osgood Road. Direct vehicular access to the station and parking areas would be along Osgood Road via one signalized intersection, a right-in, right-out driveway located on the east side of Osgood Road, and a one-way driveway on the west side of Osgood Road. Secondary access would be provided from Main Street, west of Driscoll Road under Washington Boulevard. Osgood Road is currently two lanes, but the City of Fremont has a capitol improvement project to widen Osgood to four lanes prior to the BART station being built.

Many routes could be used to access the optional Irvington Station. Regional traffic could use either I-880 or I-680, then access the station via one of the interchanges listed below. Access from I-880 would be via Stevenson Boulevard, Auto Mall Parkway, or Fremont Boulevard from the south. Traffic from I-880 via the Stevenson Boulevard interchange would access the optional Irvington Station from Fremont Boulevard and then Olive Avenue. From Auto Mall Parkway, vehicles would access the site via Fremont Boulevard and then Olive Avenue or via Osgood Road. Vehicles traveling to or from the Fremont Boulevard interchange would access the optional Irvington Station via Fremont Boulevard and then Olive Avenue, or Grimmer Boulevard then Osgood Road, and from Auto Mall Parkway via Osgood Road. Access from I-680 would be via the Washington Boulevard interchange east of the station.

Local traffic from the west would use Blacow Road and Fremont Boulevard. Blacow Road is currently divided in two sections that do not connect: a four-lane section that terminates just west of

the existing railroad tracks, and a two-lane section that terminates east side of the tracks. The City of Fremont currently does not plan to connect the two sections of Blacow Road across the UP right-of-way.

Local traffic from the north would use either Fremont Boulevard north of Washington Boulevard, then use Washington Boulevard to access the station or Driscoll Road. Fremont Boulevard is four lanes north of Washington Boulevard. Driscoll Road is also a four-lane road until it meets Osgood Road.

Local traffic from the south would use Osgood Road or Fremont Boulevard. Fremont Boulevard is four lanes south of Blacow Road, and two lanes between Blacow Road and Washington Boulevard.

Local traffic from the east would use Washington Boulevard. Washington Boulevard has one lane in each direction east of Driscoll Road/Osgood Road then widens to two lanes in each direction at the I-680 interchange. The City of Fremont plans to widen all of Washington Boulevard to four lanes from Fremont Boulevard to Mission Boulevard.

Parking Conditions

There are no off-street parking facilities in the area that would be affected by construction of the station. On-site parking would consist of station parking (available for up to 24 hours), midday parking (free spaces for customers who arrive at stations after 10 a.m.), disabled parking (located near the west walkway entrance, south of Osgood Road via the Main Street connection), and official BART parking. A total of 960 spaces would be provided.

Bicycle Facilities

The optional Irvington Station would include bicycle lockers on both the east and west side of the station. Bicycle lanes within the BART station site would connect with street access routes to the station and would link to station entry points, bike locker, and other bike parking. The city's plans for bicycle facilities will be taken into account in the provision of bicycle access facilities during the station design process.

Pedestrian Circulation

Pedestrian walkways and enhanced crosswalks would be incorporated into main streets with entry to the BART station and adjacent parking areas. A signalized intersection would be provided at the Osgood Road-Driscoll Road/Washington Boulevard intersection as part of the Proposed Project with Optional Irvington Station. Pedestrian access to the station concourse would be accommodated by an elevated pedestrian walkway with access to and from the east and west sides of the station. The proposed pedestrian walkway would cross over Osgood Road from the east side of the station and over the UP tracks from the west side of the optional Irvington Station. Pedestrian facilities would be provided throughout the station, including benches, stairs, escalators, and adequate waiting areas. Special pedestrian lighting along walkways and in entry plazas would be provided. Any city plans affecting pedestrian amenities in the vicinity of the optional Irvington Station will be taken into account in the provision of pedestrian access facilities during the station design process.

Railroad Lines

At present, UP freight-rail lines intersect Washington Boulevard at grade. These rail crossings are each equipped with crossing signals and automatic gates. Currently, freight-rail movements disrupt vehicle movements on Washington Boulevard, Driscoll Road, and Osgood Road. As part of the

city's grade separations project, Washington Boulevard will be raised to pass over the railroad. At present, the tracks are used only for freight rail. However, the Proposed Project will utilize the UP right-of-way, which pass directly through the optional Irvington Station.

Public Transit Service

AC Transit bus service is proposed to and from the optional Irvington Station. Five bus layover bays would be provided within the station according to conceptual plans for this station. Buses would access the station to and from the Osgood Road via the secondary signalized intersection on Osgood Road.

Paratransit and Shuttle Service

Paratransit and shuttle services currently operate at the Fremont BART station. It is standard professional practice in transportation modeling to assume that these services would be provided by private companies and local employment centers at a new station. The paratransit and shuttle service stop would be integrated with the bus intermodal accessed from Osgood Road.

Paratransit services are those services provided to people with disabilities who are unable to use fixed-route transit service. These services often require the patron to call ahead of time and will result in the patron being picked up at the door (for example at home) and then dropped off at the door at the other end of the trip (for example the doctor).

Shuttle services are those services that normally operate on a fixed route between two destinations with no intermediate stops along the route. Potential shuttles would connect with educational and civic centers accessible from Irvington.

Taxi Service

Similar to the provision of shuttle and paratransit services, taxis are currently provided by local taxi operators at the Fremont BART station. It is standard professional practice in transportation modeling to assume similar services would be provided at any new station. Taxi service would be provided by local taxi operators, to and from the optional Irvington Station via Osgood Road and Main Street. It is anticipated that taxis would drop-off and pick-up passengers via the right-in, right-out driveway northbound on Osgood Road and exit on Osgood Road. Taxis would also have a designated staging area on the west entrance via Main Street.

Kiss-and-Ride

Kiss-and-ride traffic would have access to the optional Irvington Station from the right-in, right-out driveway located along the east side of Osgood Road and via the one-way driveway from the west side of Osgood Road based on conceptual plans. A kiss-and-ride zone would also be provided on the west side of the station with access from Main Street.

Emergency and Maintenance Vehicle Access

Emergency and maintenance vehicles would have access to the proposed optional Irvington Station from the signalized intersection at Osgood Road and the proposed BART driveway, the two right-in and right-out intersections (one on both sides of Osgood Road), Roberts Avenue, and the proposed extension from High Street (on the other side of Washington Boulevard). The conceptual plans for the optional Irvington Station do not have the emergency access parking areas clearly defined, but they would ideally be located directly adjacent to the platforms and under the elevated pedestrian walkways.

Transit Operations

2010 Transit Services

It was assumed that the following transit services would be provided in the Fremont area in 2010. Those services that are unique to a particular scenario are also identified.

- There would be two BART lines in each direction serving the existing Fremont Station under the 2010 No-Project condition. Combined, they would provide a headway averaging 7.5 minutes for service into downtown Oakland; with all-day service provided (each set of lines would operate on 15-minute headways). One line would provide direct service to Richmond and the other would provide service to San Francisco (24th Street Station). Connections would then need to be made in downtown San Francisco for service into San Francisco International Airport (SFO). Under the Proposed Project, these lines would be extended south to the proposed Warm Springs Station (with or without stopping at the optional Irvington Station).
- During the morning and evening peak hour, the San Francisco line would be supplemented by a single train operating between Fremont and the 24th Street Station in San Francisco.
- Under the No-Project condition, VTA express buses would operate from Santa Clara County to the Fremont BART Station using the existing route. This includes Routes 140, 180, and 520. Route 140 would operate during the peak periods on a 15-minute headway. Route 180 would operate all day, with 15-minute headways, and Route 520 would operate during the a.m. and p.m. peak periods with a 20-minute headway. Under either the Proposed Project and the Proposed Project with optional Irvington Station, the VTA buses would transfer operations from the Fremont BART Station to the Warm Springs Station.
- AC Transit would maintain transit service along Warm Springs Boulevard. Route 215 would operate with 15-minute headways during the peak periods and 30-minute headways during the off-peak period. Route 253 would operate with 60-minute headways during the peak period.
- A new ACE/Capitol Corridor train station would be provided at the Pacific Commons Development (west of I-880).
- Union City would become an intermodal transit facility with Capitol Corridor trains and BART trains providing service to the station.

Some of the other transit assumptions that have been made in the model that affect the broader Bay Area are listed below.

- The BART extension to Millbrae would be open and operational with 15-minute headways between SFO and Millbrae, between Millbrae and Pittsburg/Bay Point (without stopping at SFO), and between SFO and Dublin/Pleasanton BART Stations.
- The Dublin/Pleasanton BART Station would have service headways of 15 minutes between Dublin/Pleasanton and SFO.
- The Oakland International Airport Connector would operate between the Coliseum BART Station and the Oakland International Airport with 15-minute headways.
- Caltrain would extend service to the Transbay Terminal.

- The Caltrain Baby Bullet service would operate along the Peninsula with 60-minute headways.
- ACE headways would be increased to 30-minute peak service inbound in the a.m. and outbound in the p.m. peak periods.
- Capitol Corridor service would be increased to 60-minute headways all day in both directions.

2025 Transit Services

In 2025, only the following two changes would be made to the transit services described above.

- There would be two pairs of daily BART lines in each direction serving the existing Fremont Station under the 2025 No-Project condition. Combined, they would provide a headway averaging 6 minutes for service into downtown Oakland, with all-day service provided (each set of lines would operate on 12-minute headways). One pair of lines would provide direct service to Richmond, and the other would provide service to San Francisco (24th Street Station). Connections would then need to be made in downtown San Francisco for service into SFO. Under the Proposed Project these lines would be extended south to the proposed Warm Springs Station (with or without stopping at the optional Irvington Station).
- All BART lines would experience an improvement in headways from 15 minutes to 12 minutes. These increased headways throughout the existing BART network would be made possible through the implementation of Advanced Automatic Train Control (AATC).

3.9.4 Regulatory Setting

City of Fremont

The City of Fremont LOS policy states:

> "Maintain a Level of Service 'LOS D,' with a target Volume-to-Capacity ratio of 0.85 at major intersections, except where the achievement of such LOS can be demonstrated to conflict with environmental, historic or aesthetic objectives or where regional traffic is a significant cause of congestion or where substantial transportation improvements have been required and further mitigation is not feasible because of identified constraints." (*City of Fremont General Plan* 1991 as amended, Policy T 1.2.1.)

A number of the transportation study intersections are on roads of regional significance and consequently regional traffic will contribute to congestion levels. These include intersections along Mission Boulevard and Fremont Boulevard. City of Fremont staff have concurred that, for purposes of this SEIR, mitigation for the Proposed Project's contribution to intersection impacts would be considered appropriate at intersections where service is not maintained at LOS D or, when an intersection is already operating at LOS E or F, where the v/c ratio is substantially increased (by 0.05 or greater).

Alameda County Congestion Management Agency

The Alameda County Congestion Management Agency (ACCMA) Land Use Analysis Program requires an LOS analysis for roadway segments within the study area if 100 p.m. peak hour vehicle trips are generated by the Proposed Project. Accordingly, roadway segments identified as being within the Metropolitan Transportation System (MTS) have been analyzed. The MTS is a regionally designated system that includes the entire roadway network that is designated in the county's congestion management program, together with major arterials, transit services, rail, maritime ports, airports and transfer hubs that are critical to the region's movement of people and freight.

3.9.5 Impact Assessment and Mitigation Measures

Methodology for Impact Analysis

Travel Demand Model

Traffic projections and ridership forecasts were developed for the transportation study using a travel demand model. A travel demand model is one of the most common methods of forecasting future travel demand in a given area. The model is based on inputs such as projections of population, employment, and anticipated changes to the transportation network. The transportation analysis for the Proposed Project is based on a travel demand model developed by the Metropolitan Transportation Commission (MTC) and modified by VTA (called the VTA-modified MTC model in this section). Factors and assumptions used to develop the VTA-modified MTC model are explained in detail in Appendix N.

The VTA-modified MTC model is an enhanced version of the MTC regional model. The MTC model, BAYCAST – 90 (BAYCAST) was used to develop the 2002 Regional Transportation Plan and to prepare travel forecasts for major regional corridor studies. BAYCAST has recently been re-calibrated to 1998 traffic counts by MTC. This model was chosen as a base to the VTA-modified MTC model as it encompasses all nine Bay Area counties. The regional coverage is important for analysis of the Proposed Project (and cumulative analysis of the Proposed Project plus SVRTC) because many of the trips are long distance, county-to-county commutes. The BAYCAST model includes the standard four model steps: trip generation, trip distribution, mode choice and trip assignment. It also includes three extra main models: workers in household, auto-ownership choice and time of day choice models. BAYCAST is designed as an advanced state-of-the practice trip-based travel forecasting system. It is designed to be tractable, sophisticated, and user friendly.

VTA staff made a number of enhancements made to BAYCAST model. They are described below.

- Addition of a lower-level nest to the MTC home-based work mode choice models. This was done in order to model transit submode choices (heavy rail, commuter rail, light rail, express bus and local buses), walk-access to transit and park-and-ride/kiss-and-ride choice for the drive to transit access.
- Addition of a multinomial logit choice model to predict the auto and transit access for interregional commuters traveling between the Central Valley and the Bay Area. Previously, BAYCAST only included an estimate of interregional auto trips.

- Addition of a number of traffic analysis zones (TAZ) within the project corridor (southern Alameda County and Santa Clara County). This was done to allow more detailed estimation of station ridership by mode of access.
- Addition of a transit station park-and-ride constraint in the home-based work mode choice models.
- Estimation of air-passenger trips to the San Jose International Airport.
- Recalibration and validation of the models to the base year 2000 observed travel conditions in the project corridor.

Criteria for Determining Significance of Impacts

This analysis relied on standards of significance developed by BART on the basis of accepted professional practice for transportation engineering. Based on these standards, impacts were considered significant if the Proposed Project was judged likely to result in any of the following.

- Deterioration of a freeway segment to LOS F, unless LOS F was measured when the Congestion Management Plan was established in 1991.
- Deterioration of an intersection from LOS D or better to LOS E or F under project conditions, or cause a substantial increase in the V/C ratio at an intersection operating at LOS E or F.
- Substantial reduction in parking supply more than in parking demand.
- Spill over of parking into residential or commercial areas.
- Substantial increase in transit demand that cannot be accommodated by existing or planned transit capacity.
- Creation of particularly hazardous conditions for bicyclists or elimination of bicycle access to adjoining areas.
- Substantial overcrowding on public sidewalks, creation of hazardous conditions for pedestrians, or elimination of pedestrian access to adjoining areas.

This analysis also addresses City of Fremont and ACCMA standards of significance.

The City of Fremont considers traffic impacts at signalized intersections significant when the addition of traffic from a project would result in any of the following.[2]

- Deterioration in intersection operations from LOS D or better under the No-Project conditions to LOS E or F under project conditions.
- Substantial increase in the V/C ratio at an intersection operating at LOS E or F (for purposes of this analysis, a substantial V/C ratio increase is considered 0.05 or greater).

[2] The City of Fremont has concurred that, for the Proposed Project, the above-noted criteria are appropriate as stated, and that mitigation measures at study intersections should achieve LOS D for impacts to be considered less than significant.

ACCMA's Land Use Analysis Program requires the following.

- LOS analysis for roadway segments within the study area if 100 p.m. peak hour vehicle trips are generated by the Proposed Project. Accordingly, roadway segments identified as being within the MTS have been analyzed. The MTS is a regionally designated system that includes the entire roadway network that is designated in the county's congestion management program, together with major arterials, transit services, rail, maritime ports, airports and transfer hubs that are critical to the region's movement of people and freight.
- Because there are no adopted standards of significance for impacts on MTS routes, project trips that cause a freeway segment to deteriorate to LOS F, unless LOS F was measured when the Congestion Management Plan was established in 1991, were considered significant.

Summary of Operations, Impacts, and Mitigation Measures

Operations, impacts, and mitigation measures for each analysis scenario are identified below.

Rail Ridership

The ridership by segment for heavy rail is listed in Table 3.9-5 for 2010 and in Table 3.9-6 for 2025. These tables provide the bidirectional ridership (rounded to the nearest hundred) between stations in the BART network. These tables also provides the ridership at the county line for the ACE trains and the Capitol Corridor trains.

