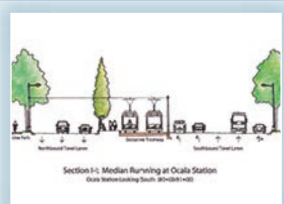
Capitol Expressway Corridor

DOWNTOWN • EAST VALLEY

Downtown East Valley

Final
Environmental Impact Report

Volume III
(Appendices)



April 2005

SANTA CLARA
Valley Transportation Authority

Final
Environmental Impact Report for the Capitol Expressway Corridor

Volume III of III:
Appendices A through J

State Clearinghouse #2001092014

Prepared by:

Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, CA 95134

April 2005

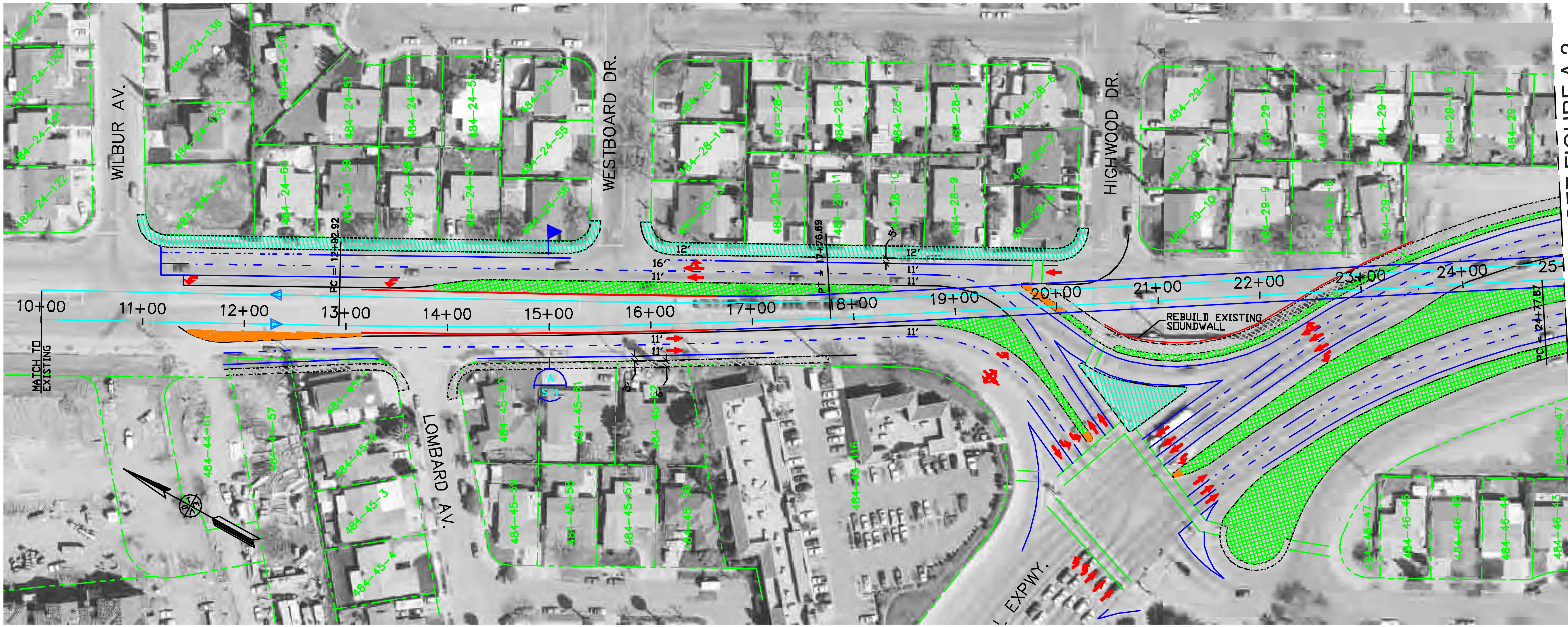
Santa Clara Valley Transportation Authority. 2005. *Environmental Impact Report for the Capitol Expressway Corridor*. Volume III of III: Appendices A through J. State Clearinghouse #2001092014. Final. April. (J&S 01-277.) San Jose, CA.

Contents

Appendix A

Light Rail Alternative Alignment

These alignment drawings depict the Light Rail Alternative as discussed in the Draft EIS/EIR. Volume II, Chapter 2, Attachment A depicts the Recommended Light Rail Alternative that was approved by the Downtown East Valley Policy Advisory Board on August 5, 2004.



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491–33–20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

01277.01 007 (03/03)

SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150

Feet

Source: Korve Engineering 2002.

Figure A-1
Light Rail Alternative Alignment

Legend

Directional Arrows	APN Numbers
Aerial Structure	Landscaping with Trees
Track Stationing	Landscape without Trees or Hardscape
Tunnel Structure	Sidewalk
Pedestrian Overcrossing	Sidewalk and Landscaping
Stairs and Elevators	

Santa Clara Valley Transportation Authority

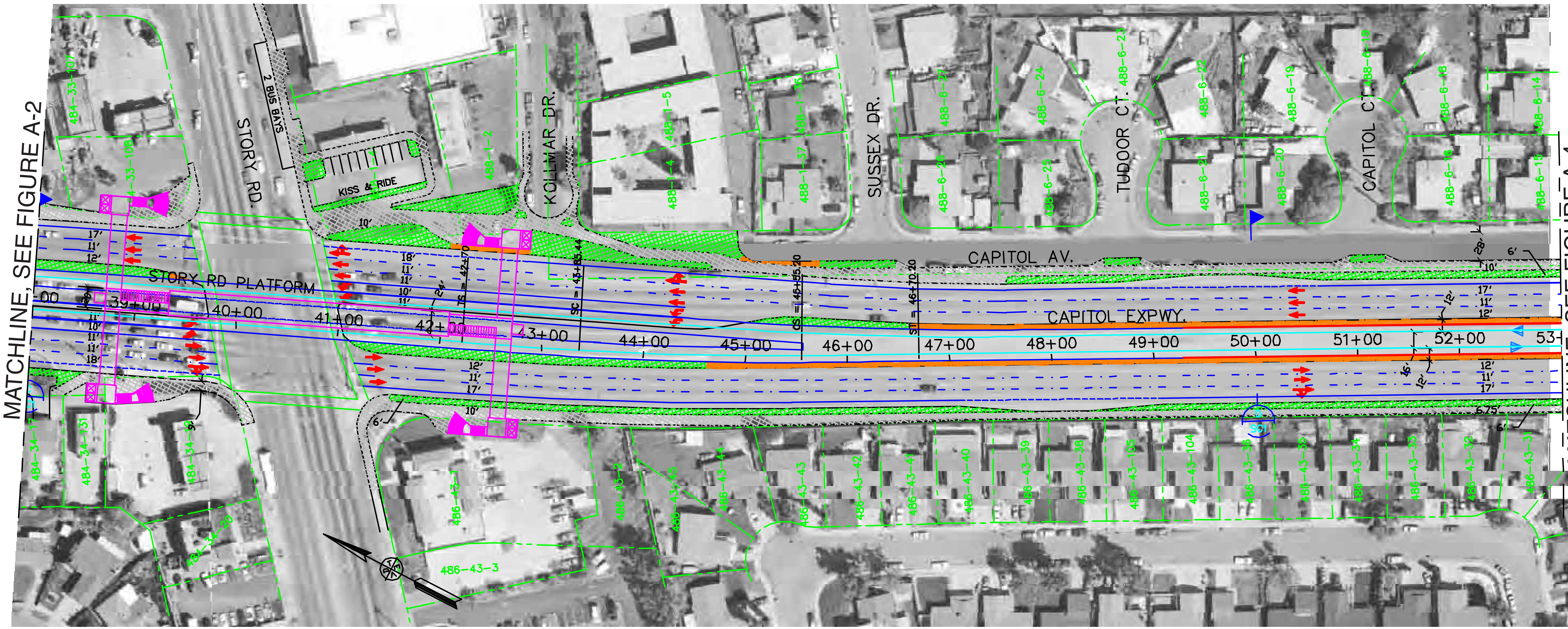
Downtown East Valley

0 50 100 150 Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-2
Light Rail Alternative Alignment



Legend

Directional Arrows	APN Numbers (491–33–20)
Aerial Structure	Landscaping with Trees
Track Stationing (115+00)	Landscape without Trees or Hardscape
Tunnel Structure	Sidewalk
Pedestrian Overcrossing	Sidewalk and Landscaping
Stairs and Elevators	

01277.01 007 (03/03)

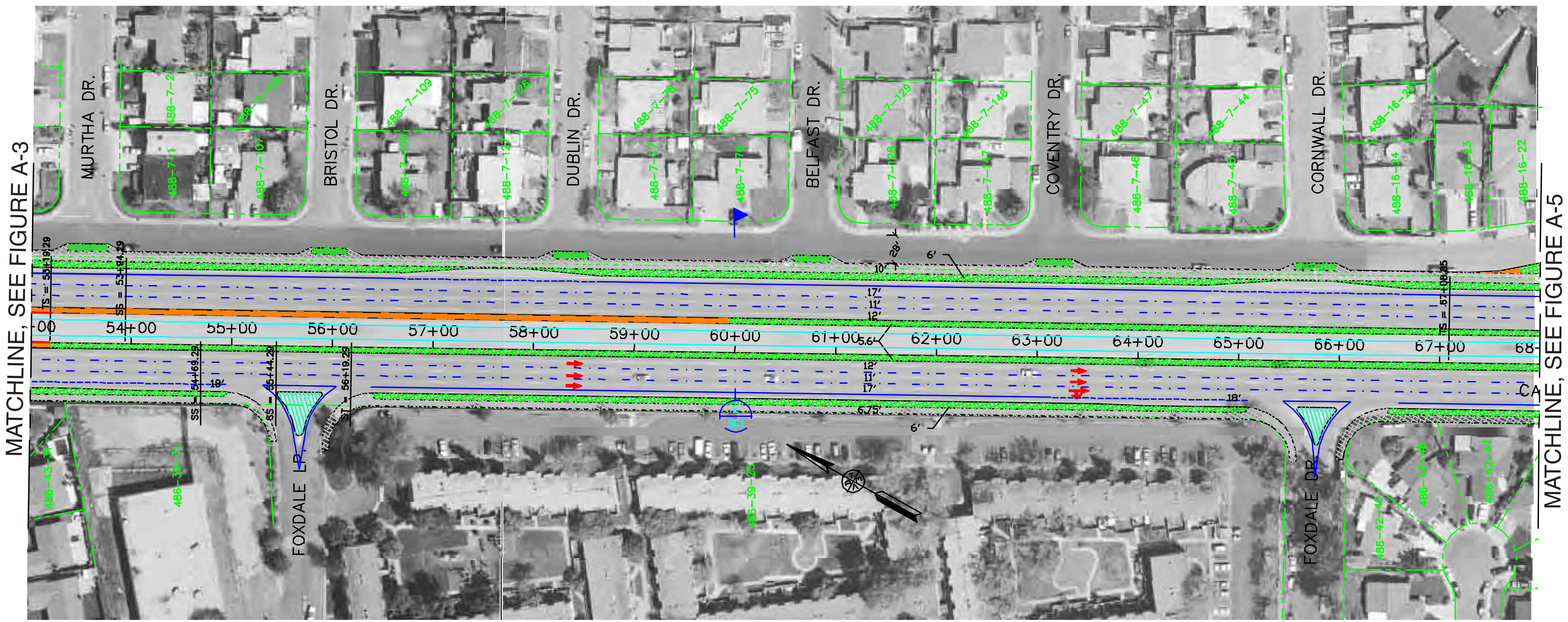
SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

Figure A-3
Light Rail Alternative Alignment



Legend

Directional Arrows
Aerial Structure
115+00 Track Stationing
Tunnel Structure
Pedestrian Overcrossing
Stairs and Elevators
491-33-20 APN Numbers
Landscaping with Trees
Landscape without Trees or Hardscape
Sidewalk
Sidewalk and Landscaping

01277.01 007 (03/03)

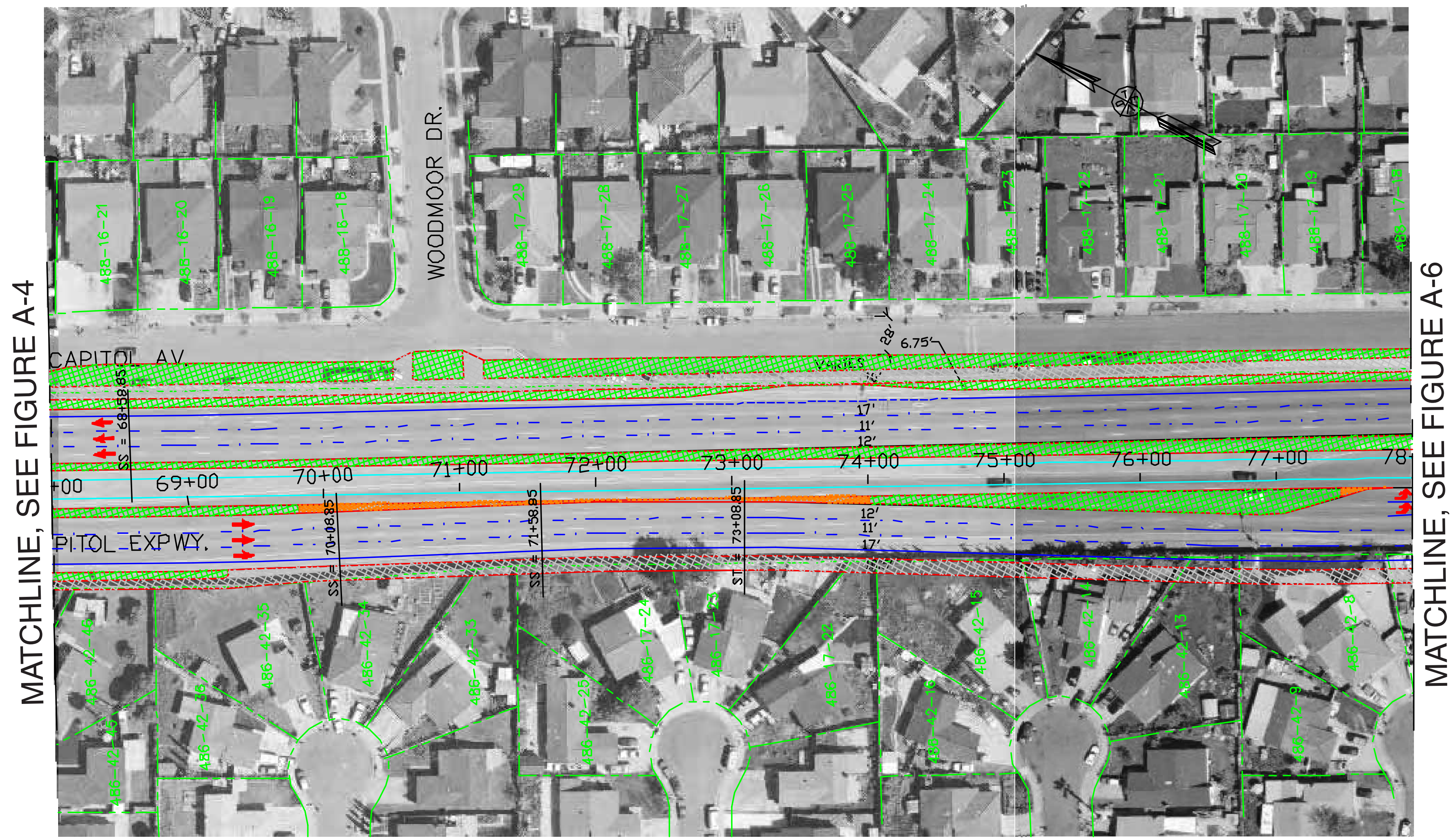
Santa Clara Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

Figure A-4
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

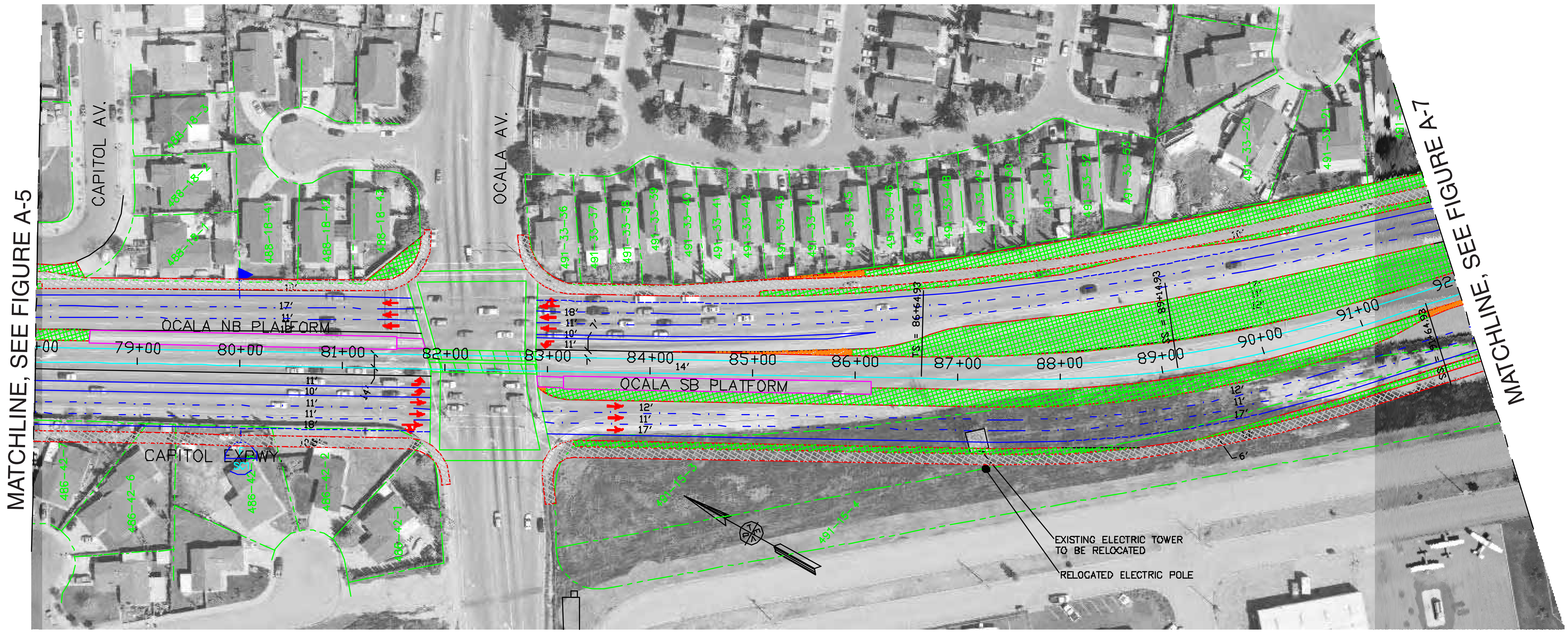
0 50 100 150

Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-5
Light Rail Alternative Alignment



Legend

	Directional Arrows	491-33-20	APN Numbers
	Aerial Structure		Landscaping with Trees
115+00	Track Stationing		Landscape without Trees or Hardscape
	Tunnel Structure		Sidewalk
	Pedestrian Overcrossing		Sidewalk and Landscaping
	Stairs and Elevators		

SANTA CLARA Valley Transportation Authority

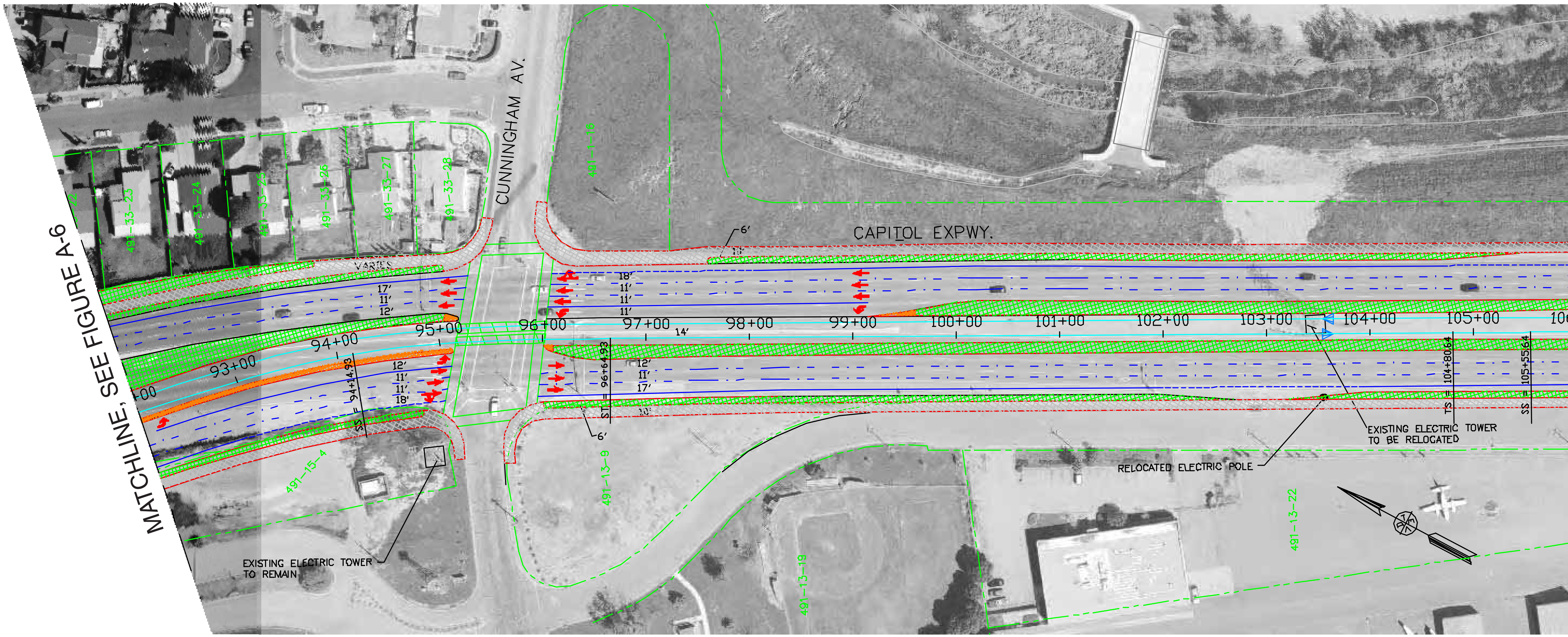
DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-6
Light Rail Alternative Alignment



Legend

- Directional Arrows
- Aerial Structure
- 115+00 Track Stationing
- Tunnel Structure
- Pedestrian Overcrossing
- Stairs and Elevators
- 491-33-20 APN Numbers
- Landscaping with Trees
- Landscape without Trees or Hardscape
- Sidewalk
- Sidewalk and Landscaping

0 50 100 150
Feet

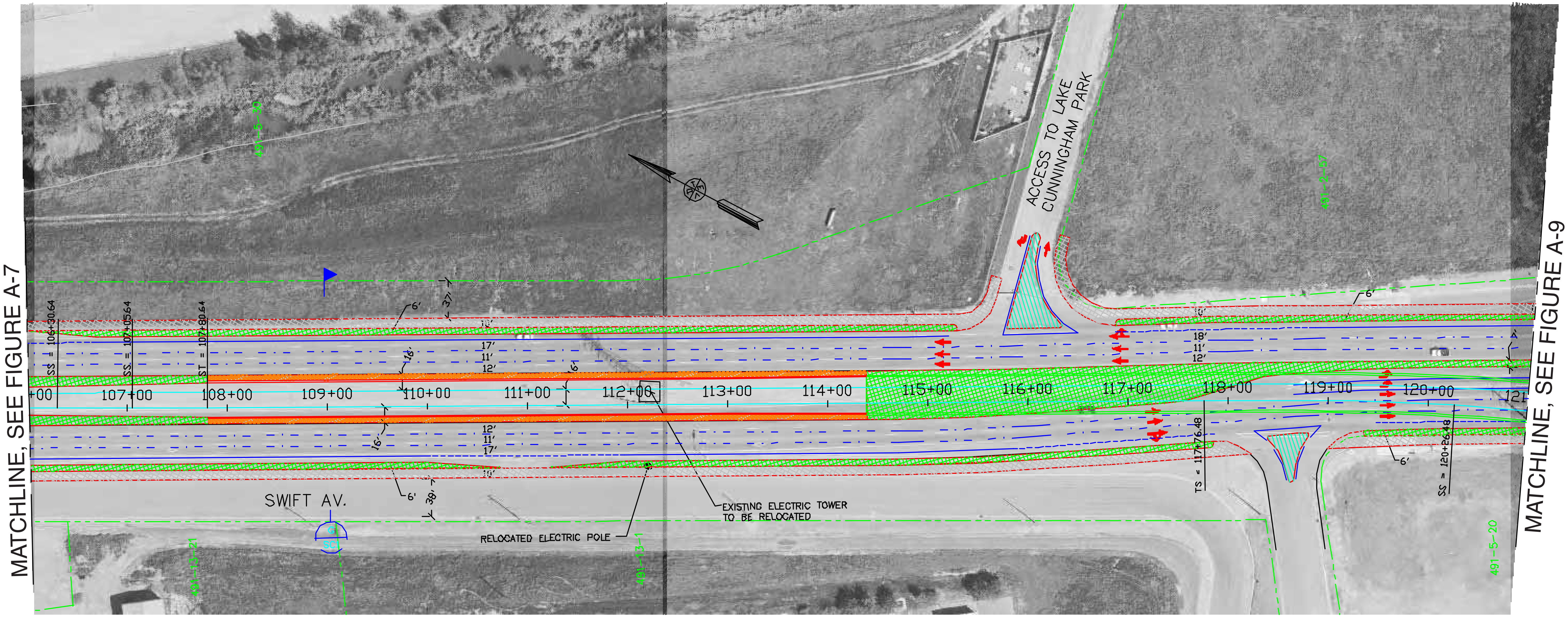
Source: Korve Engineering 2002.

SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

01277.01 007 (03/03)

Figure A-7
Light Rail Alternative Alignment



Legend

Directional Arrows	APN Numbers (491-33-20)
Aerial Structure	Landscaping with Trees
Track Stationing (115+00)	Landscape without Trees or Hardscape
Tunnel Structure	Sidewalk
Pedestrian Overcrossing	Sidewalk and Landscaping
Stairs and Elevators	

Santa Clara Valley Transportation Authority

DOWNTOWN EAST VALLEY

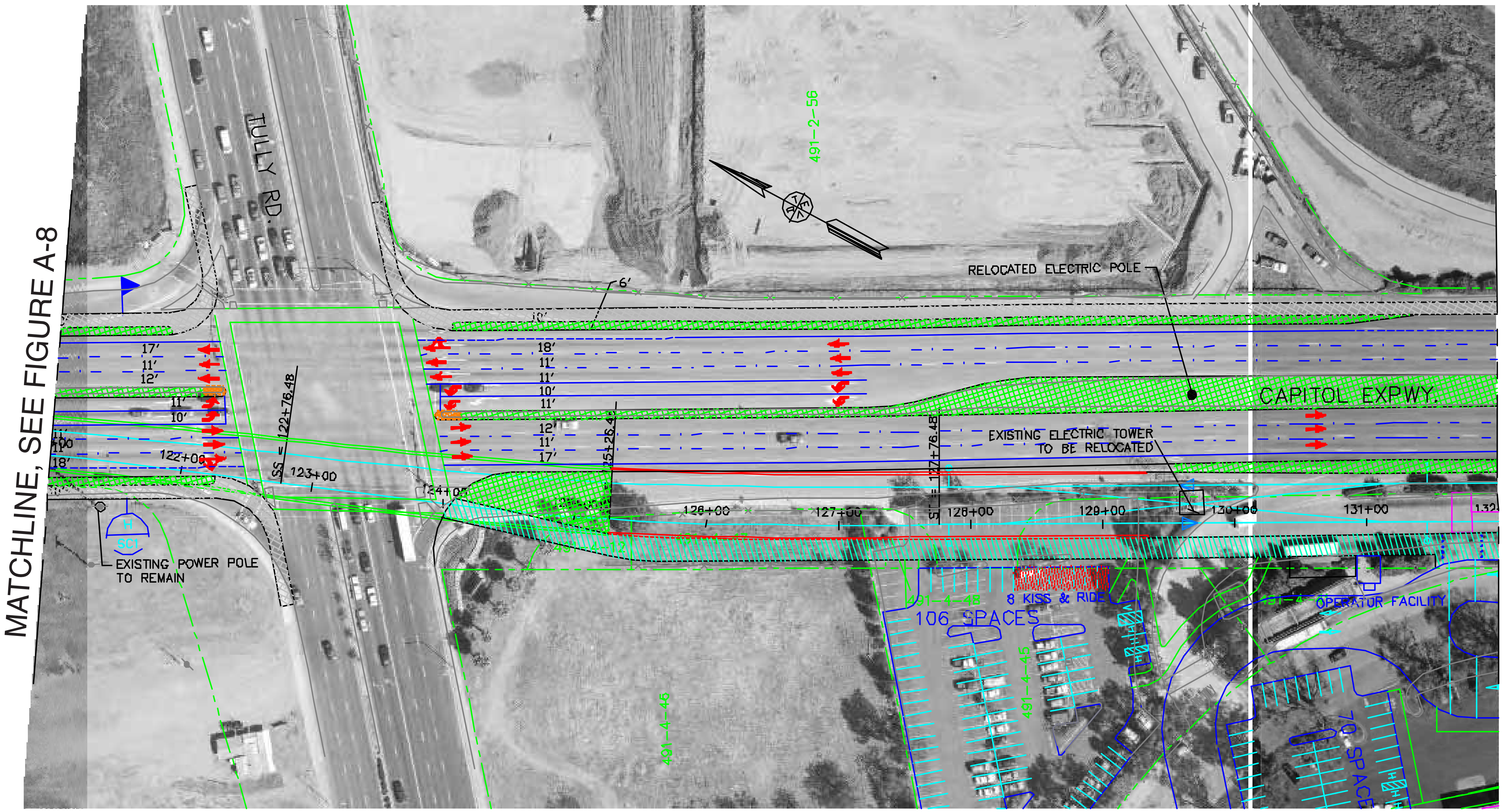
0 50 100 150

Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-8
Light Rail Alternative Alignment



Legend

Directional Arrows
Aerial Structure
Track Stationing
Tunnel Structure
Pedestrian Overcrossing
Stairs and Elevators
APN Numbers
Landscaping with Trees
Landscape without Trees or Hardscape
Sidewalk
Sidewalk and Landscaping

0 50 100 150
Feet

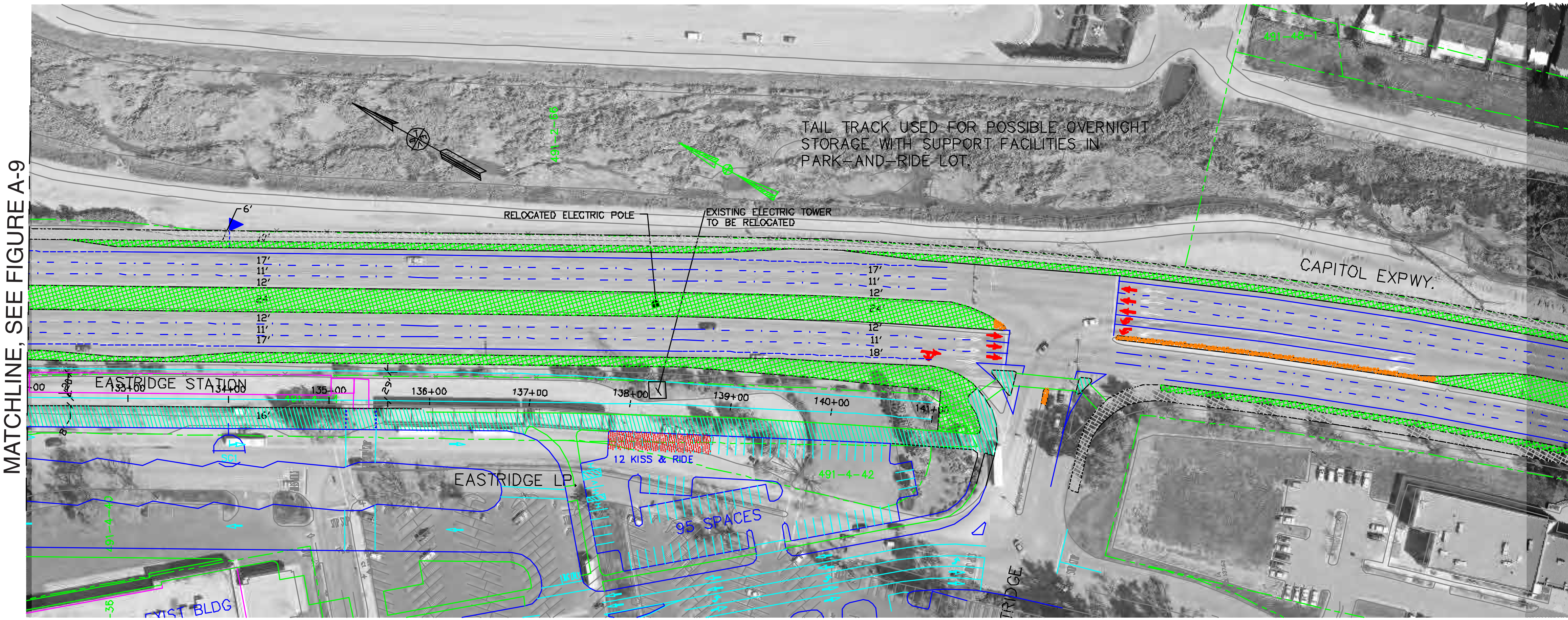
Source: Korve Engineering 2002.

SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

01277.01 007 (03/03)

Figure A-9
Light Rail Alternative Alignment



Legend

- Directional Arrows
- Aerial Structure
- 115+00 Track Stationing
- Tunnel Structure
- Pedestrian Overcrossing
- Stairs and Elevators
- 491-33-20 APN Numbers
- Landscaping with Trees
- Landscape without Trees or Hardscape
- Sidewalk
- Sidewalk and Landscaping

SANTA CLARA Valley Transportation Authority

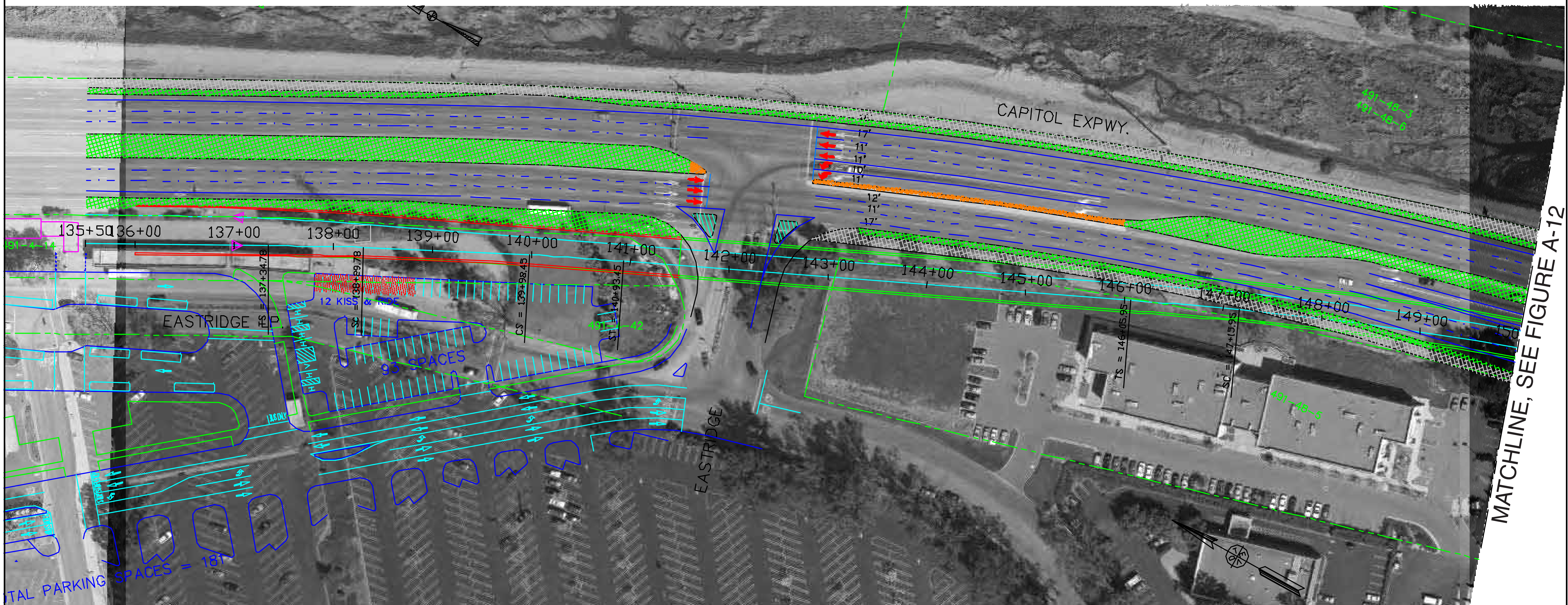
DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-10
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491–33–20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

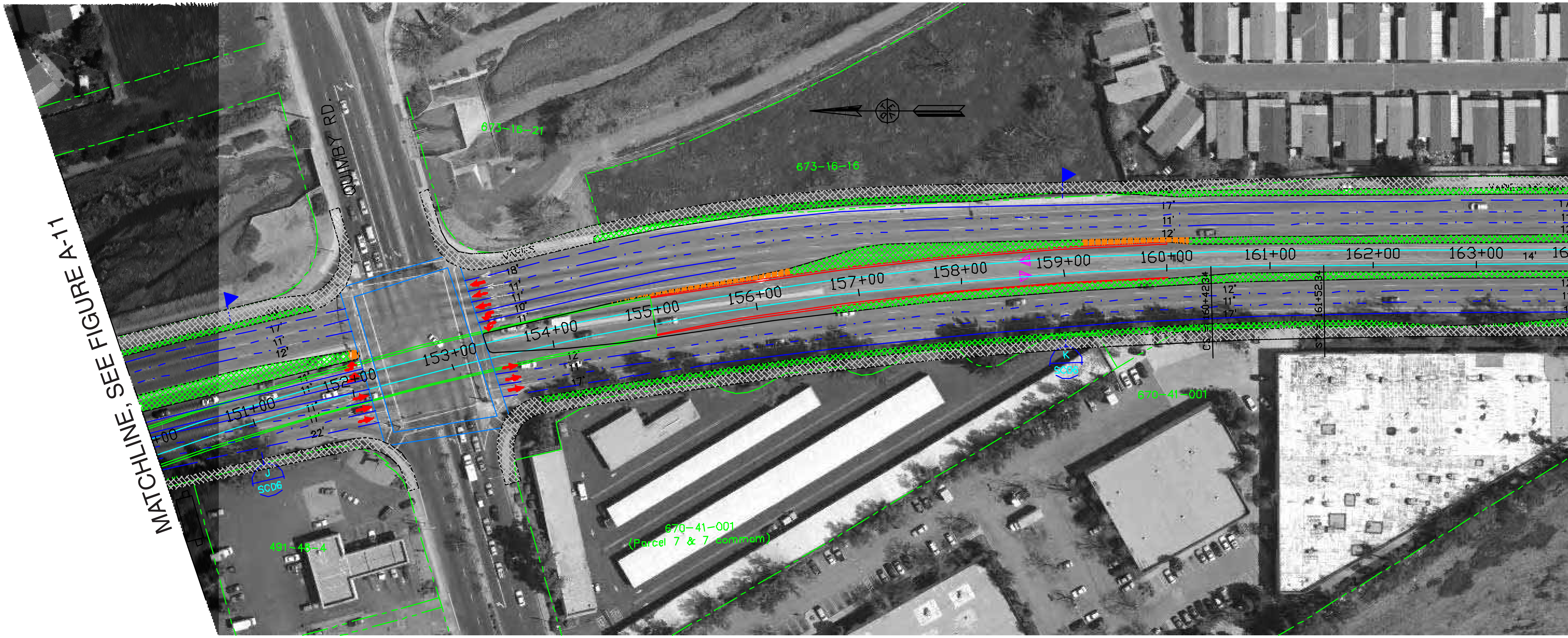
0 50 100 150

Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-11
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

01277.01 007 (03/03)

SANTA CLARA Valley Transportation Authority

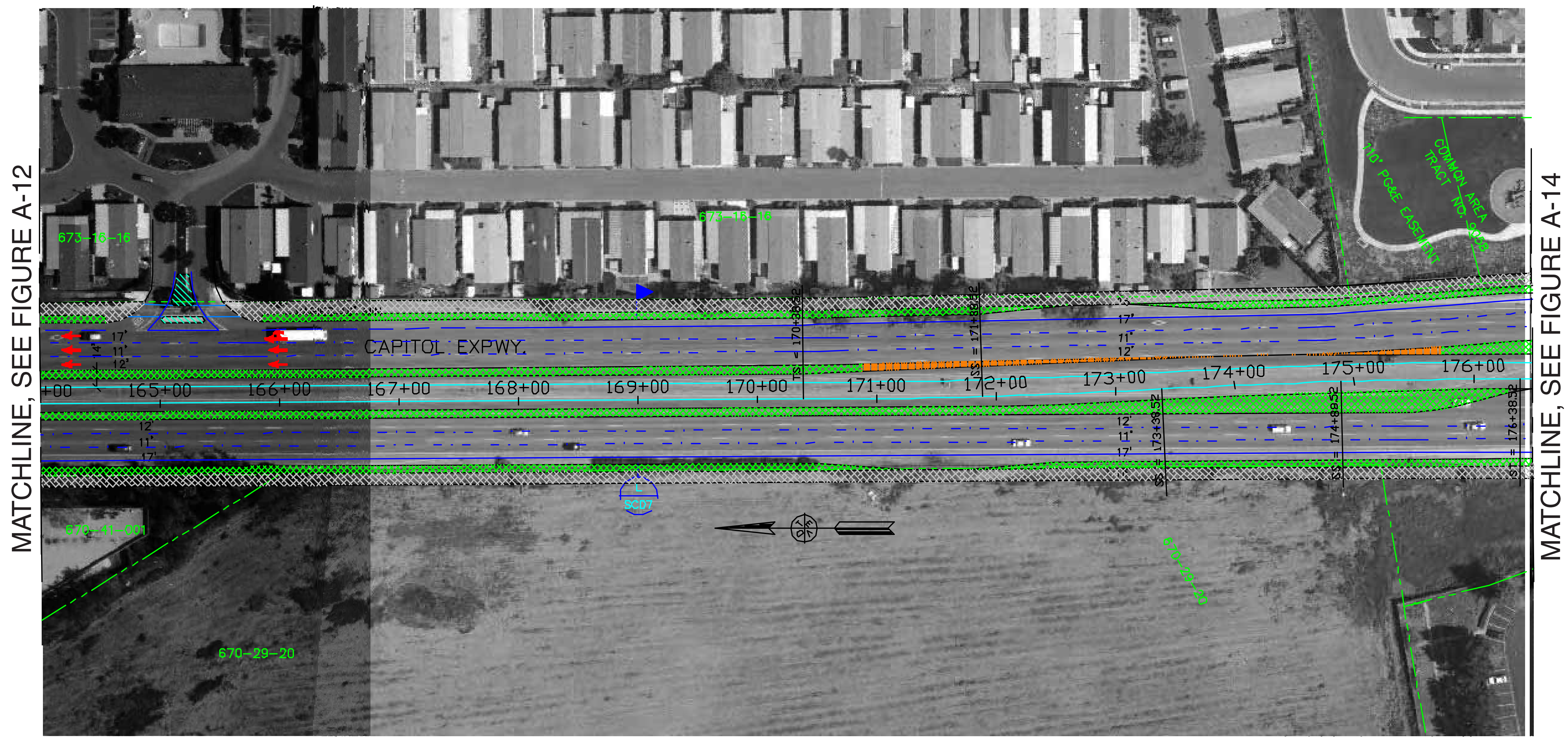
DOWNTOWN EAST VALLEY

0 50 100 150

Feet

Source: Korve Engineering 2002.

Figure A-12
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

0 50 100 150

Feet

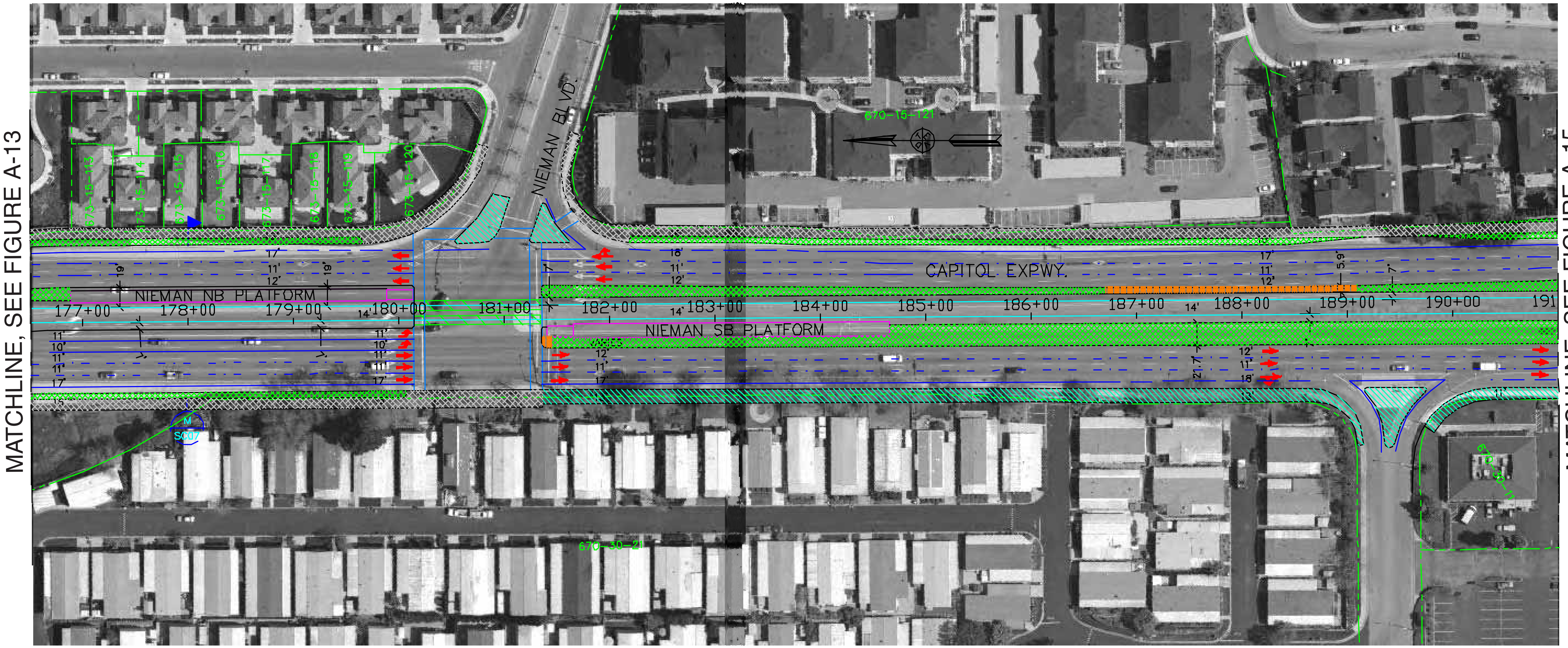
Source: Korve Engineering 2002.

SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

01277.01 007 (03/03)

Figure A-13
Light Rail Alternative Alignment



Legend

Directional Arrows
Aerial Structure
115+00 Track Stationing
Tunnel Structure
Pedestrian Overcrossing
Stairs and Elevators
491-33-20 APN Numbers
Landscaping with Trees
Landscape without Trees or Hardscape
Sidewalk
Sidewalk and Landscaping

01277.01 007 (03/03)

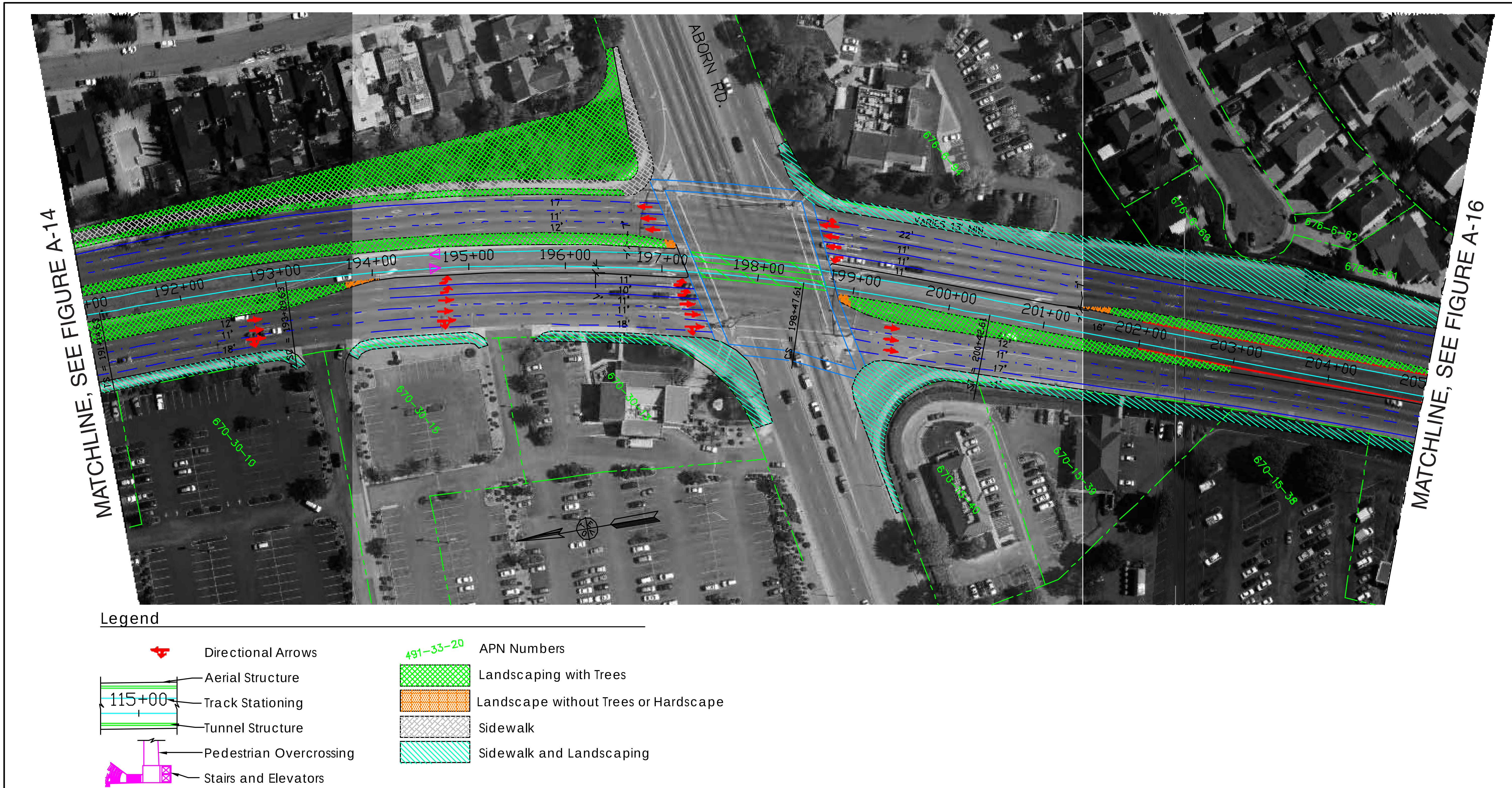
SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

Figure A-14
Light Rail Alternative Alignment



01277.01 007 (03/03)

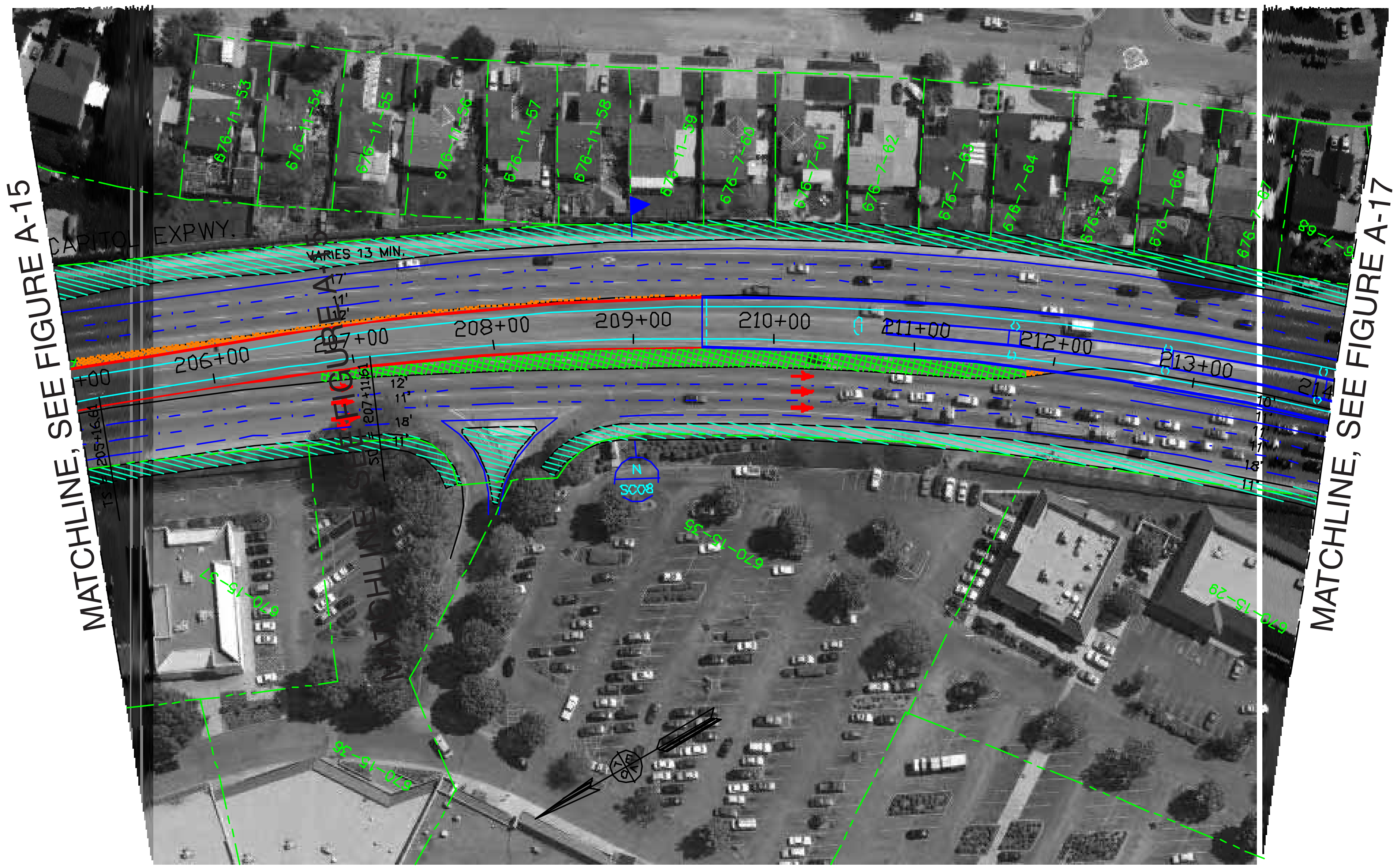
VTA. SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

Figure A-15
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

01277.01 007 (03/03)

SANTA CLARA Valley Transportation Authority

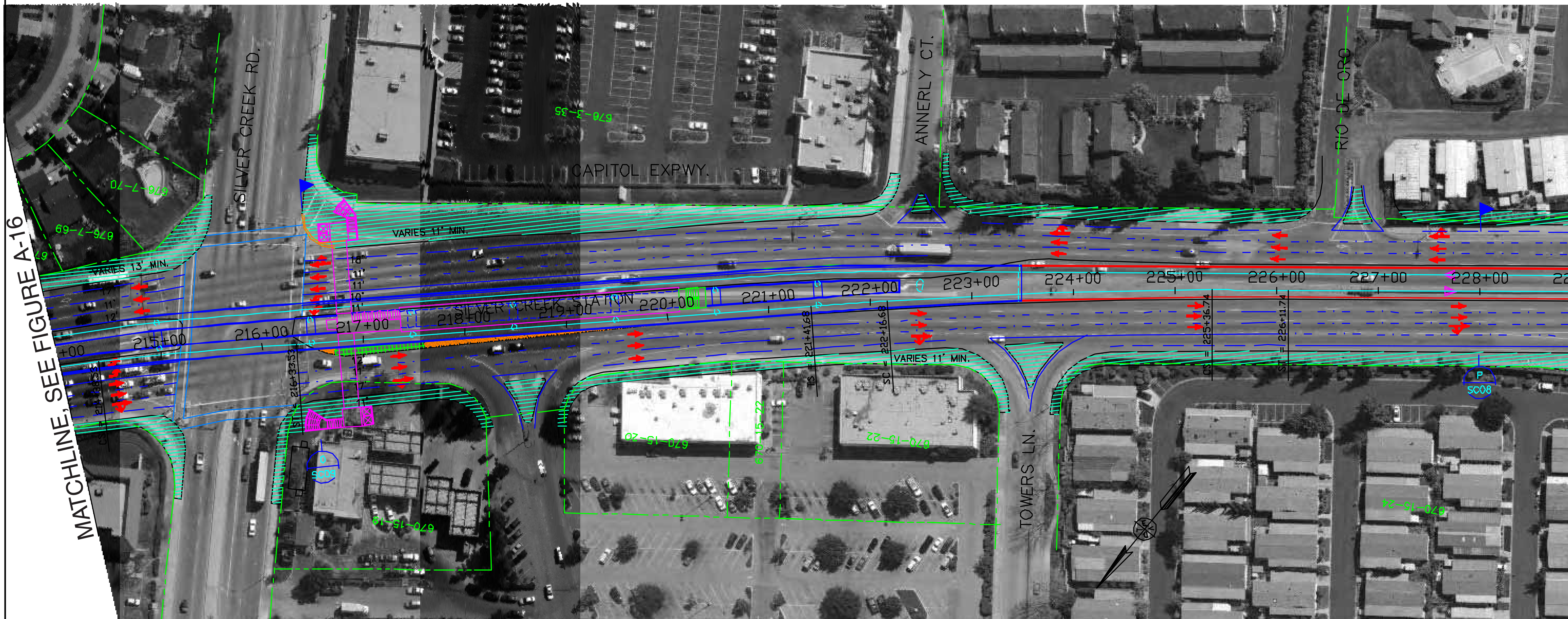
DOWNTOWN EAST VALLEY

0 50 100 150

Feet

Source: Korve Engineering 2002.

Figure A-16
Light Rail Alternative Alignment



Legend

Directional Arrows	APN Numbers
Aerial Structure	Landscaping with Trees
Track Stationing	Landscape without Trees or Hardscape
Tunnel Structure	Sidewalk
Pedestrian Overcrossing	Sidewalk and Landscaping
Stairs and Elevators	

0 50 100 150

Feet

Source: Korve Engineering 2002.

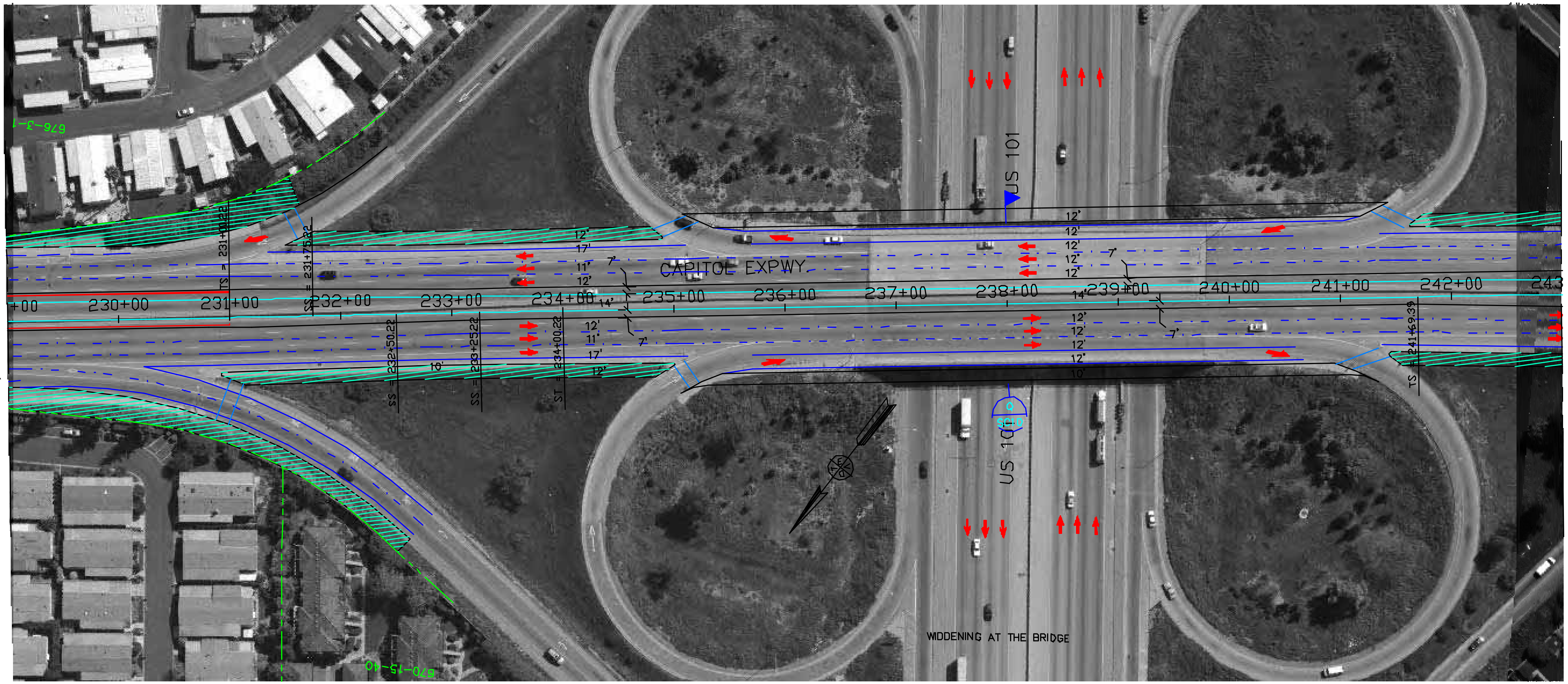
SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

01277.01 007 (03/03)

Figure A-17
Light Rail Alternative Alignment

MATCHLINE, SEE FIGURE A-17



MATCHLINE, SEE FIGURE A-19

Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

SANTA CLARA Valley Transportation Authority

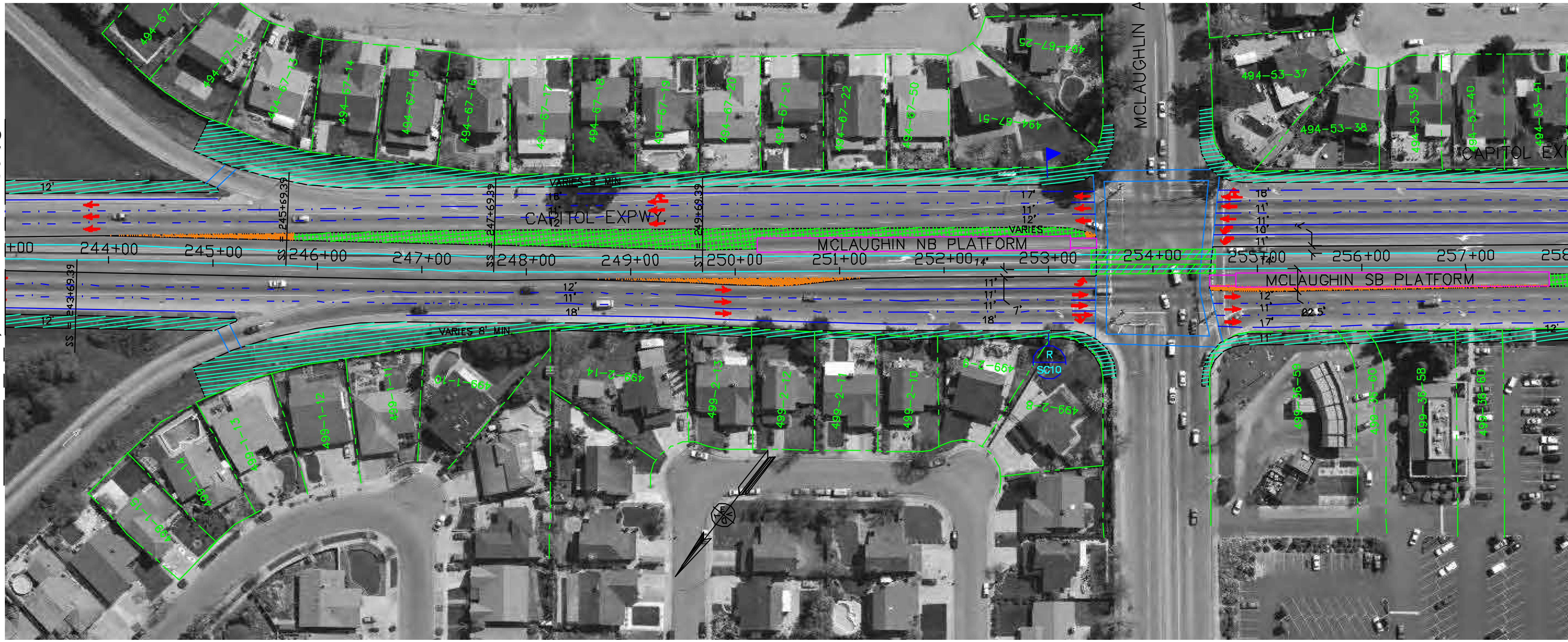
DOWNTOWN EAST VALLEY

0 50 100 150

Feet

Source: Korve Engineering 2002.

Figure A-18
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491–33–20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

Santa Clara Valley Transportation Authority

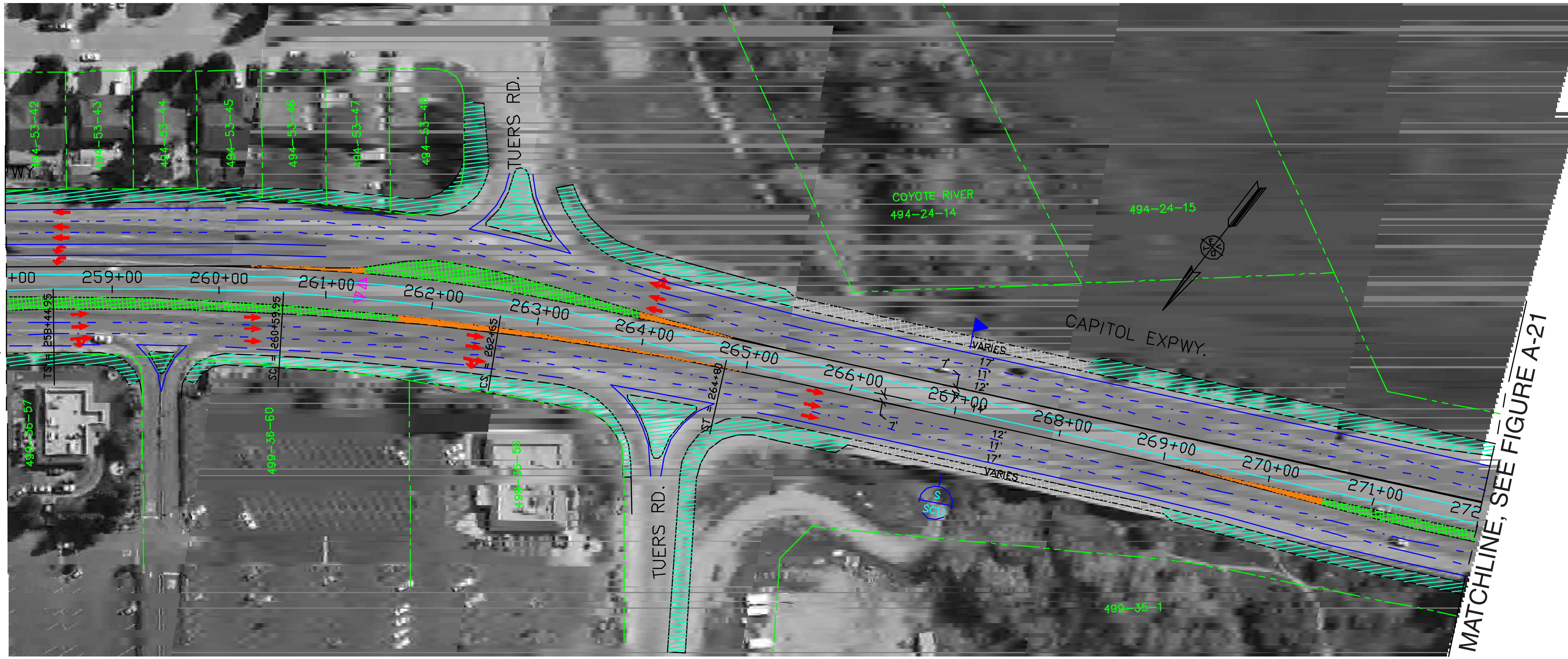
Downtown East Valley

0 50 100 150
Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-19
Light Rail Alternative Alignment



Legend

Directional Arrows	491-33-20 APN Numbers
Aerial Structure	Landscaping with Trees
115+00 Track Stationing	Landscape without Trees or Hardscape
Tunnel Structure	Sidewalk
Pedestrian Overcrossing	Sidewalk and Landscaping
Stairs and Elevators	

01277.01 007 (03/03)

VTA Santa Clara Valley Transportation Authority

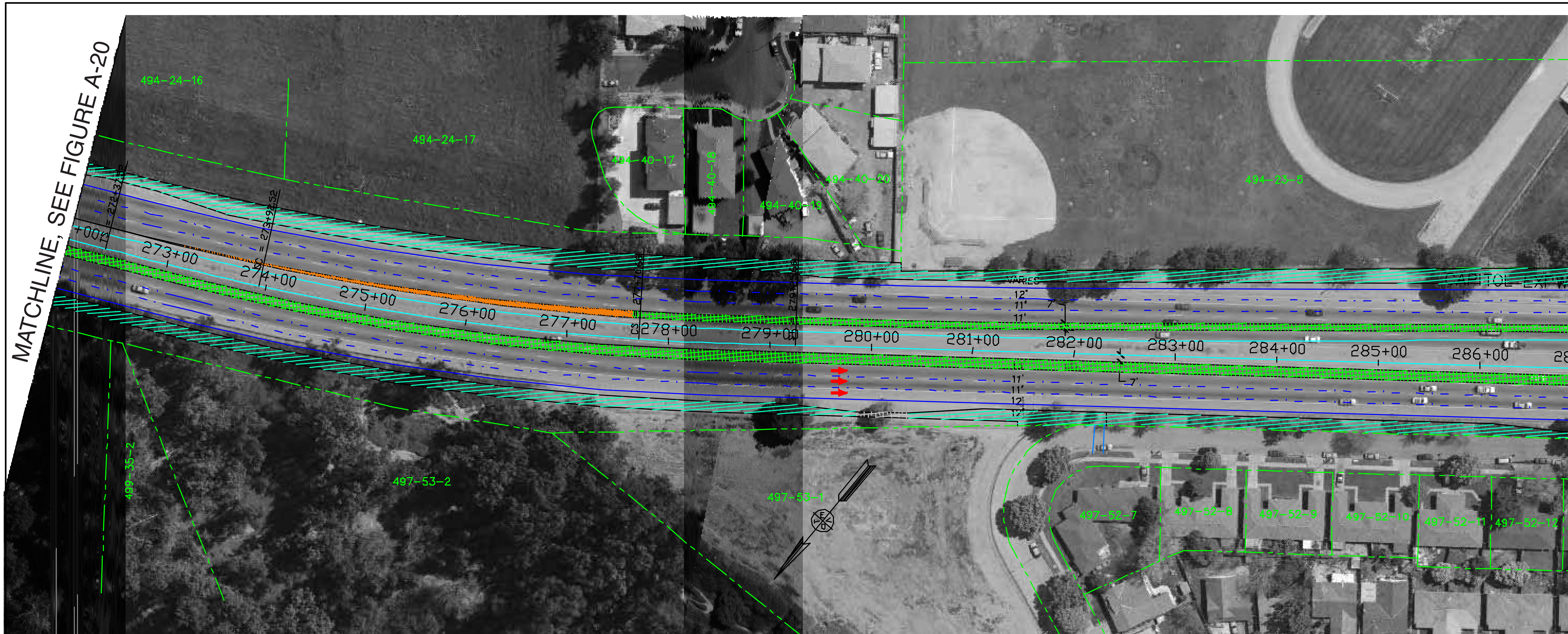
DOWNTOWN EAST VALLEY

0 50 100 150

Feet

Source: Korve Engineering 2002.

Figure A-20
Light Rail Alternative Alignment



Legend

- Directional Arrows
- Aerial Structure
- 115+00 Track Stationing
- Tunnel Structure
- Pedestrian Overcrossing
- Stairs and Elevators
- 491-33-20 APN Numbers
- Landscaping with Trees
- Landscape without Trees or Hardscape
- Sidewalk
- Sidewalk and Landscaping

Santa Clara Valley Transportation Authority

DOWNTOWN EAST VALLEY

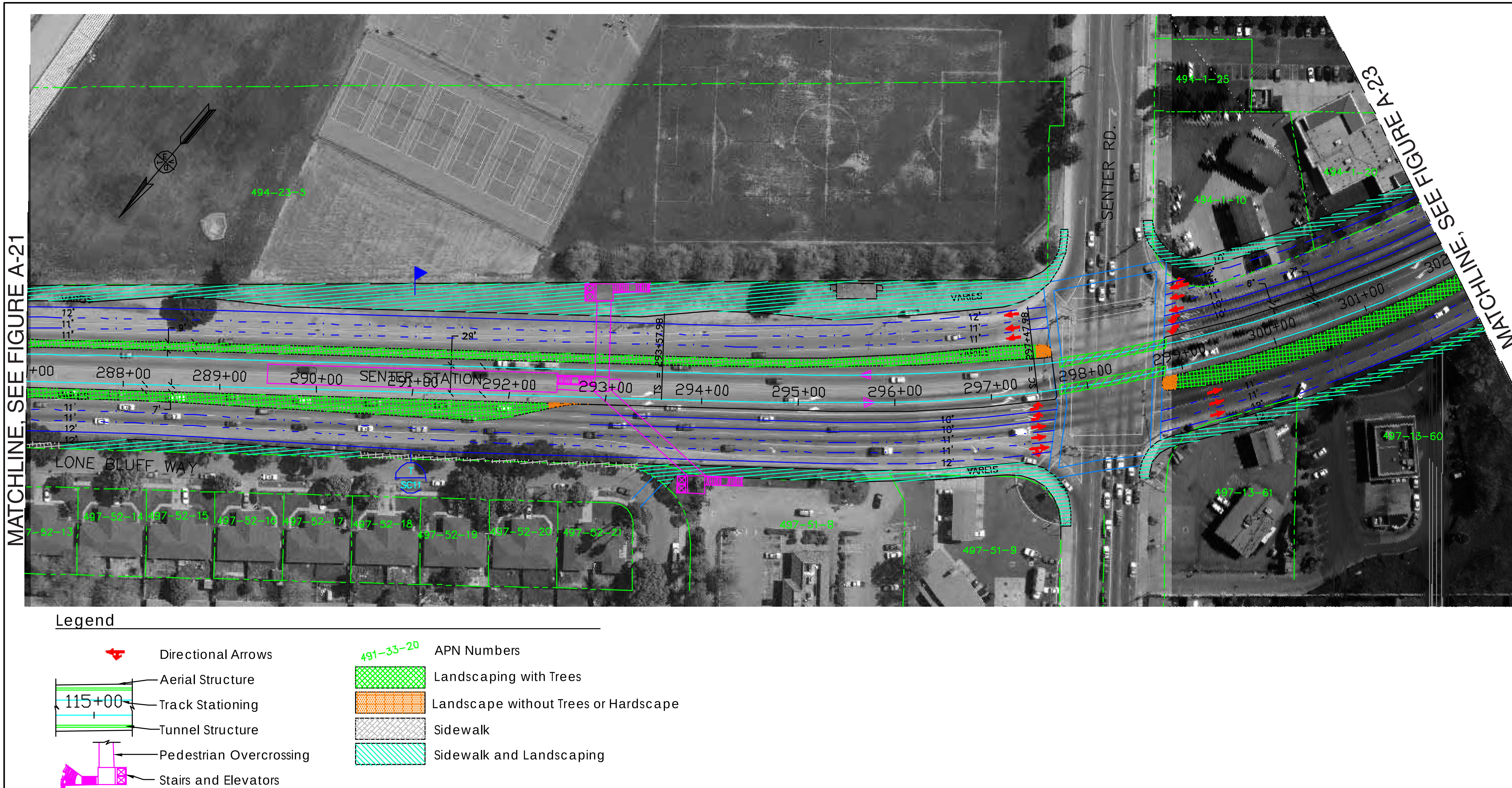
0 50 100 150

Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-21
Light Rail Alternative Alignment



01277.01 007 (03/03)

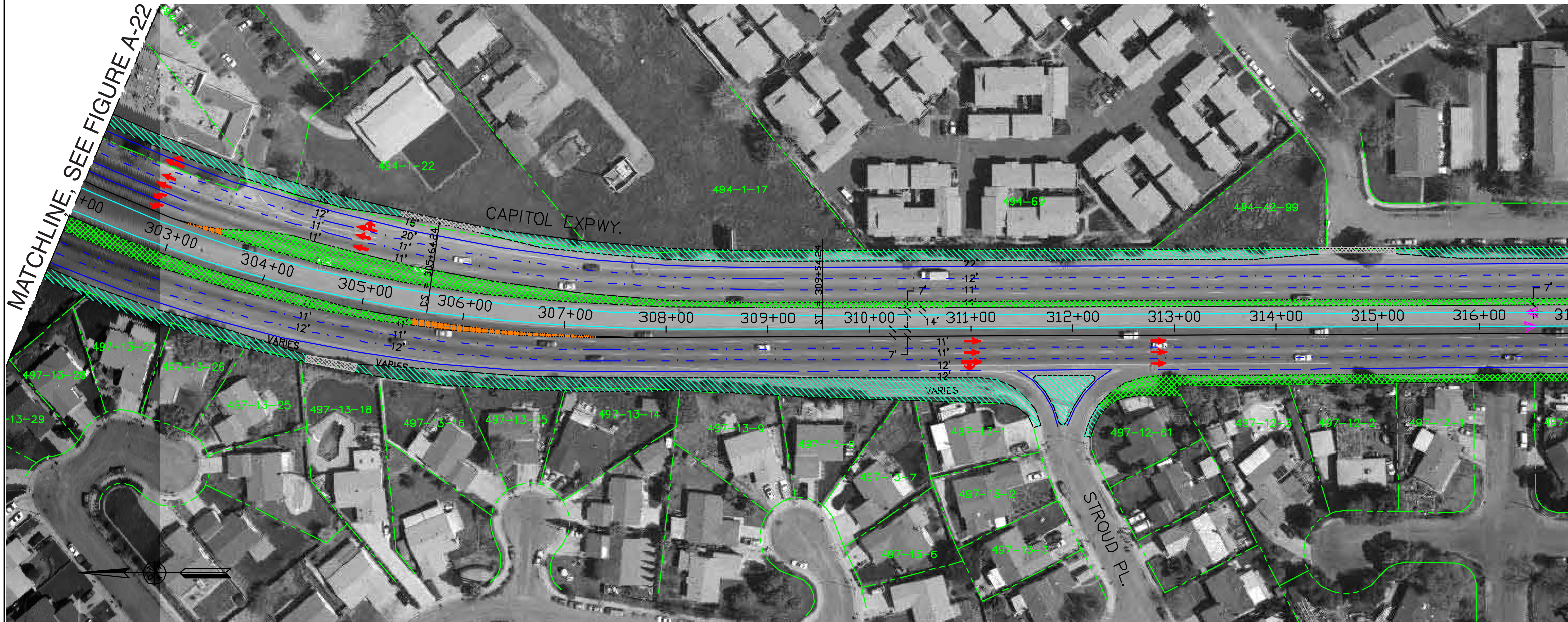
SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

Figure A-22
Light Rail Alternative Alignment



Legend

Directional Arrows	APN Numbers (491-33-20)
Aerial Structure	Landscaping with Trees
Track Stationing (115+00)	Landscape without Trees or Hardscape
Tunnel Structure	Sidewalk
Pedestrian Overcrossing	Sidewalk and Landscaping
Stairs and Elevators	

01277.01 007 (03/03)

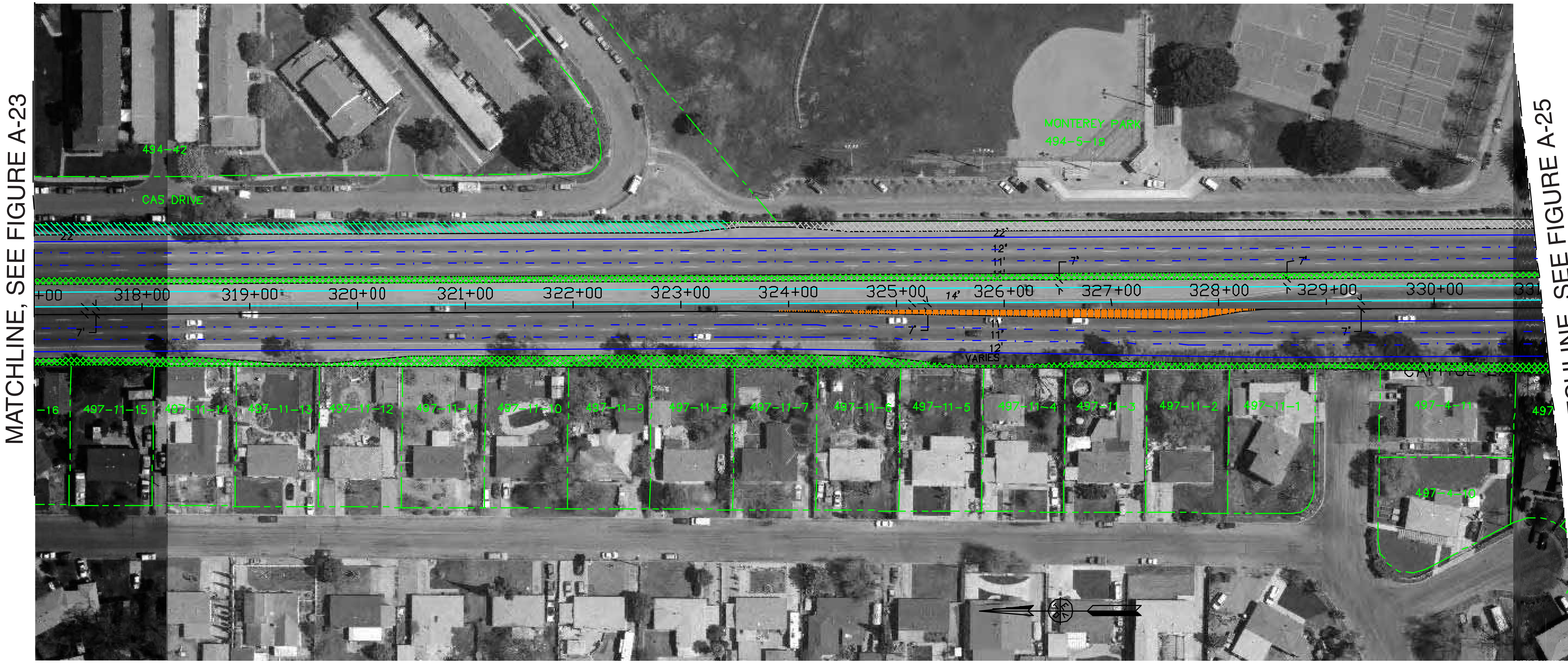
SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150 Feet

Source: Korve Engineering 2002.

Figure A-23
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

01277.01 007 (03/03)

SANTA CLARA Valley Transportation Authority

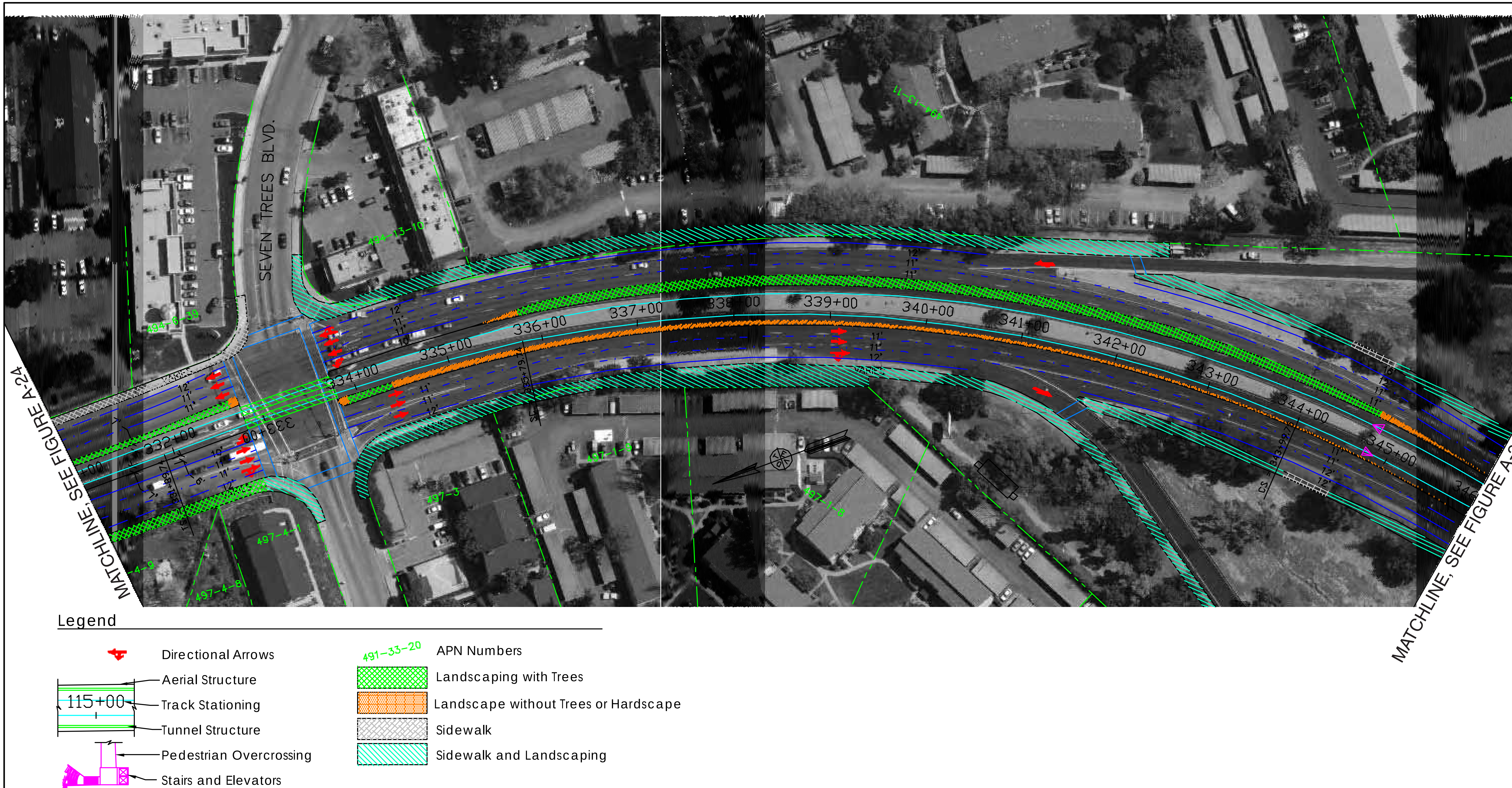
DOWNTOWN EAST VALLEY

0 50 100 150

Feet

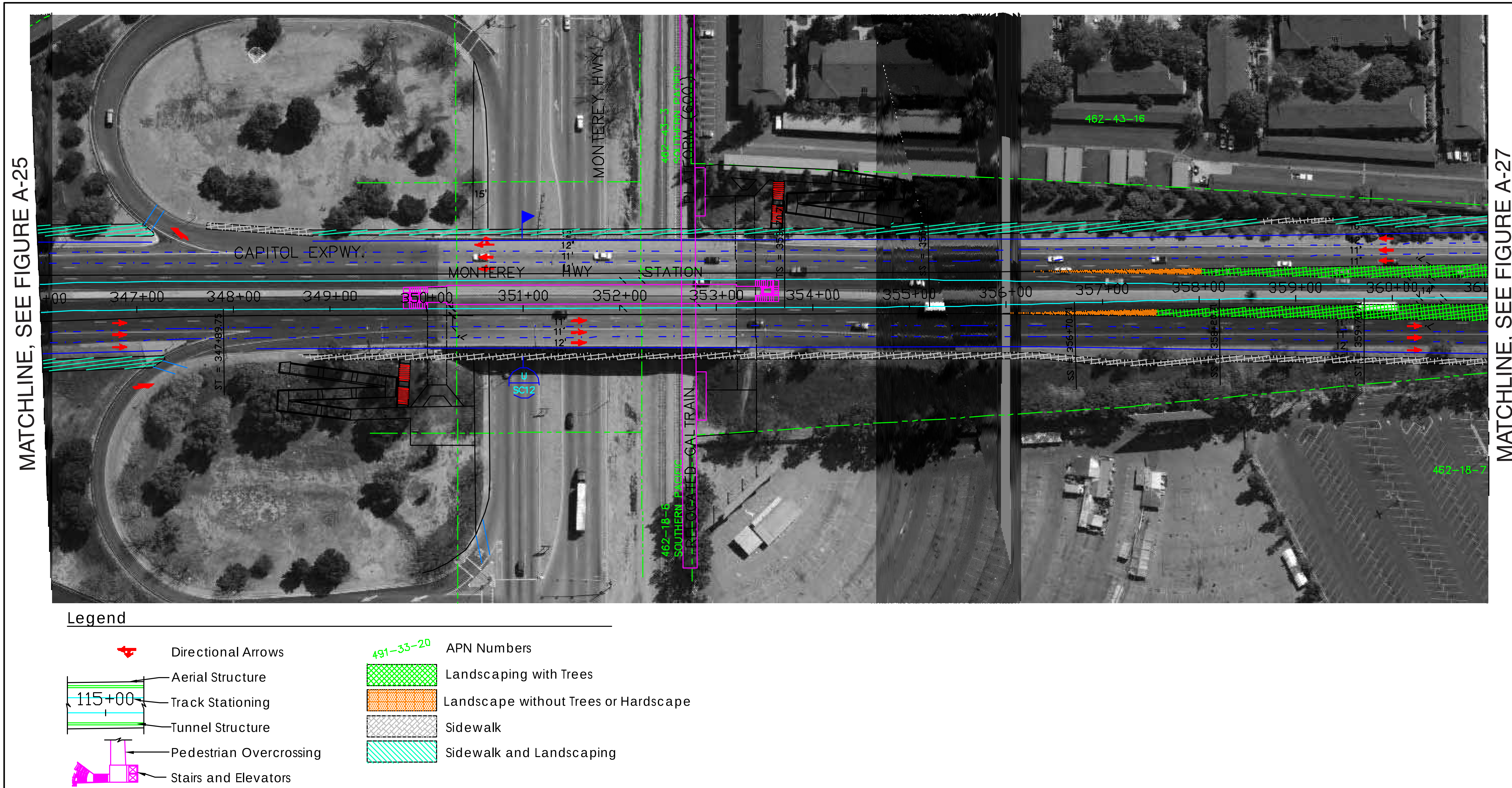
Source: Korve Engineering 2002.

Figure A-24
Light Rail Alternative Alignment



Source: Korve Engineering 2002.

Figure A-25
Light Rail Alternative Alignment



Santa Clara Valley Transportation Authority

DOWNTOWN EAST VALLEY

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-26
Light Rail Alternative Alignment

MATCHLINE, SEE FIGURE A-26

MATCHLINE, SEE FIGURE A-28

Legend

- Directional Arrows
- Aerial Structure
- 115+00 Track Stationing
- Tunnel Structure
- Pedestrian Overcrossing
- Stairs and Elevators
- 491-33-20 APN Numbers
- Landscaping with Trees
- Landscape without Trees or Hardscape
- Sidewalk
- Sidewalk and Landscaping

01277.01 007 (03/03)

VTA Santa Clara Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150

Feet

Source: Korve Engineering 2002.

Figure A-27
Light Rail Alternative Alignment

Legend

Directional Arrows
Aerial Structure
115+00 Track Stationing
Tunnel Structure
Pedestrian Overcrossing
Stairs and Elevators
491-33-20 APN Numbers
Landscaping with Trees
Landscape without Trees or Hardscape
Sidewalk
Sidewalk and Landscaping

01277.01 007 (03/03)

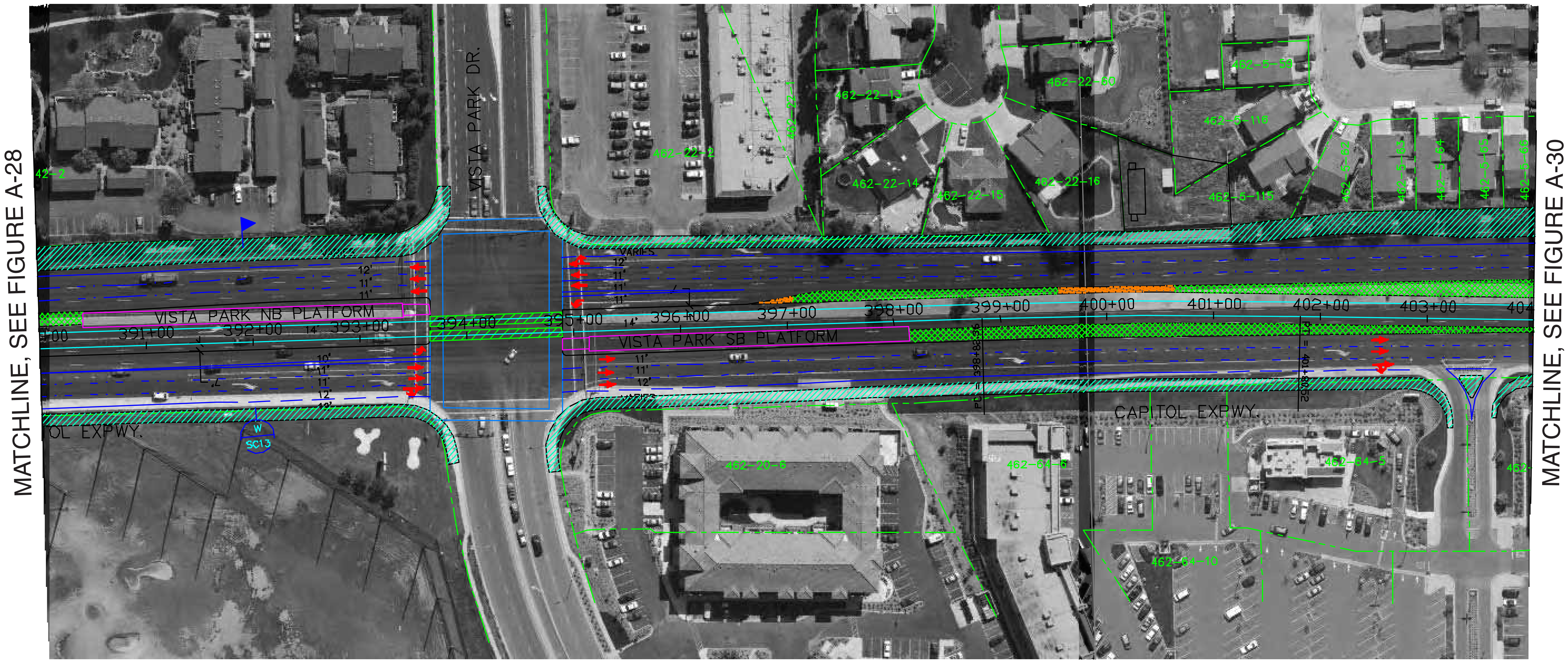
SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

Figure A-28
Light Rail Alternative Alignment



Legend

- Directional Arrows
- Aerial Structure
- 115+00 Track Stationing
- Tunnel Structure
- Pedestrian Overcrossing
- Stairs and Elevators
- 491-33-20 APN Numbers
- Landscaping with Trees
- Landscape without Trees or Hardscape
- Sidewalk
- Sidewalk and Landscaping

SANTA CLARA Valley Transportation Authority

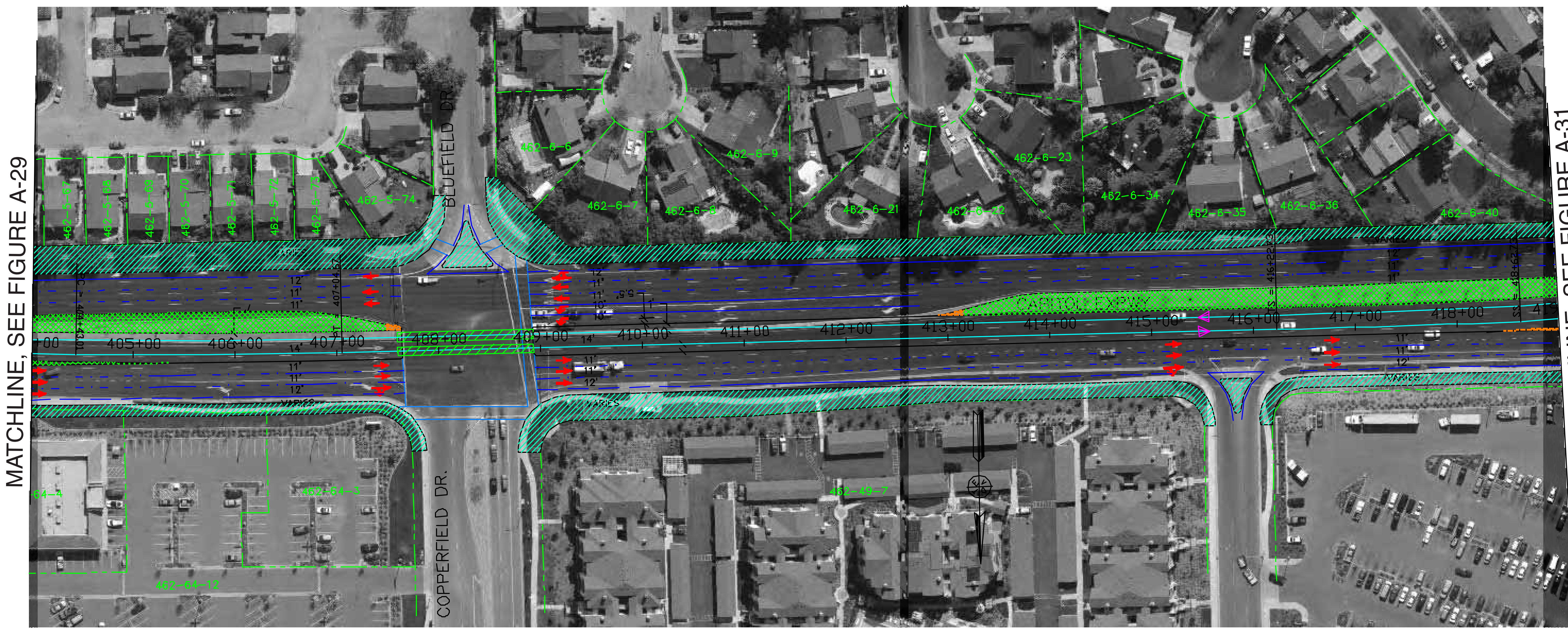
DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-29
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

01277.01 007 (03/03)

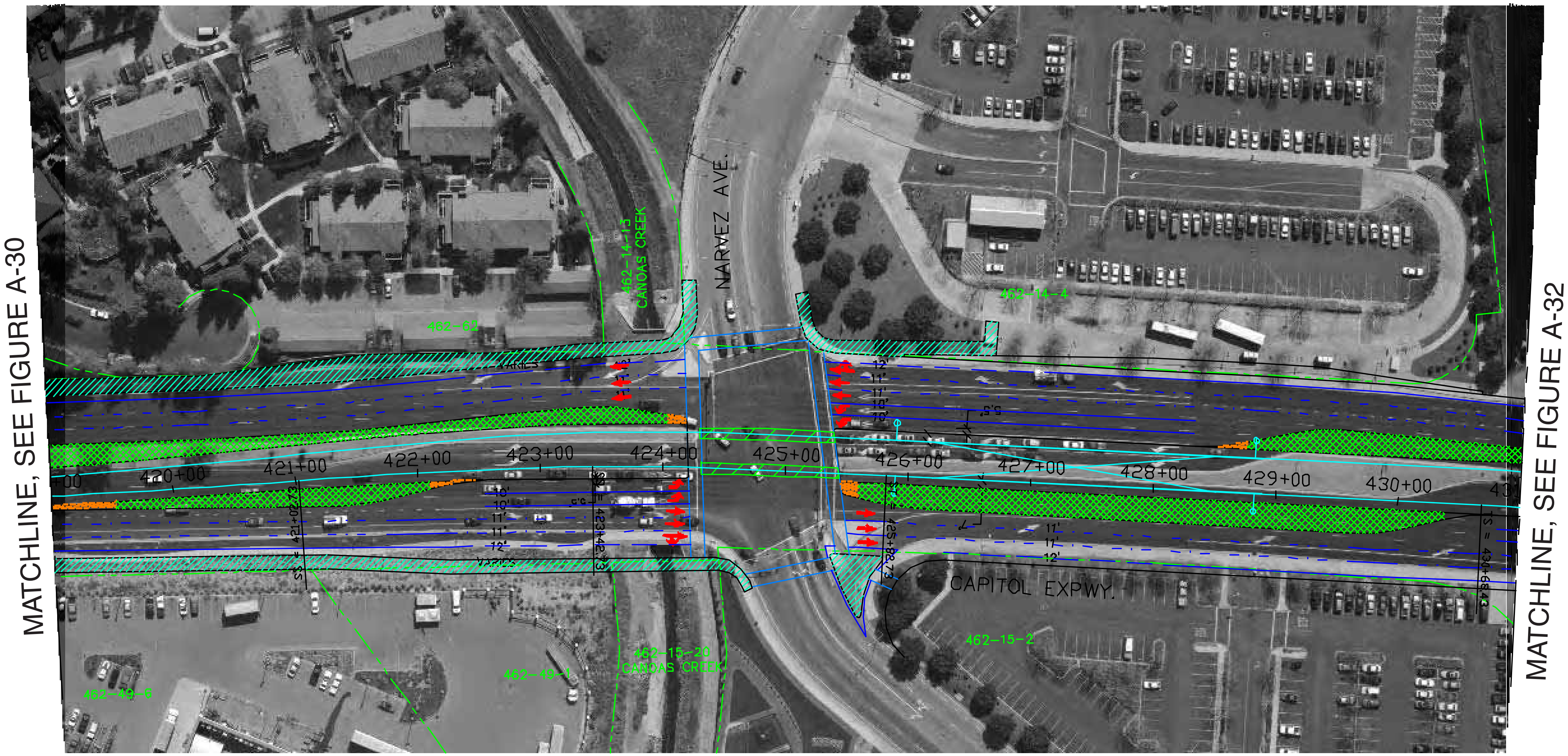
Santa Clara Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150
Feet

Source: Korve Engineering 2002.

Figure A-30
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

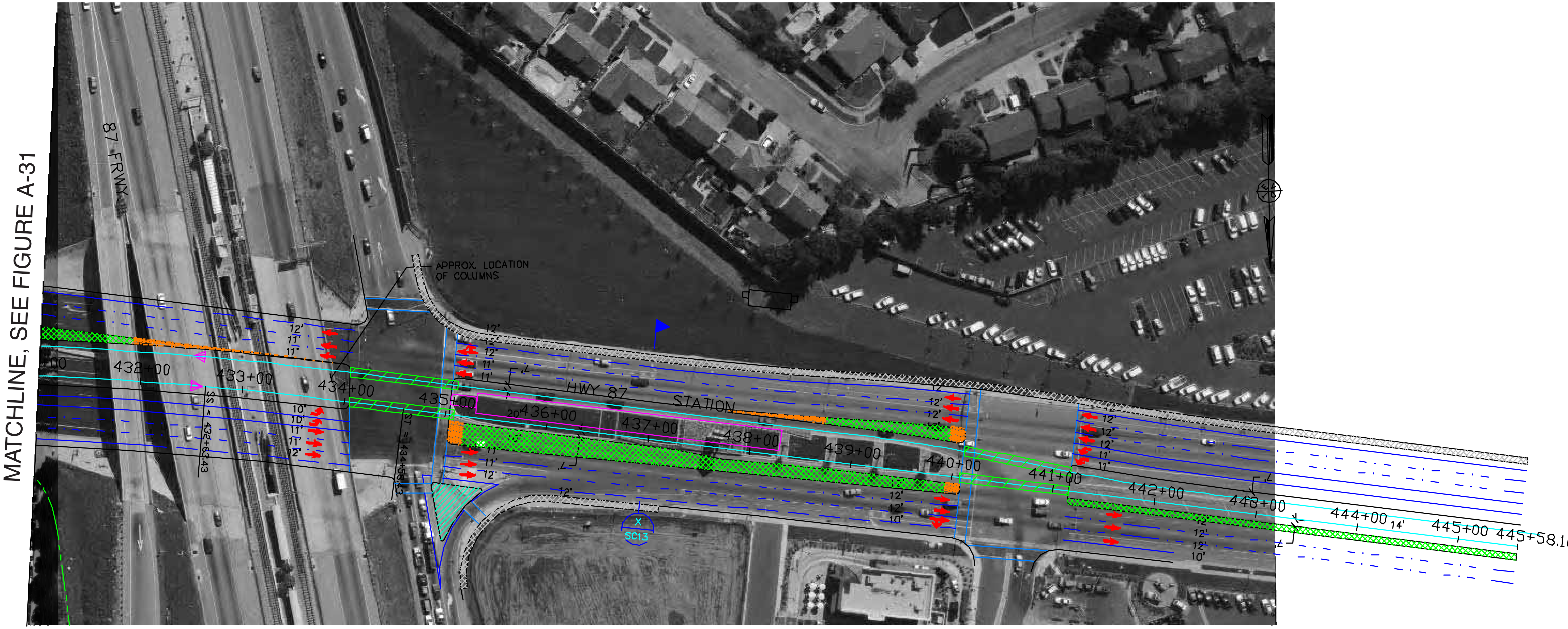
0 50 100 150

Feet

Source: Korve Engineering 2002.

01277.01 007 (03/03)

Figure A-31
Light Rail Alternative Alignment



Legend

Directional Arrows

Aerial Structure

115+00 Track Stationing

Tunnel Structure

Pedestrian Overcrossing

Stairs and Elevators

491-33-20 APN Numbers

Landscaping with Trees

Landscape without Trees or Hardscape

Sidewalk

Sidewalk and Landscaping

01277.01 007 (03/03)

SANTA CLARA Valley Transportation Authority

DOWNTOWN EAST VALLEY

0 50 100 150

Feet

Source: Korve Engineering 2002.

Figure A-32
Light Rail Alternative Alignment

Appendix B

Transportation Study, Capitol Expressway Light Rail Corridor

DOWNTOWN EAST VALLEY

Light Rail Transit Corridor
Environmental Impact Review

Transportation Study

Capitol Expressway Light Rail Corridor

Prepared for:

VTA

3331 North First Street
San Jose, CA 95134

Prepared by:

Korve Engineering

1570 The Alameda, Suite 222
San Jose, CA 95126

September 2004

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

The Santa Clara Valley Transportation Authority (VTA) proposes to extend light rail transit service in the Downtown/East Valley corridor. The Proposed Project is an extension of light rail transit along Capitol Expressway, between Capitol Avenue and State Route 87 (SR 87). This report provides an evaluation of traffic and transportation related issues related to the Proposed Project. This report summarizes the existing transportation conditions along Capitol Expressway and outlines the impacts of the Proposed Project on the local and regional transportation network. The report addresses roadway, automobile traffic, transit (including bus, light rail and commuter rails), pedestrians, bicycle facilities, goods movement, parking, and community access.

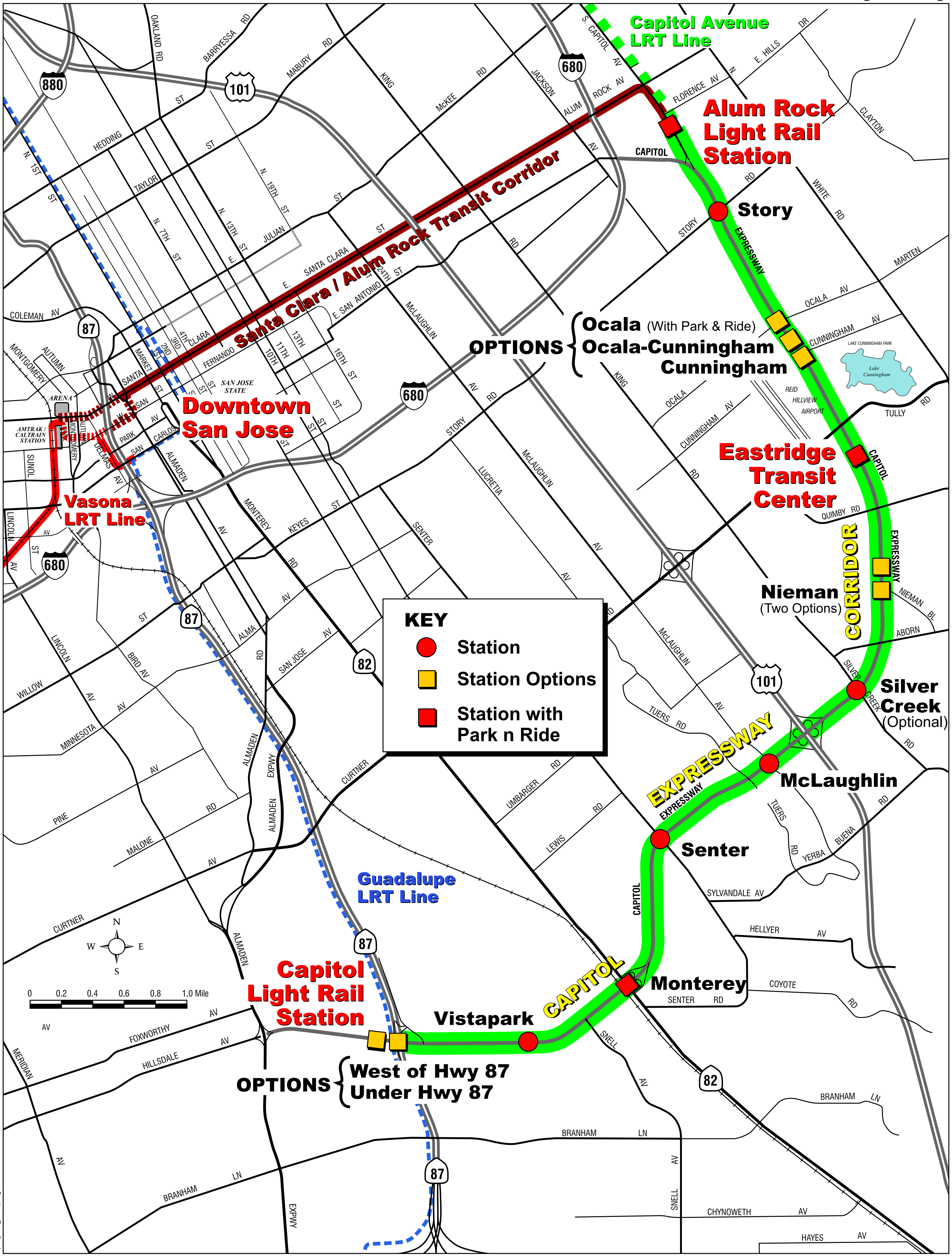
1.1 Project Overview & Alignment

The proposed LRT line is an 8.2 mile extension of the Tasman East/Capitol Light Rail Line, currently under construction. The line begins on Capitol Avenue at Wilbur Avenue, enters Capitol Expressway at Capitol Avenue, and continues along the remaining portion of Capitol Expressway to a terminus at SR 87. Figure 1-1 shows the location of the project and the proposed stations.

The Proposed Project would add up to 10 new stations along its length as noted on Figure 1-1. Once the Tasman East/Capitol Light Rail Line and the Capitol Expressway Light Rail Line are completed, there will be a continuous 26-mile long light rail line that would run from south and east San Jose through North San Jose and the Cities of Milpitas, Santa Clara, Sunnyvale, and Mountain View to the Mountain View Caltrain/Light Rail Station. In North San Jose there will be a transfer point at the Baypointe/Tasman Station connecting this corridor and the existing Guadalupe Light Rail Line. Figure 1-2 presents a schematic view of the LRT operations and the respective existing segments and segments under development. The figure shows the LRT extension to Campbell that is also under construction along the Union Pacific Railroad (UPRR) Vasona branch, and referred to as the Vasona Light Rail Line. Also noted on Figure 1-2 is the extension of the Tasman East/Capitol Avenue Light Rail Line along Capitol Avenue to the Alum Rock station. The graphic indicates that the Capitol Expressway Light Rail Line would operate as a continuous route from Mountain View to SR 87. Figure 1-2 also illustrates a transit connection from downtown to the East Valley along Santa Clara Street and Alum Rock Avenue. This alignment is being evaluated in a separate study.

Light rail trains would generally operate in the median of Capitol Expressway with a dual track configuration, although at some locations the alignment transitions to the side of the corridor for a limited distance. Three automobile travel lanes would be provided on each side of the trackway. At intersections, turning lanes would accommodate access to side streets. A combination two-way multi-use path would be provided on one side of the Expressway and a sidewalk on the opposite side from the Alum Rock Station to the Nieman Boulevard intersection. Past Nieman a sidewalk would be provided on both sides, but no separate multi-use path. Between Ocala and Nieman, a separate multi-use path would be provided on both sides of the corridor. In addition, the outside curb lane in both directions will be sufficiently wide enough to allow bicycle use in the roadway.

Korve Engineering

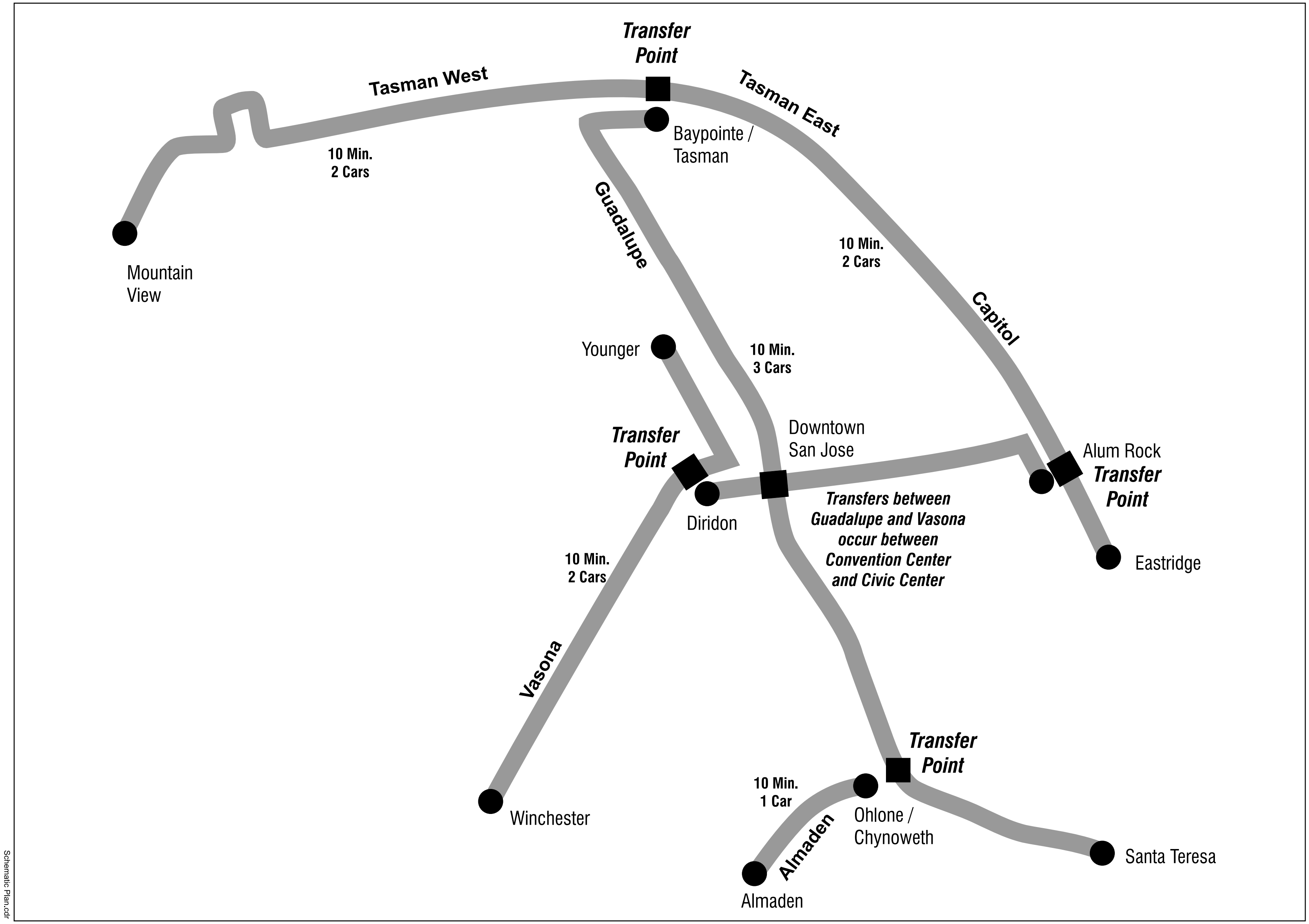


Stations Rev 3.cdr

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 1-1

PROPOSED STATION LOCATIONS



Korve Engineering, Inc.
Manuel Padron & Associates

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 1-2

SCHEMATIC LRT OPERATING PLAN

Travel time from the Alum Rock station to the SR 87 station would be approximately 17 minutes. The total travel time for the entire corridor from SR 87 to Mountain View would be about 70 minutes. Expected daily ridership along the Capitol Expressway LRT extension is 9,800 daily riders by 2010 and 11,100 daily riders by 2025.

The light rail extension would be fully accessible in accordance with the Americans with Disabilities Act (ADA).

1.2 Stations & Parking

Up to 10 stations are proposed for the Capitol Expressway Light Rail Corridor, with each station identified by the nearest major cross street on Capitol Expressway. The terminal station at Alum Rock is being constructed as part of the Capitol Avenue Light Rail Project scheduled to open in 2004. Table 1-1 lists the proposed stations and locations. Stations for which optional locations are under consideration or that may be constructed at a future date are noted in Table 1-1. The platform configuration is a combination of center and side opposite. Park-and-ride facilities currently exist at Alum Rock, Eastridge, and Capitol Expressway/SR 87. These facilities would be maintained and enhanced, as necessary, to serve demand. Additional park-and-ride facilities are being considered for the Ocala and Monterey Highway stations. The Monterey Highway park-and-ride would be in conjunction with a relocation of the Capitol Caltrain platform southward near the proposed light rail station.

1.3 Project Scheduling

A detailed funding plan for design and construction has not been developed; therefore a complete construction schedule is not available at this time. The environmental review process is expected to be completed in early 2004. If funding is available, engineering design, which typically takes 24 to 30 months to complete, could commence after environmental review. Construction activities can typically begin approximately two years after completion of environmental review. Under any scenario, revenue service would not begin until 2008, or beyond.

The project will likely be constructed in phases. A likely initial phase would be from Alum Rock to Eastridge. A detailed phasing plan has not been developed.

1.4 Traffic Analysis Alternatives

This report provides an evaluation of traffic and transportation issues related to the proposed extension of the VTA light rail system along Capitol Expressway. This report outlines the impacts of the Proposed Project on the local and regional transportation network. The impacts of the Proposed Project were evaluated using the policy guidelines of the VTA's Congestion Management Program (CMP), and the City of San Jose.

Table 1-1 Proposed Capitol Expressway Light Rail Corridor Stations

Station	Park-and-Ride	Platform Type	Comments
Story	No	Center (elevated or depressed)	The station platform is elevated at this location. Two elevated designs are being considered; one with median access and one with pedestrian overcrossings. Another option is a tunnel under Story Road with a depressed open-air station.
Ocala/ Cunningham	Potential	Side Opposite (at-grade)	Three options have been considered for the location of the station platform. One option configures the station with side opposite platforms at Ocala. Park-and-ride facilities may be available at this station. Another option configures the station with side opposite platforms at Cunningham. The third option has a center platform located between Ocala and Cunningham with grade-separated access into the median from the sides of the Expressway.
Eastridge	Yes	Center (at grade or elevated)	The at-grade station platform would be on the west side of the Expressway. An option would be an elevated platform with vertical access to the light rail platforms. Park-and-ride will be available at this station.
Nieman	No	Side Opposite (at-grade)	The station configuration would be side opposite platforms at the Nieman Boulevard intersection. An option for the side running alternative would have a side platform along the westside of the Expressway located slightly north of Nieman Boulevard.
Silver Creek	No	Center (elevated)	The station platform is elevated at this location with a pedestrian overcrossing. This station may be deferred to a later phase of the project.
McLaughlin	No	Side Opposite (at-grade or elevated)	The station configuration depends on the rail alignment. An alignment in the median of Capitol Expressway at the same grade of the expressway would have side opposite platforms. With an elevated alignment over US 101, the platform would also be elevated with access via stairs and elevators.
Senter	No	Center (elevated)	A center platform configuration to the east of the Senter intersection is necessary because of the expressway alignment. This would require pedestrian overcrossings with stairs and elevators.
Monterey	Yes	Center (at-grade)	Vertical circulation would be provided between the platform in the median of Capitol Expressway and Monterey Highway below. Park-and-ride facilities to serve both the relocated Caltrain Station and the light rail line will be available at this station.
Vista Park	No	Side Opposite (at-grade)	Station spacing indicates Vista Park as an appropriate location.
SR 87	Yes	Center (at-grade)	The platform could either be directly beneath SR 87 or just to the west of the SR 87 overcrossing. Existing park-and-ride facilities are available at this station.

The level of service methodology for the CMP is based on the 1985 Highway Capacity Manual (HCM) methodology. The 1985 HCM methodology uses a weighted average delay for critical approaches at a signalized intersection. The software associated with the level of service methodology is the most recent version of the TRAFFIX software package.

1.4.1 Project Alternatives

As part of VTA's planning process, the following alternatives were considered during Preliminary Environmental Scoping and Conceptual Engineering, but were rejected:

- Light Rail Alternative with Four Mixed Flow and Two HOV Lanes on Capitol Expressway between Capitol Avenue and US 101.
- Light Rail Alternative with Six Mixed Flow and Two HOV Lanes on Capitol Expressway between Capitol Avenue and US 101.

As background to the genesis of these alternatives, it is important to take into account prior decisions made by the City of San Jose and the County of Santa Clara related to Capitol Expressway. In 1991, the San Jose City Council approved the Evergreen Specific Plan project and the Evergreen Development Policy. The Evergreen Specific Plan consisted of the construction of approximately 2,856 dwelling units, commercial uses, and associated infrastructure improvements on an 865-acre site. In addition, there were 1,353 residential units planned for the remainder of the Evergreen Area for which additional traffic capacity improvements would be required in order to comply with the Evergreen Development Policy.

The construction of this development in the Evergreen area was dependent on the implementation of transportation mitigation measures that were the subject of an EIR approved by the San Jose City Council in April 1994. These transportation mitigation measures, which included the construction of HOV (outside) lanes on Capitol Expressway from US-101 to I-680, provided the necessary traffic mitigation to allow development of up to 4,209 dwelling units in the Evergreen area. As it relates specifically to the Capitol Expressway, upon completion of the transportation mitigation measures, the Expressway would consist of three mixed flow and one HOV lane (outside) in both the northbound and southbound directions between US-101 and I-680 until such time as LRT was implemented.

In 1992, the County Board of Supervisors approved the City's request to be the lead agency for the preparation of the EIR for the Capitol Expressway improvements with the understanding that the City was proposing an interim eight-lane facility on Capitol Expressway by adding four additional lanes (two new mixed flow lanes and two new HOV/commuter lanes) between US 101 and I-680. At the time, it was acknowledged that the buildout proposed for Capitol Expressway (six mixed flow lanes plus two HOV lanes) would not allow sufficient room for the future LRT project within the existing right-of-way. However, it was also acknowledged that LRT service with 10-minute headways could provide approximately the same level of passenger throughput as a lane of traffic on Capitol Expressway. Thus, the EIR stated that "given support mechanisms to encourage passenger demand, the LRT could replace one travel lane in each direction while still maintaining adequate traffic levels of service on the expressway." The eight lane facility ultimately approved was to be designed in such a manner to provide for the future elimination of the two inside lanes and the installation of a potential double track light rail system (with stations) in the median while minimizing the need to reconstruct the remaining six lanes of the Expressway.

In the City's EIR, the construction of the LRT facility was considered as an alternative to the roadway improvements proposed by the Evergreen Specific Plan development. At the time, the LRT alternative was determined to be the environmentally superior alternative. However, it was also determined that private developers did not have the financial ability to substantially fund LRT as mitigation for their approved and pending Evergreen development projects. The City further stated in their EIR that it was not the objective of the proposed Evergreen Specific Plan project to provide transportation capacity that would exceed demand for traffic capacity generated by the project. Therefore, the City approved the project to include the construction of two additional general purpose and two HOV lanes. These mitigation improvements were constructed and have been operating since 1996. The approved Evergreen development is also nearing buildout.

This report analyzes the study intersection operations for the following traffic scenarios. The future year traffic projections were developed using the CMP travel forecasting model.

- Existing – Level of service based on existing traffic counts and existing intersection geometry. Existing conditions are those that occurred in 2000/01.

No Build

- 2010 No Build Alternative – Level of service based on 2010 projections without construction of the light rail project and with existing roadway geometry plus any planned improvements expected to occur prior to 2010. The existing HOV lanes are assumed to remain.

- 2025 No Build Alternative – Level of service based on the 2025 projections without construction of the light rail project and with existing roadway geometry plus any planned improvements expected to occur prior to 2025. The existing HOV lanes are assumed.

Light Rail Alternative

- 2010 Light Rail Alternative – Level of service based on 2010 projections and with the construction of the light rail project. The roadway geometry from the 2010 No Build Alternative is assumed, except as modified because of the Light Rail Alternative and with the removal of the HOV lanes. The Light Rail Alternative assumes a terminus at Eastridge as Phase One and a terminus at SR 87 as a Phase Two.

- 2025 Light Rail Alternative – Level of service based on 2025 projections and with the construction of the light rail project. The roadway geometry from the 2025 No Build Alternative is assumed, except as modified because of the Light Rail Alternative and with removal of the HOV lanes. The Light Rail Alternative assumes a terminus at Eastridge as Phase One and a terminus at SR 87 as Phase Two.

Baseline

- 2010 Baseline Alternative – Level of service based on 2010 projections without the light rail project, but with transportation system management improvements in the corridor. For the purposes of comparison to the No Build Alternative the HOV lanes are assumed to remain.

- 2025 Baseline Alternative – Level of service based on 2025 projections without the light rail project, but with transportation system management improvements in the corridor. The HOV lanes are assumed to remain.

2.0 EXISTING CONDITIONS

This Section presents a summary of the existing transportation conditions in the study area. A description of the existing roadway network, public transit, bicycle, and pedestrian facilities, along with goods movement, parking, and community access are summarized in this section.

2.1 Roads & Highways

This section summarizes the existing traffic conditions in the study area, including existing roadway facilities, traffic volumes, intersection geometries, and operating conditions at key locations during the weekday AM and PM peak periods.

The study corridor can be regionally accessed by freeways, expressways, and arterials, as well as VTA transit buses, light rail and Caltrain commuter rail. The study area is defined by the alignment of the proposed LRT service. Freeways, local roadways, and intersections included in the study area are discussed below. The study intersections are illustrated in Figure 2-1. A total of 15 signalized intersections are included in the study area, representing nearly all of the signalized intersections along the corridor.

2.1.1 Congestion Management Program (CMP) Network

The Congestion Management Program (CMP) legislation requires the development of a County CMP roadway network. The CMP network consists of four types of facilities: freeways, county expressways, urban arterials, and rural highways. The County CMP network is monitored annually to determine conformance with CMP traffic level of service standards.

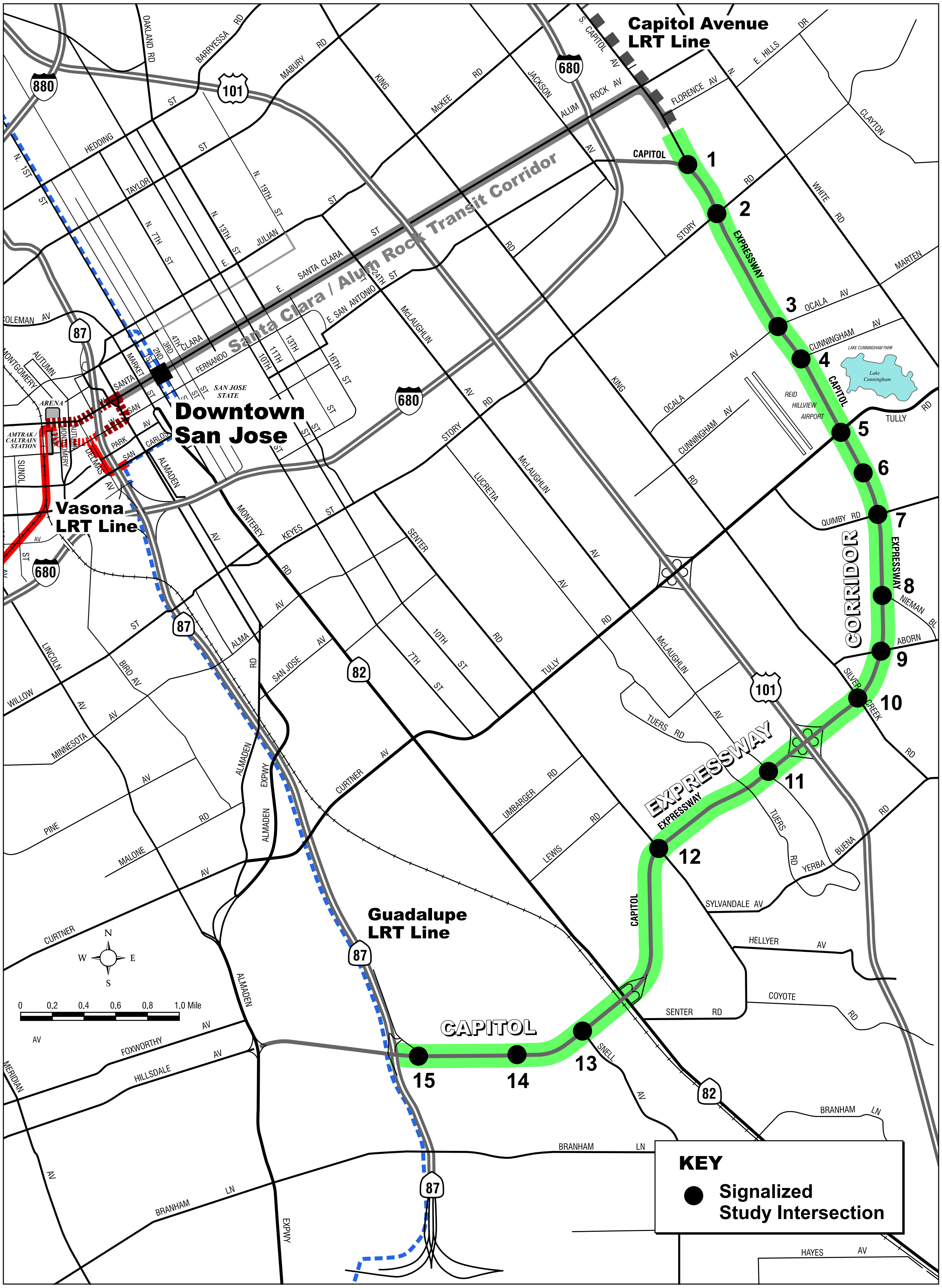
In the vicinity of the study area, the following roadways are contained within the County CMP roadway network (as defined by the *Congestion Management Program for Santa Clara County*, February 2001). The current operations of each facility as defined by the 2001 monitoring report are also summarized.

2.1.1.1 Freeways

US Highway 101 (US 101) is a 8-lane freeway, two of which are HOV lanes that travel in a north-south direction through the study area. Within the study area, US 101 have one interchange at Capitol Expressway. The interchange is a full cloverleaf design with collector/distributor roadways between the Capitol Expressway ramps and the Yerba Buena ramps to the south. The on-ramps onto US 101 from Capitol Expressway are metered. US 101 is posted for 65 mph through the study area. Daily traffic volumes on US 101 range from 132,000 vehicles per day south of Capitol Expressway to 196,000 vehicles per day north of Capitol Expressway. The peak hour traffic volumes immediately north of Capitol Expressway are 14,200 vehicle per hour in the AM peak and 14,700 in the PM peak.

The 2001 Monitoring and Conformance Report for the Congestion Management Program indicates that during the AM peak hour, US 101 operates at level of service F in the northbound direction and level of service A in the southbound direction for the mixed flow lanes. The HOV

Korve Engineering



Signalized Ints.cdr

July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 2-1

SIGNALIZED INTERSECTIONS

lanes operate at level of service C in the northbound direction and level of service A in the southbound direction during the AM peak. During the PM peak hour, the northbound general purpose lanes operate at level of service A and the southbound general purpose lanes operate at level of service E. The HOV lanes operate at level of service A in both the northbound direction and southbound direction during the PM peak hour.

Interstate 680 (I-680) is an eight-lane freeway that travels in a north-south direction. The highest traffic volume along this freeway in the proximity of the Proposed Project occurs between McKee Road and Alum Rock Avenue. The Average Annual Daily Traffic (AADT) is 232,000 vehicles. There are ramps entering and exiting the study area at Alum Rock (State Highway 130) and from Capitol Expressway. I-680 is posted for 65 mph through the study area.

The 2001 CMP Monitoring Report notes that I-680 operates at level of service F in both directions during the AM peak hour, with a total traffic volume of 10,980. This volume is well below the capacity of the roadway because traffic has reached a stop-and-go condition. During the PM peak hour, I-680 at Capitol Expressway operates at level of service A in the southbound direction and level of service B in the northbound direction. The total hourly volume is 16,000.

State Route 87 (SR 87) is a 6-lane freeway which travels in a north/south direction at the far west end of the study area. SR 87 extends from US 101 near the Norman Y. Mineta San Jose International Airport (SJIA) to SR 85 south of the study area. The posted speed limited is 65 mph and the Guadalupe light rail corridor operates within the median of SR 87. The on-ramps to SR 87 from Capitol Expressway are metered.

The 2001 CMP Monitoring Report indicates during the AM peak the northbound lanes operate at LOS F and the southbound lanes operate at level of service A. The total AM volume on SR 87 at Capitol Expressway is 5,650 vehicles. During the PM peak, the northbound lanes operate at LOS A and the southbound lanes operate at level of service B. The total volume is 8,140 vehicles. This volume is greater than the AM volume because of the stop-and-go conditions experienced in the AM peak.

2.1.1.2 <u>Other State Highways</u>

Alum Rock Avenue is a four-lane arterial under the jurisdiction of Caltrans and designated as State Route (SR 130). It travels in an east-west direction through the northern part of the study area. Alum Rock is designated as an arterial west of I-680, connects with I-680 with a full freeway interchange and extends westward across US 101 where its name changes to Santa Clara Street. The street then becomes the major east-west arterial to enter the City of San Jose’s Central Business District (CBD) from the east. East of I-680 Alum Rock is also designated as SR 130 as it extends further east to Mount Hamilton Road in the foothill area of eastern San Jose. The posted speed limit is 35 mph.

Monterey Highway is a 6-lane divided arterial under the jurisdiction of Caltrans and designated as State Route (SR 82). It travels in a north-south direction and crosses Capitol Expressway west of US 101. An interchange provides access between Capitol Expressway and Monterey Highway. The posted speed limit is 45 mph. The eastbound and westbound on/off-ramps from

Monterey Highway to Capitol Expressway are CMP intersections. The 2001 monitoring report indicates the current operation is level of service B at both ramp terminals.

2.1.1.3 Expressways

Capitol Expressway is a limited access expressway that extends from its interchange with I-680 in the north end of the study area to the south of the Project area with its interchange with SR 87. The Capitol Expressway is a county owned and operated facility. Capitol Expressway is mostly three general purpose lanes in each direction with an HOV lane in the Proposed Project area as the outside fourth lane from US 101 northward to I-680. On-street parking is not permitted along the expressway and no designated bicycle lanes exist in the Proposed Project area. The posted speed limit is 45 mph. Full-movement access is restricted to signalized intersections spaces from ¼ mile to over ¾ mile.

2.1.1.4 Arterials

The following arterials are owned and operated by the City of San Jose:

Capitol Avenue begins at an intersection with Capitol Expressway near the Proposed Project's northern end and extends north. There are two travel lanes in each direction. The Capitol Avenue Light Rail Project is currently being constructed within the median of Capitol Avenue. Bicycle lanes are designated and signed in both directions for the length of Capitol Avenue. The posted speed limit is 35 mph. The intersection of Capitol Avenue with Capitol Expressway is a CMP intersection. The Congestion Management Agency monitors all CMP intersections on an annual basis for traffic operations during the PM peak hour. The 2001 monitoring report indicates that the intersection of Capitol Avenue with Capitol Expressway operates at level of service E+.

Story Road crosses Capitol Expressway just south of Capitol Avenue. Story Road is a 6-lane divided arterial west of Capitol Expressway with a posted speed of 35 mph. To the east of Capitol Expressway, Story Road is a 4-lane divided arterial, also with a posted speed of 35 mph. Story Road provides local east/west access in southeast San Jose as an extension of Keyes Street near US 101 to its terminus at Fleming Avenue. The Story Road/Capitol Expressway intersection is a CMP intersection. The 2001 monitoring report indicates the current operation is level of service F.

Ocala Avenue crosses Capitol Expressway south of Story Road. Ocala Avenue is a 4-lane, undivided roadway to the east of Capitol Expressway with a posted speed of 35 mph. Ocala Avenue becomes Marten Avenue at White Road. To the west of Capitol Expressway, Ocala Avenue has a single lane in each direction with a two-way left turn lane in the center. At the intersection with Capitol Expressway, Ocala widens to accommodate turning lanes. This portion of Ocala is also posted for 35 mph and extends to King Road. Ocala Avenue at Capitol Expressway is not a CMP intersection.

Cunningham Avenue provides access to Reid-Hillview Airport from Capitol Expressway and extends to White Road to the east along the northern boundaries of Lake Cunningham Park.

This section of Cunningham Avenue is a single lane in each direction with a speed of 35 mph. Cunningham Avenue at Capitol Expressway is not a CMP intersection.

Tully Road is a principal arterial that runs generally east-west through the study area. On both sides of Capitol Expressway, Tully Road has three lanes in each direction separated by a raised median. The posted speed west of Capitol Expressway is 40 mph and the posted speed east of Capitol Expressway is 45 mph. Tully Road extends from the foothills on the east to Monterey Highway on the west where it becomes Curtner Avenue. The Tully Road/Capitol Expressway intersection is a CMP intersection. The 2001 monitoring report indicates the current operation is level of service D.

Quimby Road connects from Mount Hamilton Road (SR 130) in the foothills to Tully Road adjacent to the Eastridge Shopping Center. East of Capitol Expressway, Quimby Road has two travel lanes in each direction. At the intersection with Capitol Expressway, the median is raised. Farther to the east the raised median is replaced by a two-way left turn lane. The posted speed is 40 mph. To the west of Capitol Expressway along the shopping center frontage, Quimby Road has two lanes in each direction, a raised median, and is posted for 35 mph. The Quimby Road/Capitol Expressway intersection is a CMP intersection. The 2001 monitoring report indicates the current operation is level of service E+.

Nieman Boulevard extends from a 'T' intersection at Capitol Expressway southeastward to Yerba Buena where it transitions into Silver Creek Valley Road. At Capitol Expressway, Nieman Boulevard provides one travel lane in each direction and a continuous left turn lane. Left turns from Nieman Boulevard to Capitol Expressway are not permitted. The posted speed limit is 35 mph. Nieman Boulevard/Capitol Expressway is not a CMP intersection.

Aborn Road extends from King Road to the foothills to the east. East of Capitol Expressway, Aborn Road has three lanes in each direction, a raised median and is posted for 40 mph. To the west of Capitol Expressway, Aborn Road has two lanes in each direction, a raised median, and is also posted for 40 mph. The Aborn Road/Capitol Expressway intersection is a CMP intersection. The 2001 monitoring report indicates the current operation is level of service E.

Silver Creek Road extends from Yerba Buena Road to the south of Capitol Expressway and becomes King Road to the north of Capitol Expressway. In the vicinity of the expressway, Silver Creek Road has two lanes in each direction with a raised median. The posted speed is 35 mph. The Silver Creek Road/Capitol Expressway intersection is a CMP intersection. The 2001 monitoring report indicates the current operation is level of service F.

McLaughlin Avenue extends from south of Yerba Buena Road at Coyote Creek Park to where it transitions to 24th Street at San Antonio Street north of I-280. South of Capitol Expressway, McLaughlin Avenue has two lanes in each direction and a raised median. The posted speed is 40 mph. North of Capitol Expressway, McLaughlin Avenue is also two lanes in each direction with a raised median. The posted speed to the north of Capitol Expressway is reduced to 35 mph. The McLaughlin Avenue/Capitol Expressway intersection is a CMP intersection. The 2001 monitoring report indicates the current operation is level of service D.

Senter Road extends from its terminus at Monterey Highway, across Capitol Expressway to its northern terminus at Keyes Street near Spartan Field. South of Capitol Expressway, Senter

Road is two lanes in each direction with a two-way left turn lane to Singleton Road, and then it becomes a single lane in each direction. The posted speed is 35 mph. To the north of Capitol Expressway, Senter Road has two lanes in each direction and is posted for 40 mph. The Senter Road/Capitol Expressway is a CMP intersection. The 2001 monitoring report indicates the current operation is level of service E+.

Snell Avenue extends from south of SR 85 to just north of Capitol Expressway terminating at Hillsdale Avenue. South of Capitol Expressway, Snell Avenue has three travel lanes in each direction with a raised median. The posted speed limit is 40 mph. North of Capitol Expressway, Snell Avenue has two lanes in each direction with a raised median. The posted speed limit is also 40 mph. The Snell Avenue/Capitol Expressway intersection is a CMP intersection. The 2001 monitoring report indicates the current operation is D.

Vista Park Drive extends from just south of Branham Lane to Hillsdale Avenue immediately north of Capitol Expressway. South of Capitol Expressway, Vista Park Drive has one lane in each direction with a two-way left turn lane in the median. The posted speed limit is 35 mph. North of Capitol Expressway, Vista Park Drive is a four-lane divided facility also with a posted speed limit of 35 mph. Vista Park Drive/Capitol Expressway is not a CMP intersection.

Narvaez Avenue extends from south of Branham Lane to north of Hillsdale Avenue. Narvaez Avenue serves as a frontage road to SR 87 with a single lane in each direction and posted for 35 mph. North of Capitol Expressway, Narvaez Avenue provides access to the northbound on-ramp to SR 87. The Narvaez Avenue/Capitol Expressway intersection is a CMP intersection.

The 2001 monitoring report indicates the current operation is level of service D+.

As part of the data collection for the project, photographs were taken of each leg of the study area intersections. Photographs of each approach leg of the study intersections are shown in Appendix A.

Table 2-1 shows the signalized intersections, the designation of each cross street according to the City's General Plan, the spacing of intersections in feet, and the average annual daily traffic volume (AADT). The spacing of the intersections along the expressway varies from 1400 feet to over 4000 feet.

An arterial street accommodates major movements of traffic not served by expressways or freeways. The arterial street is designated mainly for the movement of through traffic, but also performs a secondary function of providing access to abutting properties.

A major collector street serves internal traffic movements within an area and connects the area with the major arterial system. It does not cater for long through trips but does provide access to abutting properties.

A local street has the primary function of providing access to immediately adjacent land.

Table 2-1 Signalized Intersection Cross Street Designation, Distances and AADTs

	Cross Street	Cross Street Designation[1,2]	Distance to Next Intersection[3] (southbound/westbound) (feet)	AADT (west/east or north/south) (vehicles/day)
1	Capitol Ave	Arterial	1,800	3,100 / 24,200
2	Story	Arterial	4,200	24,000 / 32,000
3	Ocala	Arterial	1,200	16,500 / 20,000
4	Cunningham	Local	2,700	4,000 / 2,300
5	Tully	Arterial	1,200	38,400 / 28,000
6	Eastridge	Local	1,600	9,100
7	Quimby	Arterial	2,800	30,200 / 30,100
8	Nieman	Major Collector	1,700	15,200 / 47,300
9	Aborn	Arterial	2,100	N/A / 47,300
10	Silver Creek (King)	Arterial	3,700	27,200 / 27,000
11	McLaughlin	Arterial	4,400	16,500 / 16,500
12	Senter	Arterial	3,500	29,000 / 29,000
	Seven Trees	Local	3,600	N/A
13	Snell	Arterial / local north of Capitol Expwy	2,500	17,500 / 29,000
14	Vista Park	Arterial	1,400	4,000 / 6,800
	Copperfield	Local	1700	N/A
15	Narvaez	Local	N/A	15,700 / 6,300

Source: City of San Jose, 2002

For this study, the Capitol Expressway corridor is considered to run north/south from Capitol Avenue to Silver Creek Road (King Road) and east/west from McLaughlin Avenue to Narvaez Avenue.

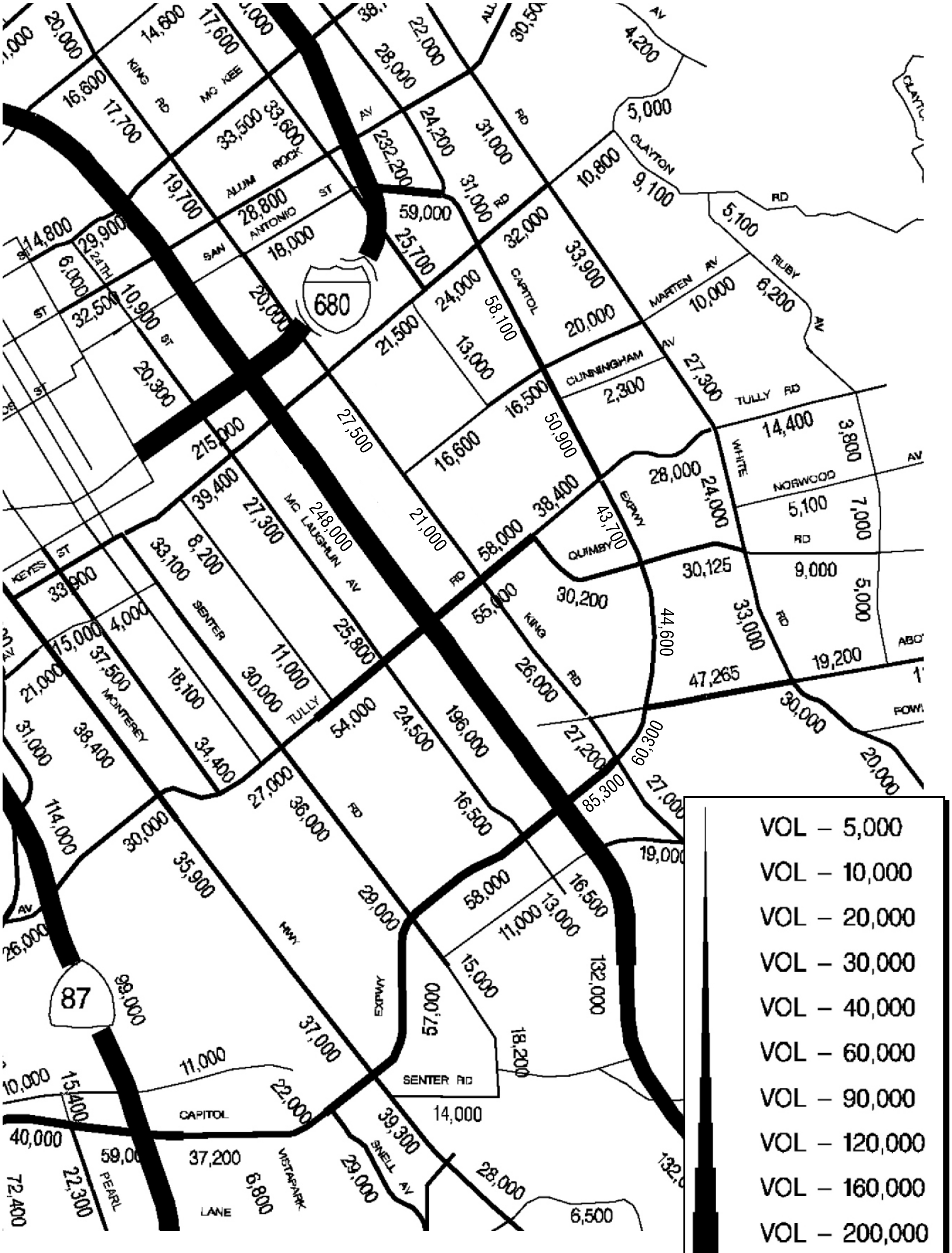
1 Designations derived from the City of San Jose 2020 General Plan.
2 Where cross street designations differ, the separate West/East or North/South designations are shown.
3 Distances are rounded to the nearest 100 feet.

2.2 Traffic Operations

2.2.1 Existing Traffic Volumes

Figure 2-2 shows the annual average daily traffic volumes on major streets within the study area. Within the study area, Capitol Expressway is noted as carrying 58,000 vehicles per day just west of US 101.

Korve Engineering



SOURCE: City of San Jose Traffic Flow Map (2001)

Daily Vols.cdr

Figure 2-2
DAILY TRAFFIC VOLUMES

The analysis of existing traffic conditions focused on 15 intersections along Capitol Expressway. Peak hour traffic operations are a more accurate gauge of traffic congestion than daily traffic. Intersections were analyzed during the AM and PM peak hour to determine existing traffic operations. Traffic volumes were obtained from the City of San Jose or were collected specifically for this analysis.

Table 2-2 notes the intersections included in the study area, the source of the traffic counts, and the date of the counts. Appendix B details the existing traffic signal operating parameters such as cycle time, loss time, minimum green times, signal control and right turn treatments for all study intersections for both the AM and PM peak hours. Appendix C shows the existing background data (traffic volumes and lane configurations) presented graphically.

Table 2-2 Traffic Count Sources & Dates

Cross Street		AM		PM	
		Count Source	Count Date	Count Source	Count Date
1	Capitol Ave	City of San Jose	Oct 2000	City of San Jose	Jun 2000
2	Story	Korve	Mar 2001	City of San Jose	Mar 2000
3	Ocala	City of San Jose	May 2000	City of San Jose	May 2000
4	Cunningham	City of San Jose	May 2000	City of San Jose	May 2000
5	Tully	Korve	Mar 2001	City of San Jose	Mar 2000
6	Eastridge	City of San Jose	Jan 2000	City of San Jose	Jan 2000
7	Quimby	Korve	Mar 2001	City of San Jose	Mar 2000
8	Nieman	City of San Jose	May 2000	City of San Jose	May 2000
9	Aborn	Korve	Mar 2001	City of San Jose	May 2000
10	Silver Creek	Korve	Mar 2001	City of San Jose	May 2000
11	McLaughlin	Korve	Mar 2001	City of San Jose	May 2000
12	Senter	Korve	Mar 2001	City of San Jose	May 2000
13	Snell	Korve	Mar 2001	City of San Jose	May 2000
14	Vista Park	Korve	Mar 2001	Korve	Mar 2001
15	Narvaez	Korve	Mar 2001	City of San Jose	Mar 2000

2.2.2 Level of Service Analysis

Consistent with the City of San Jose database, the intersections were analyzed based on the CMP *Traffic Level of Service Analysis Guidelines* (October 1997). The guidelines stipulate that analysts evaluate intersection levels of service using the TRAFFIX software program (version 7.5R1), which is based on the Highway Capacity Manual methodology and provides results similar to results from the Highway Capacity Manual & Software. TRAFFIX estimates the operations of intersections and assigns a letter-grade level of service to the intersections based on the average stopped delay per vehicle.

For signalized intersections in an urban environment, an intersection that has an operational level of service of level of service D or better is generally considered to perform satisfactorily. A level of service E designation suggests that the intersection is unstable, teetering between successful operations and breakdown, with critical volumes approaching saturation. An intersection with a level of service F designation is considered to have failing operations and excessive delay due to overcapacity. Table 2-3 shows the average stopped delay thresholds associated with each level of service interval.

Table 2-3 CMP Level of Service Thresholds

LOS	Average Stopped Delay (seconds / vehicle)		
A	0	to	5.0
B+	5.1	to	7.0
B	7.1	to	13.0
B-	13.1	to	15.0
C+	15.1	to	17.0
C	17.1	to	23.0
C-	23.1	to	25.0
D+	25.1	to	28.0
D	28.1	to	37.0
D-	37.1	to	40.0
E+	40.1	to	44.0
E	44.1	to	56.0
E-	56.1	to	60.0
F	Greater than 60.0		

Source: Santa Clara Valley Transportation Authority Congestion Management Program, Transportation Impact Analysis Guidelines, May 1998.

2.2.3 Existing Levels of Service

Table 2-4 shows the calculated average stop delay and the resultant level of service classifications for each of the study intersections. A discussion of the findings of existing traffic operations for the corridor is presented below. Figure 2-3 shows the levels of service at each study intersection along the corridor. Appendix G includes detailed TRAFFIX printouts for each study intersection, and for convenience is combined with TRAFFIX printouts for future horizon years which will be discussed later in this report.

The intersections along Capitol Expressway vary between acceptable operations to intersections having unstable (level of service E) and failing (level of service F) levels of service. Generally, volumes are quite heavy along the main axis of Capitol Expressway and often along the cross-streets as well, resulting in diminished operational performance. Levels of service at Cunningham, Eastridge Loop and Nieman, are good because the cross street volumes are lower.

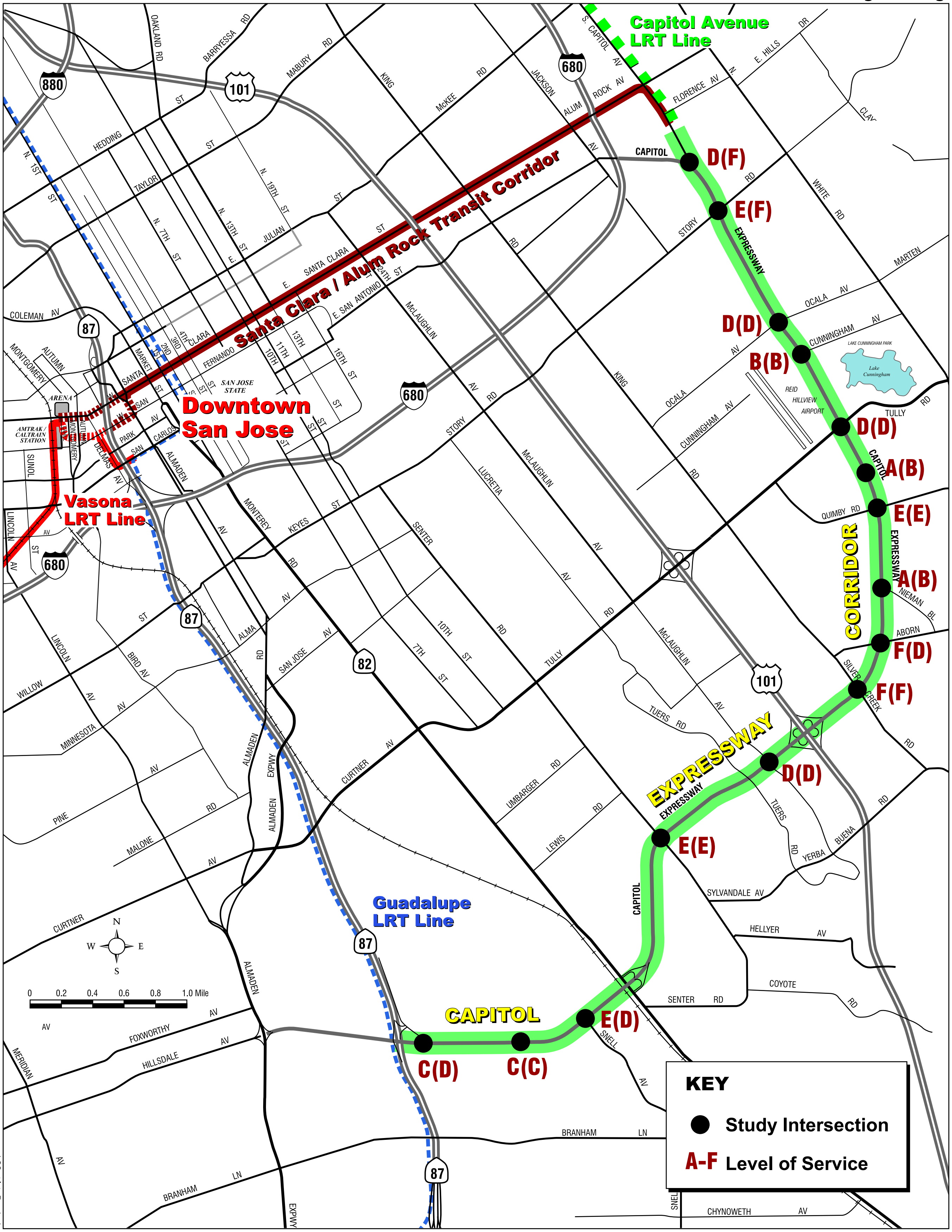
Table 2-4 Existing Intersection Levels of Service

Existing Conditions		CMP?	AM			PM		
			Level of Service	Delay(s)	V/C	Level of Service	Delay(s)	V/C
1	Capitol	Yes	D+	26.1	0.62	F	69.7	0.93
2	Story	Yes	E	50.3	0.95	F	79.2	1.05
3	Ocala	No	D	35.1	0.77	D	33.2	0.85
4	Cunningham	No	B+	6.6	0.60	B+	6.5	0.60
5	Tully	Yes	D	36.4	0.85	D-	39.9	0.76
6	Eastridge	No	A	4.1	0.49	B	8.3	0.49
7	Quimby	Yes	E	53.4	0.85	E	44.5	0.76
8	Nieman	No	A	3.0	0.36	B	7.9	0.43
9	Aborn	Yes	F	70.1	1.03	D	31.1	0.66
10	Silver Creek	Yes	F	62.7	1.05	F	102.8	1.21
11	McLaughlin	Yes	D-	37.2	0.77	D	35.0	0.70
12	Senter	Yes	E	48.2	0.93	E	45.0	0.74
13	Snell	Yes	E	48.8	0.99	D	29.0	0.37
14	Vista Park	No	C	22.6	0.62	C	22.5	0.73
15	Narvaez	Yes	C	22.5	0.54	D	32.0	0.53

In the AM peak hour, the intersections at Story Road, Quimby Road, Senter Avenue and Snell Avenue have unstable operations (level of service E), while intersection operations fail (level of service F) at Aborn Road and Silver Creek Road. At Story Road the heavy southbound left turn volume (670 vph) combined with the heavy northbound through and left turn volumes (2650 vph and 440 vph, respectively) on Capitol Expressway cause the intersection to operate at level of service E in the AM peak. For Quimby Road, approach volumes are high in each direction but the volumes on westbound Quimby Road are very high, especially the left turn (820 vph) and right turn (780 vph) movements. At Snell Avenue and Senter Road, heavy volumes on each approach and heavy left turn volumes saturate the intersection. The high right turn volume for northbound Snell Avenue (750 vph) is also a contributing factor.