Table 3.9-5. 2010 Rail Ridership Summary

Station A	Station B	Mode	2010 No Project	2010 Proposed Project	2010 Proposed Project with Optional Irvington Station
Union City	Fremont	BART	13,500	16,900	16,900
Fremont	Irvington	BART	N/A	11,800*	12,800
Irvington	Warm Springs	BART	N/A	N/A	11,100
Alameda County/Santa Clara County Line (approx)		ACE	8,000	7,900	7,900
Alameda County/Santa Clara County Line (approx)		Capitol Corridor	2,300	1,900	1,900

Notes:

* Ridership shown between Fremont and Warm Springs Stations.

Source: DKS Associates 2002 from VTA-modified MTC Model

Table 3.9-6. 2025 Rail Ridership Summary

Station A	Station B	Mode	2025 No Project	2025 Proposed Project	2025 Proposed Project with Optional Irvington Station	2025 Proposed Project plus SVRTC [a]	2025 Proposed Project with Optional Irvington Station plus SVRTC[a]
Union City	Fremont	BART	18,100	22,800	23,400	52,400	52,300
Fremont	Irvington	BART	N/A	16,300	18,200	51,100[b]	51,200
Irvington	Warm Springs	BART	N/A	N/A	15,900	N/A	52,400
Warm Springs	Montague/Capitol	BART	N/A	N/A	N/A	57,200	54,300
Alameda County/Santa Clara County Line (approx)		ACE	11,700	11,100	10,900	7,000	6,900
Alameda County/Santa Clara County Line (approx)		Capitol Corridor	2,800	2,100	2,100	1,000	1,000

Notes:

[a] Cumulative analysis of the Proposed Project with SVRTC, 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 with SVRTC.

[b] Ridership taken between the Fremont and Warm Springs Stations.

Source: DKS Associates 2002 VTA-modified MTC Model

In 2010, the ridership between the Union City and Fremont BART Stations would stay constant between the two project alternatives. With the construction of the Proposed Project, there would be an increase in the overall ridership levels by approximately 3,400 passengers along this segment. Ridership levels on both the ACE trains and the Capitol Corridor would decline slightly with implementation of the Proposed Project (with or without the optional Irvington Station).

In 2025, the forecasted ridership increases by approximately 4,600 on the segment between the Union City and the Fremont BART Stations. With implementation of the Proposed Project, there would be nearly a 30% increase in the ridership for this segment and a further 3% increase in ridership for the Proposed Project with optional Irvington Station.

Local Bus Ridership

Ridership levels on local AC Transit bus services would decrease along the corridor between the Fremont BART Station and the proposed Warm Springs Station. Ridership on buses, especially the VTA express buses, would increase south of the proposed Warm Springs Station. It is likely that

with implementation of the Proposed Project (with or without the optional Irvington Station), a number of passengers on the local bus routes would transfer to BART for their trip.

Station Entries and Exits

Tables 3.9-7 and 3.9-8 list the daily station entries and exits and the system boardings for both the existing and proposed stations in southern Alameda County for the 2010 and 2025 conditions. As reference only, the entries and exits at the proposed Santa Clara County stations are listed under the Proposed Project plus SVRTC (with and without the optional Irvington Station) for 2025. Both tables provide a comparison between the Proposed Project and the No-Project conditions. As expected, there are fewer entries and exits at the Fremont BART Station because it would no longer be the terminus. Transfers that were using the Fremont Station would be relocated to either the Warm Springs Station or, with implementation of SVRTC, the stations in Santa Clara County.

Table 3.9-7. Daily Station Entries and Exits – 2010

	Entries and Exits		
Station	No Project	Proposed Project	Proposed Project with Optional Irvington Station
Southern Alameda County Existing Stations			
Union City	9,200	10,300	10,400
Fremont	13,200	9,700	8,200
Southern Alameda County Existing Stations Subtotal	**22,500**	**19,900**	**18,500**
Proposed Project Stations			
Irvington	—	—	4,500
Warm Springs	—	11,600	11,000
Proposed Project Stations Subtotal	**—**	**11,600**	**15,600**
Southern Alameda County Proposed and Existing Stations Subtotal	**22,500**	**31,500**	**34,100**
BART Systemwide Total[a] Entries and Exits	775,600	787,600	790,400
BART Systemwide Total[a] Boardings	387,800	393,800	395,200

Notes:
[a] Systemwide totals include all existing BART stations and may include Proposed Project station(s) (depending on column).

Station-level and subtotal values are for station entries and exits (i.e. total persons entering and leaving station areas). Systemwide total boardings were calculated by dividing entries and exits by two.

All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.

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

Table 3.9-8. Daily Station Entries and Exits – 2025

Station	No Project	Proposed Project	Proposed Project with Optional Irvington Station	Proposed Project plus SVRTC	Proposed Project with Optional Irvington Station plus SVRTC
Southern Alameda County Existing Stations					
Union City	11,400	12,100	12,500	16,200	16,600
Fremont	17,100	12,200	10,500	16,900	14,100
Southern Alameda County Existing Stations Subtotal	**28,500**	**24,300**	**23,000**	**33,100**	**30,700**
Proposed Project Stations					
Irvington	—	—	6,200	—	9,400
Warm Springs	—	16,300	15,700	21,500	15,400
Proposed Project Stations Subtotal	**—**	**16,300**	**21,900**	**21,500**	**24,700**
Southern Alameda County Proposed and Existing Stations Subtotal	**28,500**	**40,600**	**44,900**	**54,600**	**55,400**
SVRTC Stations Subtotal	—	—	—	110,400	108,000
BART Systemwide Total[a] Entries and Exits	972,800	989,200	994,400	1,136,400	1,138,000
BART Systemwide Total[a] Boardings	486,400	494,600	497,200	568,200	569,000

Notes:

[a] Systemwide totals include all existing BART stations and may include Proposed Project and proposed SVRTC BART stations (depending on column).

Station-level and subtotal values are for station entries and exits (i.e. total persons entering and leaving station areas). Systemwide total boardings were calculated by dividing entries and exits by two.

Cumulative analysis of the Proposed Project plus SVRTC, 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 plus SVRTC.

All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.

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

Tables 3.9-7 and 3.9-8 indicate the entries and exits at selected stations for the years 2010 and 2025, respectively. Another important ridership result can be gained through simple division and subtraction. The number of new trips on BART can be estimated by dividing the BART systemwide total entries and exits in half. This step is necessary to convert the entries and exits into and out of the system into the number of trips, otherwise each trip would be counted twice. Subtracting the

number of trips under the No Project from the trips under the Proposed Project yields the number of new trips on BART resulting from the Proposed Project. For example, in 2010 the number of trips under the No Project would be 387,800 and the number under the Proposed Project would be 393,800. The number of new BART trips under the Proposed Project would be 6,000. Doing the same calculation for the Proposed Project with the optional Irvington Station in 2010 yields 7,400 new BART trips. In 2025 the number of new BART trips under the Proposed Project would be 8,200 and the number under the Proposed Project with the optional Irvington Station would be 10,800.

In summary, the following observations can be made from the two previous tables.

- The total number of entries and exits would increase at the Union City BART Station when any scenario is compared to the No-Project condition (during both 2010 and 2025).
- In 2010, the total entries and exits at the Fremont BART Station would decrease because the station would no longer be the terminus. When the Proposed Project is compared to the 2010 No-Project condition, there would be a decrease of 3,500 entries and exits. With implementation of the Proposed Project with optional Irvington Station, there would be a further 1,500 decrease in entries and exits (a 5,000 total difference when compared to the 2010 No-Project condition) at the Fremont BART Station.
- In 2010, the total entries and exits would be 11,600 at the Warm Springs Station, with a 4,000 increase with implementation of the optional Irvington Station.
- In 2010, there would be an increase in entries and exits for all southern Alameda County stations, which can be attributed to the new stations in the area. Under the 2010 Proposed Project condition, there would be an increase of 9,000 entries and exits when compared to the 2010 No-Project condition. When the Proposed Project with optional Irvington Station condition is compared to the 2010 No-Project condition, there would be an increase of 11,600 entries and exits in the southern Alameda County BART stations.
- In 2010, there would also be a systemwide increase in BART station entries and exits. Systemwide entries and exits increase by 22,000 under the Proposed Project condition and 26,000 under the Proposed Project with optional Irvington Station condition.
- At the Fremont BART Station under all 2025 conditions, station entries and exits would decrease when compared to the 2025 No-Project condition. Entries and exits would decrease by 4,900 under the Proposed Project condition, and by 5,500 under the Proposed Project with optional Irvington Station condition.
- In 2025, there would be 16,300 entries and exits at the Warm Springs Station and a further 5,600 increase for the Proposed Project with implementation of the optional Irvington Station.
- Similar to the 2010 conditions, there would be increases in the entries and exits when all the southern Alameda County stations are combined under the 2025 conditions. There would be an increase of 12,100 under the Proposed Project condition and an increase of 16,400 under the Proposed Project with optional Irvington Station condition.
- In 2025, under the Proposed Project and the Proposed Project with optional Irvington Station conditions, there would be a 14,200 and a 20,400 increase in the systemwide entries and exits.

Mode of Access/Egress

A mode of access analysis provides the potential demands for parking, kiss-and-ride, walk access, and the need for transit facilities for transfers between BART and buses at each of the stations. Tables 3.9-9 and 3.9-10 list the mode of access/egress at each of the southern Alameda stations. The proposed Montague/Capitol Station (the first station south of Warm Springs) is also listed for the two SVRTC scenarios.

Table 3.9-9. 2010 Mode of Access/Egress to BART Stations

	Mode of Access/Egress				
Station	PNR	KNR	Walk/Bike	Transit XFER	Total Entries and Exits
2010 No Project					
Union City	3,600	1,300	500	3,700	9,200
Fremont	5,000	1,500	1,600	5,100	13,200
Irvington	0	0	0	0	0
Warm Springs	0	0	0	0	0
Southern Alameda total	8,600	2,800	2,100	8,800	22,500
2010 Proposed Project					
Union City	4,700	1,100	600	3,900	10,300
Fremont	3,900	800	2,200	2,800	9,700
Irvington	0	0	0	0	0
Warm Springs	3,000	600	1,100	6,800	11,600
Southern Alameda total	11,600	2,500	3,900	13,500	31,500
2010 Proposed Project with Optional Irvington Station					
Union City	4,800	1,000	600	3,900	10,400
Fremont	3,100	600	2,200	2,100	8,200
Irvington	1,900	400	1,100	1,200	4,500
Warm Springs	2,300	500	1,300	7,100	11,000
Southern Alameda total	12,100	2,500	5,200	14,300	34,100

Notes:

PNR = Park-and-ride
KNR = Kiss-and-ride
XFER = Transfer
All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.

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

Table 3.9-10. 2025 Mode of Access/Egress to BART Stations

Station	Mode of Access/Egress				
	PNR	KNR	Walk/Bike	Transit XFER	Total Entries and Exits
2025 No Project					
Union City	3,600	2,100	900	4,700	11,400
Fremont	5,100	2,600	1,800	7,500	17,100
Irvington	0	0	0	0	0
Warm Springs	0	0	0	0	0
Southern Alameda total	8,700	4,700	2,700	12,200	28,500
2025 Proposed Project					
Union City	3,700	2,400	1,000	5,000	12,100
Fremont	4,900	1,000	2,500	3,800	12,200
Irvington	0	0	0	0	0
Warm Springs	4,600	1,000	2,500	8,000	16,300
Southern Alameda total	13,200	4,400	6,000	16,800	40,600
2025 Proposed Project with Optional Irvington Station					
Union City	4,600	2,000	1,000	5,000	12,500
Fremont	4,100	800	2,600	2,900	10,500
Irvington	2,500	500	1,600	1,700	6,200
Warm Springs	3,600	800	2,500	8,900	15,700
Southern Alameda total	14,800	4,100	7,700	18,500	44,900
2025 Proposed Project with SVRTC					
Union City	5,600	2,100	1,400	7,100	16,200
Fremont	6,200	1,300	3,300	6,100	16,900
Irvington	0	0	0	0	0
Warm Springs	3,200	600	6,700	11,000	21,500
Montague/Capitol	3,900	900	1,500	15,600	21,900
Southern Alameda total (without Montague/Capitol)	15,000	4,000	11,300	24,200	54,600
2025 Proposed Project with Optional Irvington Station with SVRTC					
Union City	6,400	1,700	1,400	7,000	16,600
Fremont	5,000	1,000	3,400	4,500	14,100
Irvington	3,200	700	2,300	3,200	9,400
Warm Springs	2,000	400	5,300	7,700	15,400
Montague/Capitol	3,700	900	1,300	15,600	21,500
Southern Alameda total (without Montague/Capitol)	16,600	3,800	12,400	26,000	55,400

Notes:
PNR = Park-and-ride
KNR = Kiss-and-ride
XFER = Transfer
All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.
Cumulative analysis of the Proposed Project plus SVRTC, 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 plus SVRTC.

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

The previous tables can be summarized as follows.

- 2010 Proposed Project and 2025 Proposed Project – More parking would be built in the area, and kiss-and-ride levels would decline as a result. As the VTA express buses move from the Fremont BART Station to the Warm Springs Station, there would be a corresponding change in the transit transfers. Any loss in transfers at the Fremont BART Station would be more than accounted for at the Warm Springs Station.
- 2010 Proposed Project with optional Irvington Station and 2025 Proposed Project with optional Irvington Station – As for the 2010 Proposed Project, more parking would be built in the southern Alameda County area, and kiss-and-ride volumes would decline. The loss in the existing transfers at the Fremont Station would be accounted for at Warm Springs. There would be more people walking to the optional Irvington Station than to the proposed Warm Springs Station.

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 onto 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 is not considered a linked transit trip.

Table 3.9-11 lists the number of projected linked transit trips (rounded to the nearest hundred) from areas that would logically use the service in 2010. Table 3.9-12 lists the number of projected transit trips for 2025. These tables show the linked transit trips for four broad areas within the network: those people that stay within the Fremont/Newark/Union City area; those people traveling to Union City, Newark and Fremont; those people traveling from Newark, Fremont and Union City to other areas; and those people that travel through the Fremont/Newark/Union City area. Those people that travel through the area would include patrons travelling between the East Bay and Santa Clara County.

Table 3.9-11. 2010 Linked Transit Trips

Trips	No Project	Proposed Project	Proposed Project with optional Irvington Station
Intra	9,800	10,300	10,600
To	7,700	8,900	9,000
From	21,400	23,600	24,100
Through	9,600	10,500	10,400
Total Proposed Project Corridor Transit Trips	48,600	53,300	54,200
Change from No Project	—	4,700	5,700
Intra Santa Clara Transit Trips	214,700	216,000	216,000

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).
All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.
Source: DKS Associates 2002 from VTA-modified MTC model

Table 3.9-12. 2025 Linked Transit Trips

Trips:	No Project	Proposed Project	Proposed Project with Optional Irvington Station	Proposed Project plus SVRTC	Proposed Project with Optional Irvington Station plus SVRTC
Intra	11,100	11,800	12,300	12,000	12,500
To	8,600	10,700	11,000	14,900	15,500
From	25,300	28,000	29,100	37,800	37,800
Through	11,800	13,300	13,400	24,400	24,100
Total Proposed Project Corridor Transit Trips	56,700	63,900	65,800	89,100	89,900
Change from No Project	—	7,200	9,100	32,400	33,200
Intra Santa Clara Transit Trips	243,000	246,900	246,800	253,500	253,300

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 plus SVRTC, 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 plus SVRTC.
All numbers have been independently rounded to the nearest hundred; totals may not sum up to displayed value.

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 Project, there would be a 10% increase in transit riders. The largest increase for linked transit trips would be for those people that travel into the Fremont/Newark/Union City area from other Bay Area locations (an increase of 15% over the 2010 No-Project condition).
- In 2010, with implementation of the Proposed Project with optional Irvington Station, there would be a 12% increase in transit riders in the Proposed Project corridor. Similar to the 2010 Proposed Project, the largest increase in the linked transit trips would be in transit trips to the Fremont/Newark/Union City area (an increase of 17% over the 2010 No-Project condition).
- In 2025, with implementation of the Proposed Project, there would be an increase of 13% in linked transit trips. Again the largest increase would be for those transit riders coming into the Fremont/Newark/Union City area (a 24% increase in the linked transit riders over the 2025 No-Project condition).
- In 2025, with implementation of the Proposed Project with optional Irvington Station, there would be an increase of 16% new transit riders when compared to the 2025 No-Project condition. The linked transit trips to the Fremont/Newark/Union City area would experience an increase of 28% over the 2025 No-Project condition.

Impact TRN1 – Increase in new transit trips. As shown above in Tables 3.9-11 and 3.9-12, the Proposed Project would result in an increase in new transit trips. Regional transit ridership, particularly for trips destined for, originating in, or passing through southern Alameda County would increase. Tables 3.9-11 and 3.9-12 indicate that transit person trips would increase by 7,200 trips in 2025 with implementation of the Proposed Project in comparison to the No-Project conditions. These tables indicate a shift in use from automobile to transit. As discussed in the MTS analysis below, increased transit usage would reduce auto congestion. In addition, as discussed in Section 3.11 (*Air Quality*), increased transit usage would reduce air pollution. This is a beneficial impact. (*Beneficial.*)

Mitigation – None required.

Travel Time Comparison

This section consists of sets of travel time comparisons between selected residential locations (northwest Milpitas, Irvington, Fremont, Union City, and Hayward) and selected Bay Area employment centers (downtown San Francisco; downtown San Jose, 1st Street and the Diridon Caltrain Depot; Lockheed Martin Corporation facilities in Sunnyvale; and the Pacific Commons development in Fremont).

The locations have been selected to be representative examples. The small set of times is not intended to characterize all travel patterns changed by the Proposed Project. Transit riders' destinations in the Fremont-Warm Springs area are very diffuse, with no single area dominating. Transit ridership from MTC Super District 16 (Fremont-Union City and Newark) to other parts of the Bay Area is projected to be roughly similarly split among San Francisco, the South Bay (including San Mateo County), and the rest of the East Bay. Therefore, the list of travel time comparisons is

intended to capture the essence of area-wide changes associated with the BART extension alternatives.

In some cases, transit is competitive with highway times in all alternatives (for example, northwest Milpitas to downtown San Francisco). In other cases, transit travel times improve substantially for one or more of the build alternatives (for example Irvington to NUMMI). However, there is also one case (Milpitas to Pacific Commons) where transit is not competitive with auto travel, even with improved transit times, due to the need to transfer and the absence of traffic congestion for this specific origin–destination pair.

Table 3.9-13 provides a comparison of a.m. peak hour travel time (in minutes) between the 2010 conditions, and Table 3.9-14 provides a similar comparison for 2025. Auto travel times would remain roughly constant among the various alternatives analyzed due to the peak spreading function built into the VTA-modified MTC model. When demand during the peak hour exceeds capacity, the excess vehicles are shifted to either earlier or later than the peak hour. The shifting of trips from auto to transit would result in less peak spreading but would not affect auto travel times during the peak hour.

Table 3.9-13. 2010 Transit Travel Times (minutes)

			Transit		
Sample Trip (Origin-Destination)	Drive Alone	Carpool	2010 No Project	2010 Proposed Project	2010 Proposed Project with Optional Irvington Station
Northwest Milpitas-Northwest Downtown San Francisco	101	81	74	74	75
Northwest Milpitas-Northwest Pacific Commons	16	23	84	65	66
Irvington-NUMMI	11	18	37	26	18
Irvington-Downtown San Jose	35	35	80	70	63
Fremont-Lockheed	44	36	89	66	67
Fremont-Pacific Commons	12	19	43	43	43
Union City-Diridon Caltrain Depot	53	46	69	69	69
Union City-Downtown San Jose	52	44	78	81	82
Hayward-Lockheed	66	48	75	80	81

Notes:

Travel times include all modes, including walking, driving, waiting, in-vehicle travel, and other times as appropriate.

Hayward location is assumed to be at the city center.

Union City location is approximately the Dyer/Alvarado-Niles Parkway intersection (west of I-880).

Fremont location is approximately the Stevenson Boulevard/Paseo Padre Parkway intersection.

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

Table 3.9-14. 2025 Transit Travel Times (minutes)

Sample Trip (Origin-Destination)	Drive Alone	Carpool	Transit				
			2025 No Project	2025 Proposed Project	2025 Proposed Project with Optional Irvington Station	Proposed Project plus SVRTC	Proposed Project with Optional Irvington Station plus SVRTC
Northwest Milpitas-Northwest Downtown San Francisco	110	85	71	71	72	71	72
Northwest Milpitas-Northwest Pacific Commons	20	26	86	66	67	53	53
Irvington-NUMMI	11	18	40	25	18	25	18
Irvington-Downtown San Jose	40	47	82	72	65	38	30
Fremont-Lockheed	52	49	98	67	68	56	57
Fremont-Pacific Commons	14	21	45	45	45	45	45
Union City-Diridon Caltrain Depot	60	60	69	69	69	52	53
Union City-Downtown San Jose	58	58	79	82	83	48	49
Hayward-Lockheed	72	60	75	80	81	68	69

Notes:
Travel times include all modes, including walking, driving, waiting, in-vehicle travel, and other times as appropriate.
Hayward location is assumed to be at the city center.
Union City location is approximately the Dyer/Alvarado-Niles Parkway intersection (west of I-880).
Fremont location is approximately the Stevenson Boulevard/Paseo Padre Parkway intersection.

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

The addition of the optional Irvington Station would add 1.0 minute of additional travel time on BART. This is seen in a number of the transit time comparisons such as Fremont to Lockheed and Union City to downtown San Jose.

In a few select cases, transit travel times would increase under the Proposed Project compared to the No Project. An example of this difference is the trip from Union City to downtown San Jose. Under the No-Project Alternative, the traveler would use relatively infrequent Capitol Corridor service to travel to the Diridon Station in San Jose and transfer to bus. Under the Proposed Project, the traveler would use more frequent BART service to travel to Warm Springs and transfer to bus for the trip to downtown San Jose, which is a few minutes longer compared to the No-Project Alternative.

It should be noted that BART park-and-ride lots are reserved for BART patrons only. This helps explain some of the travel time differences between alternatives. For example, travel times from Irvington to downtown San Jose decrease substantially when the optional Irvington BART Station is added. Under the Proposed Project, Irvington riders would drive to Fremont and ride one station to

Warm Springs before transferring to the VTA Route 180. The optional Irvington Station would greatly increase convenience for these riders as they would have a shorter park-and-ride access time, and a shorter BART ride to Warm Springs.

The other viable option would be to ride a local bus from Irvington to Warm Springs to access the VTA 180 to downtown San Jose (the path chosen in the No-Project Alternative). However, overall travel times indicate that it would be shorter to "backtrack" to Fremont BART than to use the local bus option. BART is much faster than local bus routes and operates much more frequently. In addition, the actual drive access time to the Fremont BART station is nearly equal to the actual walk time to the local bus stop.

Finally, the travel time calculations do not factor in trip reliability. Highway travel times, for example, can vary greatly depending on weather, special events, accidents, and traffic volumes. Rail systems with exclusive rights-of-way can enhance transit reliability, although severe disruptions can occur. Ridership models typically do not capture how day-to-day trip time reliability affects mode choice.

Bicycle and Pedestrian Impacts

Bicycle and Pedestrian Impacts Related to Warm Springs Extension

Impact TRN2 – Obstruction of existing bicycle circulation facilities in the vicinity of the proposed station site. The existing bicycle facilities, as described above under *Existing Conditions*, generally consist of signed bicycle lanes (a 15-foot travel lane with prohibited parking and no markings on the pavement) in the area of the proposed Warm Springs Station site. The Proposed Project would not create any bicycle hazards or eliminate any access compared to existing and No-Project conditions. (*No impact.*)

Mitigation – None required.

Impact TRN3 – Obstruction of existing pedestrian circulation facilities in the vicinity of the proposed station site. As described above under *Existing Conditions,* the access roads to the proposed Warm Springs Station are generally not pedestrian oriented. The Proposed Project would not create any pedestrian hazards or eliminate any access compared to existing and No Project conditions. (*No impact.*)

Mitigation – None required.

Bicycle and Pedestrian Impacts Related to Optional Irvington Station

The bicycle and pedestrian impacts related to the optional Irvington Station would generally be the same as those related to the Proposed Project in that existing conditions in the vicinity of the optional Irvington Station are generally not bicycle or pedestrian oriented.

Intersection Operations

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, the intersection LOS was evaluated at 18 study intersections. Because construction of the optional Irvington Station would redistribute trips that would have gone to either the Fremont or Warm Springs Station, all of the study intersections were evaluated both with and without the optional Irvington Station. Figures 3.9-8 to 3.9-15 illustrate the turning movements for each study intersection under each scenario.

The intersections and their corresponding levels of service are presented in Table 3.9-15 for the year 2010 and Table 3.9-16 for the year 2025.

Intersection Impacts Related to Warm Springs Extension

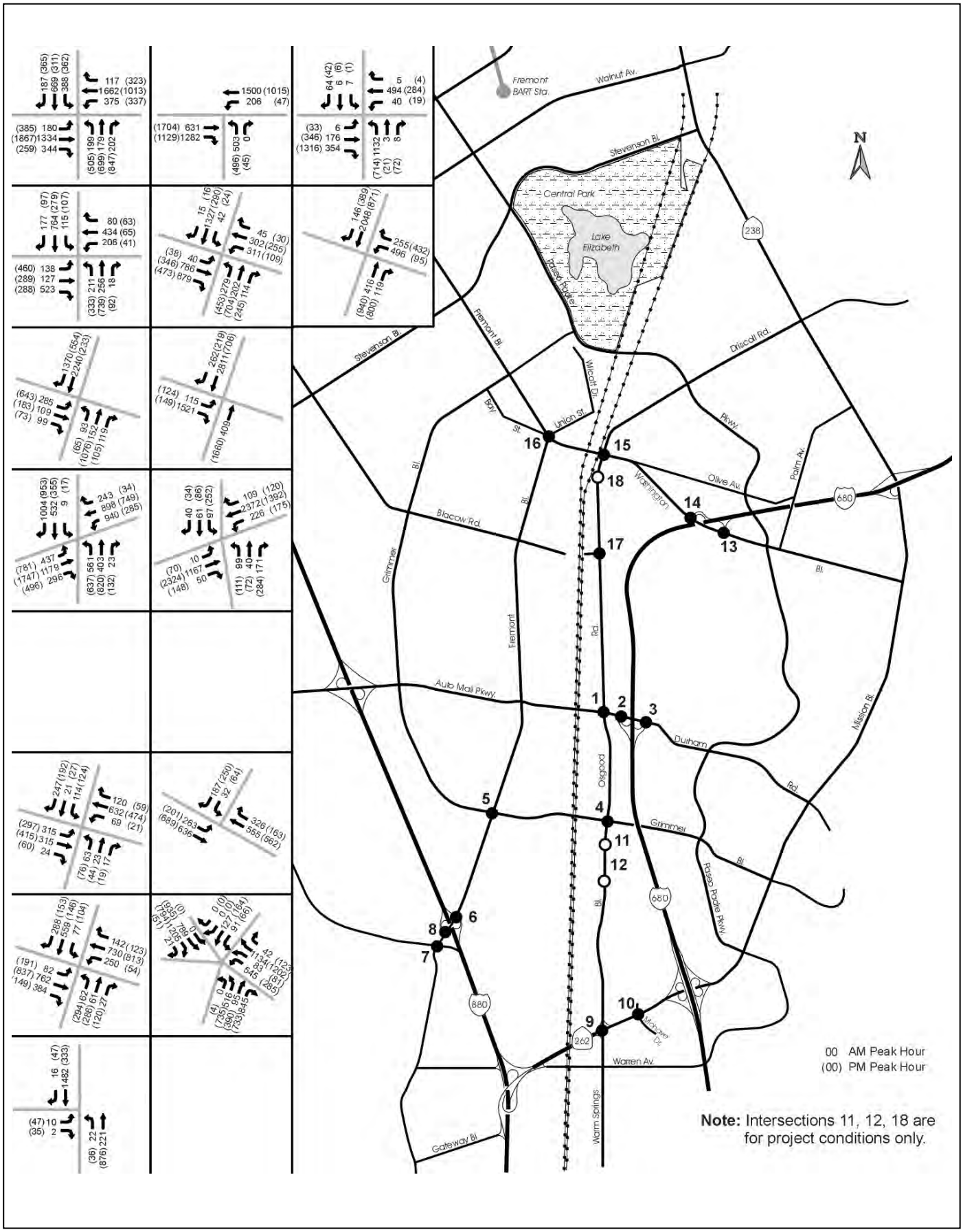
Operational Impacts and Mitigation Measures, 2010

Impact TRN4 – 2010 change in V/C and LOS at the intersection of Osgood Road/Durham Road/Auto Mall Parkway. Under 2010 Proposed Project conditions, the intersection of Osgood Road/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.90 and LOS D in the a.m. peak hour, and at a V/C ratio of 1.06 and LOS F in the p.m. peak hour. Adding capacity to this intersection would require right-of-way acquisition and relocation of utilities. Signal timing and phasing changes would not reduce the V/C ratio enough to achieve an acceptable LOS. The intersection would require additional widening on both Auto Mall Parkway and Osgood Road, which would entail removal of sidewalks on the south side of Auto Mall Parkway and property takes from existing businesses. Widening Auto Mall Parkway would be hindered by the roadway grade changes at this intersection and the proximity of the intersection to the I-680 southbound on-ramp to the east and the railroad overpass bridge structure to the west. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

Impact TRN5 – 2010 change in V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. Under 2010 Proposed Project conditions, the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.99 and LOS E in the a.m. peak hour, and a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of the following mitigation measure would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

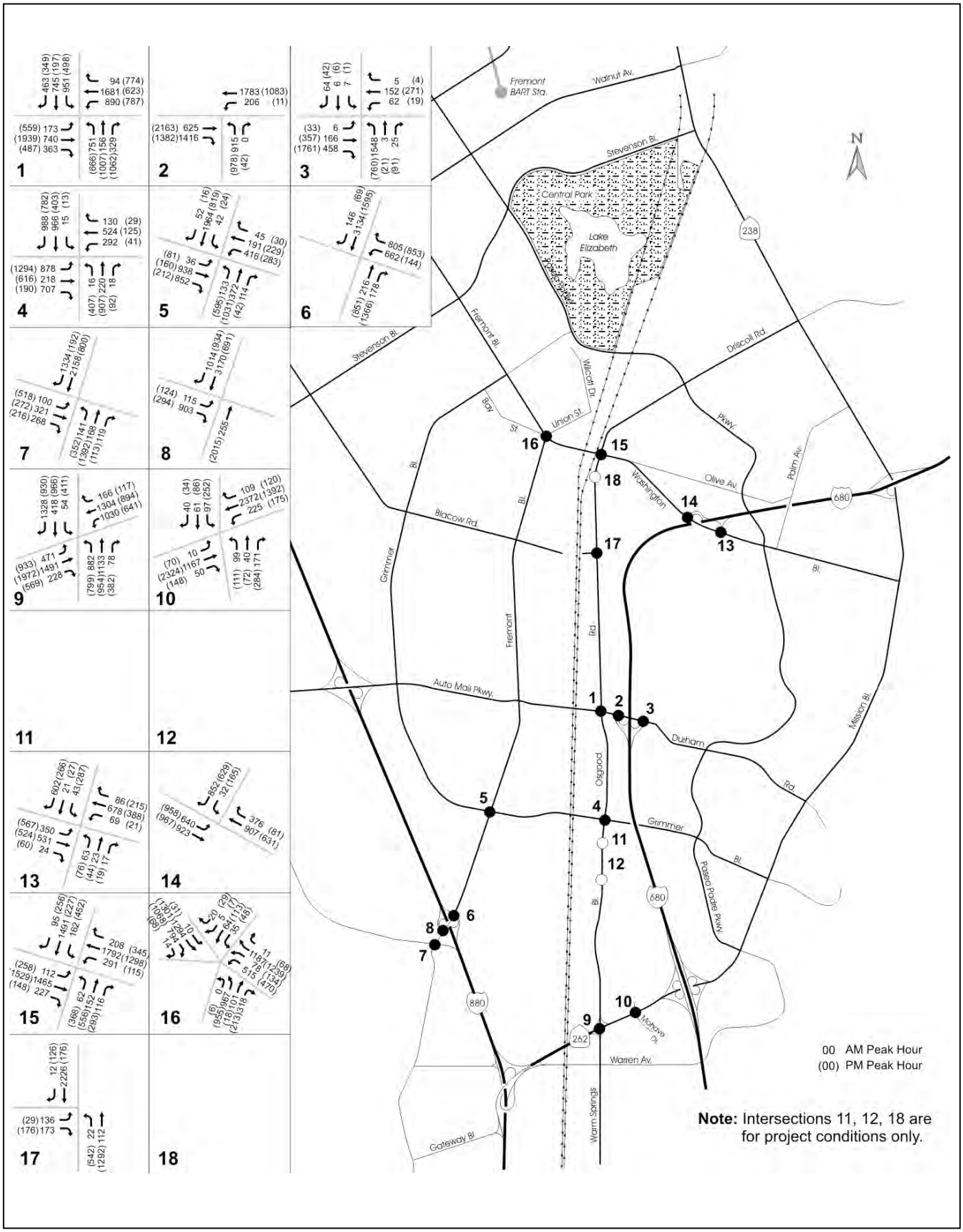
Mitigation Measure TRN5 – Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. The intersection operations could be improved to a V/C ratio of 0.75 and LOS C in the a.m. peak hour, and a V/C ratio of 0.89 and LOS D in the p.m. peak hour with the conversion of an eastbound through lane to a shared right-turn/through lane (to create another right-turn lane). This measure could be accommodated within the existing right-of-way,



02041.02 (2/03)

Source: DKS Associates 2002.