For Aborn Road, an extremely heavy left turn volume (1240 vph) from westbound Aborn Road, along with generally heavy volume on other movements (notably, 2080 vph for through movements on northbound Capitol Expressway), causes the operational performance of this intersection to be F in the AM peak. The intersection of Silver Creek Road has very high through volumes on Capitol Expressway (2310 vph northbound; 2230 vph southbound) and very high left turn volumes for northbound Capitol Expressway (750 vph) and westbound Silver Creek Road (860 vph).

Korve Engineering



April 2003
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 2-3

2000 LEVELS OF SERVICE

AM (PM) Peak Hour

In the PM peak hour, Quimby Road and Senter Road have unstable operations (level of service E), while intersection operations fail (level of service F) at Capitol Avenue, Story Road and Silver Creek Road. At Quimby Road and Senter Road, heavy volumes on each approach and heavy left turn volumes saturate the intersection.

At Capitol Avenue, the very heavy southbound through volume (2880 vph) and heavy southbound left turn volume (510 vph) on Capitol Expressway compete with the very heavy westbound left turn volume (970 vph) on Capitol Avenue for green time in the cycle. Meanwhile, for Story Road it is the very heavy southbound through and left turn volumes (2700 vph and 960 vph, respectively) on Capitol Expressway that dominate the intersection. The extremely heavy northbound through volume on Capitol Expressway at Silver Creek Road and the heavy left turn volumes for northbound, southbound, and westbound movements (510 vph, 420 vph, and 720 vph, respectively) combine to cause failing intersection performance at this intersection. Table 2-5 presents the intersections along Capitol Expressway that currently operate at unstable or failing levels of service. It also summarizes which intersection movements likely contribute most to the poor operations.

Table 2-5 Existing Unstable & Failing Intersections

Cross Street	Period		Comments
	AM	PM	
Capitol Avenue		Fails	Very heavy SB through & WB left turn volumes. Heavy SB left turn volume.
Story Road	Unstable	Fails	Heavy SB left turn & NB through volumes in AM. Very heavy SB left turn & through volumes in PM.
Quimby Road	Unstable	Unstable	Very heavy WB left turn volume in AM. Heavy left turn volumes in each period. Heavy NB & SB through volumes.
Aborn Road	Fails		Extremely heavy WB left turn volume. Heavy volume on remaining critical movements.
Silver Creek Road	Fails	Fails	Very heavy NB & SB through volumes. Very heavy WB & NB left turn volumes. Heavy volumes on remaining movements.
Senter Road	Unstable	Unstable	Heavy volumes on most movements.
Snell Avenue	Unstable		Heavy volumes on most movements. Heavy NB right turn volume.

2.2.4 Queuing Analysis

The existing left turn queuing analysis was conducted at the major intersections along Capitol Expressway. Table 2-6 displays the summary of the existing left turn queuing conditions at the 15 study area intersections. The existing AM and PM peak hour left turn queues were calculated based on the existing left turn traffic volumes and the existing signal timing plans. The data in Table 2-6 indicate left turn storage bays that have the potential to overflow. An indication of over capacity does not necessarily imply that the lane will overflow since signal synchronization and progressions will tend to minimize queues.

Table 2-6 Arterial Queuing Summary – Existing Conditions

		NBL		SBL		EBL		WBL			Queue/Lane (FT)				Ext. Storage (FT)				Over Capacity? (Y=Yes, N=No)			
		Vol	Lanes	Vol	Lanes	Vol	Lanes	Vol	Lanes	Cycle	NBL	SBL	EBL	WBL	NB	SB	EB	WB	NB	SB	EB	WB
Capitol	AM	19	1	239	2	40	1	388	2	150	25	125	50	200	260	335	60	450	N	N	N	N
	PM	16		512		56		965		150	25	275	50	500					N	N	N	Y
Story	AM	435	2	672	2	213	2	211	1	150	225	350	125	225	325	425	175	300	N	Y	N	N
	PM	109		961		167		245		150	75	500	100	250					N	Y	N	N
Ocala	AM	153	1	376	2	76	1	131	1	180	200	250	100	175	325	375	200	150	N	N	N	Y
	PM	218		778		110		164		160	250	425	125	200					N	Y	N	Y
Cunningham[1]	AM	38	1	47	1	8	1	44	1	124	50	50	25	50	300	315	AP	AP	N	N	NA	NA
	PM	32		59		50		43		150	50	75	50	50					N	N	NA	NA
Tully	AM	105	2	146	2	330	2	259	2	150	50	75	175	150	325	375	275	200	N	N	N	N
	PM	48		995		383		330		150	25	525	200	175					N	Y	N	N
Eastridge	AM	114	2	-	-	29	2	-	-	100	50	-	25	-	300	-	125	-	N	-	N	-
	PM	183		-	-	150		-	-	100	75	-	50	-					N	-	N	-
Quimby	AM	173	2	269	2	45	1	824	2	150	100	150	50	425	300	360	185	190	N	N	N	Y
	PM	298		544		74		304		150	150	300	75	150					N	N	N	N
Nieman	AM	-	-	134	2	-	-	-	-	150	-	75	-	-	-	350	-	-	-	N	-	-
	PM	-	-	463	-	0	-	-	-	150	-	250	-	-					-	N	-	-
Aborn	AM	108	1	416	2	130	1	1240	2	150	125	225	150	650	235	325	225	275	N	N	N	Y
	PM	135		224		187		653		150	150	125	200	350					N	N	N	Y
Silver Creek	AM	746	2	142	2	52	1	863	2	150	400	75	50	450	615	260	185	200	N	N	N	Y
	PM	509		417		99		715		150	275	225	100	375					N	N	N	Y
McLaughlin[2,3]	AM	295	1	349	2	443	2	92	1	150	300	175	225	100	135	AP	325	250	Y	NA	N	N
	PM	133		571		285		202		150	150	300	150	225					Y	NA	N	N
Senter	AM	218	1	352	1	392	2	229	2	150	225	375	200	125	200	400	300	450	Y	N	N	N
	PM	145		432		228		382		150	150	450	125	200					N	Y	N	N
Snell	AM	586	2	389	2	316	2	309	2	150	300	200	175	175	300	300	450	375	N	N	N	N
	PM	250		275		77		445		150	125	150	50	250					N	N	N	N
Vista Park	AM	287	2	62	1	33	1	75	1	150	150	75	50	75	115	300	160	375	Y	N	N	N
	PM	171		178		36		161		150	100	200	50	175					N	N	N	N
Narvaez[4]	AM	126	2	62	2	258	2	83	2	150	75	50	150	50	AP	AP	300	200	NA	NA	N	N
	PM	52		307		328		77		150	25	175	175	50					NA	NA	N	N

[1] Both EB & WB are shared left through lanes with approach phasing
[2] SB left is exclusive and shared left through lane with approach phasing
[3] EB left contains two 250 ft lanes and 400 ft of single lane for storage, average of 325 ft per lane has been used
[4] Both NB & SB are shared left through lanes with approach phasing
Required storage per vehicle 25 feet.

2.2.5 Travel Times

Travel time surveys along the corridor were conducted during the AM and PM peak hours in December 2001 and April 2002. Three travel time runs in each direction were completed during the AM peak and six during the PM peak. The travel time runs were separated by direction and the times averaged.

Table 2-7 summarizes the travel times between several intersections along the corridor by direction for the peak hours. The travel times are also shown graphically on Figure 2-4 through Figure 2-7. Figure 2-4 shows the northbound AM travel time and Figure 2-5 shows the northbound PM travel time. Figures 2-6 and 2-7 show the southbound travel times for the AM and PM peak hours. For the segment between Alum Rock and Tully, the northbound speed is slower in the AM peak than the PM peak. In the southbound direction the travel speeds are comparable during both peak hours. Between Tully and McLaughlin the northbound travel speed is slightly faster in the AM than the PM. The southbound travel speed is considerably slower in the AM peak than the PM peak. Finally, the segment between McLaughlin and SR 87 has similar northbound and southbound travel times in the AM and PM peaks. In the southbound direction the AM travel is 10 mph slower than the PM. Overall, the average travel speed along the corridor in both directions in both peak hours is in the low to mid 20's mph.

Table 2-7 Travel Times

Intersection	Distance (miles)	Traveling Northbound				Traveling Southbound			
		AM		PM		AM		PM	
		Travel time (min)	Speed (mph)	Travel time (min)	Speed (mph)	Travel time (min)	Speed (mph)	Travel time (min)	Speed (mph)
Between Alum Rock & Tully	2.7	7.4	21.9	5.3	30.7	6.9	23.5	7.0	23.1
Between Tully & McLaughlin	3.0	5.3	34.1	6.3	28.6	8.7	20.7	5.0	36.1
Between McLaughlin & SR 87	2.6	8.1	19.2	9.6	16.3	8.1	19.2	5.8	26.8
TOTAL	8.3	20.8	23.9	21.2	23.5	23.7	21.0	17.8	27.9

2.3 Transit Network

The transit network in the East Valley study area includes a variety of modes. The Santa Clara Valley Transportation Authority (VTA) operates regular, limited stop, and express bus lines as well as light rail service. It also participates in the operation of the Caltrain commuter rail service that links the South Bay, the Peninsula, and San Francisco.

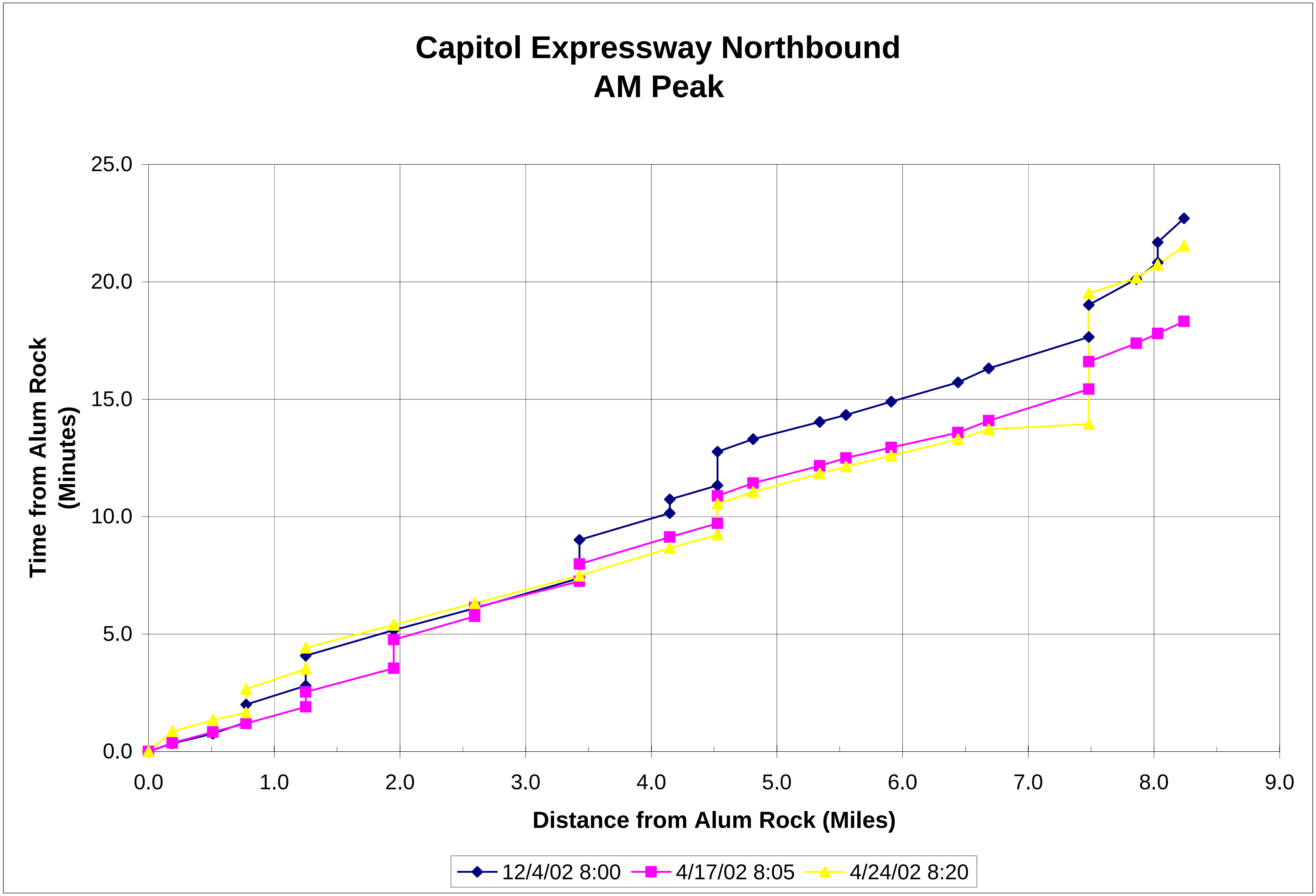


Figure 2-4
TRAVEL TIMES
Northbound AM

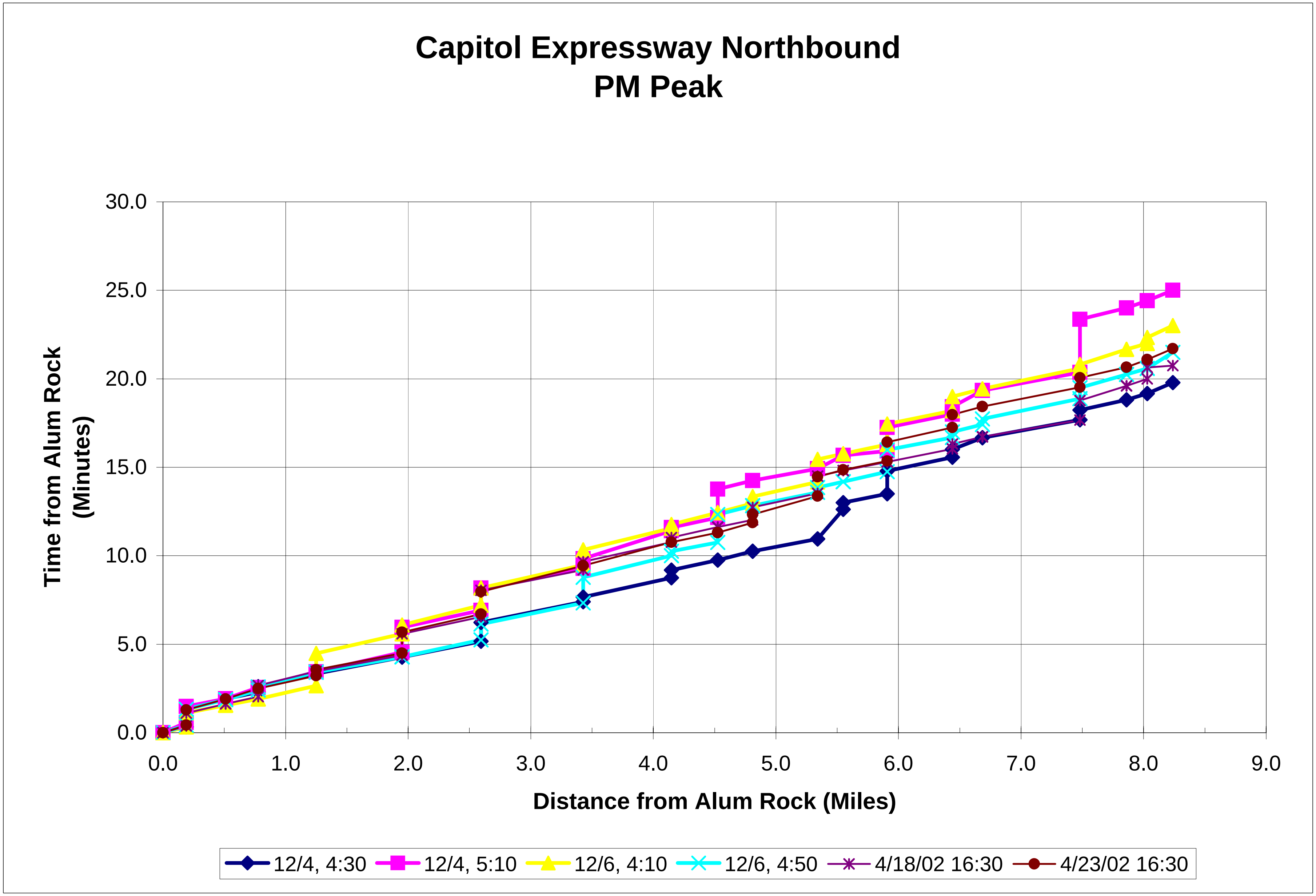


Figure 2-5
TRAVEL TIMES
Northbound PM

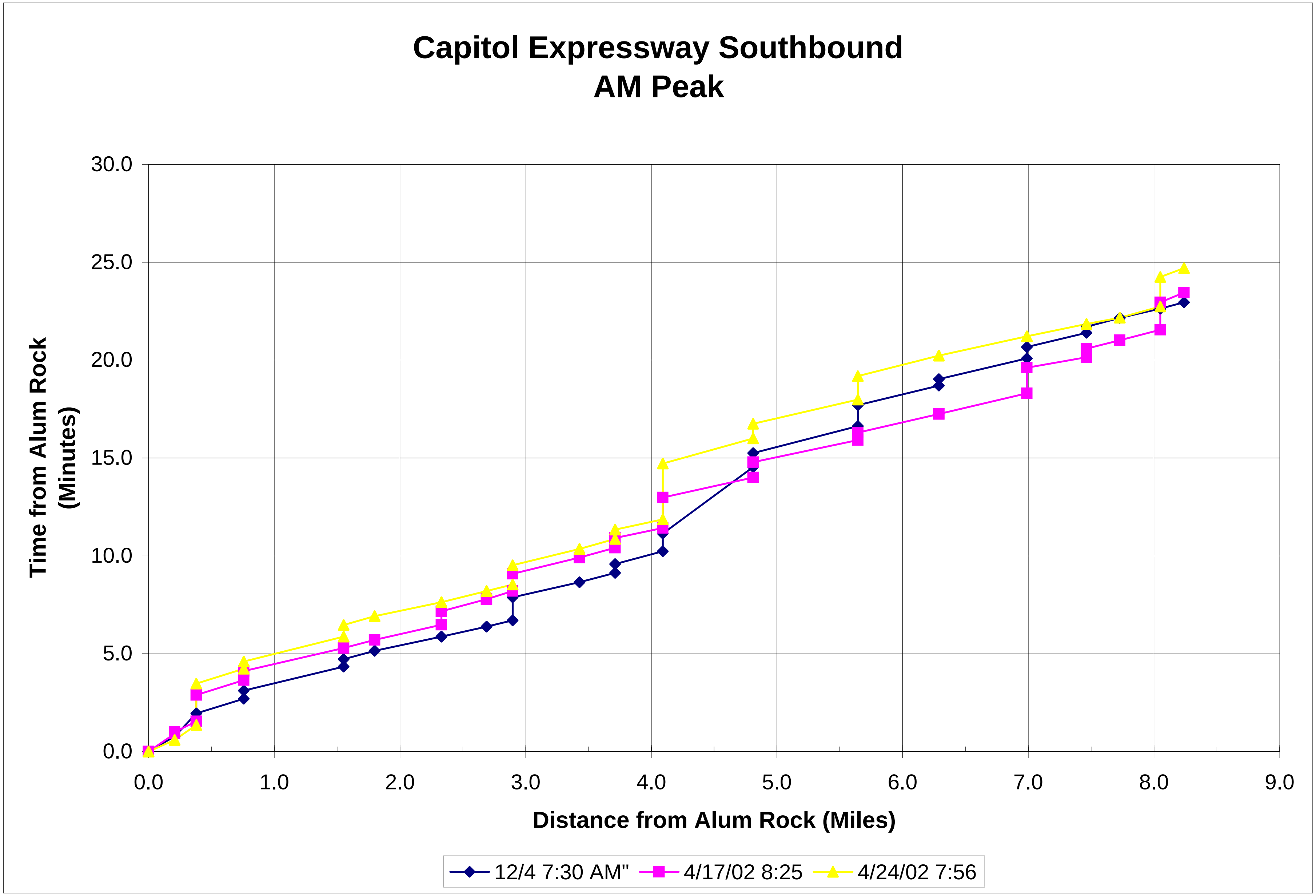


Figure 2-6
TRAVEL TIMES
Southbound AM

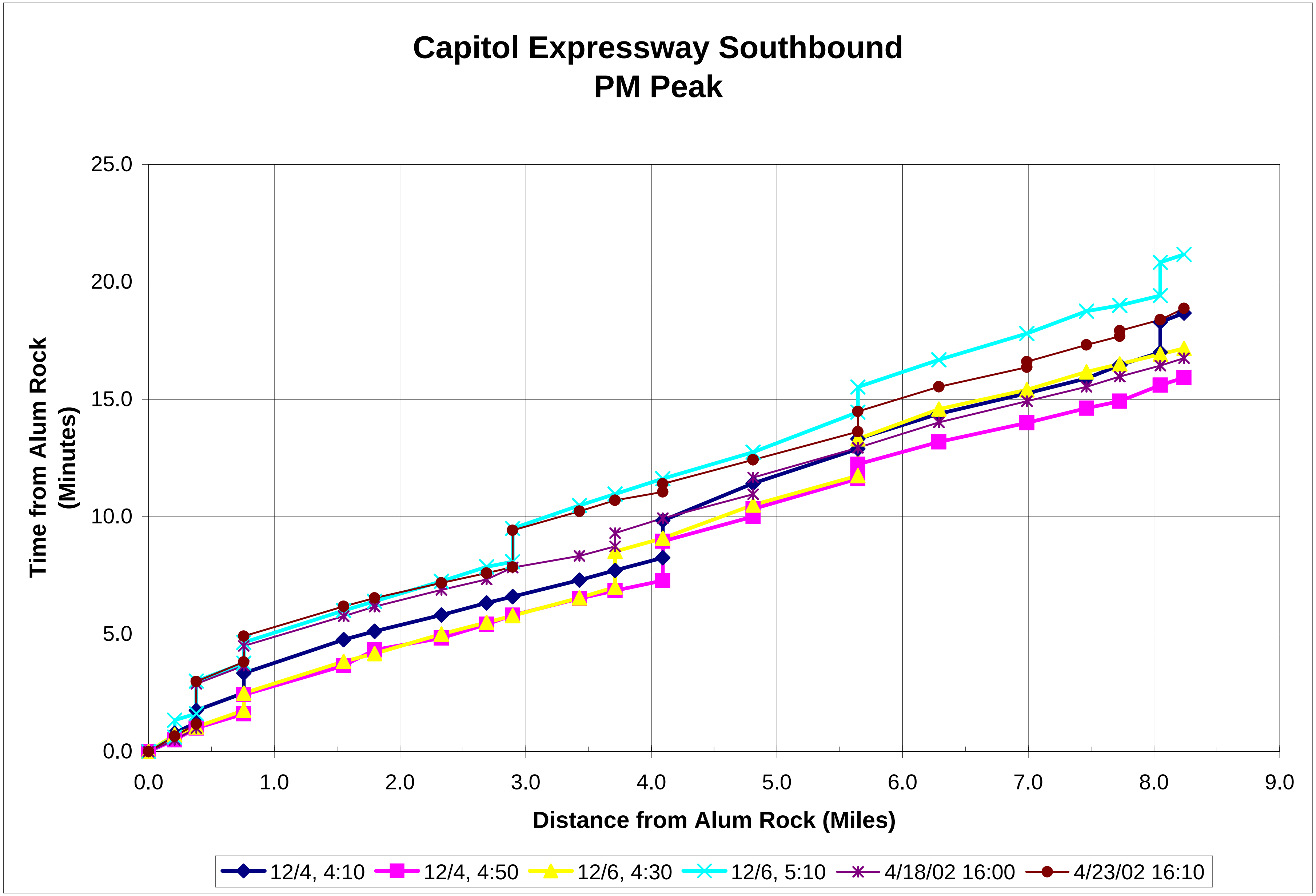


Figure 2-7
TRAVEL TIMES
Southbound PM

2.3.1 VTA Public Transit

The VTA operates public transit services in Santa Clara County. These services include light rail transit on three lines and bus service on 77 routes. Existing transit operating characteristics are from a point in September 2001. The VTA would also operate the proposed Capitol Expressway light rail line.

Existing transit service in the East Valley is dominated by long-haul bus service. The VTA operates several bus routes on major cross-town streets, connecting the area to the rest of the region. As well, it operates some local services in the Evergreen neighborhoods. Connections within the system are focused on the Eastridge Transit Center, which currently serves 14 bus routes, and at the intersection of Monterey Highway and Senter Road, where nine routes meet. The existing transit network is presented in Figure 2-8.

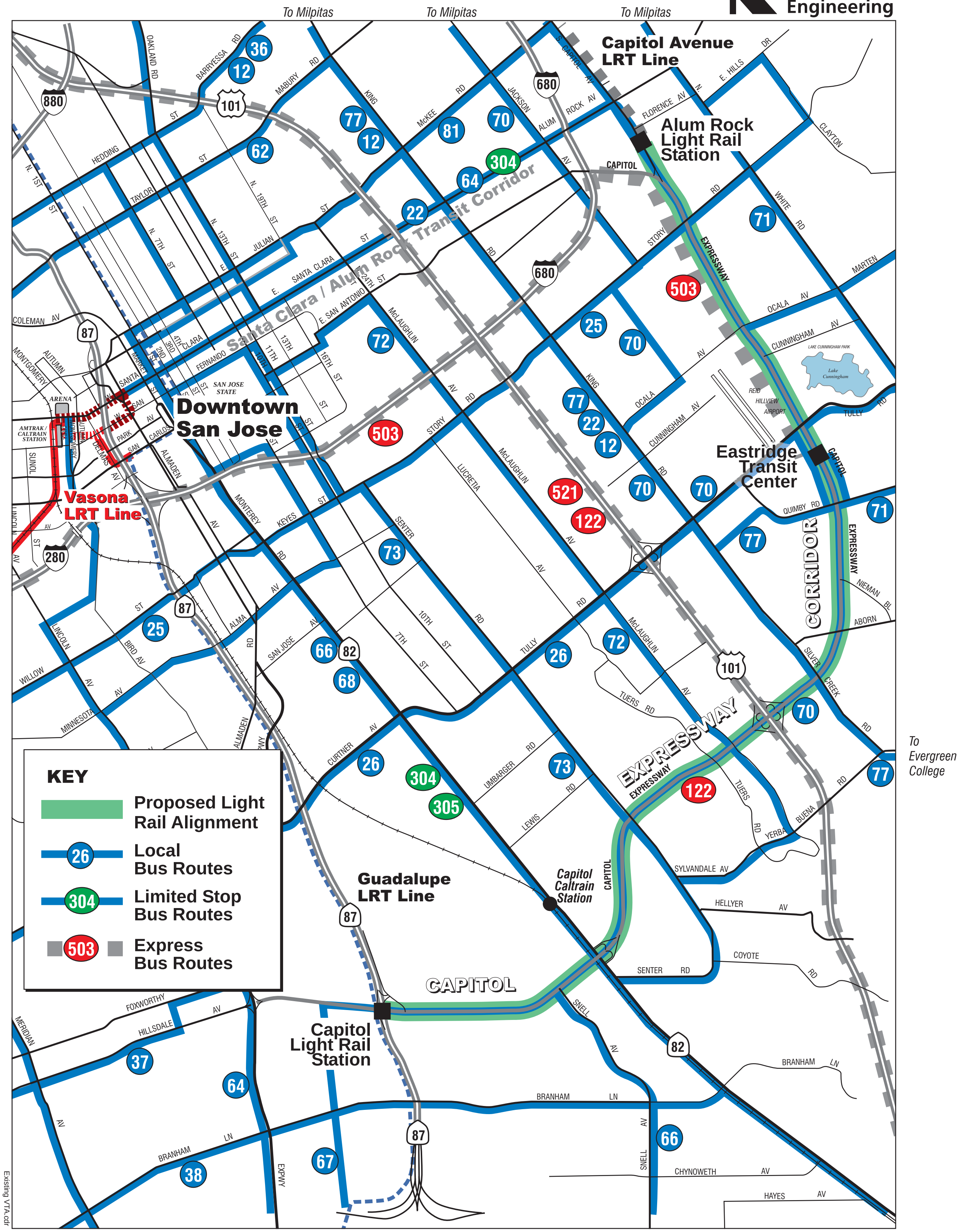
The majority of regular bus routes run weekdays from early in the morning (5:00 am to 6:00 am) until late in the evening (10:00 pm to midnight) and weekends from early in the morning until mid-evening (8:00 pm to 10:00 pm). Noteworthy exceptions to this rule include Line 68, which offers weekday service between downtown San Jose and Gilroy over extended hours, and Lines 37, 38, and 67, which all terminate service in the early evening (5:00 pm to 7:00 pm). Limited stop and express bus services operate only during the peak periods from Monday to Friday. Table 2-8 lists the bus lines that serve the East Valley study area along with their hours of operation and general headways.

The study area is served by several of the most heavily-used bus routes in the VTA system. Lines 22 (King Road to Santa Clara Street), 25 (Story Road), 66 (Monterey Highway), 68 (Monterey Highway), and 70 (Capitol Expressway and Jackson Avenue) each carry more than 7,000 passengers on an average weekday over the full length of their routes (not just the portions lying within the study area). Table 2-9 presents the average weekday ridership for the bus lines that serve the East Valley study area.

Major intersections and transit centers are the principal locations where passengers may make connections between routes. It is at these locations that passenger activity (i.e., boardings and alightings) is focused. Eastridge Transit Center and the intersection of Monterey Highway and Senter Road have the highest levels of passenger activity in the study area with 7,930 and 3,790 boardings and alightings, respectively. Other locations with heavy activity include the Capitol Light Rail Station on the Guadalupe Light Rail Line and the intersections of Capitol Expressway and Story Road, Silver Creek Road, McLaughlin Road, and Senter Road. Table 2-10 summarizes the daily passenger activity for the major intersections and transit centers. The total passenger activity for these locations is presented graphically in Figure 2-9.

Transit passengers in the East Valley have access to the VTA light rail network through the Guadalupe light rail line. Direct service is available at the Capitol Light Rail Station at the interchange of the Capitol Expressway and SR 87 (Guadalupe Parkway). East Valley passengers may also transfer from buses to the Guadalupe light rail line at Tamien Station (Line 25) and Curtner Station (Line 26). The Guadalupe light rail line operates 24 hours a day with daytime service available every 10 minutes. The hours of operation and headways are presented in Table 2-11 for the Guadalupe, Tasman, and Almaden light rail lines.

Korve Engineering



Existing VTA.cdr

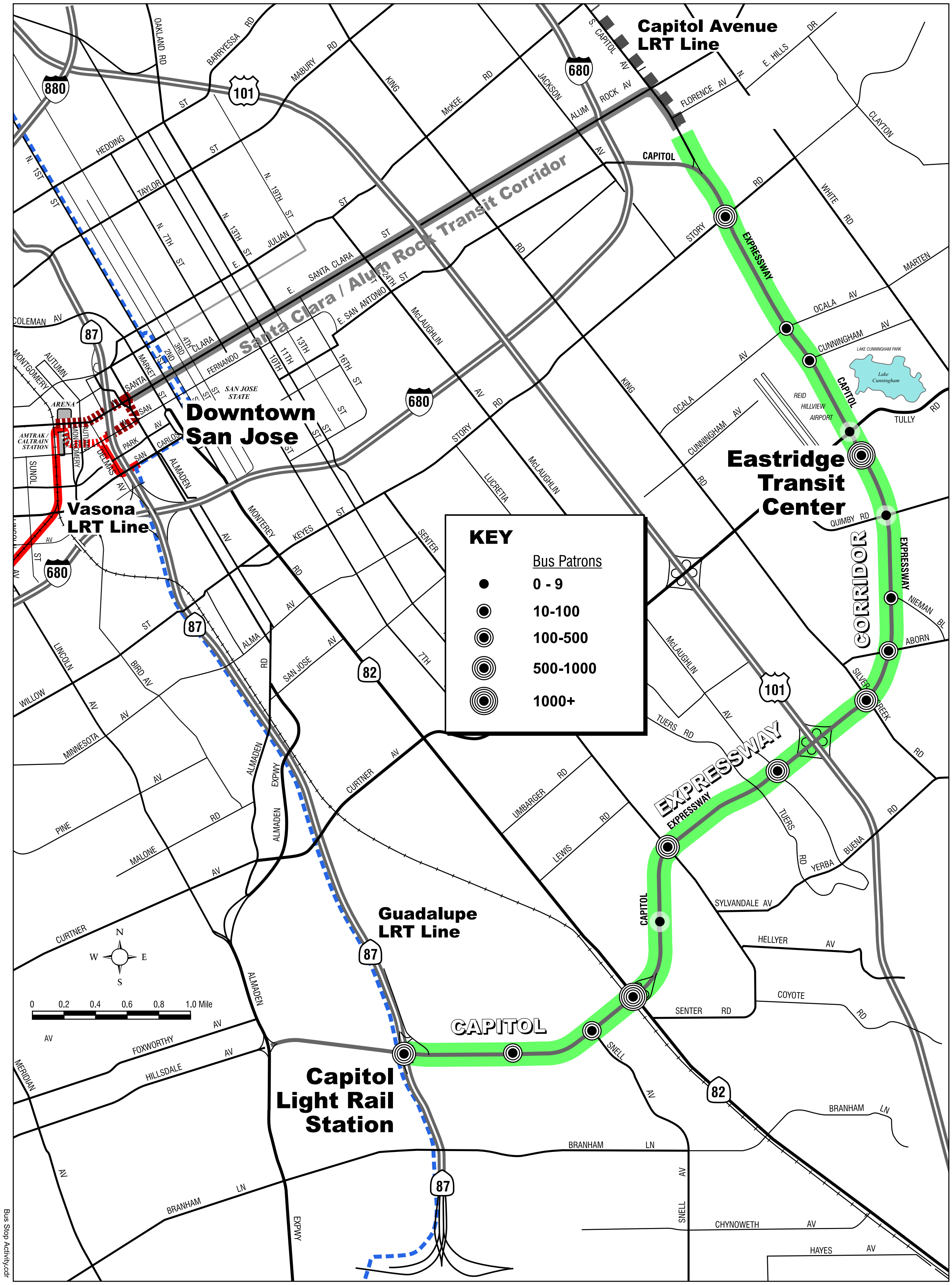
July 2002

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 2-8

EXISTING TRANSIT NETWORK

Korve Engineering



July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 2-9

DAILY BUS STOP ACTIVITY AT MAJOR INTERSECTIONS

Table 2-8 Bus Service Hours & Headways

Line	Description	Weekday Service				Weekend Hours of Operation
		Hours of Operation	Headways			
			Peak (5am – 9am 3pm – 6pm)	Midday (9am – 3pm)	Night (After 6pm)	
Local Routes						
22	Eastridge – Palo Alto/Menlo Park Caltrain Station	24 hours	10	10	10-60	24 hours
25	White & Story DeAnza College	5:00am – Midnight	10-30	15-30	30-60	5:30am – 11:30pm
26	Eastridge Lockheed Martin	5:00am – 11:30pm	20	30	30-60	7:00am – 9:30pm
30	Eastridge	5:00am – 10:30pm	30	40	30-60	7:30am– 8:30pm
31	Eastridge Evergreen College	5:00am – 10:00pm	15-30	30	30	7:30am – 6:30pm
37	Monterey & Senter Camden & Union	6:00am – 7:00pm	30	60	-	9:00am – 5:00pm
38	Monterey & Senter Winchester & Knowles	6:00am – 7:00pm	30	60	-	9:30am – 5:00pm
39	Eastridge	5:30am – 10:30pm	20	30	30	6:00am – 9:00pm
66	Santa Teresa Hospital Milpitas	5:00am – Midnight	15	30	30-60	5:30am – 11:30pm
67	Santa Teresa LR Station Capitol LR Station	6:00am – 7:00pm	30	45	-	8:30am – 6:00pm
68	San Jose Diridon Station Gilroy	4:30am – 1:00am	15	30	30-60	6:00am – 12:30am
70	Milpitas Capitol LR Station	5:00am – 11:30pm	15	15	20-60	6:30am – 11:00pm
71	Milpitas Eastridge	5:30am – 11:00pm	15	20	30-60	7:00am – 9:00pm
72	Downtown San Jose Santa Teresa LR Station	5:00am – 10:30pm	15-30	15-30	30-60	6:00am – 8:30pm
73	Downtown San Jose Snell & Capitol Expwy	5:00am – 10:00pm	15	20	30-60	7:00am – 8:00pm
74	Eastridge Baypointe LR Station	5:30am – 10:30pm	20	30	30-60	7:30am –10:30pm
77	Milpitas Evergreen College	5:30am – 10:30pm	15-30	30	30-60	7:00am – 9:30pm
Limited Stops & Express Routes						
122	South San Jose Lockheed Martin	6:00am – 7:30am 4:00pm – 6:00pm	30-60	-	-	-
300	East San Jose Palo Alto Caltrain Station	5:00 am – 7:30 pm	20-30	30	-	-
304	South San Jose Mountain View	5:30am – 8:30am 3:00pm – 6:30pm	15-30	-	-	-
305	South San Jose Mountain View	5:00am – 8:00am 3:00pm – 6:00pm	60	-	-	-
321	Eastridge Lockheed Martin	5:00am – 7:30am 2:30pm – 5:30pm	30-60	-	-	-
345	Eastridge Mountain View	6:00am – 7:30am 4:00pm – 5:30pm	60	-	-	-
503	Eastridge to Palo Alto	5:00am – 8:00am 2:30pm – 6:00pm	30-60	-	-	-

Source: VTA, 2002

Table 2-9 Average Weekday Bus Ridership by Route

Route	Daily Ridership	Route	Daily Ridership	Route	Daily Ridership	Route	Daily Ridership
22	24,700	38	620	71	4,360	300	1,390
25	9,330	39	820	72	4,620	304	500
26	4,960	66	7,740	73	3,410	305	200
30	290	67	690	74	2,070	321	160
31	800	68	7,820	77	3,190	345	60
37	470	70	9,670	122	60	503	160

Source: VTA Bus Operations Department, 2002
Daily ridership figures reflect activity on the full length of the routes, not just the portions of routes within the study area.

Table 2-10 Daily Passenger Activity at Major Intersections & Transit Centers

Major Intersection	# of Lines	Bus Stop				Total
		NB	SB	EB	WB	
Story	5	80	10	280	140	510
Ocala	6	10	10	0	0	20
Cunningham	6	10	10	0	0	20
Tully	7	0	0	0	0	0
Eastridge	*14*	-	-	-	-	*7,930*
Quimby	5	0	0	0	0	0
Nieman	2	10	10	0	0	20
Aborn	2	40	120	70	0	230
Silver Creek	2	230	380	60	40	710
McLaughlin	3	130	80	160	170	540
Senter	3	130	330	180	0	640
Seven Trees	1	0	0	0	0	0
Monterey (Senter)	9	1,640	1,290	860	0	3,790
Snell	4	0	130	120	110	360
Vista Park	2	0	0	50	60	110
Capitol Station	*3*	-	-	-	-	*960*

Source: VTA Bus Operations Department, 2002
Transit centers are in *italics.*
Passenger activity includes both boardings and alightings.

Table 2-11 Light Rail Service Hours & Headways

Light Rail Line	Weekday Service				Weekend Hours of Operation
	Hours of Operation	Peak (5am – 9am 3pm – 6pm)	Midday (9am – 3pm)	Nights (After 6pm)	
Guadalupe Line *Baypointe – Santa Teresa*	24 hours a day	10	10	10-70	24 hours a day
Tasman Line *Mountain View – Milpitas*	24 hours a day	10	10	10-105	24 hours a day
Almaden Line *Ohlone/Chynoweth – Almaden*	5:30am – 12:30am	10	10	15	7:00am – 12:30am

Source: VTA, 2002

For both the bus and light rail operations in the system, the VTA offers an integrated fare structure. Riders pay the same fare to ride regular and limited stop buses as they do to ride light rail. The fare structure is based off of an adult single ride fare of $1.40 and a day pass fare of $4.00. Discounted fares are available to youth and senior riders, as well as to frequent system users through monthly and annual passes. Higher fares are charged for express bus lines to account for the higher level of service they provide; however, discount fares are also available for these lines. Table 2-12 lists the current fares charged by the VTA to passengers using the transit network. VTA is currently considering modifications to the fare structure.

Table 2-12 VTA Transit Fares

Fare Type	Adult	Youth (5-17)	Senior (65+)/Disabled
Single Ride	$1.40	$0.85	$0.45
Express Single Ride	$2.25	$0.85	$0.45
Day Pass	$4.00	$2.50	$1.25
Express Day Pass	$6.00	*	*
Day Pass Tokens (Pack of 5)	$18.00	$11.25	--
Monthly Flash Pass	$45.00	$27.50	$11.00
Express Monthly Flash Pass	$72.00	*	*
Annual Flash Pass	$495.00	$297.00	$121.00
Express Annual Flash Pass	$792.00	*	*

Source: VTA website (www.vta.org), June 2002
*Youth and Senior/Disabled Day Passes and Monthly Stickers are valid on all VTA Bus and Light Rail Services.

2.3.2 Caltrain Service

The Peninsula Corridor Joint Powers Board includes representatives from San Francisco, San Mateo, and Santa Clara Counties. It operates Caltrain commuter rail service along a 77-mile right-of-way between Gilroy and San Francisco. Service in the East Valley study area is operated by the VTA with the cooperation of the Union Pacific Railroad (UPRR), which owns the right-of-way between Gilroy and Tamien Station.

In the East Valley study area, Caltrain runs along the west side of Monterey Highway where it passes under Capitol Expressway. The Caltrain station nearest the Capitol Expressway Light Rail Project is the Capitol Station, which is located approximately 2,000 feet north at the intersection of Fehren Avenue and Monterey Highway. Commuter rail service at this station is offered by four northbound trains in the morning and four southbound trains in the afternoon (Table 2-13). (The VTA is currently negotiating with the UPRR to increase the number of trains and to install service in the off-peak direction.) Travel from Capitol Station takes approximately 15 minutes to Downtown San Jose and 1 hour and 50 minutes to San Francisco.

Table 2-13 Weekday Caltrain Service at Capitol Station

Northbound (To San Jose & San Francisco)	Southbound (To Morgan Hill & Gilroy)
5:57am	4:52pm
6:37am	5:50pm
7:00am	6:26pm
7:42am	6:48pm

Source: Caltrain, 2002

2.4 Park & Ride Facilities

Three existing park-and-ride facilities lie adjacent to the proposed light rail line. The only facility that currently serves light rail is located at the Capitol Station on the Guadalupe light rail line, where two lots provide over 900 parking stalls for transit users. Bus passengers at the Eastridge Transit Center are served by a facility with approximately 130 stalls, while a new park-and-ride lot with 105 stalls has been constructed at the Alum Rock Station to serve the under-construction Capitol Avenue light rail line which is scheduled to open in 2004.

A nearby park-and-ride lot currently serving the Caltrain Station is located at the intersection of Monterey Highway and Fehren Avenue. It currently serves the Caltrain Capitol Station, which lies approximately 2,000 feet north of Capitol Expressway. It has an approximate capacity of 370 stalls. Table 2-14 summarizes the details of the four facilities, while Figure 2-10 locates them graphically.

Table 2-14 Details of Existing Facilities

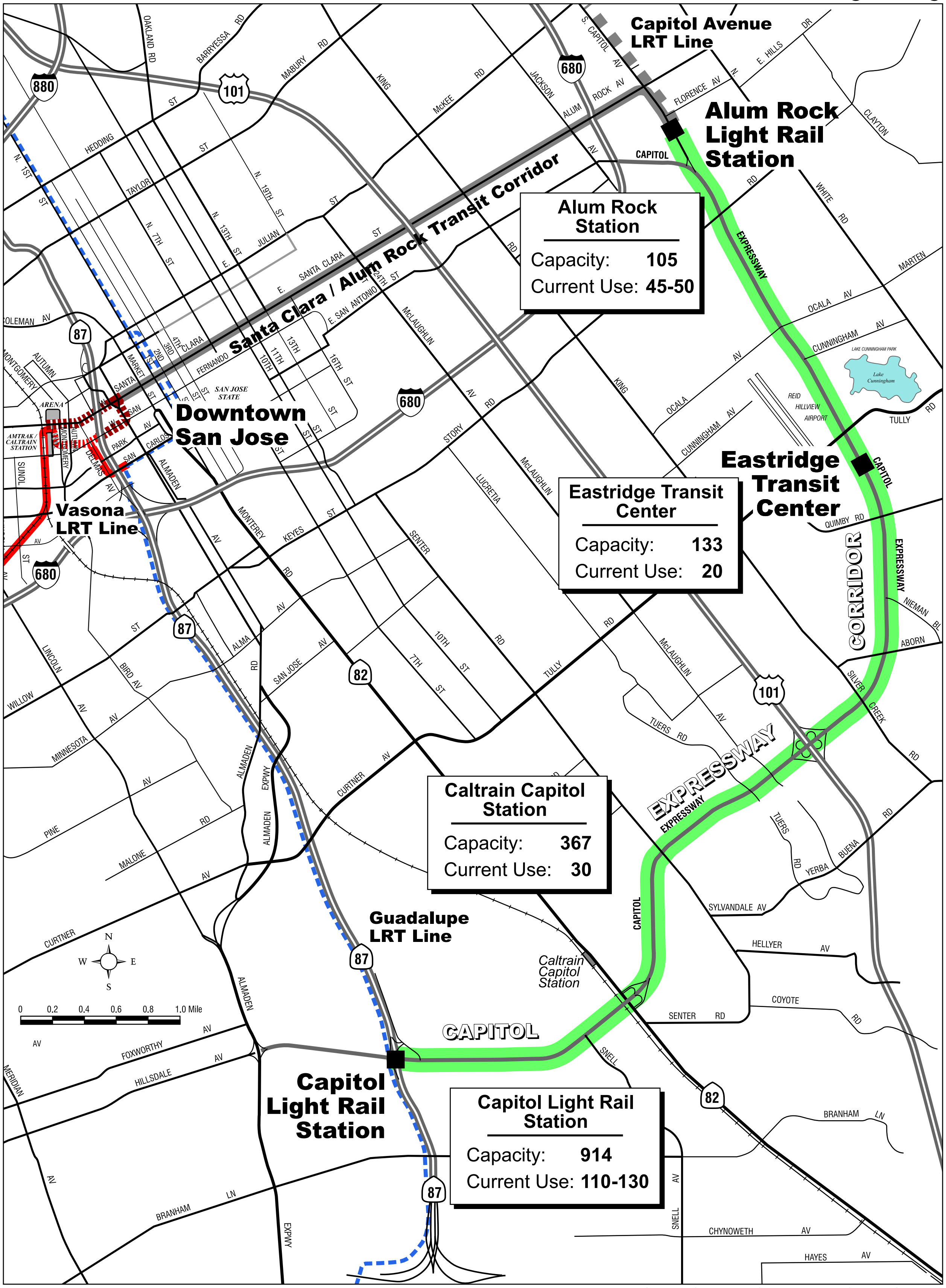
Location	Size (ft^2)	Capacity	Area per Stall (ft^2)	Current Peak Use
Alum Rock	45,000	105	425	50
Eastridge	61,200	133	460	20
Capitol (SR 87)	474,900	914	520	130
Caltrain	142,600	367	390	30

2.5 Pedestrians & Bicycles

Pedestrian and bicycle activity on Capitol Expressway is fairly limited by the corridor's automobile-dominated nature. The most recently developed areas provide more amenities for pedestrians and bicyclists than the earlier developments. As a result, facilities are more abundant in the corridor segments through the Evergreen neighborhoods and between Monterey Highway and SR 87.

Foot-travel along the corridor is limited due to discontinuous sidewalks and pedestrian crossings only at signalized intersections. The only segments of the corridor with fairly continuous concrete sidewalks lie from Nieman Boulevard to Highway 101 and from Monterey Highway to SR 87. The lack of sidewalks is particularly acute on the northern segments of the corridor where the only sidewalks run short distances to link cross-streets with bus stops. Frontage roads do, however, offer sidewalks in sections from Capitol Avenue to Ocala Avenue. Available sidewalk facilities are presented in Figure 2-11.

Korve Engineering



PnR Capacity.cdr

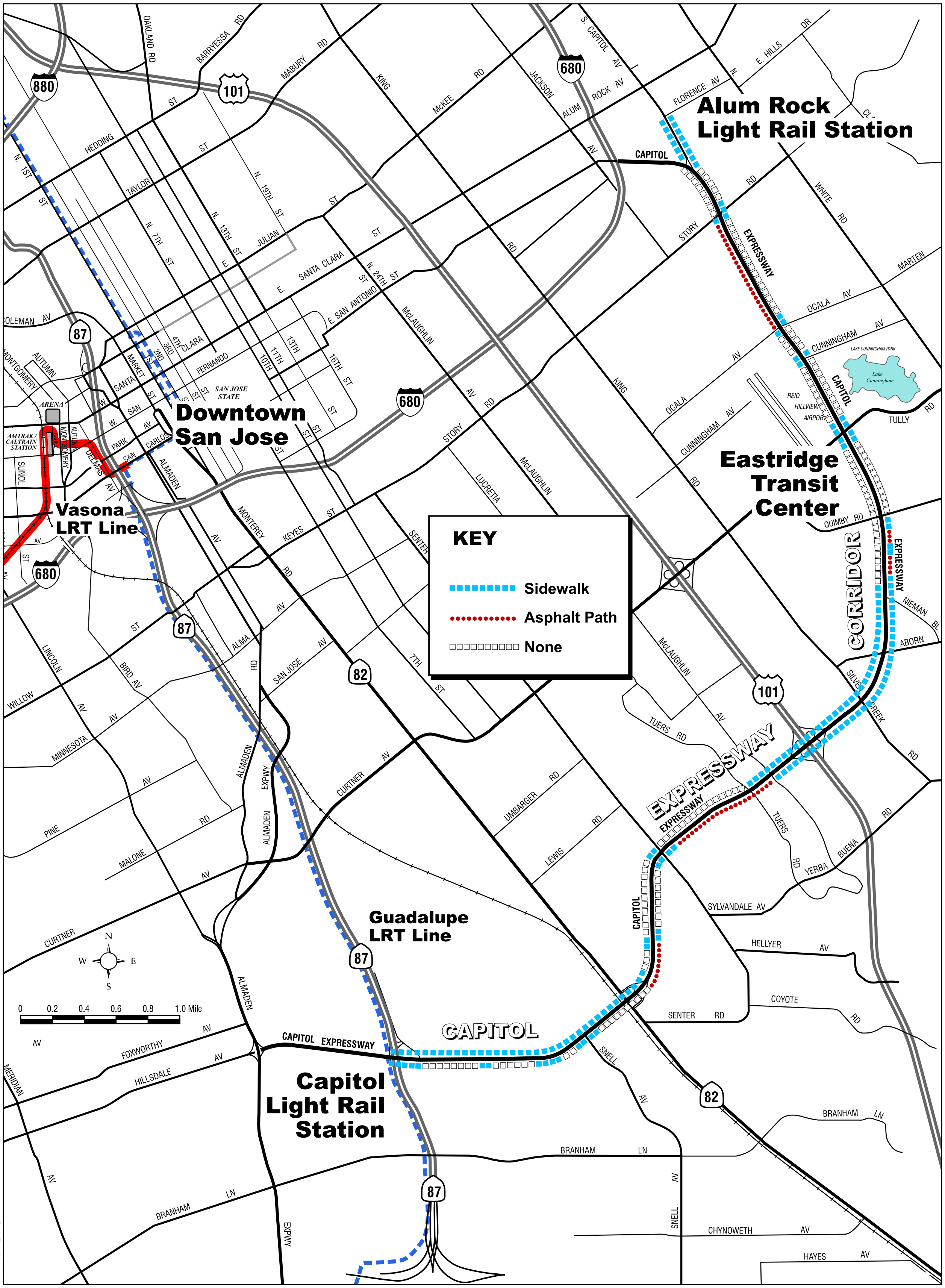
July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 2-10

PARK AND RIDE CAPACITY AND CURRENT USE

Korve Engineering



Ped Facilities.cdr

July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 2-11

PEDESTRIAN FACILITIES

The majority of signalized intersections along the corridor provide for pedestrian crosswalks, although not all approaches to an intersection may permit crossings. The intersections at Capitol Avenue, Nieman Boulevard, McLaughlin Road, and Narvaez Boulevard prohibit pedestrian crossings on one intersection leg. Only the intersection at Eastridge Loop provides no crosswalks or signals for pedestrians in any direction. Table 2-15 and Figure 2-12 summarize the locations of crosswalks and pedestrian push buttons (PPB).

Table 2-15 Capitol Expressway Crosswalk Locations

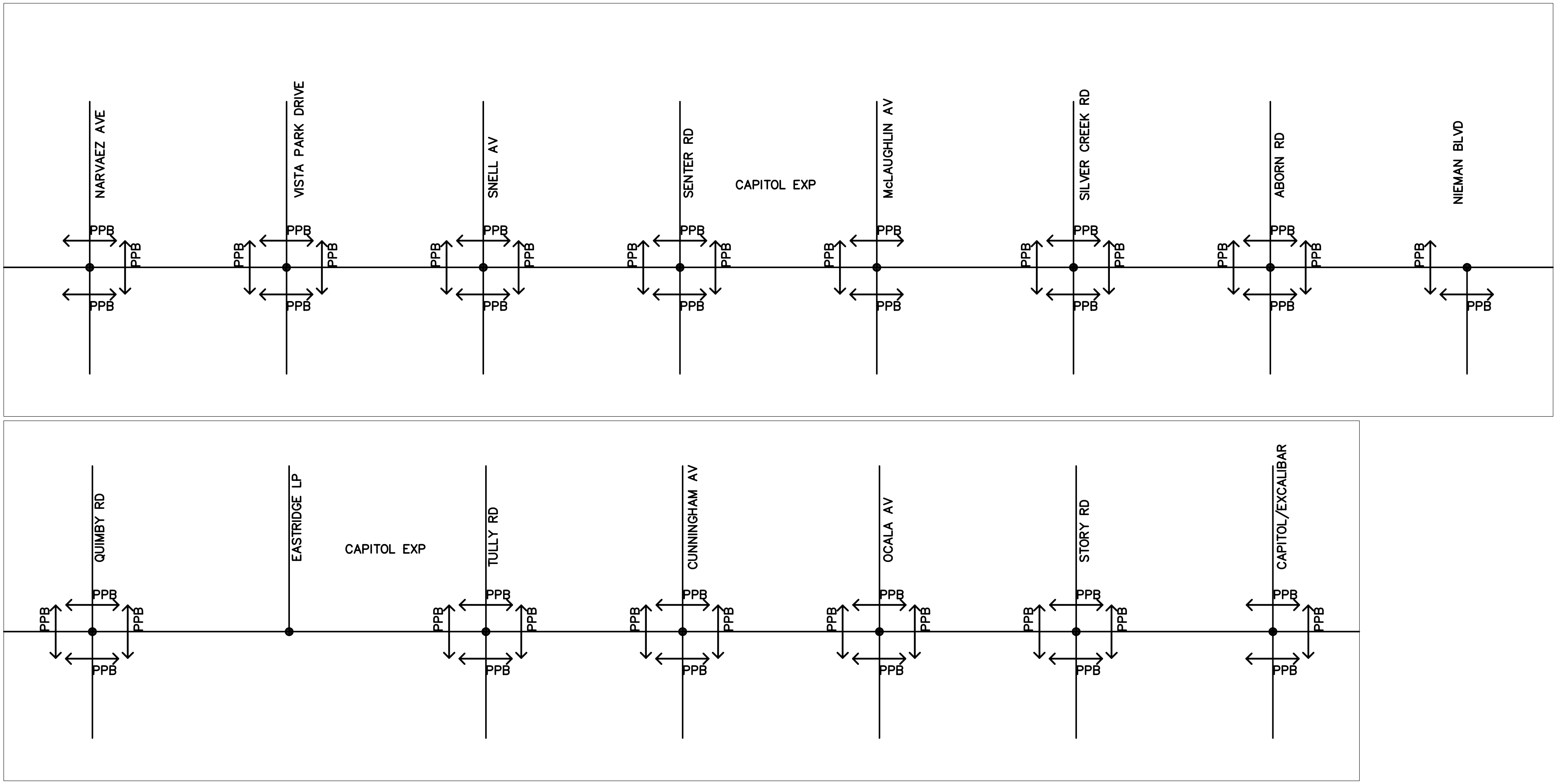
Cross Street	Crossing Location at Intersection			
	North	**South**	**East**	**West**
Capitol	Yes	**No**	Yes	Yes
Story	Yes	Yes	Yes	Yes
Ocala	Yes	Yes	Yes	Yes
Cunningham	Yes	Yes	Yes	Yes
Tully	Yes	Yes	Yes	Yes
Eastridge[1]	**No**	**No**	-	**No**
Quimby	Yes	Yes	Yes	Yes
Nieman[1]	**No**	Yes	Yes	-
Aborn	Yes	Yes	Yes	Yes
Silver Creek	Yes	Yes	Yes	Yes
McLaughlin[2]	**No**	Yes	Yes	Yes
Senter[2]	Yes	Yes	Yes	Yes
Snell[2]	Yes	Yes	Yes	Yes
Vista Park[2]	Yes	Yes	Yes	Yes
Narvaez[2]	Yes	**No**	Yes	Yes

Notes: [1] Eastridge Loop and Nieman Boulevard meet Capitol Expressway in T-intersections.
[2] Capitol Expressway is considered to run east-west for the intersections from McLaughlin to Narvaez.

As might be expected in such an automobile-oriented environment, pedestrian crossings are relatively few. Pedestrian use is highest at Story Road and Senter Road where over 250 pedestrian crossings occur during each of the morning and afternoon peak hours. Other intersections with moderate crossing volumes (over 75 in a peak hour) include Ocala Avenue, Silver Creek Road, Seven Trees Boulevard, Snell Avenue, Vista Park Drive, and Copperfield Drive. Pedestrian counts at the signalized intersections are included in Table 2-16.

Bicyclists may use the shoulders along the expressway. Several major cross-streets offer bicycle routes or lanes (Ocala Avenue, Tully Road, Aborn Road, Senter Road, Monterey Highway, Narvaez Avenue). A bicycle path runs along portions of Coyote Creek and access is available from Capitol Expressway at Tuers Road. Figure 2-13 illustrates the bicycle network of the City of San Jose.

Bicycle activity in the study area is low despite the numerous bicycle routes available. The intersections at Senter Road and Snell Avenue have the highest number of bicycle users in the peak hours, although the counts are relatively low even at these locations. Bicycle counts for the major intersections are included in Table 2-17.



LEGEND

SIGNALIZED
PEDESTRIAN PUSH BUTTON
PEDESTRIAN CROSSWALK
SIGNALIZED INTERSECTIONS ARE FURNISHED
WITH PEDESTRIAN SIGNAL HEADS FOR EACH
CROSSWALK

PPB

NO.	DATE	REVISIONS

SUBMITTED

Korve Engineering
1570 The Alameda, Suite 222
San Jose, CA 95126
(408) 298-2929

DESIGNED SMO	CHECKED DWT
DRAWN SMO	CADD FILE NAME CAP-PED

SANTA CLARA Valley Transportation Authority

APPROVED

CADD FILE DATE 3/22/02	SCALE N.T.S
PLOT DATE 3/22/02	BOARD APPROVAL DATE

DOWNTOWN / EAST VALLEY LRT
PEDESTRIAN DATA
Figure 2-12
CAPITOL CORRIDOR

PCA NO. | CONTRACT NO. | FILE LOCATION

SHEET 1 OF 1
DRAWING NO. –
REVISION

Table 2-16 AM Pedestrian Counts

AM Peak	Capitol runs…		North X-walk			South X-walk			N-S Total	West X-walk			East X-walk			E-W Total	Grand Total
	NB/SB	EB/WB	WB	EB	Tot	WB	EB	Tot		SB	NB	Tot	SB	NB	Tot		
Wilbur	X		1	6	7	2	7	9	16	0	1	1	2	1	3	4	20
Lombard	X		1	3	4	2	0	2	6	0	2	2	0	0	0	2	8
Westboro	X		1	0	1	0	0	0	1	0	0	0	5	2	7	7	8
Capitol Ave		X	2	1	3	5	2	7	10	0	0	0	0	0	0	0	10
Story	X		51	49	100	46	39	85	185	35	15	50	7	13	20	70	255
Ocala	X		8	21	29	2	16	18	47	8	8	16	19	15	34	50	97
Cunningham	X		1	0	1	1	3	4	5	6	5	11	2	5	7	18	23
Tully	X		1	2	3	4	2	6	9	3	4	7	0	0	0	7	16
Eastridge	X		0	0	0	0	0	0	0	3	8	11	0	0	0	11	11
Quimby	X		8	12	20	0	2	2	22	8	3	11	6	2	8	19	41
Nieman	X		0	0	0	26	10	36	36	0	0	0	5	8	13	13	49
Aborn	X		12	8	20	11	10	21	41	4	2	6	4	9	13	19	60
Silver Creek		X	7	5	12	4	22	26	38	15	8	23	33	4	37	60	98
McLaughlin		X	9	14	23	12	8	20	43	18	4	22	0	0	0	22	65
Senter		X	9	14	23	8	73	81	104	52	19	71	98	23	121	192	296
Seven Trees		X	10	8	18	9	14	23	41	16	20	36	44	35	79	115	156
Snell		X	5	6	11	5	14	19	30	7	11	18	14	15	29	47	77
Vista Park		X	11	6	17	5	18	23	40	16	5	21	26	15	41	62	102
Copperfield		X	14	13	27	15	16	31	58	72	7	79	0	0	0	79	137
Narvaez		X	8	4	12	8	8	16	28	2	1	3	0	0	0	3	31
SR 87		X	9	3	12	7	5	12	24	2	0	2	0	0	0	2	26

Table 2-17 PM Pedestrian Counts

PM Peak	Capitol runs…		North X-walk			South X-walk			N-S Total	West X-walk			East X-walk			E-W Total	Grand Total
	NB/SB	EB/WB	WB	EB	Tot	WB	EB	Tot		SB	NB	Tot	SB	NB	Tot		
Wilbur	X		7	1	8	3	2	5	13	1	0	1	4	5	9	10	23
Lombard	X		0	0	0	4	2	6	6	7	7	14	0	0	0	14	20
Westboro	X		3	1	4	8	3	11	15	0	0	0	6	5	11	11	26
Capitol Ave		X	1	2	3	6	6	12	15	0	0	0	0	0	0	0	15
Story	X		53	45	98	36	44	80	178	33	26	59	36	34	70	129	307
Ocala	X		8	5	13	11	11	22	35	15	3	18	14	11	25	43	78
Cunningham	X		1	1	2	0	0	0	2	2	8	10	1	7	8	18	20
Tully	X		2	4	6	4	3	7	13	6	6	12	0	0	0	12	25
Eastridge	X		0	0	0	0	0	0	0	8	10	18	0	0	0	18	18
Quimby	X		13	14	27	5	9	14	41	7	15	22	6	1	7	29	70
Nieman	X		0	0	0	8	10	18	18	0	0	0	14	13	27	27	45
Aborn	X		8	7	15	5	13	18	33	5	3	8	5	7	12	20	53
Silver Creek		X	12	12	24	8	14	22	46	8	11	19	10	15	25	44	90
McLaughlin		X	8	14	22	12	9	21	43	5	10	15	0	0	0	15	58
Senter		X	52	59	111	33	37	70	181	23	23	46	53	39	92	138	319
Seven Trees		X	15	12	27	6	9	15	42	6	12	18	7	8	15	33	75
Snell		X	15	14	29	8	17	25	54	11	12	23	5	11	16	39	93
Vista Park		X	15	5	20	15	14	29	49	6	7	13	11	9	20	33	82
Copperfield		X	5	19	24	8	9	17	41	9	16	25	0	0	0	25	66
Narvaez		X	8	13	21	6	13	19	40	8	3	11	0	0	0	11	51
SR 87		X	8	10	18	8	15	23	41	4	3	7	0	0	0	7	48

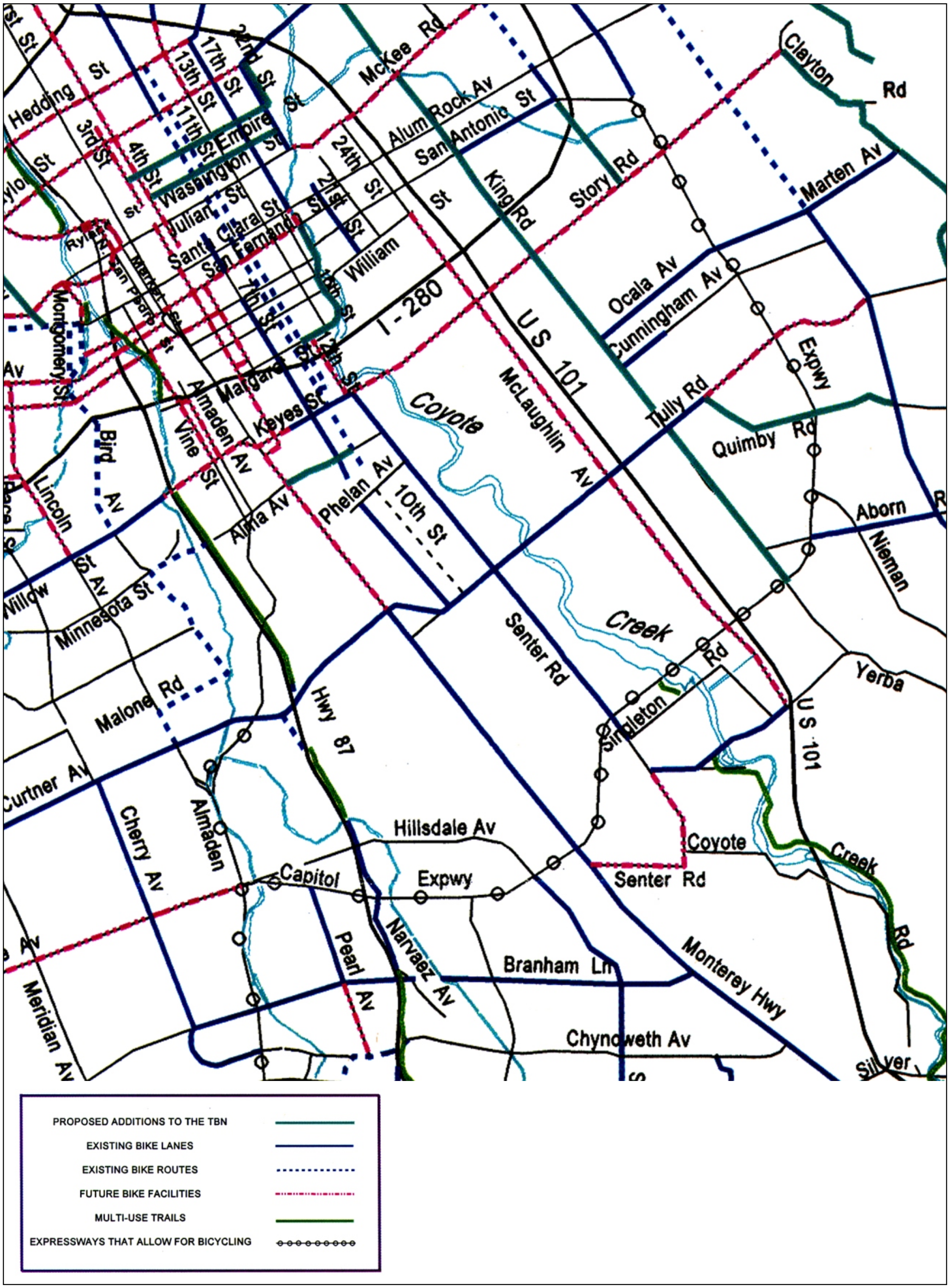
Table 2-18 Existing AM Bicycle Volumes

AM Peak	Capitol runs…		SB			SB Total	NB			NB Total	EB			EB Total	WB			WB Total	Total
	NB/ SB	EB/ WB	L	T	R		L	T	R		L	T	R		L	T	R		
Wilbur	X		4	4	0	8	0	1	2	3	0	2	0	2	0	1	0	1	14
Lombard	X		0	4	0	4	0	1	0	1	0	0	0	0	0	0	0	0	5
Westboro	X		0	3	0	3	0	5	5	10	0	0	0	0	0	0	0	0	13
Capitol Ave		X	1	0	0	1	0	0	0	0	0	0	0	0	0	1	2	3	4
Story	X		0	0	1	1	0	0	1	1	0	3	1	4	0	4	1	5	11
Ocala	X		1	0	0	1	0	1	2	3	0	8	0	8	0	8	1	9	21
Cunningham	X		0	1	0	1	0	2	5	7	0	0	0	0	1	0	0	1	9
Tully	X		0	2	1	3	0	3	1	4	0	1	0	1	0	9	0	9	17
Eastridge	X		0	3	0	3	0	1	0	1	0	0	0	0	0	0	0	0	4
Quimby	X		0	3	0	3	0	2	0	2	0	0	0	0	1	5	0	6	11
Nieman	X		0	2	0	2	0	4	0	4	0	0	0	0	0	0	0	0	6
Aborn	X		0	4	0	4	0	2	1	3	0	0	0	0	0	7	1	8	15
Silver Creek		X	0	9	1	10	0	8	0	8	0	5	1	6	2	4	2	8	32
McLaughlin		X	0	0	0	0	0	8	1	9	0	3	0	3	0	5	0	5	17
Senter		X	1	13	0	14	0	2	3	5	0	6	8	14	3	9	0	12	45
Seven Trees		X	0	5	0	5	0	0	0	0	0	7	2	9	0	8	0	8	22
Snell		X	2	8	1	11	1	4	3	8	2	10	5	17	0	7	1	8	44
Vista Park		X	0	4	0	4	0	0	7	7	0	7	1	8	0	6	0	6	25
Copperfield		X	0	5	0	5	0	0	0	0	0	5	2	7	0	5	0	5	17
Narvaez		X	0	0	0	0	0	0	0	0	0	4	2	6	0	4	1	5	11
SR 87		X	0	0	0	0	0	0	0	0	0	6	0	6	0	4	0	4	10

Table 2-19 Existing PM Bicycle Volumes

PM Peak	Capitol runs…		SB			SB Total	NB			NB Total	EB			EB Total	WB			WB Total	Total
	NB / SB	EB / WB	L	T	R		L	T	R		L	T	R		L	T	R		
Wilbur	X		2	2	0	4	0	5	1	6	1	0	3	4	2	0	1	3	17
Lombard	X		0	1	0	1	0	6	0	6	0	0	0	0	0	0	0	0	7
Westboro	X		2	1	0	3	0	4	2	6	0	0	0	0	0	0	1	1	10
Capitol Ave		X	4	0	0	4	0	0	0	0	0	1	0	1	0	0	5	5	10
Story	X		0	3	2	5	3	2	1	6	0	5	2	7	2	1	0	3	21
Ocala	X		0	3	1	4	2	5	4	11	0	3	1	4	1	2	0	3	22
Cunningham	X		0	4	0	4	0	4	2	6	0	0	0	0	2	0	0	2	12
Tully	X		0	5	1	6	1	5	3	9	1	2	0	3	0	2	0	2	20
Eastridge	X		0	3	2	5	3	3	0	6	0	0	1	1	0	0	0	0	12
Quimby	X		0	5	1	6	3	1	3	7	0	1	0	1	0	2	1	3	17
Nieman	X		0	4	1	5	0	6	0	6	0	0	0	0	2	0	0	2	13
Aborn	X		0	3	1	4	0	3	2	5	0	2	0	2	1	1	0	2	13
Silver Creek		X	1	3	2	6	1	5	1	7	0	2	1	3	1	5	1	7	23
McLaughlin		X	0	4	1	5	0	1	0	1	1	7	1	9	0	8	5	13	28
Senter		X	4	5	1	10	2	3	1	6	0	8	4	12	2	3	2	7	35
Seven Trees		X	0	0	0	0	0	0	1	1	0	7	3	10	1	10	0	11	22
Snell		X	4	4	0	8	2	7	1	10	0	8	2	10	2	6	3	11	39
Vista Park		X	0	0	1	1	1	1	0	2	0	1	0	1	1	7	0	8	12
Copperfield		X	0	0	1	1	0	0	1	1	0	7	0	7	0	6	1	7	16
Narvaez		X	0	0	1	1	0	0	0	0	0	6	1	7	0	5	2	7	15
SR 87		X	0	0	0	0	0	0	0	0	0	5	0	5	0	8	0	8	13

Korve Engineering



SJ Bike Network.cdr

July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 2-13

CITY OF SAN JOSE TRANSPORTATION BICYCLE NETWORK

2001-02 Planning Map

2.6 Goods Movement

Capitol Expressway serves the movement of commercial goods into and through the East Valley. Capitol Expressway connects to three freeways (I-680, US 101, and SR 87) and Monterey Highway. The connectivity of the corridor to regional and intrastate facilities accentuates its function as a commercial route. The existing corridor provides for the free flow of commercial traffic except for delays caused by existing traffic congestion. Access into and out of commercial facilities along the corridor is provided by signalized intersections at full movement locations and by right turns only at other minor access points. The spacing of access along the corridor minimizes the need for extensive circulation by commercial traffic onto local streets not specifically designated for such purposes.

2.7 Parking

On-street parking is prohibited on Capitol Expressway. Along the light rail alignment, only the segment on Capitol Avenue south of Wilbur Avenue permits on-street parking. However, parking is temporarily restricted through this section due to the construction of the Capitol Avenue light rail line. Park-and-ride facilities are discussed earlier in this report.

2.8 Community Access

Capitol Expressway serves as the principal thoroughfare in the East Valley study area. As such, it links the various neighborhoods in the corridor and provides access for residents to the amenities and public buildings nearby. Schools, community centers, libraries, cemeteries, major parks, and fire stations are all important features in a community.

Table 2-20 lists the community features in the study area that are near Capitol Expressway. The table also provides the addresses, the nearest major intersections on Capitol Expressway, and the existing access to the features. The maps in Figure 2-14 present the locations of the major community features.