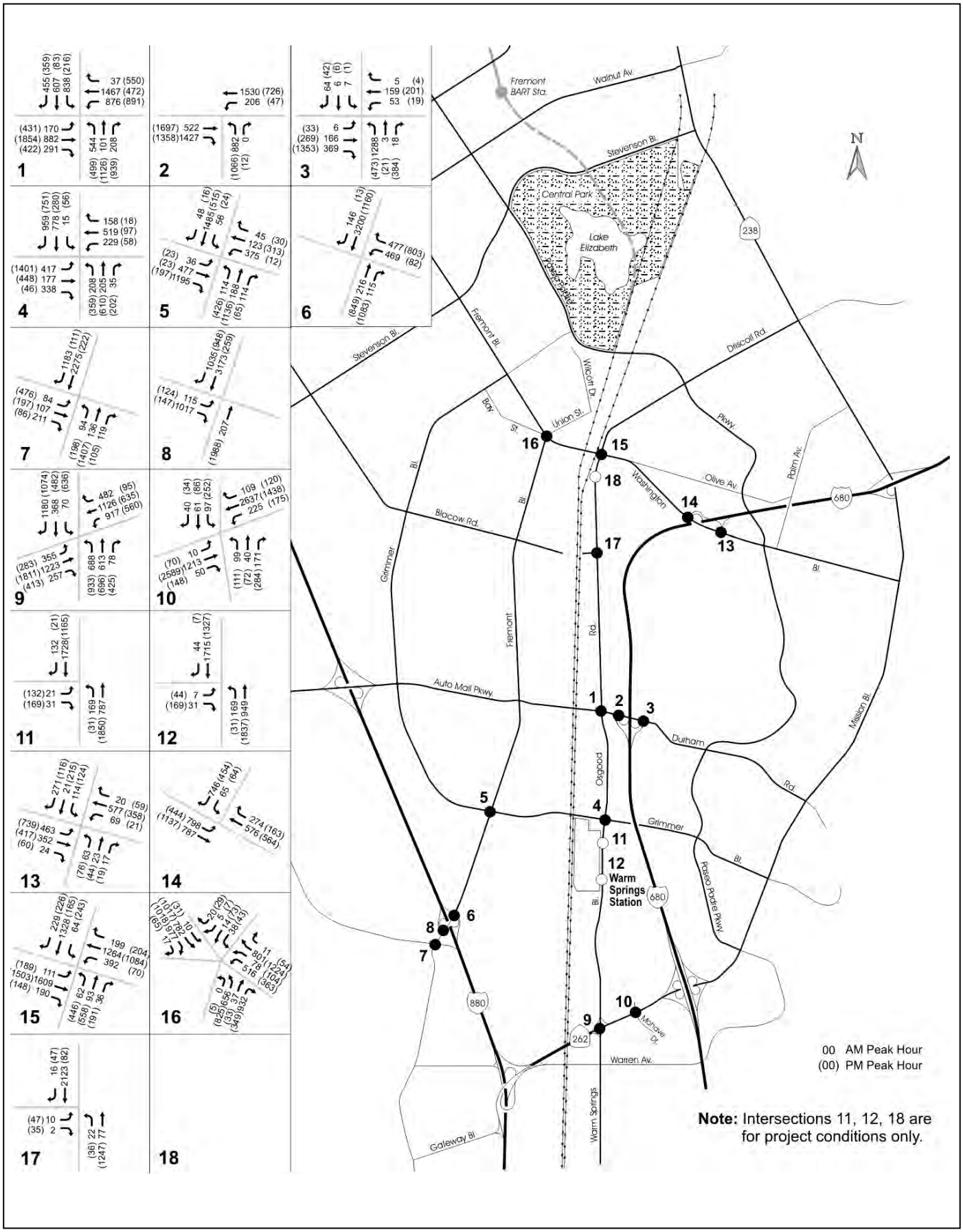
Figure 3.9-8
2010 No Project Peak Hour Turning Movements



02041.02 (2/03)

Source: DKS Associates 2002.

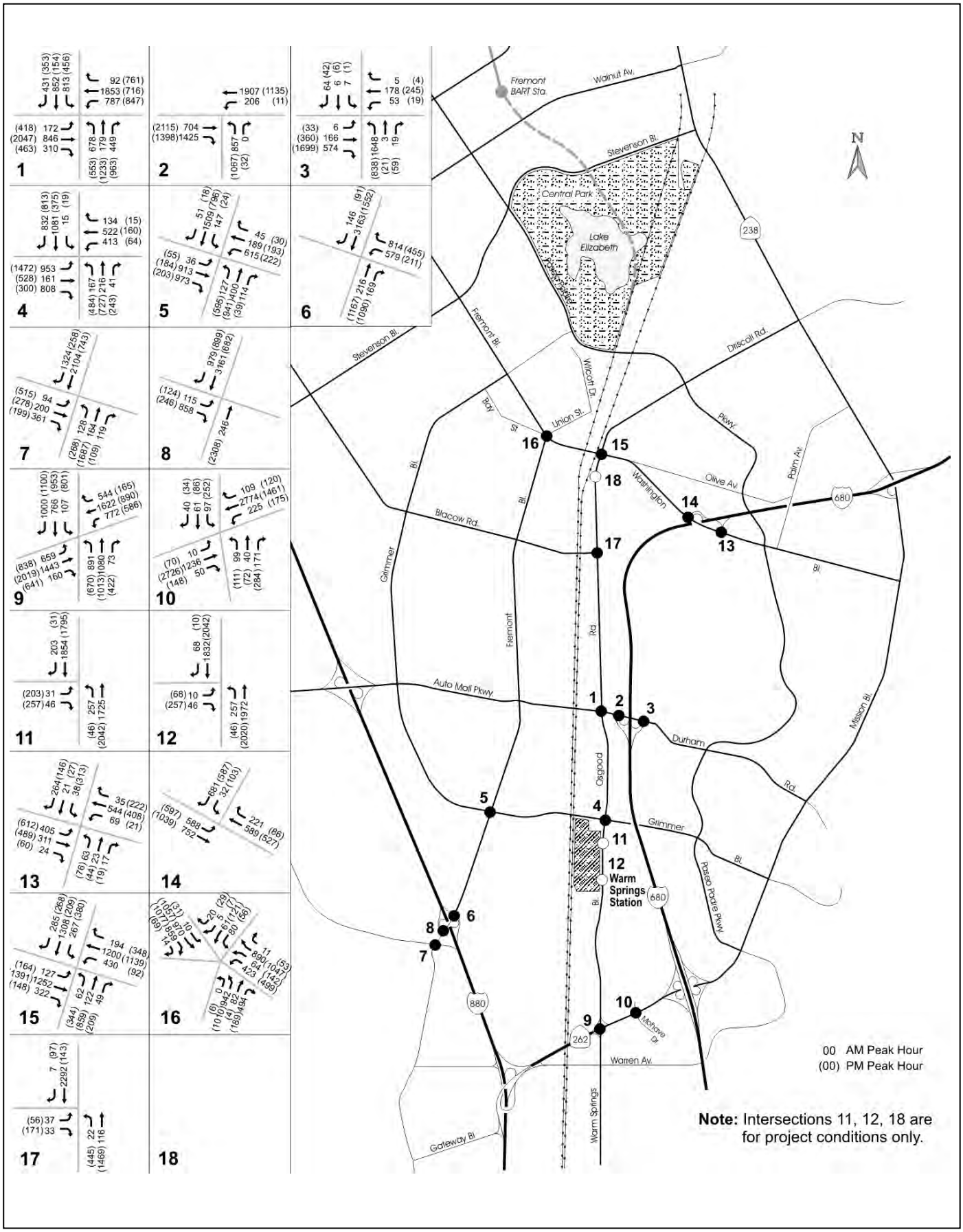
Figure 3.9-9
2025 No Project Peak Hour Turning Movements



02041.02 (11/02)

Source: DKS Associates 2002.

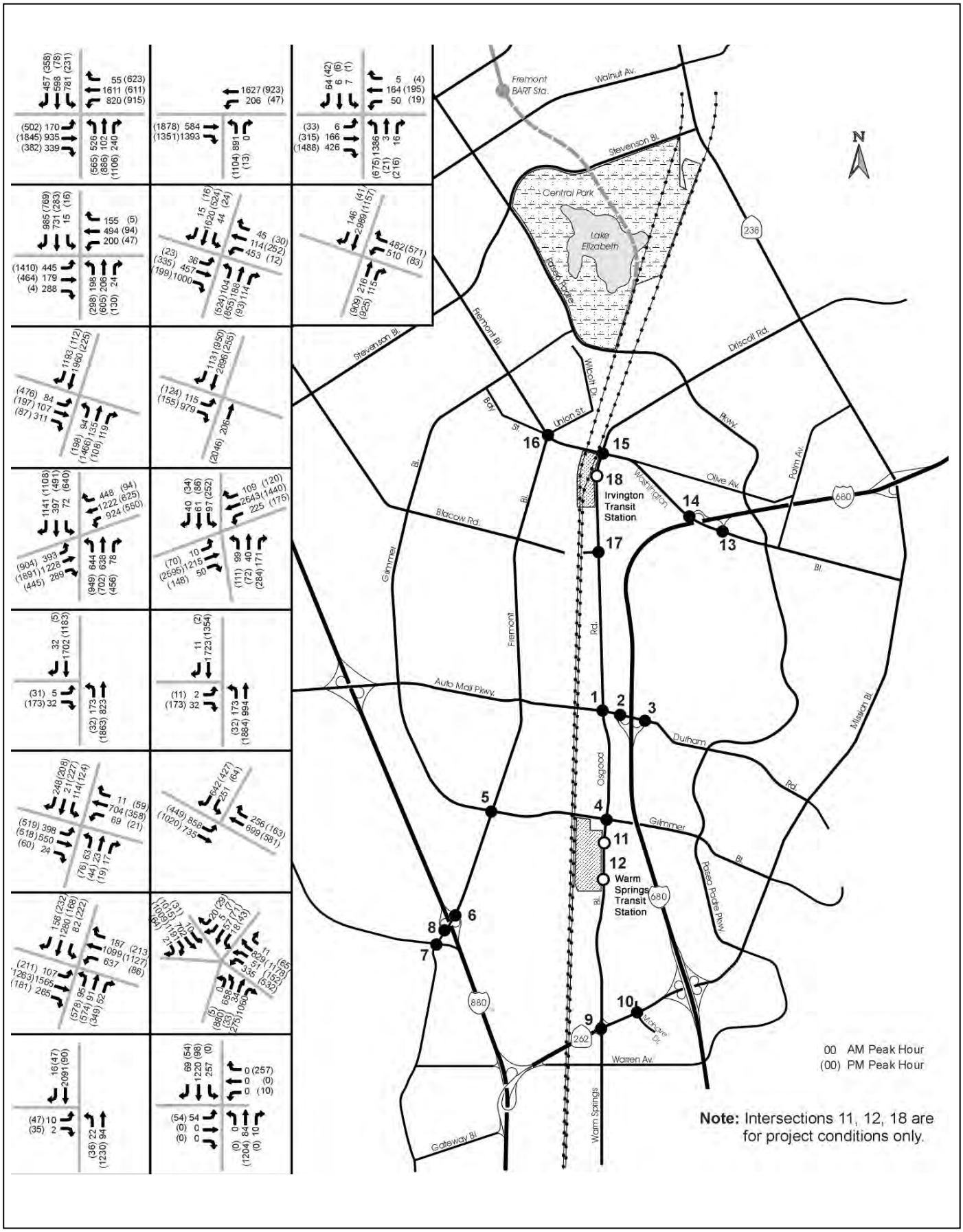
Figure 3.9-10
2010 Proposed Project
Peak Hour Turning Movements



02041.02 (11/02)

Source: DKS Associates 2002.

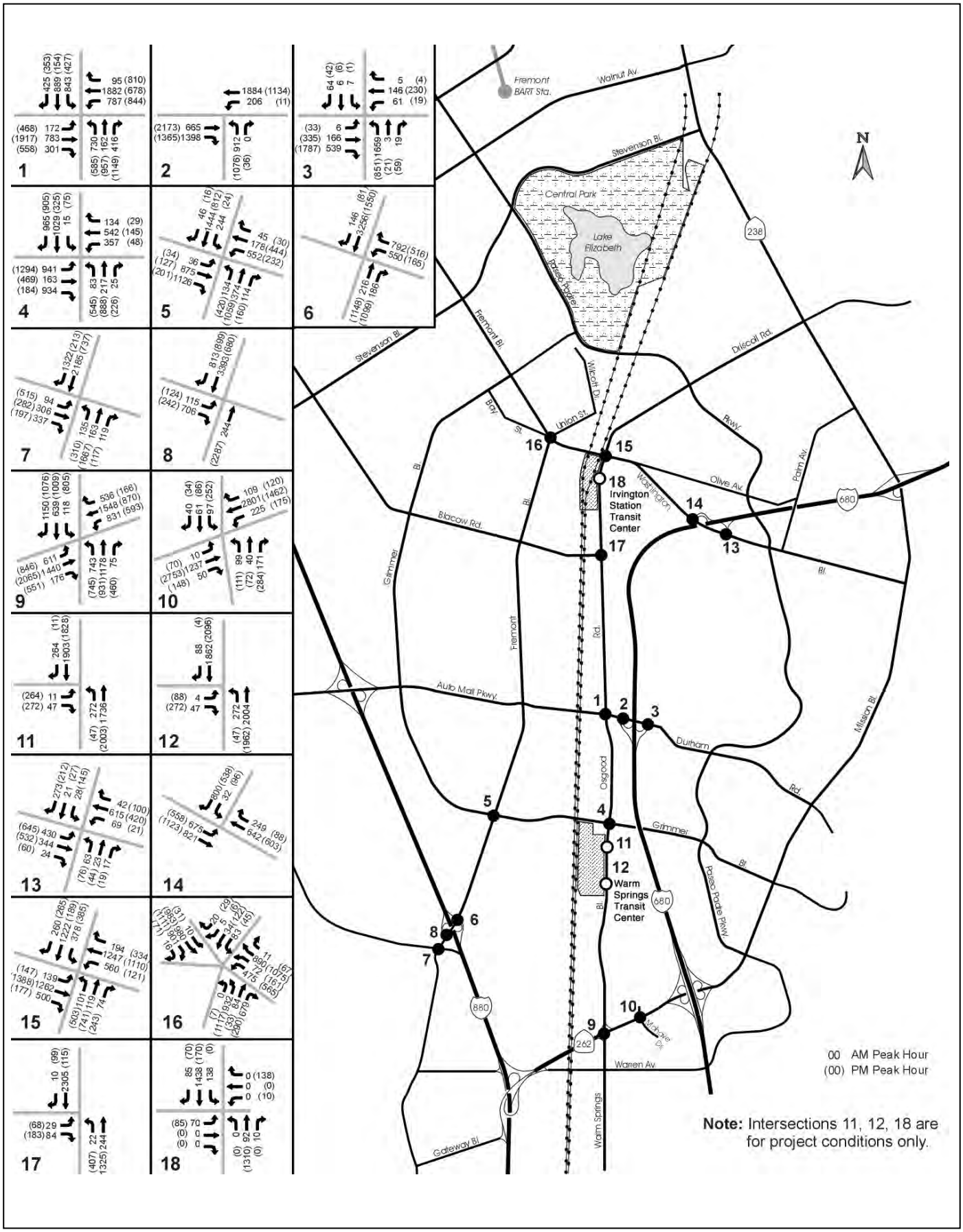
Figure 3.9-11
2025 Proposed Project
Peak Hour Turning Movements



02041.02 (2/03)

Source: DKS Associates 2003.