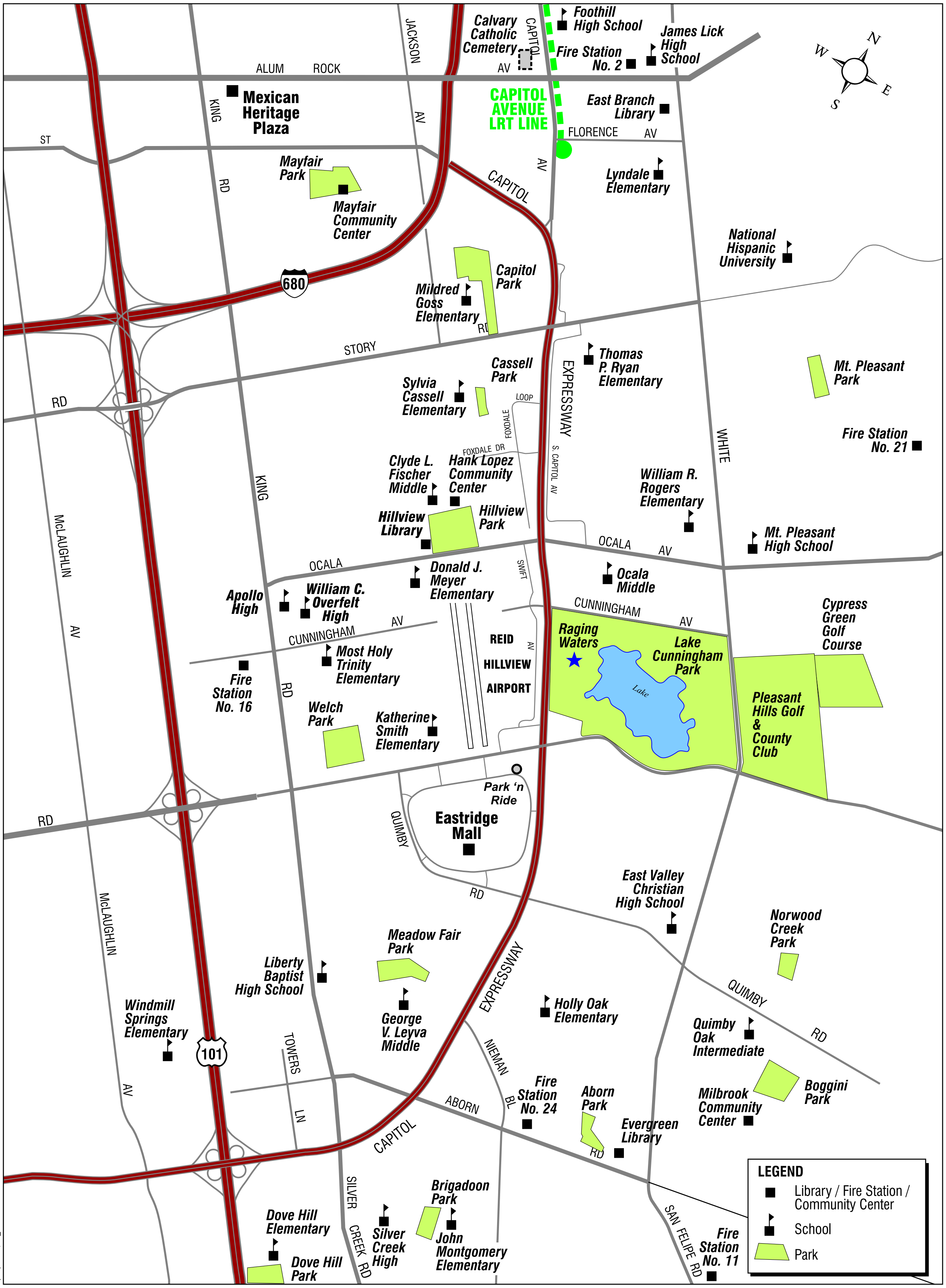
Table 2-20 Community Features Inventory

Feature	**Address** (Nearest Major Cross Street)	**Capitol Expressway Access**
Elementary Schools		
Donald Meyer	1824 Daytona Drive (Ocala Avenue)	0.4 mile west on Ocala Avenue to Daytona Drive
Dove Hill	1460 Colt Way (Silver Creek Road)	0.3 mile south on Silver Creek Road to Colt Way
Hillsdale	3200 Water Street (Monterey Road)	0.3 west of Capitol Expwy between Senter Road & Seven Trees Drive; No direct access
Holly Oak	2995 Rossmore Way (White Road)	0.5 mile east of Capitol Expwy between Quimby & Aborn Roads; No direct access
John Montgomery	2010 Daniel Maloney Drive (Silver Creek Road)	0.2 mile south on Silver Creek Road to Daniel Maloney Drive

Feature	Address (Nearest Major Cross Street)	Capitol Expressway Access
Katherine Smith	2025 Clarice Drive (Tully Road)	0.5 mile west on Tully Road to Quimby Road to Clarice Drive
Los Arboles	455 Los Arboles Avenue (Senter Road)	0.2 mile east of Capitol Expwy between Senter Road & Seven Trees Drive; No direct access
Lyndale	13901 Nordyke Drive (White Road)	0.4 mile east on Wilbur Avenue
Mildred Goss	2475 Van Winkle Lane (Story Road)	0.1 mile west on Story Road to Galahad to Van Winkle Lane
Most Holy Trinity	1940 Cunningham Avenue (King Road)	0.6 mile west on Ocala Avenue to Winter Park Way to Cunningham Avenue
Park View	330 Bluefield Drive (Vista Park Drive)	0.2 mile south on Vista Park Drive to Bluefield Drive
Rachel Carson	4245 Meg Drive (Narvaez Avenue)	0.2 mile south on Bluefield Drive to Albion Drive to Meg Drive
Seven Trees	3975 Mira Loma Way (Seven Trees Drive)	0.1 mile south on Seven Trees Drive to El Cajon Drive to Mira Loma Way
Sylvia Cassell	1300 Tallahassee Drive (Story Road)	0.3 mile west of Capitol Expwy between Story Road & Ocala Avenue; No direct access
Thomas Ryan	1241 McGinness Avenue (Story Road)	0.2 mile east on Story Road to McGinness Avenue
William Rogers	2999 Ridgemont Drive (Ocala Avenue)	0.4 mile east on Ocala Avenue to Ridgemont Drive
Windmill Springs	2880 Aetna Way (McLaughlin Avenue)	0.3 mile north on McLaughlin Avenue to Sylvia Drive
Junior High / Intermediate / Middle Schools		
Clyde Fischer Middle	1720 Hopkins Drive (Ocala Avenue)	0.6 mile west on Ocala Avenue to Hopkins Drive
George Leyva Intermediate	1865 Monrovia Drive (Aborn Road)	0.2 mile west on Aborn Road to Irwindale Drive
Ocala Middle	2800 Ocala Avenue (Capitol Expressway)	0.2 mile east on Ocala Avenue
Sylvandale Junior High	653 Sylvandale Avenue (Senter Road)	0.4 mile south on Silver Creek Road to Sylvandale Avenue
High Schools		
Andrew Hill High	3200 Senter Road (Capitol Expressway)	0.1 mile south on Senter Road; School grounds abut Capitol Expwy
Apollo High	1835 Cunningham Avenue (King Road)	0.5 mile west on Ocala Avenue to Winter Park Way
East Valley Christian High	2715 South White Road (Quimby Road)	0.6 mile east on Quimby Road to White Road
Foothill High	230 Pala Drive (Capitol Avenue)	0.7 mile north on Capitol Avenue to Gay Avenue
James Lick High	57 North White Road (Alum Rock Avenue)	0.3 mile east on Alum Rock Avenue
Liberty Baptist High	2790 South King Road (Aborn Road)	0.6 mile north on King Road

Feature	Address (Nearest Major Cross Street)	Capitol Expressway Access
Mount Pleasant High	1750 South White Road (Ocala Avenue)	0.6 mile east on Ocala Avenue to White Road
Silver Creek High	3434 Silver Creek Road (Capitol Expressway)	0.2 mile south on Silver Creek Road
William C. Overfelt High	1835 Cunningham Avenue (King Road)	0.5 mile east on Ocala Avenue to Winter Park Way
Community Centers		
Hank Lopez	1694 Adrian Way (Ocala Avenue)	0.3 mile west on Ocala Avenue to Adrian Way
Solari Park	3590 Cas Drive (Seven Trees Drive)	0.1 mile east of Capitol Expwy between Senter Road & Seven Trees Drive; No direct access
Libraries		
Alum Rock Branch	75 South White Road (Alum Rock Avenue)	0.4 mile east on Alum Rock Avenue to White Road
Evergreen Branch	2635 Aborn Road (White Road)	0.6 mile east on Aborn Road
Hillview Branch	2255 Ocala Avenue (Capitol Expressway)	0.3 mile west on Ocala Avenue
Pearl Branch	4270 Pearl Avenue (Branham Avenue)	0.5 mile south on Pearl Avenue
Seven Trees Branch	3597 Cas Drive (Capitol Expressway)	0.1 mile east of Capitol Expwy between Senter Road & Seven Trees Drive; No direct access
Cemeteries		
Calvary Catholic	2655 Madden Avenue (Alum Rock Avenue)	0.6 mile north on Capitol Avenue to Madden Avenue
Oak Hill Memorial	300 Curtner Avenue (Monterey Road)	1.4 miles north on Monterey Road
Major Parks		
Capitol	Bambi Lane (Capitol Expressway)	0.2 mile west on Bambi Lane
Coyote Creek	Tuers Road (Capitol Expressway)	At Tuers Road
Hillview	2251 Ocala Avenue (Capitol Expressway)	0.3 mile west on Ocala Avenue
Lake Cunningham	2305 South White Road (Tully Road)	0.2 mile east on Tully Road
Meadowfair	Corda Drive (King Road)	0.3 mile west of Capitol Expwy between Quimby & Aborn Roads; No direct access
Solari	Cas Drive (Seven Trees Drive)	0.1 mile east of Capitol Expwy between Senter Road & Seven Trees Drive; No direct access
Welch	1900 Santiago Drive (Tully Road)	0.6 mile west on Tully Road to Brahms Drive
Fire Stations		

Feature	**Address** (Nearest Major Cross Street)	Capitol Expressway Access
Station No. 2	2933 Alum Rock Avenue (White Road)	0.2 mile east on Alum Rock Avenue
Station No. 13	4380 Pearl Avenue (Branham Road)	0.5 mile south on Pearl Avenue
Station No. 16	2001 South King Road (Cunningham Avenue)	0.9 mile west on Ocala Avenue to King Road
Station No. 18	4430 Monterey Road (Skyway Drive)	0.6 mile south on Monterey Road to Skyway Drive
Station No. 21	1749 Mount Pleasant Road (Marten Avenue)	1.4 miles east on Ocala Avenue to Mount Pleasant Road
Station No. 24	2525 Aborn Road (Nieman Boulevard)	0.4 mile east on Aborn Road
Station No. 26	528 Tully Road (Senter Road)	1.2 miles north on Senter Road to Tully Road
Major Attractors		
Eastridge Shopping Center	1 Eastridge Center (Capitol Expressway)	At Eastridge Loop
National Hispanic University	14271 Story Road (White Road)	0.7 mile east on Story Road
Raging Waters	2333 South White Road (Tully Road)	0.2 mile east on Tully Road
Reid Hillview Airport	2350 Cunningham Avenue (Capitol Expressway)	0.2 mile west on Cunningham Avenue
Little League Baseball Fields	Capitol Expressway/Cunningham Avenue	0.1 mile west on Airport access roadway
Santa Clara County Fairgrounds	344 Tully Road (Monterey Road)	1.4 miles north on Monterey Road

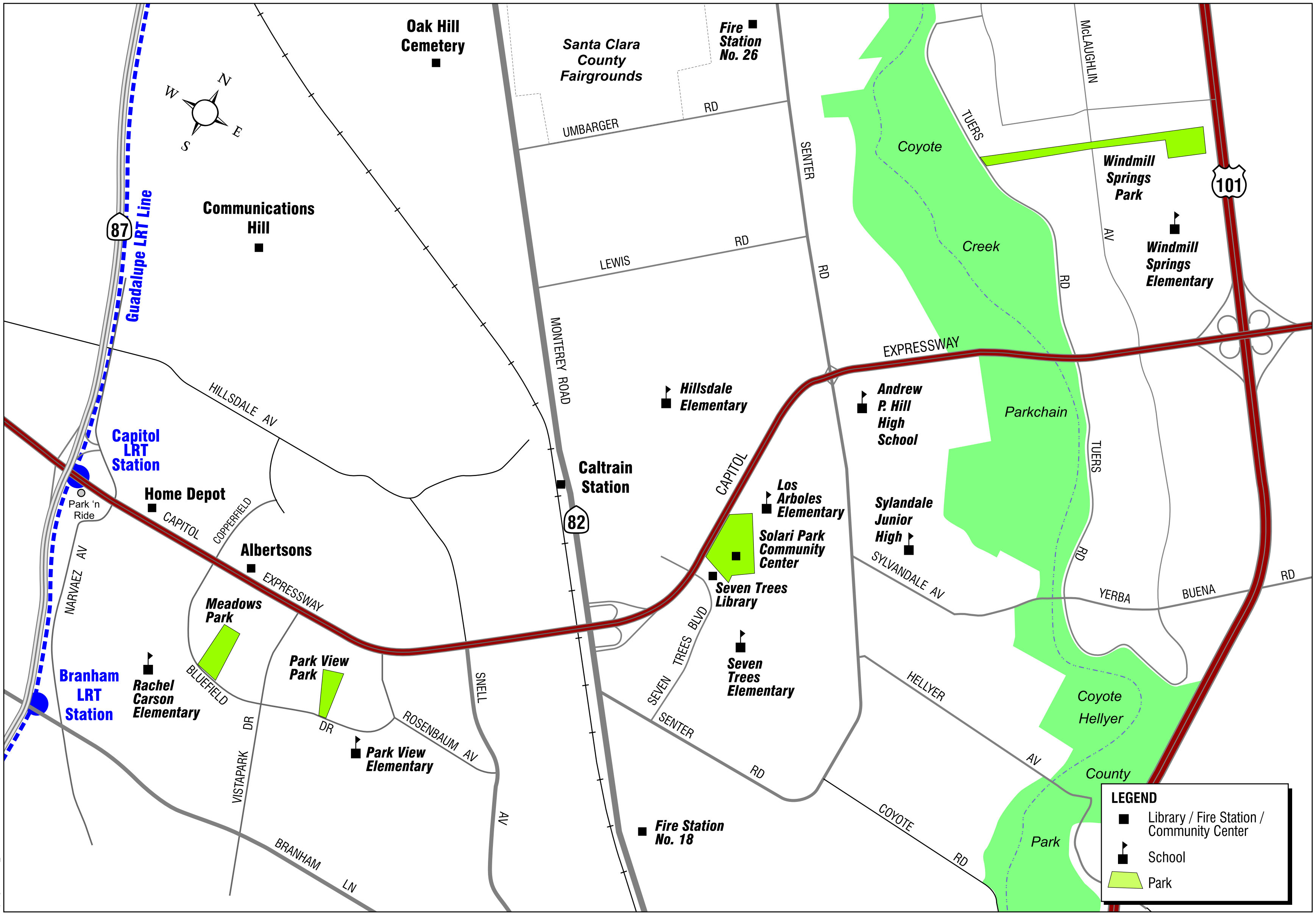


July 2002

DOWNTOWN / EAST VALLEY CAPITOL EIR

Figure 2-14a

EXISTING COMMUNITY FEATURES



Korve Engineering

July 2002

DOWNTOWN / EAST VALLEY CAPITOL EIR

Figure 2-14b

EXISTING COMMUNITY FEATURES

3.0 FUTURE CONDITIONS

3.1 Objectives

The purpose of an assessment of the future traffic volumes on the corridor is two-fold: it permits a comparison of existing and future traffic operations; and it allows the transportation impacts of the proposed light rail line to be determined with respect to a future No Build Alternative. In this respect, the future transportation benefits and impacts of constructing the light rail line can be identified. Where appropriate, mitigation measures are identified to improve traffic operations.

3.2 Future Alternatives

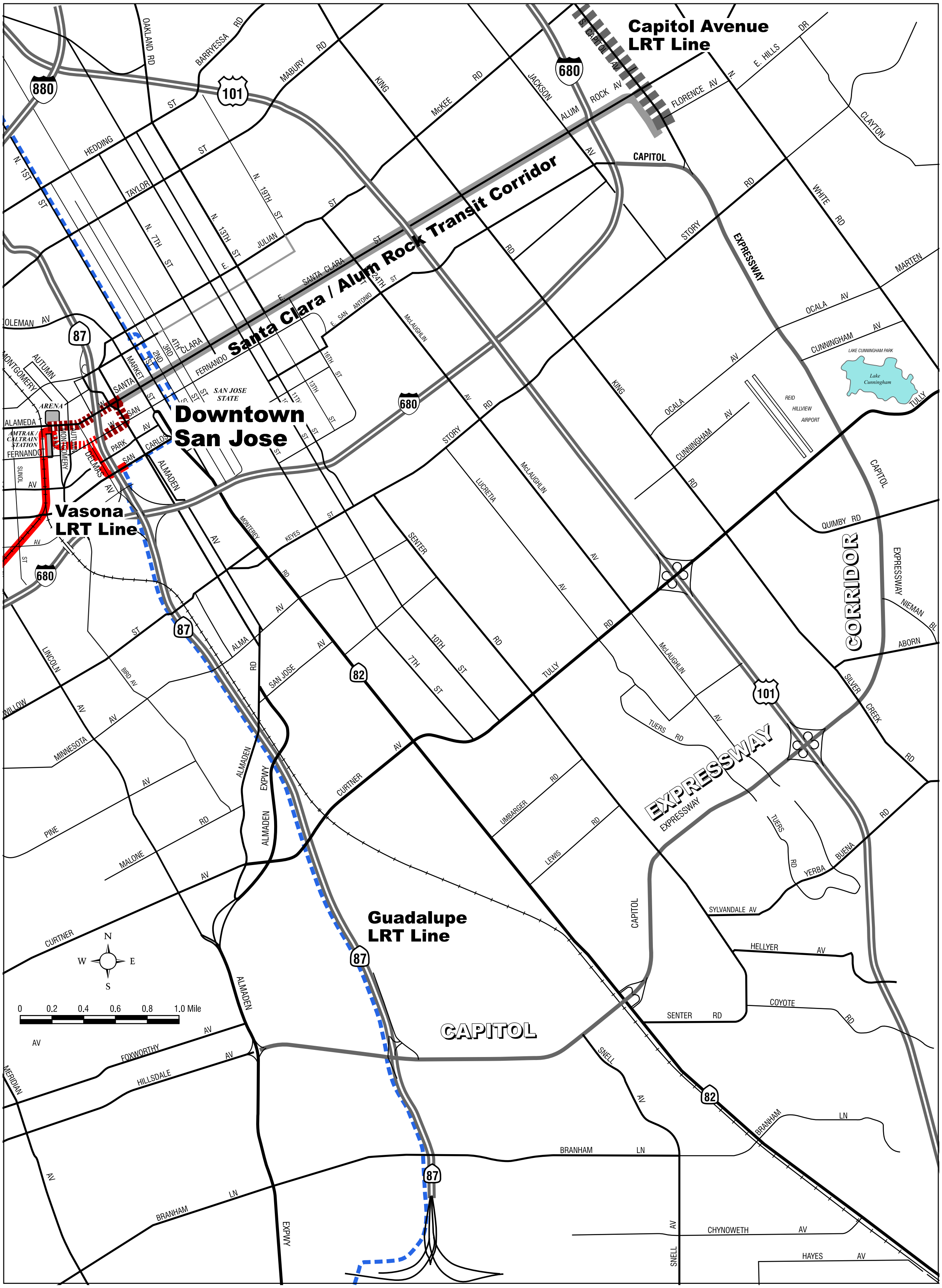
Several alternatives for light rail corridor construction, varying from No Build through full construction, were analyzed for the corridor. Table 3-1 summarizes the alternatives for the Capitol Expressway LRT corridor analyzed in this study. For each of these alternatives, the existing light rail network, the current light rail expansions along the Vasona corridor and Capitol Avenue, and a future transit extension from downtown San Jose to East Valley along Santa Clara and Alum Rock are assumed.

Table 3-1 Light Rail Corridor Alternatives

Description	LRT on Capitol Corridor
No Build Alternative	None.
Baseline Alternative	None. TSM measures.
Light Rail Phase 1 Light Rail Phase 2	LRT from Alum Rock LRT Station to Eastridge Transit Center. LRT from Eastridge Transit Center Station to SR 87.

Figure 3-1 to Figure 3-4 show the extent of light rail construction in the study area under each of the alternatives. Figure 3-1 illustrates the No-Build condition. In this scenario the Capitol Avenue light rail line would be built to the Alum Rock station and the Santa Clara/Alum Rock Transit Corridor would operate to the Alum Rock station, but light rail would not be implemented on Capitol Expressway. Figure 3-2 illustrates the Baseline Alternative. Again, the Capitol Avenue light rail would be built to the Alum Rock station and the Santa Clara/Alum Rock line would also be built to the Alum Rock Station. Transportation System Management measures would be implemented on Capitol Expressway (details of the Baseline Alternatives are discussed below). Figure 3-3 illustrates what could be an initial construction phase for light rail along Capitol Expressway with light rail service extended from the Alum Rock Station to Eastridge. Figure 3-4 illustrates the full construction of the light rail project from the Alum Rock station to SR 87. Under both of these later alternatives, transit on Santa Clara/Alum Rock is assumed to be in place.

Korve Engineering



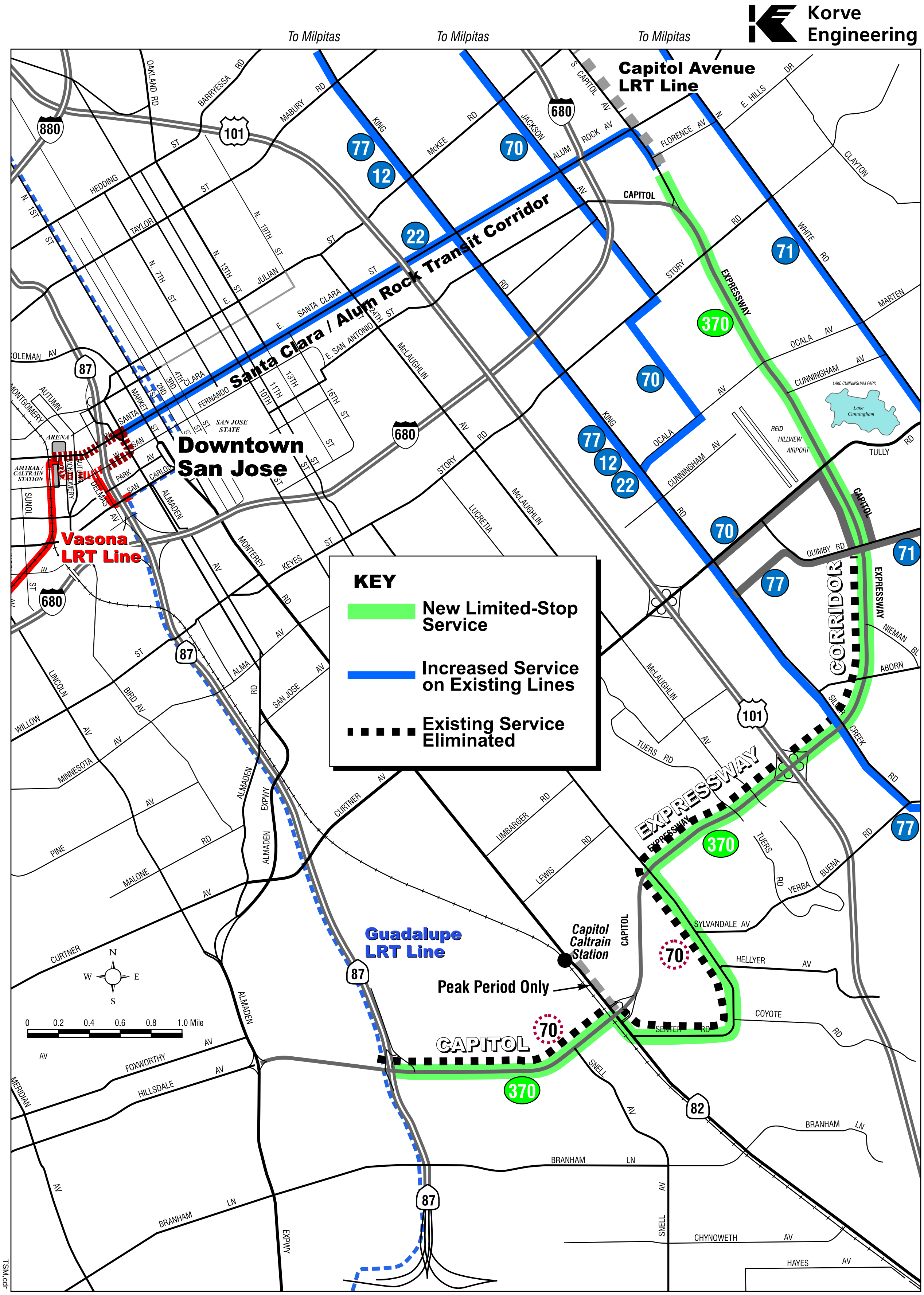
No Build.cdr

July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 3-1

NO BUILD ALTERNATIVE



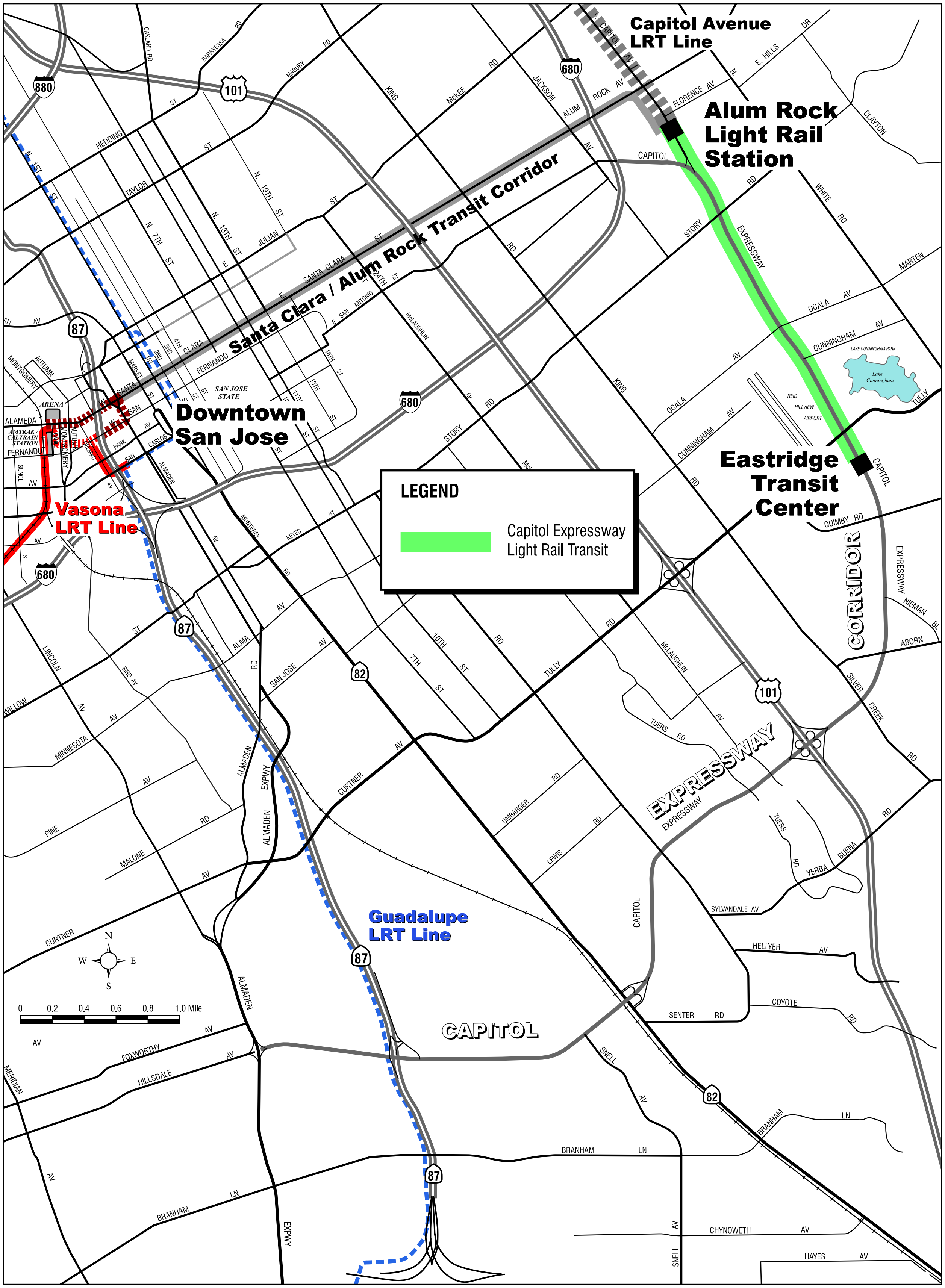
July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 3-2

CAPITOL EXPRESSWAY BASELINE ALTERNATIVE

Korve Engineering



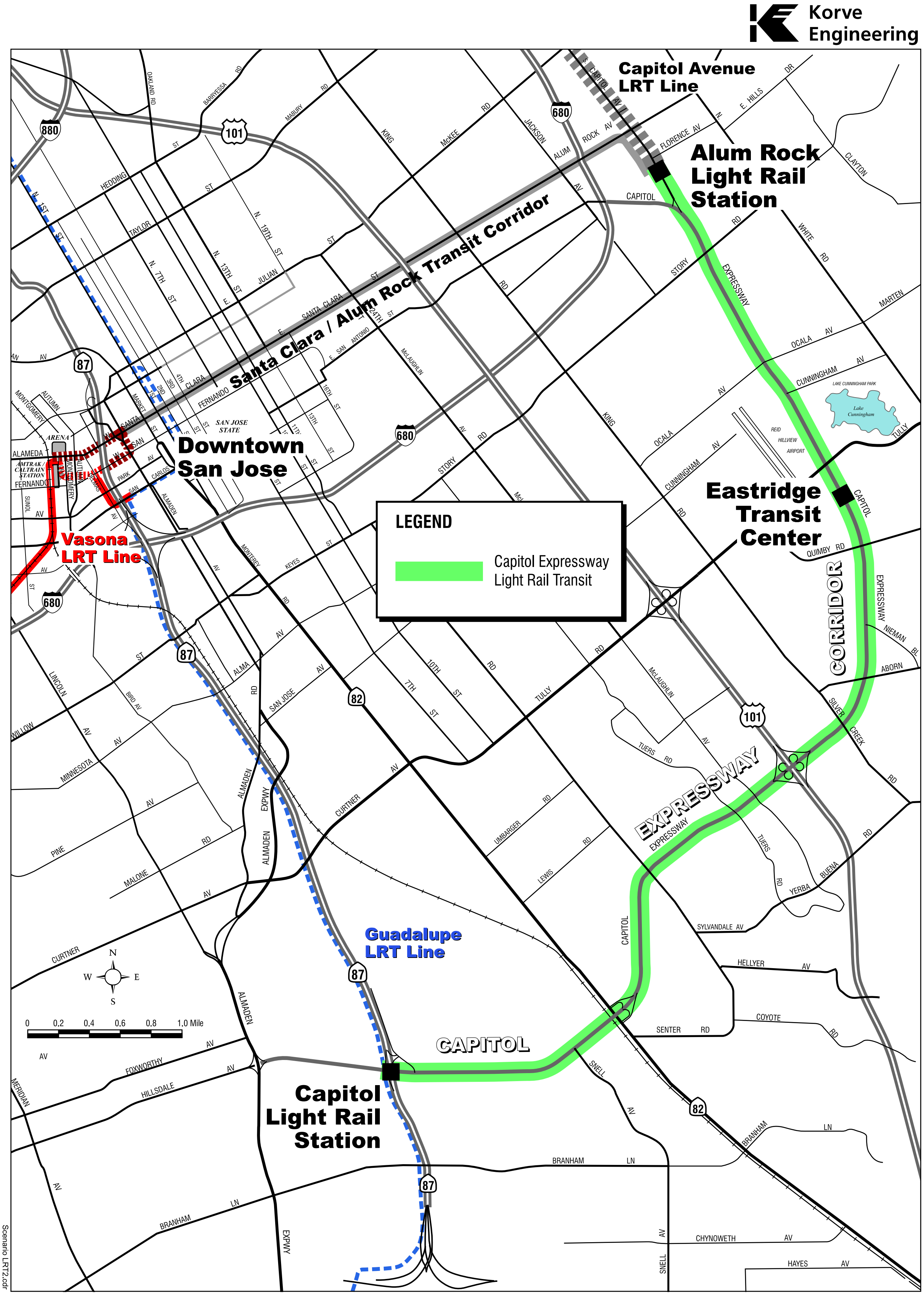
Scenario LRT1.cdr

July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 3-3

LIGHT RAIL PHASE 1: ALUM ROCK TO EASTRIDGE



July 2002
Rev 6/13/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 3-4

LIGHT RAIL PHASE 2: ALUM ROCK TO CAPITOL (HWY 87)

3.2.1 No Project Alternative

For the purposes of this analysis, the No-Project Alternative does not include transportation improvements to the Capitol Expressway Corridor. It is assumed that transit services offered by VTA within the corridor will continue at current levels, except for limited improvements in service frequency. The No Project Alternative represents the conditions that would be reasonably expected to occur in the foreseeable future if none of the proposed alternatives were implemented.

3.2.2 Baseline Alternative

Federal planning guidelines require that a Baseline Alternative be analyzed. The goal of the Baseline Alternative is to improve mobility along the corridor through enhancements to the existing bus system as an alternative to constructing light rail. The relative benefit of such enhancements can be measured against a “No Build” alternative at one end of the spectrum and “Build light rail” at the other end. The Baseline Alternative is, therefore, the optimal level of bus service that could be provided on the existing roadway without major infrastructure investment.

The proposed Baseline Alternative for the Capitol Expressway corridor would operate using the same basic service structure that is provided today, although enhancements would include modest facility improvements and operations expansion. Major capital expenditures for street reconstruction and widening, property acquisition, and relocation of homes and businesses are not included in the Baseline Alternative.

Enhanced limited-stop (ELS) bus service is one measure of the Baseline Alternative that could have a significant impact on the shape and form of the transit service provided in the study corridors. An ELS bus line is a hybrid of a traditional limited-stop bus line and a fully implemented bus rapid transit (BRT) line. It travels in shared right-of-way, as does a traditional service, but can have amenities that improve passenger comfort and operating conditions that are usually reserved for BRT services. An ELS bus service can offer high-level transit service at a lower cost per trip than light rail.

The proposed Line 370 would provide continuous limited-stop service along Capitol Expressway between Alum Rock Station and Capitol Station. It would link the Capitol Avenue Light Rail Line with the Guadalupe Light Rail Line. Line 370, however, would deviate from Capitol Expressway to serve a portion of Senter Road and Monterey Highway (as the existing Line 70 does today). As well, some of its peak period trips could be diverted to serve the Capitol Caltrain Station.

In conjunction with the introduction of limited-stop service with the above-mentioned Line 370, Line 70 is proposed to terminate its service at Eastridge Transit Center, continuing to serve only the northern portion of the route to Milpitas. Passengers wishing to travel south of Eastridge Transit Center would use the proposed Line 370 limited-stop service.

Service on the Line 70 between Eastridge Transit Center and Milpitas, as well as other lines, could be increased to accommodate the high levels of passenger activity on parallel and intersecting corridors, such as King Road, Jackson Avenue, and White Road. Evening and weekend services could also be increased. The following bus lines could have their service levels increased:

- Line 70: Milpitas – Eastridge;
- Line 71: Milpitas – Eastridge; and,
- Line 77: Milpitas – Evergreen College.

Traffic congestion often impacts the efficiency of transit operations and can serve as a deterrent to potential transit passengers who perceive bus travel as time-consuming and unfavorable when compared to auto travel. Transit priority measures can permit buses to avoid automobile congestion and can provide buses with preferential consideration at traffic. The following priority measures could be implemented as a part of the Capitol Expressway Corridor Baseline Alternative:

- Existing HOV lanes would remain for use by both automobiles and buses;
- Queue jump and bus-only lanes could be implemented, where feasible; and
- Signal priority and coordination could be implemented along the entire corridor.

3.2.3 Light Rail Alternative

The proposed Light Rail Alternative would extend 8.2 miles south and west from the existing terminus of the Capitol Avenue LRT Line at the Alum Rock Station to the Eastridge Transit Center, and continue to the existing Guadalupe LRT Line at SR 87.

The alignment would operate in exclusive and semi-exclusive rights-of-way and would include both grade-separated and at-grade intersection crossings. The alignment would operate primarily in the median of Capitol Expressway; however, some short alignment sections and options would deviate from the median.

The proposed Light Rail Alternative would be designed to reduce transit travel time with signal priority at intersections and grade separation at congested intersections. Crossings at freeways, expressways and some major arterials would also be grade-separated (either elevated or depressed) to further support higher-speed transit operations.

Construction of the light rail guideway and grade-separated structures under this alternative would alter the roadway geometry along some portions of Capitol Expressway. Perhaps the most dramatic design change to the expressway would be the removal of existing HOV lanes between Capitol Avenue and US 101 to provide the additional right-of-way to accommodate the light rail project.

The Light Rail Alternative would likely be constructed in two or more phases; initial phase terminating in the vicinity of the Eastridge Transit Center and subsequent phases continuing to the Guadalupe LRT Line at SR 87.

3.2.4 Person Through volume on Capitol Expressway

To construct light rail within the existing Capitol Expressway right-of-way a lane of traffic must be removed between Capitol Avenue and US 101. The lane to be removed could either be the high occupancy vehicle lane in each direction or a general purpose lane (a lane open to any vehicle occupancy size). The analysis in this section illustrates the difference in total person through volume by removing an HOV lane versus removing a general purpose travel lane.

Table 3-2 illustrates the person through volume on Capitol Expressway at Story Road during the AM peak for five different scenarios. These scenarios are described below.

Table 3-2 Person through Volume on Capitol Expressway at Story Road

Configuration	Vol/Occ/Total	Northbound AM Peak			
		Solo Drivers	HOVs	Transit	Total Person Through Volume
Existing[1] 3 GPLs + 1 HOV	Volume Occupancy Total Persons	2,830 1.0 2,830	554 2.2 1220	2 15 30	4,080
3 GPLs + LRT To Eastridge	Volume Occupancy Total Persons	2,880[2] 1.2[3] 3,455	N/A	6 85 510[4]	3,965
3 GPLs + LRT to SR 87	Volume Occupancy Total Persons	2,880[2] 1.2[3] 3,455	N/A	6 145 870[4]	4,325
2 GPLs 1 HOV LRT to Eastridge	Volume Occupancy Total Persons	1,920[2] 1.0 1,920	554 2.2 1,220	6 85 510[4]	3,650
2 GPLs 1 HOV LRT to SR 87	Volume Occupancy Total Persons	1,920[2] 1.0 1,920	554 2.2 1,220	6 145 870[4]	4,010

Notes:
[1] Existing data from Capitol Expressway Study (on-going Spring, 2003)
[2] Per lane capacity is 960 vehicles per lane or 80 seconds of green per 150 second cycle
[3] Weighted average occupancy assumes 80% of carpools remain from current observation
[4] Inbound AM loadings from Capitol Expressway LRT Study

EXISTING – 3 GENERAL PURPOSE LANES (GPLS) AND 1 HIGH OCCUPANCY VEHICLE LANE (HOV)

The existing condition is three general purpose lanes and one high occupancy vehicle lane. The volumes and occupancies for the existing condition were obtained from the Capitol Expressway Study (ongoing Spring 2003) by County Roads and Airports. The existing total person through volume is 4,080.

3 GENERAL PURPOSE LANES AND LIGHT RAIL TO EASTRIDGE

This scenario assumes the HOV lane is removed and light rail is constructed to Eastridge. The GPLs are assumed to have a capacity of 960 vehicles per lane. This assumes a saturation flow rate of 1,800 vehicles per lane per hour of green and a green phase for the northbound through of 80 seconds out of a 150-second cycle.

This alternative assumes that 80 percent of the existing carpools remain, since they can use other HOV lanes on the roadway network as part of their trip, or they are carpools of necessity. The resulting weighted average occupancy is 1.2 persons per vehicle, approximately the average occupancy throughout the region.

The AM peak hour northbound light rail ridership has previously been estimated at 510 per hour in 2010, or 85 passengers per 2-car train for a light rail project terminating at Eastridge. It should be noted that light rail could easily accommodate over 2,000 hourly passengers in a 2-car train with 10-minute headways.

The total person through volume for this configuration is 3,965, or about a 3 percent reduction from existing through volume. (Please note that the light rail ridership projections are 2010 and not existing. Existing demand, if projected, would be slightly less.)

3 General Purpose Lanes and Light Rail to SR 87

Extending light rail to SR 87 attracts additional ridership. The northbound AM peak hour demand at Story Road has previously been projected at 870 passengers, or 145 passengers per 2-car train. The total person through volume at Story Road then becomes 4,325 persons, or 6 percent greater than existing through volume.

2 General Purpose Lanes, 1 HOV and Light Rail to Eastridge

This geometric configuration assumes that the existing HOV lane remains and a general purpose lane is removed for construction of light rail. The capacity of the 2 GPLs are assumed at 960 vehicles per lane, as documented above, and the HOV lane volume is assumed at existing. The light rail volumes are the 2010 projections for an initial phase to Eastridge.

With this configuration the total person through volume is 3,650, or a 12 percent reduction from existing and an almost 9 percent reduction from the configuration that removes the HOV lane and keeps 3 GPLs.

2 General Purpose Lanes, 1 HOV and Light Rail to SR 87

Extending light rail to SR 87 and maintaining the HOV lane results in a northbound person through volume at Story Road of 4,010. This presents a less than 2 percent decline from existing and about an 8 percent reduction from the configuration that removes the HOV lane and keeps 3 GPLs.

Conclusion

The existing roadway carries just under 4,100 persons per hour northbound on Capitol Expressway at Story Road in the AM peak hour. This section was selected as a typical portion of the expressway and similar volume characteristics would occur on other parts of the expressway. If light rail is constructed by replacing the HOV lane, the carrying capacity of the roadway stays near the existing volume (3,965 to 4,325 persons per hour). If instead, the light rail project replaces a general purpose travel lane in each direction, the through volume capacity drops (3,650 to 4,010 persons per hour).

3.3 Travel Times and Speeds on Capitol Expressway

The roadway and light rail travel times and speeds have been estimated for Capitol Expressway both with and without the light rail project. The travel times and speeds are summarized in Table 3-3.

Table 3-3 Capitol Corridor Travel Time and Speed Data

Intersection	Distance (miles)	Traveling Northbound				Traveling Southbound			
		AM		PM		AM		PM	
		Travel time (min)	Speed (mph)	Travel time (min)	Speed (mph)	Travel time (min)	Speed (mph)	Travel time (min)	Speed (mph)
Existing Conditions Roadway Travel Times and Speeds Existing Conditions									
Between Alum Rock & Tully	2.3	7.4	18.6	5.3	26.0	6.9	20.0	7.0	19.7
Between Tully & McLaughlin	2.4	5.3	27.2	6.3	22.9	8.7	16.6	5.0	28.8
Between McLaughlin & SR 87	3.5	8.1	25.9	9.6	21.9	8.1	25.9	5.8	36.2
TOTAL	8.2	20.8	23.7	21.2	23.2	23.7	20.8	17.8	27.6
Roadway Travel Times and Speeds 2010 No Build With HOV (3M1H)									
Between Alum Rock & Tully	2.3	8.0	17.3	5.4	25.4	7.5	18.4	10.3	13.4
Between Tully & McLaughlin	2.4	5.8	24.8	7.8	18.3	9.1	15.8	6.2	23.1
Between McLaughlin & SR 87	3.5	8.4	24.9	9.9	21.3	8.1	25.8	5.9	35.4
TOTAL	8.2	22.2	22.1	23.1	21.3	24.7	19.9	22.5	21.9
Roadway Travel Times and Speeds 2010 Full Build No HOV (3M + LRT)									
Between Alum Rock & Tully	2.3	8.5	16.3	5.4	25.4	7.2	19.2	10.8	12.7
Between Tully & McLaughlin	2.4	6.5	22.1	7.7	18.6	11.1	12.9	6.6	21.7
Between McLaughlin & SR 87	3.5	8.2	25.5	9.5	22.1	8.2	25.7	5.7	37.0
TOTAL	8.2	23.2	21.2	22.7	21.7	26.5	18.6	23.1	21.3
Roadway Travel Times and Speeds 2025 No Build With HOV (3M1H)									
Between Alum Rock & Tully	2.3	9.1	15.2	5.8	23.8	7.5	18.4	10.6	13.0
Between Tully & McLaughlin	2.4	7.0	20.6	8.0	18.0	11.3	12.7	8.2	17.6
Between McLaughlin & SR 87	3.5	8.5	24.7	10.2	20.6	8.5	24.7	6.0	35.0
TOTAL	8.2	24.6	20.0	23.9	20.6	27.3	18.0	24.8	19.8
Roadway Travel Times and Speeds 2025 Full Build No HOV (3M + LRT)									
Between Alum Rock & Tully	2.3	10.4	13.3	8.0	17.3	7.2	19.2	12.2	11.3
Between Tully & McLaughlin	2.4	9.5	15.2	7.9	18.2	11.2	12.9	8.2	17.6
Between McLaughlin & SR 87	3.5	8.3	25.3	9.8	21.4	8.8	23.9	5.8	36.2
TOTAL	8.2	28.1	17.5	25.7	19.1	27.3	18.0	26.3	18.7
Travel Times and Speeds LRT									
Between Alum Rock & Tully	2.3	5.1	27.1	5.1	27.1	5.1	27.1	5.1	27.1
Between Tully & McLaughlin	2.4	5.4	26.7	5.4	26.7	5.4	26.7	5.4	26.7
Between McLaughlin & SR 87	3.5	8.7	24.1	8.7	24.1	8.7	24.1	8.7	24.1
TOTAL	8.2	19.2	25.6	19.2	25.6	19.2	25.6	19.2	25.6

M = mixed flow travel lanes
H = carpool (HOV) lane

The corridor has been separated into three segments. The first segment is from Alum Rock to Tully. The second segment is from Tully to McLaughlin. The third segment is from McLaughlin to SR 87. Travel times and speeds are noted for each segment, during each peak hour, and in each direction along the corridor. Total travel times and speeds are also noted on Table 3-3.

The top section of Table 3-3 indicates the existing travel times along the corridor. In the northbound direction during the AM peak hour, the total travel time is 20.8 minutes and in the southbound direction the total travel time is 23.7 minutes. During the PM peak hour, the northbound travel time is 21.2 minutes and the southbound travel time is 17.8 minutes.

The next section of Table 3-3 is the 2010 No Build condition. The roadway geometry is identical to the existing condition. The travel times are increased and the travel speeds are decreased over the existing conditions because of an increase in traffic volumes.

The next group of travel times and speeds represents the condition where the light rail project replaces the two HOV lanes. Generally, the travel times increase slightly and the travel speeds decrease slightly. Northbound in the PM peak hour, the travel time decreases with the project. The decrease in travel times results from the light rail having priority over the traffic signals along the corridor which provides a benefit to through travel. In the case of northbound travel in the PM peak hour, the benefit of signal priority outweights the loss of the HOV lane.

The next group of travel times and speeds are the 2025 No Build Condition. The roadway geometry is identical to the Existing Conditions with additional traffic representing the 2025 timeline. Overall, the travel speeds are slower and the travel times greater than for any of the 2010 scenarios.

The next group of travel times and speeds represents the 2025 condition with construction of the light rail project. Generally, the travel times increase over the 2025 No Project condition. The effect of light rail signal priority is evident for southbound travel in the AM peak hour where the travel times and speeds are identical for the 2025 No Project and 2025 With Project conditions.

The last group of travel times and speeds on Table 3-3 are for light rail. Light rail operates in semi-exclusive right-of-way and is only affected by automobile traffic at the intersections Light rail will have signal priority at the intersections and, therefore, travels faster than adjacent automobile traffic. Travel times for light trail will be consistent between 2010 and 2025.

3.4 CEQA Significance Thresholds

3.4.1 Traffic Impact Significance Criteria

The traffic impact significance criteria vary with jurisdiction and are detailed below. Table 3-4 summarizes the significance criteria for the Congestion Management Program, the City of San Jose, and VTA. It should be noted that the City's criteria apply to all intersections in San Jose, including CMP intersections.

3.5 Traffic Impacts

The traffic impacts of the Baseline Alternative and the two phases of the LRT Alternative were assessed for the AM and PM peak hours for the 2010 and 2025 horizons. The Baseline Alternative and the two phases of the LRT Alternatives were compared to the No Build Alternative to determine the effects of the Project. The following is a summary of the Baseline and LRT Alternative impacts for each design horizon.

There are several intersections that operate at congested levels indicated by Levels of Service E or F. During the AM peak hour in 2010, seven intersections operate at level of service E or F for the No Project Alternative. The same seven intersections also operate at level of service E or F for the Baseline Alternative. One additional intersection operates at level of service E with the light rail alternatives. During the PM peak hour in 2010, seven intersections operate at level of service E or F for the No Build Alternative. These same seven intersections operate at level of Service E or F for the Baseline Alternative. One additional intersection operates at level of service E with the light rail alternatives.

Similarly, in 2025 several intersections operate at level of service E or F. During the AM peak hour eight intersections operate at level of service E or F for the No Build Alternative. Nine intersections operate at level of service E or F for the Baseline Alternative and for both phases of the Light Rail Alternative. During the PM peak hour in 2025, eight intersections operate at level of service E or F for the No Build. These same eight intersections operate at level of service E or F for the Baseline Alternative and for the first phase of the Light Rail Alternative. One additional intersection operates at congested levels for the second phase of the Light Rail Alternative. Traffic operations at congested levels for any alternative does not represent a significant impact requiring mitigation. Significant impacts are defined by the criteria established in Section 3.4. Traffic operations are defined by level of service (A through F) which are based on the average stopped delay for all vehicles traveling through an intersection. Level of service and the associated delay values were previously defined in Table 2-3. Traffic impacts also use volume-to-capacity ratios (V/C) to determine significant impacts. The V/C is a simple numeric value of the traffic volume through the intersection divided by the intersection capacity.

Table 3-4 Impact Significance Criteria

	Significance Criteria
TRAFFIC	
CMP	LOS declines from LOS E or better for 'No Project' condition to LOS F for 'With Project' condition; or, Critical movement delay increases by four seconds or more *and* volume-to-capacity ratio increases by 0.01 or more at intersections already operating at LOS F under background conditions.
City of San Jose	LOS declines from LOS D or better for 'No Project' condition to LOS E or F for 'With Project' condition; or, Critical movement delay increases by four seconds or more *and* volume-to-capacity ratio increases by 0.01 or more at intersections already operating at LOS E or F under background conditions.
VTA	Cause an intersection's LOS to deteriorate from LOS E (when compared to "No Project"); Cause an increase in the critical volume delay by four seconds or more *AND* increase the critical v/c ratio by 0.01 or more at an intersection already operating at LOS F under "No Project" conditions; Result in a change of two letter grades at an intersection operating at LOS A or B under "No Project" conditions; Add new trips totaling more than one percent of the freeway capacity if a freeway segment is already operating at LOS F Cause a substantial increase in regional vehicle miles traveled (VMT) or vehicle hours traveled (VHT); Cause a substantial diversion of traffic onto a residential street; and, Substantially disrupt traffic operations and/or substantially affect emergency vehicle response.
PARKING	
VTA	Parking Impacts are generally considered significant by VTA if the proposed project would result in: Loss of parking spaces such that the loss results in substantial adverse economic impacts to businesses in the area; A park-and-ride lot where demand is projected to be 105% or more of the lot's planned capacity.
PEDESTRIAN & BICYCLE ACCESSIBILITY	
VTA	Create particularly hazardous conditions for bicyclists or eliminate bicycle facilities, and adequate facilities do not remain to serve the community's needs Result in substantial overcrowding on public sidewalks, create hazardous conditions for pedestrians, or eliminate pedestrian access to adjoining areas.

Sources: CMP, City of San Jose, VTA
Note: City of San Jose and VTA draft criteria apply to all intersections in San Jose, including CMP intersections. Santa Clara County follows CMP criteria.

3.5.1 2010

Table 3-5 summarizes the 2010 AM peak hour traffic operational conditions for the No Build, Baseline Alternative, the first phase of the LRT to Eastridge Alternative, and a second phase of the LRT Alternative to SR 87. Intersections that are significantly impacted are shaded in the table. Table 3-6 shows the PM peak hour traffic operational conditions for the same four alternatives. Again, the significantly impacted intersections are shaded. The future traffic volumes are illustrated graphically in Appendix D. The Project minimum green times and green time adjustments are shown in Appendices E and F respectively. Finally, the TRAFFIX level of service summary sheets are contained in Appendix G.

3.5.1.1 Baseline Alternative

The Baseline Alternative impacts two intersections, both in the AM peak hour. The following is a summary of these impacts.

- Capitol Expressway/Story Road – This intersection is significantly impacted in the AM peak hour by the Baseline Alternative. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Senter Road – This intersection is significantly impacted in the AM peak hour by the Baseline Alternative. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

3.5.1.2 Light Rail Alternative Phase 1 -- Build to Eastridge

The Light Rail Alternative Phase 1 to Eastridge impacts three intersections, two during both peak hour and one during the PM peak hour only. The following is a summary of these impacts.

- Capitol Expressway/Story Road – This intersection is significantly impacted in both the AM and PM peak hours by the Project. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Ocala Road – This intersection is significantly impacted in the PM peak hour by the Project. The level of service changes from level of service D without the Project to level of service E with the Project. This exceeds the significance criteria for the City of San Jose.
- Capitol Expressway/Tully Road – This intersection is significantly impacted during both the AM and PM peak hours by the Project. During the AM peak hour the level of service changes from D without the Project to E with the Project. This exceeds the significance criteria of the City of San Jose. During the PM peak hour the level of service changes from level of service E without the Project to level of service F with the Project. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

Table 3-5 Intersection LOS, Delay and V/C – 2010 AM

2010 AM		CMP?	No Build Alternative			Baseline Alternative			Light Rail Phase 1 to Eastridge			Light Rail Phase 2 to SR 87		
			LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C
1	Capitol	Yes	D+	26.5	0.652	D+	26.6	0.671	D+	26.4	0.712	D+	26.4	0.712
2	Story	Yes	F	60.2	1.003	F	66.2	1.029	F	77.0	1.063	F	77.0	1.063
3	Ocala	No	D	38.2	0.810	D	36.5	0.839	D	36.8	0.867	D	36.8	0.867
4	Cunningham	No	B	7.0	0.692	B	7.2	0.709	B	8.2	0.762	B	8.2	0.762
5	Tully	Yes	D-	35.2	0.927	D-	38.1	0.934	E+	40.8	0.983	E+	40.8	0.983
6	Eastridge	No	A	4.4	0.569	A	4.6	0.585	A	5.0	0.631	A	4.9	0.631
7	Quimby	Yes	E	56.3	0.909	E	50.1	0.900	E-	56.3	0.909	E	52.5	0.960
8	Nieman	No	A	3.2	0.379	A	3.1	0.392	A	3.2	0.379	A	2.9	0.415
9	Aborn	Yes	F	183.2	1.228	F	169.9	1.227	F	183.2	1.228	F	257.1	1.274
10	Silver Creek	Yes	F	113.0	1.241	F	130.0	1.227	F	113.0	1.241	F	135.9	1.294
11	McLaughlin	Yes	E	55.4	0.865	E-	56.2	0.875	E	55.4	0.865	F	69.0	0.865
12	Senter	Yes	F	76.9	1.003	F	82.0	1.023	F	76.9	1.003	F	69.0	1.004
13	Snell	Yes	F	80.0	1.146	F	80.3	1.144	F	80.0	1.146	F	93.8	1.152
14	Vista Park	No	C-	23.9	0.688	C-	23.8	0.685	C-	23.9	0.688	C-	23.3	0.688
15	Narvaez	Yes	D+	27.5	0.659	D	28.2	0.661	D+	27.5	0.659	D+	26.1	0.659

Shaded cells indicate significant impacts.

Table 3-6 Intersection LOS, Delay and V/C – 2010 PM

2010 PM		CMP?	No Build Alternative			Baseline Alternative			Light Rail Phase 1 to Eastridge			Light Rail Phase 2 to SR 87		
			LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C
1	Capitol	Yes	F	93.9	1.060	F	96.1	1.067	F	95.9	1.060	F	95.9	1.060
2	Story	Yes	F	120.6	1.154	F	123.1	1.167	F	156.9	1.217	F	156.9	1.217
3	Ocala	No	D	36.4	0.928	D	36.7	0.93	E+	43.2	1.000	E+	42.8	0.997
4	Cunningham	No	B	7.4	0.697	B	7.4	0.696	B	8.1	0.767	B	8.1	0.767
5	Tully	Yes	E-	57.5	0.850	E-	59.2	0.850	F	62.2	0.824	F	62.2	0.824
6	Eastridge	No	B	8.7	0.559	B	8.9	0.563	B	9.2	0.614	B	8.9	0.614
7	Quimby	Yes	F	62.2	0.850	F	64.2	0.851	F	65.5	0.882	F	65.5	0.882
8	Nieman	No	B	8.4	0.499	B	8.5	0.501	B	8.4	0.499	B	7.5	0.534
9	Aborn	Yes	E	44.5	0.784	E+	43.6	0.778	E	44.5	0.784	E-	56.4	0.813
10	Silver Creek	Yes	F	272.5	1.486	F	268.0	1.479	F	272.5	1.486	F	336.7	1.558
11	McLaughlin	Yes	D	34.7	0.777	D	34.5	0.764	D	34.7	0.777	D	35.2	0.777
12	Senter	Yes	E+	43.1	0.708	E+	42.9	0.697	E+	43.1	0.708	E+	43.6	0.712
13	Snell	Yes	D	31.5	0.435	D	32.4	0.477	D	31.5	0.435	D	29.2	0.617
14	Vista Park	No	D+	26.9	0.798	D+	27.4	0.810	D+	26.9	0.798	D+	26.3	0.798
15	Narvaez	Yes	D	36.0	0.622	D	36.4	0.633	D	36.0	0.622	D	35.4	0.628

- Shaded cells indicate significant impacts.

3.5.1.3 Light Rail Alternative Phase 2 – Build to SR 87

The Light Rail Alternative Phase 2 to SR 87 impacts six intersections, four during both peak hours, one during the AM peak hour only, and one during the PM peak hour only. The following are a summary of these impacts.

- Capitol Expressway/Story Road – This intersection is impacted during both the AM and PM peak hours by the Project. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

- Capitol Expressway/Ocala Avenue -- This intersection is significantly impacted in the PM peak hour by the Project. The level of service changes from level of service D without the Project to level of service E with the Project. This exceeds the significance criteria for the City of San Jose.

- Capitol Expressway/Tully Road – This intersection is significantly impacted during both the AM and PM peak hours by the project. During the AM peak hour the level of service changes from D without the Project to E with the Project. This exceeds the significance criteria of the City of San Jose. During the PM peak hour the level of service changes from E without the Project to F with the Project. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

- Capitol Expressway/Aborn Road – This intersection is significantly impacted by the Project during both the AM and PM peak hours. During the AM peak hour the delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA. During the PM peak hour the delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service E. This exceeds the significance criteria of the City of San Jose.

- Capitol Expressway/Silver Creek Road – This intersection is impacted during both the AM and PM peak hours by the Project. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

- Capitol Expressway/McLaughlin Avenue – This intersection is impacted during the AM peak hour by the Project. The level of service changes from level of service E to level of service F with the Project. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

3.5.2 2025

Table 3-7 summarizes the 2025 AM peak hour traffic operational conditions for the No Build, Baseline Alternative, Light Rail to Eastridge, and Light Rail to SR 87 phases. Intersections that are significantly impacted are shaded in the table. Table 3-8 shows the PM peak hour traffic operational conditions for the same alternatives. Again, the significantly impacted intersections are shaded.

Table 3-7 Intersection LOS, Delay and V/C – 2025 AM

2025 AM		CMP?	No Build Alternative			Baseline Alternative			Light Rail Phase 1 to Eastridge			Light Rail Phase 2 to SR 87		
			LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C
1	Capitol	Yes	D+	27.6	0.717	D+	27.5	0.707	D+	27.9	0.780	D+	27.9	0.780
2	Story	Yes	F	87.6	1.102	F	84.5	1.101	F	116.0	1.167	F	116.0	1.167
3	Ocala	No	D-	40.0	0.894	E+	40.5	0.897	E	47.2	0.956	E+	42.9	0.956
4	Cunningham	No	B	9.3	0.824	B	9.3	0.824	C+	18.0	0.908	C	18.0	0.908
5	Tully	Yes	E	52.9	1.052	E	52.2	1.049	F	70.9	1.120	F	70.8	1.120
6	Eastridge	No	B+	5.4	0.684	B+	5.4	0.684	B+	6.7	0.758	B+	6.4	0.758
7	Quimby	Yes	E-	57.2	0.973	E-	57.5	0.976	E-	57.2	0.973	F	75.3	1.034
8	Nieman	No	A	3.5	0.433	A	3.5	0.430	A	3.5	0.433	A	3.2	0.474
9	Aborn	Yes	F	405.0	1.466	F	461.5	1.491	F	405.0	1.466	F	559.2	1.518
10	Silver Creek	Yes	F	368.1	1.600	F	371.4	1.597	F	368.1	1.600	F	435.1	1.666
11	McLaughlin	Yes	F	90.3	1.066	F	82.2	1.080	F	90.3	1.066	F	118.8	1.066
12	Senter	Yes	F	122.1	1.167	F	127.3	1.212	F	122.1	1.167	F	111.1	1.169
13	Snell	Yes	F	101.6	1.236	F	99.9	1.231	F	101.6	1.236	F	120.6	1.243
14	Vista Park	No	C-	24.8	0.752	C-	24.8	0.752	C-	24.8	0.752	C-	24.7	0.752
15	Narvaez	Yes	D	28.4	0.728	D	28.0	0.724	D	28.4	0.728	D+	27.0	0.728

Shaded cells indicate significant impacts.

Table 3-8 Intersection LOS, Delay and V/C – 2025 PM

2025 PM		CMP?	No Build Alternative			Baseline Alternative			Light Rail Phase 1 to Eastridge			Light Rail Phase 2 to SR 87		
			LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C	LOS	Delay (s)	V/C
1	Capitol	Yes	F	137.2	1.151	F	128.4	1.128	F	148.7	1.151	F	148.7	1.151
2	Story	Yes	F	169.2	1.272	F	150.3	1.238	F	231.2	1.339	F	231.2	1.339
3	Ocala	No	E	46.1	1.015	E+	43.5	1.996	E-	57.9	1.091	E-	57.0	1.088
4	Cunningham	No	B	7.8	0.764	B	7.5	0.736	B	9.2	0.841	B	9.2	0.841
5	Tully	Yes	F	90.4	0.979	F	79.8	0.957	F	107.9	1.009	F	107.8	1.007
6	Eastridge	No	B	9.8	0.632	B	9.5	0.613	B	10.5	0.732	B	10.2	0.725
7	Quimby	Yes	F	112.0	0.996	F	100.3	0.971	F	112.0	0.996	F	116.7	1.033
8	Nieman	No	B	9.0	0.569	B	8.9	0.559	B	9.0	0.569	B	8.4	0.607
9	Aborn	Yes	F	117.2	0.966	F	108.0	0.951	F	117.2	0.966	F	158.1	0.998
10	Silver Creek	Yes	F	603.1	1.835	F	550.3	1.791	F	603.1	1.835	F	767.5	1.915
11	McLaughlin	Yes	D-	38.0	0.873	D-	37.1	0.854	D-	38.0	0.873	E+	40.3	0.873
12	Senter	Yes	E	46.8	0.796	E	46.6	0.764	E	46.8	0.796	E	49.6	0.796
13	Snell	Yes	D	35.4	0.828	D	35.0	0.824	D	35.4	0.828	D-	37.2	0.828
14	Vista Park	No	D	33.3	0.908	D	31.8	0.886	D	33.3	0.908	D	33.1	0.908
15	Narvaez	Yes	D-	39.1	0.717	D-	38.9	0.704	D-	39.1	0.717	D-	38.1	0.717

Shaded cells indicate significant impacts.

3.5.2.1 Baseline Alternative

The Baseline Alternative impacts three intersections, all in the AM peak hour. The following is a summary of these impacts.

- Capitol Expressway/Ocala Avenue – This intersection is impacted during the AM peak hour by the Baseline Alternative. The level of service changes from level of service D to level of service E. This exceeds the significance criteria of the City of San Jose
- Capitol Expressway/Aborn Road – This intersection is impacted during the AM peak hour by the Baseline Alternative. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Senter Road -- This intersection is significantly impacted in the AM peak hour by the Baseline Alternative. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

3.5.2.2 Light Rail Alternative Phase 1 – Build to Eastridge

The Light Rail Alternative Phase 1 to Eastridge impacts four intersections, three during both peak hours and one during the PM peak hour only. The following is a summary of these impacts:

- Capitol Expressway/Capitol Avenue – This intersection is impacted during the PM peak hour by the Project. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Story Road – This intersection is significantly impacted in both the AM and PM peak hours by the Project. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Ocala Road – This intersection is significantly impacted in the both the AM and PM peak hours by the Project. The level of service changes from level of service D without the Project to level of service E with the Project. This exceeds the significance criteria for the City of San Jose.
- Capitol Expressway/Tully Road – This intersection is significantly impacted during both the AM and PM peak hours by the Project. During the AM peak hour the level of service changes from D without the Project to E with the Project. This exceeds the significance criteria of the City of San Jose. During the PM peak hour the level of service changes from level of service E without the Project to level of service F with the Project. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

3.5.2.3 Light Rail Alternative Phase 2 -- Build to SR 87

The Light Rail Alternative Phase 2 to SR 87 impacts eight intersections, six during both peak hours, and two during the PM peak hour only. The following are a summary of these impacts.

- Capitol Expressway/Capitol Avenue – This intersection is impacted during the PM peak hour by the Project. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Story Road – This intersection is impacted during both the AM and PM peak hours by the Project. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Ocala Avenue -- This intersection is significantly impacted by the Project in both the AM and PM peak hours by the Project. During the AM the level of service changes from level of service D without the Project to level of service E with the Project. This exceeds the significance criteria of the City of San Jose. During the PM peak hour the delay value and volume to capacity ratio are exceeded for an intersection operating at level of service E. This also exceeds the significance criteria of the City of San Jose.
- Capitol Expressway/Tully Road – This intersection is significantly impacted during both the AM and PM peak hours by the project. During the AM peak hour the level of service changes from D without the Project to E with the Project. This exceeds the significance criteria of the City of San Jose. During the PM peak hour the level of service changes from E without the Project to F with the Project. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Quimby Road – This intersection is significantly impacted by the Project in both the AM and PM peak hours. During the AM peak hour the level of service changes from level of service E to level of service F. During the PM peak hour the delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. These options exceed the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Aborn Road – This intersection is significantly impacted by the Project during both the AM and PM peak hours. The delay value and volume to capacity ratio are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.
- Capitol Expressway/Silver Creek Road – This intersection is impacted during both the AM and PM peak hours by the Project. The delay values and volume to capacity ratios are exceeded for an intersection already operating at level of service F. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

- Capitol Expressway/McLaughlin Avenue – This intersection is impacted during the PM peak hour by the Project. The level of service changes from level of service D to level of service E with the Project. This exceeds the significance criteria of the City of San Jose.

3.5.3 Design Options

Five design options to the Project have been assessed with respect to traffic operations. These design options and the associated level of service are discussed below.

3.5.3.1 <u>Pedestrian Grade Separation at Story Road.</u>

The base option assumed that light rail passengers at Story Road would access the platform by crossing at-grade into the median of the expressway and accessing the platform via stairs or elevators. An option has also been developed whereby light rail passengers would access the platforms via pedestrian overcrossings. This would reduce the number of pedestrian actuated signal phases.

The analysis found that no change in intersection level of service would result with pedestrians crossing onto the light rail platforms via grade separation because the time required to serve the Story Road cross street traffic is sufficient to also serve the pedestrian traffic.

3.5.3.2 <u>Single Southbound Left Turn at Ocala Avenue</u>

To reduce the amount of right-of-way takes required by the Light Rail Alternatives a design option considered eliminating one of the southbound left turn lanes at Ocala Avenue. This option increased the average vehicle delay in 2010 from 36.8 to 51.2 in the AM peak and from 43.2 to 54.6 in the PM peak. In 2025 the increased delay is from 47.2 to 70.3 in the AM peak and from 57.9 to 77.6 in the PM peak. This exceeds the significance criteria for CMP, the City of San Jose, and VTA.

3.5.3.3 <u>Light Rail Side Running At-Grade at Eastridge Road and Quimby Road</u>

Another option considered maintaining light rail side running from Eastridge into the Arcadia property (currently a vacant 89-acre parcel approximately 1,300 feet south of Quimby Road on the west side of Capitol Expressway) before it would transition back into the median of the expressway. The crossing of Eastridge Road and Quimby Road at-grade would affect traffic operations. Additionally, these crossings would need to be gated and when light rail arrived the signals would be pre-empted in order to clear any auto vehicles on the tracks. This would interrupt the signal progression along Capitol Expressway and because of the frequency of light rail movements, returning to progressive traffic movements after light rail had passed would be unlikely. With light rail operating on 10 minute headways, a train will affect every other cycle. Because it will take up to two signal cycles to return to progression, side running operations will, in effect, prevent signal progression for this portion of the corridor. This would represent a significant impact for the at-grade option.

3.5.3.4 Grade Separation at Aborn Road

An option is being considered that grade separates the light rail corridor at Aborn Road. With at-grade operations of light rail through the intersection, delay is increased, but the volume to capacity ratio does not increase to a significant level; therefore, this is not considered a significant impact. Grade separation, however, would eliminate any increase in delay.

3.5.3.5 Grade Separation at McLaughlin

An option is being considered that grade separates the light rail corridor over US 101 on a separate light rail structure north of the US 101/Capitol Expressway Interchange. The grade separation would need to be continued through the McLaughlin intersection because of design requirements. With at-grade operations of light rail through the McLaughlin intersection, delay is increased, particularly in the PM peak hour. With grade separation of light rail, no increase in delay would occur. The at-grade operations resulted in a significant impact in the AM peak hour for the full build project. Grade separation did not trigger a significant impact.

3.6 Transit Network

The more comprehensive and seamless a transit network is, the more success it is likely to achieve. Connections between different public transport modes and systems tend to attract more transit riders and bolster patronage for all connecting services. As such, the VTA emphasizes multi-modal public transport connections wherever those connections are feasible.

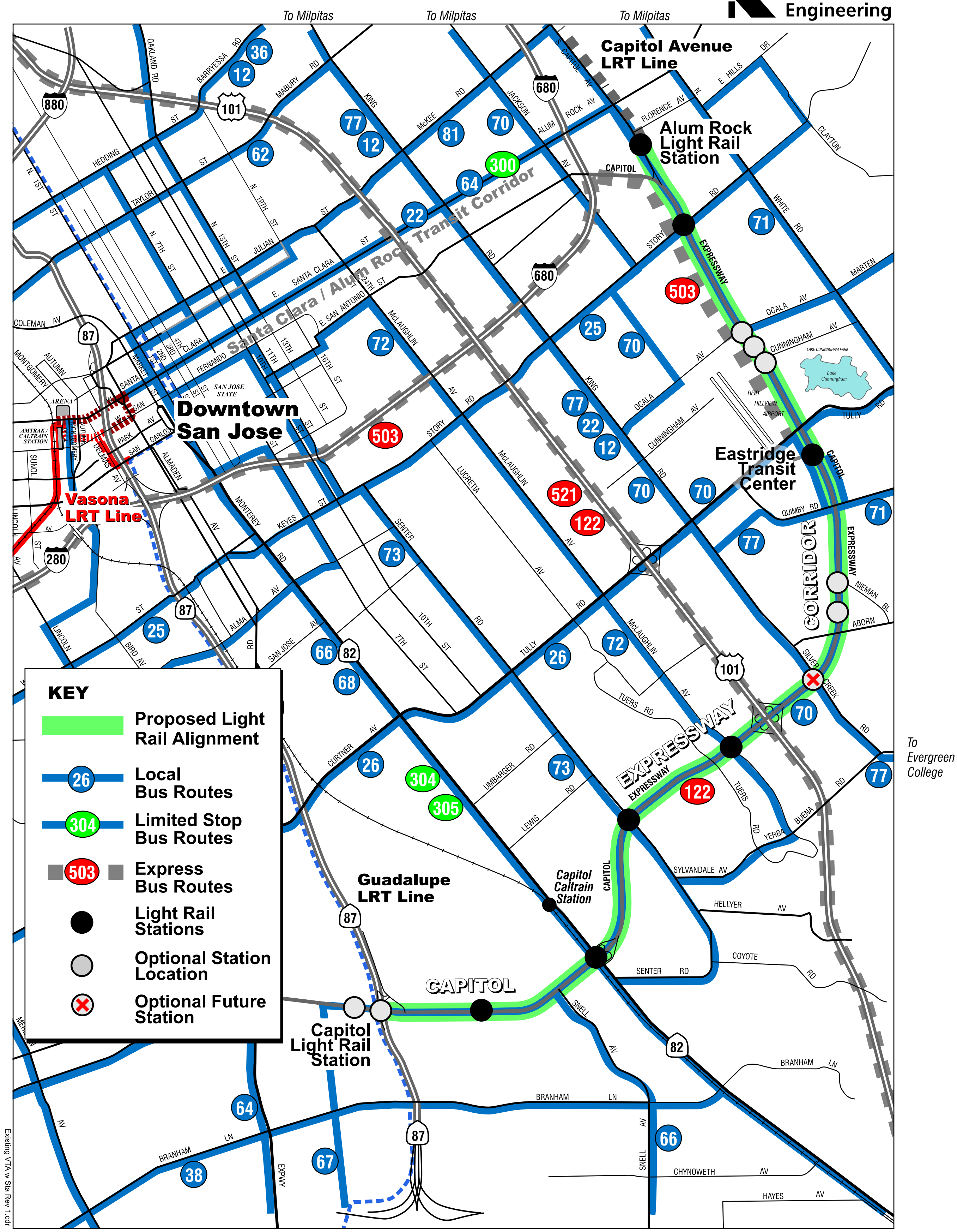
In the Capitol Expressway corridor, the future light rail line would connect with the East Valley bus services operated by the VTA. As well, Caltrain commuter rail service operated by the Joint Powers Board could connect with the light rail line through a new multi-modal facility at Monterey Highway.

3.6.1 VTA Public Transit

The connectivity of the transit network in the East Valley will depend upon strong linkages between the light rail line and the supporting bus services. Current bus service in the study area centers on Eastridge Transit Center for the terminus of most local and regional routes, with connections available here between most lines in the area. Figure 3-5 presents a map of the existing VTA bus network for the East Valley with the proposed light rail line and stations overlaid for reference.

Once light rail is constructed on Capitol Expressway, the VTA will have the opportunity to reorganize the structure of the area's bus lines to interface with the high level of transit service provided by the new fixed rail link. Specific future operating plans for bus lines will not be completed in the Conceptual Engineering phase of the Capitol Expressway light rail project. Instead, they will be finalized closer to the time that the light rail line will go into operational service.

Korve Engineering



July 2002
Rev 6/17/03

DOWNTOWN EAST VALLEY CAPITOL EIR

Figure 3-5

EXISTING TRANSIT NETWORK and PROPOSED LIGHT RAIL STATIONS

Certain possible route changes have been identified, however, in order to plan the size of transit facilities and complete the environmental studies. Specifically, the routes around Eastridge Transit Center and a proposed Monterey Transit Center have been reviewed to assess how many bus stalls could be needed at each of the facilities. Table 3-9 outlines potential actions that may be taken to reorganize the bus network.

Table 3-9 Potential Future Bus Integration Actions

Line	Proposed Action	Potential Impacts
12	Keep.	Meets LRT at Eastridge Station. Needs stop in Eastridge bus exchange.
22	Becomes BRT Line.	Meets LRT at Eastridge Station. Needs stop in Eastridge bus exchange. Articulated buses.
25	Keep.	Meets LRT at Story Station.
26	Keep.	Meets LRT at Eastridge Station. Needs stop in Eastridge bus exchange.
30	Revise circle route.	Meets LRT at Eastridge & Nieman Stations. Needs stop in Eastridge bus exchange.
31	Keep.	Meets LRT at Eastridge & Nieman Stations. Needs stop in Eastridge bus exchange.
37	Terminate at Monterey Station.	Meets LRT at Capitol, Vista Park & Monterey Stations. Needs stop in Monterey bus exchange.
38	Reroute along Snell. Terminate at Monterey Station.	Removes service from portion of Monterey Hwy. Meets LRT at Monterey Station. Needs stop in Monterey bus exchange.
39	Revise circle route.	Meets LRT at Eastridge & Ocala Stations. Needs stop in Eastridge bus exchange.
64	Part of Santa Clara/Alum Rock transit project.	Meets LRT at Alum Rock Station.
66	Reroute through Monterey Station & on Snell.	Removes service from portion of Monterey Hwy. Meets LRT at Monterey Station. Needs stop in Monterey bus exchange (not terminus).
67	Keep.	Meets LRT at Capitol Station.
68	Keep.	Meets LRT at Monterey Station. Connection to other buses at Monterey Station could be awkward from bus stops on Monterey Highway.
70	Remove detour to King Road. Run down Capitol Expwy. Terminate at Eastridge.	Meets LRT at Eastridge & Ocala Stations. Needs stop in Eastridge bus exchange. (Terminates at Eastridge only if LRT continues to Hwy 87.)
71	Reroute along Tully instead of Quimby.	Meets LRT at Eastridge Station. Needs stop in Eastridge bus exchange. Service on Quimby replaced by circle route(s).
72	Remove detour south of Capitol Expwy. Terminate at Monterey Station. Introduce new route for southern extension.	Meets LRT at McLaughlin, Senter & Monterey Stations. Needs stop in Monterey bus exchange. New route south of Monterey Station. New circulator route for neighborhood service.

Line	Proposed Action	Potential Impacts
73	Remove detour south of Capitol Expwy. Terminate at Monterey Station.	Meets LRT at Senter & Monterey Stations. Needs stop in Monterey bus exchange. New circulator route for neighborhood service.
74	Delete service.	Replaced by LRT service.
77	Remove detour to Eastridge. Keep on King Road.	Meets LRT at Silver Creek Station. Access to Eastridge would require transfer.
122	Keep.	Meets LRT at McLaughlin, Senter & Monterey Stations. Would stop on the street at Monterey Station.
300	Part of (Santa Clara/Alum Rock transit project.	Meets LRT at Alum Rock Station.
304 & 305	Replace with Monterey BRT.	Meets LRT at Monterey Station. Connection to buses at Monterey Station could be awkward. May access exchange (not terminus). Articulated buses.
321	Delete service.	Replaced by LRT service.
345	Delete service.	Replaced by LRT service.
503	Maintain.	Meets LRT at Story, Ocala & Eastridge Stations. Needs stop in Eastridge bus exchange.
New	Introduce new long-haul line south of Monterey Station. Replace southern extension of Line 72.	New route. Meets LRT at Monterey Station. Needs stop in Monterey bus exchange.
New	Introduce new local route around Monterey Station. Terminate at Monterey Station.	New route. Meets LRT at Capitol, Monterey, Senter & McLaughlin Station. Needs stop in Monterey bus exchange.

Source: VTA and Korve Engineering, Inc., 2002

At Eastridge Transit Center, the majority of existing routes are assumed to still be operating when light rail service opens. However, the new light rail line will replace limited-stop services (Lines 321 and 345). With approximately nine bus lines using the facility (eight as a terminus), ten bus bays would be needed to provide a stall for each route, in each direction. Including two stalls for future expansion, the reconstructed bus loop should provide approximately 12 stalls for active buses in addition to layover areas for the eight terminating bus routes.

For the Monterey Transit Center, the current bus transfer location at Monterey Highway and Senter Road would be shifted to the proposed bus exchange. Six bus routes would then use the new facility, four as their termini. Including stalls for two new lines to serve local market areas and two stalls for future expansion, approximately 12 stalls would be required in the new facility. Layover space would be necessary for up to six vehicles.

In both transit centers, some stalls will be required to accommodate articulated buses, since the Line 22 Bus Rapid Transit (BRT) and the Monterey BRT may provide service to the exchanges. These stalls are included in the total stall estimates for each facility. Table 3-10 summarizes the requirements of the proposed Eastridge and Monterey Transit Centers with the construction of light rail in the corridor. The existing transit center at Eastridge would be expanded and a new transit center would be constructed at Monterey Highway serving both light rail and the relocated Caltrain Station.

Table 3-10 Proposed Transit Center Requirements

	Eastridge	Monterey
Existing lines	14	8
Existing bus stalls *	10	No off-street facilities
Proposed Bus Stalls with light rail**		
For projected service	10	10
For light rail expansion	2	2
Layover spaces required ***	8	6
Total	20	18

Source: VTA and Korve Engineering, Inc., 2002

* Not all bus stalls are currently in use.

** Bus stall requirements include two stalls for each through route (one for each direction) and one stall for each terminating route. They do not include any shared bus stops which could reduce the number of total stalls needed.

*** Layover spaces have been estimated based on one space for each terminating route.

3.6.2 Caltrain Service

Caltrain commuter rail service links Gilroy and San Francisco via San Jose, Palo Alto, and Redwood City. In the East Valley study area, Caltrain runs parallel to Monterey Highway. The closest Caltrain station to the Capitol Expressway corridor is located approximately 2,000 feet north at the intersection of Monterey Highway and Fehren Avenue.

Both light rail and Caltrain passengers could benefit from making the connection easier between the Monterey Light Rail Station and the Caltrain Capitol Station. To do so, the VTA and the Joint Powers Board may consider a cooperative effort to relocate the Caltrain station to include it, and its park-and-ride lot, in a new Monterey Transit Center.

An initial conceptual plan has the light rail station located on the Capitol Expressway overcrossing with vertical transfers available at each end. On the east end, the connection would link to the east side of Monterey Highway, where pedestrians and Monterey BRT passengers could access the light rail system. The vertical connection on the west end of the station platform would connect to a relocated Caltrain station platform along the western edge of the train tracks. A park-and-ride lot and bus exchange would be constructed nearby to satisfy light rail and Caltrain demands; multiple sites are being considered for the park-and-ride lot and bus exchange (see *Park & Ride Facilities*).

3.7 Park & Ride Facilities

Park-and-ride facilities will be available for use by Capitol Expressway light rail passengers. Three of the future light rail stations along the Capitol Expressway LRT Line already have park-and-ride facilities constructed next to them: Alum Rock Station, Eastridge Transit Center Station, and Capitol Station. Two additional new park-and-ride lots may be constructed to serve the Ocala Station and Monterey Station. For those lots at Alum Rock and Capitol Stations, no modifications to their geometry are anticipated. The facility at Eastridge Station would be redesigned and expanded to satisfy future demand when the light rail station is constructed. Table 3-11 provides information about the areas around the five park-and-ride lots.

A range of park-and-ride demand is noted in Table 3-11 which is based on projected demand from 2010 to 2025. The modeling process used to estimate park-and-ride demand tends to over estimate the number of people arriving at a light rail station and parking their car for the day. Historically, VTA has found more individuals arrive by walking, being dropped off or transferring from a bus than estimated by the model, resulting in an overestimation of the park-and-ride demand. The park-and-ride demand projection included both parking spaces that will be occupied by a vehicle during the majority of the day, and also for kiss-and-ride drop-offs. Approximately five percent of the park-and-ride spaces will be designed and signed for kiss-and-ride.