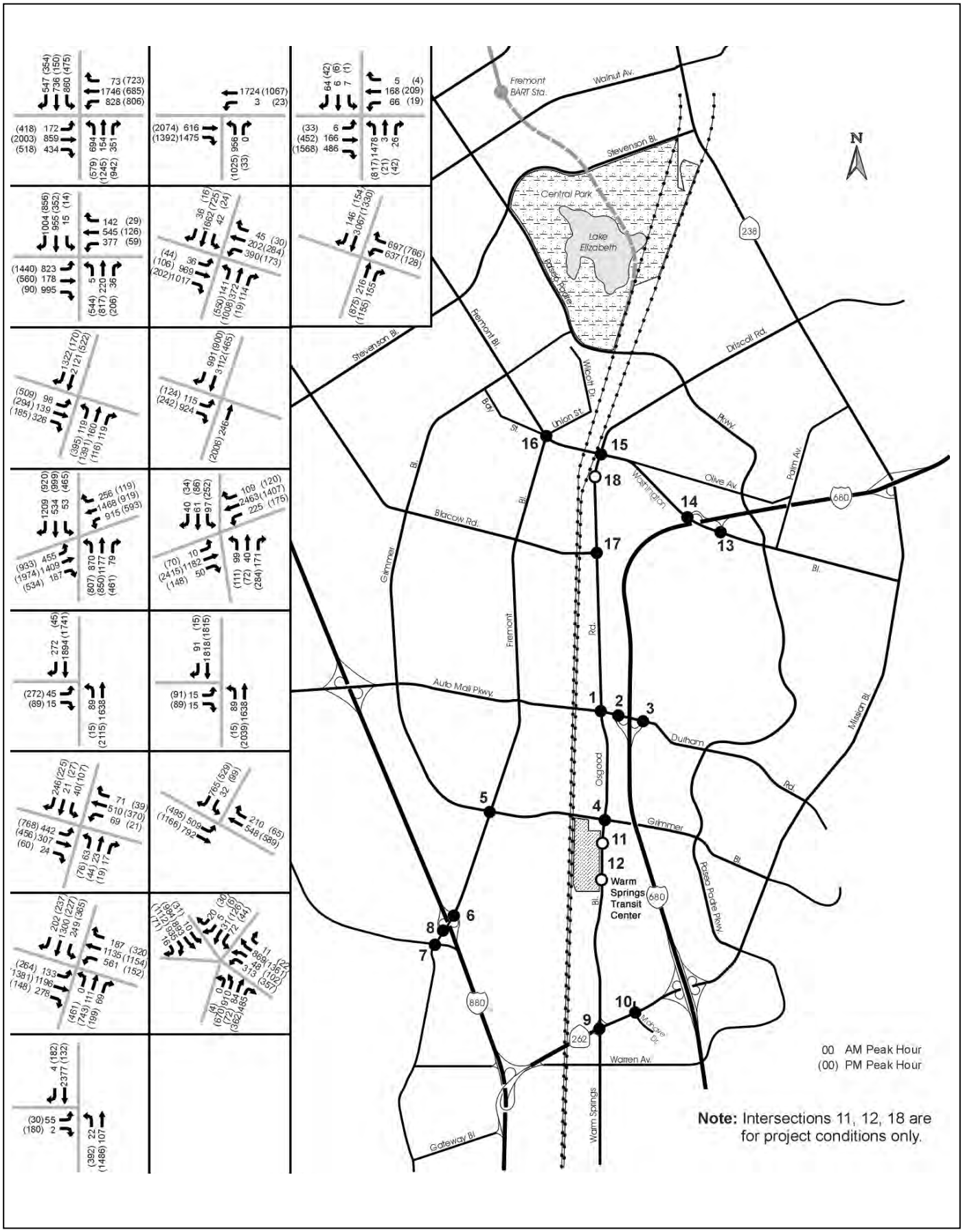
Figure 3.9-12
2010 Proposed Project with Optional Irvington Station Peak Hour Turning Movements



02041.02 (2/03)

Source: DKS Associates 2002.

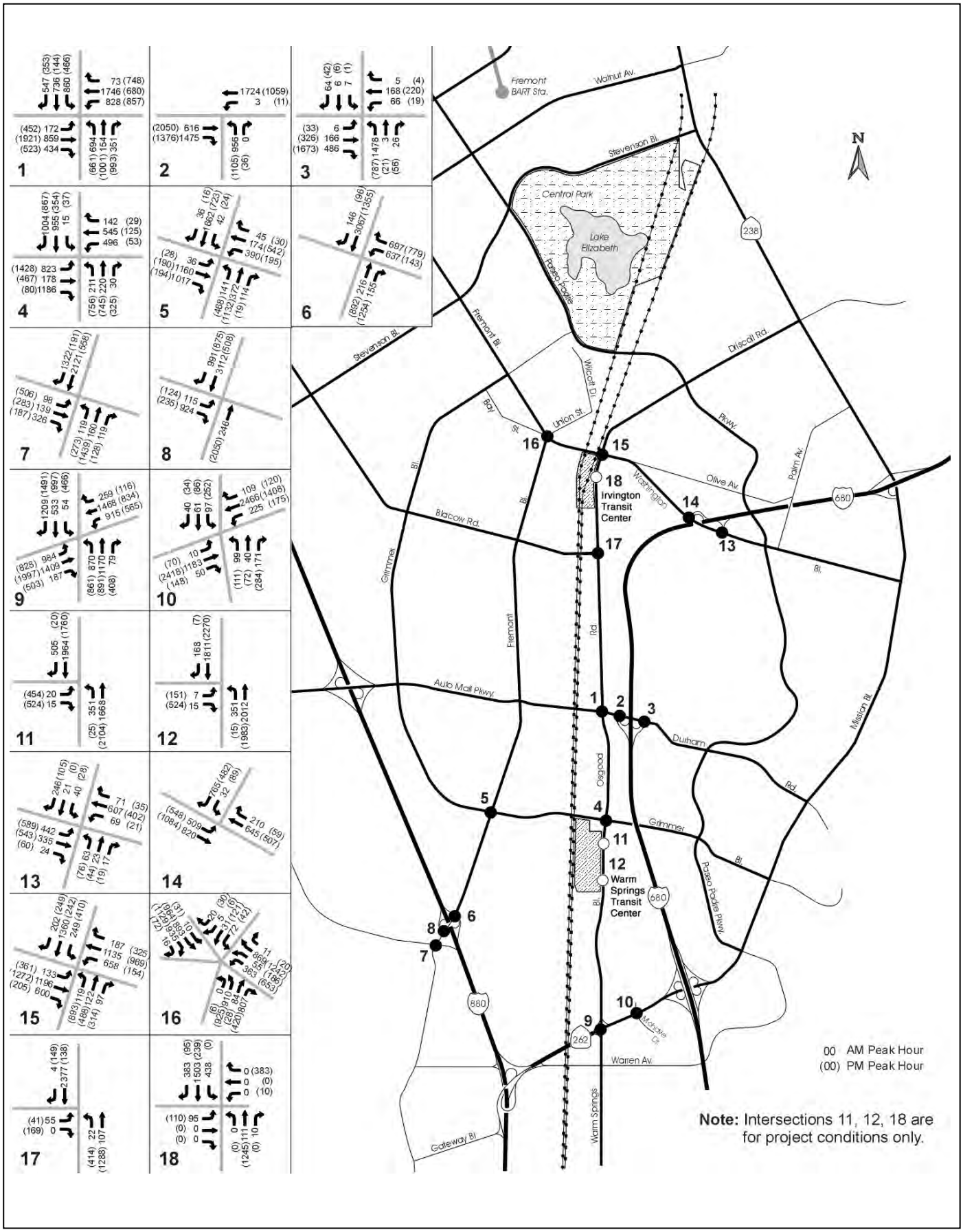
Figure 3.9-13
2025 Proposed Project with Optional Irvington Station Peak Hour Turning Movements



02041.02 (2/03)

Source: DKS Associates 2002.

Figure 3.9-14
2025 Proposed Project with SVRTC
Peak Hour Turning Movements



02041.02 (2/03)

Source: DKS Associates 2002.

Figure 3.9-15
2025 Proposed Project with SVRTC Optional Irvington Station Peak Hour Turning Movements

Table 3.9-15. Results of Intersection Analysis for Existing Conditions and 2010 Scenarios

		Existing Conditions				2010 No-Project Condition				2010 Proposed Project				2010 Proposed Project with Optional Irvington Station			
		a.m. Peak Hour		p.m. Peak Hour		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	LOS[a]	V/C[b]	LOS	V/C
1	Osgood Road/Durham Road/Auto Mall Parkway	D	0.84	D	0.87	D	0.84	D	0.89	D	0.90	F	1.06	E	0.92	F	1.05
2	I-680 SB Ramps/Durham Road/Auto Mall Parkway	D	0.88	C	0.75	D	0.89	C	0.78	E	0.99	E	0.91	E	0.97	E	0.91
3	I-680 NB Ramps/Durham Road/Auto Mall Parkway	A	0.54	A	0.39	A	0.56	A	0.40	A	0.53	A	0.41	A	0.56	A	0.38
4	Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard	B	0.62	C	0.74	D	0.88	D	0.86	E	0.91	F	1.29	D	0.90	F	1.23
5	Fremont Boulevard/South Grimmer Boulevard	D	0.85	A	0.44	E	0.91	A	0.58	D	0.86	A	0.57	D	0.90	B	0.62
6	Fremont Boulevard/I-880 NB Ramps	A	0.57	A	0.33	A	0.60	A	0.37	C	0.79	A	0.35	C	0.77	A	0.36
7	Fremont Boulevard/I-880 SB On-ramp/Cushing Parkway	C	0.76	A	0.42	D	0.86	A	0.47	C	0.79	A	0.48	D	0.84	A	0.49
8	Fremont Boulevard/I-880 SB Off-ramp	D	0.90	A	0.39	E	0.91	A	0.43	D	0.88	A	0.48	D	0.85	A	0.49
9	Warm Springs Boulevard/Mission Boulevard	D	0.87	D	0.81	F	1.08	E	0.94	F	1.22	F	1.16	F	1.19	F	1.19
10	Mohave Drive/Mission Boulevard	B	0.66	D	0.81	B	0.61	C	0.74	B	0.70	D	0.85	C	0.71	D	0.85
11	Warm Springs Boulevard/Northern Warm Springs Station Entrance									B	0.66	B	0.66	B	0.65	B	0.63
12	Warm Springs Boulevard/Southern Warm Springs Station Entrance									B	0.65	B	0.62	B	0.65	B	0.64
13	I-680 NB Ramps/Washington Boulevard	A	0.60	A	0.56	A	0.60	A	0.56	B	0.64	C	0.78	B	0.63	B	0.66
14	I-680 SB Ramps/Washington Boulevard	A	0.41	A	0.40	A	0.41	A	0.40	C	0.73	A	0.53	D	0.87	A	0.54
15	Osgood Road/Washington Boulevard	D	0.86	C	0.72	A	0.51	A	0.58	D	0.85	B	0.70	E	0.91	C	0.74
16	Fremont Boulevard/Washington Boulevard/Bay St	A	0.60	C	0.74	F	1.27	F	1.13	F	1.05	F	1.06	F	1.27	F	1.05
17	Osgood Road/Blacow Road	[c]	[c]	[c]	[c]	A	0.51	A	0.36	B	0.68	A	0.45	B	0.67	A	0.45
18	Osgood Road/Optional Irvington Station Entrance													A	0.45	A	0.59

Notes:

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

[c] Not included in existing conditions due to low traffic volumes and future signalization of the intersection.

NB = northbound; SB = southbound

Source: DKS Associates 2002

Table 3.9-16. Results of Intersection Analysis for 2025 Scenarios

#	Intersection	2025 No-Project Condition				2025 Proposed Project				2025 Proposed Project with Optional Irvington Station				2025 SVRT with Proposed Project				2025 SVRT with Proposed Project with Optional Irvington Station			
		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour	
		LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	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	E	1.00	F	1.11	F	1.02	F	1.09	F	1.04	F	1.10	F	1.04	F	1.07
2	I-680 SB Ramps/Durham Road/Auto Mall Parkway	E	0.98	D	0.90	E	0.98	E	0.91	E	0.97	E	0.91	E	0.92	E	0.91	E	0.92	E	0.91
3	I-680 NB Ramps/Durham Road/Auto Mall Parkway	B	0.61	A	0.42	B	0.63	A	0.44	B	0.64	A	0.44	A	0.59	A	0.46	A	0.59	A	0.42
4	Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard	F	1.14	F	1.31	F	1.33	F	1.41	F	1.25	F	1.42	F	1.22	F	1.41	F	1.45	F	1.44
5	Fremont Boulevard/South Grimmer Boulevard	F	1.07	D	0.84	F	1.05	C	0.80	E	0.99	C	0.71	E	0.99	C	0.72	F	1.04	C	0.80
6	Fremont Boulevard/I-880 NB Ramps	D	0.83	A	0.42	D	0.82	A	0.47	D	0.82	A	0.45	D	0.82	A	0.37	D	0.82	A	0.38
7	Fremont Boulevard/I-880 SB On-ramp/Cushing Parkway	D	0.87	A	0.49	D	0.89	A	0.54	D	0.89	A	0.54	D	0.88	A	0.49	D	0.88	A	0.49
8	Fremont Boulevard/I-880 SB Off-ramp	D	0.86	A	0.51	B	0.85	A	0.55	D	0.85	A	0.55	D	0.86	A	0.50	D	0.86	A	0.50
9	Warm Springs Boulevard/Mission Boulevard	F	1.42	F	1.09	F	1.13	F	1.15	F	1.20	F	1.17	F	1.31	F	1.07	F	1.26	F	1.42
10	Mohave Drive/Mission Boulevard	B	0.66	D	0.81	C	0.73	D	0.86	C	0.73	D	0.86	B	0.67	D	0.83	B	0.67	D	0.83
11	Warm Springs Boulevard/Northern Warm Springs Station Entrance					C	0.75	C	0.75	C	0.73	C	0.77	B	0.67	D	0.81	D	0.82	D	0.87
12	Warm Springs Boulevard/Southern Warm Springs Station Entrance					C	0.73	C	0.75	C	0.76	C	0.77	B	0.64	B	0.69	C	0.78	D	0.89

#	Intersection	2025 No-Project Condition				2025 Proposed Project				2025 Proposed Project with Optional Irvington Station				2025 SVRT with Proposed Project				2025 SVRT with Proposed Project with Optional Irvington Station			
		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour		a.m. Peak Hour		p.m. Peak Hour	
		LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C	LOS[a]	V/C[b]	LOS	V/C
13	I-680 NB Ramps/Washington Boulevard	A	0.58	D	0.81	A	0.56	D	0.85	B	0.69	C	0.76	A	0.58	C	0.77	B	0.61	B	0.64
14	I-680 SB Ramps/Washington Boulevard	C	0.71	D	0.86	A	0.60	B	0.63	B	0.66	B	0.62	A	0.54	A	0.59	A	0.57	A	0.59
15	Osgood Road/Washington Boulevard	D	0.89	D	0.85	D	0.82	D	0.82	D	0.86	C	0.78	D	0.84	D	0.84	E	0.92	D	0.88
16	Fremont Boulevard/Washington Boulevard/Bay St	E	0.98	F	1.13	E	0.91	F	1.09	E	0.92	F	1.13	E	0.92	F	1.14	E	0.98	F	1.15
17	Osgood Road/Blacow Road	C	0.77	A	0.46	C	0.74	A	0.52	C	0.73	A	0.49	C	0.77	A	0.51	C	0.77	A	0.46
18	Osgood Road/Opt. Irvington Station Entrance									A	0.52	B	0.68					A	0.55	C	0.70

Notes:

[a] LOS = level of service.

[b] V/C = volume-to-capacity ratio.

NB = northbound; SB = southbound

Source: DKS Associates 2002

although the southernmost eastbound through lane would need to be restriped to accommodate the measure. Although not achieving the goal of a V/C ratio of 0.85, the measure would result in LOS D operations, which reduce the impact to a less-than-significant level.

Impact TRN6 – 2010 change in V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. Under 2010 Proposed Project conditions, the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 0.91 and LOS E in the a.m. peak hour, and a V/C ratio of 1.29 and LOS F in the p.m. peak hour. Implementation of the following mitigation measure would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

Mitigation Measure TRN6 – Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. The intersection operations could be improved to a V/C ratio of 0.84 and LOS D in the a.m. peak hour, and a V/C ratio of 0.79 and LOS C in the p.m. peak hour with the addition of a second northbound left-turn lane, a second eastbound left-turn lane, and an exclusive eastbound right-turn lane, and conversion of the northbound right-turn lane to a shared right-turn/through lane. The mitigation for the northbound approach could be accommodated within the existing right-of-way. With the conversion of the northbound right-turn lane to a shared right-turn/through lane, a second left-turn lane could be accommodated. The northbound approach would need to be restriped. To accommodate the mitigation for the eastbound approach, right-of-way would need to be acquired on the south side of Grimmer Boulevard. The west leg of the intersection would need to be restriped to accommodate the second eastbound left-turn lane and the exclusive eastbound right-turn lane.

Impact TRN7 – 2010 change in V/C and LOS at the intersection of Mission Boulevard/Warm Springs Boulevard. Under 2010 Proposed Project conditions, the intersection of Mission Boulevard/Warm Springs Boulevard would operate at a V/C ratio of 1.22 and LOS F in the a.m. peak hour, and a V/C ratio of 1.16 and LOS F in the p.m. peak hour. This intersection is built out along each approach; there are commercial properties on each of the four corners of this intersection. Widening or adding turn lanes is not feasible.

The existing and projected congestion is related largely to regional traffic traveling between I-680 and I-880. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

Operational Impacts and Mitigation Measures, 2025

Impact TRN8 – 2025 change in V/C and LOS at the intersection of Osgood Road/Durham Road/Auto Mall Parkway. Under 2025 Proposed Project conditions, the intersection of Osgood Road/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 1.11 and LOS F in the p.m. peak hour. Adding capacity to this intersection would require right-of-way acquisition and relocation of utilities. Signal timing and phasing changes would not reduce the V/C ratio enough to achieve an acceptable LOS. The intersection would require additional widening on both Auto Mall Parkway and Osgood Road, which would entail removal of sidewalks on the south side of Auto Mall Parkway

and property takes from existing businesses. Widening Auto Mall Parkway would be hindered by the roadway grade changes at this intersection and the proximity of the intersection to the I-680 southbound on-ramp to the east and the railroad overpass bridge structure to the west. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

Impact TRN9 – 2025 change in V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. Under 2025 Proposed Project conditions, the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of Mitigation Measure TRN5 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

Mitigation Measure TRN5 – Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. The intersection operations for 2025 could be improved to a V/C ratio of 0.84 and LOS D in the a.m. peak hour, and a V/C ratio of 0.90 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN5 as described above.

Impact TRN10 – 2025 change in V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. Under 2025 Proposed Project conditions, the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 1.33 and LOS F in the a.m. peak hour, and a V/C ratio of 1.41 and LOS F in the p.m. peak hour. Implementation of Mitigation Measure TRN6 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

Mitigation Measure TRN6 – Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. The intersection operations could be improved to a V/C ratio of 0.83 and LOS D in the a.m. peak hour, and a V/C ratio of 0.86 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN6 as described above.

Intersection Impacts Related to Optional Irvington Station

Operational Impacts and Mitigation Measures, 2010

This scenario (2010 Proposed Project with optional Irvington Station) assumes implementation of the Proposed Project with the optional Irvington Station.

Impact TRN11 – 2010 change in V/C and LOS at the intersection of Osgood Road/Durham Road/Auto Mall Parkway. The intersection of Osgood Road/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.92 and LOS E in the a.m. peak hour, and a V/C ratio of 1.05 and LOS F in the p.m. peak hour. Adding capacity to this intersection would require right-of-way acquisition and relocation of utilities. Signal timing and phasing changes would not reduce the V/C ratio enough to achieve an acceptable LOS. The intersection would require additional widening on both Auto Mall Parkway and Osgood Road, which would entail removal of sidewalks on the south side of Auto Mall Parkway and property takes from existing businesses. Widening Auto Mall Parkway would be hindered by the roadway grade changes at this intersection and the proximity of the intersection to the I-680 southbound on-ramp to the east and the railroad overpass bridge

structure to the west. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

Impact TRN12 – 2010 change in V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. The intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.97 and LOS E in the a.m. peak hour, and a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of Mitigation Measure TRN5 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

Mitigation Measure TRN5 – Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. The intersection operations could be improved to a V/C ratio of 0.75 and LOS C in the a.m. peak hour, and a V/C ratio of 0.89 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN5 as described above.

Impact TRN13 – 2010 change in V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. The intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 0.90 and LOS D in the a.m. peak hour, and a V/C ratio of 1.23 and LOS F in the p.m. peak hour. Implementation of Mitigation Measure TRN6 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

Mitigation Measure TRN6 – Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. The intersection operations could be improved to a V/C ratio of 0.84 and LOS D in the a.m. and p.m. peak hours with implementation of Mitigation Measure TRN6 as described above.

Impact TRN14 – 2010 change in V/C and LOS at the intersection of Mission Boulevard/Warm Springs Boulevard. The intersection of Mission Boulevard/Warm Springs Boulevard would operate at a V/C ratio of 1.19 and LOS F in the a.m. peak hour, and a V/C ratio of 1.19 and LOS F in the p.m. peak hour. This intersection is built out along each approach; there are commercial properties on each of the four corners of this intersection. Widening or adding turn lanes is not feasible. The existing and projected congestion is related largely to regional traffic traveling between I-680 and I-880. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

Impact TRN15 – 2010 change in V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard. The intersection of Osgood Road/Driscoll Road/Washington Boulevard would operate at a V/C ratio of 0.91 and LOS E in the a.m. peak hour. The proposed changes to the southbound and westbound approaches can be accommodated within the existing right-of-way. The approaches would need to be restriped. The mitigation measure proposed below, which requires widening the west side of Warm Springs Boulevard along the BART frontage to

accommodate four southbound receiving lanes, would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

> **Mitigation Measure TRN15 – Improve V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard.** The intersection operations could be improved to a V/C ratio of 0.83 and LOS D in the a.m. peak hour with the conversion of the second southbound left lane to a third through lane, conversion of the southbound right-turn lane to a shared through/right-turn lane (to create four southbound through lanes), and conversion of a westbound left-turn lane to a shared left-turn/through lane (creating two westbound left turn lanes). The proposed changes to the southbound and westbound approaches could be accommodated within the existing right-of-way, although the approaches would need to be restriped. This measure would require widening the west side of Warm Springs Boulevard along the BART frontage to accommodate four southbound receiving lanes.

Operational Impacts and Mitigation Measures, 2025

This scenario (2025 Proposed Project with optional Irvington Station) assumes implementation of the Proposed Project with the optional Irvington Station.

Impact TRN16 – 2025 change in V/C and LOS at the intersection of Osgood Road/Durham Road/Auto Mall Parkway. Under 2025 Proposed Project with optional Irvington Station conditions, the intersection of Osgood Road/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 1.02 and LOS F in the a.m. peak hour compared to a V/C ratio of 1.00 and LOS E in the a.m. peak hour under 2025 No-Project conditions. Though the LOS would degrade from LOS E to LOS F, the V/C ratio increase would be less than 0.05. The increase in V/C would not be substantial, and the impact would be less than significant.. *(Less than Significant.)*

> **Mitigation – None required.**

Impact TRN17 – 2025 change in V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. Under 2025 Proposed Project with optional Irvington Station conditions, the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of Mitigation Measure TRN5 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

> **Mitigation Measure TRN5 – Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway.** The intersection operations could be improved to a V/C ratio of 0.90 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN5 as described above.

Impact TRN18 – 2025 change in V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. Under 2025 Proposed Project with optional Irvington Station conditions, the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 1.25 and LOS F in the a.m. peak hour, and a V/C ratio of 1.42 and LOS F in the p.m. peak hour. Implementation of Mitigation Measure TRN6 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

Mitigation Measure TRN6 – Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. The intersection operations could be improved to a V/C ratio of 0.86 and LOS D in the a.m. peak hour and a V/C ratio of 0.84 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN6 as described above.

Impact TRN19 – 2025 change in V/C and LOS at the intersection of Mission Boulevard/Warm Springs Boulevard. Under 2025 Proposed Project with optional Irvington Station conditions, the intersection of Mission Boulevard/Warm Springs Boulevard would operate at a V/C ratio of 1.17 and LOS F in the p.m. peak hour. This intersection is built out along each approach; there are commercial properties on each of the four corners of this intersection. Widening or adding turn lanes is not feasible. The existing and projected congestion is related largely to regional traffic traveling between I-680 and I-880. To reduce congestion and alleviate impacts at this intersection would require substantial right-of-way acquisition and utility relocation. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

Metropolitan Transportation System Roadways

The Alameda County Congestion Management Agency (ACCMA) requires an analysis of roadways included in the Metropolitan Transportation System (MTS) only during the p.m. peak hour. MTS roadway segments in the transportation study area are listed below. For the MTS roadway analysis, project traffic was assigned to the roadways using the trip distributions from the VTA-modified MTC model. The analysis was completed for the p.m. peak hour using the travel forecasts from the VTA-modified MTC model for 2010 and 2025. The capacities per lane used in the analysis were obtained from the City of Fremont. The number of lanes for each roadway segment was also obtained from the City of Fremont and confirmed in a field review.

Some roadway segments are expected to exhibit decreases in traffic volumes as a result of project conditions, while other segments are expected to exhibit increases. For informational purposes only, the number of roadway segments that would operate at LOS E or F are identified in Table 3.9-17. As discussed above, an impact on a roadway segment is considered significant if project trips cause that segment to deteriorate to LOS F, unless LOS F was measured when the County Congestion Management Plan was established in 1991. In addition, for informational purposes, Table 3.9-17 identifies the quantity of roadway segments that would experience small volume changes (2% to 4%) or large volume changes (5% or more).

Based on the ACCMA requirements, p.m. peak hour volumes on each of the MTS roadway segments were taken from the appropriate version of the VTA-modified MTC model. Park-and-ride and kiss-and-ride trips were added into each set of volumes to provide p.m. peak hour volumes for the links.

The following is a list of MTS roadways analyzed.

- I-580 between west of San Ramon Road and east of Tassajara Road.
- I-680 between south of Mission Boulevard (SR 262) and north of Mission Boulevard (SR 238).

- I-880 between south of Mission Boulevard and north of Decoto Road/SR 84.
- Alvarado-Niles Road between Mission Boulevard and I-880.
- Auto Mall Parkway between Grimmer Boulevard and Mission Boulevard.
- Decoto Road between Fremont Boulevard and Mission Boulevard.
- Dougherty Road north of Dublin Boulevard.
- Dublin Boulevard between San Ramon Road and Dougherty Road.
- Fremont Boulevard between I-880 and SR 84.
- Mission Boulevard between I-680 and Decoto Road.
- Mowry Avenue between I-880 and Mission Boulevard.
- Osgood Road between Grimmer Boulevard and Washington Boulevard.
- Paseo Padre Parkway between Mission Boulevard and Thornton Avenue.
- Peralta Boulevard between Fremont Boulevard and Mowry Avenue.
- SR 84 (Dumbarton Bridge) just east of the toll booths.
- Stevenson Boulevard between I-880 and Fremont Boulevard.
- Thornton Avenue between I-880 and Fremont Boulevard.
- Warm Springs Boulevard between Mission Boulevard and Grimmer Boulevard.
- Washington Boulevard between Mission Boulevard and Fremont Boulevard.

To evaluate the existing traffic conditions and 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 MTS roadway segments. Table 3.9-17 indicates the quantity of segments that would have volume changes of plus or minus 2%, and plus or minus 5%, as well as changes in the LOS.

Table 3.9-17. **MTS Roadway Analysis Summary**

Scenario	Roadway Volume Change				LOS Improvements		LOS Degradation	
	-5% or greater	-2% to -4%	+2 to +4%	+5% or greater	State Hwy	Local Roadway	State Hwy	Local Roadway
2010 No Project	13 state highway segments and one local roadway segment operating at LOS E or F							
2010 Proposed Project[a]	40	23	18	20	2	8	1	1
2010 Proposed Project with Optional Irvington Station[1]	43	20	41	15	2	8	—	1
2025 No Project	31 state highway segments operating at LOS E or F							
2025 No Project[a]	8	2	7	134	—	3	39	7
2025 Proposed Project[b]	35	29	10	14	6	3	—	7
2025 Proposed Project with Optional Irvington Station[b]	40	38	7	12	4	5	4	2
2025 Proposed Project plus SVRTC[b,c]	55	36	16	10	18	2	—	3
2025 Proposed Project with Optional Irvington Station plus SVRTC[b,c]	63	38	10	12	17	5	—	1

Notes:
[a] Compared to 2010 No Project.
[b] Compared to 2025 No Project.
[c] Cumulative analysis of the Proposed Project plus SVRTC, 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 plus SVRTC.

Source: DKS Associates 2002 from VTA-modified MTC Model, San Francisco Bay Area Rapid Transit District

2010 Proposed Project

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

- 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.
- Eight of the MTS roadway segments would experience an improvement in LOS.

The remaining 142 MTS roadway segments would continue to operate with similar LOS.

2010 Proposed Project with Optional Irvington Station

Compared to the 2010 No Project, the 2010 Proposed Project with optional Irvington Station would result in the following changes during the p.m. peak hour.

- 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.
- Eight of the MTS local roadway segments would experience an improvement in LOS.

The remaining 143 MTS roadway segments would continue to operate with similar LOS.

2025 Proposed Project

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

- Seven of the MTS local roadway segments would show deterioration in LOS.
- Six 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 other 138 MTS roadway segments would continue to operate with similar LOS.

Impact TRN20 – 2025 change in V/C and LOS on northbound I-880 just south of Mission Boulevard. Under 2025 Proposed Project conditions, northbound I-880 just south of Mission Boulevard would operate at LOS F, compared to LOS E under the 2025 No-Project conditions. Adding capacity to the mainline freeway system is not feasible, however. Adding capacity to this segment would require substantial regional coordination, costs, and political and public approval. All freeway projects affecting I-880 that are currently programmed (effectively, projects in progress, planned, or anticipated) were included in this analysis. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

2025 Proposed Project with Optional Irvington Station

Compared to the 2025 No Project, the 2025 Proposed Project with optional Irvington Station would result in the following changes during the p.m. peak hour.

- Four of the MTS state highway segments would show deterioration in LOS.
- Two of the MTS local roadway segments would show deterioration in LOS.
- Four of the MTS state highway segments would experience an improvement in LOS.
- Five of the MTS local roadway segments would experience an improvement in LOS.

The other 139 MTS roadway segments would continue to operate with similar LOS.

Impact TRN21 – 2025 change in V/C and LOS on northbound I-880 just south of Mission Boulevard. Under 2025 Proposed Project with optional Irvington Station conditions, northbound I-880 just south of Mission Boulevard would operate at LOS F, compared to LOS E under the 2025 The No-Project conditions. Adding capacity to the mainline freeway system is not feasible, however. Adding capacity to this segment would require substantial regional coordination, costs, and political and public approval. All freeway projects affecting I-880 that are currently programmed (effectively, projects in progress, planned, or anticipated) were included in this analysis. No feasible mitigation measures are available to mitigate this impact. *(Significant and unavoidable.)*

Mitigation – None available.

Impact TRN22 – Reduction in traffic congestion overall on state highways. In 2010, the Proposed Project would result in LOS improvements on two state highway segments, and a reduction on one segment. Also, 63 of the analyzed roadway segments would experience reductions in traffic volumes in 2010 as a result of the Proposed Project, compared to 38 that would have an increase and 53 that would have no change. In 2025, the Proposed Project would result in LOS improvements on six state highway segments, and degradation on no segments. Also, 64 of the analyzed roadway segments would experience reductions in traffic volumes in 2025 as a result of the Proposed Project, compared to 24 that would have an increase and 66 that would have no change. (*Beneficial.*)

Mitigation – None required.