Table 3-11 Proposed Park-and-Ride Sites and Estimated Demand and Capacity for the Light Rail Alternative

Proposed Station	Notes	Estimated Peak Park-and-Ride	
		Demand	Capacity
Alum Rock-Existing	The existing park-and-ride lot could support the Light Rail Alternative. No change in capacity (currently 105) is proposed. The total demand also includes park-and-ride spaces required to serve the Capitol Light Rail Line.	60 to 90	105[1]
Ocala Avenue/Eastridge Transit Center Area	The Ocala Avenue Station and Eastridge Transit Center essential function as one area to serve park-and-ride needs. A new park-and-ride lot on the southwest corner of Ocala Avenue/Capitol Expressway could provide approximately 100 parking stalls. However, if there is no park-and-ride at Ocala Avenue this demand would shift to the Eastridge location and there would be a greater expansion of spaces at the Eastridge Transit Center. The Eastridge Transit Center park-and-ride could be expanded beyond its current capacity of 133 parking stalls to meet the peak demand of 550 parking spaces.	250 to 550	250 to 550
Monterey Highway-Options	One or a combination of the three options under considerations for the Light Rail Alternative can accommodate up to 300 parking stalls. Multi-modal connections with the relocated Caltrain Station and new bus transit center will be provided. The total demand includes 100 parking stalls for the relocated Caltrain Station.	260 to 300	260 to 300
SR 87 (Capitol)-Existing	Existing facility has over 900 stalls (including both north and south park-and-ride lots). Estimated demand can be accommodated without expansion. The total demand also includes park-and-ride spaces required to serve the Guadalupe Light Rail Line.	310 to 375	914[1]

1 Existing park-and-ride spaces

Source: Korve Engineering 2003

Park-and-ride demand is noted jointly for the Ocala Avenue and Eastridge Transit Center Stations. The maximum peak demand for the Eastridge Transit Center park-and-ride would be in 2025 under the scenario where light rail is constructed only to Eastridge Transit Center and no park-and-ride facilities are provided at Ocala Avenue. The demand could be 250 to 550 vehicles. Approximately 265 park-and-ride spaces are proposed to be incorporated into the project through the addition of parking on existing VTA property and expansion of park-and-ride spaces onto Eastridge property. Because of the extensive bus access to the Eastridge transit center, the full demand for park-and-ride may not be realized, or not realized in the time periods indicated by the travel demand model. VTA will monitor park-and-ride demand at Eastridge and expand parking past the 265-space level if demand warrants.

At the Monterey Station, the demand is estimated to be between 260-300 stalls. (Both of these figures include 100 stalls for the demand associated with service at a relocated Caltrain station.) The capacities of the three sites under consideration for the park-and-ride lot range from 260 to 500 stalls. Because the transportation model tends to overestimate park-and-ride demand and historically VTA has experienced fewer people parking at the park-and-ride than was projected, there would be sufficient capacity to accommodate the demand at any of the three sites considered for the Monterey Station park-and-ride lot. The park-and-ride lots at Alum Rock Station and Capitol Station are expected to have capacity enough to handle the estimated peak park-and-ride demand.

3.8 Pedestrians & Bicycles

The streetscape concept is designed to transform the Capitol Expressway from a single purpose limited access expressway to a multi-modal parkway boulevard. It will be designed as a pedestrian and bicycle-friendly 'green' street featuring a continuous multi-use path along the east/south side of the roadway to the Nieman Boulevard intersection. The frontage roads will be incorporated as an integral part of the overall right-of-way design to improve pedestrian and bicyclist transitions from existing residential neighborhoods to the boulevard.

The multi-use path will be a ribbon of greenway approximately 22 feet wide with a 10-foot pathway dedicated to pedestrians and bicyclists. It will link with other greenways in the East Valley study area. In particular, strong connections with Lake Cunningham Park and the Coyote Creek Park Chain trail could be accommodated by the light rail project design. The trail could interface with cross-street sidewalks and bicycle facilities (where applicable) to permit penetration into residential neighborhoods and to support pedestrian and cyclist activity to and from the light rail stations.

The light rail project will maintain existing pedestrian intersection crossings. Where pedestrian crossings are permitted under existing conditions, those crossings would be possible in the future, although some crossings may be extended by a wider expressway cross-section. At all intersections along the at-grade portions of the light rail line, pedestrians crossing Capitol Expressway will walk across rail tracks. These crossings will have gates, fences, and/or signals as deemed necessary under the California Public Utilities Commission General Orders.

Additionally, pedestrian overcrossings have been included in, or are options for, the design of stations at Story Road, Senter Road, Silver Creek Road, and McLaughlin Road. These overcrossings would serve not only light rail passengers but also pedestrians seeking to avoid crossing the expressway at grade.

3.9 Goods Movement

The project will not impact the movement of goods along the corridor. For a portion of the corridor the HOV lanes are being removed. However, the HOV lane is generally not used for the movement of goods. There is no change in access proposed for the corridor. All vehicle movements than can occur today will be allowed with construction of the project.

3.10 Parking

The construction of the Capitol Expressway Light Rail Project will not change the parking conditions on Capitol Expressway. Currently, no parking is permitted on the expressway, and future conditions will not include parking on the facility. However, Capitol Avenue parking will be removed on both sides of the street from Wilbur Avenue to Capitol Expressway to enable construction of the light rail.

The Project does, however, reconfigure the frontage roads on the west side of Capitol Expressway from Excalibur to north of Story Road and on the east side from Mervyns Way to just north of Ocala Avenue. With the Project, the frontage roads will be narrowed and parking will only be allowed on one side. The parking is proposed to be provided on the outside (expressway side) to maximize the number of spaces. Parking on the inside (non-expressway side) is not as efficient because of the numerous driveway curb cuts.

Table 3-12 indicates the amount of existing parking use by segment along the frontage roads. The parking use is observed through field investigations at 4:30 AM. The land uses along the frontage roads are residential and the demand at 4:30 AM represents the maximum demand.

Also noted on Table 3-12 is the parking supply by segment. The parking supply assumes that parking is restricted to the outside of the frontage road. At one location, between Kollmar Drive and Sussex Drive, on the east side of Capitol Expressway, a total of 15 parked vehicles were observed. The Project will eliminate all parking in this segment and these vehicles will be displaced to adjacent streets where sufficient excess parking exists.

Table 3-12 Frontage Road Parking

Location	Current Use	Proposed Supply
Westside of Capitol Expressway between Excalibur and Story	31	43
Eastside of Capitol Expressway between Mervyns Way and Story	1	27
Eastside of Capitol Expressway between Kollmar Drive and Sussex Drive	15	0
Eastside of Capitol Expressway between Sussex Drive and Bristol	7	30
Eastside of Capitol Expressway between Bristol and Coventry	5	23
Eastside of Capitol between Coventry and Woodmoor	6	26
Eastside of Capitol between Woodmoor and North of Ocala	16	30

3.11 Community Access

The Capitol Expressway Light Rail Project will not impede any access that is currently offered from the expressway. All intersection movements that are possible before construction will be possible after the project is implemented. And since light rail will operate in the median of the expressway, no right turn in/out access to commercial developments will be removed. Thus, all community features in the study area will have their access maintained.

The project will, however, disrupt access along Capitol Avenue. Between Wilbur Avenue and Capitol Expressway, Westboro Drive (east of Capitol Avenue) and Lombard Avenue (west of Capitol Avenue) will be converted to right in/out only due to the construction of the light rail. Westboro Drive has alternative access from within the neighborhood that motorists on southbound Capitol Avenue can access from Wilbur Avenue. Lombard Avenue, on the other hand, does not have alternative access. Northbound motorists on Capitol Avenue will require a U-turn at Wilbur Avenue to backtrack to Lombard Avenue. Another minor change in local circulation occurs near the intersection of Capitol Expressway and Story Road. In the southeast quadrant of Capitol Expressway and Story Road, Kollmar Drive will be cul-de-saced. Vehicles continuing to use Kollmar Drive will need to circulate back to Story Road. Traffic on Capitol Avenue that currently uses Kollmar Drive will use Sussex Drive to McGinness Avenue.

The project will also lengthen some pedestrian crosswalks, and most pedestrians that cross the expressway will walk across rail tracks. These conditions should affect only those pedestrians using the community features that are within walking distance of the expressway and light rail stations.

3.12 Intersection Queuing

Left turn queuing was calculated at the major intersections along Capitol Expressway for the future conditions. Table 3-13 summarizes the projected queues for 2010 and Table 3-14 summarizes the projected queues for 2025. The left turn bays that were found to exceed capacity in the existing scenario also exceed capacity in the future design years.

Intersections where the left turn bays are projected to exceed the storage capacity were compared to those intersections that are projected to have a significant impact for the Light Rail Alternative. The only intersection that is projected to be significantly impacted by the Light Rail Alternative that also is projected to have an overflow of the left turn storage bays on Capitol Expressway is the southbound left turn at Tully Road. At Tully Road, light rail will be grade separated and the overflow of the left turn bay is not associated with the Proposed Project.

3.13 Safety & Security

3.13.1 Safety

Passenger safety will be protected at each station by railings along the platform and fencing the alignment adjacent to the station, providing crosswalks or grade-separated pedestrian overcrossings to the station from the surrounding roadways, and by providing adequate pedestrian waiting areas at crossings. The light rail project will meet or exceed CPUC requirements for safety. At applicable locations, walkways will be designated within station areas to connect the light rail platform to the parking areas, bus stops and platforms, and automobile passenger pick-up and drop-off areas.

Table 3-13 Arterial Queuing Summary – 2010 With Project Conditions

		NBL		SBL		EBL		WBL		Cycle	Queue/Lane (FT)				Ext. Storage (FT)				Over Capacity? (Y=Yes, N=No)			
		Vol	Lanes	Vol	Lanes	Vol	Lanes	Vol	Lanes		NBL	SBL	EBL	WBL	NB	SB	EB	WB	NB	SB	EB	WB
Capitol	AM	20	1	260	2	40	1	400	2	150	25	150	50	200	260	335	60	450	N	N	N	N
	PM	20		560		60		970		150	25	300	25	500					N	N	Y	Y
Story	AM	460	2	730	2	200	2	220	1	150	250	375	100	275	325	425	175	300	N	N	N	N
	PM	120		1,060		180		250		150	75	550	100	275					N	Y	N	N
Ocala	AM	160	1	410	2	70	1	130	1	180	200	250	100	175	325	375	200	150	N	N	N	Y
	PM	240		860		130		170		160	275	475	150	200					N	Y	N	Y
Cunningham[1]	AM	40	1	50	1	10	1	40	1	124	50	50	25	50	300	315	AP	AP	N	N	NA	NA
	PM	40		70		60		50		150	50	75	75	50					N	N	NA	NA
Tully	AM	120	2	170	2	370	2	270	2	150	75	100	200	150	325	375	275	200	N	N	N	N
	PM	50		1,140		440		360		150	25	600	225	200					N	Y	N	N
Eastridge	AM	150	2	-	-	30	2	-	-	100	50	-	25	-	300	-	125	-	N	-	N	-
	PM	200		-	-	190		-	-	100	75	-	75	-					N	-	N	-
Quimby	AM	220	2	310	2	50	1	830	2	150	125	175	50	425	300	360	185	190	N	N	N	Y
	PM	330		640		80		330		150	175	350	100	175					N	N	N	N
Nieman	AM	-	-	150	2	-	-	-	-	150	-	75	-	-	-	350	-	-	-	N	-	-
	PM	-	-	570	-	-	-	-	-	150	-	300	-	-					-	N	-	-
Aborn	AM	110	1	470	2	170	1	1,640	2	150	125	250	175	850	235	325	225	275	N	N	N	Y
	PM	150		280		260		720		150	150	150	275	375					N	N	N	Y
Silver Creek	AM	780	2	160	2	70	1	1,140	2	150	400	100	75	600	615	260	185	200	N	N	N	Y
	PM	580		520		140		790		150	300	275	150	400					N	Y	N	Y
McLaughlin[2,3]	AM	400	1	670	2	470	2	90	1	150	425	400	250	100	135	AP	325	250	Y	NA	N	N
	PM	170		660		340		210		150	175	350	175	225					Y	NA	N	N
Senter	AM	300	1	670	1	420	2	220	2	150	325	700	225	125	200	400	300	450	Y	Y	N	N
	PM	180		500		280		400		150	200	525	150	200					N	Y	N	N
Snell	AM	630	2	630	2	370	2	330	2	150	325	325	200	175	300	300	450	375	Y	Y	N	N
	PM	310		420		80		460		150	175	225	50	250					N	N	N	N
Vista Park	AM	310	2	100	1	40	1	80	1	150	175	100	50	100	115	300	160	375	Y	N	N	N
	PM	210		270		40		160		150	125	275	50	175					N	N	N	N
Narvaez[4]	AM	130	2	100	2	300	2	110	2	150	75	50	150	50	AP	AP	300	200	NA	NA	N	N
	PM	80		470		330		80		150	50	250	175	50					NA	NA	N	N

Source: Korve Engineering, Inc., 2002
[1] Both EB & WB are shared left through lanes with approach phasing
[2] SB left is exclusive and shared left through lane with approach phasing
[3] EB left contains two 250 ft lanes and 400 ft of single lane for storage, average of 325 ft per lane has been used
[4] Both NB & SB are shared left through lanes with approach phasing
Required storage per vehicle 25 feet.

Table 3-14 Arterial Queuing Summary – 2025 With Project Conditions

		NBL		SBL		EBL		WBL		Cycle	Queue/Lane (FT)				Ext. Storage (FT)				Over Capacity? (Y=Yes, N=No)			
		Vol	Lanes	Vol	Lanes	Vol	Lanes	Vol	Lanes		NBL	SBL	EBL	WBL	NB	SB	EB	WB	NB	SB	EB	WB
Capitol	AM	20	1	290	2	50	1	430	2	150	25	150	50	225	260	335	60	450	N	N	N	N
	PM	20		600		70		1,090		150	25	325	75	575					N	N	Y	Y
Story	AM	500	2	800	2	240	2	230	1	150	275	425	125	250	325	425	175	300	N	N	N	N
	PM	140		1,120		210		280		150	75	575	125	300					N	Y	N	N
Ocala	AM	180	1	450	2	90	1	140	1	180	225	225	125	175	325	375	200	150	N	N	N	Y
	PM	280		910		150		190		160	325	500	175	225					N	Y	N	Y
Cunningham[1]	AM	50	1	60	1	10	1	40	1	124	50	50	25	50	300	315	AP	AP	N	N	NA	NA
	PM	40		70		70		50		150	50	75	75	50					N	N	NA	NA
Tully	AM	150	2	180	2	460	2	260	2	150	75	100	250	150	325	375	275	200	N	N	N	N
	PM	70		1,250		520		400		150	50	650	275	200					N	Y	N	Y
Eastridge	AM	180	2	-	-	40	2	-	-	100	75	-	25	-	300	-	125	-	N	-	N	-
	PM	260		-	-	280		-	-	100	100	-	100	-					N	-	N	-
Quimby	AM	260	2	340	2	60	1	780	2	150	150	175	75	400	300	360	185	190	N	N	N	Y
	PM	420		700		100		370		150	225	375	100	200					N	Y	N	Y
Nieman	AM	-	-	190	2	-	-	-	-	150	-	100	-	-	-	350	-	-	-	N	-	-
	PM	-	-	200	-	-	-	-	-	150	-	100	-	-					-	N	-	-
Aborn	AM	130	1	590	2	240	1	1,970	2	150	150	300	250	1025	235	325	225	275	N	N	Y	Y
	PM	170		330		340		960		150	175	175	350	500					N	N	Y	Y
Silver Creek	AM	880	2	200	2	100	1	1,370	2	150	475	100	100	725	615	260	185	200	N	N	N	Y
	PM	640		610		180		1,050		150	350	325	200	550					N	Y	Y	Y
McLaughlin[2,3]	AM	480	1	760	2	500	2	100	1	150	500	400	275	100	135	AP	325	250	Y	NA	N	N
	PM	180		730		380		240		150	200	400	200	250					Y	NA	N	N
Senter	AM	350	1	770	1	440	2	260	2	150	375	800	225	150	200	400	300	450	Y	Y	N	N
	PM	200		550		320		460		150	200	575	175	250					Y	Y	N	N
Snell	AM	640	2	730	2	400	2	160	2	150	350	375	200	100	300	300	450	375	Y	Y	N	N
	PM	510		460		90		470		150	275	250	50	250					N	N	N	N
Vista Park	AM	310	2	120	1	40	1	90	1	150	175	125	50	100	115	300	160	375	Y	N	N	N
	PM	340		300		40		170		150	175	325	50	175					Y	Y	N	N
Narvaez[4]	AM	140	2	120	2	320	2	120	2	150	75	75	175	75	AP	AP	300	200	NA	NA	N	N
	PM	130		520		370		150		150	75	275	200	75					NA	NA	N	N

Source: Korve Engineering, Inc., 2002
[1] Both EB & WB are shared left through lanes with approach phasing
[2] SB left is exclusive and shared left through lane with approach phasing
[3] EB left contains two 250 ft lanes and 400 ft of single lane for storage, average of 325 ft per lane has been used
[4] Both NB & SB are shared left through lanes with approach phasing
Required storage per vehicle 25 feet.

Pedestrian crosswalks along Capitol Expressway will be designed to provide suitable places of refuge for pedestrians where they cross the light rail trackway. Pedestrian signal activation push buttons will be included at all intersections and added to the medians at station platforms.

Along the expressway there are periodic pullouts for disabled vehicles. The Light Rail Alternative will provide vehicle refuge areas with the project.

3.13.2 Security

Station platforms will be designed and located to be visible from the adjacent roadways. All platforms and park-and-ride lots will be lighted in the evening and night-time hours to enhance security. VTA security will patrol all facilities on a regular basis to maintain passenger security.

3.14 Construction Effects

Construction of light rail transit on Capitol Expressway would take place over several years. At the height of construction, a number of construction employees and equipment would occupy portions of the street including the median at active construction locations. In the most active areas, construction would periodically reduce Capitol Expressway from six lanes to four lanes, two in each direction at various times during non peak hours. As a result, construction activity on Capitol Expressway would impact traffic and the LOS at intersections and the capability of transit service to adhere to the published schedules.

The construction schedule, mitigations of construction impacts and public outreach on the two segments would be coordinated by VTA throughout the process.

3.14.1 Construction Effects on Traffic

The construction of light rail line would be a continuous, year-round process with construction taking place at two to three mile segments at a time. However, the peak of daily construction activity in any one area would take place during the off-peak commute hours when the LOS on Capitol Expressway at most major intersections is at C or better. Reducing the effects of the Project construction on traffic would be achieved by means of four coordinated resources:

- VTA in concert with the County of Santa Clara and City of San Jose, would prepare a construction mitigation Traffic Management Plan that would be a part of the construction contract for the proposed Project.
- Based on the Traffic Management Plan, contractors would use flagmen and follow a daily construction schedule that would restore traffic capacity during peak periods on weekdays (the morning commute period is 7:00 to 9:00 AM and the evening commute period is 4:00 to 6:00 PM).
- VTA would oversee construction to assure all mitigation measures are met. VTA would establish a field office along the Project that would be open to the public during specific hours of the week.

Construction equipment traffic from the contractors would be controlled by flagman and the procedures contained in the Traffic Management Plan. For example, the use of the median to store large pieces of equipment overnight would be regulated. Traffic that may attempt to use neighborhood streets to avoid construction areas would be controlled by two characteristics of the roadway network adjacent to Capitol Expressway:

- First, while there are no efficient, directly parallel detours around Capitol Expressway, some arterials are capable of handling traffic diverted from Capitol Expressway. White Road, King Road, Tully Road, and Branham Lane will likely handle most of the diverted traffic. Portable electronic variable message signs and other signage would be positioned at approaches to Capitol Expressway north and south of individual construction zones to warn motorists of construction ahead and direct traffic to use alternative routes where feasible. Flagmen would be at all major construction points to assist in the control of traffic and support the use of these roads as a detour.
- Second, there are very few paths of travel through neighborhood streets that offer parallel routes to Capitol Expressway. Therefore, neighborhood streets would be protected from being used as cut-through streets by motorists.

3.14.2 Construction Effects on Transit

Transit service on time performance can be expected to drop slightly during the construction period. Since the construction period will be limited in duration, no specific mitigation measures are proposed.

3.14.3 Construction Effects on Pedestrians

In areas along Capitol Expressway where new sidewalks are being added or replacing substandard sidewalks, the construction will require alternative paths. At any one time, one side of Capitol Expressway would always have a travel path for pedestrians. Signs would be posted to direct pedestrians to cross at intersections in order to proceed along Capitol Expressway and avoid the construction area.

3.14.4 Construction Effects on Bicycles

Currently, bicyclists are able to use the shoulders of the expressway as a bicycle lane. During construction of the light rail project, the shoulders should be maintained or the outside lanes of the expressway should be expanded to allow bicyclists, as feasible, to continue to travel the corridor during construction.

4.0 PROJECT MITIGATION

4.1 Traffic Mitigation

The traffic mitigation discusses the improvements to the roadway network necessary to alleviate any significant impacts caused by the light rail extension to the roadways and intersections along the corridor. The impacts and mitigation are separated into the two study years, 2010 and 2025. The No Build and the Baseline Alternatives assume that the HOV lanes remain and the Light Raiul Alternatives assume that the HOV lanes are removed to provide sufficient width for the light rail trackway. The HOV lanes were constructed temporary improvements until light rail could be constructed in the corridor. The Evergreen Specific Plan EIR prepared in 1993 stated:

"…*traffic mitigation improvements proposed as part of the Evergreen Specific Plan include adding additional lanes to a portion of Capitol Expressway that would use the median section of the right-of-way where a light rail line would be located. These lanes would be replaced by the light rail transit if the Capitol Corridor is implemented*."vbelow, it may not be desirable to actually construct these improvements. The City of San Jose's desired minimum overall performance for City streets during peak periods is level of service D. A proposed amendment to the City's 2020 General Plan states:

> "*Development projects …. should be required to provide appropriate mitigation measures if they have the potential to reduce the level of service to E or worse. These mitigation measures can include a combination of street improvements and/or improvements to transit, bicycle, or pedestrian facilities when the mitigation for vehicular traffic compromises community livability… [or] would result in an unacceptable impact on an affected neighborhood or City street*."

Mitigation measures are described below. The significant investment in improved transit service by VTA in this corridor will provide multi-modal benefits for the region. The decrease in traffic level of service at some intersections should be viewed as an opportunity to divert more people from their automobiles to transit. Additionally, the project is improving bicycle and pedestrian travel along the corridor which will also improve local and regional mobility.

4.1.1 Baseline Year 2010

Two intersections would result in adverse traffic impacts in the AM peak hour with the Baseline Alternative. These intersections are discussed below:

4.1.1.1 Capitol Expressway/Story Road

The Capitol Expressway/Story Road intersection is projected to operate at level of service F. Under the Baseline Alternative in 2010, the delay value and V/C ratio for the intersection for the AM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure would minimize the adverse effect.

> **Mitigation: Addition of a Third Southbound Left Turn Lane to Capitol Expressway at Story Road.** Potential mitigation measure under the Baseline Alternative would be to

add a third southbound left turn lane on the expressway to eastbound Story Road. This would involve re-striping to allow both through and left-turn movements to occur from an existing lane.

4.1.1.2 <u>Capitol Expressway/Senter Road</u>

The Capitol Expressway/Senter Road intersection is projected to operate at level of service F. Under the Baseline Alternative in 2010, the delay value and V/C ratio for the intersection for the AM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure would minimize the adverse effect.

> **<u>Mitigation: Addition of Left-Turn and Through Lanes on Senter Road.</u>** Potential mitigation under the Baseline Alternative includes adding a second northbound and southbound left-turn lane and a second southbound through lane on Senter Road. The southbound through lane would be separate of an exclusive right-turn lane. This is a programmed transportation improvement, and no additional mitigation is required or proposed under the Baseline Alternative.

4.1.2 <u>Baseline Year 2025</u>

Three intersections would result in adverse traffic impacts in the AM peak hour under the Baseline Alternative. These intersections are discussed below:

4.1.2.1 <u>Capitol Expressway/Ocala Avenue Intersection</u>

The Capitol Expressway/Ocala Avenue intersection is projected to operate at level of service D. Under the Baseline Alternative in 2025, the level of service for the intersection for the AM peak hour would decline to level of service E, resulting in an adverse effect. Implementation of the following mitigation measure, would minimize the adverse effect.

> **<u>Mitigation: Signal Modifications to the Capitol Expressway/Ocala Avenue Intersection.</u>** A potential mitigation measure for the Baseline Alternative would be to provide an overlap phase for the westbound right turn with the southbound left turn, prohibiting U-turns for the southbound left turn (This involves a signal modification).

4.1.2.2 <u>Capitol Expressway/Aborn Road Intersection</u>

The Capitol Expressway/Aborn Road intersection is projected to operate at level of service F. Under the Baseline Alternative in 2025, the delay value and V/C ratio for the intersection for the AM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure, would minimize the adverse effect.

> **<u>Mitigation: Addition of Left-Turn Lanes from Aborn Road to Capitol Expressway.</u>** Mitigation for this effect would be to add a third left-turn lane from northbound Aborn Road to westbound Capitol Expressway. This mitigation measure is included in the

Comprehensive County Expressway Planning Study. It does not require additional right-of-way and this mitigation measure would be implemented by the project.

4.1.2.3 Capitol Expressway/Senter Road Intersection

The Capitol Expressway/Senter Road intersection is projected to operate at level of service F. Under the Baseline Alternative in 2025, the delay value and V/C ratio for the intersection for the AM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure, would minimize the adverse effect.

> **Mitigation: Addition of Left- and Right-Turn Lanes from Senter Road to Capitol Expressway.** Potential mitigation under the Baseline Alternative includes adding a second northbound and southbound left turn lane and a southbound through lane separate from an exclusive right turn lane. These are programmed improvements that will be implemented by the City of San Jose and will reduce the impact to a level less that significant; therefore, no further mitigation is required.

4.1.3 Light Rail Alternative 2010

Six intersections would result in adverse traffic impacts in the AM and/or PM peak hour with the Light Rail Alternative. These intersections are discussed below.

4.1.3.1 Capitol Expressway/Story Road Intersection

The Capitol Expressway/Story Road intersection is projected to operate at level of service F. Under the Light Rail Alternative MOS and Phase 2 in 2010, the delay value and V/C ratio for the intersection for the AM and PM peak hours would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Mitigation measures have been identified that would minimize the adverse effects on traffic, however, in implementing these mitigation measures, further adverse traffic and construction-related traffic impacts would occur.

A potential mitigation measure would be to replace the HOV lanes removed as part of the project. Because the HOV lanes would be removed to provide space for the light rail trackway, right-of-way is not available for this mitigation and would need to be acquired from adjacent property. All four quadrants of the intersection would require right-of-way acquisitions that would result in displacements of commercial properties.

Another potential mitigation measure would grade separate the traffic movements with Capitol Expressway depressed and traveling under Story Road. To implement this mitigation, three to four residential properties on the northwest side and seven to ten residences on the southwest side would be displaced. The frontage roads on the northeast and southeast sides of the intersection would also be required to provide sufficient right-of-way, further impacting business and residential access.

Because the implementation of these mitigation measures would result in adverse traffic and construction-related traffic impacts for which no mitigation is feasible, these would be considered substantially adverse effects for which there is no feasible mitigation.

Mitigation: There is no feasible mitigation for these effects.

4.1.3.2 Capitol Expressway/Ocala Avenue Intersection

The Capitol Expressway/Ocala Avenue intersection is projected to operate at level of service D. Under the Light Rail Alternative MOS and Phase 2 in 2010, the level of service for the intersection would decline to level of service E in the PM peak hour, resulting in an adverse effect. A mitigation measure has been identified that would minimize the adverse effects on traffic, however, in implementing these mitigation measures, further adverse traffic and construction related traffic impacts would occur.

A potential mitigation measure would be to replace the HOV lanes removed as part of the project. Because the HOV lanes would be removed to provide space for the light rail trackway, right-of-way is not available for this mitigation and would need to be acquired from adjacent property. All four quadrants of the intersection would require right-of-way acquisitions that would result in displacements of commercial properties.

Because the implementation of these mitigation measures would result in adverse traffic and construction-related traffic impacts for which no mitigation is feasible, these would be considered substantially adverse effects for which there is no feasible mitigation.

Mitigation: There is no feasible mitigation for these effects.

4.1.3.3 Capitol Expressway/Tully Road Intersection

The Capitol Expressway/Tully Road intersection is projected to operate at level of service D in the AM peak hour and at level of service F in the PM peak hour. Under the Light Rail Alternative MOS and Phase 2 in 2010, the level of service for the intersection would decline to level of service E in the AM peak hour, and in the PM peak hour, the delay value and V/C ratio for the intersection would exceed thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure would minimize the adverse effects.

Mitigation: Maintain HOV Lane on Capitol Expressway as an HOV Bypass Lane. Because light rail would be located on the westside of Capitol Expressway through the Tully Road intersection, sufficient width would be available to maintain the fourth through lane on Capitol Expressway. This lane will need to be dropped north of Tully Road under the MOS and south of Tully Road under Phase 2. However, through the intersection it would service as an HOV bypass lane.

4.1.3.4 Capitol Expressway/Aborn Road Intersection

The Capitol Expressway/Aborn Road intersection is projected to operate at level of service F in the AM peak hour and at level of service E in the PM peak hour. Under the Light Rail

Alternative Phase 2 in 2010, the delay value and V/C ratio for the intersection the AM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. During the PM peak hour, the delay value and V/C ratio for the intersection in the AM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of one of the following mitigation measure would minimize these adverse effects.

> **Mitigation: Replace the HOV Lanes South of Tully Road.** A potential mitigation measure would be to replace the HOV lanes removed as part of the project from Tully Road to U.S. 101. Under the Light Rail Alternative, the HOV lanes would be removed. Right-of-way would not be available for this mitigation and would need to be acquired from adjacent property. The implementation of the mitigation measure would result in other significant and unavoidable impacts related to these acquisitions.

> **Mitigation: Addition of a Third Left-Turn Lane to Aborn Road at Capitol Expressway.** Another potential mitigation measure would be a third left turn lane from northbound Aborn Road to westbound Capitol Expressway does not require additional right-of-way). This mitigation measure was proposed in the *Comprehensive County Expressway Planning Study,* but would be included as mitigation for the Light Rail Alternative since no additional right-of-way is required.

4.1.3.5 Capitol Expressway/Silver Creek Road Intersection

The Capitol Expressway/Silver Creek Road Intersection is projected to operate at level of service F. Under the Light Rail Alternative MOS in 2010, the delay value and V/C ratio for the intersection in the AM and PM peak hours would exceed the thresholds for an intersection already operating at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure would minimize the adverse effect.

> **Mitigation: Replace the Lanes South of Tully Road.** A potential mitigation measure would be to replace the HOV lanes removed as part of the project from Tully Road to U.S. 101. Under the Light Rail Alternative, the HOV lanes would be removed. Right-of-way would not be available for this mitigation and would need to be acquired from adjacent property. The implementation of the mitigation measure would result in other significant and unavoidable impacts related to these acquisitions.

> **Mitigation: Construct Interchange at Silver Creek Road.** Another potential mitigation measure is an interchange for traffic movements between Silver Creek Road and Capitol Expressway. This mitigation was proposed in the *County's Capitol Expressway Planning Study*. An interchange for traffic movements would need to be planned and designed in conjunction with grade separation of the light rail trackway.

4.1.3.6 Capitol Expressway/McLaughlin Avenue Intersection

The Capitol Expressway/McLaughlin Avenue Road intersection is projected to operate at level of service E. Under the Light Rail Alternative MOS in 2010, the level of service for the intersection for the AM peak hour would decline to level of service F, resulting in an adverse effect. Implementation of the following mitigation measure would minimize the adverse effect.

> **Mitigation: Change Intersection Approaches at McLaughlin Avenue.** The City of San Jose will be providing a programmed improvement to change the McLaughlin Avenue Approaches to remove the split phasing to provide two left turn lanes, two through lanes, and a right-turn lane on both approaches to McLaughlin Avenue. This improvement would mitigate the effect, and no further mitigation is required. The *Comprehensive County Expressway Planning Study*, which is currently underway, further recommends a third southbound left-turn lane from McLaughlin Avenue to Capitol Expressway. This addition of these lane, while improving the intersection operation, is not necessary to mitigate the adverse effect of the Light Rail Alternative.

4.1.4 Light Rail Alternative 2025

Traffic Impacts would result at eight intersections with the Light Rail Alternative in 2025.

4.1.4.1 Capitol Expressway/Capitol Avenue Intersection

The Capitol Expressway/Capitol Avenue intersection is projected to operate at level of service F. Under the Light Rail Alternative MOS and Phase 2 in 2025, the delay value and V/C ratio for the intersection for the PM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure would minimize the adverse effect.

> **Mitigation: Addition of Shared Left-Turn and Through Lane on Capitol Avenue at Capitol Expressway.** Potential mitigation under the Light Rail Alternative would be to add a third left turn lane shared with the through from Capitol Avenue onto southbound Capitol Expressway. This improvement is consistent with the recommendation of the *Comprehensive County Expressway Planning Study* and would reduce the impact to a level less than significant. This improvement can be made with traffic signing and pavement marking changes and does not require additional right-of-way.

4.1.4.2 Capitol Expressway/Story Road Intersection

The Capitol Expressway/Story Road intersection is projected to operate at level of service F. Under the Light Rail Alternative MOS and Phase 2 in 2025, the delay value and V/C ratio for the intersection for the intersection for the PM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Mitigation measures have been identified that would minimize the adverse effects on traffic and construction-related traffic impacts would occur.

A potential mitigation measure would be to replace the HOV lanes removed as part of the project. Because the HOV lanes would be removed to provide space for the light rail trackway, right-of-way is not available for this mitigation and would need to be acquired from adjacent property. All four quadrants of the intersection would require right-of-way acquisitions that would result in displacements of commercial properties.

Another potential mitigation measure would grade separate the traffic movements with Capitol Expressway depressed and traveling under Story Road. To implement this mitigation, three to four residential properties on the northwest side and seven to ten residences on the southwest side would be displaced. The frontage roads on the northeast and southeast sides of the intersection would also be required to provide sufficient right-of-way, further impacting business and residential access.

Because the implementation of these mitigation measures would result in adverse traffic and construction-related traffic impacts for which no mitigation is feasible, these would be considered substantially adverse effects for which there is no feasible mitigation.

Mitigation: There is no feasible mitigation for these effects.

4.1.4.3 Capitol Expressway/Ocala Avenue Intersection

The Capitol Expressway/Ocala Avenue intersection is projected to operate at level of service D. Under the Light Rail Alternative MOS and Phase 2 in 2025, the level of service for the intersection in the AM peak hour would decline to level of service E, resulting in an adverse effect. During the PM peak hour, the delay value and V/C ratio for the intersection in the PM peak hour would exceed the thresholds for an intersection that already operates at level of service E, resulting in an adverse effect. A mitigation measure has been identified that would minimize the adverse effect on traffic, however, in implementing the mitigation measure, further adverse traffic and construction-related traffic impacts would occur.

The potential mitigation measure would be to replace the HOV lanes removed as part of the project. Because the HOV lanes would be removed to provide space for the light rail trackway, right-of-way is not available for this mitigation and would need to be acquired from adjacent property. All four quadrants of the intersection would require right-of-way acquisitions that would result in displacements of commercial properties.

Because the implementation of the mitigation measure would result in adverse traffic and construction-related traffic impacts for which no mitigation is feasible, these would be considered substantially adverse effect for which there is no feasible mitigation.

Mitigation: There is no feasible mitigation for these effects.

4.1.4.4 Capitol Expressway/Tully Road Intersection

The Capitol Expressway/Tully Road intersection is projected to operate at level of service E. Under the Light Rail Alternative MOS and Phase 2 in 2025, the level of service for the intersection in the AM peak hour would decline to level of service F, resulting in an adverse effect. During the PM peak hour, the delay value and V/C ratio for the intersection in the PM peak hour would exceed the thresholds for an intersection that already operates at level of service E, resulting in an adverse effect. Implementation of the following mitigation measure would minimize these adverse effects.

Mitigation: Maintain HOV Lane on Capitol Expressway as an HOV Bypass Lane. Because light rail would be located on the westside of Capitol Expressway through the Tully Road intersection, sufficient width would be available to maintain the fourth through lane on Capitol Expressway. This lane will need to be dropped north of Tully Road under the MOS and south of Tully Road under Phase 2. However, through the intersection it would service as an HOV bypass lane.

4.1.4.5 Capitol Expressway/Quimby Road Intersection

The Capitol Expressway and Quimby Road intersection is projected to operate at level of service E in the AM peak hour and level of service F during the PM peak hour. Under the Light Rail Alternative Phase 2 in 2025, the level of service for the intersection in the AM peak hour would decline to level of service F, resulting in an adverse effect. During the PM peak hour, the delay value and V/C ratio for the intersection in the PM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of the following mitigation measure would minimize these adverse effects.

Mitigation: Maintain the HOV Lanes on Capitol Expressway as an HOV Bypass Lane. With light rail located on the westside of Capitol Expressway through the Quimby Road intersection, sufficient width would be available to maintain the fourth through lane on Capitol Expressway. Through the intersection it would serve as an HOV bypass lane.

With light rail entering the median south of Eastridge, sufficient right-of-way would not be available to replace the HOV lanes and right of way would need to be acquired from adjacent property. The implementation of this mitigation measure would result in other significant and unavoidable impacts related to these acquisitions.

4.1.4.6 Capitol Expressway/Aborn Road Intersection

The Capitol Expressway/Aborn Road intersection is projected to operate at level of service F. Under the Light Rail Alternative Phase 2 in 2025, the delay value and V/C ratio for the intersection for the AM and PM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of one of the following mitigation measures would minimize the adverse effects.

Mitigation: Addition of Third Left-Turn Lane on Aborn Road at Capitol Expressway. A potential mitigation measure for the Light Rail to SR 87 would also be the addition of a third left turn lane on northbound Aborn Road to westbound Capitol Expressway (does not require additional right-of-way) that is part of the, *Capitol Expressway Planning Study*.

4.1.4.7 Capitol Expressway/Silver Creek Road Intersection

The Capitol Expressway/Silver Creek Road intersection is projected to operate at level of service F. Under the Light Rail Alternative Phase 2 in 2025, the delay value and V/C ratio for the intersection for the AM and PM peak hour would exceed the thresholds for an intersection that already operates at level of service F, resulting in an adverse effect. Implementation of one of the following mitigation measures would minimize the adverse effects.

Mitigation: Replace the HOV Lanes South of Tully Road. A potential mitigation measure would be to replace the HOV lanes removed as part of the project from Tully Road to U.S. 101. Under the Light Rail Alternative, the HOV lanes would be removed. Right-of-way would not be available for this mitigation and would need to be acquired from adjacent property. The implementation of the mitigation measure would result in other significant and unavoidable impacts related to these acquisitions.

Mitigation: Construct Interchange at Silver Creek Road. Another potential mitigation measure is an interchange for traffic movements between Silver Creek Road and Capitol Expressway. This mitigation was proposed in the *County's Capitol Expressway Planning Study*. An interchange for traffic movements would need to be planned and designed in conjunction with grade separation of the light rail trackway.

4.1.4.8 Capitol Expressway/McLaughlin Avenue Intersection

The Capitol Expressway/McLaughlin Avenue intersection is projected to operate at level of service D. Under the Light Rail Alternative 2025, the level of service for the intersection for the PM peak hour would decline to level of service E, resulting in an adverse effect. Implementation of the following mitigation measure would minimize the adverse effect.

Mitigation: Change Intersection Approaches at McLaughlin Avenue. The City of San Jose will be providing a programmed improvement to change the McLaughlin Avenue Approaches to remove the split phasing to provide two left turn lanes, two through lanes, and a right-turn lane on both approaches to McLaughlin Avenue. This improvement would mitigate the effect, and no further mitigation is required. The *Comprehensive County Expressway Planning Study*, which is currently underway, further recommends a third southbound left-turn lane from McLaughlin Avenue to Capitol Expressway. This addition of these lane, while improving the intersection operation, is not necessary to mitigate the adverse effect of the Light Rail Alternative

4.1.5 Design Options

The following is a discussion of the impacts and mitigation measures required for the design options.

4.1.5.1 Pedestrian Grade Separation at Story Road

No significant impact is identified, no mitigation is necessary.

4.1.5.2 Single Southbound Left Turn at Ocala Avenue

Removing one of the southbound left turn lanes results in a significant impact. The only feasible mitigation would be to maintain the existing geometry with two southbound left turn lanes.

4.1.5.3 Light Rail Side Running At-Grade at Eastridge Road and Quimby Road

Side running at-grade interferes with the ability to operate progressive signal movements along Capitol Expressway. The mitigation for this impact would be to grade separate through a depressed section or trench design for the crossing of Eastridge Road and Quimby Road.

4.1.5.4 Grade Separation at Aborn Road

There is no impact associated with the design option and no mitigation is necessary.

4.1.5.5 Grade Separation at McLaughlin

There is no impact associated with the design option and no mitigation is necessary.

4.2 Pedestrian and Bicycle Mitigation

There are no pedestrian or bicycle impacts caused by the project. To the contrary, the project improves pedestrian and bicycle movement along the corridor. The following are the pedestrian and bicycle improvements associated with the project.

- A two-way pedestrian and bicycle facility is proposed along the east/south side of the corridor from the Alum Rock Station to the Nieman Boulevard intersection.
- A sidewalk is proposed on the west/north side of the corridor for its entire length with the exception of a short segment west of Senter Road.
- The Project could accommodate connections to pedestrian and bicycle facilities.
- All existing pedestrian crosswalks and pedestrian signal indications will be maintained. At the north leg at Nieman/Capitol Expressway and at the east leg at the SR 87 southbound off-ramp to Capitol Expressway new pedestrian crosswalks and pedestrian signal indications will be added to access light rail transit platforms.
- At three locations, Story Road, Silver Creek, and Senter Road, pedestrian overcrossings are proposed to serve both passengers accessing the light rail platform as well as pedestrian traffic crossing the expressway. The station option with the platform between Ocala Avenue and Cunningham Avenue also has a pedestrian overcrossing.
- Pedestrian push buttons will be added to all location with at-grade platforms to allow disembarking passengers to call the pedestrian signal phase.
- Pedestrian audible warning devices will be installed at all intersection with at-grade pedestrian access to the light rail platform.
- If the County or City of San Jose deems it necessary, pedestrian countdown heads indicating the remaining time for a pedestrian to cross an intersection could be incorporated into the signal system at all intersections with at-grade pedestrian access to the light rail platform.

4.3 Safety & Security Mitigation

There are no specific criteria for which to measure safety impacts and mitigation. The safety of the light rail corridor will be addressed in detail as the project moves through the design and construction phases. A key part of the safety review will be the Diagnostic Field Review and Evaluation conducted by VTA, the California Public Utilities Commission (CPUC), the City of San Jose, Santa Clara County and Caltrans. At that time a hazards analysis will be prepared. The hazards analysis will address protection of all forms of travel in and along the corridor, including automobiles, light rail vehicles, pedestrians, and bicyclists.

The project will conform to CPUC General Order 143-B, along with any waivers approved by the CPUC. The alignment classification is semi-exclusive with a fenced right-of-way and at-grade crossings. According to Table 1 of G.O. 143-B, the speed between crossings is 45 mph without an automatic block signal system (ABS). At at-grade crossings the speed will be restricted to 35 mph without flashing lights and gates, unless a waiver is granted by CPUC. At this time, flashing lights and gates are not proposed by VTA. However, VTA may seek a waiver to allow light rail vehicles to travel at a speed equal to the posted speed of the expressway.

The project will be designed and constructed to meet CPUC requirements. No other safety mitigation is necessary.

The signalized intersections along Capitol Expressway currently operate with leading left turn phases. VTA has found that with the current system lagging left turn phases reduce automobile/LRV conflicts. With leading lefts, left turning motorists on the street parallel to the tracks assume that their green phase follows the phase for cross traffic. If light rail arrives at that time and pre-empts the left turn and goes to the parallel through green, some left turning motorists proceed anyway and turn in front of the LRV. With lagging lefts, motorists become accustomed to following the through phase, resulting in fewer accidents. The signal phasing on Capitol Expressway should be modified to lagging lefts with the project.

4.4 Park & Ride Mitigation

The Project proposes up to five park-and-ride facilities. At this time, park-and-ride facilities are proposed at three existing facilities, the Alum Rock station in conjunction with the Capitol Avenue light rail project, the Eastridge transit center in conjunction with the existing park-and-ride facilities, and the SR 87 station in conjunction with the existing Capitol light rail station. In addition, the project will relocate the existing Caltrain park-and-ride lot at Monterey Highway/Fehren Drive and potentially may add new park-and-ride facilities at Ocala Avenue.

The proposed park-and-ride demand in the vicinity of Ocala and Eastridge is estimated at 250 to 550 spaces. Initially, 265 spaces are proposed to be provided at the Eastridge transit center on property currently owned by VTA and on property acquired from Eastridge. Park-and-ride capacity at the low end of the demand range is proposed because the travel demand model tends to overestimate park-and-ride demand and there is extensive bus service to the Eastridge transit center. VTA has found that most light rail passengers either walk to the station or transfer from buses. While 265 spaces is expected to serve the park-and-ride demand for many years, at some point in the future, demand may exceed supply. This is a potential significant impact.

Mitigation: VTA will monitor the park-and-ride demand at Eastridge. When demand exceeds supply on a consistent basis, VTA will provide additional parking spaces by acquiring additional property, constructing parking structures, or other arrangements at the Eastridge Shopping Center.

4.4.1 Alum Rock Station

The park-and-ride facility proposed at the existing transit center has been sized to meet demand. At the Alum Rock station, the extension of light rail onto Capitol Expressway will reduce the demand since the Alum Rock station will no longer be an end-of-the-line facility. At this location parking supply will exceed demand.

4.4.2 Eastridge Transit Center

At the Eastridge Transit Center, the VTA existing park-and-ride facility will be reconfigured in conjunction with light rail and the redesign of the bus transfer facility. As part of this reconfiguration, parking to meet demand will be identified within the existing shopping center.

4.4.3 Capitol Light Rail Station

The current parking demand at the Capitol light rail station in the median of SR 87 is only a fraction of supply. The increased demand associated with Capitol Expressway light rail will be well within the supply of the existing facilities.

4.4.4 Ocala Station

At Ocala, an area at the southwest corner of the intersection has been identified as a location for potential park-and-ride. The demand at this location is estimated in conjunction with demand at the Eastridge Transit Center. Any overflow of demand at Ocala can be accommodated at Eastridge. Therefore, no mitigation is necessary.

4.4.5 Monterey Station & Transit Center

At Monterey Highway, three alternative locations have been identified to accommodate the park-and-ride demand for light rail, as well as the demand for Caltrain with a relocation of the commuter rail platform to the south. Based on projected demand, a total of 260 to 300 stalls are needed. The capacities of the three sites under consideration for the park-and-ride lot range from 260 to 500 stalls. Because the transportation model tends to overestimate park-and-ride demand and historically VTA has experienced fewer people parking at the park and ride than was projected, there would be sufficient capacity to accommodate the demand at any of the three sites considered for the Monterey Station park-and-ride lot. The park-and-ride lots at Alum Rock Station and Capitol Station are expected to have capacity enough to handle the estimated peak park-and-ride demand. Therefore, there is no impact.

4.5 On-Street Parking

Currently, on-street parking is not permitted along Capitol Expressway. The Project will not remove any parking from the expressway near any businesses and therefore, there will not be an economic impact to any adjacent businesses resulting from a loss of on-street parking. The Project will, however, remove all on-street (residential) parking on the east side of Capitol Expressway along the Capitol Avenue frontage road between Kollmar Drive and Sussex Drive. The parking demand in this location is estimated at 15 spaces. Sufficient parking supply is available immediate south of Sussex Drive to accommodate the displaced vehicles. According to VTA criteria a significant parking impact does not occur.

Appendix B (Addendum)

Constructing Light Rail and Maintaining High-Occupancy Vehicle Lanes

Constructing Light Rail and Maintaining the HOV Lanes

The Light Rail Alternative includes construction of light rail in the median of Capitol Expressway and retaining three mixed flow lanes in both directions on Capitol Expressway. This reflects the City of San Jose's position stated in the Evergreen Specific Plan and the Evergreen Specific Plan Transportation Improvements EIR that the future light rail line would replace two HOV lanes rather than two mixed flow lanes. Retaining the HOV lanes would diminish the effectiveness of the capital investment in LRT and would be inefficient from the standpoint of transportation capacity utilization because LRT and buses in HOV lanes were viewed as competing transit modes.

Although the City's position on this issue is clear in their EIR, the County had, at the time, raised the possibility and their preference of retaining the HOV lanes rather than the mixed flow lanes. Therefore, VTA considered an alternative that would provide LRT and retain four mixed flow and two HOV lanes. As compared to the Light Rail Alternative, this alternative would generally result in similar impacts, although, traffic impacts would be more severe under this alternative than the Light Rail Alternative. VTA's preliminary analysis supports the City's position that retaining six mixed flow lanes provides more person through-put than four mixed flow and two HOV lanes.

Although the alternative of maintaining the HOV lanes and instead removing two general purpose travel lanes has been rejected the following analysis is provided for informational purposes. As noted in Section 3.2.4 of the traffic report, the maximum person through volume per hour for three general purpose lanes and light rail is 4,325 persons. The maximum through person volume is reduced to 4,010 persons for two general purpose travel lanes, one HOV lane, and light rail.

Tables 1 through Table 4 summarize the effect of removing one of the general purpose travel lanes for the construction of light rail and maintaining the HOV lanes. Table 1 summarizes 2010 AM traffic operations. Table 2 summaries the 2010 PM traffic operations. Tables 3 and 4 contain the AM and PM peak hour information for 2025 if the HOV lanes are maintained.

The first three columns of each of these tables show the No Build With HOV lanes, the No Build Without the HOV lanes, and the No Build with All Existing Lanes. The No Build with the HOV lanes assumes that a total of three traffic lanes are available in each direction. In this case the lanes are separated into two general purpose lanes and one HOV lane. In the No Build Without the HOV lanes, the three lanes are used for general purpose travel. The traffic operations improve in this second instance since the HOV lanes serve a proportionate fewer number of vehicles that the general purpose lanes. Past Silver Creek Road, the traffic operations remain identical for both scenarios. The best traffic operations occur if all of the existing lanes are maintained.

The second set of columns in the four tables, compares a Build to Eastridge (Phase 1) project With and Without the HOV lanes. Again, if the HOV lanes are maintained, the intersection delay is increased. For this option, the HOV lanes are assumed to be removed for the entire length of Capitol Expressway, whereas, they could remain past Tully. If the HOV lanes were retained past Tully, the traffic operation would be identical to the No Build With All Lanes for the intersections south of Tully.

The third set of columns compares Full Build to Highway 87 (Phase 2) With and Without HOV lanes. The previously established trends continue for this option. Past Silver Creek Road, there is no change in the results since HOV lanes do not exist west of US 101.

The next two columns compare the Baseline Alternative With and Without HOV lanes. A six-lane cross section is also assumed for the Baseline Alternative for consistent comparison between the different options. Removing the HOV lanes and operating three general purpose travel lanes results in improved traffic operations over maintaining the HOV lanes and having only two general purpose travel lanes in each direction.

Finally, two additional alternatives were analyzed. These alternatives, noted on the attached tables, manually remove traffic from the Expressway that instead uses light rail. The travel demand model used for the traffic analysis is not sensitive enough to capture improved traffic operations as a result of the light rail project. Therefore, the project line loads were removed from the traffic volumes assuming a vehicle occupancy of 1.2 persons per vehicle, (i.e., a line load of 600 passengers would remove 500 vehicles from the through movements). The two build phases, to Eastridge and to Highway 87, were analyzed. The build options without HOV lanes and with the equivalent light rail passenger traffic removed compares very favorably to the No Build No HOV scenario.

Table 1 Comparison of Maintaining HOV Lanes – 2010 AM

Intersection	Scenario																									
	No Build With HOV (4 GPLs + 2 HOV)		No Build No HOV (6 GPLs)		No Build with All Lanes(6 GPLs + 2 HOV)		Build to Eastridge with HOV (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV (6 GPLs + LRT)		Full Build with HOV (4 GPLs + 2 HOV + LRT)		Full Build No HOV (6 GPLs + LRT)		No Build TSM With HOV (4GPLs + 2 HOV + TSM)		No Build TSM No HOV (6 GPLs + TSM)		Build to Eastridge with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV Less LRT Traffic (6 GPLs + LRT)		Full Build with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Full Build No HOV Less LRT Traffic (6 GPLs + LRT)	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Excalibur	31.2	D	26.4	D+	26.5	D+	31.2	D	26.4	D+	31.2	D	26.4	D+	33.4	D	26.6	D+	28.0	D+	26.7	D+	27.6	D+	26.9	D+
Story	190.5	F	78.1	F	60.2	F	190.7	F	77.0	F	190.7	F	77.0	F	215.7	F	87.5	F	133.7	F	58.2	E-	91.6	F	47.8	E
Ocala	68.3	F	36.6	D	35.6	D	67.2	F	36.8	D	65.2	F	36.8	D	81.3	F	38.2	D-	52.5	E	36.7	D	42.2	E+	37.4	D-
Cunningham	54.2	E	7.9	B	7.0	B	59.1	E-	8.2	B	59.1	E-	8.2	B	68.6	F	8.2	B	37.0	D-	7.7	B	13.7	B-	7.0	B+
Tully	91.1	F	41.3	E+	38.2	D-	90.7	F	40.8	E+	90.7	F	40.8	E+	96.9	F	41.8	E+	73.5	F	38.4	D-	49.3	E	36.4	D
Eastridge	9.6	B	4.7	A	4.4	A	10.0	B	5.0	A	9.8	B	4.9	A	11.7	B	4.8	A	10.0	B	5.0	A	6.1	B+	4.6	A
Quimby	102.5	F	56.5	E-	56.3	E-	106.3	F	58.7	E-	113.6	F	52.5	E	101.9	F	51.2	E	106.3	F	58.7	E-	58.2	E-	41.0	E+
Nieman	3.2	A	2.9	A	3.2	A	3.2	A	2.9	A	3.4	A	2.9	A	3.2	A	2.9	A	3.2	A	2.9	A	3.4	A	3.0	A
Aborn	243.8	F	178.6	F	183.2	F	243.8	F	178.6	F	303.6	F	251.1	F	245.7	F	168.1	F	243.8	F	178.6	F	292.7	F	204.9	F
Silver Creek	270.2	F	130.6	F	113.0	F	270.2	F	130.6	F	270.2	F	135.9	F	322.1	F	148.5	F	270.2	F	130.6	F	213.0	F	114.3	F
McLaughlin	55.4	E	55.4	E	55.4	E	55.4	E	55.4	E	69.0	F	69.0	F	56.2	E-	56.2	E-	55.4	E	55.4	E	72.8	F	72.8	F
Senter	76.9	F	76.9	F	76.9	F	76.9	F	76.9	F	69.9	F	69.9	F	82.0	F	82.0	F	76.9	F	76.9	F	71.2	F	71.2	F
Snell	80.0	F	80.0	F	80.0	F	80.0	F	80.0	F	93.8	F	93.8	F	80.3	F	80.3	F	80.0	F	80.0	F	92.8	F	92.8	F
Vista Park	23.9	C-	23.9	C-	23.9	C-	23.9	C-	23.9	C-	23.3	C-	23.3	C-	23.8	C-	23.8	C-	23.9	C-	23.9	C-	22.9	C	22.9	C
Narvaez	27.5	D+	27.5	D+	27.5	D+	27.5	D+	27.5	D+	26.1	D+	26.1	D+	28.2	D	28.2	D	27.5	D+	27.5	D+	27.0	D+	27.0	D+

Table 2 Comparison of Maintaining HOV Lanes – 2010 PM

Intersection	Scenario																									
	No Build With HOV (4 GPLs + 2 HOV)		No Build No HOV (6 GPLs)		No Build with All Lanes (6 GPLs + 2 HOV)		Build to Eastridge with HOV (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV (6 GPLs + LRT)		Full Build with HOV (4 GPLs + 2 HOV + LRT)		Full Build No HOV (6 GPLs + LRT)		No Build TSM With HOV (4GPLs + 2 HOV + TSM)		No Build TSM No HOV (6 GPLs + TSM)		Build to Eastridge with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV Less LRT Traffic (6 GPLs + LRT)		Full Build with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Full Build No HOV Less LRT Traffic (6 GPLs + LRT)	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Excalibur	134.5	F	93.5	F	93.9	F	134.5	F	95.9	F	134.5	F	95.9	F	371.6	F	95.5	F	106.1	F	73.2	F	94.6	F	64.3	F
Story	307.8	F	156.9	F	120.6	F	307.8	F	156.9	F	307.8	F	156.9	F	318.9	F	164.4	F	231.8	F	119.2	F	185.5	F	94.7	F
Ocala	104.4	F	40.9	E+	36.4	D	117.5	F	43.2	E+	116.4	F	42.8	E+	105.9	F	41.4	E+	83.4	F	42.0	E+	58.3	E-	41.4	E+
Cunningham	37.2	D-	7.8	B	7.4	B	40.3	E+	8.1	B	40.3	E+	8.1	B	40.6	E+	7.9	B	27.3	D+	7.8	B	13.5	B-	7.5	B
Tully	61.3	F	56.3	E-	57.5	E-	68.3	F	62.2	F	68.3	F	62.2	F	63.2	F	57.9	E-	67.3	F	62.8	F	68.0	F	64.8	F
Eastridge	10.6	B	8.5	B	8.7	B	11.5	B	9.2	B	11.3	B	8.9	B	10.9	B	8.8	B	11.5	B	9.2	B	10.2	B	8.9	B
Quimby	72.6	F	61.3	F	62.2	F	77.5	F	65.5	F	77.5	F	65.5	F	75.3	F	63.2	F	77.5	F	65.5	F	71.6	F	67.6	F
Nieman	8.7	B	8.1	B	8.4	B	8.7	B	8.1	B	8.9	B	7.5	B	8.8	B	8.2	B	8.7	B	8.1	B	9.0	B	7.9	B
Aborn	48.2	E	43.7	E+	44.5	E	48.2	E	43.7	E+	60.6	F	56.4	E-	47.3	E	42.8	E+	48.2	E	43.7	E+	62.3	F	50.7	E
Silver Creek	647.2	F	336.7	F	272.5	F	647.2	F	336.7	F	647.2	F	336.7	F	632.6	F	330.8	F	647.2	F	336.7	F	531.3	F	285.6	F
McLaughlin	34.7	D	34.7	D	34.7	D	34.7	D	34.7	D	35.2	D-	35.2	D	34.5	D	34.5	D	34.7	D	34.7	D	35.8	D	35.8	D
Senter	43.1	E+	43.1	E+	43.1	E+	43.1	E+	43.1	E+	43.6	E+	43.6	E+	42.9	E+	42.9	E+	43.1	E+	43.1	E+	44.5	E	44.5	E
Snell	31.5	D	31.5	D	31.5	D	31.5	D	31.5	D	29.2	D	29.2	D	32.4	D	32.4	D	31.5	D	31.5	D	29.6	D	29.6	D
Vista Park	26.9	D+	26.9	D+	26.9	D+	26.9	D+	26.9	D+	26.3	D+	26.3	D+	27.4	D+	27.4	D+	26.9	D+	26.9	D+	25.9	D+	25.9	D+
Narvaez	36.0	D	36.0	D	36.0	D	36.0	D	36.0	D	35.4	D	35.4	D	36.4	D	36.4	D	36.0	D	36.0	D	36.3	D	36.3	D

Table 3 Comparison of Maintaining HOV Lanes – 2025 AM

Intersection	Scenario																									
	No Build With HOV (4 GPLs + 2 HOV)		No Build No HOV (6 GPLs)		No Build with All Lanes (6 GPLs + 2 HOV)		Build to Eastridge with HOV (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV (6 GPLs + LRT)		Full Build with HOV (4 GPLs + 2 HOV + LRT)		Full Build No HOV (6 GPLs + LRT)		No Build TSM With HOV (4GPLs + 2 HOV + TSM)		No Build TSM No HOV (6 GPLs + TSM)		Build to Eastridge with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV Less LRT Traffic (6 GPLs + LRT)		Full Build with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Full Build No HOV Less LRT Traffic (6 GPLs + LRT)	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Excalibur	40.3	E+	27.9	D+	27.6	D+	40.3	E+	27.9	D+	40.3	E+	27.9	D+	38.0	D-	27.7	D+	30.1	D	27.6	D+	29.0	D	27.7	D+
Story	280.7	F	117.4	F	87.6	F	280.8	F	116.0	F	280.8	F	116.0	F	264.2	F	112.2	F	190.4	F	81.9	F	140.9	F	64.3	F
Ocala	112.7	F	43.7	E+	40.0	D-	108.6	F	47.2	E	108.0	F	42.9	E	110.1	F	44.1	E	80.3	F	47.0	E	56.3	E-	47.1	E
Cunningham	OVRFL	F	16.1	C+	9.3	B	OVRFL	F	18.0	C	OVRFL	F	18.0	C	OVRFL	F	16.1	C+	OVRFL	F	11.9	B	77.8	F	8.8	B
Tully	188.1	F	71.4	F	52.9	E	185.6	F	70.9	F	185.2	F	70.8	F	187.1	F	70.5	F	146.1	F	57.5	E-	96.9	F	43.8	E+
Eastridge	53.9	E	6.1	B+	5.4	B+	54.1	E	6.7	B+	53.9	E	6.4	B+	54.2	E	6.1	B+	54.1	E	6.7	B+	11.6	B	5.5	B+
Quimby	172.2	F	71.8	F	57.2	E-	182.1	F	76.5	F	188.8	F	75.3	F	174.9	F	72.2	F	102.1	F	76.5	F	91.9	F	46.7	E
Nieman	3.7	A	3.3	A	3.5	A	3.7	A	3.3	A	3.9	A	3.2	A	3.7	A	3.3	A	3.7	A	3.3	A	3.7	A	3.2	A
Aborn	511.6	F	399.1	F	405.0	F	511.6	F	399.1	F	649.6	F	559.2	F	562.3	F	452.4	F	511.6	F	399.1	F	638.2	F	595.7	F
Silver Creek	787.8	F	422.3	F	368.1	F	787.8	F	422.3	F	787.8	F	435.1	F	778.9	F	421.3	F	787.8	F	422.3	F	657.0	F	367.0	F
McLaughlin	90.3	F	90.3	F	90.3	F	90.3	F	90.3	F	119.0	F	118.8	F	82.2	F	82.2	F	90.3	F	90.3	F	114.9	F	114.9	F
Senter	122.1	F	122.1	F	122.1	F	122.1	F	122.1	F	110.8	F	111.1	F	127.3	F	127.3	F	122.1	F	122.1	F	107.2	F	107.2	F
Snell	101.6	F	101.6	F	101.6	F	101.6	F	101.6	F	120.6	F	120.6	F	99.9	F	99.9	F	101.6	F	101.6	F	110.0	F	110.0	F
Vista Park	24.8	C-	24.8	C-	24.8	C-	24.8	C-	24.8	C-	24.7	C-	24.7	D+	24.8	C-	24.8	C-	24.8	C-	24.8	C-	23.6	C-	23.6	C-
Narvaez	28.4	D	28.4	D	28.4	D	28.4	D	28.4	D	27.0	D+	27.0	D+	28.0	D	28.0	D	28.4	D	28.4	D	27.5	D+	27.5	D+

Table 4 Comparison of Maintaining HOV Lanes – 2025 PM

Intersection	Scenario																											
	No Build With HOV (4 GPLs + 2 HOV)		No Build No HOV (6 GPLs)		No Build with All Lanes (6 GPLs + 2 HOV)		Build to Eastridge with HOV (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV (6 GPLs + LRT)		Full Build with HOV (4 GPLs + 2 HOV + LRT)		Full Build No HOV (6 GPLs + LRT)		No Build TSM With HOV (4GPLs + 2 HOV + TSM)		No Build TSM No HOV (6 GPLs + TSM)		Build to Eastridge with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Build to Eastridge No HOV Less LRT Traffic (6 GPLs + LRT)		Full Build with HOV Less LRT Traffic (4 GPLs + 2 HOV + LRT)		Full Build No HOV Less LRT Traffic (6 GPLs + LRT)	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Excalibur	193.0	F	144.5	F	104.2	F	223.8	F	148.7	F	223.8	F	148.7	F	208.1	F	135.1	F	183.8	F	113.5	F	167.3	F	97.5	F
Story	448.2	F	231.2	F	169.2	F	448.2	F	231.2	F	448.2	F	231.2	F	398.4	F	206.0	F	337.4	F	163.5	F	286.6	F	147.4	F
Ocala	155.8	F	59.7	E-	46.1	E	170.3	F	57.9	E-	168.3	F	57.0	E-	140.5	F	54.7	E	114.2	F	52.3	E	86.0	F	51.4	E
Cunningham	100.0	F	8.8	B	7.8	B	106.9	F	9.2	B	106.9	F	9.2	B	63.3	F	8.2	B	56.7	E-	8.5	B	26.8	D+	7.8	B
Tully	100.2	F	87.2	F	90.4	F	122.2	F	107.9	F	122.0	F	107.8	F	87.3	F	77.1	F	118.9	F	110.7	F	120.4	F	114.5	F
Eastridge	13.7	B-	9.7	B	9.8	B	15.1	C+	10.5	B	15.3	C+	10.2	B	12.5	B	9.4	B	15.1	C+	10.5	B	12.6	B	10.7	B
Quimby	134.8	F	109.4	F	112.0	F	148.1	F	120.0	F	143.4	F	116.7	F	116.5	F	98.1	F	148.1	F	120.0	F	129.4	F	122.3	F
Nieman	10.0	B	8.8	B	9.0	B	10.0	B	8.8	B	10.2	B	8.4	B	9.7	B	8.6	B	10.0	B	8.8	B	9.9	B	8.5	B
Aborn	132.8	F	113.9	F	117.2	F	132.8	F	113.9	F	172.9	F	158.1	F	118.4	F	105.0	F	132.8	F	113.9	F	155.8	F	147.8	F
Silver Creek	OVRFL	F	767.5	F	603.1	F	OVRFL	F	767.5	F	OVRFL	F	767.5	F	OVRFL	F	713.9	F	OVRFL	F	767.5	F	OVRFL	F	627.3	F
McLaughlin	38.0	D-	38.0	D-	38.0	D-	38.0	D-	38.0	D-	40.3	E+	40.3	E+	37.1	D-	37.1	D-	38.0	D-	38.0	D-	40.1	E+	40.1	E+
Senter	46.8	E	46.8	E	46.8	E	46.8	E	46.8	E	49.6	E	49.6	E	46.6	E	46.6	E	46.8	E	46.8	E	49.6	E	49.6	E
Snell	35.4	D	35.4	D	35.4	D	35.4	D	35.4	D	37.1	D-	37.2	D-	35.0	D	35.0	D	35.4	D	35.4	D	37.0	D-	37.0	D-
Vista Park	33.3	D	33.3	D	33.3	D	33.3	D	33.3	D	33.1	D	33.1	D	31.8	D	31.8	D	33.3	D	33.3	D	32.5	D	32.5	D
Narvaez	39.1	D-	39.1	D-	39.1	D-	39.1	D-	39.1	D-	38.1	D-	38.1	D-	38.9	D-	38.9	D-	39.1	D-	39.1	D-	38.8	D-	38.8	D-

Appendix C

Patronage Report, Downtown East Valley Capitol Expressway Corridor

DOWNTOWN ◆ EAST VALLEY

Light Rail Transit Corridor
Conceptual Engineering
Capitol Patronage Report
Capitol Expressway Light Rail Corridor

Prepared for:

VTA

3331 North First Street
San Jose, CA 95134

Prepared by:

Korve Engineering

1570 The Alameda, Suite 222
San Jose, CA 95126

April 2004

Table of Contents

List of Figures

List of Tables

I:\PROJECTS\401018X-DTEV\Reports\Capitol Patronage\Patronage report3.doc

1.0 INTRODUCTION

This report provides updated patronage forecasts for the Capitol Expressway light rail project for the year 2010 and the year 2025. The patronage forecasts were developed using the Santa Clara County Congestion Management Program travel demand model. This model is maintained by VTA in their Congestion Management Department.

1.1 Purpose of Analysis

Patronage estimates developed for the Capitol Expressway light rail project are used for several purposes. First, the number of projected LRT passengers is used to determine the rolling stock required to serve the demand. Also, the number of passengers boarding or alighting at any one station can be utilized in determining the optimal station layout and pedestrian queuing areas. Using mode of arrival, the number of parking spaces can also be determined.

1.2 Alternatives

The travel demand forecasting and patronage forecasting for the Capitol Light Rail Project considered 10 alternatives. The ten alternatives modeled by VTA were as follows:

1. No Project 2010 – the No Project 2010 alternative does not extend light rail on Capitol Avenue passed the Alum Rock station onto Capitol Expressway. A fixed rail system is however constructed on Santa Clara/Alum Rock from downtown San Jose to the Alum Rock station on Capitol Avenue. Light rail ridership statistics for this alternative are included in Table 1 of the appendix.

2. No Project 2025 – the No Project 2025 alternative has the same characteristics as the No Project 2010 with the horizon year extended another 15 years. Light rail ridership statistics for this alternative are included in Table 2 of the appendix.

3. Transportation System Management 2010 – the TSM 2010 alternative does not extend light rail on Capitol Avenue passed the Alum Rock station onto Capitol Expressway. Instead, TSM improvements are made to the Capitol Expressway corridor to improve transit accessibility and ridership. A fixed rail system is however constructed on Santa Clara/Alum Rock from downtown San Jose to the Alum Rock station on Capitol Avenue. Light rail ridership statistics for this alternative are included in Table 3 of the appendix.

4. Transportation System Management 2025 – the TSM 2025 alternative has the same characteristics as the TSM 2010 alternative with the horizon year extended another 15

years. Light rail ridership statistics for this alternative are included in Table 4 of the appendix.

5. Initial Project 2010 – the Initial Project 2010 extends light rail on Capitol Avenue and Capitol Expressway to the Eastridge transit center. A fixed rail system is also constructed on Santa Clara/Alum Rock from downtown San Jose to the Alum Rock station on Capitol Avenue. Two subalternatives were considered for this alternative. In the first option existing bus routes 22 and 300 were assumed to be replaced by light rail. Ridership statistics for this subalternative are included in Table 5a of the appendix. The second subalternative maintained bus routes 22 and 300 in addition to light rail operations. Ridership statistics for this subalternative are included in Table 5b of the appendix.

6. Initial Project 2025 – the Initial Project 2025 has the same characteristics as the Initial Project 2010 with the horizon year extended another 15 years. The same two subalternatives assumed for 2010 were carried into the 2025 projections. Table 6a in the appendix summarizes the ridership statistics for no bus routes 22 and 300 and Table 6b summarizes the ridership data if routes 22 and 300 are maintained.

7. Full Build Project 2010 – the Full Build Project 2010 extends light rail transit on Capitol Avenue and Capitol Expressway to connect to the Guadalupe light rail corridor at Capitol Expressway/State Highway 87. A fixed rail system is also constructed on Santa Clara/Alum Rock from downtown San Jose to the Eastridge station on Capitol Avenue. Ridership statistics for this alternative are summarized in Table 7 of the appendix.

8. Full Build Project 2025 – the Full Build Project 2025 has the same characteristics as the Full Build Project 2010 with the horizon year extended another 15 years. Ridership statistics for this alternative are summarized in Table 8 of the appendix.

9. Streetcar 2010 – the Streetcar 2010 alternative constructs a streetcar system on Santa Clara/Alum Rock from downtown San Jose to the Alum Rock station on Capitol Avenue. Light rail on Capitol Avenue/Capitol Expressway is extended to the Eastridge transit center with this alternative. Ridership statistics for this alternative are summarized in Table 9 of the appendix.

10. Streetcar 2025 – the Streetcar 2025 alternative has the same characteristics as the Streetcar 2010 with the horizon year extended another 15 years. Ridership statistics for this alternative are summarized in Table 10 of the appendix.

2.0 SCHEMATIC LAYOUTS OF ALTERNATIVES

The ten alternatives are schematically depicted on Figure 1 through Figure 5. The change in the horizon year does not change the physical characteristics of the alternatives. Figure 1 shows the No Project for 2010 and 2025. Light rail on Capitol Avenue stops at the Alum Rock station. Fixed rail does operate from downtown San Jose with two-car sets on 10 minutes headways. Also shown on Figure 1 is the remainder of the light rail network included in the patronage forecasts. The remainder of the system remains constant for all alternatives. The other light rail corridors include the following:

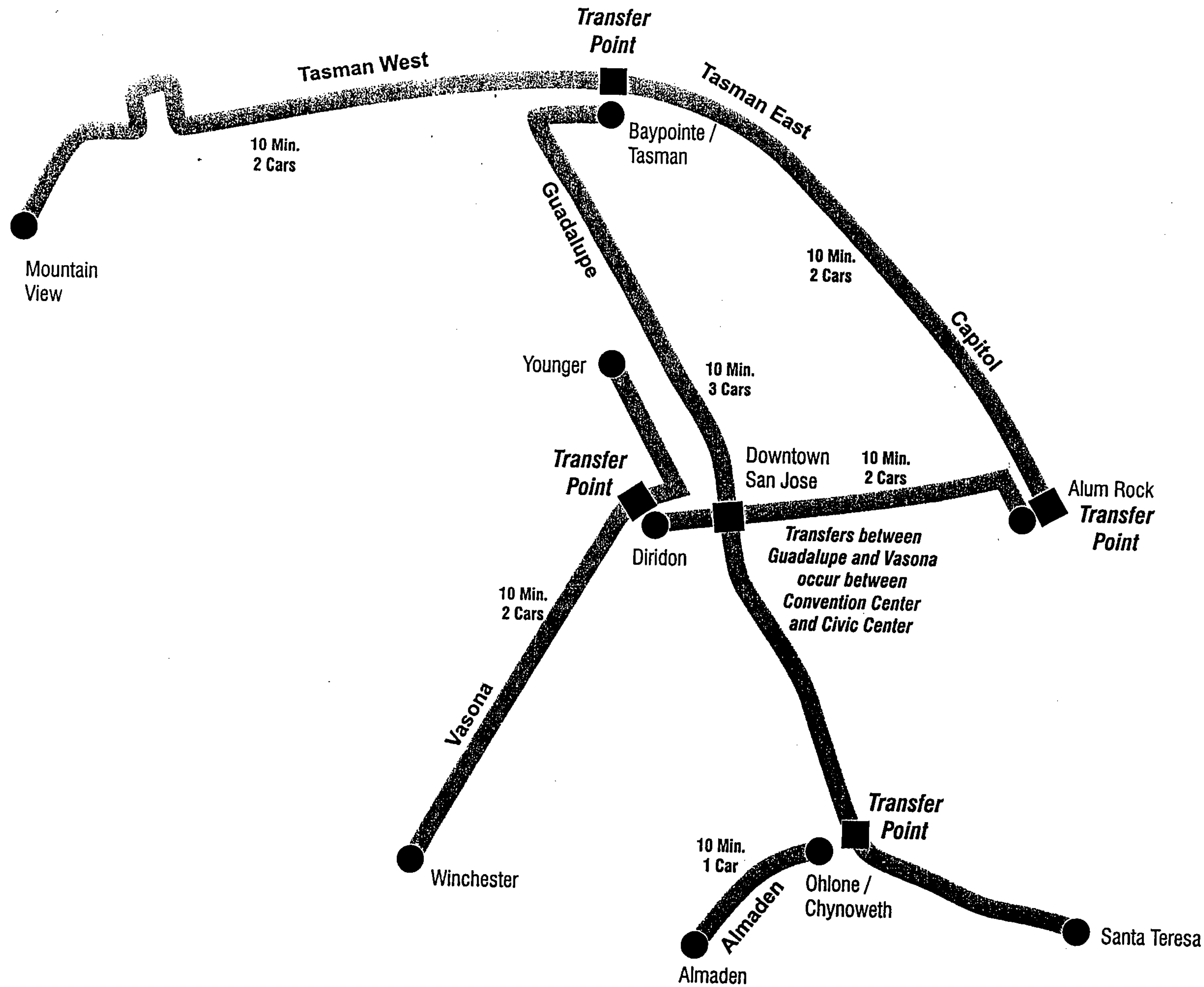
- The Guadalupe corridor from Santa Teresa to Baypoint with 3-car sets and 10-minute headways.
- The Almaden corridor from Almaden to Ohlone/Chynoweth and a transfer to Guadalupe with 1-car sets on 10-minute headways.
- The Tasman West corridor from Mountain View to the Baypointe transfer point with 2-car sets and 10-minute headways.
- The Tasman East corridor from Baypointe to Alum Rock with 2-car sets and 10-minute headways.
- The Vasona corridor from Winchester through downtown to the Younger maintenance facility with 2-car sets and 10-minute headways.

Figure 2 depicts the TSM Alternative for 2010 and 2025. TSM measures are implemented along Capitol Expressway from the Alum Rock station to the Capitol/87 station.

Figure 3 shows the Initial Project alternatives. Light rail on Capitol Expressway terminates at the Eastridge transit center.

Figure 4 illustrates the Full Build Project for 2010 and 2025. Light rail on Capitol Expressway is extended to Capitol/Highway 87 and light rail from downtown via Santa Clara/Alum Rock is extended to Eastridge.

Figure 5 shows the Streetcar alternatives. Light rail is extended from the Alum Rock station to the Eastridge transit center and the streetcars on Santa Clara/Alum Rock are assumed to operate on 5-minute headways with single car sets.

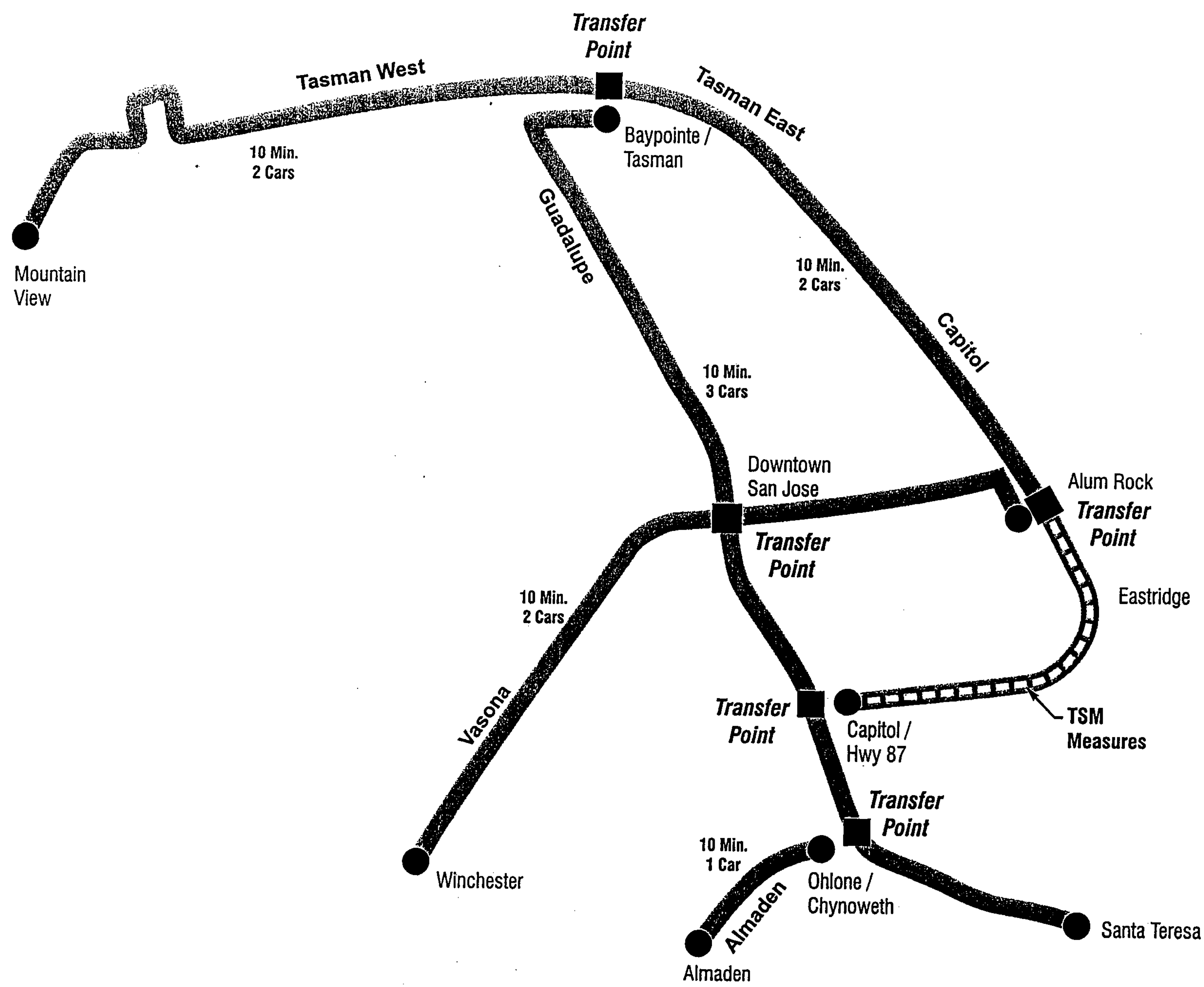


DOWNTOWN EAST VALLEY

Figure 1

No Project 2010 and 2025

Korve Engineering, Inc.
Manuel Padron & Associates

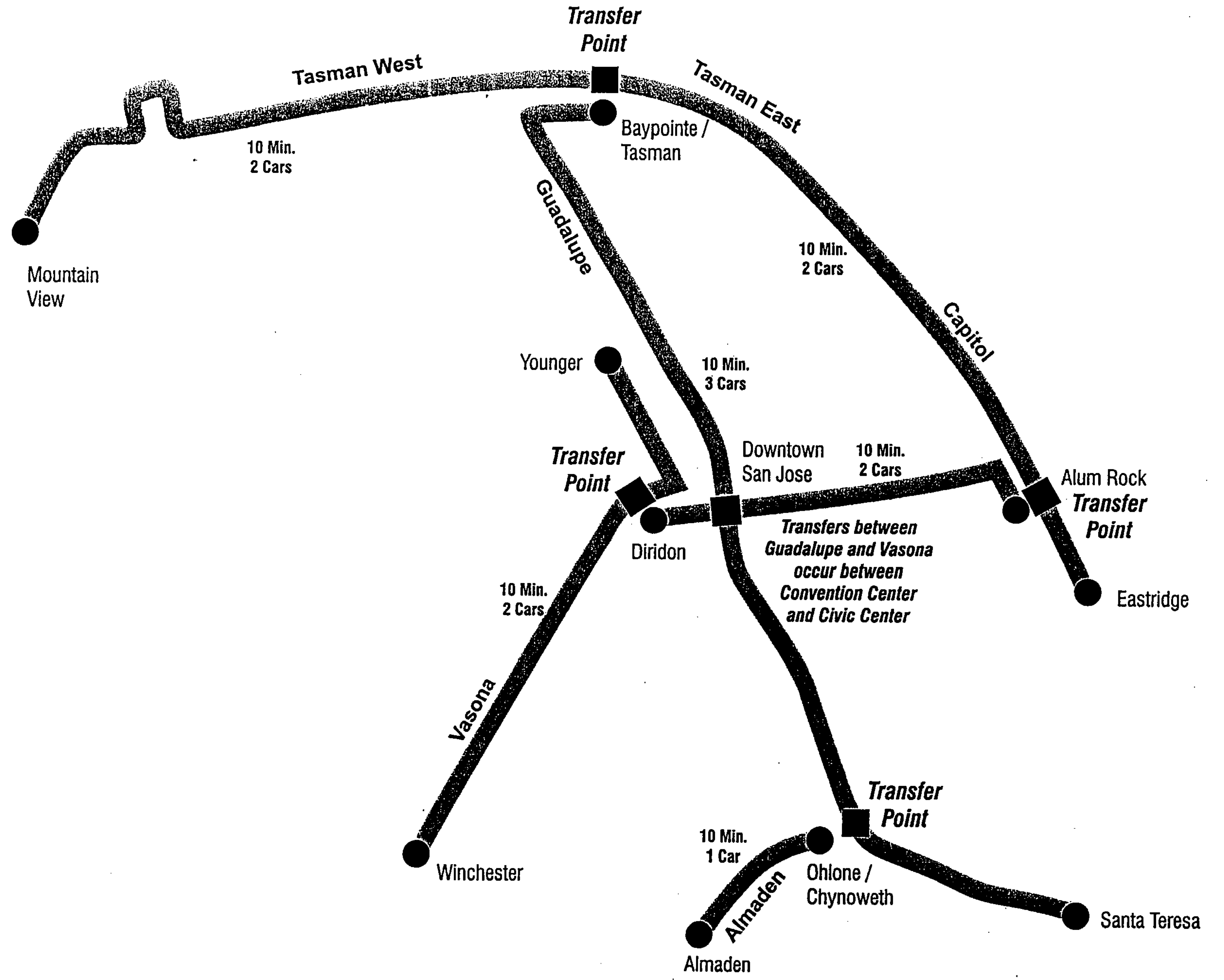


DOWNTOWN EAST VALLEY

Figure 2

TSM 2010 and 2025

Korve Engineering, Inc.
Manuel Padron & Associates

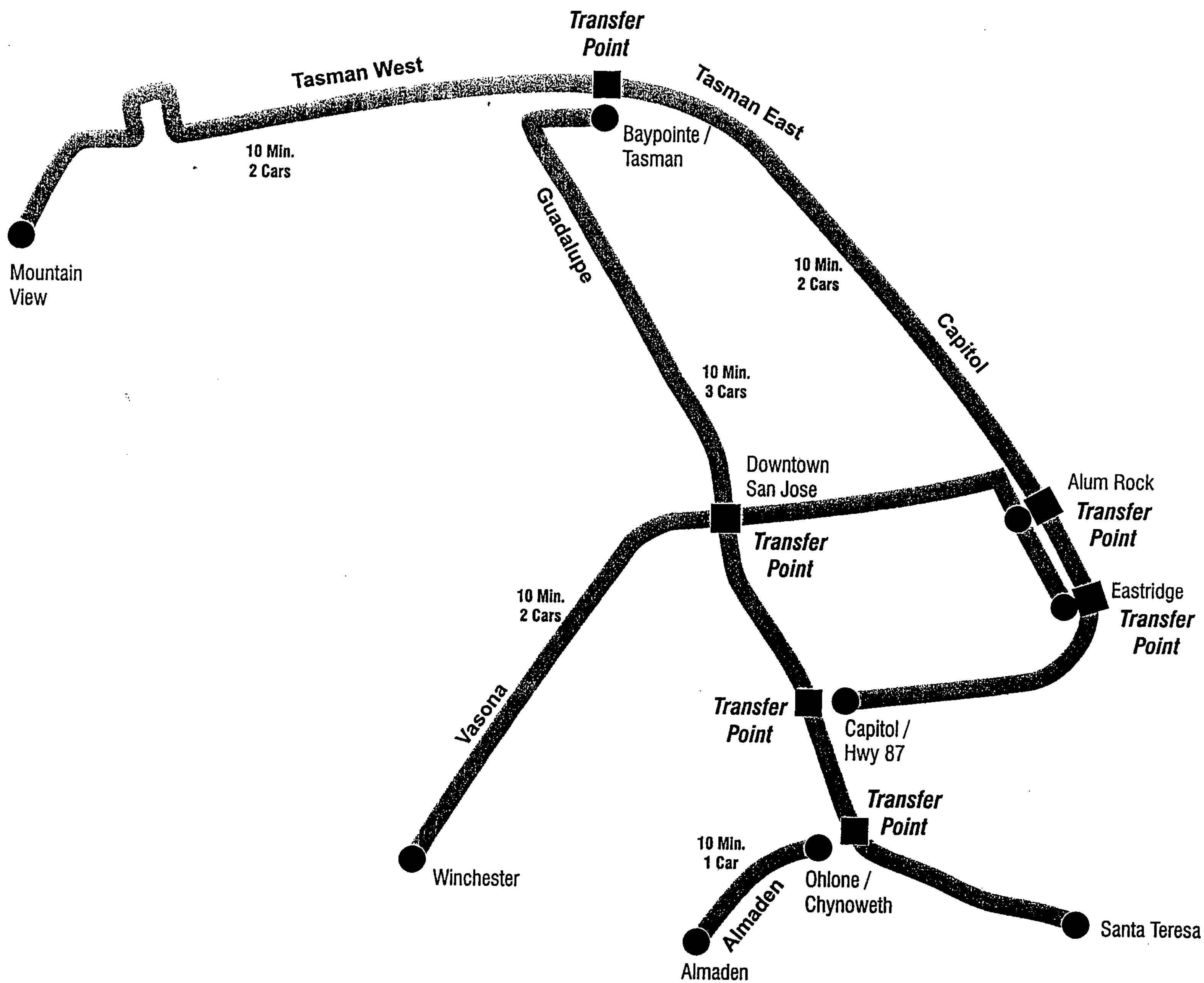


DOWNTOWN EAST VALLEY

Figure 3

Initial Project 2010 and 2025

Korve Engineering, Inc.
Manuel Padron & Associates

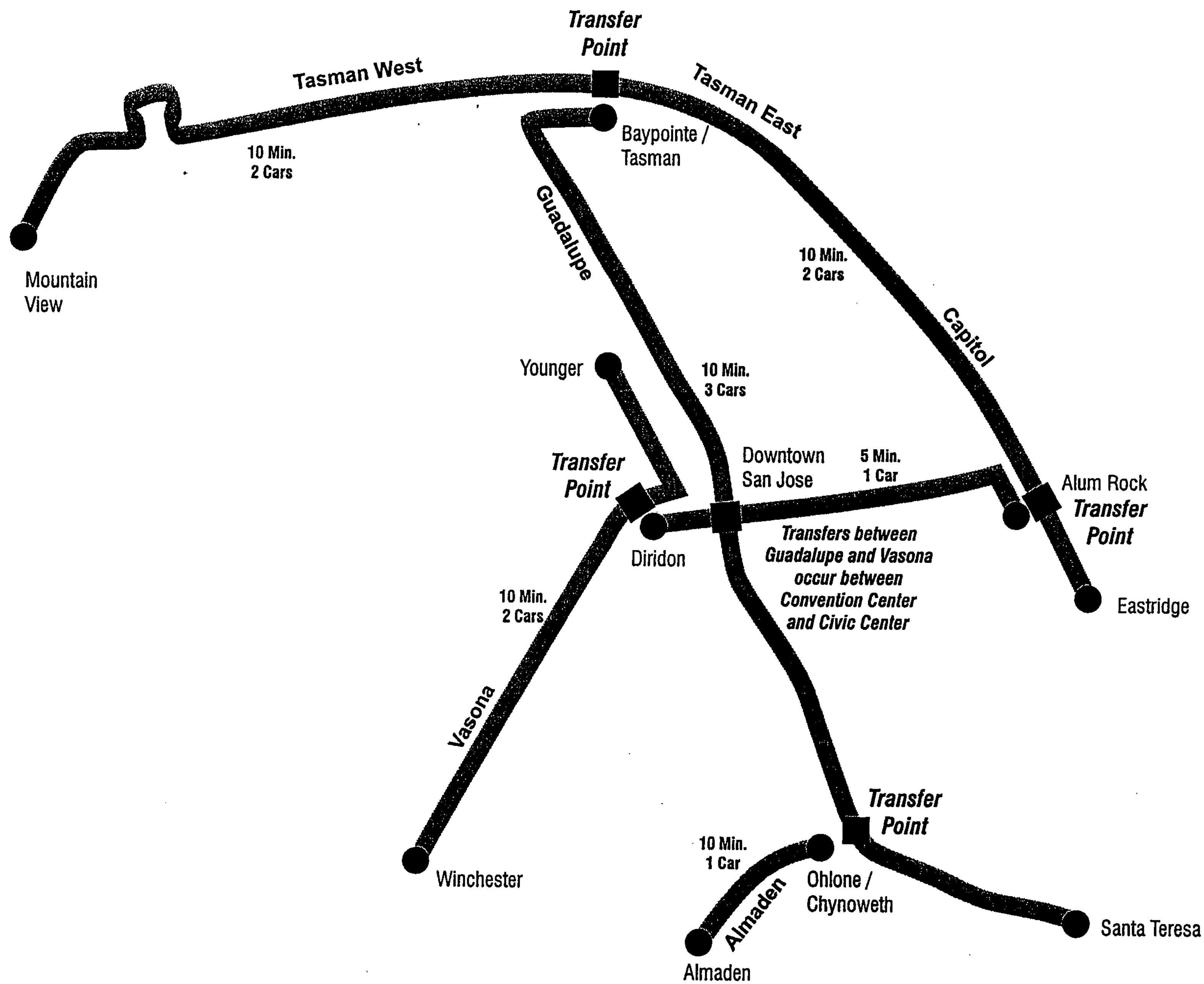


DOWNTOWN EAST VALLEY

Figure 4

Full Build Project 2010 and 2025

Korve Engineering, Inc.
Manuel Padron & Associates



DOWNTOWN EAST VALLEY

Figure 5

Streetcar 2010 and 2025

Korve Engineering, Inc.
Manuel Padron & Associates

3.0 BASE NETWORK ASSUMPTIONS

Specific assumptions concerning the roadway and transit network must be included in the travel demand model. These assumptions are made separately for 2010 and 2025. The roadway and transit improvements included in the model runs are based on a realistic level of funding. Table 1 lists the roadway improvements assumed for 2010 and 2025, along with source for their inclusion. Table 2 lists the transit projects for 2010 and 2025 and also lists the funding sources. Projects are listed for Santa Clara County, as well as applicable projects in Alameda County.

4.0 MODEL RESULTS

4.1 System Ridership

Table 3 summaries the light rail system ridership for each of the alternatives. These figures represent total daily boardings, including transfers from one light rail corridor to another corridor. Table 3 illustrates daily, AM peak, and PM peak boardings for 2010 and 2025. The No Project for Capitol Expressway results in the lowest ridership with 70,000 daily boardings in 2010 and nearly 87,000 daily boardings in 2025. For the TSM alternative, the total boardings remain nearly equal to the No Project alternative.

The Initial Project to Eastridge increases the light rail ridership by about 1,500 daily boardings over the No Project alternative in 2010 and about 3,700 daily boardings over the No Project in 2025. Maintaining bus lines 22 and 300 results in a slight decrease in light rail ridership for the Initial Project.

The Full Build Project further increases the total systemwide daily boardings by about 9,500 over the Initial Project in 2010 and 6,700 daily boardings in 2025.

Finally, the streetcar options has the greatest total systemwide daily boardings with over 80,000 daily boardings in 2010 and nearly 100,000 daily boardings in 2025.

4.2 Corridor Specific Ridership

Table 4 shows the projected ridership for various build scenarios along the Capitol Expressway corridor. The values in Table 4 represent total daily and peak hour boardings for 2010 and 2025. These values are for the Tasman West/Tasman East/Capitol corridor only. The ridership values for the No Project condition is the ridership for Tasman West/Tasman East/ Capitol Avenue corridor as depicted in Figure 1. By extending light rail from the Alum Rock station to Eastridge, the daily boardings increase by 2,250 per day in 2010 and 3,205 per day in 2025. Extending the project to Capitol/87 increases the daily by 9,790 in 2010 and by 11,075 in 2025.

Table 1 2010 and 2025 Baseline Network Assumptions (Roadway)

#	Highway and Expressway Projects	2010	2025	Source	Notes
Santa Clara County					
1	SR 85/US 101 northbound direct HOV connections in Mountain View	*	*	VTP 2020	Completed by 2005
2	Montague Expressway/San Tomas Expressway/US 101/Mission College Blvd. Interchange	*	*	VTP 2020	
3	SR 87/US 101 stem ramp connection to Trimble interchange	*	*	VTP 2020	
4	US 101 Widening to accommodate SR 85 Direct HOV Connectors in San Jose	*	*	VTP 2020	
5	SR 85/US 101 Direct HOV Connectors in San Jose	*	*	SCL Measure B	
6	US 101 Widening from Metcalf Road to Cochrane Road	*	*	SCL Measure B	(6 mixed-flow + 2 HOV)
7	Montague Expressway/I-880 interchange reconfiguration improvements	*	*	VTP 2020	
8	Coleman Avenue/I-880 interchange improvements	*	*	VTP 2020	
9	I-680 Southbound HOV lanes: ALA/SCL County Line to Montague Exp.	*	*	VTP 2020	
10	SR 87 improvements at Skyport Drive interchange	*	*	SCL Measure B	Under construction
11	SR 87 widening (HOV Lanes) between Julian Street and SR 85	*	*	SCL Measure B	Completed by 2005
12	Montague Expressway Widening from 6 to 8 lanes; I-680 to US 101	*	*	VTA 2020	
13	Montague Expressway/Commuter Rail/BART grade separation	*	*	VTA	Funded and Constr. as part of BART Extension project
14	I-880/Route 237 freeway interchange (Stages A, B & C)	*	*	SCL Measure B	Stage A under construction
15	I-880 widening from Montague to US 101	*	*	SCL Measure B	6 lanes (all mixed-flow lanes)
16	Upgrade Guadalupe Freeway to 6 lane freeway from US 101 to Julian	*	*	SCL Measure B	6 lanes (4 MF + 2 HOV) under construction
17	US 101/Hellyer Avenue interchange modifications	*	*	Local	City of San Jose Project
18	US 101/Blossom Hill Avenue interchange modifications	*	*	Local	City of San Jose Project
19	US 101 Aux Lane widening; SR 87 to Great America Parkway		*	VTP 2020	
20	Fourth St./Zanker Road/US 101 overcrossing and ramp modifications		*	VTP 2020	
21	Tully Road/US 101 interchange modifications		*	VTP 2020	
22	Tennant Avenue/US 101 interchange improvements in Morgan Hill		*	VTP 2020	

#	Highway and Expressway Projects	2010	2025	Source	Notes
23	Tenth St. (SR 152) extension and US 101 interchange improvements in Gilroy		*	VTP 2020	
24	SR 25/Santa Teresa Blvd./US 101 interchange construction		*	VTP 2020	
25	Buena Vista/US 101 interchange construction		*	VTP 2020	
26	SR 237 Widening for HOV lanes between SR 85 and US 101		*	VTP 2020	
27	SR 237 Westbound auxiliary lanes between Coyote Creek Bridge and North First St.		*	VTP 2020	
28	I-880 widening from Route 237 to Alameda County line		*	MTC RTP ‘98	10 lanes (8 mixed-flow + 2 HOV)
29	I-680 northbound HOV lane (Montague to ALA/SCL County Line)		*	VTP 2020	
30	Improvements to I-880/Stevens Creek Blvd. Interchanges		*	VTP 2020	
31	I-280/I-680 connector to southbound US 101: braided ramp with Tully Road exit ramp		*	VTP 2020	
32	Widen SR 85 from I-280 to Fremont Avenue		*	VTP 2020	
33	SR 85 Northbound to I-280 Northbound and I-280 exit to Foothill braided ramp		*	VTP 2020	
34	SR 25 upgrade to expressway standards		*	VTP 2020	
35	SR 152 safety improvements between US 101 and SR 156		*	VTP 2020	
36	Trimble Rd./Dela Cruz Blvd./US 101 Interchange improvements		*	VTP 2020	
37.	Route 85/87 interchange completion		*	SCL Measure B	
38.	Route 17/85 improvements		*	SCL Measure B	
39.	Montague Expressway/Trimble Road flyover ramp		*	VTP 2020	
40.	Central Expressway Widening for HOV lanes from SR 237 to De La Cruz Avenue		*	VTP 2020	
Alameda County (In the Project Corridor)					
41.	I-880 widening from Mission Blvd. To Santa Clara County line	*	*	MTC RTP ‘98	10 lanes (8 MF + 2 HOV)
42.	I-680 southbound HOV lane (Route 84 to ALA/SCL County Line)	*	*	ALA Measure B	
43.	I-680 northbound HOV lane (Route 84 to ALA/SCL County Line)		*	ALA Measure B	
44.	Route 84 new roadway (expressway) from Route 238 (Mission Blvd.) to I-880	*	*	ALA Measure B	4 lane new expressway
45.	I-880 Dixon Landing Route interchange improvement	*	*	MTC RTP ‘98	
46.	I-880/Mission Blvd interchange improvement	*	*	MTC RTP ‘98	

Table 2 2010 and 2025 Baseline Network Assumptions (Transit)

#	Transit Projects	2010	2025	Source	Action/Notes
Santa Clara County					
1	Vasona LRT, Winchester to Downtown San Jose	*		SCL Measure B	10-minute headways, interlined with East Valley LRT
2	Vasona LRT, Vasona Junction to Downtown San Jose		*	TBD	10-minute headways, interlined with East Valley LRT
3	Tasman East/Capitol Expressway LRT, Hostetter to Eastridge Mall	*	*	SCL Measure B	10-minute headways
4	BRT-Line 22/Line 300	*	*	SCL Measure A	Limited stop (Route 300) at 10 min. headways, 15% travel time reduction on El Camino
5	BRT-Monterey Highway		*	SCL Measure A	Downtown SJ to Santa Teresa LRT, 10 min. headway for limited stops, 10% travel time reduction on 66, 68 on Monterey Highway to San Carlos
6	Expansion of VTA bus fleet to 600 vehicles	*		SCL Measure A	Initial expansion to 600 buses by 2010
7	Expansion of VTA bus fleet to 650 vehicles		*	SC Measure A	650 buses plan from VTP 2020, does not include rail shuttles
8	Caltrain	*	*	SCL Measure A	Increase service to 100 trains SJ to SF, add express trains (SJ, MV, PA, Hillsdale, Millbrae and SF stops, 60 minute travel time), new Coyote Valley station, 20 trains serving Gilroy (6 rt in peak direction, 2-4 rt in reverse peak direction)
9	Caltrain service upgrades	*	*	SCL Measure A, other	Increase service over 20120 to 120 trains SJ to SF, Gilroy service 30 min peak period/peak direction, 60 min. reverse peak direction; electrify system; extension to Monterey County (external 2 round trips)
10	ACE service upgrade	*	*	SCL Measure A	8 peak direction trains weekday service, new Auto Mall Parkway station
11	Amtrak Capitols	*	*	Capitols 2001 Plan	11 round trips per day, Sacramento to SJ trains, new Coliseum & Union City Intermodal stations
12	San Jose Int'l Airport rail connector to BART, Caltrain and LRT	*	*	SCL Measure A	5 minute headways all day, connection to LRT in 2010, BART and Caltrain by 2025
13	BART Extension from Warm Springs to Santa Clara		*	SCL Measure A	Complete extension of BART is expected by 2012
Alameda County (In the Project Corridor)					
14	BART Extension from Fremont to Warm Springs	*	*	BART	12-minute peak/mid-day headways each train (6-minute combined frequency)
15	AC Transit southern Alameda County bus service increases		*	AC Transit	Increase to 15 min. peak/30 min. off-peak headways from 30 peak/30 off-peak headways
16	New West Dublin BART Station		*	ALA Measure B	

Table 3 Light Rail Systemwide Ridership - Total Boardings (Including Transfers)

Alternative	2010			2025		
	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
No Project	70,000	11,800	9,030	86,950	14,250	11,340
TSM	70,470	11,860	9,100	87,000	14,250	11,280
Initial Project	71,550	12,120	9,210	90,650	15,000	11,900
Full Build Project	80,100	13,800	10,420	97,350	16,320	12,790
Streetcar	80,200	13,630	10,230	98,600	16,300	12,650

Table 4 Capitol Expressway Light Rail Ridership–Total Boardings (Including Transfers)

Alternative	2010			2025		
	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
No Project	19,820	3,520	2,780	23,925	4,190	3,410
Initial Project	22,070	3,920	3,050	27,130	4,740	3,840
	(+2,250)	(+400)	(+270)	(+3,205)	(+550)	(+430)
Full Build Project	29,610	5,300	4,090	35,000	6,170	4,860
	(+9,790)	(+1,780)	(+1,310)	(+11,075)	(+1,980)	(+1,450)
Streetcar	24,070	4,280	3,250	28,400	4,970	3,900
	(+4,250)	(+760)	(+470)	(+4,475)	(+780)	(+490)

With a streetcar operating on Santa Clara/Alum Rock and light rail operating to Eastridge, the daily boardings are increased by 4,250 in 2010 and 4,475 in 2025. This scenario is the same as the Initial Project, except a streetcar system operates on Santa Clara/Alum Rock in each direction every five minutes. The streetcar operations cause ridership to increase by 2,000 daily boardings in 2010 and nearly 1,300 daily boardings in 2025 when compared to light rail on Santa Clara/Alum Rock operating on 10-minutes headways.

4.3 Corridor Boardings

Table 5 illustrates light loadings along Capitol Expressway for the Initial Build to Eastridge and for the Full Build to Capitol/87. The figures noted in Table 5 are line loadings by direction for each peak hour.

For the Initial Build, inbound in the AM and outbound in the PM are the dominate movements. For 2010, the maximum load point is between the Alum Rock and Story stations with an hourly volume of 520 passengers. For 10-minute headways, this represents nearly 90 passengers per train. The maximum outbound load point is again between the Alum Rock and Story stations with a total volume of 405 passengers or nearly 70 per train.

Table 5 Capitol Expressway Light Rail -- Light Rail Loadings

Alternative	Segment	2010				2025			
		AM Inbound	AM Outbond	PM Inbound	PM Outbound	AM Inbound	AM Outbond	PM Inbound	PM Outbound
Initial Build	Alum Rock to Story	520	50	35	405	605	55	45	485
	Story to Ocala	400	55	40	315	480	60	45	390
	Ocala to Eastridge	230	55	35	185	285	65	45	240
Full Build	Alum Rock to Story	870	110	95	730	900	130	105	750
	Story to Ocala	800	125	110	655	830	150	125	685
	Ocala to Eastridge	700	155	135	560	745	175	155	600
	Eastridge to Nieman	630	170	155	485	695	195	175	550
	Nieman to Silver Creek	530	275	210	415	580	310	235	470
	Silver creek to McLaughlin	430	405	305	330	480	460	355	385
	McLaughlin to Senter	370	480	355	280	415	550	420	330
	Senter to Monterey	280	615	455	210	330	700	535	260
	Monterey to Vista Park	180	680	500	155	200	785	595	175
	Vita Park to Capitol/87	140	730	540	125	155	835	635	145

In 2025, the maximum load points remain the same for the Initial Build project, with 605 inbound passengers in the AM and 485 outbound passengers in the PM between the Alum Rock and Story stations. This represents over 100 passenger per train in the AM and 80 passengers per train in the PM peak.

For the Full Build project to Capitol/87, the maximum load points are inbound at Alum Rock and outbound to Capitol/87 in the AM peak and inbound from Capitol/87 and outbound from Alum Rock in the PM. During the AM peak, the maximum load volume is 900 inbound passengers between Story and Alum Rock and 835 passengers outbound between Vista Park and Capitol/87. This represents 140 to 150 passengers per train. During the PM peak, the maximum load volume is 635 inbound passengers between Capitol/87 and Vista Park and 750 outbound passengers between Alum Rock and Story, or 105 to 125 passengers per train.

The train loadings expected for Capitol Expressway are well within the capacity of two-car trains sets. A two-car train has a seating capacity of 150 passengers and an additional 150 or more standees.

4.4 Total Pedestrian Volumes

The total passenger activity at a platform is used to assist in establishing the platform width and other pedestrian facilities at each station. Table 6 shows the total ons and offs at each station for the Initial Build and the Full Build alternatives. The total pedestrian volume noted in Table 6 are for daily, AM peak, and PM peak for both 2010 and 2025.

The greatest pedestrian volume occurs at the stations where the greatest line loads were recorded. For the Initial Build project, this occurs at the Alum Rock station with 870 AM passengers, in 2010. The next greatest activity for the Initial Build project is at Eastridge, where the total AM peak hour passengers are nearly 300. For 2025, the total passenger activity increases slightly.

Table 6 Total Pedestrian Activity Per LRT Platform

Alternative	Station	2010			2025		
		Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Initial Build	Alum Rock	4,170	870	370	4,335	875	400
	Story	820	135	110	910	145	120
	Ocala	1,050	180	145	1,205	205	165
	Eastridge	1,655	290	220	2,065	350	285
Full Build	Alum Rock	4,875	1,055	425	5,190	1,115	455
	Story	630	100	100	670	105	110
	Ocala	830	130	135	930	140	145
	Eastridge	1,195	170	180	1,450	205	220
	Nieman	1,300	220	150	1,610	260	190
	Silver Creek	2,050	380	235	2,465	430	280
	McLaughlin	795	145	110	960	175	135
	Senter	1,375	245	195	1,660	275	225
	Monterey	1,560	250	200	1,975	310	265
	Vista Park	565	100	75	630	110	85
	Capitol/87	4,615	870	665	5,405	990	775

For the Full Build project, the AM pedestrian activity remains high at Alum Rock with over 1,000 hourly passengers for 2010, and over 1,100 for 2025. At Capitol/87 the passengers activity is high during both peaks, with 870 in the AM and 665 in the PM for 2010, and nearly 1,000 in the AM and nearly 800 in the PM peak for 2025. The next greatest level of pedestrian activity occurs at the Silver Creek with about 400 AM passengers and 300 PM passengers.

4.5 Park-and-Ride Demand

Table 7 illustrates the park-and-ride demand for the Initial Build Project and for the Full Build project. The projected park-and-ride demand is noted for both 2010 and 2025.

For the Initial Build project, the park-and ride demand varies from 330 to 580 spaces in 2010 to 340 to 640 spaces in 2025.

For the Full Build project, the park-and-ride demand varies from 630 to 820 spaces in 2010 to 700 to 940 spaces in 2025.

The projections include 100 spaces for the relocated Caltrain station at Monterey Highway.

Table 7 Estimated Peak Park & Ride Demand

Initial Build - Light Rail to Eastridge Transit Center Only

Station	2010 Demand	2025 Demand	Capacity
Alum Rock	80	90	105
Ocala/Eastridge[1]	250-500	250-550	265[2]
Total	**330-580**	**340-640**	**370**

Notes:

1 The Ocala/Eastridge area functions as a combined area and demand is calculated for both locations combined.

2 The capacity for park-and-ride at Eastridge is estimated at 265 spaces. An additional 95 spaces could be provided at Ocala. The capacity could expand to accommodate the anticipated demand through acquiring additional property, constructing parking structures, or other arrangements at the Eastridge Shopping Center.

Full Build - Light Rail to Capitol Station (Highway 87)

Station	2010 Demand	2025 Demand	Capacity
Alum Rock	80	80	105
Ocala/Eastridge[1]	250-310	250-360	265[2]
Monterey[3]	160-260	200-300	300
Capitol	140-170	170-200	915
Total	**630-820**	**700-940**	**1,585**

Notes:

1 The Ocala/Eastridge area functions as a combined area and demand is calculated for both locations combined.

2 The capacity for park-and-ride at Eastridge is estimated at 265 spaces. An additional 95 spaces could be provided at Ocala. The capacity could expand to accommodate the anticipated demand through acquiring additional property, constructing parking structures, or other arrangements at the Eastridge Shopping Center.

3 The total demand at Monterey includes 100 spaces for relocated Caltrain station.

4.6 Kiss-and-Ride Demand

Table 8 summarizes the kiss-and-ride demand volumes. Kiss-and-ride demand can only be calculated for stations with park-and-ride facilities. At other locations some informal kiss-and-ride could occur with pick-ups and drop-offs occurring on-street near the light rail platforms.

The highest demand for kiss-and-ride occurs at Eastridge for the Initial Build and for the Full Build. The demand at the other station platforms varies from 5 to 10 kiss-and-ride spaces.

Table 8 Estimated Kiss-and-Ride Volumes

Initial Build - Light Rail to Eastridge Transit Center Only

Station	2010 Demand	2025 Demand
Alum Rock	5	5
Ocala/Eastridge	20-25	25-30

Full Build - Light Rail to Capitol Station (Highway 87)

Station	2010 Demand	2025 Demand
Alum Rock	5	5
Eastridge	15-20	20-25
Monterey	10	10
Capitol	10	10

APPENDIX

Table 2 :
Scenario 2 - 2025
No Build Capitol, Santa Clara/Alum Rock to Alum Rock

AM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	417	417	80	0	0	496
Evelyn	42	148	523	11	43	80	246
Whisman	92	45	476	5	9	48	151
Middlefield	20	68	523	15	1	44	103
Bayshore/NASA	17	51	557	91	1	58	160
Lockheed	235	6	328	203	9	148	453
Borregas	4	0	323	3	0	342	7
Crossman	5	4	323	336	20	345	385
Fair Oaks	12	74	386	87	14	662	167
Vienna	15	50	421	1	28	714	94
Reamwood	165	28	284	6	1	687	199
Old Ironsides	22	60	322	103	25	692	208
Great America	9	2	315	654	40	770	706
Lick Mill	25	41	332	52	41	1384	159
Champion	35	62	359	31	143	1394	272
Baypointe	233	78	203	294	339	1282	944
Cisco Way	0	41	244	61	0	1237	102
IH880	126	5	122	199	151	1298	482
Great Mall	62	34	95	71	130	1347	297
Montague	25	39	108	111	166	1288	341
Cropley	38	14	83	3	161	1233	216
Hostetter	10	33	106	17	199	1076	259
Berryessa	6	227	327	10	227	894	470
Penitencia Creek	12	40	356	8	157	676	217
Mckee	8	46	393	7	179	528	240
Gay Ave			520			356	314
Alum Rock	520	0	0	0	185	185	705
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
#N/A	1744	1744	0	2442	2442	0	8372
Baypointe	0	447	447	385	0	0	832
Tasman	0	56	502	26	11	385	93
River Oaks	17	120	605	35	25	399	197
Orchard	41	463	1026	84	1	410	588
Bonaventura	121	0	906	15	2	494	138
Component	63	30	874	84	1	507	178
Karina	81	25	817	118	1	590	225
Metro/Airport	81	4	741	205	28	707	318
Gish	0	28	768	239	0	885	266
Civic Center	90	54	732	55	211	1123	410
Ayer/Japantown	45	69	757	211	96	967	421
St James	585	0	172	11	125	1081	721
Santa Clara	2	8	176	25	48	968	81
Paseo de S. Antonio	9	51	218	18	129	945	207
Convention Center	112	158	264	425	0	834	695
Technology Center	14	26	277	1215	70	1259	1326
Prevost/Virginia	2	21	295	178	0	2404	201
Alma/Tamien	9	47	333	16	139	2581	213
Curtner	32	35	337	35	225	2458	328
Capitol/87	7	36	366	15	369	2268	426
Branham	21	47	393	9	228	1914	306
Ohlone/Chynoweth	58	95	429	35	485	1694	673
Blossom Hill	26	42	444	24	378	1244	470
Snell	7	84	522	7	386	889	484
Cottle	439	68	151	9	317	510	833
Santa Teresa	151	0	0	0	203	203	353
#N/A	2013	2013	0	3479	3479	0	10983
Ohlone/Chynoweth	0	11	11	158	0	0	169
Oakridge	6	1	6	17	55	158	80
Almaden	6	0	0	0	121	121	127
#N/A	12	12	0	175	175	0	375
Vasona	0	399	399	28	0	0	426
Hacienda	16	45	428	74	7	28	142
Winchester	20	291	698	27	22	95	360
Campbell	49	148	797	18	23	100	238
Hamilton	40	215	972	168	17	94	441
Bascom	160	68	881	40	54	245	322
Fruitdale	44	255	1092	557	34	231	890
Race/280			1153			754	124
Diridon	466	87	774	24	230	792	807
San Fernando	104	32	703	18	7	586	182
Convention Center	457	0	246	11	507	597	975
Paseo de S. Antonio	10	51	287	8	50	101	119
Santa Clara	26	19	279	2	6	60	52
St James	13	30	297	71	0	56	114
Ayer/Japantown	157	11	150	8	70	127	247
Civic Center	150	0	0	0	65	65	215
#N/A	1724	1724	0	1093	1093	0	5635
Diridon	0	116	116	164	0	0	280
San Fernando	98	21	39	36	3	164	158
Almaden	15	3	27	110	0	197	128
Downtown	1	4	30	205	0	307	211
5th	2	7	35	747	6	513	762
10th	9	10	37	30	0	1254	49
15th	11	20	45	9	33	1284	74
21st	6	16	55	5	61	1259	87
28th	6	17	66	5	70	1203	97
33rd	3	8	72	1	24	1139	38
Eastgate	8	16	80	3	56	1116	83
Sunset	1	6	85	0	57	1063	65
Jackson (Scharff)	2	0	83	0	204	1006	206
Sierra Vista	1	0	82	3	183	803	187
Alum Rock	82	0	0	0	623	623	705
#N/A	244	244	0	1319	1319	0	3128
#N/A	5738	5738	0	8509	8509	0	28493

PM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	108	105	368	0	0	474
Evelyn	46	49	103	122	45	368	263
Whisman	31	5	83	41	84	445	161
Middlefield	5	16	94	59	18	402	99
Bayshore/NASA	4	96	185	38	16	443	154
Lockheed	32	214	363	7	236	465	489
Borregas	0	2	370	1	4	236	8
Crossman	22	354	702	9	5	232	389
Fair Oaks	16	71	758	52	12	236	151
Vienna	30	1	728	43	16	276	90
Reamwood	3	6	731	25	65	303	99
Old Ironsides	28	100	803	49	21	263	198
Great America	41	220	982	9	9	291	279
Lick Mill	42	53	993	33	26	291	155
Champion	82	31	942	53	39	298	206
Baypointe	187	301	1055	86	178	311	752
Cisco Way	0	62	1119	43	0	219	105
IH880	139	211	1191	8	142	261	500
Great Mall	102	77	1169	32	70	127	282
Montague	165	95	1093	39	29	90	328
Cropley	145	5	955	6	43	99	200
Hostetter	180	20	795	12	13	63	224
Berryessa	189	8	615	72	5	62	275
Penitencia Creek	138	10	489	10	19	129	177
Mckee	170	11	329	18	10	119	209
Gay Ave			169			128	234
Alum Rock	160	0	0	0	167	167	327
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
#N/A	2129	2129	0	1285	1285	0	6829
Baypointe	0	259	259	397	0	0	656
Tasman	8	29	280	45	8	397	89
River Oaks	20	81	341	80	20	434	202
Orchard	7	90	424	188	39	494	324
Bonaventura	6	16	434	0	125	643	147
Component	4	90	521	18	65	518	177
Karina	4	126	643	8	85	471	223
Metro/Airport	32	219	830	6	83	394	340
Gish	0	251	1081	29	0	317	280
Civic Center	214	57	924	43	91	346	405
Ayer/Japantown	90	217	1050	83	47	297	436
St James	139	11	922	1	218	333	369
Santa Clara	46	25	901	7	3	116	81
Paseo de S. Antonio	123	19	797	53	10	121	206
Convention Center	2	231	1020	182	34	163	449
Technology Center	66	741	1701	73	15	311	894
Prevost/Virginia	0	179	1880	33	2	368	214
Alma/Tamien	108	25	1797	47	35	399	215
Curtner	164	37	1670	40	46	411	287
Capitol/87	259	8	1419	37	20	406	324
Branham	156	14	1277	47	25	423	243
Ohlone/Chynoweth	360	39	956	104	72	444	574
Blossom Hill	254	22	723	51	32	476	359
Snell	311	9	422	91	19	495	430
Cottle	268	15	169	68	470	567	820
Santa Teresa	169	0	0	0	165	165	334
#N/A	2810	2810	0	1728	1728	0	9077
Ohlone/Chynoweth	0	119	119	9	0	0	128
Oakridge	37	14	96	8	5	9	63
Almaden	96	0	0	0	11	11	107
#N/A	133	133	0	17	17	0	299
Vasona	0	54	54	343	0	0	397
Hacienda	13	73	114	41	13	343	140
Winchester	23	43	134	237	24	371	327
Campbell	32	43	145	99	50	584	225
Hamilton	28	166	284	183	38	634	413
Bascom	58	49	275	57	83	781	248
Fruitdale	36	178	418	205	50	756	470
Race/280			446			910	128
Diridon	155	59	351	66	489	980	768
San Fernando	34	19	337	30	92	556	176
Convention Center	255	10	92	1	248	495	514
Paseo de S. Antonio	40	10	63	52	11	248	112
Santa Clara	7	3	59	18	25	290	53
St James	1	57	115	33	12	283	103
Ayer/Japantown	79	10	46	11	159	304	259
Civic Center	46	0	0	0	156	156	201
#N/A	811	811	0	1456	1456	0	4534
Diridon	0	133	133	82	0	0	216
San Fernando	42	39	130	16	75	82	172
Almaden	3	114	241	8	14	23	139
Downtown	1	224	464	17	1	18	243
5th	8	185	642	19	1	34	213
10th	2	30	670	14	7	52	53
15th	36	9	644	10	9	59	64
21st	59	5	590	13	7	60	84
28th	65	5	530	15	8	67	92
33rd	17	1	514	4	4	73	26
Eastgate	51	1	465	12	5	73	69
Sunset	47	0	418	5	2	80	55
Jackson (Scharff)	105	0	313	0	4	82	109
Sierra Vista	98	2	217	1	4	79	106
Alum Rock	217	0	0	0	76	76	293
#N/A	751	751	0	216	216	0	1933
#N/A	6634	6634	0	4702	4702	0	22671

DAILY	Down Off	Down On	Down Load	Up Off	Up On	Up Load	Total Ons + Offs
Mountain View	0	1577	1577	1415	0	0	2993
Evelyn	259	848	2167	564	263	1415	1934
Whisman	531	137	1772	138	369	1716	1175
Middlefield	105	230	1897	233	68	1485	635
Bayshore/NASA	75	390	2212	392	55	1851	911
Lockheed	930	598	1880	614	755	1988	2897
Borregas	14	17	1883	19	12	1847	62
Crossman	105	965	2744	989	93	1853	2152
Fair Oaks	80	385	3049	385	78	2749	925
Vienna	134	140	3055	140	134	3058	548
Reamwood	388	98	2767	98	375	3065	958
Old Ironsides	155	446	3057	455	140	2788	1195
Great America	144	1485	4398	1499	144	3103	3272
Lick Mill	212	266	4452	277	205	4458	959
Champion	492	253	4213	271	493	4530	1509
Baypointe	1390	1077	3901	1150	1422	4309	5039
Cisco Way	2	350	4249	378	2	4036	731
IH880	812	642	4079	651	882	4413	2987
Great Mall	533	358	3904	352	568	4181	1811
Montague	581	443	3767	443	605	3968	2071
Cropley	575	72	3263	58	588	3804	1293
Hostetter	611	165	2817	156	617	3274	1549
Berryessa	632	505	2690	534	618	2814	2288
Penitencia Creek	512	138	2315	127	549	2730	1326
Mckee	560	215	1970	193	555	2308	1523
Gay Ave			1702			1945	1741
Alum Rock	1702	0	0	0	1665	1665	3367
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
#N/A	12094	12094	0	11831	11831	0	47849
Baypointe	0	2229	2229	2225	0	0	4454
Tasman	50	248	2427	236	110	2225	644
River Oaks	132	877	3172	530	146	2351	1685
Orchard	191	1284	4265	1303	141	2735	2919
Bonaventura	394	47	3917	43	363	3897	846
Component	207	335	4045	325	188	3577	1055
Karina	260	424	4208	407	238	3713	1329
Metro/Airport	367	635	4476	617	325	3883	1943
Gish	2	814	5288	833	0	4175	1648
Civic Center	1011	352	4629	361	899	5007	2622
Ayer/Japantown	504	937	5062	1011	463	4469	2915
St James	1939	46	3169	49	1805	5018	3838
Santa Clara	150	117	3136	121	151	3262	539
Paseo de S. Antonio	444	230	2921	236	434	3232	1344
Convention Center	274	1690	4337	1742	272	3034	3978
Technology Center	273	3295	7359	3566	284	4504	7417
Prevost/Virginia	13	656	8003	717	12	7786	1398
Alma/Tamien	602	350	7751	296	756	3491	2003
Curtner	824	290	7217	293	883	3030	2289
Capitol/87	1118	191	6290	173	1181	7441	2663
Branham	695	299	5893	285	700	5432	1979
Ohlone/Chynoweth	1658	538	4773	535	1695	5017	4425
Blossom Hill	1164	274	3883	311	1171	4857	2919
Snell	1184	338	3037	349	1235	3997	3104
Cottle	2238	293	1092	262	2243	3111	5036
Santa Teresa	1092	0	0	0	1130	1130	2222
#N/A	16784	16784	0	16822	16822	0	67211
Ohlone/Chynoweth	0	481	481	454	0	0	935
Oakridge	175	109	415	146	163	454	593
Almaden	415	0	0	0	437	437	852
#N/A	590	590	0	600	600	0	2379
Vasona	0	1468	1468	1305	0	0	2773
Hacienda	137	345	1676	416	91	1305	989
Winchester	161	1111	2626	1024	174	1630	2469
Campbell	374	779	3030	621	334	2480	2108
Hamilton	293	1118	3855	1235	227	2767	2873
Bascom	717	479	3617	425	749	3775	2370
Fruitdale	375	2276	5519	2066	392	5452	5109
Race/280			5819			5125	940
Diridon	2369	725	4175	491	2348	5488	5933
San Fernando	653	150	3673	149	459	3632	1411
Convention Center	2553	61	1181	62	2367	3322	5042
Paseo de S. Antonio	203	221	1199	218	189	1016	832
Santa Clara	122	74	1151	72	117	1046	386
St James	54	375	1472	376	51	1001	856
Ayer/Japantown	881	91	682	85	767	1325	1823
Civic Center	682	0	0	0	643	643	1325
#N/A	9651	9651	0	8967	8967	0	37236
Diridon	0	1334	1334	1022	0	0	2356
San Fernando	831	191	693	193	583	1022	1797
Almaden	86	364	971	394	70	1032	914
Downtown	16	658	1614	749	9	956	1431
5th	39	1686	3261	1719	25	1696	3468
10th	72	267	3457	284	65	3390	688
15th	236	94	3314	105	196	3610	630
21st	247	69	3136	68	250	3518	634
28th	278	76	2934	78	285	3336	718
33rd	88	28	2875	28	100	3129	244
Eastgate	203	54	2726	57	198	3057	512
Sunset	170	22	2579	22	175	2916	389
Jackson (Scharff)	492	2	2090	2	499	2763	995
Sierra Vista	443	22	1669	29	455	2267	949
Alum Rock	1669	0	0	0	1841	1841	3510
#N/A	4868	4868	0	4750	4750	0	19235
#N/A	43986	43986	0	42969	42969	0	173910

Table: 3
Scenario 3 TSM Capitol - 2010
Build Santa Clara/Alum Rock to Alum Rock, TSM on Capitol

AM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	346	346	69	0	0	415
Evelyn	32	139	453	8	35	69	214
Whisman	69	38	422	3	7	42	117
Middlefield	15	60	468	10	0	37	86
Bayshore/NASA	15	49	501	71	1	47	138
Lockheed	182	5	324	182	5	117	374
Borregas	3	0	322	2	0	294	5
Crossman	3	4	322	280	16	296	303
Fair Oaks	10	65	378	57	13	560	145
Vienna	10	47	414	1	25	605	83
Reamwood	156	22	280	4	1	580	183
Old Ironsides	17	58	321	96	17	584	188
Great America	8	2	315	568	28	662	606
Lick Mill	17	28	326	46	27	1202	116
Champion	25	39	341	32	71	1221	167
Baypointe	179	69	231	288	298	1182	831
Cisco Way	0	23	254	62	0	1170	86
IH880	107	3	150	152	119	1232	380
Great Mall	51	12	112	45	109	1265	216
Montague	5	4	110	47	28	1202	83
Cropley	12	15	113	3	137	1223	167
Hostetter	6	39	147	17	151	1089	213
Berryessa	5	199	341	9	214	955	428
Penitencia Creek	11	19	349	8	151	750	189
Mckee	6	37	380	6	179	807	229
Gay Ave			466			434	289
Alum Rock	466	0	0	0	246	246	712
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1415	1415	0	2066	2066	0	6960
Baypointe	0	381	381	345	0	0	726
Tasman	0	33	414	24	8	345	64
River Oaks	15	87	486	35	14	361	151
Orchard	30	204	659	79	0	382	313
Bonaventura	99	0	560	13	1	461	114
Component	46	28	543	82	1	473	158
Karina	64	23	501	118	1	554	205
Metro/Airport	59	5	448	211	21	671	296
Gish	0	22	469	231	0	861	253
Civic Center	73	49	445	45	205	1092	372
Ayer/Japantown	21	45	469	163	89	932	317
St James	373	0	96	7	104	1007	485
Santa Clara	1	6	102	18	33	910	57
Paseo de S. Antonio	8	24	118	13	121	894	165
Convention Center	49	131	201	365	0	786	545
Technology Center	10	22	214	893	59	1151	984
Prevost/Virginia	2	18	229	72	0	1985	90
Alma/Tamien	6	37	260	10	137	2057	191
Curtner	25	31	266	31	193	1930	280
Capitol/87	3	16	279	2	247	1767	268
Branham	13	36	302	8	189	1522	246
Ohlone/Chynoweth	48	62	316	31	392	1341	533
Blossom Hill	20	32	328	21	310	980	383
Snell	5	67	390	6	289	690	366
Cottle	332	55	113	7	257	406	651
Santa Teresa	113	0	0	0	157	157	270
Guadalupe Line	1412	1412	0	2829	2829	0	8483
Ohlone/Chynoweth	0	8	8	114	0	0	122
Oakridge	5	1	4	14	48	114	68
Almaden	4	0	0	0	81	81	85
Almaden Line	9	9	0	128	128	0	274
Vasona	0	249	249	18	0	0	267
Hacienda	14	41	276	53	5	18	113
Winchester	16	225	485	20	15	66	276
Campbell	39	152	598	14	18	71	224
Hamilton	29	187	758	113	12	67	341
Bascom	143	64	677	26	43	169	276
Fruitdale	31	201	846	416	25	152	673
Race/280	10	52	889	22	0	542	84
Diridon			729			565	426
San Fernando	80	32	681	30	5	451	146
Convention Center	473	0	208	8	400	476	881
Paseo de S. Antonio	5	37	240	7	37	84	86
Santa Clara	18	11	233	1	6	54	37
St James	9	19	243	56	0	49	84
Ayer/Japantown	110	8	142	6	49	105	173
Civic Center	142	0	0	0	62	62	204
Vasona Line	1337	1337	0	809	809	0	4292
Diridon	0	64	64	133	0	0	197
San Fernando	53	19	29	35	1	133	108
Almaden	10	2	21	100	0	167	112
Downtown	1	6	26	328	0	267	334
5th	1	7	33	921	2	595	931
10th	4	9	37	50	0	1514	63
15th	9	37	65	4	38	1563	88
21st	5	23	83	3	69	1530	99
28th	5	31	109	16	79	1464	131
33rd	2	17	124	1	29	1400	49
Eastgate	2	30	153	1	97	1371	131
Sunset	0	14	166	1	44	1275	59
Jackson (Scharff)	1	0	165	0	81	1232	82
Sierra Vista	1	0	165	4	144	1151	148
Alum Rock	165	0	0	0	1011	1011	1178
SC/AR	258	258	0	1596	1596	0	3709
System Total	4431	4431	0	7428	7428	0	23718

PM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	92	92	275	0	0	367
Evelyn	38	41	95	107	34	275	220
Whisman	26	3	72	32	62	348	123
Middlefield	5	11	78	48	13	319	77
Bayshore/NASA	4	76	151	32	14	354	126
Lockheed	26	192	317	5	181	371	404
Borregas	0	2	318	0	3	195	5
Crossman	18	295	596	7	3	193	323
Fair Oaks	14	60	643	39	10	197	124
Vienna	27	1	617	37	11	226	75
Reamwood	3	4	618	19	55	252	81
Old Ironsides	19	94	692	45	17	216	174
Great America	29	199	862	7	8	243	242
Lick Mill	28	48	882	22	17	242	115
Champion	52	33	863	36	28	247	148
Baypointe	156	292	999	78	128	256	654
Cisco Way	0	64	1063	26	0	206	90
IH880	106	160	1117	7	120	231	392
Great Mall	86	50	1081	11	57	118	204
Montague	26	51	1106	4	8	72	89
Cropley	128	4	982	7	15	69	155
Hostetter	145	20	857	13	7	60	185
Berryessa	181	8	685	63	5	65	257
Penitencia Creek	132	9	562	9	16	124	167
Mckee	170	9	400	16	8	117	203
Gay Ave			215			125	233
Alum Rock	215	0	0	0	151	151	366
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1819	1819	0	981	981	0	5599
Baypointe	0	226	226	334	0	0	560
Tasman	5	27	247	25	5	334	62
River Oaks	10	72	309	49	17	355	147
Orchard	5	84	389	96	29	386	215
Bonaventura	5	14	398	0	102	453	122
Component	3	88	483	15	48	351	154
Karina	3	126	606	7	67	318	203
Metro/Airport	24	225	807	5	60	259	315
Gish	0	244	1051	22	0	203	266
Civic Center	211	47	887	36	71	225	365
Ayer/Japantown	80	168	974	54	22	190	323
St James	113	7	868	1	141	222	262
Santa Clara	31	17	854	7	1	82	56
Paseo de S. Anton	115	13	753	28	9	88	163
Convention Center	1	188	939	152	17	105	357
Technology Center	53	451	1336	56	11	239	572
Prevost/Virginia	0	71	1408	24	1	284	97
Alma/Tamien	108	17	1317	37	27	307	189
Curtner	130	33	1221	36	35	317	234
Capitol/87	167	4	1058	16	13	318	199
Branham	127	12	943	35	16	320	191
Ohlone/Chynoweth	268	34	712	69	58	339	428
Blossom Hill	210	19	520	40	24	350	293
Snell	212	8	316	72	15	366	306
Cottle	210	12	118	55	355	423	631
Santa Teresa	118	0	0	0	123	123	241
Guadulupe Line	2208	2208	0	1267	1267	0	6951
Ohlone/Chynoweth	0	75	75	7	0	0	81
Oakridge	30	11	56	7	4	7	52
Almaden	56	0	0	0	9	9	65
Almaden Line	86	86	0	13	13	0	199
Vasona	0	38	38	192	0	0	230
Hacienda	11	52	79	34	11	192	108
Winchester	15	34	98	165	19	215	234
Campbell	26	38	109	94	40	361	196
Hamilton	22	110	197	147	24	415	303
Bascom	46	34	185	49	67	538	196
Fruitdale	27	128	286	150	36	520	342
Race/280	3	19	302	57	8	634	87
Diridon			266			683	409
San Fernando	25	32	273	29	71	483	158
Convention Center	210	7	70	1	231	441	449
Paseo de S. Anton	27	8	51	37	6	211	78
Santa Clara	6	2	47	11	18	242	36
St James	1	39	86	22	8	235	70
Ayer/Japantown	53	8	40	8	109	249	178
Civic Center	40	0	0	0	148	148	188
Vasona Line	594	594	0	1038	1038	0	3264
Diridon	0	100	100	42	0	0	142
San Fernando	30	36	107	14	38	42	118
Almaden	2	105	210	4	10	18	120
Downtown	1	330	540	19	0	12	349
5th	4	234	770	22	0	30	260
10th	1	46	816	14	3	52	64
15th	38	4	782	21	7	62	69
21st	67	3	718	18	6	76	94
28th	74	11	654	26	7	88	117
33rd	22	1	633	9	3	107	35
Eastgate	75	1	559	23	2	113	101
Sunset	33	1	527	10	1	134	44
Jackson (Scharff)	58	0	469	0	2	143	60
Sierra Vista	78	3	393	2	3	141	85
Alum Rock	393	0	0	0	140	140	533
SC/AR	874	874	0	222	222	0	2193
System Total	5581	5581	0	3521	3521	0	18205

DAILY	Down Off	Down On	Load	Up Off	Up On	Load	Total Ons + Offs
Mountain View	0	1279	1279	1130	0	0	2409
Evelyn	202	751	1828	491	204	1130	1648
Whisman	421	106	1513	107	284	1417	918
Middlefield	85	187	1616	191	53	1240	515
Bayshore/NASA	72	324	1868	325	52	1378	772
Lockheed	739	539	1668	551	581	1651	2409
Borregas	9	12	1671	13	8	1621	41
Crossman	80	812	2404	831	69	1626	1792
Fair Oaks	66	320	2657	320	64	2389	770
Vienna	114	125	2668	125	107	2645	471
Reamwood	357	76	2387	75	349	2662	857
Old Ironsides	113	415	2689	423	104	2389	1054
Great America	105	1260	3845	1274	105	2709	2745
Lick Mill	139	209	3914	215	133	3878	695
Champion	275	199	3838	210	279	3960	964
Baypointe	1139	1021	3720	1082	1158	3892	4400
Cisco Way	2	277	3996	300	2	3816	580
IH880	650	476	3821	489	706	4114	2320
Great Mall	439	213	3596	202	467	3897	1321
Montague	127	176	3645	169	141	3833	613
Cropley	440	71	3276	60	452	3660	1022
Hostetter	476	178	2978	168	473	3268	1295
Berryessa	595	467	2850	492	583	2963	2136
Penitencia Creek	482	92	2461	88	508	2872	1170
Mckee	548	179	2092	169	544	2452	1439
Gay Ave			1725			2077	1648
Alum Rock	1725	0	0	0	1699	1699	3424
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	9988	9988	0	9726	9726	0	39427
Baypointe	0	1928	1928	1915	0	0	3843
Tasman	34	172	2066	158	74	1915	437
River Oaks	85	644	2625	358	96	2000	1182
Orchard	131	700	3194	707	98	2261	1635
Bonaventura	325	42	2912	38	295	2871	699
Component	157	320	3074	308	137	2614	921
Karina	202	413	3286	398	185	2784	1197
Metro/Airport	271	644	3659	624	234	2997	1773
Gish	2	759	4416	770	0	3387	1531
Civic Center	933	297	3780	304	819	4157	2353
Ayer/Japantown	375	685	4090	747	341	3841	2147
St James	1311	29	2807	30	1193	4048	2562
Santa Clara	101	89	2795	92	102	2885	384
Paseo de S. Antonio	404	130	2522	134	397	2875	1064
Convention Center	126	1418	3813	1460	125	2812	3128
Technology Center	211	2246	5848	2462	221	3948	5138
Prevost/Virginia	9	284	6123	328	9	6189	630
Alma/Tamien	538	258	5843	213	665	6508	1673
Curtner	655	257	5446	260	701	6056	1873
Capitol/87	713	93	4826	76	770	5615	1652
Branham	551	243	4518	230	554	4920	1578
Ohlone/Chynoweth	1306	419	3632	413	1333	4596	3471
Blossom Hill	943	224	2912	262	947	3877	2375
Snell	866	274	2321	278	914	2992	2331
Cottle	1733	239	827	213	1727	2357	3911
Santa Teresa	827	0	0	0	843	843	1670
Guadulupe Line	12804	12804	0	12775	12775	0	51158
Ohlone/Chynoweth	0	339	339	323	0	0	662
Oakridge	149	95	285	128	140	323	512
Almaden	285	0	0	0	311	311	596
Almaden Line	434	434	0	451	451	0	1769
Vasona	0	932	932	803	0	0	1734
Hacienda	119	267	1080	326	78	303	790
Winchester	117	848	1811	771	133	1051	1869
Campbell	317	710	2204	572	287	1689	1886
Hamilton	239	859	2824	959	178	1975	2235
Bascom	614	382	2591	334	646	2756	1976
Fruitdale	283	1714	4022	1541	298	2444	3835
Race/280	66	255	4211	292	49	3687	662
Diridon			3523			3930	3219
San Fernando	475	193	3241	188	311	3051	1166
Convention Center	2306	41	976	41	2136	2929	4523
Paseo de S. Antonio	139	165	1002	163	128	833	594
Santa Clara	93	47	956	45	90	869	275
St James	35	263	1183	263	33	824	593
Ayer/Japantown	626	70	626	67	523	1053	1286
Civic Center	626	0	0	0	597	597	1223
Vasona Line	7259	7259	0	6673	6673	0	27864
Diridon	0	884	884	628	0	0	1512
San Fernando	495	166	555	170	289	628	1120
Almaden	46	294	803	306	35	509	681
Downtown	9	945	1740	1047	4	781	2004
5th	18	2028	3750	2093	9	1824	4148
10th	35	343	4058	355	35	3908	768
15th	212	123	3969	133	180	4228	648
21st	257	81	3792	81	263	4181	681
28th	282	140	3651	142	285	3999	849
33rd	96	46	3600	48	102	3855	289
Eastgate	273	81	3407	82	270	3799	705
Sunset	123	40	3325	40	124	3612	327
Jackson (Scharff)	210	2	3117	4	214	3526	429
Sierra Vista	348	28	2797	35	357	3318	768
Alum Rock	2797	0	0	0	2996	2996	5793
SC/AR	5199	5199	0	5161	5161	0	20720
System Total	35684	35684	0	34785	34785	0	140937

Table 4:
Scenario 4 TSM Capitol - 2025
Build Santa Clara/Alum Rock to Alum Rock, TSM on Capitol

AM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	406	406	77	0	0	483
Evelyn	40	145	510	11	42	77	239
Whisman	92	46	464	4	9	46	150
Middlefield	20	66	510	14	1	41	100
Bayshore/NASA	17	50	544	86	1	54	155
Lockheed	230	5	319	195	9	139	440
Borregas	4	0	315	3	0	326	7
Crossman	4	4	315	331	19	329	359
Fair Oaks	11	74	377	68	14	641	168
Vienna	13	50	414	1	29	695	92
Reamwood	165	27	276	6	1	667	198
Old Ironsides	21	60	316	103	24	672	208
Great America	9	2	309	670	40	751	721
Lick Mill	23	40	326	51	42	1382	156
Champion	34	62	354	35	144	1392	275
Baypointe	229	74	199	293	327	1283	923
Cisco Way	0	41	239	65	0	1249	106
IH880	125	5	120	203	148	1314	480
Great Mall	61	34	92	72	131	1369	298
Montague	25	39	107	116	159	1310	339
Cropley	39	13	81	3	162	1266	218
Hostetter	10	33	103	19	204	1107	266
Berryessa	6	226	324	10	224	922	467
Penitencia Creek	12	15	326	8	155	708	189
Mckee	8	47	365	7	173	562	235
Gay Ave			473			395	281
Alum Rock	473	0	0	0	237	237	711
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1677	1677	0	2455	2455	0	8262
Baypointe	0	436	436	372	0	0	807
Tasman	0	56	492	27	12	372	95
River Oaks	19	116	589	36	25	387	197
Orchard	40	464	1013	82	1	397	586
Bonaventura	114	0	899	14	1	479	131
Component	61	31	870	83	1	492	176
Karina	79	25	815	121	1	574	225
Metro/Airport	75	4	745	205	28	694	313
Gish	0	28	772	232	0	871	260
Civic Center	87	53	738	53	204	1104	397
Ayer/Japantown	44	69	763	205	98	952	417
St James	590	0	173	11	125	1059	726
Santa Clara	2	6	177	24	50	945	83
Paseo de S. Antonio	8	52	220	16	131	916	207
Convention Center	112	154	262	413	0	803	680
Technology Center	14	26	275	1179	70	1216	1289
Prevost/Virginia	2	20	293	179	0	2326	202
Alma/Tamien	10	47	330	15	140	2505	212
Curtner	33	34	331	35	227	2380	328
Capitol/87	4	23	350	2	312	2188	340
Branham	18	48	380	9	229	1878	303
Ohlone/Chynoweth	56	91	415	34	489	1658	670
Blossom Hill	27	40	429	24	374	1203	465
Snell	7	83	505	7	386	852	483
Cottle	428	70	147	9	306	473	813
Santa Teresa	147	0	0	0	176	176	323
Guadulupe Line	1976	1976	0	3389	3389	0	10728
Ohlone/Chynoweth	0	11	11	159	0	0	169
Oakridge	6	1	6	17	54	159	78
Almaden	6	0	0	0	123	123	128
Almaden Line	12	12	0	176	176	0	376
Vasona	0	336	336	27	0	0	362
Hacienda	15	46	366	71	7	27	140
Winchester	20	281	628	26	21	91	349
Campbell	44	148	731	17	23	96	232
Hamilton	38	210	903	161	17	91	426
Bascom	158	67	812	37	52	236	314
Fruitdale	42	254	1025	545	34	221	875
Race/280	12	71	1085	37	0	732	121
Diridon			742			770	754
San Fernando	101	32	673	16	8	583	157
Convention Center	449	0	224	11	500	591	960
Paseo de S. Antonio	6	49	268	8	48	103	110
Santa Clara	25	19	262	2	6	63	52
St James	13	31	280	70	0	58	114
Ayer/Japantown	150	11	141	8	72	128	241
Civic Center	141	0	0	0	64	64	205
Vasona Line	1645	1645	0	1060	1060	0	5411
Diridon	0	111	111	159	0	0	271
San Fernando	98	20	34	40	3	159	161
Almaden	14	3	23	112	0	196	130
Downtown	1	5	26	310	0	309	317
5th	1	12	37	873	4	619	891
10th	8	14	43	42	0	1488	64
15th	11	31	63	14	33	1529	89
21st	5	21	78	5	58	1510	89
28th	5	25	98	7	69	1458	106
33rd	3	14	109	1	20	1395	38
Eastgate	3	24	130	1	112	1376	139
Sunset	1	11	140	0	53	1265	66
Jackson (Scharff)	1	0	139	1	78	1213	80
Sierra Vista	1	0	138	4	157	1135	162
Alum Rock	138	0	0	0	983	983	1121
SC/AR	291	291	0	1570	1570	0	3723
System Total	5601	5601	0	8650	8650	0	28500

PM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	104	104	357	0	0	460
Evelyn	45	49	108	118	43	357	256
Whisman	31	4	80	42	83	431	160
Middlefield	5	15	90	58	18	390	96
Bayshore/NASA	4	91	177	37	17	430	149
Lockheed	32	206	351	7	230	450	475
Borregas	0	3	353	1	4	227	8
Crossman	21	349	681	9	5	223	383
Fair Oaks	16	72	737	52	12	227	151
Vienna	30	1	707	43	14	268	88
Reamwood	3	6	710	24	65	296	99
Old Ironsides	27	101	783	49	20	255	197
Great America	40	229	972	9	9	284	287
Lick Mill	43	53	982	32	24	284	152
Champion	83	36	936	52	38	292	209
Baypointe	176	301	1060	83	174	306	733
Cisco Way	0	67	1127	43	0	215	110
IH880	136	215	1207	9	140	258	500
Great Mall	103	78	1181	32	69	126	282
Montague	158	100	1124	40	29	88	326
Cropley	146	5	982	6	44	99	202
Hostetter	186	22	810	12	13	61	232
Berryessa	187	8	641	72	5	60	273
Penitencia Creek	135	10	516	5	19	127	170
Mckee	164	11	362	19	9	114	203
Gay Ave			209			123	214
Alum Rock	208	0	0	0	157	157	365
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	2136	2136	0	1253	1253	0	6779
Baypointe	0	246	240	385	0	0	631
Tasman	8	30	267	45	8	385	91
River Oaks	21	82	329	77	22	423	201
Orchard	7	88	410	189	38	478	322
Bonaventura	6	16	419	0	118	629	140
Component	4	90	505	18	63	511	175
Karina	4	129	630	8	82	467	224
Metro/Airport	32	219	817	6	77	392	334
Gish	0	245	1061	29	0	321	274
Civic Center	207	54	909	42	88	350	391
Ayer/Japantown	92	211	1028	81	47	304	432
St James	140	11	899	1	222	338	373
Santa Clara	49	24	874	7	3	117	82
Paseo de S. Anton	125	17	766	54	10	122	206
Convention Center	2	218	982	177	35	166	433
Technology Center	65	721	1638	72	15	308	873
Prevost/Virginia	0	180	1818	32	2	366	215
Alma/Tamien	108	24	1733	47	35	396	214
Curtner	166	37	1604	40	46	408	289
Capitol/87	222	6	1387	22	19	401	269
Branham	158	14	1243	48	22	405	241
Ohlone/Chynoweth	369	38	913	100	69	430	576
Blossom Hill	251	22	683	49	32	461	355
Snell	307	9	385	90	19	478	425
Cottle	259	15	141	69	458	549	801
Santa Teresa	141	0	0	0	160	160	302
Guadulupe Line	2745	2745	0	1688	1688	0	8866
Ohlone/Chynoweth	0	120	120	9	0	0	129
Oakridge	36	14	98	8	5	9	62
Almaden	98	0	0	0	11	11	109
Almaden Line	134	134	0	16	16	0	300
Vasona	0	53	53	276	0	0	330
Hacienda	14	70	110	42	12	276	138
Winchester	21	43	131	227	24	306	315
Campbell	32	43	142	99	45	510	218
Hamilton	27	159	274	178	34	584	398
Bascom	56	46	264	58	81	708	239
Fruitdale	36	172	400	204	48	684	460
Race/280	3	34	430	78	10	840	125
Diridon			345			908	720
San Fernando	34	18	329	30	89	522	170
Convention Center	247	10	92	1	239	464	498
Paseo de S. Anton	38	9	63	50	6	226	103
Santa Clara	7	3	59	19	24	270	53
St James	1	55	113	34	12	264	101
Ayer/Japantown	78	10	45	11	151	286	250
Civic Center	45	0	0	0	146	146	191
Vasona Line	781	781	0	1373	1373	0	4308
Diridon	0	135	135	82	0	0	216
San Fernando	42	43	138	15	75	82	174
Almaden	3	116	249	8	13	22	140
Downtown	1	314	561	24	1	17	339
5th	6	213	768	27	1	40	247
10th	2	39	805	20	6	66	67
15th	35	14	784	14	9	79	71
21st	56	5	733	16	6	85	84
28th	63	6	677	20	7	95	97
33rd	14	1	664	6	4	107	25
Eastgate	90	1	575	16	3	110	111
Sunset	43	0	533	8	2	123	53
Jackson (Scharff)	55	0	478	0	3	129	59
Sierra Vista	91	3	390	2	3	127	99
Alum Rock	390	0	0	0	125	125	516
SC/AR	890	890	0	258	258	0	2297
System Total	6685	6685	0	4590	4590	0	22550

DAILY	Down Off	Down On	Down Load	Up Off	Up On	Up Load	Total Ons + Offs
Mountain View	0	1541	1541	1379	0	0	2919
Evelyn	251	837	2127	553	255	1379	1895
Whisman	530	136	1733	137	368	1676	1170
Middlefield	105	223	1851	227	68	1446	622
Bayshore/NASA	77	376	2150	377	56	1605	886
Lockheed	916	575	1810	592	741	1926	2824
Borregas	13	18	1815	20	11	1777	62
Crossman	104	952	2663	975	92	1785	2122
Fair Oaks	79	387	2972	387	75	2669	928
Vienna	131	140	2981	140	130	2981	539
Reamwood	386	96	2690	96	375	2990	953
Old Ironsides	151	448	2987	457	135	2711	1190
Great America	141	1514	4360	1528	141	3033	3324
Lick Mill	208	262	4414	273	201	4420	943
Champion	490	264	4189	283	491	4492	1528
Baypointe	1346	1061	3904	1134	1379	4284	4919
Cisco Way	2	364	4266	389	2	4039	756
IH880	799	648	4115	660	869	4427	2975
Great Mall	535	358	3938	351	569	4218	1812
Montague	560	456	3835	455	584	4000	2055
Cropley	580	69	3325	55	594	3871	1299
Hostetter	630	173	2867	164	631	3333	1597
Berryessa	624	507	2750	537	611	2866	2279
Penitencia Creek	506	90	2335	80	543	2792	1218
Mckee	542	216	2010	195	538	2329	1490
Gay Ave			1746			1986	1588
Alum Rock	1746	0	0	0	1708	1708	3454
Story	0	0	0	0	0	0	0
Ocala	0	0	0	0	0	0	0
Eastridge	0	0	0	0	0	0	0
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	11969	11969	0	11704	11704	0	47347
Baypointe	0	2161	2161	2157	0	0	4318
Tasman	52	253	2362	240	111	2157	656
River Oaks	138	869	3093	524	152	2286	1683
Orchard	188	1280	4185	1299	138	2657	2906
Bonaventura	375	46	3856	42	344	3818	807
Component	202	335	3989	325	183	3516	1044
Karina	254	431	4166	415	231	3658	1331
Metro/Airport	353	635	4448	617	311	3842	1914
Gish	2	797	5244	816	0	4148	1615
Civic Center	982	342	4604	351	870	4964	2545
Ayer/Japantown	509	920	5015	994	468	4445	2891
St James	1953	45	3107	48	1818	4970	3864
Santa Clara	157	115	3065	119	158	3200	548
Paseo de S. Antonio	447	226	2844	233	437	3161	1343
Convention Center	275	1646	4214	1699	274	2957	3893
Technology Center	270	3209	7154	3478	281	4382	7238
Prevost/Virginia	13	658	7799	717	12	7579	1400
Alma/Tamien	603	344	7539	290	758	8284	1994
Curtner	830	287	6995	290	887	7816	2294
Capitol/87	974	127	6149	104	1037	7219	2241
Branham	689	299	5758	287	693	6285	1967
Ohlone/Chynoweth	1665	525	4618	522	1702	5879	4414
Blossom Hill	1154	271	3735	308	1161	4699	2893
Snell	1181	333	2888	344	1232	3845	3089
Cottle	2180	298	1006	266	2180	2957	4923
Santa Teresa	1006	0	0	0	1044	1044	2050
Guadulupe Line	16448	16448	0	16480	16480	0	65856
Ohlone/Chynoweth	0	482	482	455	0	0	938
Oakridge	171	109	420	146	159	455	585
Almaden	420	0	0	0	443	443	863
Almaden Line	591	591	0	602	602	0	2385
Vasona	0	1291	1291	1128	0	0	2419
Hacienda	137	340	1494	410	90	1128	977
Winchester	157	1083	2420	996	170	1448	2406
Campbell	360	776	2837	619	320	2274	2075
Hamilton	285	1085	3637	1203	220	2573	2793
Bascom	705	467	3398	413	737	3557	2321
Fruitdale	368	2249	5279	2038	385	3233	5039
Race/280	77	371	5573	415	59	4886	922
Diridon			4072			5241	5650
San Fernando	644	145	3573	144	450	3528	1382
Convention Center	2510	60	1123	61	2324	3222	4955
Paseo de S. Antonio	186	214	1151	211	172	959	782
Santa Clara	121	75	1105	73	116	998	384
St James	53	373	1424	374	50	955	851
Ayer/Japantown	861	90	653	84	749	1279	1784
Civic Center	653	0	0	0	614	614	1268
Vasona Line	9343	9343	0	8660	8660	0	36005
Diridon	0	1313	1313	1006	0	0	2319
San Fernando	828	200	684	201	581	1006	1810
Almaden	84	361	961	396	68	627	908
Downtown	16	947	1892	1083	9	954	2055
5th	30	1950	3812	2028	18	2028	4025
10th	67	355	4100	387	61	4039	870
15th	231	128	3997	145	191	4365	695
21st	233	79	3843	79	236	4319	627
28th	266	100	3677	103	273	4162	742
33rd	75	39	3640	39	84	3992	236
Eastgate	319	65	3386	67	319	3946	768
Sunset	152	33	3267	33	156	3694	375
Jackson (Scharff)	210	4	3061	5	219	3572	438
Sierra Vista	387	32	2706	42	397	3358	858
Alum Rock	2706	0	0	0	3003	3003	5709
SC/AR	5602	5602	0	5614	5614	0	22432
System Total	43953	43953	0	43059	43059	0	174024

Table 5a:
Scenario 5a - 2010
Build Santa Clara/Alum Rock to Alum Rock, Build Capitol to Eastridge, No Bus Lines 22 or 300

AM PEAK HOUR	Read Down Off Total	Read Down On Total	Read Down Load	Read Up Off Total	Read Up On Total	Read Up Load	Total Ons + Offs
Mountain View	0	316	316	71	0	0	387
Evelyn	31	130	415	8	35	71	205
Whisman	68	35	383	2	8	44	113
Middlefield	16	56	423	12	0	39	85
Bayshore/NASA	14	45	455	70	1	50	130
Lockheed	188	5	271	175	5	119	374
Borregas	2	0	269	2	0	289	4
Crossman	3	3	269	261	16	291	283
Fair Oaks	10	61	320	53	13	536	136
Vienna	10	43	352	1	25	576	79
Reamwood	158	21	216	3	1	551	181
Old Ironsides	16	55	254	94	17	554	182
Great America	8	3	249	587	28	631	626
Lick Mill	16	31	264	48	28	1190	121
Champion	25	44	282	34	72	1212	175
Baypointe	180	77	180	340	293	1173	890
Cisco Way	0	26	206	69	0	1220	95
IH880	107	4	103	179	121	1289	411
Great Mall	51	18	70	57	112	1347	237
Montague	5	6	71	57	28	1291	94
Cropley	12	20	79	3	135	1323	170
Hostetter	5	52	126	25	148	1191	231
Berryessa	5	226	346	10	212	1068	452
Penitencia Creek	11	87	423	14	149	866	260
Mckee	6	51	467	4	169	731	229
Gay Ave			588			566	211
Alum Rock	544	6	50	171	149	500	870
Story	2	7	55	3	122	522	134
Ocala	3	5	57	0	171	403	179
Eastridge	57	0	0	0	232	232	290
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1558	1558	0	2360	2360	0	7834
Baypointe	0	442	442	340	0	0	782
Tasman	0	34	476	24	8	340	66
River Oaks	17	88	547	35	14	356	154
Orchard	33	207	720	77	0	377	318
Bonaventura	113	0	608	13	1	454	127
Component	55	28	581	84	1	465	167
Karina	74	23	530	115	1	548	213
Metro/Airport	74	5	460	205	22	662	306
Gish	0	21	481	225	0	846	247
Civic Center	81	49	449	47	208	1071	386
Ayer/Japantown	21	44	473	156	88	909	310
St James	374	0	98	7	109	977	491
Santa Clara	1	5	103	18	35	875	59
Paseo de S. Antonio	8	26	121	13	123	858	170
Convention Center	49	134	206	355	0	748	538
Technology Center	11	22	216	886	60	1103	980
Prevost/Virginia	2	17	231	65	0	1928	83
Alma/Tamien	5	33	260	10	102	1993	150
Curtner	24	32	267	31	176	1900	263
Capitol/87	5	23	285	12	297	1755	337
Branham	14	35	305	8	188	1470	245
Ohlone/Chynoweth	50	62	318	29	386	1291	527
Blossom Hill	20	31	329	20	289	934	361
Snell	4	65	389	6	276	665	351
Cottle	330	42	101	7	248	395	626
Santa Teresa	101	0	0	0	154	154	255
Guadalupe Line	1468	1468	0	2787	2787	0	8511
Ohlone/Chynoweth	0	8	8	114	0	0	122
Oakridge	5	1	4	14	48	114	69
Almaden	4	0	0	0	79	79	84
Almaden Line	9	9	0	128	128	0	274
Vasona	0	261	261	19	0	0	279
Hacienda	14	39	285	52	5	19	111
Winchester	16	224	493	20	15	66	275
Campbell	40	152	605	14	18	70	224
Hamilton	29	185	761	117	12	66	343
Bascom	145	63	679	28	43	172	278
Fruitdale	32	202	850	428	26	157	688
Race/280			892			558	84
Diridon	221	60	731	19	153	581	453
San Fernando	81	32	683	28	5	446	145
Convention Center	474	0	209	8	397	469	878
Paseo de S. Antonio	5	37	241	7	37	80	86
Santa Clara	18	11	234	1	6	50	36
St James	9	20	244	55	0	46	83
Ayer/Japantown	110	8	143	6	46	101	170
Civic Center	143	0	0	0	62	62	205
Vasona Line	1347	1347	0	823	823	0	4341
Diridon	0	68	68	178	0	0	246
San Fernando	54	19	32	51	1	178	125
Almaden	10	2	24	111	0	228	123
Downtown	1	5	28	201	0	339	206
5th	1	4	32	854	2	539	862
10th	5	7	33	34	42	1391	88
15th	9	20	44	2	40	1384	71
21st	5	14	53	5	32	1347	55
28th	5	18	66	7	82	1320	112
33rd	3	10	73	1	36	1245	49
Eastgate	4	17	86	1	51	1209	73
Sunset	0	7	92	0	54	1160	61
Jackson (Scharff)	1	0	91	0	119	1106	120
Sierra Vista	1	0	90	0	171	988	172
Alum Rock	90	0	0	0	817	817	907
SC/AR	188	188	0	1447	1447	0	3270
System Total	4570	4570	0	7545	7545	0	24231