Parking Demand

The parking demand was estimated by using the VTA-modified MTC model forecasts of auto spaces, divided by the auto occupancy factor for peak period auto access to park-n-ride, which is 1.06 (from existing occupancy surveys conducted at the Fremont BART Station, *BART Station Access Improvements Study*).

Table 3.9-18 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 buses.

Table 3.9-18. Parking Demand Summary

	Fremont Station		Warm Springs Station		Optional Irvington Station	
Scenario	Supply	Demand	Supply	Demand	Supply	Demand
2010 No Project	2,030	2,360	—	—	—	—
2010 Proposed Project	1,880	1,840	2,040	1,415	—	—
2010 Proposed Project with Optional Irvington Station[b]	1,880	1,480	2,040	1,060	960	910
2025 No Project	2,030	2,420	—	—	—	—
2025 Proposed Project	1,880	2,310	2,040	2,170	—	—
2025 Proposed Project with Optional Irvington Station	1,880	1,940	2,040	1,710	960	1,175
2025 Proposed Project plus SVRTC	1,880	2,920	2,040	1,510	—	—
2025 Proposed Project with Optional Irvington Station plus SVRTC	1,880	2,360	2,040	940	960	1,510

Notes:
Parking demand is based on unconstrained travel demand forecasts, without consideration of the number of actual proposed parking spaces. The local intersection traffic analysis, however, does consider the potential limitations of proposed parking supply at each of the three Fremont area stations analyzed, and assumes that BART patrons would travel to BART stations where parking is perceived to be available.
Cumulative analysis of the Proposed Project plus SVRTC, 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 plus SVRTC.

Source: DKS *Associates* 2002 from VTA-modified MTC Model, San Francisco Bay Area Rapid Transit District

Parking Impacts Related to Warm Springs Extension

Operational Impacts and Mitigation Measures, 2025

Impact TRN23 – Reduced parking supply at Fremont Station resulting in spillover into residential or commercial areas. Under 2025 No-Project conditions, there would be a parking shortfall of 390 spaces at the Fremont BART Station. Under 2025 Proposed Project conditions, there would be a parking shortfall of 430 spaces at the Fremont BART Station and 130 spaces at the proposed Warm Springs Station. The Proposed Project would therefore add 40 spaces to the anticipated shortfall at the Fremont Station in 2025, and result in a parking shortfall of 130 spaces at the proposed Warm Springs Station in 2025. These parking shortfalls would be considered a significant impact of the Proposed Project in 2025.

This impact would be reduced to less than significant with implementation of the following mitigation measure, which provides for 170 additional spaces at the Warm Springs Station. It is assumed that BART patrons would travel to stations where parking is perceived to be available. Therefore, with this mitigation, spillover parking is not expected to occur, because the parking supply would be adequate to meet the anticipated demand.

Although spillover parking is not expected to be significant, a monitoring program would be implemented to assess whether spillover parking from the BART stations becomes a significant

problem due to unanticipated events. Accordingly, BART would provide a parking monitoring program and, if necessary to ensure that spillover remains at an insignificant level, assistance with parking management as described below. With the redistribution of traffic towards the Warm Spring Station from the Fremont Station, there would be minimal change to study intersection service levels compared to the analysis presented above. (*Less than significant with mitigation incorporated*.)

Mitigation Measure TRN23 – Provide additional parking and implement parking monitoring program.

(A) If neither the Irvington Station nor SVRTC has commenced construction by 2010, BART will provide an additional 170 parking spaces at the Warm Springs Station.

(B) To determine whether substantial spillover parking occurs, BART will institute a monitoring program on streets adjacent to the Fremont and Warm Springs Stations. A baseline survey of parking conditions in the vicinity of the station will be conducted prior to commencement of the Proposed Project. The baseline survey will establish parking conditions in the vicinity of the station during weekday morning hours. Monitoring will be conducted during the first six months of operation of the Proposed Project to verify if spillover parking is occurring. Such monitoring will be based on field surveys and any complaints received by BART and local parking authorities. After the first six months of operation of the station, BART Community Relations staff will respond to parking complaints and BART will investigate such complaints to verify parking concerns.

If a parking spillover problem is confirmed by this monitoring, BART staff will assist the City of Fremont in implementing a parking management program. The program will incorporate appropriate parking control measures based on BART's Parking Management Toolkit (See Appendix N). The Toolkit identifies a detailed process for understanding local parking issues, evaluating parking conflicts, and implementing specific parking control measures. These measures could include time limits and time-based restrictions, increased enforcement, or parking fees. The parking management program would be implemented by the City of Fremont. BART staff will assist the city to ensure that the parking control measures, adapted as appropriate for site-specific conditions, are implemented and are achieving the necessary effect. BART staff would also continue discussions as necessary with the city to help adjust any parking control measures in response to issues that may arise during implementation of such measures.

Parking Impacts Related to Optional Irvington Station

Operational Impacts and Mitigation Measures, 2025

Impact TRN24 – Reduced parking supply at Fremont and Irvington Stations resulting in spillover into residential or commercial areas. Under 2025 Proposed Project with optional Irvington Station conditions, there would be a parking shortfall of 60 spaces at the Fremont BART Station and 215 spaces at the optional Irvington Station. However, the proposed Warm Springs Station would have a projected excess of 330 spaces, which is 55 spaces greater than the combined

shortfall at the Fremont and optional Irvington Stations. It is assumed that BART patrons would travel to stations where parking is perceived to be available (i.e., the Warm Springs Station). Accordingly, the parking supply across stations would be adequate to meet the demand, and spillover parking is not anticipated to occur. With the redistribution of traffic towards the Warm Springs Station from the Fremont and Irvington Stations, there would be minimal change to study intersection service levels compared to the analysis presented above.

Although spillover parking is not expected to be significant, a monitoring program would be implemented to assess whether unanticipated events would cause spillover parking from the BART stations to become a significant problem. BART would provide a parking monitoring program and, if necessary to ensure that spillover remains at an insignificant level, assistance with parking management as described below. (*Less than significant.*)

> **Mitigation Measure TRN24 – Implement parking monitoring program.** To determine whether substantial spillover parking occurs if the optional Irvington Station has commenced construction by 2010, BART will institute a monitoring program on streets adjacent to the Fremont and Irvington Stations and, if necessary, provide parking management assistance as described above in Mitigation Measure TRN23, part (B).

Construction-Related Impacts

The construction scenario described in Chapter 2 (*Project Description*), Section 2.7, would introduce temporary, construction-related traffic impacts. Construction vehicles and equipment would use local roadways to access construction zones along the Proposed Project alignment. Trucks and equipment traffic could temporarily disrupt existing local traffic patterns during the 4-year construction of the Proposed Project. Construction traffic would include heavy equipment such as bulldozers, dump trucks, loaders, backhoes, and graders. Construction of retaining walls, embankments, and rails would also require cranes, concrete mixers, delivery trucks, compactors, and specialized track-laying equipment. Ballast would be hauled in from offsite. Workers driving to the construction site would also represent added traffic to the local and regional network.

As described in Section 2.7, public roadways within the Proposed Project would not be blocked during construction, although temporary traffic rerouting and lane closures would be necessary in some cases. Depending on the locations and times of day of reroutings and lane closures, disruption to local traffic circulation could potentially be significant. Contractor laydown locations could also disrupt local circulation, depending on the locations available.

Potential impacts on businesses and residences from alterations in access and parking are described in Section 3.6 (*Population, Economics, and Housing*) under Impact POP7 (Substantial diminishment in access to and parking at businesses and residences).

Construction Impacts Related to Warm Springs Extension

In addition to the general effects of construction traffic and staging on existing traffic operations, the following potential impacts are anticipated in specific areas.

Fremont BART Station

The Proposed Project would require construction of an approximately 20-foot-high and 150-foot-wide embankment in the Fremont BART Station–Stevenson Boulevard area. Vehicular access and bus service at the Fremont Station could be affected during construction of the embankment. Current patterns of pedestrian and bicycle access could also be affected by construction. In addition, construction activity, including the potential use of a portion of the parking lot as a contractor laydown area, would require the temporary removal of approximately 200 existing parking spaces in the Fremont Station parking lot.

Walnut Boulevard

The Proposed Project would require construction of an overcrossing over Walnut Boulevard. Two lanes on Walnut Boulevard would be closed during construction of the center pier in the median. There would also be a temporary reduction in vehicle clearance height while temporary structural supports (falsework) are in place during construction of the bridge deck.

Stevenson Boulevard and Fremont Central Park

The Proposed Project would require construction of a tunnel beneath Stevenson Boulevard and Fremont Central Park. Portions of Stevenson Boulevard would be closed during construction of the tunnel. Traffic lanes would be temporarily diverted from Stevenson Boulevard to Fremont Central Park property, south of the existing alignment of Stevenson Boulevard, to minimize traffic disruption during tunnel construction. Parking at Fremont Central Park could be temporarily reduced due to tunnel-related construction. In addition, a potential contractor laydown area would be located on a vacant parcel adjacent to the Proposed Project alignment, north of Stevenson Boulevard.

Paseo Padre Parkway

The Proposed Project would require construction of a grade-separated overpass over Paseo Padre Parkway. It may be possible to coordinate construction of the BART overpass with the City of Fremont's construction of an underpass at Paseo Padre Parkway, as part of the city's grade separations project. If the Proposed Project were to be constructed after completion of the city's grade separations project, the two center lanes on Paseo Padre Parkway would need to be closed during construction of the center pier for the BART bridge structure, which would be located in the parkway median.

South Grimmer Boulevard

The Proposed Project would require construction of two BART bridge structures over South Grimmer Boulevard to replace the current grade-separated bridge used by UP. Lanes on Grimmer Boulevard would be narrowed during construction of the bridges. Work that affects the UP tracks would be coordinated with UP and subject to railroad work restrictions.

Auto Mall Parkway

Should the Proposed Project require seismic retrofitting of the Auto Mall Parkway overpass structure (see Section 2.7.1), retrofit work could likely be performed from beneath the structure with little or no disruption to traffic on the deck above. Work that may affect the UP tracks beneath the overpass would be subject to railroad work restrictions.

Warm Springs BART Station

Construction of the Warm Springs Station would add construction equipment and worker traffic to the local and regional network as discussed above. In addition, the station site would be used as a

storage and contractor laydown site during project construction. Construction of the new station access roadway would involve removing the existing curb at Warm Springs Court and grading 200 feet for the new roadway.

Impact TRN25 – Construction-period traffic impacts. Construction of the Proposed Project would potentially result in impacts as described above on local streets and at the Warm Springs Station site. Implementation of the following mitigation measure and Mitigation Measure POP7 (from Section 3.6 [*Population, Economics, and Housing*]) would reduce this impact to less than significant. (*Less than significant with mitigation incorporated*.)

Mitigation Measure TRN25 – Develop and implement a construction phasing and traffic management plan.

(A) BART will prepare and implement a construction phasing and traffic management plan that defines how traffic operations (including construction equipment and worker traffic) are managed and maintained during each phase of construction. The plan will be developed in consultation with the City of Fremont, Caltrans, AC Transit, and VTA, and will be coordinated with the plan to maintain access and parking for businesses and residences described in Mitigation Measure POP7. To the maximum practical extent, the plan will include the following measures.

- Plan, schedule, and coordinate construction activities to reduce effects on AC Transit and VTA bus lines, so that additional buses or larger buses are not required on any route to maintain on-time performance.
- Specify predetermined haul routes from staging areas to construction sites and disposal areas by agreement with the City of Fremont prior to construction. The routes will follow streets and highways that provide the safest route and have the least feasible impact on traffic.
- Identify construction activities that, due to concerns regarding traffic safety or congestion, must take place during off-peak traffic hours. Any road closures will be done at night under ordinary circumstances. If unforeseen circumstances require road closure during the day, the City of Fremont will be consulted.
- Provide a detour plan for lane closures and for the diversions of Walnut Avenue, Stevenson Boulevard, and South Grimmer Boulevard, and require information be provided to the public on lane closures and detours using signs, press releases, and other media tools.
- Identify a telephone number that the public can call for information on construction scheduling, phasing, and duration, as well as for complaints. Such information will also be posted on BART's website.
- Provide safe access and circulation routes for vehicles, bicycles, and pedestrians during construction at the Fremont BART Station.

- Provide parking replacement where construction results in temporary displacement of parking in Fremont Central Park.
- Coordinate, to the extent feasible, with the city's grade separations project to reduce traffic disruption.

(B) To reduce to the greatest extent possible the total duration of construction where the BART alignment crosses Paseo Padre Parkway and the corresponding potential for traffic disruption, elements of the BART bridge structure should be constructed at the same time as the city's grade separations project.

Mitigation Measure POP7 – Maintain access, traffic control, and parking supply during construction. BART will develop and implement a traffic and access control plan in consultation with the City of Fremont, local business associations, and local neighborhood and homeowners' associations. Before construction begins, BART and its contractors will verify that the traffic and access control plan avoids restriction of access and that flaggers are used to direct traffic in potentially congested zones such as the Washington Boulevard and Osgood Road area. Construction workers and contractors will be advised to carpool and park on-site when feasible to reduce temporary impacts to parking for adjacent residences and businesses. Movement of heavy equipment and supplies to and from construction sites will be scheduled during non-peak travel times. Similarly, temporary lane closures due to work on aerial or below-grade structures will be scheduled for non-peak travel times. Access to businesses and residences will be maintained throughout construction phases, and existing parking supply will not be reduced.

Construction Impacts Related to Optional Irvington Station

Impact TRN26 – Construction-period traffic impacts in the vicinity of the optional Irvington Station. The construction-related impacts and mitigation measures for the optional Irvington Station would be similar to those for the Proposed Project. Impacts would be mitigated to less than significant by implementation of Mitigation Measures TRN26 and POP7 as described above. (*Less than significant with mitigation incorporated.*)

Mitigation Measure TRN26 – Develop and implement a construction phasing and traffic management plan. This mitigation measure is described above.

Mitigation Measure POP7 – Maintain access, traffic control, and parking supply during construction. This mitigation measure is described above.

3.9.6 Cumulative Analysis of Proposed Project with SVRTC

The transportation model, as discussed above, incorporates local and regional government projections of future background growth, land use and employment intensities and locations, along with programmed highway, street and transit improvements and the transportation consequences of other anticipated development projects for 2010 and 2025. Accordingly, the impact analyses

presented above already account for cumulative impacts of the Proposed Project together with other projects.

However, the projections of general regional growth and anticipated projects that are incorporated into the modeling analysis presented above do not include the proposed SVRTC project. Additional modeling analysis was performed to evaluate the potential cumulative effects of the Proposed Project plus SVRTC if it is adopted, as well as regional growth. Two scenarios were considered: (i) the Proposed Project (i.e., without the optional Irvington Station) plus SVRTC, and (ii) the Proposed Project with optional Irvington Station plus SVRTC.

The transportation projections for this analysis were based on the MTC travel demand model, as modified by VTA for this project and SVRTC. Inputs to the model include local and regional government projections of land use and employment intensities and locations, as well as programmed highway, street, and transit improvements. The model output for 2010 and 2025 conditions was reviewed and adjusted as described earlier in this chapter.

Since the transportation impacts analyses in this DSEIR are based on the adopted regional land use forecasts for 2010 and 2025, the cumulative transportation impacts of all such developments are included, and additional analysis of potential cumulative effects of specific projects would be redundant. Accordingly, the following assessment presents the combined effects of future background growth in conjunction with the Proposed Project (and optional Irvington Station) and SVRTC.

Rail Ridership

Table 3.9-6 lists the rail ridership for the two SVRTC scenarios. With implementation of the Proposed Project plus SVRTC, there would be a nearly 200% increase in the overall ridership levels on the BART segment between the Union City and Fremont BART Stations. There would be a slight decrease (5%) in ridership on the ACE trains with implementation of the Proposed Project. There would be a further decline in the ridership on ACE with implementation of the Proposed Project with optional Irvington Station plus the two SVRTC options.

Ridership declines would be even greater for the Capitol Corridor. Under the SVRTC scenarios, Capitol Corridor ridership drops sharply at the Alameda/Santa Clara County line. The Capitol Corridor could retain many long-distance riders traveling between Santa Clara County and points outside the BART service area (e.g., Fairfield, Davis, and Sacramento). This market currently comprises about half of the Capitol Corridor's Santa Clara County ridership (Capitol Corridor Joint Powers Authority 2002). However, any of the following reasons may cause many potential Capitol Corridor riders traveling between Santa Clara County and points within the BART service area (e.g. Richmond, Oakland, Hayward) to elect to ride BART instead.