PM PEAK HOUR	Read Down Off Total	Read Down On Total	Read Down Load	Read Up Off Total	Read Up On Total	Read Up Load	Total Ons + Offs
Mountain View	0	94	94	263	0	0	357
Evelyn	37	41	98	106	34	263	218
Whisman	26	2	74	31	60	336	120
Middlefield	5	13	82	47	15	307	80
Bayshore/NASA	4	74	153	31	13	340	122
Lockheed	26	185	311	5	188	358	404
Borregas	0	2	313	0	3	175	5
Crossman	18	275	570	7	3	173	302
Fair Oaks	14	56	612	39	10	177	118
Vienna	27	1	585	35	11	206	74
Reamwood	3	3	586	18	55	230	79
Old Ironsides	19	92	659	44	16	193	172
Great America	29	200	830	8	8	221	244
Lick Mill	27	50	852	24	17	221	118
Champion	52	35	835	39	28	228	154
Baypointe	151	348	1032	85	129	238	713
Cisco Way	0	70	1102	29	0	194	99
IH880	108	188	1182	7	121	223	424
Great Mall	90	62	1154	13	58	109	222
Montague	25	62	1191	5	8	64	101
Cropley	126	5	1069	8	15	62	154
Hostetter	141	30	958	15	7	55	193
Berryessa	178	8	788	72	5	62	263
Penitencia Creek	129	16	674	22	16	129	183
Mckee	159	9	524	17	8	135	193
Gay Ave			457			145	132
Alum Rock	122	72	406	12	164	187	369
Story	96	4	315	7	4	35	110
Ocala	130	2	186	5	7	38	143
Eastridge	186	0	0	0	36	36	222
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	2004	2004	0	1041	1041	0	6091
Baypointe	0	221	221	398	0	0	619
Tasman	5	27	243	27	5	398	64
River Oaks	10	71	304	50	20	419	151
Orchard	4	82	382	100	33	450	219
Bonaventura	6	14	390	0	117	517	137
Component	3	90	477	15	57	401	165
Karina	3	123	596	7	77	359	211
Metro/Airport	25	219	791	5	77	288	326
Gish	0	238	1029	21	0	216	259
Civic Center	215	48	862	38	80	237	379
Ayer/Japantown	80	161	943	54	22	194	317
St James	119	7	832	1	143	225	269
Santa Clara	33	17	816	6	1	83	57
Paseo de S. Antonio	118	14	713	27	9	88	168
Convention Center	1	182	893	152	17	106	352
Technology Center	55	438	1276	53	13	240	558
Prevost/Virginia	0	64	1340	23	1	281	89
Alma/Tamien	78	16	1278	33	22	302	148
Curtner	121	33	1190	35	32	314	222
Capitol/87	195	6	1001	23	14	317	238
Branham	125	13	889	34	18	326	189
Ohlone/Chynoweth	255	33	666	69	80	342	417
Blossom Hill	188	18	496	40	23	350	269
Snell	202	8	302	69	15	367	294
Cottle	199	11	114	41	352	421	603
Santa Teresa	114	0	0	0	110	110	225
Guadalupe Line	2155	2155	0	1318	1318	0	6947
Ohlone/Chynoweth	0	75	75	7	0	0	82
Oakridge	31	11	55	7	4	7	53
Almaden	55	0	0	0	9	9	64
Almaden Line	86	86	0	14	14	0	199
Vasona	0	39	39	204	0	0	243
Hacienda	11	51	79	33	12	204	107
Winchester	15	34	97	164	19	225	233
Campbell	25	38	108	94	41	370	196
Hamilton	22	114	200	145	24	423	305
Bascom	46	35	190	48	69	543	198
Fruitdale	28	131	293	152	37	522	348
Race/280			309			637	88
Diridon	89	46	266	43	244	686	422
San Fernando	25	31	272	29	72	486	157
Convention Center	211	8	69	1	232	443	451
Paseo de S. Antonio	27	8	50	37	6	212	78
Santa Clara	6	2	46	11	18	243	36
St James	1	39	84	22	8	236	69
Ayer/Japantown	52	8	40	8	110	250	178
Civic Center	40	0	0	0	149	149	189
Vasona Line	600	600	0	1048	1048	0	3296
Diridon	0	118	118	44	0	0	162
San Fernando	29	54	142	14	39	44	136
Almaden	2	116	257	4	10	19	132
Downtown	1	228	485	13	0	14	242
5th	4	215	696	16	0	26	235
10th	42	35	689	11	4	42	92
15th	40	2	651	11	7	48	60
21st	31	6	626	12	7	52	55
28th	77	8	557	15	7	57	108
33rd	29	1	528	5	4	65	38
Eastgate	44	2	486	13	3	67	62
Sunset	43	0	443	5	1	77	50
Jackson (Scharff)	79	0	364	0	2	80	82
Sierra Vista	87	0	277	0	3	78	90
Alum Rock	277	0	0	0	75	75	352
SC/AR	785	785	0	162	162	0	1895
System Total	5630	5630	0	3584	3584	0	18428

DAILY	Read Down Off	Read Down On	Read Down Load	Read Up Off	Read Up On	Read Up Load	Total Ons + Offs
Mountain View	0	1230	1230	1088	0	0	2318
Evelyn	199	728	1760	479	201	1088	1607
Whisman	416	102	1445	104	281	1365	902
Middlefield	89	188	1545	191	56	1188	524
Bayshore/NASA	69	312	1788	313	49	1323	743
Lockheed	757	513	1544	524	599	1587	2393
Borregas	8	11	1547	12	7	1513	38
Crossman	79	748	2216	767	68	1518	1661
Fair Oaks	66	300	2450	300	65	2216	731
Vienna	116	118	2453	118	109	2452	460
Reamwood	358	71	2166	71	349	2461	848
Old Ironsides	110	404	2460	413	101	2183	1028
Great America	105	1340	3695	1353	105	2495	2903
Lick Mill	137	222	3780	228	131	3742	717
Champion	279	209	3710	222	281	3839	992
Baypointe	1130	1212	3792	1279	1148	3780	4768
Cisco Way	2	305	4096	329	2	3910	637
IH880	657	573	4012	582	720	4238	2532
Great Mall	450	259	3821	247	477	4100	1433
Montague	122	217	3916	208	140	3870	686
Cropley	435	81	3562	67	446	3938	1028
Hostetter	461	228	3326	209	463	3560	1359
Berryessa	590	492	3229	517	578	3307	2176
Penitencia Creek	477	232	2984	225	500	3246	1434
Mckee	516	196	2665	158	513	2971	1384
Gay Ave			2750			2616	1144
Alum Rock	1641	443	1552	478	1610	2723	4171
Story	341	63	1274	62	352	1591	818
Ocala	483	35	826	30	500	1301	1049
Eastridge	826	0	0	0	831	831	1657
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	11159	11159		10910	10910		44139
Baypointe	0	2091	2091	2070	0	0	4161
Tasman	35	176	2233	163	74	2070	448
River Oaks	92	646	2786	362	104	2159	1203
Orchard	138	701	3350	710	107	2417	1655
Bonaventura	363	41	3028	37	334	3020	775
Component	181	323	3170	311	161	2723	975
Karina	231	404	3343	390	213	2872	1238
Metro/Airport	317	628	3654	608	279	3049	1832
Gish	2	743	4394	751	0	3378	1496
Civic Center	969	299	3725	308	851	4129	2426
Ayer/Japantown	377	660	4008	713	341	3584	2091
St James	1328	29	2708	30	1210	3956	2597
Santa Clara	106	87	2690	89	107	2776	389
Paseo de S. Antonio	411	134	2413	139	403	2758	1087
Convention Center	128	1367	3653	1402	126	2494	3023
Technology Center	220	2201	5633	2397	230	3770	5047
Prevost/Virginia	9	260	5884	297	9	5937	575
Alma/Tamien	388	236	5732	193	492	6225	1308
Curtner	602	256	5386	259	632	5926	1748
Capitol/87	836	131	4680	120	892	5552	1979
Branham	550	241	4371	227	554	4781	1572
Ohlone/Chynoweth	1287	412	3496	403	1318	4454	3419
Blossom Hill	876	221	2841	259	875	3539	2231
Snell	832	269	2279	272	881	2923	2254
Cottle	1693	194	780	173	1685	2313	3746
Santa Teresa	780	0	0	0	801	801	1581
Guadalupe Line	12748	12748	0	12678	12678		50852
Ohlone/Chynoweth	0	341	341	323	0	0	664
Oakridge	152	94	282	128	143	323	517
Almaden	282	0	0	0	308	308	590
Almaden Line	434	434	0	451	451		1770
Vasona	0	966	966	837	0	0	1803
Hacienda	120	282	1108	321	80	837	782
Winchester	119	845	1834	767	134	1079	1864
Campbell	320	708	2222	571	289	1711	1888
Hamilton	239	864	2847	984	177	1993	2243
Bascom	620	381	2609	333	651	2780	1985
Fruitdale	286	1742	4064	1569	301	2462	3897
Race/280			4253			3730	659
Diridon	1260	518	3511	314	1242	3971	3334
San Fernando	473	191	3229	185	312	3043	1160
Convention Center	2299	41	971	41	2128	2915	4509
Paseo de S. Antonio	139	165	998	163	128	829	594
Santa Clara	92	47	952	45	89	864	273
St James	35	259	1175	261	33	820	588
Ayer/Japantown	617	71	629	68	516	1048	1271
Civic Center	629	0	0	0	599	599	1228
Vasona Line	7312	7312	0	6727	6727	0	28077
Diridon	0	985	985	735	0	0	1720
San Fernando	492	215	709	221	291	735	1218
Almaden	46	326	989	338	35	665	744
Downtown	9	614	1594	669	4	968	1295
5th	19	1895	3470	1930	9	1633	3853
10th	156	254	3569	261	152	3554	823
15th	224	72	3417	77	187	3663	560
21st	161	66	3322	66	168	3552	462
28th	296	84	3111	85	306	3451	771
33rd	119	29	3021	29	126	3229	303
Eastgate	166	51	2906	51	168	3132	437
Sunset	154	22	2774	22	158	3015	356
Jackson (Scharff)	303	1	2472	1	308	2880	613
Sierra Vista	408	3	2068	3	417	2573	831
Alum Rock	2068	0	0	0	2160	2160	4228
SC/AR	4620	4620	0	4488	4488	0	18214
System Total	36273	36273	0	35253	35253	0	143051

Table 5b:
Scenario 5b - 2010
Build Santa Clara/Alum Rock to Alum Rock, Build Capitol to Eastridge, Maintain Bus Lines 22 and 300

AM PEAK HOUR	Read Down			Read Up			Total
	Off Total	On Total	Load	Off Total	On Total	Load	Ons + Offs
Mountain View	0	315	315	70	0	0	385
Evelyn	32	130	413	8	34	70	204
Whisman	68	36	381	3	8	44	114
Middlefield	15	56	421	12	0	39	84
Bayshore/NASA	15	44	450	74	1	50	134
Lockheed	184	5	271	190	5	123	385
Borregas	2	0	269	2	0	308	4
Crossman	3	4	269	292	16	310	314
Fair Oaks	10	60	319	57	13	586	139
Vienna	10	43	352	1	25	630	78
Reamwood	156	21	218	4	1	605	181
Old Ironsides	16	54	255	100	18	609	188
Great America	8	2	249	597	28	691	635
Lick Mill	17	30	263	53	26	1260	126
Champion	26	43	280	36	72	1286	177
Baypointe	179	80	181	346	296	1250	902
Cisco Way	0	25	206	73	0	1299	98
IH880	108	4	103	178	123	1372	413
Great Mall	52	17	67	55	114	1427	237
Montague	5	5	67	58	28	1368	96
Cropley	12	20	75	3	141	1398	175
Hostetter	5	51	121	26	152	1259	234
Berryessa	5	222	338	9	216	1132	453
Penitencia Creek	10	25	352	14	157	926	206
Mckee	7	51	396	4	182	782	243
Gay Ave			500			604	196
Alum Rock	461	5	45	95	156	533	716
Story	2	7	49	3	102	472	113
Ocala	3	5	52	0	144	373	153
Eastridge	52	0	0	0	230	230	282
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1466	1466	0	2368	2368	0	7669
Baypointe	0	443	443	347	0	0	790
Tasman	0	34	476	24	8	347	66
River Oaks	19	87	545	37	15	363	157
Orchard	35	205	714	84	0	385	324
Bonaventura	114	0	601	15	1	468	130
Component	56	28	573	88	1	481	171
Karina	73	23	523	117	1	566	213
Metro/Airport	73	5	454	210	21	682	309
Gish	0	22	476	230	0	871	252
Civic Center	80	48	445	46	218	1101	392
Ayer/Japantown	21	44	468	159	90	929	314
St James	371	0	97	7	109	998	487
Santa Clara	1	6	102	18	37	896	61
Paseo de S. Antonio	8	25	119	13	124	877	170
Convention Center	49	130	200	360	0	767	539
Technology Center	11	22	211	891	60	1126	983
Prevost/Virginia	2	17	226	71	0	1958	89
Alma/Tamien	5	33	254	10	102	2029	150
Curtner	23	31	262	32	174	1937	259
Capitol/87	5	24	281	12	302	1795	343
Branham	14	35	301	8	191	1506	248
Ohlone/Chynoweth	50	63	315	30	395	1323	539
Blossom Hill	20	33	328	21	298	958	372
Snell	5	67	389	6	282	681	360
Cottle	330	42	102	8	255	405	634
Santa Teresa	102	0	0	0	158	158	259
Guadulupe Line	1466	1466	0	2840	2840	0	8612
Ohlone/Chynoweth	0	8	8	114	0	0	122
Oakridge	5	1	4	14	48	114	69
Almaden	4	0	0	0	80	80	84
Almaden Line	9	9	0	128	128	0	275
Vasona	0	284	284	19	0	0	303
Hacienda	14	40	309	52	5	19	112
Winchester	18	230	521	21	16	66	284
Campbell	41	153	634	14	18	71	226
Hamilton	30	187	790	121	12	67	351
Bascom	146	62	706	29	43	176	280
Fruitdale	34	201	873	429	26	162	690
Race/280			916			565	85
Diridon	227	59	748	18	154	587	458
San Fernando	81	32	698	30	5	451	148
Convention Center	472	0	226	8	399	475	879
Paseo de S. Antonio	9	38	255	7	38	84	91
Santa Clara	19	11	248	1	5	53	38
St James	8	20	259	56	0	48	84
Ayer/Japantown	114	8	153	6	48	104	177
Civic Center	153	0	0	0	62	62	215
Vasona Line	1376	1376	0	832	832	0	4417
Diridon	0	64	64	182	0	0	245
San Fernando	53	19	30	42	1	182	115
Almaden	10	2	21	107	0	223	119
Downtown	1	4	25	210	0	330	215
5th	1	4	29	628	2	540	636
10th	5	6	30	33	40	1166	83
15th	9	21	42	2	39	1159	71
21st	5	13	51	2	33	1122	53
28th	5	18	64	6	80	1091	108
33rd	2	10	72	0	31	1017	43
Eastgate	2	18	88	1	101	986	121
Sunset	0	7	95	0	46	887	54
Jackson (Scharff)	1	0	94	0	79	841	80
Sierra Vista	1	0	93	0	154	782	155
Alum Rock	93	0	0	0	608	608	702
SC/AR	186	186	0	1215	1215	0	2601
System Total	4503	4503	0	7384	7384	0	23774

PM PEAK HOUR	Read Down			Read Up			Total
	Off Total	On Total	Load	Off Total	On Total	Load	Ons + Offs
Mountain View	0	93	93	262	0	0	355
Evelyn	37	41	97	105	34	262	218
Whisman	26	3	74	32	61	334	122
Middlefield	5	13	82	47	14	305	78
Bayshore/NASA	4	78	157	30	14	338	126
Lockheed	26	200	331	5	183	353	416
Borregas	0	2	332	0	3	175	5
Crossman	18	308	622	7	3	173	335
Fair Oaks	14	60	669	38	10	177	122
Vienna	27	1	642	35	10	205	73
Reamwood	3	4	643	18	54	230	80
Old Ironsides	20	98	721	44	16	194	178
Great America	29	211	903	8	8	222	255
Lick Mill	28	55	931	23	18	221	124
Champion	53	37	915	38	28	227	156
Baypointe	154	355	1115	88	129	237	726
Cisco Way	0	75	1190	28	0	196	103
IH880	110	187	1267	7	122	224	426
Great Mall	91	59	1235	12	59	110	222
Montague	28	63	1270	5	8	63	104
Cropley	132	4	1141	8	15	61	160
Hostetter	146	30	1025	15	7	54	197
Berryessa	183	8	850	70	5	61	266
Penitencia Creek	138	15	728	11	16	126	181
Mckee	173	9	564	18	8	121	208
Gay Ave			491			131	134
Alum Rock	127	56	420	11	149	171	344
Story	95	4	329	7	4	33	109
Ocala	130	2	201	5	6	38	142
Eastridge	201	0	0	0	34	34	235
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	2077	2077	0	1022	1022	0	6199
Baypointe	0	229	229	398	0	0	627
Tasman	5	27	250	26	5	398	64
River Oaks	11	73	312	49	21	419	154
Orchard	4	89	397	98	35	448	226
Bonaventura	6	16	407	0	118	511	140
Component	3	92	496	15	58	393	168
Karina	3	125	618	7	76	350	212
Metro/Airport	24	224	818	5	76	281	329
Gish	0	242	1060	22	0	210	264
Civic Center	225	48	883	35	78	232	386
Ayer/Japantown	81	164	965	53	22	189	320
St James	118	7	853	1	139	220	264
Santa Clara	34	17	836	7	1	81	60
Paseo de S. Anton	118	14	732	26	9	87	168
Convention Cente	1	187	918	148	18	104	354
Technology Cente	54	443	1307	53	12	235	562
Prevost/Virginia	0	71	1378	23	1	275	96
Alma/Tamien	77	16	1317	33	22	297	149
Curtner	118	34	1233	34	31	308	218
Capitol/87	200	6	1039	24	14	312	245
Branham	128	13	924	34	18	322	192
Ohlone/Chynoweth	265	34	692	70	61	338	429
Blossom Hill	198	19	513	41	23	347	281
Snell	209	8	313	71	15	365	304
Cottle	206	12	118	41	351	421	611
Santa Teresa	118	0	0	0	111	111	229
Guadulupe Line	2210	2210	0	1316	1316	0	7052
Ohlone/Chynoweth	0	75	75	7	0	0	82
Oakridge	31	11	55	7	4	7	53
Almaden	55	0	0	0	9	9	65
Almaden Line	86	86	0	13	13	0	199
Vasona	0	39	39	228	0	0	267
Hacienda	11	51	79	34	12	228	107
Winchester	16	35	98	170	21	250	241
Campbell	26	36	109	95	42	400	198
Hamilton	22	119	205	147	26	453	313
Bascom	46	37	196	47	70	574	200
Fruitdale	28	131	299	151	39	551	349
Race/280			315			662	88
Diridon	91	45	269	42	250	712	428
San Fernando	25	33	276	29	73	503	160
Convention Cente	213	8	71	1	230	459	452
Paseo de S. Anton	28	8	50	38	9	230	84
Santa Clara	6	1	46	10	18	258	35
St James	1	39	84	22	8	251	69
Ayer/Japantown	52	8	40	8	114	265	183
Civic Center	40	0	0	0	159	159	199
Vasona Line	607	607	0	1079	1079	0	3373
Diridon	0	118	118	43	0	0	161
San Fernando	29	44	134	14	38	43	125
Almaden	2	113	245	4	10	19	128
Downtown	1	238	482	12	0	13	251
5th	4	173	651	13	0	24	190
10th	40	33	644	9	4	37	86
15th	39	2	608	12	7	43	60
21st	32	2	578	11	6	48	51
28th	75	7	510	15	6	53	103
33rd	24	0	486	5	2	62	32
Eastgate	78	1	410	14	2	65	96
Sunset	35	0	375	5	1	77	41
Jackson (Scharff)	57	0	318	0	2	81	59
Sierra Vista	81	0	238	0	3	79	84
Alum Rock	238	0	0	0	76	76	314
SC/AR	733	733	0	158	158	0	1781
System Total	5714	5714	0	3588	3588	0	18604

DAILY	Read Down			Read Up			Total
	Offs	Ons	Load	Offs	Ons	Load	Ons + Offs
Mountain View	0	1225	1225	1082	0	0	2307
Evelyn	199	727	1753	477	201	1082	1604
Whisman	418	104	1439	106	282	1358	910
Middlefield	86	187	1540	190	54	1182	517
Bayshore/NASA	72	320	1787	320	52	1318	764
Lockheed	746	554	1596	566	587	1588	2453
Borregas	8	11	1599	12	7	1565	38
Crossman	79	834	2354	853	68	1570	1834
Fair Oaks	67	309	2597	309	65	2354	750
Vienna	113	119	2603	119	106	2598	457
Reamwood	356	74	2322	74	347	2612	850
Old Ironsides	114	419	2627	427	104	2339	1064
Great America	104	1361	3883	1374	104	2661	2943
Lick Mill	139	233	3977	239	134	3931	744
Champion	281	213	3910	226	283	4036	1002
Baypointe	1138	1232	4004	1299	1157	3979	4825
Cisco Way	2	314	4317	338	2	4121	656
IH880	665	567	4218	576	728	4458	2536
Great Mall	457	250	4011	237	484	4306	1427
Montague	129	214	4096	206	147	4059	696
Cropley	452	79	3724	66	462	4118	1059
Hostetter	473	224	3474	208	475	3722	1379
Berryessa	602	485	3358	509	590	3456	2185
Penitencia Creek	500	121	2979	113	523	3375	1256
Mckee	553	198	2624	159	550	2968	1459
Gay Ave			2665			2575	1107
Alum Rock	1489	284	1460	320	1459	2639	3551
Story	304	62	1217	61	314	1499	740
Ocala	430	37	824	32	449	1247	947
Eastridge	824	0	0	0	830	830	1655
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	11052	11052	0	10805	10805	0	43713
Baypointe	0	2113	2113	2092	0	0	4205
Tasman	35	173	2251	160	75	2092	443
River Oaks	98	647	2800	364	110	2177	1219
Orchard	143	714	3371	722	111	2431	1690
Bonaventura	366	47	3052	42	337	3042	791
Component	184	329	3197	317	164	2747	995
Karina	228	410	3379	395	210	2900	1243
Metro/Airport	313	641	3707	621	275	3086	1850
Gish	2	756	4460	764	0	2431	1523
Civic Center	992	296	3764	302	875	4196	2465
Ayer/Japantown	380	666	4050	719	344	3623	2109
St James	1317	27	2760	29	1199	3998	2571
Santa Clara	110	89	2739	92	112	2828	403
Paseo de S. Antonio	411	132	2460	137	404	2808	1083
Convention Center	128	1370	3702	1405	127	2541	3030
Technology Center	216	2215	5701	2410	226	3819	5066
Prevost/Virginia	9	278	5969	315	9	6003	611
Alma/Tamien	388	237	5819	194	492	6309	1311
Curtner	590	257	5485	260	621	6011	1727
Capitol/87	850	134	4769	123	905	5650	2012
Branham	558	241	4451	227	563	4868	1589
Ohlone/Chynoweth	1313	417	3555	408	1344	4532	3482
Blossom Hill	901	227	2882	265	899	3596	2292
Snell	851	275	2306	278	900	2962	2303
Cottle	1712	197	791	176	1703	2339	3788
Santa Teresa	791	0	0	0	812	812	1604
Guadulupe Line	12885	12885	0	12815	12815	0	51399
Ohlone/Chynoweth	0	341	341	323	0	0	664
Oakridge	152	95	284	128	143	323	517
Almaden	284	0	0	0	309	309	593
Almaden Line	435	435	0	452	452	0	1773
Vasona	0	1031	1031	902	0	0	1932
Hacienda	120	264	1175	323	80	902	787
Winchester	123	883	1915	785	139	1145	1910
Campbell	322	710	2303	573	290	1792	1895
Hamilton	243	881	2942	981	182	2075	2287
Bascom	624	383	2700	335	656	2874	1997
Fruitdale	292	1740	4148	1568	307	2553	3906
Race/280			4337			3814	661
Diridon	1281	512	3569	308	1263	4056	3364
San Fernando	475	194	3287	188	314	3101	1171
Convention Center	2300	41	1028	41	2130	2975	4513
Paseo de S. Antonio	152	166	1042	164	141	886	623
Santa Clara	92	45	995	44	89	908	270
St James	35	260	1220	262	32	863	589
Ayer/Japantown	635	71	656	68	533	1092	1307
Civic Center	656	0	0	0	626	626	1282
Vasona Line	7415	7415	0	6830	6830	0	28491
Diridon	0	984	984	733	0	0	1717
San Fernando	488	189	684	194	287	733	1159
Almaden	46	315	954	327	35	641	723
Downtown	9	631	1576	684	4	933	1327
5th	19	1417	2974	1446	9	1813	2891
10th	144	237	3067	243	144	3050	767
15th	215	75	2927	79	184	3150	553
21st	159	55	2822	54	165	3045	433
28th	282	79	2620	80	285	2935	727
33rd	100	28	2549	28	105	2730	262
Eastgate	278	55	2325	54	278	2653	665
Sunset	128	24	2221	24	130	2429	305
Jackson (Scharff)	207	1	2016	1	210	2323	419
Sierra Vista	369	4	1650	4	378	2114	754
Alum Rock	1650	0	0	0	1740	1740	3390
SC/AR	4093	4093	0	3952	3952	0	16090
System Total	35880	35880	0	34853	34853	0	141466

Table 6a:
Scenario 6a - 2025
Build Santa Clara/Alum Rock to Alum Rock, Build Capitol to Eastridge, No Bus Lines 22 or 300

AM PEAK HOUR	Read Down Off Total	Read Down On Total	Read Down Load	Read Up Off Total	Read Up On Total	Read Up Load	Total Ons + Offs
Mountain View	0	404	404	89	0	0	493
Evelyn	43	140	501	13	44	89	239
Whisman	89	44	455	4	9	58	147
Middlefield	19	69	505	19	1	53	107
Bayshore/NASA	17	50	539	110	1	71	179
Lockheed	224	6	321	239	8	180	477
Borregas	4	0	316	3	0	411	7
Crossman	4	5	317	401	19	414	430
Fair Oaks	11	75	381	70	14	796	171
Vienna	13	50	418	1	27	852	90
Reamwood	162	27	284	5	1	826	195
Old Ironsides	20	61	325	114	23	830	218
Great America	9	3	318	699	38	921	749
Lick Mill	23	41	336	61	39	1582	163
Champion	33	61	364	40	139	1605	274
Baypointe	231	77	210	344	374	1505	1026
Cisco Way	0	42	251	80	0	1475	122
IH880	130	6	127	216	144	1556	495
Great Mall	64	35	98	76	130	1627	306
Montague	24	40	115	117	144	1572	325
Cropley	40	18	94	3	167	1546	228
Hostetter	10	41	124	25	204	1382	280
Berryessa	6	226	345	10	232	1203	475
Penitencia Creek	11	50	383	13	164	961	239
Mckee	8	56	431	5	185	830	254
Gay Ave			561			650	226
Alum Rock	512	7	56	192	165	579	877
Story	2	8	62	4	131	606	145
Ocala	3	6	64	0	194	479	204
Eastridge	64	0	0	0	285	285	350
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1781	1781	0	2963	2963	0	9488
Baypointe	0	488	488	420	0	0	909
Tasman	0	56	544	30	12	420	98
River Oaks	21	117	640	40	25	439	203
Orchard	45	463	1059	96	1	454	605
Bonaventura	126	0	933	16	2	550	144
Component	64	31	899	89	1	564	185
Karina	86	25	839	134	1	652	248
Metro/Airport	82	5	761	237	27	785	351
Gish	0	27	788	264	0	995	292
Civic Center	97	53	744	54	225	1259	429
Ayer/Japantown	47	68	765	216	104	1089	436
St James	589	0	177	11	133	1200	732
Santa Clara	2	6	181	23	56	1078	87
Paseo de S. Antonio	8	50	222	17	138	1045	214
Convention Center	113	152	261	403	0	924	668
Technology Center	13	27	276	1245	71	1327	1357
Prevost/Virginia	2	20	294	181	0	2501	204
Alma/Tamien	9	42	327	14	105	2682	170
Curtner	31	31	328	33	217	2590	312
Capitol/87	7	27	347	14	393	2407	441
Branham	19	43	371	9	248	2029	319
Ohlone/Chynoweth	54	84	401	31	539	1790	709
Blossom Hill	26	36	412	23	388	1282	474
Snell	7	76	482	7	413	917	503
Cottle	406	50	126	9	316	511	781
Santa Teresa	126	0	0	0	204	204	330
Guadalupe Line	1980	1980	0	3618	3618	0	11196
Ohlone/Chynoweth	0	10	10	162	0	0	173
Oakridge	5	1	6	17	55	162	79
Almaden	6	0	0	0	124	124	130
Almaden Line	11	11	0	179	179	0	381
Vasona	0	406	406	28	0	0	433
Hacienda	18	45	433	69	7	28	139
Winchester	23	290	700	26	21	90	359
Campbell	51	145	794	17	23	95	237
Hamilton	38	208	964	172	17	89	435
Bascom	160	65	870	39	52	243	316
Fruitdale	45	252	1077	571	33	229	901
Race/280			1135			767	117
Diridon	446	86	775	22	258	803	812
San Fernando	104	30	701	17	7	566	158
Convention Center	453	0	249	11	488	578	952
Paseo de S. Antonio	8	46	287	8	47	99	109
Santa Clara	25	18	280	1	6	59	50
St James	12	29	297	69	0	55	110
Ayer/Japantown	151	11	156	8	68	123	237
Civic Center	156	0	0	0	64	64	220
Vasona Line	1701	1701	0	1092	1092	0	5586
Diridon	0	113	113	204	0	0	318
San Fernando	95	21	39	36	2	204	154
Almaden	14	3	28	121	0	238	136
Downtown	1	6	32	198	0	359	205
5th	2	7	38	800	4	556	813
10th	9	11	40	30	0	1352	50
15th	11	25	54	7	32	1382	75
21st	6	17	65	3	60	1356	86
28th	6	20	79	5	66	1300	98
33rd	3	9	85	1	23	1240	36
Eastgate	7	19	98	1	55	1218	82
Sunset	1	9	105	0	51	1163	61
Jackson (Scharff)	2	0	104	0	114	1112	116
Sierra Vista	1	0	103	0	176	998	177
Alum Rock	103	0	0	0	823	823	926
SC/AR	261	261	0	1407	1407	0	3335
System Total	5734	5734	0	9259	9259	0	29986

PM PEAK HOUR	Read Down Off Total	Read Down On Total	Read Down Load	Read Up Off Total	Read Up On Total	Read Up Load	Total Ons + Offs
Mountain View	0	116	116	355	0	0	471
Evelyn	47	51	120	113	46	355	256
Whisman	31	4	93	40	81	422	157
Middlefield	5	20	108	60	17	381	103
Bayshore/NASA	4	117	220	37	17	424	174
Lockheed	32	252	441	7	224	445	514
Borregas	0	3	443	1	4	228	8
Crossman	21	422	844	9	4	225	457
Fair Oaks	15	74	903	54	11	230	155
Vienna	29	1	875	42	14	272	85
Reamwood	3	5	877	25	62	300	95
Old Ironsides	27	112	962	50	20	263	208
Great America	38	247	1172	10	9	294	305
Lick Mill	40	63	1195	33	24	294	160
Champion	78	41	1158	52	37	303	208
Baypointe	224	351	1285	86	176	318	837
Cisco Way	0	83	1367	44	0	228	127
IH880	131	226	1462	9	146	272	513
Great Mall	103	81	1441	31	73	135	287
Montague	144	102	1399	39	27	93	313
Cropley	151	5	1252	7	45	104	206
Hostetter	185	29	1096	13	13	67	240
Berryessa	195	9	909	74	5	67	283
Penitencia Creek	146	16	780	11	18	136	191
Mckee	177	11	614	19	9	129	216
Gay Ave			540			139	145
Alum Rock	140	86	487	16	159	186	401
Story	103	5	388	9	5	44	122
Ocala	152	2	239	5	8	47	166
Eastridge	239	0	0	0	44	44	283
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	2541	2541	0	1303	1303	0	7688
Baypointe	0	297	297	440	0	0	737
Tasman	8	33	322	45	8	440	94
River Oaks	20	87	389	77	24	478	208
Orchard	7	103	484	188	43	531	342
Bonaventura	6	17	495	0	131	676	154
Component	4	95	587	18	67	546	184
Karina	4	144	726	8	89	498	245
Metro/Airport	32	253	947	6	85	416	375
Gish	0	278	1225	28	0	338	307
Civic Center	229	56	1053	41	98	366	425
Ayer/Japantown	98	223	1177	80	50	309	452
St James	148	10	1039	1	221	340	380
Santa Clara	54	23	1008	7	2	120	87
Paseo de S. Anton	132	19	894	52	10	124	213
Convention Center	2	210	1101	173	36	166	420
Technology Center	67	783	1818	69	14	303	933
Prevost/Virginia	0	184	2001	30	2	359	217
Alma/Tamien	79	22	1944	42	29	387	171
Curtner	160	35	1819	38	42	400	273
Capitol/87	285	7	1542	27	20	395	339
Branham	177	14	1379	42	24	402	257
Ohlone/Chynoweth	416	35	999	92	68	421	612
Blossom Hill	287	21	753	45	30	445	384
Snell	339	9	423	82	19	460	449
Cottle	268	14	160	50	434	524	765
Santa Teresa	169	0	0	0	139	139	308
Guadalupe Line	2972	2972	0	1683	1683	0	9309
Ohlone/Chynoweth	0	124	124	8	0	0	132
Oakridge	38	13	99	8	5	8	63
Almaden	99	0	0	0	11	11	111
Almaden Line	137	137	0	16	16	0	306
Vasona	0	54	54	350	0	0	404
Hacienda	14	68	109	41	15	350	137
Winchester	21	42	129	236	28	376	326
Campbell	32	43	140	96	52	587	223
Hamilton	28	170	282	176	33	631	406
Bascom	56	47	273	54	83	773	241
Fruitdale	36	183	420	202	51	744	472
Race/280			449			895	121
Diridon	174	56	330	65	468	961	763
San Fernando	33	18	315	28	92	558	172
Convention Center	236	10	89	1	243	494	490
Paseo de S. Anton	37	9	62	47	9	252	102
Santa Clara	7	2	58	18	24	290	51
St James	1	54	111	32	11	283	98
Ayer/Japantown	76	10	44	10	152	304	249
Civic Center	44	0	0	0	162	162	206
Vasona Line	798	798	0	1432	1432	0	4461
Diridon	0	150	150	80	0	0	230
San Fernando	41	39	148	15	73	80	167
Almaden	3	125	270	8	13	23	149
Downtown	1	217	486	17	1	18	236
5th	6	192	672	19	1	35	219
10th	2	31	700	15	7	53	55
15th	34	7	673	15	9	61	65
21st	58	4	619	15	7	67	83
28th	61	6	564	18	9	75	93
33rd	16	1	549	5	4	85	26
Eastgate	49	1	501	15	4	85	69
Sunset	41	0	460	7	2	96	50
Jackson (Scharff)	72	0	389	0	3	101	75
Sierra Vista	91	0	298	0	4	98	95
Alum Rock	298	0	0	0	95	95	393
SC/AR	773	773	0	230	230	0	2006
System Total	7220	7220	0	4665	4665	0	23770

DAILY	Read Down Off	Read Down On	Read Down Load	Read Up Off	Read Up On	Read Up Load	Total Ons + Offs
Mountain View	0	1568	1568	1406	0	0	2975
Evelyn	262	827	2134	543	266	1406	1898
Whisman	524	132	1742	134	362	1683	1152
Middlefield	101	244	1884	248	64	1454	656
Bayshore/NASA	77	443	2250	444	56	1638	1019
Lockheed	897	698	2051	715	722	2026	3032
Borregas	14	18	2056	20	12	2018	63
Crossman	103	1148	3101	1172	91	2026	2513
Fair Oaks	77	397	3421	397	74	3107	944
Vienna	125	138	3434	138	125	3430	526
Reamwood	377	96	3152	96	366	3443	935
Old Ironsides	148	480	3485	489	132	3173	1249
Great America	137	1593	4941	1608	137	3530	3474
Lick Mill	199	292	5034	302	192	5002	985
Champion	476	275	4834	294	476	5112	1521
Baypointe	1481	1221	4574	1297	1514	4930	5513
Cisco Way	2	408	4980	435	2	4714	846
IH880	803	690	4867	699	872	5147	3063
Great Mall	542	371	4696	364	576	4374	1852
Montague	517	464	4644	462	541	4762	1983
Cropley	596	80	4129	65	608	4383	1349
Hostetter	625	206	3710	194	630	4140	1655
Berryessa	646	508	3572	539	632	3704	2325
Penitencia Creek	532	171	3212	156	569	3611	1427
Mckee	575	228	2865	180	568	3198	1551
Gay Ave			2953			2811	1239
Alum Rock	1642	519	1830	572	1602	2929	4335
Story	371	74	1534	76	389	[illegible]	910
Ocala	553	41	1022	35	575	1586	1203
Eastridge	1022	0	0	0	1045	1045	2066
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	13685	13685		13447	13447		54263
Baypointe	0	2451	2451	2443	0	0	4894
Tasman	51	261	2661	248	110	2443	671
River Oaks	143	883	3401	538	157	2581	1718
Orchard	202	1319	4519	1338	152	2960	3011
Bonaventura	409	50	4160	47	378	4147	884
Component	212	349	4297	339	194	3815	1094
Karina	272	469	4493	452	250	3961	1443
Metro/Airport	371	724	4847	706	328	4163	2128
Gish	2	884	5729	900	0	4541	1786
Civic Center	1076	342	4995	351	960	5141	2729
Ayer/Japantown	533	941	5403	1007	492	4032	2973
St James	1972	44	3475	47	1836	5347	3898
Santa Clara	172	111	3414	115	173	3557	570
Paseo de S. Antonio	467	224	3171	230	457	3500	1377
Convention Center	278	1581	4475	1624	276	3273	3758
Technology Center	273	3347	7548	3590	284	4821	7493
Prevost/Virginia	13	646	8181	698	12	7927	1369
Alma/Tamien	434	314	8062	263	563	8613	1574
Curtner	776	269	7554	275	815	8312	2135
Capitol/87	1186	158	6527	144	1249	7772	2737
Branham	744	287	6069	273	749	6568	2053
Ohlone/Chynoweth	1788	496	4777	489	1831	6191	4604
Blossom Hill	1178	254	3854	292	1175	4050	2898
Snell	1255	312	2911	321	1308	3967	3196
Cottle	2130	231	1012	208	2129	2980	4697
Santa Teresa	1012	0	0	0	1059	1059	2071
Guadalupe Line	16945	16945	0	16934	16934		67757
Ohlone/Chynoweth	0	491	491	464	0	0	956
Oakridge	175	107	424	145	163	464	590
Almaden	424	0	0	0	446	446	870
Almaden Line	599	599	0	609	609		2415
Vasona	0	1488	1488	1325	0	0	2813
Hacienda	143	331	1676	401	96	1325	971
Winchester	164	1106	2618	1019	177	1631	2465
Campbell	380	769	3007	611	340	2472	2100
Hamilton	286	1108	3829	1226	221	2744	2840
Bascom	713	466	3582	412	744	3749	2334
Fruitdale	375	2297	5504	2087	392	3416	5151
Race/280			5787			5111	897
Diridon	2384	710	4113	478	2361	5455	5932
San Fernando	647	139	3605	140	456	3572	1382
Convention Center	2482	59	1182	60	2297	3255	4898
Paseo de S. Antonio	191	207	1199	204	176	1018	778
Santa Clara	120	71	1150	69	115	1046	375
St James	52	362	1460	364	49	1000	826
Ayer/Japantown	854	89	695	83	742	1315	1766
Civic Center	695	0	0	0	656	656	1350
Vasona Line	9559	9559	0	8879	8879	0	36876
Diridon	0	1404	1404	1099	0	0	2503
San Fernando	812	191	782	189	567	1099	1759
Almaden	84	396	1094	425	68	721	973
Downtown	16	641	1719	719	9	1078	1384
5th	35	1807	3491	1847	21	1788	3710
10th	72	265	3684	280	65	3614	682
15th	233	95	3546	99	193	3830	620
21st	243	66	3370	66	247	3736	623
28th	270	84	3184	84	277	3556	714
33rd	86	29	3127	28	98	3354	241
Eastgate	187	56	2996	56	193	3294	492
Sunset	152	26	2870	26	158	3157	362
Jackson (Scharff)	296	2	2578	2	303	3026	603
Sierra Vista	422	3	2158	3	434	2726	863
Alum Rock	2158	0	0	0	2295	2295	4453
SC/AR	5065	5065	0	4925	4925	0	19980
System Total	45852	45852	0	44794	44794	0	181291

Table 6b:
Scenario 6b - 2025
Build Santa Clara/Alum Rock, Build Capitol to Eastridge, Maintain Bus Lines 22 and 300

AM PEAK HOUR	Read Down Off Total	Read Down On Total	Read Down Load	Read Up Off Total	Read Up On Total	Read Up Load	Total Ons + Offs
Mountain View	0	416	416	82	0	0	498
Evelyn	43	145	518	11	43	82	242
Whisman	93	45	470	4	9	50	151
Middlefield	20	67	516	18	1	45	106
Bayshore/NASA	17	50	549	95	2	63	163
Lockheed	233	6	322	211	9	156	458
Borregas	4	0	318	3	0	358	7
Crossman	4	5	319	360	20	361	389
Fair Oaks	11	75	382	67	15	702	168
Vienna	14	51	419	1	29	754	94
Reamwood	165	28	283	6	1	726	199
Old Ironsides	22	60	321	104	24	731	211
Great America	9	2	313	682	40	811	734
Lick Mill	23	40	330	56	42	1453	162
Champion	36	61	355	38	143	1467	278
Baypointe	230	78	203	349	335	1361	991
Cisco Way	0	40	243	78	0	1375	119
IH880	129	5	120	216	148	1453	498
Great Mall	60	34	94	80	128	1520	301
Montague	23	39	110	125	139	1472	326
Cropley	40	19	88	3	162	1458	224
Hostetter	9	41	120	27	201	1300	279
Berryessa	6	226	340	10	227	1125	469
Penitencia Creek	12	22	350	14	155	909	202
Mckee	8	55	397	5	173	768	242
Gay Ave			511			600	207
Alum Rock	468	7	50	113	142	532	729
Story	2	7	55	4	103	502	116
Ocala	3	6	58	0	150	403	159
Eastridge	58	0	0	0	254	254	313
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1747	1747	0	2770	2770	0	9034
Baypointe	0	498	498	383	0	0	881
Tasman	0	55	554	26	12	383	93
River Oaks	19	118	653	38	26	397	199
Orchard	43	463	1073	87	1	408	594
Bonaventura	132	0	941	16	2	495	150
Component	72	31	901	85	1	510	188
Karina	89	25	836	115	1	593	229
Metro/Airport	89	4	751	206	28	707	327
Gish	0	27	778	232	0	884	259
Civic Center	97	54	734	53	213	1116	417
Ayer/Japantown	47	68	756	209	95	957	420
St James	585	0	170	11	124	1071	721
Santa Clara	2	6	175	24	52	958	83
Paseo de S. Antonio	8	52	218	18	128	931	206
Convention Center	111	157	264	417	0	820	685
Technology Center	14	27	277	1218	69	1237	1328
Prevost/Virginia	2	21	296	181	0	2386	205
Alma/Tamien	9	42	329	15	109	2567	175
Curtner	31	31	329	35	215	2474	313
Capitol/87	5	31	354	13	383	2294	432
Branham	20	47	381	9	242	1924	317
Ohlone/Chynoweth	56	82	418	32	500	1690	681
Blossom Hill	26	41	432	24	367	1222	458
Snell	6	84	510	7	391	879	487
Cottle	429	52	133	9	301	495	792
Santa Teresa	133	0	0	0	203	203	336
Guadulupe Line	2026	2026	0	3462	3462	0	10977
Ohlone/Chynoweth	0	11	11	161	0	0	172
Oakridge	6	1	6	17	54	161	79
Almaden	6	0	0	0	124	124	130
Almaden Line	12	12	0	179	179	0	381
Vasona	0	397	397	27	0	0	424
Hacienda	17	45	425	71	7	27	141
Winchester	22	290	693	26	21	92	358
Campbell	50	148	791	18	23	97	238
Hamilton	39	216	969	169	17	91	441
Bascom	160	67	876	40	53	243	319
Fruitdale	45	254	1085	565	34	230	897
Race/280			1147			761	122
Diridon	465	85	767	22	237	798	809
San Fernando	103	32	696	17	7	584	159
Convention Center	454	0	242	11	502	593	967
Paseo de S. Antonio	9	49	283	8	48	102	114
Santa Clara	25	19	276	2	6	62	52
St James	13	30	294	70	0	57	113
Ayer/Japantown	154	11	150	8	71	128	244
Civic Center	150	0	0	0	65	65	215
Vasona Line	1716	1716	0	1092	1092	0	5616
Diridon	0	110	110	212	0	0	321
San Fernando	95	21	35	44	2	212	162
Almaden	14	3	24	127	0	253	144
Downtown	1	5	27	210	0	380	216
5th	1	7	33	610	4	590	623
10th	8	10	35	28	0	1195	47
15th	11	19	43	9	33	1223	72
21st	5	13	51	3	59	1200	81
28th	5	17	62	5	65	1144	91
33rd	3	9	68	0	20	1084	33
Eastgate	3	16	82	1	113	1064	133
Sunset	1	7	88	0	55	952	63
Jackson (Scharff)	1	0	86	0	78	898	80
Sierra Vista	1	0	85	0	170	819	171
Alum Rock	85	0	0	0	650	650	735
SC/AR	236	236	0	1250	1250	0	2973
System Total	5738	5738	0	8753	8753	0	28981

PM PEAK HOUR	Read Down Off Total	Read Down On Total	Read Down Load	Read Up Off Total	Read Up On Total	Read Up Load	Total Ons + Offs
Mountain View	0	108	108	368	0	0	476
Evelyn	46	49	111	118	46	368	259
Whisman	31	4	84	41	85	440	161
Middlefield	5	20	99	58	19	396	102
Bayshore/NASA	4	100	195	37	17	436	157
Lockheed	32	222	385	7	233	456	494
Borregas	0	2	387	1	4	230	7
Crossman	22	379	744	9	5	227	414
Fair Oaks	16	71	799	53	12	231	151
Vienna	31	1	770	44	14	272	90
Reamwood	3	6	772	25	65	301	99
Old Ironsides	27	102	846	50	22	262	201
Great America	41	230	1036	9	10	289	290
Lick Mill	43	58	1050	33	25	289	158
Champion	82	39	1007	52	40	297	213
Baypointe	183	355	1179	87	175	309	801
Cisco Way	0	80	1259	43	0	221	123
IH880	136	227	1349	9	145	264	516
Great Mall	100	86	1335	30	68	128	284
Montague	139	110	1306	40	27	90	316
Cropley	146	5	1165	8	45	103	204
Hostetter	182	31	1013	14	12	65	239
Berryessa	189	9	833	75	5	67	278
Penitencia Creek	138	16	714	7	19	136	177
Mckee	165	11	560	19	9	125	204
Gay Ave			490			134	141
Alum Rock	115	72	446	15	155	181	358
Story	95	5	358	8	5	41	113
Ocala	134	2	224	5	7	44	148
Eastridge	224	0	0	0	42	42	266
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	2407	2407	0	1313	1313	0	7440
Baypointe	0	257	257	451	0	0	708
Tasman	8	29	278	45	8	451	89
River Oaks	21	82	340	79	22	488	204
Orchard	7	94	426	188	41	544	330
Bonaventura	6	18	438	0	136	691	161
Component	4	91	525	18	75	555	187
Karina	4	123	643	8	93	499	228
Metro/Airport	32	219	830	6	92	414	350
Gish	0	245	1075	28	0	328	272
Civic Center	217	55	913	42	98	355	412
Ayer/Japantown	89	216	1040	80	50	299	434
St James	138	11	913	1	217	329	367
Santa Clara	50	24	887	7	2	113	83
Paseo de S. Anton	122	19	784	54	10	118	205
Convention Center	2	224	1006	178	34	162	438
Technology Center	64	755	1697	69	15	306	903
Prevost/Virginia	0	184	1881	31	2	360	218
Alma/Tamien	83	23	1821	42	29	389	177
Curtner	159	37	1700	37	42	402	275
Capitol/87	274	7	1433	32	20	397	333
Branham	171	14	1278	46	24	409	255
Ohlone/Chynoweth	377	37	936	101	70	431	584
Blossom Hill	245	22	713	50	31	462	347
Snell	315	9	407	90	19	482	433
Cottle	252	14	168	52	458	553	776
Santa Teresa	168	0	0	0	147	147	315
Guadulupe Line	2808	2808	0	1733	1733	0	9082
Ohlone/Chynoweth	0	122	122	9	0	0	131
Oakridge	36	14	100	8	5	9	63
Almaden	100	0	0	0	11	11	111
Almaden Line	136	136	0	16	16	0	305
Vasona	0	54	54	341	0	0	395
Hacienda	14	70	110	41	14	341	139
Winchester	21	42	131	236	25	368	325
Campbell	32	43	143	99	51	579	225
Hamilton	28	167	281	185	34	627	413
Bascom	57	49	273	56	83	778	244
Fruitdale	38	178	415	204	51	751	469
Race/280			446			903	126
Diridon	156	56	346	64	488	973	765
San Fernando	34	18	330	30	91	549	173
Convention Center	250	10	91	1	244	488	506
Paseo de S. Anton	38	10	62	50	9	245	107
Santa Clara	7	3	59	18	25	286	52
St James	1	55	113	33	12	279	101
Ayer/Japantown	77	10	46	10	156	301	253
Civic Center	46	0	0	0	155	155	201
Vasona Line	799	799	0	1448	1448	0	4495
Diridon	0	155	118	80	0	0	236
San Fernando	40	47	134	15	73	80	176
Almaden	3	131	245	8	13	22	155
Downtown	1	231	482	16	1	18	248
5th	6	162	651	17	1	33	186
10th	2	28	644	14	6	49	51
15th	35	10	608	9	9	57	62
21st	57	4	578	11	6	57	78
28th	58	5	510	14	7	61	85
33rd	14	0	486	5	4	68	22
Eastgate	91	1	410	12	4	69	108
Sunset	45	0	375	5	2	77	52
Jackson (Scharff)	58	0	318	0	3	80	59
Sierra Vista	95	0	238	0	4	78	99
Alum Rock	272	0	0	0	74	74	346
SC/AR	776	776	0	206	206	0	1963
System Total	6926	6926	0	4716	4716	0	23285

DAILY	Read Down Off	Read Down On	Read Down Load	Read Up Off	Read Up On	Read Up Load	Total Ons + Offs
Mountain View	0	1582	1582	1420	0	0	3002
Evelyn	259	837	2160	553	263	1420	1912
Whisman	533	134	1760	135	371	1709	1173
Middlefield	107	238	1892	242	69	1473	655
Bayshore/NASA	77	398	2212	399	57	1646	931
Lockheed	923	620	1909	636	748	1966	2926
Borregas	13	17	1913	19	11	1876	60
Crossman	104	1033	2842	1056	92	1883	2285
Fair Oaks	80	386	3149	386	76	2847	928
Vienna	133	143	3158	143	132	3158	550
Reamwood	386	99	2872	99	374	3168	958
Old Ironsides	156	452	3167	461	140	2893	1208
Great America	145	1541	4564	1557	145	3213	3388
Lick Mill	209	277	4632	288	203	4625	976
Champion	494	268	4406	287	495	4710	1544
Baypointe	1370	1233	4269	1310	1403	4502	5316
Cisco Way	2	397	4665	425	2	4409	825
IH880	812	689	4542	698	881	4833	3080
Great Mall	522	379	4399	372	557	4649	1829
Montague	503	484	4380	482	527	4465	1995
Cropley	583	82	3880	67	596	4419	1328
Hostetter	616	212	3476	200	621	3891	1649
Berryessa	630	508	3354	539	617	3470	2294
Penitencia Creek	506	121	2970	107	542	3393	1276
Mckee	543	228	2658	180	536	2957	1487
Gay Ave			2721			2602	1162
Alum Rock	1489	355	1586	405	1449	2696	3698
Story	311	71	1347	73	329	1652	784
Ocala	450	42	939	36	474	1395	1002
Eastridge	939	0	0	0	957	957	1896
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	13149	13149		12908	12908		52115
Baypointe	0	2375	2375	2366	0	0	4742
Tasman	51	248	2573	236	110	2366	645
River Oaks	140	875	3308	529	154	2492	1697
Orchard	197	1293	4404	1312	146	2867	2948
Bonaventura	425	52	4031	48	394	4032	918
Component	233	337	4135	327	215	3686	1112
Karina	281	414	4268	398	259	3799	1352
Metro/Airport	393	635	4510	617	350	3938	1996
Gish	2	794	5302	809	0	4205	1604
Civic Center	1043	342	4601	351	926	5014	2662
Ayer/Japantown	508	921	5015	986	467	4439	2882
St James	1936	46	3125	49	1800	4958	3830
Santa Clara	159	114	3080	118	160	3207	551
Paseo de S. Antonio	439	230	2870	236	429	3165	1334
Convention Center	272	1632	4230	1675	271	2972	3850
Technology Center	269	3271	7232	3512	279	4376	7331
Prevost/Virginia	13	648	7868	701	12	7610	1373
Alma/Tamien	444	319	7742	267	574	8298	1604
Curtner	774	274	7242	281	813	7991	2141
Capitol/87	1154	167	6255	153	1217	7459	2692
Branham	729	296	5822	282	734	6395	2041
Ohlone/Chynoweth	1687	521	4656	515	1730	5942	4452
Blossom Hill	1120	268	3804	305	1117	4727	2810
Snell	1192	333	2945	342	1245	3916	3112
Cottle	2153	237	1030	214	2150	3013	4753
Santa Teresa	1030	0	0	0	1077	1077	2107
Guadulupe Line	16640	16640	0	16627	16627		66533
Ohlone/Chynoweth	0	489	489	462	0	0	951
Oakridge	173	109	425	146	161	462	590
Almaden	425	0	0	0	447	447	872
Almaden Line	598	598	0	608	608		2412
Vasona	0	1463	1463	1300	0	0	2762
Hacienda	141	338	1659	408	95	1300	981
Winchester	161	1106	2604	1019	174	1613	2459
Campbell	376	778	3006	620	335	2458	2109
Hamilton	288	1124	3842	1241	223	2743	2876
Bascom	714	473	3600	419	746	3761	2351
Fruitdale	376	2287	5511	2076	393	3434	5132
Race/280			5809			5117	927
Diridon	2381	707	4135	476	2359	5477	5923
San Fernando	645	143	3633	144	454	3593	1386
Convention Center	2523	61	1171	62	2339	3284	4984
Paseo de S. Antonio	196	215	1190	212	182	1007	805
Santa Clara	121	74	1144	72	116	1037	383
St James	53	370	1460	372	50	994	845
Ayer/Japantown	869	90	681	84	758	1316	1801
Civic Center	681	0	0	0	642	642	1323
Vasona Line	9601	9601	0	8921	8921	0	37044
Diridon	0	1414	1414	1110	0	0	2524
San Fernando	810	212	816	210	567	1110	1799
Almaden	84	404	1136	438	68	752	994
Downtown	16	669	1789	741	9	1122	1435
5th	30	1410	3170	1444	18	1854	2901
10th	67	248	3352	266	61	3281	642
15th	231	84	3205	89	191	3486	595
21st	236	54	3022	53	240	3384	583
28th	254	70	2838	71	261	3197	655
33rd	75	26	2789	25	84	3007	210
Eastgate	320	48	2516	47	322	2948	737
Sunset	158	21	2380	21	161	2674	360
Jackson (Scharff)	212	2	2170	2	221	2534	437
Sierra Vista	415	3	1759	3	427	2316	849
Alum Rock	1759	0	0	0	1892	1892	3651
SC/AR	4666	4666	0	4521	4521	0	18373
System Total	44653	44653	0	43585	43585	0	176476

Table 7:
Scenario 7 - 2010
Build Santa Clara Alum Rock to Eastridge, Build Capitol to Highway 87

AM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	315	315	75	0	0	390
Evelyn	32	128	411	11	35	75	205
Whisman	67	35	379	3	8	51	113
Middlefield	15	55	419	15	0	46	86
Bayshore/NASA	15	44	449	87	1	61	147
Lockheed	182	5	272	238	5	148	431
Borregas	3	0	269	2	0	380	5
Crossman	3	4	271	356	15	382	379
Fair Oaks	10	61	322	61	13	722	144
Vienna	10	43	355	1	26	770	80
Reamwood	157	20	218	4	1	745	181
Old Ironsides	16	54	256	105	18	748	193
Great America	8	6	254	645	29	835	687
Lick Mill	17	32	269	61	25	1452	134
Champion	25	49	293	42	73	1487	189
Baypointe	179	36	150	320	278	1457	813
Cisco Way	0	54	203	85	0	1499	139
IH880	81	5	128	243	120	1584	450
Great Mall	44	29	113	70	111	1707	253
Montague	5	15	122	92	27	1666	138
Cropley	10	29	141	3	139	1731	182
Hostetter	5	71	207	41	151	1595	269
Berryessa	5	314	516	9	215	1485	544
Penitencia Creek	10	118	624	21	156	1279	306
Mckee	7	54	672	6	178	1144	244
Gay Ave			820			972	240
Alum Rock	722	13	111	145	178	905	1057
Story	2	18	127	2	79	872	100
Ocala	2	28	153	3	97	796	131
Eastridge	11	26	168	29	104	703	170
Nieman	3	109	274	3	103	628	219
Silver Creek	40	170	404	35	132	528	378
McLaughlin	3	79	480	2	62	431	145
Senter	9	142	613	4	92	371	247
Monterey	28	96	681	12	114	284	250
Vista Park	3	52	730	1	44	181	100
Capitol/87	730	0	0	0	138	138	868
Capitol Line	2463	2463	0	2841	2841	0	10608
Baypointe	0	425	425	290	0	0	715
Tasman	0	31	456	22	8	290	62
River Oaks	20	81	517	35	15	305	150
Orchard	38	179	658	82	0	325	299
Bonaventura	112	0	546	15	1	406	129
Component	54	28	520	93	1	420	176
Karina	73	23	470	135	1	512	232
Metro/Airport	60	5	415	237	22	645	324
Gish	0	22	436	285	0	861	307
Civic Center	73	55	418	66	107	1146	301
Ayer/Japantown	26	62	454	222	87	1106	396
St James	383	2	73	6	191	1240	582
Santa Clara	15	4	62	91	37	1055	147
Paseo de S. Antonio	7	28	83	12	118	1109	165
Convention Center	7	47	124	74	0	1003	129
Technology Center	18	33	138	1194	72	1078	1317
Prevost/Virginia	2	16	153	84	0	2199	103
Alma/Tamien	4	38	187	13	100	2284	155
Curtner	17	33	203	51	166	2196	267
Capitol/87	14	191	381	60	723	2082	987
Branham	23	34	392	8	185	1418	250
Ohlone/Chynoweth	64	62	390	27	377	1241	530
Blossom Hill	22	30	397	18	293	891	364
Snell	4	61	454	6	248	617	319
Cottle	388	43	108	7	229	374	668
Santa Teresa	108	0	0	0	152	152	260
Guadalupe Line	1533	1533	0	3134	3134	0	9333
Ohlone/Chynoweth	0	8	8	99	0	0	107
Oakridge	5	1	5	14	42	99	62
Almaden	5	0	0	0	70	70	75
Almaden Line	9	9	0	113	113	0	244
Vasona	0	275	275	18	0	0	293
Hacienda	14	33	294	53	5	18	106
Winchester	17	193	470	18	15	66	243
Campbell	42	133	561	14	18	69	208
Hamilton	30	163	694	119	11	65	323
Bascom	149	52	597	25	43	173	270
Fruitdale	33	174	738	540	25	155	772
Race/280			771			669	72
Diridon	223	52	600	21	87	688	383
San Fernando	95	41	546	63	5	622	204
Almaden	7	2	541	135	0	680	144
Downtown	159	5	387	240	229	815	633
5th	338	5	55	1060	21	825	1424
10th	21	7	40	42	21	1864	91
15th	6	21	55	4	29	1886	59
21st	4	13	64	6	48	1860	70
28th	3	19	80	9	55	1818	87
33rd	3	10	88	1	23	1772	37
Eastgate	1	18	105	2	36	1751	57
Sunset	1	8	112	0	33	1716	42
Jackson (Scharff)	1	1	113	0	96	1683	98
Sierra Vista	1	1	113	0	124	1588	127
Alum Rock	112	8	9	10	961	1464	1091
Story	1	9	18	3	80	513	93
Ocala	2	7	23	3	186	436	198
Eastridge	23	0	0	0	254	254	277
SCAR Line	1295	1295	0	2405	2405		7400
Total System	5299	5299	0	8493	8493		27585

PM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	98	98	262	0	0	360
Evelyn	37	44	105	104	34	262	219
Whisman	26	4	82	31	59	332	120
Middlefield	5	16	94	46	14	303	81
Bayshore/NASA	3	92	183	30	14	336	140
Lockheed	26	250	407	6	181	352	464
Borregas	0	2	408	0	3	176	5
Crossman	17	375	766	8	3	174	403
Fair Oaks	14	64	816	39	10	179	127
Vienna	28	1	789	35	10	208	75
Reamwood	3	4	790	17	56	233	80
Old Ironsides	20	104	874	44	16	194	184
Great America	29	231	1076	9	8	223	277
Lick Mill	26	63	1112	25	17	224	132
Champion	53	44	1103	40	28	231	165
Baypointe	147	325	1281	45	129	244	646
Cisco Way	0	88	1369	33	0	160	121
IH880	107	253	1516	9	94	193	463
Great Mall	88	75	1503	17	50	108	230
Montague	27	98	1574	9	8	74	141
Cropley	130	4	1448	14	14	75	163
Hostetter	144	46	1350	23	7	75	220
Berryessa	182	8	1175	108	5	91	303
Penitencia Creek	137	24	1062	32	16	195	209
Mckee	169	11	905	20	8	211	208
Gay Ave			837			223	158
Alum Rock	153	44	728	16	211	289	424
Story	78	2	653	19	3	93	102
Ocala	96	4	561	30	3	110	133
Eastridge	106	31	486	31	12	137	181
Nieman	74	6	417	64	8	155	152
Silver Creek	103	17	331	106	11	211	237
McLaughlin	52	2	280	53	3	306	109
Senter	74	5	211	107	10	357	195
Monterey	72	14	153	81	34	454	201
Vista Park	30	1	124	42	3	502	76
Capitol/87	124	0	0	0	541	541	665
Capitol Line	2459	2459	0	1626	1626	0	8169
Baypointe	0	180	180	380	0	0	560
Tasman	5	25	200	25	5	380	61
River Oaks	10	71	261	48	22	400	151
Orchard	5	87	344	90	37	426	219
Bonaventura	6	16	354	0	116	479	139
Component	3	99	450	15	56	362	173
Karina	3	144	590	7	77	321	231
Metro/Airport	25	253	818	5	62	252	344
Gish	0	301	1119	21	0	195	322
Civic Center	108	69	1080	49	70	216	296
Ayer/Japantown	79	227	1228	76	27	196	409
St James	203	5	1030	3	166	244	377
Santa Clara	35	20	1015	6	6	81	66
Paseo de S. Anton	113	14	915	29	8	80	164
Convention Center	1	70	984	58	6	101	135
Technology Center	70	569	1483	69	18	153	726
Prevost/Virginia	0	85	1567	23	1	204	110
Alma/Tamien	75	20	1512	36	21	226	152
Curtner	117	55	1450	36	25	241	233
Capitol/87	472	65	1043	202	28	253	767
Branham	127	12	928	33	27	426	199
Ohlone/Chynoweth	267	31	692	69	76	432	443
Blossom Hill	201	16	507	38	25	425	281
Snell	200	8	315	65	13	438	286
Cottle	207	11	119	42	413	489	674
Santa Teresa	119	0	0	0	118	118	237
Guadalupe Line	2452	2452	0	1425	1425	0	7754
Ohlone/Chynoweth	0	71	71	7	0	0	78
Oakridge	30	11	52	7	4	7	51
Almaden	52	0	0	0	9	9	62
Almaden Line	82	82	0	13	13	0	191
Vasona	0	36	36	222	0	0	258
Hacienda	11	52	77	27	12	222	101
Winchester	15	30	92	134	20	237	199
Campbell	26	33	100	77	43	351	180
Hamilton	21	117	196	122	25	385	285
Bascom	46	31	181	39	74	482	190
Fruitdale	27	143	297	126	38	447	334
Race/280			310			534	75
Diridon	70	49	289	31	245	573	394
San Fernando	47	67	309	28	89	359	231
Almaden	2	142	449	4	7	299	154
Downtown	119	281	611	14	171	296	584
5th	34	277	854	19	95	139	425
10th	23	45	876	12	20	62	100
15th	30	3	850	13	5	54	51
21st	53	7	804	11	5	62	76
28th	58	11	756	18	4	68	91
33rd	21	1	737	7	3	82	32
Eastgate	35	2	704	16	1	85	54
Sunset	31	1	673	6	1	100	39
Jackson (Scharff)	67	0	607	2	2	105	70
Sierra Vista	67	0	540	1	2	104	71
Alum Rock	287	9	262	8	93	104	397
Story	49	5	218	9	3	18	65
Ocala	99	4	123	8	6	23	117
Eastridge	123	0	0	0	25	25	147
SCAR Line	1361	1361	0	999	999		4722
Total System	6355	6355	0	4064	4064		20837

DAILY	Down Off	Down On	Down Load	Up Off	Up On	Up Load	Total Ons + Offs
Mountain View	0	1238	1238	1096	0	0	2334
Evelyn	200	729	1767	479	203	1096	1611
Whisman	415	104	1457	106	279	1373	904
Middlefield	86	194	1564	197	54	1199	530
Bayshore/NASA	70	358	1852	359	50	1342	836
Lockheed	740	688	1799	699	582	1651	2709
Borregas	9	11	1802	12	8	1768	40
Crossman	78	1014	2738	1033	68	1772	2192
Fair Oaks	65	323	2995	323	64	2738	774
Vienna	116	119	2998	119	110	2996	464
Reamwood	359	71	2709	70	350	3006	850
Old Ironsides	112	434	3032	443	102	2726	1091
Great America	106	1499	4425	1513	106	3066	3223
Lick Mill	135	261	4551	267	130	4473	793
Champion	281	244	4514	257	283	4610	1065
Baypointe	1097	1058	4476	1123	1115	4585	4393
Cisco Way	2	402	4877	427	2	4592	832
IH880	584	772	5065	781	647	5017	2782
Great Mall	426	322	4961	309	453	5152	1510
Montague	125	336	5173	327	143	5008	930
Cropley	443	100	4830	87	454	5192	1084
Hostetter	467	310	4673	293	469	4826	1540
Berryessa	599	662	4738	687	587	4651	2535
Penitencia Creek	497	314	4554	307	520	4750	1637
Mckee	542	217	4229	174	539	4537	1471
Gay Ave			4379			4172	1292
Alum Rock	2087	362	2654	370	2058	4346	4877
Story	238	76	2492	78	241	2657	632
Ocala	292	122	2322	122	296	2495	831
Eastridge	371	230	2182	236	359	2321	1195
Nieman	327	317	2172	308	349	2198	1301
Silver Creek	461	590	2301	558	443	2158	2052
McLaughlin	192	204	2313	209	188	2273	793
Senter	285	404	2432	405	283	2295	1376
Monterey	437	330	2325	332	460	2417	1559
Vista Park	141	140	2324	143	140	2290	563
Capitol/87	2324	0	0	0	2292	2292	4616
Capitol Line	14953	14953		14655	14655		59217
Baypointe	0	1907	1907	1889	0	0	3796
Tasman	35	164	2036	150	74	1889	423
River Oaks	101	630	2566	344	112	1965	1187
Orchard	150	655	3071	663	119	2198	1586
Bonaventura	362	47	2756	43	333	2742	785
Component	179	347	2924	336	159	2452	1020
Karina	229	461	3156	445	211	2629	1345
Metro/Airport	278	716	3594	697	241	2862	1932
Gish	2	915	4507	914	0	3318	1831
Civic Center	655	396	4249	409	527	4232	1987
Ayer/Japantown	396	938	4790	1039	360	4115	2732
St James	1636	35	3189	37	1565	4794	3272
Santa Clara	149	224	3265	225	149	3265	747
Paseo de S. Antonio	410	150	3005	154	399	3341	1114
Convention Center	50	512	3468	564	50	3096	1176
Technology Center	308	2947	6107	3163	313	3611	6730
Prevost/Virginia	9	314	6412	355	9	6461	687
Alma/Tamien	384	259	6287	213	492	6806	1348
Curtner	551	328	6065	326	588	6527	1794
Capitol/87	1941	765	4889	752	2028	6266	5486
Branham	572	236	4552	222	575	4990	1605
Ohlone/Chynoweth	1322	403	3632	394	1361	4637	3479
Blossom Hill	903	208	2937	245	900	3670	2255
Snell	763	258	2432	261	806	3014	2087
Cottle	1827	200	805	179	1817	2470	4022
Santa Teresa	805	0	0	0	831	831	1636
Guadalupe Line	14015	14015	0	14017	14017		56063
Ohlone/Chynoweth	0	310	310	293	0	0	602
Oakridge	140	94	264	128	131	293	491
Almaden	264	0	0	0	290	290	554
Almaden Line	404	404	0	420	420		1647
Vasona	0	986	986	869	0	0	1855
Hacienda	119	248	1115	307	79	869	752
Winchester	119	735	1730	677	135	1097	1667
Campbell	326	633	2037	512	295	1639	1766
Hamilton	241	808	2604	904	179	1856	2132
Bascom	632	332	2304	295	664	2581	1923
Fruitdale	288	1841	3857	1692	303	2212	4124
Race/280			4008			3601	581
Diridon	1125	486	3369	283	1107	3802	3001
San Fernando	711	287	2945	278	460	2978	1736
Almaden	37	396	3303	406	30	2796	868
Downtown	1156	730	2877	801	1078	3172	3766
5th	1038	2353	4192	2415	978	2895	6783
10th	196	289	4284	304	179	4333	967
15th	146	88	4226	97	124	4457	455
21st	170	71	4127	71	179	4430	491
28th	182	103	4048	105	194	4322	585
33rd	74	37	4011	37	80	4233	229
Eastgate	104	61	3969	62	107	4190	334
Sunset	90	28	3907	28	95	4145	240
Jackson (Scharff)	222	6	3691	6	232	4078	466
Sierra Vista	273	7	3425	7	287	3852	574
Alum Rock	2362	84	1147	91	2414	3573	4951
Story	202	82	1027	77	226	1250	588
Ocala	435	67	659	63	478	1100	1042
Eastridge	659	0	0	0	685	685	1344
SCAR Line	10974	10974	0	10636	10636		43219
Total System	40345	40345	0	39728	39728		160145

Table 8:
Scenario 8 - 2025
Build Santa Clara/Alum Rock to Eastridge, Build Capitol to Highway 87

AM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	411	411	86	0	0	497
Evelyn	42	148	517	11	43	86	244
Whisman	91	46	471	4	9	54	151
Middlefield	20	67	518	26	1	49	113
Bayshore/NASA	18	51	551	111	2	74	181
Lockheed	235	6	322	255	9	183	505
Borregas	4	0	318	3	0	429	7
Crossman	4	5	319	427	19	432	456
Fair Oaks	12	75	383	71	15	840	173
Vienna	13	50	420	1	29	897	93
Reamwood	165	27	281	6	1	869	198
Old Ironsides	22	61	321	110	24	874	216
Great America	9	4	315	715	40	960	768
Lick Mill	24	41	333	63	41	1635	169
Champion	34	71	369	45	142	1656	291
Baypointe	229	33	173	310	305	1559	876
Cisco Way	0	120	293	91	0	1563	212
IH880	100	8	201	260	143	1654	511
Great Mall	53	51	199	96	127	1771	326
Montague	24	65	240	157	125	1741	372
Cropley	37	28	231	3	157	1774	226
Hostetter	10	59	280	43	199	1620	311
Berryessa	6	334	608	11	224	1464	575
Penitencia Creek	11	72	669	20	152	1251	256
Mckee	8	60	721	7	173	1119	248
Gay Ave			885			954	256
Alum Rock	769	13	129	175	160	883	1117
Story	1	20	148	8	75	899	104
Ocala	2	31	176	11	98	832	142
Eastridge	15	31	193	55	105	745	207
Nieman	5	121	309	9	124	695	258
Silver Creek	50	201	460	41	140	580	432
McLaughlin	4	95	551	3	71	481	173
Senter	10	159	700	10	96	414	275
Monterey	35	118	783	14	142	328	308
Vista Park	4	55	834	2	48	200	108
Capitol/87	834	0	0	0	154	154	988
Capitol Line	2904	2904	0	3268	3268	0	12344
Baypointe	0	476	476	313	0	0	789
Tasman	0	52	527	27	11	313	90
River Oaks	21	110	616	35	26	329	191
Orchard	45	387	958	84	1	338	517
Bonaventura	129	0	829	14	2	421	145
Component	70	30	789	90	1	434	192
Karina	88	25	726	123	1	523	237
Metro/Airport	80	5	650	234	28	644	347
Gish	0	28	678	272	0	850	301
Civic Center	88	66	657	75	110	1122	339
Ayer/Japantown	51	97	703	288	93	1086	528
St James	610	1	94	7	209	1281	828
Santa Clara	22	6	78	108	55	1079	191
Paseo de S. Antonio	10	50	118	17	123	1132	200
Convention Center	10	68	176	89	0	1026	167
Technology Center	29	36	182	1536	82	1115	1683
Prevost/Virginia	2	22	202	194	0	2569	219
Alma/Tamien	8	47	242	22	108	2763	185
Curtner	24	35	253	58	200	2677	317
Capitol/87	17	228	464	64	843	2535	1152
Branham	30	46	479	9	227	1756	312
Ohlone/Chynoweth	73	92	499	31	474	1538	671
Blossom Hill	28	41	512	22	353	1095	444
Snell	6	81	586	7	334	764	428
Cottle	496	56	146	9	264	438	825
Santa Teresa	146	0	0	0	182	182	328
Guadalupe Line	2084	2084	0	3728	3728	0	11625
Ohlone/Chynoweth	0	12	12	145	0	0	156
Oakridge	6	1	7	17	49	145	73
Almaden	7	0	0	0	113	113	120
Almaden Line	13	13	0	162	162	0	349
Vasona	0	371	371	26	0	0	397
Hacienda	17	38	392	72	7	26	133
Winchester	21	254	625	25	20	91	321
Campbell	49	134	710	17	23	96	224
Hamilton	39	185	857	174	17	90	416
Bascom	162	57	753	37	53	248	310
Fruitdale	46	230	936	663	34	232	972
Race/280			987			861	109
Diridon	457	81	611	26	156	896	720
San Fernando	125	42	527	50	6	766	223
Almaden	8	3	523	158	0	809	170
Downtown	175	6	353	238	249	967	668
5th	306	8	55	957	28	956	1299
10th	26	11	40	36	23	1885	96
15th	6	20	54	15	25	1897	67
21st	4	16	66	5	36	1886	61
28th	6	16	77	8	46	1856	76
33rd	3	8	82	2	15	1817	28
Eastgate	2	17	97	2	34	1804	54
Sunset	1	8	104	0	33	1772	41
Jackson (Scharff)	1	1	104	0	87	1740	89
Sierra Vista	1	2	105	0	121	1653	124
Alum Rock	101	7	11	9	1044	1532	1161
Story	1	10	20	6	91	497	107
Ocala	2	7	25	4	196	413	210
Eastridge	25	0	0	0	220	220	245
SCAR Line	1595	1595	0	2565	2565	0	8320
Total System	6596	6596	0	9723	9723	0	32638