- BART has more frequent operating headways (6 minutes compared to hourly on the Capitol Corridor).
- BART is more centrally located to areas of high population and employment.
- BART provides direct connections between downtown San Jose, Oakland, and San Francisco.

Schedule reliability issues may also impact Capitol Corridor ridership, although reliability was not addressed per se in the ridership model. Running-time adherence to within a few minutes of published schedules is particularly important when riders must connect to other transit services to reach their destinations. On-time performance can be difficult to achieve over long distances. Most Capitol Corridor trains originate in Sacramento, 134 miles from San Jose; some trains start as far away as Auburn, 170 miles from San Jose. Sharing tracks with freight trains can sometimes delay Capitol Corridor trains as well.

In some ways, the Capitol Corridor and BART will complement each other. For example, direct transfers between the two rail lines would be available at the planned Coliseum and Union City intermodal transit facilities. This connectivity would enable riders to use whichever system or combination of systems that best suits their needs.

Local Bus Ridership

Under both the Proposed Project plus SVRTC scenarios (with and without the optional Irvington Station), the VTA express routes that currently serve the Fremont BART Station, which would continue to serve the Warm Springs Station with implementation of the Proposed Project, would no longer operate into Alameda County. Instead, their operations would change and they would continue to serve Santa Clara County.

Station Entries and Exits

Table 3.9-8 lists the station entries and exits for the two SVRTC scenarios. In summary, the following observations can be made from the table.

- At the Fremont BART Station under all 2025 conditions, station entries and exits would decrease compared to the 2025 No-Project condition. Entries and exits would decrease by 200 under the Proposed Project plus SVRTC condition and by 3,000 under the Proposed Project with optional Irvington Station plus SVRTC condition.
- In 2025 with implementation of SVRTC, there would be an increase of 5,200 entries and exits at the Warm Springs Station compared to the Proposed Project. When the Proposed Project with optional Irvington Station and the Proposed Project with optional Irvington Station plus SVRTC are compared, there would be another 2,800 entries and exits at the two new southern Fremont stations.
- Compared to the 2025 No-Project condition, southern Alameda County would experience an increase of 26,100 entries and exits under the Proposed Project plus SVRTC condition and an increase of 26,900 entries and exits under the Proposed Project with optional Irvington Station plus SVRTC condition.
- In 2025 with implementation of the Proposed Project plus SVRTC, entries and exits systemwide would increase by approximately 162,200. With implementation of the Proposed Project with optional Irvington Station plus SVRTC, they would increase by approximately 163,800.

Mode of Access/Egress

Table 3.9-10 lists the mode of access/egress for the southern Alameda County stations and for the Montague/Capitol Station in Santa Clara County for the two SVRTC scenarios. In summary, the table presents the following information for the SVRTC alternatives.

- 2025 Proposed Project plus SVRTC – Park-and-ride demand would increase at the Fremont BART Station with implementation of the Proposed Project plus SVRTC, although kiss-and-ride levels would decline (due to the increase in parking at each of the new stations).
- 2025 Proposed Project with Optional Irvington Station plus SVRTC – Park-and-ride demand at the Fremont Station would decline compared to the 2025 No-Project condition. Kiss-and-ride demand would also decline when the two scenarios are compared.

New Transit Ridership

The new transit ridership, measured by changes in linked transit trips, for the two SVRTC alternatives is listed in Table 3.9-12. The table is summarized below.

- In 2025 with implementation of the Proposed Project plus SVRTC, there would be an increase of more than 60% in new transit riders throughout the corridor compared to the 2025 No-Project condition. Linked transit trips to the southern Alameda County area would increase by 93%, but the largest growth would be in trips through the Fremont/Newark/Union City corridor (trips that either start or finish in [or beyond] Santa Clara County), which would increase by more than 105% with implementation of the Proposed Project plus SVRTC.
- In 2025 with implementation of the Proposed Project with optional Irvington Station plus SVRTC, there would be an increase of 58% (slightly lower overall than the Proposed Project plus SVRTC option) in linked transit riders in the corridor compared to the 2025 No-Project condition. Linked transit trips to the southern Alameda County area would increase by 80%, and the linked transit trips would increase by just under 105% compared to the 2025 No-Project condition.

Impact TRN-Cume1 – Contribution to cumulative increase in new transit trips. Regional transit ridership, particularly for trips destined for, originating in, or passing through southern Alameda County, would increase. Tables 3.9-11 and 3.9-12 indicate that transit person trips would increase with implementation of the Proposed Project compared to the No-Project Alternative. This increase in new transit trips would be 32,400 trips under the Proposed Project plus SVRTC compared to the No-Project Alternative in 2025. These tables indicate a shift in use from automobile to transit. As discussed in the MTS analysis below, increased transit usage would reduce auto congestion. In addition, as discussed in Section 3.11 (*Air Quality*), increased transit usage would reduce air pollution. This is a beneficial impact. (*Beneficial.*)

Mitigation – None required.

Travel Time Comparison

The travel time comparisons between each scenario are listed in Table 3.9-14 for selected pairs of destinations. Transit travel time savings are highest when both the origin and the destination are located adjacent to the BART system, such as from Irvington to downtown San Jose.

Intersections

Table 3.9-16 lists the LOS at the study intersection for the two SVRTC alternatives.

Contribution of Proposed Project plus SVRTC to Intersection Impacts

This scenario (2025 Proposed Project plus SVRTC) assumes implementation of both the Proposed Project and SVRTC.

Operational Contribution, 2025

Impact TRN-Cume2 – Contribution to cumulative change in 2025 in V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. Under 2025 Proposed Project plus SVRTC conditions, the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of Mitigation Measure TRN5 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

> **Mitigation Measure TRN5 – Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway.** The intersection operations could be improved to a V/C ratio of 0.90 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN5 as described above.

Impact TRN-Cume3 – Contribution to cumulative change in 2025 V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. Under 2025 Proposed Project plus SVRTC conditions, the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 1.26 and LOS F in the a.m. peak hour, and a V/C ratio of 1.41 and LOS F in the p.m. peak hour. Implementation of Mitigation Measure TRN6 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

> **Mitigation Measure TRN6 – Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard.** The intersection operations could be improved to a V/C ratio of 0.86 and LOS D in the a.m. peak hour, and a V/C ratio of 0.88 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN6 as described above.

Contribution of Proposed Project with Optional Irvington Station plus SVRTC to Project Intersection Impacts

This scenario (2025 Proposed Project with optional Irvington Station plus SVRTC) assumes implementation of both the Proposed Project, with the optional Irvington Station, and SVRTC.

Operational Contribution, 2025

Impact TRN-Cume4 – Contribution to cumulative change in 2025 V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway. Under 2025 Proposed Project with optional Irvington Station plus SVRTC conditions, the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway would operate at a V/C ratio of 0.91 and LOS E in the p.m. peak hour. Implementation of Mitigation Measure TRN5 would reduce this impact to less than significant. *(Less than significant with mitigation incorporated.)*

> **Mitigation Measure TRN5 –Improve V/C and LOS at the intersection of I-680 southbound ramps/Durham Road/Auto Mall Parkway.** The intersection operations could be improved to a V/C ratio of 0.89 and LOS D in the p.m. peak hour with implementation of Mitigation Measure TRN5 as described above.

Impact TRN-Cume5 – Contribution to cumulative change in 2025 V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard. Under 2025 Proposed Project with optional Irvington Station plus SVRTC conditions, the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard would operate at a V/C ratio of 1.45 and LOS F in the a.m. peak hour, and a V/C ratio of 1.47 and LOS F in the p.m. peak hour. Implementation of Mitigation Measure TRN6 would reduce this impact to less than significant *(Less than significant with mitigation incorporated.)*

> **Mitigation Measure TRN6 – Improve V/C and LOS at the intersection of Osgood Road/Warm Springs Boulevard/South Grimmer Boulevard.** The intersection operations could be improved to a V/C ratio of 0.88 and LOS D in the a.m. and p.m. peak hours with implementation of Mitigation Measure TRN6.

Impact TRN-Cume6 – 2025 change in V/C and LOS at the intersection of Mission Boulevard/Warm Springs Boulevard. Under 2025 Proposed Project with optional Irvington Station plus SVRTC conditions, the intersection of Mission boulevard/Warm Springs Boulevard would operate at a V/C ratio of 1.42 and LOS F in the p.m. peak hour. The intersection is built out along each approach, and there are commercial properties on each of the four corners of the intersection. Widening or adding turn lanes is not feasible. The existing and projected congestion is related largely to regional traffic traveling between I-680 and I-880. To reduce congestion and alleviate impacts at this intersection would require substantial right-of-way acquisition and utility relocation. No feasible mitigation measures are available to mitigate this impact. (*Significant and unavoidable.*)

> **Mitigation – None available.**

Impact TRN-Cume7 – Contribution to cumulative change in 2025 V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard. Under 2025 Proposed Project with optional Irvington Station plus SVRTC conditions, the intersection of Osgood Road/Driscoll Road/Washington Boulevard would operate at a V/C ratio of 0.92 and LOS E in the a.m. peak hour. Implementation of the following mitigation measure would reduce this impact to less than significant *(Less than significant with mitigation incorporated.)*

> **Mitigation Measure TRN-Cume7 – Improve V/C and LOS at the intersection of Osgood Road/Driscoll Road/Washington Boulevard.** The intersection operations

can be improved to a V/C ratio of 0.45 and LOS A for the a.m. peak hour with the conversion of the southbound right-turn lane to a shared through/right-turn lane (to create four southbound through lanes) and conversion of a westbound left-turn lane to a shared left-turn/through lane (to create two left-turn lanes). Although there would be a slight decrease in the V/C ratio in the p.m. peak hour, the intersection would still operate at LOS D. The proposed changes to the southbound and westbound approaches can be accommodated within the existing right-of-way, although the approaches would need to be restriped. This measure would require widening on the west side of Warm Springs Boulevard along the BART frontage to accommodate four southbound receiving lanes.

Metropolitan Transportation System

Table 3.9-17 identifies the quantity of roadway segments that would experience small (2% to 4%) or large (5% or more) volume changes for the cumulative impacts of the Proposed Project plus SVRTC scenarios compared to the 2025 No-Project condition.

Cumulative Roadway Impacts of Proposed Project plus SVRTC

Compared to the 2025 No Project, the 2025 Proposed Project plus SVRTC would result in the following changes during the p.m. peak hour.

- Three of the MTS local roadway segments would show deterioration in LOS.
- Eighteen of the MTS state highway segments would experience an improvement in LOS.
- Two of the MTS local roadway segments would experience an improvement in LOS.

The remaining 131 MTS roadway segments would continue to operate with similar LOS.

Cumulative Roadway Impacts of Proposed Project with Optional Irvington Station plus SVRTC

Compared to the 2025 No Project, the 2025 Proposed Project with optional Irvington Station plus SVRTC would result in the following changes during the p.m. peak hour.

- Four of the MTS state highway segments would show deterioration in LOS.
- One of the MTS local roadway segments would show deterioration in LOS.
- Seventeen of the MTS state highway segments would experience an improvement in LOS.
- Five of the MTS local roadway segments would experience an improvement in LOS.

The remaining 131 MTS roadway segments would continue to operate with similar LOS.

Parking

Table 3.9-18 lists the parking supply and demand at the three stations in the study area for the Proposed Project plus SVRTC and the Proposed Project with optional Irvington Station plus SVRTC scenarios.

Contribution of Proposed Project plus SVRTC to Parking Impacts

Impact TRN-Cume8 – Reduced parking supply at Fremont Station resulting in spillover into residential or commercial areas. Under 2025 No-Project conditions, there would be a projected parking shortfall of 390 spaces at the Fremont Station. Under 2025 Proposed Project plus SVRTC conditions, there would be a parking shortfall of 1,040 spaces at the Fremont Station. Therefore, an additional shortfall of 650 spaces (1,040 – 390 = 650) at the Fremont Station would be attributable to the Proposed Project plus SVRTC. At the Warm Springs Station under 2025 Proposed Project plus SVRTC conditions, there would be a projected excess of 530 available parking spaces because the parking demand would be 530 spaces less than the supply. However, the net parking shortfall of 120 spaces (650 – 530 = 120) would be considered a significant impact of the Proposed Project plus SVRTC in 2025.

This impact would be reduced to less than significant with implementation of the following mitigation measure, which provides for 120 additional spaces at the Warm Springs Station. It is assumed that BART patrons would travel to stations where parking is perceived to be available. Therefore, with this mitigation, spillover parking is not expected to occur, because the parking supply would be adequate to meet the anticipated demand.

Although spillover parking is not expected to be significant, a monitoring program would be implemented to assess whether spillover parking from the BART stations becomes a significant problem due to unanticipated events. Accordingly, BART would provide a parking monitoring program and, if necessary to ensure that spillover remains at an insignificant level, assistance with parking management as described below. With the redistribution of traffic towards the Warm Spring Station from the Fremont Station, there would be minimal change to study intersection service levels compared to the analysis presented above. (*Less than significant with mitigation incorporated*.)

Mitigation Measure TRN-Cume8 – Provide additional parking and implement parking monitoring program.

(A) If SVRTC has commenced construction by 2010 but the Irvington Station has not, BART will provide an additional 120 parking spaces at the Warm Springs Station.

(B) To determine whether substantial spillover parking occurs, BART will institute a monitoring program on streets adjacent to the Fremont Station and, if necessary, will provide parking management assistance, as above described in Mitigation Measure TRN23, part (B).

Contribution of Proposed Project with Optional Irvington Station plus SVRTC to Parking Impacts

Operational Contribution, 2025

Impact TRN-Cume9 – Cumulative contribution to reduced parking supply at Fremont and Irvington Stations resulting in spillover into residential or commercial areas. If the Proposed Project with optional Irvington Station and SVRTC are both constructed, a parking shortfall of 480 spaces is predicted at the Fremont Station, and a shortfall of 550 spaces is predicted at the Irvington Station. However, the Warm Springs Station would have a projected excess of 1,100 spaces, which is 70 spaces more than the combined shortfall at the Fremont and Irvington Stations (480 + 550 = 1030). It is assumed that BART patrons would travel to stations where parking is perceived to be available (i.e., the Warm Springs Station). Accordingly, the parking supply across stations would be adequate to meet the demand, and spillover parking is not anticipated to occur. With the redistribution of traffic towards the Warm Springs Station from the Fremont and Irvington Stations, there would be minimal change to study intersection service levels compared to the analysis presented above.

Although spillover parking is not expected to be significant, a monitoring program would be implemented to assess whether unanticipated events would cause spillover parking from the BART stations to become a significant problem. BART would provide a parking monitoring program and, if necessary to ensure that spillover remains at an insignificant level, assistance with parking management as described below. (*Less than significant.*)

> **Mitigation Measure TRN-Cume9 – Implement parking monitor program.** To determine whether substantial spillover parking occurs if the optional Irvington Station and SVRTC have both commenced construction by 2010, BART will implement a monitoring program on streets adjacent to the Fremont and Irvington Stations and, if necessary, provide parking management assistance as described above in Mitigation Measure TRN23, part (B).

Cumulative Construction Impacts of Proposed Project plus SVRTC

Impact TRN-Cume10 – Cumulative contribution to construction-related impacts. The construction-related impacts and mitigation measures of the Proposed Project plus SVRTC would be similar to those of the Proposed Project without SVRTC with the assumption that there would no overlap between construction of the two projects. However, to account for the SVRTC construction schedule if construction of SVRTC overlaps with that of the Proposed Project, adjustment of the construction traffic management plan described above in Mitigation Measure TRN25 would suffice to reduce the Proposed Project's contribution to cumulative construction-period traffic impacts to a less-than-significant level. (*Less than significant with mitigation incorporated*.)

> **Mitigation Measure TRN-Cume10 – Adjust the construction traffic management plan described above in Mitigation Measure TRN25.** If construction of the Proposed Project and SVRTC overlap, the construction traffic management plan identified in Mitigation Measure TRN25 will be adjusted to account for the SVRTC construction schedule. BART will ensure that the plan as adjusted satisfies the goals identified in Mitigation Measure TRN25.

3.9.7 References Cited in this Section

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