PM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	113	113	363	0	0	475
Evelyn	46	49	116	121	45	363	262
Whisman	31	4	89	42	83	439	161
Middlefield	5	27	111	59	18	397	109
Bayshore/NASA	4	117	223	38	18	438	176
Lockheed	32	269	460	7	235	458	544
Borregas	0	2	462	1	4	230	7
Crossman	21	450	891	10	4	226	485
Fair Oaks	16	75	950	54	12	232	157
Vienna	30	1	920	43	14	273	88
Reamwood	3	6	923	24	66	302	99
Old Ironsides	27	108	1003	50	21	260	207
Great America	41	249	1211	11	9	289	309
Lick Mill	42	65	1233	33	25	291	165
Champion	81	46	1198	53	38	299	218
Baypointe	164	311	1345	43	174	314	691
Cisco Way	0	95	1439	58	0	184	152
IH880	130	267	1576	10	115	241	522
Great Mall	98	102	1580	38	61	137	299
Montague	126	142	1596	49	28	114	345
Cropley	141	5	1460	13	42	135	202
Hostetter	180	47	1327	20	12	106	260
Berryessa	187	9	1150	122	5	114	323
Penitencia Creek	132	23	1041	20	19	231	194
Mckee	164	15	892	22	9	232	209
Gay Ave			818			245	169
Alum Rock	136	68	750	16	233	323	453
Story	74	9	685	22	3	106	108
Ocala	97	12	600	33	4	125	146
Eastridge	108	59	551	37	16	154	221
Nieman	93	12	470	74	12	175	191
Silver Creek	110	27	387	131	13	237	281
McLaughlin	61	3	329	69	3	354	137
Senter	79	10	261	124	11	420	223
Monterey	103	17	174	103	42	533	265
Vista Park	33	1	143	44	4	594	83
Capitol/87	143	0	0	0	634	634	777
Capitol Line	2821	2821	0	2036	2036	0	9715
Baypointe	0	196	196	427	0	0	623
Tasman	8	30	217	45	8	427	90
River Oaks	21	81	278	76	24	464	202
Orchard	7	89	360	171	44	516	312
Bonaventura	6	15	369	0	134	643	155
Component	4	97	462	17	73	510	191
Karina	4	131	589	8	92	454	235
Metro/Airport	33	249	805	6	83	370	370
Gish	0	287	1093	29	0	293	316
Civic Center	110	77	1061	60	86	322	333
Ayer/Japantown	87	296	1269	115	53	296	552
St James	226	6	1049	3	257	358	492
Santa Clara	53	25	1021	7	10	104	96
Paseo de S. Anton	118	19	923	51	11	101	199
Convention Center	2	86	1007	79	9	141	176
Technology Center	82	878	1803	85	28	211	1074
Prevost/Virginia	0	196	1999	34	2	269	233
Alma/Tamien	80	31	1949	45	29	300	185
Curtner	147	62	1864	40	34	317	283
Capitol/87	574	72	1361	239	40	322	925
Branham	160	14	1215	45	35	522	254
Ohlone/Chynoweth	372	36	879	101	87	532	595
Blossom Hill	241	20	658	50	31	545	343
Snell	284	9	383	87	17	564	397
Cottle	244	14	153	55	528	634	840
Santa Teresa	153	0	0	0	161	161	314
Guadalupe Line	3017	3017	0	1875	1875	0	9784
Ohlone/Chynoweth	0	119	119	9	0	0	129
Oakridge	36	13	96	8	5	9	62
Almaden	96	0	0	0	12	12	108
Almaden Line	133	133	0	17	17	0	299
Vasona	0	50	50	317	0	0	368
Hacienda	14	70	107	33	13	317	131
Winchester	21	39	126	201	24	337	285
Campbell	32	40	134	87	50	514	209
Hamilton	28	173	280	153	34	550	388
Bascom	58	45	267	47	85	669	235
Fruitdale	36	191	422	182	53	631	461
Race/280			451			760	113
Diridon	132	63	382	54	479	818	728
San Fernando	57	54	379	28	115	394	254
Almaden	3	164	541	9	7	307	183
Downtown	139	285	686	18	188	309	630
5th	42	252	896	23	92	139	408
10th	28	39	907	16	25	70	109
15th	28	17	895	12	5	62	62
21st	41	6	861	14	5	68	66
28th	51	9	819	15	7	77	82
33rd	13	3	809	4	4	85	24
Eastgate	35	2	775	14	2	86	53
Sunset	32	0	744	6	1	97	40
Jackson (Scharff)	61	0	683	1	2	102	64
Sierra Vista	73	0	610	2	3	101	78
Alum Rock	333	8	286	8	86	101	435
Story	63	8	230	10	5	23	85
Ocala	117	4	117	8	8	28	138
Eastridge	117	0	0	0	28	28	145
SCAR Line	1557	1557	0	1329	1329	0	5772
Total System	7528	7528	0	5257	5257	0	25570

DAILY	Down Off	Down On	Down Load	Up Off	Up On	Up Load	Total Ons + Offs
Mountain View	0	1580	1580	1418	0	0	2999
Evelyn	258	845	2168	561	263	1418	1927
Whisman	530	137	1774	138	368	1717	1173
Middlefield	104	258	1928	262	67	1487	691
Bayshore/NASA	80	444	2291	446	60	1682	1030
Lockheed	929	743	2105	760	755	2067	3187
Borregas	13	17	2110	19	11	2072	60
Crossman	103	1223	3230	1246	91	2080	2662
Fair Oaks	82	400	3548	400	78	3235	959
Vienna	131	140	3557	140	131	3557	542
Reamwood	387	97	3266	97	376	3566	956
Old Ironsides	155	469	3581	478	139	3287	1240
Great America	143	1650	5088	1666	143	3626	3601
Lick Mill	209	298	5178	309	202	5149	1017
Champion	485	305	4998	324	486	5257	1600
Baypointe	1295	1018	4721	1091	1327	5094	4729
Cisco Way	2	582	5301	610	2	4858	1195
IH880	717	833	5418	842	787	5467	3179
Great Mall	499	464	5383	458	533	5522	1954
Montague	467	633	5549	631	491	5446	2223
Cropley	562	103	5090	87	575	5586	1326
Hostetter	610	295	4776	284	615	5099	1804
Berryessa	624	721	4873	752	611	4767	2708
Penitencia Creek	497	238	4615	221	533	4909	1489
Mckee	540	257	4332	199	533	4597	1529
Gay Ave			4503			4263	1380
Alum Rock	2167	444	2780	452	2128	4462	5191
Story	226	107	2662	107	231	2786	671
Ocala	301	161	2522	160	308	2662	929
Eastridge	389	341	2474	344	375	2514	1450
Nieman	417	380	2437	365	449	2483	1611
Silver Creek	509	757	2684	714	484	2399	2464
McLaughlin	226	255	2714	261	220	2630	962
Senter	308	472	2877	475	304	2671	1559
Monterey	553	423	2747	419	581	2842	1976
Vista Park	164	150	2733	153	161	2680	629
Capitol/87	2733	0	0	0	2672	2672	5405
Capitol Line	17673	17673	0	17329	17329	0	70003
Baypointe	0	2119	2119	2116	0	0	4235
Tasman	50	243	2312	230	110	2116	633
River Oaks	145	853	3020	504	159	2236	1660
Orchard	204	1128	3944	1147	154	2581	2632
Bonaventura	416	45	3572	41	386	3574	888
Component	229	351	3695	340	210	3230	1129
Karina	279	437	3853	420	257	3359	1392
Metro/Airport	370	714	4197	694	326	3523	2104
Gish	2	915	5110	921	0	3891	1838
Civic Center	720	469	4859	484	590	4812	2262
Ayer/Japantown	527	1287	5619	1403	484	4707	3701
St James	2318	44	3345	48	2235	5627	4646
Santa Clara	220	271	3396	272	222	3440	985
Paseo de S. Antonio	447	245	3194	251	431	3490	1374
Convention Center	78	680	3796	745	78	3311	1581
Technology Center	429	4046	7413	4322	434	3978	9231
Prevost/Virginia	13	695	8095	755	12	7866	1475
Alma/Tamien	446	356	8005	298	584	8609	1685
Curtner	705	365	7665	366	751	8323	2187
Capitol/87	2387	916	6194	893	2503	7939	6698
Branham	726	292	5759	278	728	6329	2024
Ohlone/Chynoweth	1693	515	4581	508	1739	5879	4454
Blossom Hill	1097	259	3743	294	1093	4648	2742
Snell	1039	325	3029	334	1085	3849	2782
Cottle	2260	251	1020	227	2250	3098	4987
Santa Teresa	1020	0	0	0	1075	1075	2095
Guadalupe Line	17819	17819	0	17891	17891	0	71418
Ohlone/Chynoweth	0	463	463	434	0	0	896
Oakridge	164	108	407	146	151	434	568
Almaden	407	0	0	0	428	428	836
Almaden Line	571	571	0	579	579	0	2300
Vasona	0	1360	1360	1213	0	0	2573
Hacienda	140	318	1538	388	93	1213	938
Winchester	157	980	2362	912	170	1508	2219
Campbell	374	714	2702	575	333	2249	1996
Hamilton	287	1052	3467	1166	222	2492	2727
Bascom	721	426	3173	383	752	3435	2282
Fruitdale	380	2354	5146	2179	398	3065	5310
Race/280			5402			4847	844
Diridon	2188	733	3947	480	2165	5161	5566
San Fernando	940	270	3277	256	661	3476	2126
Almaden	60	499	3715	529	49	3070	1136
Downtown	1275	775	3215	867	1185	3550	4103
5th	947	2196	4464	2272	875	3232	6291
10th	233	292	4522	317	206	4628	1048
15th	155	111	4478	121	130	4739	517
21st	145	69	4402	70	153	4730	436
28th	181	83	4304	85	191	4647	541
33rd	57	32	4279	33	64	4541	186
Eastgate	108	54	4225	55	114	4509	331
Sunset	95	24	4154	24	101	4450	245
Jackson (Scharff)	217	5	3942	5	227	4373	454
Sierra Vista	286	9	3665	9	301	4151	605
Alum Rock	2539	84	1210	93	2616	3859	5332
Story	249	98	1059	93	285	1336	725
Ocala	499	67	627	67	551	1143	1182
Eastridge	627	0	0	0	659	659	1286
SCAR Line	12937	12937	0	12561	12561	0	50996
Total System	48999	48999	0	48359	48359	0	194717

Table 9
Scenario 9 Alternative Streetcar - 2010
Build Capitol to Eastridge, Streetcar on Santa Clara/Alum Rock

AM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	350	350	71	0	0	421
Evelyn	31	142	461	10	34	71	217
Whisman	66	40	435	2	7	47	115
Middlefield	16	61	480	12	0	42	90
Bayshore/NASA	15	50	516	76	1	54	141
Lockheed	181	5	340	189	5	129	381
Borregas	3	0	337	2	0	313	5
Crossman	3	4	338	291	15	315	313
Fair Oaks	10	67	396	61	13	591	151
Vienna	10	49	435	1	25	639	85
Reamwood	154	23	304	4	1	614	181
Old Ironsides	17	61	348	106	18	617	202
Great America	7	3	343	603	28	706	641
Lick Mill	16	29	356	54	26	1281	125
Champion	26	42	372	38	69	1309	175
Baypointe	182	70	260	331	296	1278	879
Cisco Way	0	25	284	74	0	1312	99
IH880	106	4	181	179	116	1386	405
Great Mall	52	16	145	59	113	1450	239
Montague	5	10	150	59	28	1395	101
Cropley	12	24	163	3	138	1426	177
Hostetter	5	63	221	27	153	1290	249
Berryessa	5	302	517	9	219	1164	536
Penitencia Creek	10	105	612	11	156	954	282
Mckee	6	51	657	4	177	810	238
Gay Ave			777			637	212
Alum Rock	733	10	53	251	209	566	1203
Story	2	7	58	3	119	609	131
Ocala	3	5	60	0	185	493	193
Eastridge	60	0	0	0	309	309	369
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1741	1741	0	2538	2538	0	8556
Baypointe	0	428	428	342	0	0	770
Tasman	0	34	462	24	8	342	66
River Oaks	19	87	529	37	14	358	157
Orchard	34	205	700	84	0	381	323
Bonaventura	110	0	590	14	1	464	125
Component	54	28	565	85	1	476	168
Karina	71	23	516	123	1	561	218
Metro/Airport	72	5	449	219	21	683	317
Gish	0	22	471	242	0	881	264
Civic Center	79	59	451	60	96	1122	295
Ayer/Japantown	24	71	498	207	84	1086	387
St James	374	0	123	1	77	1210	452
Santa Clara	1	3	126	4	33	1134	41
Paseo de S. Antonic	7	24	143	10	323	1105	363
Convention Center	71	146	218	349	0	792	566
Technology Center	9	22	231	882	55	1140	968
Prevost/Virginia	1	16	246	67	0	1967	84
Alma/Tamien	6	33	273	10	101	2034	150
Curtner	25	30	278	29	174	1942	259
Capitol/87	4	22	296	12	297	1798	336
Branham	14	33	315	8	189	1512	245
Ohlone/Chynoweth	49	62	329	29	396	1331	537
Blossom Hill	20	31	340	21	297	964	369
Snell	5	63	398	6	284	688	358
Cottle	339	40	99	7	257	409	643
Santa Teresa	99	0	0	0	159	159	258
Guadulupe Line	1488	1488	0	2872	2872	0	8719
Ohlone/Chynoweth	0	8	8	115	0	0	123
Oakridge	5	1	4	14	49	115	69
Almaden	4	0	0	0	81	81	85
Almaden Line	9	9	0	129	129	0	277
Vasona	0	241	241	18	0	0	259
Hacienda	13	40	268	56	5	18	115
Winchester	17	221	472	19	16	69	272
Campbell	39	150	583	14	18	73	221
Hamilton	29	184	738	128	11	69	352
Bascom	155	61	644	30	41	185	286
Fruitdale	31	198	811	512	26	174	768
Race/280	10	50	852	22	0	660	83
Diridon			676			682	354
San Fernando	76	14	613	25	3	616	117
Convention Center	454	0	160	26	413	638	893
Paseo de S. Antonic	156	3	6	54	32	251	245
5th	6	0	0	0	272	272	278
Vasona Line	1203	1203	0	918	918	0	4243
Diridon	0	151	151	48	0	0	199
San Fernando	94	68	125	98	3	48	263
Almaden	22	3	106	149	0	143	174
Downtown	21	11	96	262	5	292	299
5th	39	20	77	1638	27	548	1723
10th	15	21	83	59	55	2159	150
15th	28	40	95	11	139	2164	218
21st	16	31	109	13	126	2036	186
28th	18	36	127	17	141	1922	212
33rd	7	12	131	2	45	1798	66
Eastgate	12	22	141	2	68	1755	104
Sunset	1	10	149	1	68	1689	80
Jackson (Scharff)	2	0	147	1	236	1622	239
Sierra Vista	2	10	155	2	256	1387	270
Alum Rock	155	0	0	0	1133	1133	1287
SC/AR	433	433	0	2302	2302	0	5471
System Total	4874	4874	0	8759	8759	0	27265

PM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	94	94	275	0	0	369
Evelyn	36	43	101	109	33	275	221
Whisman	26	2	77	33	59	350	120
Middlefield	5	13	86	48	15	324	81
Bayshore/NASA	3	81	163	32	14	358	130
Lockheed	26	200	336	6	180	376	412
Borregas	0	2	338	0	3	202	5
Crossman	17	307	628	7	3	199	333
Fair Oaks	14	64	678	40	10	204	129
Vienna	27	1	652	38	11	234	77
Reamwood	3	4	653	19	52	262	78
Old Ironsides	20	105	738	47	17	228	188
Great America	28	215	925	8	7	258	258
Lick Mill	28	57	954	23	16	258	124
Champion	50	39	943	38	29	265	155
Baypointe	154	341	1131	78	132	274	705
Cisco Way	0	76	1207	27	0	220	104
IH880	105	188	1290	7	120	247	420
Great Mall	90	64	1263	12	59	134	224
Montague	28	63	1298	6	8	87	105
Cropley	129	5	1174	11	15	86	160
Hostetter	147	32	1059	19	7	82	205
Berryessa	187	9	881	92	5	94	292
Penitencia Creek	137	14	758	25	15	181	191
Mckee	168	10	601	20	8	191	205
Gay Ave			529			203	139
Alum Rock	186	104	447	19	227	249	537
Story	91	4	360	7	5	41	106
Ocala	142	2	219	5	7	43	156
Eastridge	219	0	0	0	41	41	260
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	2145	2145	0	1100	1100	0	6490
Baypointe	0	222	222	386	0	0	608
Tasman	5	27	244	26	5	386	64
River Oaks	10	73	307	49	22	407	154
Orchard	4	89	392	98	34	435	225
Bonaventura	6	15	401	0	114	498	134
Component	3	92	489	15	56	385	166
Karina	3	132	618	7	74	344	217
Metro/Airport	24	233	827	5	74	277	337
Gish	0	255	1081	22	0	208	277
Civic Center	97	61	1045	53	76	230	288
Ayer/Japantown	75	209	1179	84	26	207	393
St James	83	1	1097	0	154	265	238
Santa Clara	30	3	1070	4	1	111	39
Paseo de S. Anton	322	10	758	25	19	113	377
Convention Center	1	176	934	165	31	119	373
Technology Cente	51	434	1317	53	10	253	547
Prevost/Virginia	0	67	1384	23	1	296	91
Alma/Tamien	77	16	1323	33	22	318	148
Curtner	119	32	1235	33	33	328	217
Capitol/87	195	6	1045	23	14	328	238
Branham	126	12	932	33	18	338	189
Ohlone/Chynoweth	266	33	698	69	59	352	427
Blossom Hill	197	18	520	39	23	362	278
Snell	211	8	317	67	15	378	301
Cottle	209	12	120	39	361	430	621
Santa Teresa	120	0	0	0	108	108	228
Guadulupe Line	2236	2236	0	1352	1352	0	7175
Ohlone/Chynoweth	0	76	76	7	0	0	83
Oakridge	31	11	56	7	4	7	53
Almaden	56	0	0	0	9	9	65
Almaden Line	87	87	0	13	13	0	201
Vasona	0	38	38	183	0	0	221
Hacienda	11	55	82	34	10	183	111
Winchester	16	32	99	161	20	207	229
Campbell	26	35	108	92	39	348	193
Hamilton	21	126	213	143	24	401	314
Bascom	45	37	206	46	79	520	207
Fruitdale	28	147	325	149	36	486	360
Race/280	3	19	341	55	8	599	86
Diridon			317			646	369
San Fernando	22	27	321	14	68	437	131
Convention Center	217	27	131	1	220	383	465
Paseo de S. Anton	35	55	152	5	159	164	254
5th	152	0	0	0	9	9	161
Vasona Line	636	636	0	914	914	0	3100
Diridon	0	115	115	96	0	0	211
San Fernando	54	105	166	53	66	96	278
Almaden	3	157	320	6	21	83	188
Downtown	7	292	604	24	21	68	343
5th	29	580	1155	42	19	70	671
10th	56	61	1161	27	14	93	158
15th	139	10	1031	32	25	106	207
21st	126	14	919	29	20	113	189
28th	135	18	803	34	23	123	211
33rd	38	2	767	7	8	135	55
Eastgate	61	3	708	18	6	133	88
Sunset	57	1	652	8	3	145	68
Jackson (Scharff)	130	1	523	0	4	150	135
Sierra Vista	126	2	399	11	6	146	145
Alum Rock	399	0	0	0	151	151	550
SC/AR	1361	1361	0	387	387	0	3496
System Total	6465	6465	0	3766	3766	0	20462

DAILY	Down Off	Down On	Down Load	Up Off	Up On	Up Load	Total Ons + Offs
Mountain View	0	1281	1281	1131	0	0	2412
Evelyn	196	761	1847	499	198	1131	1654
Whisman	411	106	1542	108	275	1432	901
Middlefield	89	192	1646	196	56	1265	533
Bayshore/NASA	70	339	1915	340	50	1404	798
Lockheed	737	568	1747	580	578	1695	2463
Borregas	9	12	1750	13	8	1696	41
Crossman	77	854	2527	874	66	1701	1871
Fair Oaks	66	334	2796	335	65	2510	799
Vienna	116	128	2808	128	109	2780	480
Reamwood	350	77	2535	76	341	2799	844
Old Ironsides	114	453	2873	462	104	2533	1133
Great America	102	1370	4142	1374	102	2890	2948
Lick Mill	136	237	4243	244	131	4162	747
Champion	273	221	4191	234	275	4275	1003
Baypointe	1145	1154	4199	1221	1164	4234	4684
Cisco Way	2	316	4514	340	2	4291	659
IH880	643	562	4433	575	706	4630	2486
Great Mall	455	258	4236	247	482	4500	1440
Montague	129	224	4331	216	146	4265	714
Cropley	443	95	3983	80	453	4335	1071
Hostetter	474	265	3774	246	474	3962	1460
Berryessa	611	667	3829	692	593	3734	2569
Penitencia Creek	494	273	3608	264	518	3827	1548
Mckee	539	216	3285	170	535	3574	1460
Gay Ave			3369			3209	1178
Alum Rock	2245	656	1780	711	2190	3314	5802
Story	338	63	1505	62	351	1835	815
Ocala	527	35	1013	29	548	1547	1138
Eastridge	1013	0	0	0	1028	1028	2041
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	12054	12054		11792	11792		47692
Baypointe	0	2049	2049	2036	0	0	4085
Tasman	35	174	2189	161	74	2036	443
River Oaks	98	647	2738	363	110	2122	1218
Orchard	140	714	3311	722	109	2375	1685
Bonaventura	355	44	3000	39	326	2989	763
Component	178	329	3151	317	158	2702	981
Karina	223	428	3356	413	205	2861	1268
Metro/Airport	309	666	3713	646	272	3069	1892
Gish	2	788	4498	799	0	3443	1589
Civic Center	644	380	4234	404	516	4242	1943
Ayer/Japantown	377	895	4751	1033	347	4130	2651
St James	1244	8	3515	8	1148	4816	2408
Santa Clara	100	42	3457	43	104	3676	288
Paseo de S. Antonic	989	112	2580	118	1070	3615	2288
Convention Center	173	1385	3792	1418	171	2663	3146
Technology Center	200	2189	5781	2385	208	3910	4981
Prevost/Virginia	7	266	6041	304	7	6087	584
Alma/Tamien	389	234	5885	191	496	6384	1310
Curtner	599	248	5534	251	629	6080	1726
Capitol/87	836	129	4827	119	892	5701	1976
Branham	554	237	4511	224	558	4928	1572
Ohlone/Chynoweth	1313	413	3611	404	1343	4593	3472
Blossom Hill	899	221	2933	259	897	3653	2276
Snell	855	264	2342	266	905	3015	2290
Cottle	1744	190	788	169	1736	2377	3839
Santa Teresa	788	0	0	0	809	809	1598
Guadulupe Line	13047	13047	0	13087	13087	0	52268
Ohlone/Chynoweth	0	343	343	326	0	0	668
Oakridge	152	95	285	128	143	326	518
Almaden	285	0	0	0	311	311	596
Almaden Line	437	437	0	454	454	0	1782
Vasona	0	906	906	779	0	0	1685
Hacienda	116	276	1066	335	76	779	803
Winchester	121	827	1772	756	137	1038	1840
Campbell	317	693	2148	563	285	1658	1858
Hamilton	238	890	2801	990	176	1936	2294
Bascom	643	377	2535	332	674	2750	2026
Fruitdale	284	1895	4145	1730	299	2407	4208
Race/280	66	251	4330	287	49	3837	652
Diridon			3665			4075	2835
San Fernando	441	124	3348	123	289	3248	977
Convention Center	2284	85	1149	85	2112	3083	4565
Paseo de S. Antonic	638	193	704	203	550	1055	1583
5th	704	0	0	0	709	709	1413
Vasona Line	6941	6941	0	6428	6428	0	26738
Diridon	0	1309	1309	838	0	0	2147
San Fernando	900	471	880	453	534	838	2357
Almaden	96	441	1225	459	72	758	1068
Downtown	93	835	1968	924	79	1145	1931
5th	170	3869	5667	3919	165	1990	8122
10th	282	460	5844	475	266	5744	1482
15th	676	204	5373	224	600	5953	1704
21st	516	151	5007	151	525	5577	1343
28th	557	184	4634	186	572	5203	1499
33rd	170	46	4510	45	177	4817	437
Eastgate	247	71	4334	70	247	4685	635
Sunset	210	35	4160	35	214	4509	494
Jackson (Scharff)	588	10	3582	10	593	4331	1201
Sierra Vista	614	46	3013	47	628	3748	1335
Alum Rock	3013	0	0	0	3166	3166	6179
SC/AR	8130	8130	0	7837	7837	0	31934
System Total	40609	40609	0	39597	39597	0	160412

Table 10
Scenario 10 Alternative Streetcar - 2025
Build Capitol to Eastridge, Streetcar on Santa Clara/Alum Rock

AM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	409	409	80	0	0	489
Evelyn	41	143	511	11	42	80	237
Whisman	91	45	465	3	8	49	149
Middlefield	20	67	512	17	1	44	104
Bayshore/NASA	18	50	544	95	1	60	164
Lockheed	229	6	321	206	8	154	449
Borregas	4	0	317	3	0	352	7
Crossman	4	5	317	350	19	355	378
Fair Oaks	11	74	380	68	14	685	168
Vienna	14	50	417	1	29	739	93
Reamwood	164	28	280	6	1	711	198
Old Ironsides	21	59	318	110	25	716	214
Great America	9	3	311	697	39	801	747
Lick Mill	23	42	331	59	39	1458	163
Champion	33	64	361	41	142	1478	279
Baypointe	231	76	206	352	331	1377	991
Cisco Way	0	41	247	80	0	1398	121
IH880	126	6	127	219	145	1479	496
Great Mall	61	37	103	83	131	1552	311
Montague	24	47	126	122	133	1505	326
Cropley	40	24	110	3	159	1495	227
Hostetter	10	57	157	28	199	1339	293
Berryessa	6	352	503	11	228	1169	597
Penitencia Creek	11	71	563	13	158	952	254
Mckee	8	64	618	5	175	806	252
Gay Ave			767			636	242
Alum Rock	720	12	60	298	189	567	1219
Story	2	8	66	5	133	676	147
Ocala	3	6	68	0	203	547	212
Eastridge	68	0	0	0	345	345	413
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	1998	1998	0	2973	2973	0	9940
Baypointe	0	495	495	376	0	0	871
Tasman	0	55	550	25	12	376	91
River Oaks	21	118	647	35	25	389	199
Orchard	45	463	1065	82	1	399	590
Bonaventura	133	0	932	14	2	480	149
Component	71	31	892	82	1	493	184
Karina	91	25	826	108	1	573	225
Metro/Airport	89	4	741	202	29	680	325
Gish	0	27	768	221	0	853	249
Civic Center	95	68	742	66	100	1074	329
Ayer/Japantown	49	110	802	265	93	1040	517
St James	599	0	203	1	97	1212	697
Santa Clara	2	3	203	4	51	1116	60
Paseo de S. Antonio	8	49	243	15	323	1069	395
Convention Center	138	170	276	406	0	761	714
Technology Center	12	26	289	1160	65	1166	1263
Prevost/Virginia	1	21	310	159	0	2261	182
Alma/Tamien	9	42	343	15	105	2420	172
Curtner	33	33	342	31	212	2330	309
Capitol/87	6	32	368	15	359	2149	413
Branham	20	48	396	9	224	1804	301
Ohlone/Chynoweth	57	94	434	33	457	1589	641
Blossom Hill	26	41	449	23	354	1165	445
Snell	7	84	526	7	374	834	470
Cottle	445	51	132	9	296	467	800
Santa Teresa	132	0	0	0	179	179	311
Guadulupe Line	2090	2090	0	3361	3361	0	10902
Ohlone/Chynoweth	0	11	11	153	0	0	163
Oakridge	6	1	6	18	51	153	76
Almaden	6	0	0	0	119	119	125
Almaden Line	12	12	0	170	170	0	364
Vasona	0	320	320	28	0	0	348
Hacienda	15	46	351	79	7	28	148
Winchester	19	274	605	27	21	100	341
Campbell	45	145	705	18	23	107	231
Hamilton	38	212	879	181	18	101	448
Bascom	169	67	777	42	54	264	332
Fruitdale	42	254	988	651	34	252	982
Race/280	12	72	1049	39	0	869	123
Diridon			671			908	678
San Fernando	97	13	587	12	5	774	127
Convention Center	429	0	158	30	525	781	985
Paseo de S. Antonio	154	3	7	58	43	286	258
5th	7	0	0	0	302	302	309
Vasona Line	1471	1471	0	1184	1184	0	5310
Diridon	0	311	311	66	0	0	377
San Fernando	172	79	217	68	8	66	327
Almaden	108	5	115	193	1	127	307
Downtown	27	11	100	311	7	319	356
5th	40	24	85	1668	33	623	1765
10th	20	21	86	54	61	2258	157
15th	29	41	99	29	143	2251	242
21st	17	24	105	14	129	2136	183
28th	15	32	123	20	140	2022	207
33rd	9	11	125	5	34	1902	58
Eastgate	15	19	129	3	71	1874	108
Sunset	2	10	137	1	80	1806	92
Jackson (Scharff)	3	0	134	1	252	1727	256
Sierra Vista	6	9	137	2	287	1476	304
Alum Rock	137	0	0	0	1192	1192	1329
SC/AR	598	598	0	2437	2437	0	6069
System Total	6168	6168	0	10125	10125	0	32585

PM PEAK HOUR	Down Off Total	Down On Total	Down Load	Up Off Total	Up On Total	Up Load	Total Ons + Offs
Mountain View	0	107	107	361	0	0	467
Evelyn	45	49	110	116	44	361	254
Whisman	31	3	83	42	83	433	159
Middlefield	5	18	96	58	18	392	100
Bayshore/NASA	4	100	193	37	18	432	159
Lockheed	32	217	378	7	229	451	485
Borregas	0	2	380	1	4	229	7
Crossman	21	368	728	9	4	225	402
Fair Oaks	16	72	784	53	12	230	152
Vienna	31	1	754	42	14	271	88
Reamwood	3	6	756	25	65	298	99
Old Ironsides	28	107	836	48	21	259	204
Great America	39	239	1036	10	9	286	298
Lick Mill	40	61	1056	34	24	287	159
Champion	81	42	1018	54	37	297	214
Baypointe	179	365	1203	85	177	314	805
Cisco Way	0	83	1286	43	0	223	126
IH880	135	231	1382	9	142	266	516
Great Mall	104	89	1367	32	69	133	294
Montague	133	110	1344	42	27	96	312
Cropley	144	6	1206	9	45	111	204
Hostetter	181	33	1058	17	12	75	243
Berryessa	190	10	877	111	5	80	316
Penitencia Creek	139	16	755	17	18	186	191
Mckee	167	12	600	24	9	184	212
Gay Ave			530			199	156
Alum Rock	167	142	505	26	235	260	570
Story	103	5	407	9	6	52	123
Ocala	158	2	250	5	9	55	174
Eastridge	250	0	0	0	51	51	301
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	2504	2504	0	1392	1392	0	7792
Baypointe	0	248	248	451	0	0	699
Tasman	8	28	268	44	8	451	87
River Oaks	20	81	329	79	24	487	204
Orchard	7	88	409	188	43	542	326
Bonaventura	6	15	418	0	138	687	160
Component	4	88	503	18	74	550	183
Karina	4	116	614	8	95	494	223
Metro/Airport	34	216	797	6	92	407	347
Gish	0	233	1029	29	0	321	261
Civic Center	99	66	997	62	94	349	321
Ayer/Japantown	86	267	1178	126	53	317	533
St James	107	1	1072	1	243	391	351
Santa Clara	49	3	1026	4	3	149	60
Paseo de S. Anton	321	15	721	52	23	149	411
Convention Center	2	213	932	192	51	178	458
Technology Center	60	694	1566	68	13	319	835
Prevost/Virginia	0	161	1726	32	1	373	194
Alma/Tamien	79	23	1670	42	29	404	174
Curtner	155	33	1547	37	44	417	269
Capitol/87	249	8	1305	33	20	410	310
Branham	151	14	1168	47	25	424	238
Ohlone/Chynoweth	330	37	875	103	71	447	540
Blossom Hill	231	21	665	50	30	479	333
Snell	297	9	376	90	19	499	415
Cottle	247	13	143	50	474	570	785
Santa Teresa	143	0	0	0	146	146	288
Guadulupe Line	2691	2691	0	1811	1811	0	9004
Ohlone/Chynoweth	0	113	113	9	0	0	122
Oakridge	33	14	94	8	5	9	60
Almaden	94	0	0	0	11	11	105
Almaden Line	127	127	0	16	16	0	287
Vasona	0	54	54	260	0	0	314
Hacienda	14	79	119	42	12	260	147
Winchester	21	43	141	220	22	290	306
Campbell	32	42	151	97	46	487	217
Hamilton	29	180	302	179	33	538	421
Bascom	59	51	294	56	93	684	258
Fruitdale	37	194	451	205	49	648	484
Race/280	3	36	484	79	10	804	127
Diridon			416			873	679
San Fernando	30	13	398	14	85	458	142
Convention Center	263	31	167	1	227	387	522
Paseo de S. Anton	47	61	180	6	155	160	268
5th	180	0	0	0	11	11	191
Vasona Line	831	831	0	1208	1208	0	4078
Diridon	0	158	158	243	0	0	401
San Fernando	80	75	154	60	129	243	345
Almaden	7	201	348	13	109	174	330
Downtown	11	341	677	29	26	78	407
5th	37	620	1261	48	20	82	725
10th	64	56	1253	28	19	111	166
15th	145	29	1137	33	25	120	232
21st	128	16	1025	22	21	128	186
28th	135	22	912	30	20	129	207
33rd	26	6	892	6	10	140	47
Eastgate	64	4	831	14	7	136	89
Sunset	69	1	763	8	3	142	81
Jackson (Scharff)	144	1	619	0	6	147	152
Sierra Vista	155	2	466	11	11	141	178
Alum Rock	466	0	0	0	142	142	607
SC/AR	1531	1531	0	546	546	0	4154
System Total	7684	7684	0	4973	4973	0	25315

DAILY	Down Off	Down On	Down Load	Up Off	Up On	Up Load	Total Ons + Offs
Mountain View	0	1559	1559	1397	0	0	2955
Evelyn	251	832	2139	548	256	1397	1886
Whisman	528	133	1744	134	366	1688	1161
Middlefield	105	233	1872	237	68	1457	643
Bayshore/NASA	79	400	2193	401	59	1626	938
Lockheed	912	606	1887	623	737	1969	2878
Borregas	13	17	1892	19	11	1854	60
Crossman	102	1004	2794	1028	90	1862	2224
Fair Oaks	79	389	3104	389	75	2799	931
Vienna	133	139	3110	139	132	3113	542
Reamwood	385	99	2824	99	374	3119	956
Old Ironsides	155	463	3132	472	139	2845	1228
Great America	140	1612	4604	1609	140	3178	3502
Lick Mill	201	290	4692	300	194	4647	985
Champion	481	285	4497	304	482	4753	1552
Baypointe	1364	1247	4381	1322	1390	4576	5328
Cisco Way	2	408	4788	436	2	4502	848
IH880	797	705	4696	718	866	4937	3086
Great Mall	533	397	4561	392	567	4789	1889
Montague	486	498	4573	495	501	4614	1987
Cropley	575	97	4095	78	587	4601	1337
Hostetter	610	252	3737	236	614	4093	1712
Berryessa	634	747	3850	777	621	3715	2778
Penitencia Creek	514	219	3556	199	551	3871	1483
Mckee	548	260	3267	203	540	3520	1551
Gay Ave			3408			3183	1304
Alum Rock	2203	805	2011	891	2132	3349	6031
Story	381	76	1706	77	405	2108	939
Ocala	581	40	1164	34	612	1781	1267
Eastridge	1164	0	0	0	1202	1202	2366
Nieman	0	0	0	0	0	0	0
Silver Creek	0	0	0	0	0	0	0
McLaughlin	0	0	0	0	0	0	0
Senter	0	0	0	0	0	0	0
Monterey	0	0	0	0	0	0	0
Vista Park	0	0	0	0	0	0	0
Capitol/87	0	0	0	0	0	0	0
Capitol Line	14210	14210	0	13964	13964	0	56348
Baypointe	0	2334	2334	2335	0	0	4669
Tasman	51	243	2526	230	110	2335	635
River Oaks	143	873	3256	527	158	2455	1700
Orchard	202	1278	4332	1297	152	2824	2928
Bonaventura	428	45	3949	41	398	3969	912
Component	230	329	4047	319	212	3613	1089
Karina	287	395	4155	378	265	3720	1325
Metro/Airport	395	627	4388	608	352	3833	1982
Gish	2	761	5147	780	0	4090	1542
Civic Center	711	434	4870	463	581	4870	2189
Ayer/Japantown	515	1204	5559	1361	477	4751	3557
St James	1892	10	3677	12	1781	5636	3695
Santa Clara	159	42	3560	44	164	3867	408
Paseo de S. Antonio	1007	198	2750	207	1100	3747	2512
Convention Center	322	1632	4061	1673	320	2855	3947
Technology Center	246	3104	6918	3347	255	4208	6951
Prevost/Virginia	10	587	7495	639	9	7299	1244
Alma/Tamien	433	318	7380	266	563	7929	1580
Curtner	770	266	6875	272	809	7632	2117
Capitol/87	1090	175	5960	161	1153	7095	2578
Branham	680	300	5581	287	695	6103	1951
Ohlone/Chynoweth	1568	527	4541	521	1612	5705	4227
Blossom Hill	1085	266	3722	304	1082	4613	2736
Snell	1145	333	2911	342	1198	3836	3017
Cottle	2182	231	960	208	2180	2980	4801
Santa Teresa	960	0	0	0	1007	1007	1967
Guadulupe Line	16510	16510	0	16619	16619	0	66258
Ohlone/Chynoweth	0	465	465	438	0	0	903
Oakridge	165	110	410	147	153	438	575
Almaden	410	0	0	0	432	432	842
Almaden Line	575	575	0	585	585	0	2319
Vasona	0	1248	1248	1086	0	0	2334
Hacienda	136	363	1475	434	89	1086	1022
Winchester	154	1055	2377	976	167	1430	2352
Campbell	363	757	2771	608	323	2239	2051
Hamilton	288	1144	3626	1262	223	2525	2916
Bascom	743	479	3362	426	775	3563	2423
Fruitdale	371	2450	5441	2249	389	3215	5459
Race/280	77	377	5740	420	59	5075	933
Diridon			4217			5435	5234
San Fernando	602	74	3689	78	421	3729	1175
Convention Center	2514	101	1275	101	2327	3386	5042
Paseo de S. Antonio	691	206	790	221	586	1160	1703
5th	790	0	0	0	796	796	1586
Vasona Line	8856	8856	0	8258	8258	0	34227
Diridon	0	2247	2247	1666	0	0	3913
San Fernando	1519	439	1167	417	1066	1666	3441
Almaden	389	646	1425	681	357	1017	2072
Downtown	138	1063	2350	1175	112	1341	2489
5th	198	4033	6185	4083	186	2403	8500
10th	368	469	6287	501	338	6301	1675
15th	747	249	5789	280	655	6464	1931
21st	555	136	5370	135	569	6090	1394
28th	565	179	4984	184	581	5656	1510
33rd	147	52	4889	52	158	5259	408
Eastgate	266	65	4688	64	270	5153	665
Sunset	249	32	4472	32	254	4948	566
Jackson (Scharff)	641	11	3842	11	651	4725	1314
Sierra Vista	712	46	3176	48	737	4086	1543
Alum Rock	3176	0	0	0	3397	3397	6573
SC/AR	9669	9669	0	9328	9328	0	37993
System Total	49819	49819	0	48754	48754	0	197144

Appendix D

Air Quality Technical Information

Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. The term "Gaussian dispersion" refers to a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically, with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian ("normal") statistical distribution. Horizontal and vertical mixing generally occur at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

CALINE4 Model

The ambient air quality effects of traffic emissions were evaluated using the CALINE4 dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants that disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap, producing high concentrations near the roadway (near the center of the overlapping pollution plumes) and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution concentration observed at a receptor location. Under such cross-wind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

The CALINE4 model employs a "mixing cell" approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) and an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well mixed within the mixing cell volume due to mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates that are a function of various meteorological and ground surface conditions.

Modeling Procedures

Roadway and Traffic Conditions

Traffic volumes and operating conditions used in the modeling were obtained from the traffic analysis for the Capitol Expressway Corridor (Korve Engineering 2003). Free-flow traffic speeds were adjusted to reflect congested speeds using methodology from the *Highway Capacity Manual* (Transportation Research Board 2000). Carbon monoxide (CO) modeling was conducted for the following intersections: Capitol Expressway/Capitol Avenue/Excalibur Drive, Capitol Expressway/Story Road, and Capitol Expressway/Silver Creek Road. CO modeling was performed for 2010 and 2025 PM peak no project and baseline conditions.

Vehicle Emission Rates

Vehicle emission rates were determined using the California Air Resources Board's EMFAC7F (version 1.1) emission rate program. A cold-start percentage of 10% and a hot-start percentage of 50% were assumed.

Receptor Locations

CO concentrations were estimated at four receptor locations at each of the proposed intersections. The receptors are placed at 100 feet away from the center of each roadway. Receptor heights were set at 5.9 feet.

Meteorological Conditions

Meteorological inputs to the CALINE4 model were determined using methodology recommended in *Air Quality Technical Analysis Notes* (California Department of Transportation 1988). The meteorological conditions used in the modeling represent a calm winter period. Worst-case wind angles were modeled to determine a worst-case concentration for each receptor. The meteorological inputs include 1-meter-per-second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to five degrees, and a mixing height of 1,000 meters.

Background Concentrations and 8-Hour Values

Background concentration of 7.0 parts per million was added to the modeled future 1-hour values to account for sources of CO not included in the modeling. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7. Background concentration of 5.2 parts per million was added to the modeled future 8-hour values. All background concentration data were taken from the Bay Area Air Quality Management District's California Environmental Quality Act guidelines. Actual 2025 background concentrations would likely be lower than those used in the CO modeling analysis because 2010 value was applied as background concentration for both future conditions.

References Cited

Benson, P. E. 1989. CALINE4—a dispersion model for predicting air pollution concentrations near roadways. California Department of Transportation. Sacramento, CA.

California Department of Transportation. 1998. *Air quality technical analysis notes.* Sacramento, CA.

Korve Engineering. 2004. *Capitol Expressway Light Rail Corridor transportation study*. San Jose, CA.

Transportation Research Board. 2000. *Highway capacity manual.* Washington, DC.

Appendix E

Biological Resources Information

Appendix E-1

Special-Status Species Tables

Common Name *Scientific Name*	Status Federal/State/CNPS**	California Distribution	Habitats	Flowering Period	Potential for Occurrence in Capitol Expressway Corridor
Heartscale *Atriplex cordulata*	SC/—/1B	Western Central Valley and valleys of adjacent foothills, at elevations below 660 feet.	Alkali grasslands, alkali meadows, alkali scrublands	May–October	No records of species in Capitol Expressway Corridor. No suitable habitat exists in the study area.
Large-flowered fiddleneck *Amsinckia grandiflora*	E/E/1B	Foothills of Mt. Diablo below 1,200 feet, in Alameda, Contra Costa, and San Joaquin Counties; currently known from only three natural occurrences.	Open grassy slopes in annual grasslands and cismontane woodlands	April–May	No records of species in Capitol Expressway Corridor. Highly unlikely to occur; nearest record of this species is on Lawrence Livermore National Laboratory Site 300, over 10 miles east of the Capitol Expressway Corridor.
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	SC/—/1A	Presumed extinct (presumed extirpated in Alameda, Contra Costa, Glenn, Monterey, Santa Clara, and San Joaquin Counties).	Alkaline valley and foothill grasslands. Elevation: 1–455 meters	March–April	One record of species in Capitol Expressway Corridor (from 1907). Highly unlikely to occur; presumed extinct.
Congdon's tarplant *Hemizonia parryi* ssp. *congdonii*	SC/—/1B	Alameda, Contra Costa, Monterey, San Luis Obispo, and Santa Clara Counties; presumed extirpated in Santa Cruz and Solano Counties.	Alkaline soils of valley and foothill grasslands. Elevation: 1–215 meters	June–November	No records of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
Big tarplant *Blepharizonia plumos*a ssp. *Plumosa*	—/—/1B	Interior Coast Range foothills in Alameda, Contra Costa, San Joaquin, Stanislaus, and Solano Counties, at elevations of 650–2,600 feet.	On dry hills and plains in annual grasslands.	July–October	No records of species in Capitol Expressway Corridor. Species is unlikely to occur because suitable habitat is sparse or absent. Nearest populations are over 4 miles away near Arroyo Seco.
Hairless popcornflower *Plagiobothrys glaber*	—/—/1A	Presumed extinct (presumed extirpated in Alameda, Marin, Merced, San Benito, and Santa Clara Counties).	Alkaline meadows, coastal marshes. Elevation: 15–180 meters	March–May	Two records of species in Capitol Expressway Corridor (from 1892 and 1955). Highly unlikely to occur; presumed extinct.

Common Name *Scientific Name*	Status Federal/State/CNPS**	California Distribution	Habitats	Flowering Period	Potential for Occurrence in Capitol Expressway Corridor
Contra Costa Goldfields *Lasthenia conjugens*	E/—/1B	Scattered occurrences in Coast Range valleys and southwest edge of Sacramento Valley, Alameda, Contra Costa, Mendocino, Napa, Santa Barbara*, Santa Clara*, and Solano Counties. Historically distributed through the north coast, southern Sacramento Valley, San Francisco Bay region and the south coast.	Alkaline or saline vernal pools and swales, below 700 feet	March–June	One record of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
Santa Clara Valley dudleya *Dudleya stchellii*	E/—/1B	Santa Clara County	Cismontane woodland, valley and foothill grassland, serpentinite, rocky	May–June	Several records of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
Metcalf Canyon jewelflower *Streptanthus albidus* ssp. *Albidus*	E/—/1B	Santa Clara County	Valley and foothill grassland, on serpentinite	April–July	One record of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
Point Reyes bird's beak *Cordylanthus maritimus* ssp. *palustris*	SC/—/1B	Humboldt, Marin, and Sonoma Counties; presumed extirpated in Alameda, San Mateo, and Santa Clara Counties.	Coastal salt marshes. Elevation: 0–10 meters	June–October	No records of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
Robust spineflower *Chorizanthe robusta*	E/—/1B	Central coastal California, Alameda*, Monterey, San Francisco*, San Mateo*, Santa Clara*, and Santa Cruz Counties	Coastal bluff scrub, coastal dunes openings in cismontane woodland, on sandy soil	May–September	One record of species in Capitol Expressway Corridor (from 1882). No suitable habitat exists in the Capitol Expressway Corridor.

Common Name *Scientific Name*	Status Federal/State/CNPS**	California Distribution	Habitats	Flowering Period	Potential for Occurrence in Capitol Expressway Corridor
Mt. Hamilton thistle *Cirsium fontinale* var. *campylon*	SC/—/1B	Mt. Hamilton Range, eastern San Francisco Bay Area, Alameda, Santa Clara, and Stanislaus Counties.	Freshwater seeps and streams on serpentine outcrops, chaparral, cismontaine woodland, valley and foothill grassland, 1,000–2,500 feet	April–October	Three records of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
South Bay clarkia *Clarkia concinna* ssp. *Autmixa*	SC/—/1B	Southern San Francisco Bay foothills, Alameda and Santa Clara Counties	Shaded mesic oak woodland below 5,000 feet	April–July	No records of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
Fragrant fritillary *Fritillaria liliacea*	SC/—/1B	Coast Ranges from Marin County to San Benito County	Adobe soils of interior foothills, coastal prairie, coastal scrub, annual grassland, often on serpentinite, below 1,350 feet	February–April	One record of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
Hall’s bush mallow *Malacothamnus hallii*	—/—/1B	Alameda, Contra Costa, Merced, Santa Clara, and Stanislaus Counties	Chaparral between 30–2,500 feet	May–September	Two records of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.
San Joaquin spearscale *Atriplex joaquiniana*	SC/—/1B	Alameda, Contra Costa, Glenn, Merced, Monterey, Napa, Sacramento, San Benito, Solano, and Yolo Counties; presumed extirpated in San Joaquin, Santa Clara, and Tulare Counties.	Chenopod scrub, meadows, playas, alkaline valley and foothill grasslands. Elevation: 1–320 meters	April–October	No records of species in Capitol Expressway Corridor. No suitable habitat exists in the Capitol Expressway Corridor.

---

* Extirpated from county.

** Status explanations:

Federal
SC = species of concern
E = listed as endangered under the federal Endangered Species Act

State
E = listed as endangered under the California Endangered Species Act

California Native Plant Society
List 1A = presumed extinct in California
List 1B = rare, threatened, or endangered in California or elsewhere

— = no designation

Sources:

California Natural Diversity Database. 2002. *Rarefind 2* version 2.1.2. Computer report for Milpitas, Calaveras Reservoir, San Jose East, and San Jose West U.S. Geological Survey 7.5-minute quadrangles. Sacramento, CA: California Department of Fish and Game.

Skinner, M. W., and B. M. Pavlik. 1994. *Inventory of rare and endangered vascular plants in California.* 5th edition. (Special Publication No. 1.) California Native Plant Society. Sacramento, CA.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Invertebrates					
Opler's longhorn moth *Adela oplerella*	SC/—	Marin County and Oakland area on the inner Coast Ranges to Santa Clara County. One record from Santa Cruz County	Serpentine substrates that support the host plant, cream cups (*Platystemon californicus*)	Unknown	One recorded observation in Upper Hellyer Canyon. No suitable habitat present in Capitol Expressway Corridor.
Edgewood blind harvestman *Calicina (=Sitalcina) minor*	SC/—	Santa Clara and San Mateo Counties	Open grassland in areas with serpentine bedrock	Unknown	No habitat within the Capitol Expressway Corridor
Bay checkerspot butterfly *Euphydryas editha bayensis*	T/—	Lowlands of Santa Clara, San Mateo, Alameda, Contra Costa, and San Francisco Counties, on serpentine soils.	Serpentine soil outcrops that support host plants: *Plantago erecta*, *Castilleja densiflorus*, and *Castilleja exserta*.	Loss of habitat as a result of urbanization and fragmentation.	One recorded observation between Silver Creek and U.S. 101. No suitable habitat present in Capitol Expressway Corridor.
Amphibians					
California red-legged frog *Rana aurora draytonii*	T/SSC	Coast and coastal mountain ranges of California from Humboldt County south to San Diego County; Sierra Nevada (above 1,000 feet) from Butte to Fresno County.	Permanent and semipermanent aquatic habitats (such as creeks and cold water ponds) with emergent and submergent vegetation and riparian species along the edges; may estivate in rodent burrows or cracks during dry periods.	Alteration of stream and wetland habitats; historical overharvesting; habitat destruction; competition and predation by non-native fish and bullfrogs.	No recorded observations. Suitable habitat present at Coyote Creek and smaller streams within Capitol Expressway Corridor.
California tiger salamander *Ambystoma californiense*	C/SSC	Central Valley, including Sierra Nevada foothills to elevations of approximately 1,000 feet; coastal region from Butte County south to Santa Barbara County.	Larvae use small ponds, lakes, or vernal pools in grasslands and oak woodlands; adults use rodent burrows, rock crevices, or fallen logs for cover and for estivation.	Loss of grasslands, vernal pools, and other wetlands as a result of agricultural development and urbanization.	Several recorded observations; no breeding habitat exists within Capitol Expressway Corridor.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Western spadefoot toad *Scaphiopus hammondii*	SC/SSC	Sierra Nevada foothills; Central Valley; Coast Ranges; coastal Counties in southern California.	Shallow streams with riffles; seasonal wetlands such as vernal pools in annual grasslands and oak woodlands.	Alteration of stream habitats by urbanization and hydroelectric projects; loss of seasonal wetlands and vernal pools.	No recorded observations in Capitol Expressway Corridor. Capitol Expressway Corridor is likely outside range of species.
Reptiles					
Silvery legless lizard *Anniella pulchra pulchra*	SC/SSC	Along the Coast, Transverse, and Peninsular Ranges from Contra Costa County to San Diego County with spotty occurrences in the San Joaquin Valley	Habitats with loose soil for burrowing or thick duff or leaf litter; often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas	Unknown	No recorded observations or suitable habitat within Capitol Expressway Corridor.
California horned lizard *Phrynosoma coronatum frontale*	SC/—	Lowlands throughout California.	Sandy washes with open areas for sunning, bushes for cover, and loose soil for burrowing; near food sources (ants/other insects).	Urban encroachment on habitat.	No recorded observations or suitable habitat within Capitol Expressway Corridor.
Southwestern pond turtle *Clemmys marmorata pallida*	SC/SSC	Occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley	Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food	Loss and alteration of aquatic and wetland habitats; habitat fragmentation.	Recorded observations within the Capitol Expressway Corridor. Suitable habitat exists within Capitol Expressway Corridor.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Birds					
Little willow flycatcher *Empidonax traillii brewsteri*	SC/E	Summer range includes a narrow strip along the eastern Sierra Nevada from Shasta County to Kern County, another strip along the western Sierra Nevada from El Dorado County to Madera County; widespread in migration	Riparian areas and large, wet meadows with abundant willows for breeding; usually found in riparian habitats or edges of clear-cuts during fall migration	Loss of riparian breeding habitat, nest parasitism by brown-headed cowbirds	May occur in Capitol Expressway Corridor as migrant only.
Bell's sage sparrow *Amphispiza belli belli*	SC/SSC	Western Sierra Nevada foothills from El Dorado County south to Mariposa County, inner Coast Ranges from Shasta County southward, extending to vicinity of coast from Marin County to San Diego County; from southern San Benito County to San Bernardino County	Prefers chaparral habitats dominated by chamise	Unknown	No recorded observations or suitable habitat within Capitol Expressway Corridor.
Grasshopper sparrow *Ammodramus savannarum*	—/SSC	Sierra foothills, Coast Ranges, and coastal areas from Mendocino County south to San Diego County	Dry grasslands with scattered shrubs for song perches	Loss of habitat from urbanization in south coastal areas; has probably always been rare and localized elsewhere in the state	No recorded observations; no suitable habitat within Capitol Expressway Corridor.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Burrowing owl *Athene cunicularia*	SC/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along the south coast.	Uses rodent burrows in sparse grassland, desert, and agricultural habitats.	Loss of habitat; human disturbance at nesting burrows.	Several observations have been recorded in suitable habitat within the Capitol Expressway Corridor.
Short eared owl *Asio flammeus*	—/SSC	Permanent resident along the coast from Del Norte County to Monterey County although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations	Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts	Unknown	No recorded observations; no suitable habitat within the Capitol Expressway Corridor.
Cooper's hawk *Accipiter cooperii*	—/SSC	Throughout California except at high elevations in the Sierra Nevada. Wintering populations use the Central Valley, the southeastern desert regions, and the plains east of the Cascade Range.	Nests primarily in riparian forests dominated by deciduous species; also nests in densely canopied forests from foothill pine-oak woodland up to ponderosa pine; forages in open woodlands.	Human disturbance at nest sites; loss of riparian habitats, especially in the Central Valley; pesticide contamination.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat is present in riparian areas within Capitol Expressway Corridor.
Loggerhead shrike *Lanius ludovicianus*	—/SSC	Grasslands throughout the state.	Forages in grassland or ruderal habitats.	Loss of grassland habitat as a result of urban expansion.	No recorded observations in Capitol Expressway Corridor; suitable habitat is present.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
California clapper rail *Rallus longirostris obsoletus*	E/T	Salt and brackish marshes along San Francisco Bay.	Salt marshes with multiple tidal channels and vegetation dominated by cordgrass, pickleweed, and marsh gumplant.	Habitat loss and alteration as a result of filling, diking, and dredging.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat absent from project area.
Northern harrier *Circus cyaneus*	—/SSC	Marshes, fields, grasslands, and prairies throughout North America.	Coastal salt and freshwater marsh; nests on ground in shrubby vegetation, usually near marsh edge, or in grasslands; forages in grasslands.	Habitat loss as a result of urbanization and agricultural development; pesticide contamination.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat is present.
Peregrine falcon *Falco peregrinus anatum*	Delisted/E	In California, breeding range now includes the Klamath and Cascade Ranges, the inland north-coastal mountains, the Sierra Nevada, and the Channel Islands.	Prefers sites near open areas but with nearby cliffs for nesting and roosting; found in wetlands, grasslands, and tundra, in open forest, and in mountains. Will occasionally nest on the ledges of tall buildings or bridges in cities.	Pesticide contamination; robbing of eyries by falconers; illegal shooting; human disturbance at nest sites.	No recorded observations; nesting habitat absent from Capitol Expressway Corridor.
Salt marsh common yellowthroat *Geothlypis trichas sinuosa*	—/SSC	Fresh and brackish marshes of the San Francisco Bay Area.	Freshwater and brackish marshes with emergent vegetation.	Loss of habitat resulting from dredging, diking, and filling of marsh habitats.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat is sparse or absent.
Tricolored blackbird *Agelaius tricolor*	SC/—	From southern Oregon south through the Central Valley and into Baja California.	Cattail and tule marshes; open valleys and foothills.	Loss of habitat resulting from dredging, diking, and filling of marsh habitats.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat is sparse or absent.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Yellow warbler *Dendroica petechia brewsteri* (nesting)	—/SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes and the eastern side of the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties. Two small permanent populations in San Diego and Santa Barbara Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Unknown	No recorded observations in the Capitol Expressway Corridor. May occur in riparian habitat within the project Capitol Expressway Corridor.
California black rail *Laterallis jamaicensis coturniculus*	—/T (FP)	San Francisco Bay Area, Sacramento–San Joaquin Delta, coastal southern California including Morro Bay and others, Salton Sea, and Lower Colorado River area.	Saline, brackish, and fresh emergent wetlands.	Significant loss of salt and freshwater wetland habitat. Loss of higher wetlands around San Francisco Bay has eliminated breeding in the area.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat is sparse or absent.
Horned lark *Eremophila alpestris aetia*	—/SSC	Coastal California from Sonoma County southeast to the Mexico border, including San Joaquin Valley and the Sierra Nevada foothills.	Open habitats with few trees, including level or gently sloping short grass prairie, montane meadows, coastal plains, fallow grain fields, alkali flats.	Loss and fragmentation of habitat from urbanization, and mortality due to pesticides and mowing.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat is sparse or absent.
White-tailed kite *Elanus leucurus*	SC/SSC (FP)	Year-round resident in Oregon and California except at high elevations.	Low rolling foothills and valley margins with scattered oaks for nesting and perching; river bottomland and associated marsh habitat; open grassland.	Habitat loss as a result of urbanization.	Nests locally; known to occur in the region.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Salt marsh harvest mouse *Reithrodontomys raviventris*	E/—	Saline wetlands of San Francisco Bay. Southern subspecies (*R. r. raviventris*) occupies San Mateo, Alameda, and Santa Clara Counties.	Salt marsh habitat that supports large stands of pickleweed.	Loss of habitat resulting from dredging and filling of pickleweed marshes around San Francisco Bay.	No recorded observations in the Capitol Expressway Corridor. Suitable habitat is absent.
San Francisco dusky footed woodrat *Neotoma fuscipes annectens*	SC/SSC	West side of Mount Diablo to coast and San Francisco Bay	Present in chaparral habitat and in forest habitats with a moderate understory	Unknown	No recorded observations in Capitol Expressway Corridor; suitable habitat absent.
Western mastiff bat *Eumops perotis*	SC/SSC	Eastern San Joaquin Valley from El Dorado County south through Kern County; Coast Ranges, Peninsular Range, and Transverse Ranges from San Francisco to the Mexico border.	Roosts and breeds in deep, narrow rock crevices; may also use crevices in trees, buildings, and tunnels. Forages in a variety of semiarid to arid habitats.	Unclear; possibly insecticide contamination and loss of foraging habitat; possibly disturbance of roosting sites.	No recorded observations in Capitol Expressway Corridor; suitable habitat absent.
Townsend's western big-eared bat *Plecotus townsendii townsendii*	SC/SSC	Coastal regions from Del Norte County south to Santa Barbara County.	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings.	Unclear; possibly human disturbance of roosting sites.	No recorded observations in Capitol Expressway Corridor; suitable habitat present.
Pallid bat *Antrozous pallidus*	—/SSC	At low elevations throughout California.	Roosts in rocky outcrops, cliffs, and crevices; requires access to open habitats for foraging.	Human disturbance of roosting sites.	No recorded observations in Capitol Expressway Corridor; suitable habitat absent.
Long-legged myotis *Myotis volans*	SC/—	Mountains throughout California, including ranges in the Mojave desert	Most common in woodlands and forests above 4,000 feet, but occurs from sea level to 11,000 feet	Unknown	No recorded observations in Capitol Expressway Corridor; suitable habitat is present.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Long-eared myotis *Myotis evotis*	SC/—	Occurs throughout California except the southeastern deserts and the Central Valley	Occurs primarily in high elevation coniferous forests, but also found in mixed hardwood/conifer, high desert, and humid coastal conifer habitats	Unknown	No recorded observations in Capitol Expressway Corridor; suitable habitat is present.
Yuma myotis *Myotis yumanensis*	SC/—	Common and widespread throughout most of California except the Colorado and Mojave Deserts	Found in a wide variety of habitats from sea level to 11,000 feet, but uncommon above 8,000 feet. Optimal habitat is open forests and woodlands near water bodies	Unknown	No recorded observations in Capitol Expressway Corridor; suitable habitat is present.
San Joaquin kit fox *Vulpes macrotis mutica*	E/E	Valley floor and adjacent low foothills of the San Joaquin Valley.	Open grassland.	Loss of habitat resulting from agriculture and urbanization.	No recorded observations in Capitol Expressway Corridor. Capitol Expressway Corridor is likely outside range of species.
Fish					
Central California Coast ESU steelhead *Onchorhynchus mykiss*	T/SSC	Freshwater streams from Russian River to Soquel Creek, Santa Cruz County, inclusive.	Cold, clear water with clean gravel of appropriate size for spawning. Most spawning occurs in headwater streams. Steelhead migrate to the ocean to feed and grow until sexually mature.	Habitat degradation, restricted access to spawning habitat; increased water temperatures and sedimentation; decreased water quality; flow alterations	No recorded observations in Capitol Expressway Corridor; suitable habitat is present in Coyote Creek.

Common Name *Scientific Name*	Status* Federal/State	California Distribution	Habitat	Reason for Decline/Concern	Potential for Occurrence in Capitol Expressway Corridor
Fall-run chinook salmon *Oncorhynchus tshawytscha*	C/SSC	Sacramento River and its tributaries, San Joaquin River and its tributaries; tributaries to the south San Francisco Bay	Cool, clear water with spawning gravel; migrate to the ocean to feed and grow until sexually mature	Reduced access to spawning habitat; habitat degradation	No recorded observations in Capitol Expressway Corridor; suitable habitat is present in Coyote Creek.

---

* Status explanations:

Federal
E = listed as endangered under the federal Endangered Species Act (ESA)
T = listed as threatened under the federal ESA
PR = protected under the federal Golden Eagle Protection Act
C = federal candidate species (formerly Category 1; may be proposed for listing in the future)
SC = species of concern

State
E = listed as endangered under the California Endangered Species Act (CESA)
T = listed as threatened under the CESA
SSC = state species of special concern
FP = fully protected

— = no designation

Sources:

California Department of Fish and Game. 2002. *The Threatened and Endangered Page.* Available at URL: <http://www.dfg.ca.gov/endangered/index.html.>

California Natural Diversity Database. 2001. Computer report for Milpitas, Calaveras Reservoir, San Jose East, and San Jose West U.S. Geological Survey 7.5-minute quadrangles. Sacramento, CA: California Department of Fish and Game.

Peterson, R. T. 1990. *A Field Guide to Western Birds.* Boston, MA: Houghton Mifflin Company.

Skinner, M. W., and B. M. Pavlik. 1994. *Inventory of Rare and Endangered Vascular Plants in California.* 5th edition. (Special Publication No. 1.) California Native Plant Society. Sacramento, CA.

U.S. Fish and Wildlife Service. 2002. *Division of Endangered Species Region 1 Species List.* Available at URL: <http://www.endangered.fws.gov/r1spndx.html.>

Appendix E-2

U.S. Fish and Wildlife Service Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

IN REPLY REFER TO:
1-1-03-SP-0160

October 28, 2002

Mr. Brook Vinnedge
Wildlife Biologist
Jones and Stokes
268 Grand Avenue
Oakland, California 94610

Subject: Species List for Santa Clara Valley Transportation Authority Capitol Expressway Light Rail Transit Project, Santa Clara County, California

Dear Mr. Vinnedge:

We are sending the enclosed list in response to your October 17, 2002, request for information about endangered and threatened species (Enclosure A). The list covers the following U.S. Geological Survey 7½ minute quad or quads: San Jose West and San Jose East Quads.

Please read *Important Information About Your Species List* (enclosed). It explains how we made the list and describes your responsibilities under the Endangered Species Act. Please contact Tracy Davis at (916) 414-6625, if you have any questions about the attached list or your responsibilities under the Endangered Species Act. For the fastest response to species list requests, address them to the attention of Species Lists at this address. You may fax requests to 414-6712 or 414-6713. You may also email them to harry_mossman@fws.gov.

Sincerely,

for

Jan C. Knight
Chief, Endangered Species Division

Enclosures

Important Information
About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute *quads*. The United States is divided into these quads, which are about the size of San Francisco. If you requested your list by quad name or number, that is what we used. Otherwise, we used the information you sent us to determine which quad or quads to use.

Animals

The animals on your species list are ones that occur within, *or may be affected by projects within*, the quads covered by the list. Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them. Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents. Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones *that have actually been observed* in the quad or quads covered by the list. We have also included either a county species list or a list of species in nearby quads. We recommend that you check your project area for these plants. Plants may exist in an area without ever having been detected there.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. For plant surveys, we recommend using the enclosed *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Species*. The results of your surveys should be published in any environmental documents prepared for your project.

State-Listed Species

If a species has been listed as threatened or endangered by the State of California, but not by us nor by the National Marine Fisheries Service, it will appear on your list as a Species of Concern. *However you should contact the California Department of Fish and Game for official information about these species.* Call (916) 322-2493 or write Marketing Manager, California Department of Fish and Game, Natural Diversity Data Base, 1416 Ninth Street, Sacramento, California 95814.

Your Responsibilities Under the Endangered Species Act

All plants and animals identified as *listed* on Enclosure A are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the *take* of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal. Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

> If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a *formal consultation* with the Service. During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a *biological opinion* by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
>
> If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an *incidental take permit*. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project. Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as *critical habitat*. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Maps and boundary descriptions of the critical habitat may be found in the *Federal Register*. The information is also reprinted in the *Code of Federal Regulations* (50 CFR 17.95).

Candidate Species

We recommend that you address impacts to *candidate* species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Your list may contain a section called *Species of Concern.* This term includes former *category 2 candidate species* and other plants and animals of concern to the Service and other Federal, State and private conservation agencies and organizations. Some of these species may become candidate species in the future.

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed, candidate and special concern species in your planning, this should not be a problem. We also continually strive to make our information as accurate as possible. Sometimes we learn that a particular species has a different range than we thought. This should not be a problem if you consider the species on the county or surrounding-quad lists that we have enclosed. If you have a long-term project or if your project is delayed, please feel free to contact us about getting a current list. You can also find out the current status of a species by going to the Service's Internet page: *www.fws.gov*

GUIDELINES FOR CONDUCTING AND REPORTING BOTANICAL INVENTORIES FOR FEDERALLY LISTED, PROPOSED AND CANDIDATE PLANTS

(September 23, 1996)

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.

2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations is not available, investigators should study specimens from local herbaria.

3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.

4. Report results of botanical field inventories that include:

   a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species

   b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name

   c. survey dates and survey methodology(ies)

   d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made

   e. a comprehensive list of all vascular plants occurring on the project site for each habitat type

   f. current and historic land uses of the habitat(s) and degree of site alteration

   g. presence of target species off-site on adjacent parcels, if known

h. an assessment of the biological significance or ecological quality of the project site in a local and regional context

5. If target species is(are) found, report results that additionally include:

   a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project

   b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors.

   c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports.

   d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than three years from the current date of project proposal submission will likely need additional survey. Investigators need to assess whether an additional survey(s) is (are) needed.

8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

9. Guidance from California Department of Fish and Game (CDFG) regarding plant and plant community surveys can be found in Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities, 1984. Please contact the CDFG Regional Office for questions regarding the CDFG guidelines and for assistance in determining any applicable State regulatory requirements.

ENCLOSURE A

Endangered and Threatened Species that May Occur in or be Affected by

PROJECTS IN SANTA CLARA COUNTY

Reference File No. 1-1-03-SP-0160

October 28, 2002

Listed Species

Mammals

salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

Birds

California brown pelican, *Pelecanus occidentalis californicus* (E)

California clapper rail, *Rallus longirostris obsoletus* (E)

California least tern, *Sterna antillarum (=albifrons) browni* (E)

Least Bell's vireo, *Vireo bellii pusillus* (E)

marbled murrelet, *Brachyramphus marmoratus* (T)

western snowy plover, *Charadrius alexandrinus nivosus* (T)

bald eagle, *Haliaeetus leucocephalus* (T)

Reptiles

San Francisco garter snake, *Thamnophis sirtalis tetrataenia* (E)

Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

Critical habitat, Alameda whipsnake, *Masticophis lateralis euryxanthus* (T)

Amphibians

California tiger salamander, *Ambystoma californiense* (C/E)

California red-legged frog, *Rana aurora draytonii* (T)

Critical habitat, California red-legged frog, *Rana aurora draytonii* (T)

Fish

tidewater goby, *Eucyclogobius newberryi* (E)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

coho salmon - central CA coast, *Oncorhynchus kisutch* (T) NMFS

Central California Coastal steelhead, *Oncorhynchus mykiss* (T) NMFS

South Central California steelhead, *Oncorhynchus mykiss* (T) NMFS

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

delta smelt, *Hypomesus transpacificus* (T) *

Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (T)

Critical habitat, bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

Tiburon paintbrush, *Castilleja affinis ssp. neglecta* (E)

Coyote ceanothus, *Ceanothus ferrisae* (E)

Santa Clara Valley dudleya, *Dudleya setchellii* (E)

Metcalf Canyon jewelflower, *Streptanthus albidus ssp. albidus* (E)

robust spineflower, *Chorizanthe robusta var. robusta* (E) *

Contra Costa goldfields, *Lasthenia conjugens* (E) *

California sea blite, *Suaeda californica* (E) *

showy Indian clover, *Trifolium amoenum* (E) *

Proposed Species

Birds

mountain plover, *Charadrius montanus* (PT)

Candidate Species

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Critical habitat, Central Valley fall/late fall-run chinook, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC) small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

salt marsh vagrant shrew, *Sorex vagrans halicoetes* (SC)

Birds

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

black rail, *Laterallus jamaicensis coturniculus* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

American bittern, *Botaurus lentiginosus* (SC)

ferruginous hawk, *Buteo regalis* (SC)

Costa's hummingbird, *Calypte costae* (SC)

Lawrence's goldfinch, *Carduelis lawrencei* (SC)

Vaux's swift, *Chaetura vauxi* (SC)

olive-sided flycatcher, *Contopus cooperi* (SC)

black swift, *Cypseloides niger* (SC)

hermit warbler, *Dendroica occidentalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

common loon, *Gavia immer* (SC)

saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)

least bittern, western, *Ixobrychus exilis hesperis* (SC) loggerhead shrike, *Lanius ludovicianus* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

Alameda (South Bay) song sparrow, *Melospiza melodia pusillula* (SC)

long-billed curlew, *Numenius americanus* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

California thrasher, *Toxostoma redivivum* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

San Joaquin coachwhip (=whipsnake), *Masticophis flagellum ruddocki* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Spea hammondii* (SC)

Fish

green sturgeon, *Acipenser medirostris* (SC)

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

Edgewood blind harvestman, *Calicina minor* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

California linderiella fairy shrimp, *Linderiella occidentalis* (SC)

Hom's microblind harvestman, *Microcina homi* (SC)

Jung's microblind harvestman, *Microcina juni* (SC)

unsilvered fritillary butterfly, *Speyeria adiaste adiaste* (SC)

Plants

Sharsmith's onion, *Allium sharsmithae* (SC)

Mt. Hamilton (=Sharesmith's) harebell, *Campanula sharsmithiae* (SC)

Mt. Hamilton thistle, *Cirsium fontinale var. campylon* (SC)

South Bay clarkia (=Santa Clara red ribbons), *Clarkia concinna ssp. automixa* (SC)

Mt. Hamilton coreopsis, *Coreopsis hamiltonii* (SC)

clustered lady's-slipper, *Cypripedium fasciculatum* (SC)

interior California (Hospital Canyon) larkspur, *Delphinium californicum ssp. interius* (SC)

Brandegee's woolly-star (=eriastrum), *Eriastrum brandegeae* (SC)

Ben Lomond buckwheat (= naked buckwheat), *Eriogonum nudum var. decurrens* (SC)

San Francisco wallflower, *Erysimum franciscanum* (SC)

talus fritillary, *Fritillaria falcata* (SC)

fragrant fritillary (= prairie bells), *Fritillaria liliacea* (SC)

Congdon's tarplant, *Hemizonia parryi ssp. congdonii* (SC)

Loma Prieta hoita, *Hoita strobilina* (SC)

smooth lessingia, *Lessingia micradenia var. glabrata* (SC)

large-flowered (=flower) linanthus, *Linanthus grandiflorus* (SC)

Oregon meconella (=white fairypoppy), *Meconella oregana* (SC)

Gairdner's yampah, *Perideridia gairdneri ssp. gairdneri* (SC)

Mt. Diablo phacelia, *Phacelia phacelioides* (SC)

Salinas Valley (=hooked) popcornflower, *Plagiobothrys uncinatus* (SC)

rock sanicle, *Sanicula saxatilis* (SC)

most beautiful (uncommon) jewelflower, *Streptanthus albidus ssp. peramoenus* (SC)

water sack (=saline) clover, *Trifolim depauperatum var. hydrophilum* (SC)

Franciscan onion, *Allium peninsulare var. franciscanum* (SLC)

Santa Cruz manzanita, *Arctostaphylos andersonii* (SLC)

Kings Mountain manzanita, *Arctostaphylos regismontana* (SLC)

big-scale (=California) balsamroot, *Balsamorhiza macrolepis var macrolepis* (SLC)

chaparral harebell (=bellflower), *Campanula exigua* (SLC)

western leatherwood, *Dirca occidentalis* (SLC)

Tiburon buckwheat, *Eriogonum caninum* (SLC)

serpentine bedstraw, *Galium andrewsii ssp. gatense* (SLC)

Mt. Hamilton lomatium, *Lomatium observatorium* (SLC)

arcuate bush mallow, *Malacothamnus arcutatus (=M. fasciculat)* (SLC)

Hall's bush mallow, *Malacothamnus hallii (=M. fasciculatus)* (SLC)

Santa Cruz Mts. beardtongue, *Penstemon rattanii var kleei* (SLC)

maple-leaved checkerbloom, *Sidalcea malachroides* (SLC)

Pacific cordgrass (=California cordgrass), *Sparina foliosa* (SLC)

Mt. Hamilton jewelflower, *Streptanthus callistus* (SLC)

alkali milk-vetch, *Astragalus tener var. tener* (SC) *

San Joaquin spearscale (=saltbush), *Atriplex joaquiniana* (SC) *

northcoast (=Point Reyes) bird's-beak, *Cordylanthus maritimus ssp. palustris* (SC) *

delta tule-pea, *Lathyrus jepsonii var. jepsonii* (SC) *

caper-fruited tropidocarpum, *Tropidocarpum capparideum* (SC) *

hairless allocarya (=popcornflower), *Plagiobothrys glaber* (SC) **

Hoover's button-celery, *Eryngium aristulatum var. hooveri* (SC) *

curly-leaved (=curlyleaf) monardella, *Monardella undulata* (SC) *

Greene's popcorn flower, *Plagiobothrys reticulatus var. rossianorum* (SC) *

San Francisco Bay spineflower, *Chorizanthe cuspidata var. cuspidata* (SC)

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	Other species of concern to the Service.
(SLC)	*Species of Local Concern*	Species of local or regional concern or conservation significance.
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
NMFS	NMFS species	Under the jurisdiction of the National Marine Fisheries Service. Contact them directly.
*	*Extirpated*	Possibly extirpated from the area.
**	*Extinct*	Possibly extinct
	Critical Habitat	Area essential to the conservation of a species.

ENCLOSURE A

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Selected Quads Listed Below
Reference File No. 1-1-03-SP-0160
October 28, 2002

QUAD: 427C SAN JOSE WEST

Listed Species

Birds

bald eagle, *Haliaeetus leucocephalus* (T)

California clapper rail, *Rallus longirostris obsoletus* (E)

California least tern, *Sterna antillarum (=albifrons) browni* (E)

Amphibians

California tiger salamander, *Ambystoma californiense* (C/E)

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (T) NMFS

Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

robust spineflower, *Chorizanthe robusta var. robusta* (E) *

Candidate Species

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

Costa's hummingbird, *Calypte costae* (SC)

Lawrence's goldfinch, *Carduelis lawrencei* (SC)

Vaux's swift, *Chaetura vauxi* (SC)

black tern, *Chlidonias niger* (SC)

black swift, *Cypseloides niger* (SC)

hermit warbler, *Dendroica occidentalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)

loggerhead shrike, *Lanius ludovicianus* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

long-billed curlew, *Numenius americanus* (SC)

bank swallow, *Riparia riparia* (CA)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Spea hammondii* (SC)

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)
Hom's microblind harvestman, *Microcina homi* (SC)

Jung's microblind harvestman, *Microcina juni* (SC)

unsilvered fritillary butterfly, *Speyeria adiaste adiaste* (SC)

Plants

Loma Prieta hoita, *Hoita strobilina* (SC)

arcuate bush mallow, *Malacothamnus arcutatus (=M. fasciculat)* (SLC)

Hall's bush mallow, *Malacothamnus hallii (=M. fasciculatus)* (SLC)

hairless allocarya (=popcornflower), *Plagiobothrys glaber* (SC) **

QUAD: 427D SAN JOSE EAST

Listed Species

Mammals

riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Birds

bald eagle, *Haliaeetus leucocephalus* (T)

California least tern, *Sterna antillarum (=albifrons) browni* (E)

Amphibians

California tiger salamander, *Ambystoma californiense* (C/E)

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (T) NMFS

Central Valley steelhead, *Oncorhynchus mykiss* (T) NMFS

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E) NMFS

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T) NMFS

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

Critical habitat, bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

Santa Clara Valley dudleya, *Dudleya setchellii* (E)

Contra Costa goldfields, *Lasthenia conjugens* (E) *

Metcalf Canyon jewelflower, *Streptanthus albidus ssp. albidus* (E)

Candidate Species

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C) NMFS

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

Costa's hummingbird, *Calypte costae* (SC)

Lawrence's goldfinch, *Carduelis lawrencei* (SC)

Vaux's swift, *Chaetura vauxi* (SC)

black tern, *Chlidonias niger* (SC)

black swift, *Cypseloides niger* (SC)

hermit warbler, *Dendroica occidentalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

loggerhead shrike, *Lanius ludovicianus* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

long-billed curlew, *Numenius americanus* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC) northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Spea hammondii* (SC)

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

Edgewood blind harvestman, *Calicina minor* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Hom's microblind harvestman, *Microcina homi* (SC)

Jung's microblind harvestman, *Microcina juni* (SC)

Plants

Mt. Hamilton thistle, *Cirsium fontinale var. campylon* (SC)

South Bay clarkia (=Santa Clara red ribbons), *Clarkia concinna ssp. automixa* (SC)

fragrant fritillary (= prairie bells), *Fritillaria liliacea* (SC)

Congdon's tarplant, *Hemizonia parryi ssp. congdonii* (SC) *?

arcuate bush mallow, *Malacothamnus arcutatus (=M. fasciculat)* (SLC)

Hall's bush mallow, *Malacothamnus hallii (=M. fasciculatus)* (SLC)

hairless allocarya (=popcornflower), *Plagiobothrys glaber* (SC) **

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(SLC)	*Species of Local Concern*	Species of local or regional concern or conservation significance.
(MB)	*Migratory Bird*	Migratory bird
NMFS	NMFS species	Under the jurisdiction of the National Marine Fisheries Service. Contact them directly.
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
(*)	*Extirpated*	Possibly extirpated from this quad.
(**)	*Extinct*	Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

Jones & Stokes

October 17, 2002

Mr. Harry Mossman
U. S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way
Sacramento, CA 95825

SUBJECT: Request for Special-Status Species List for the Santa Clara Valley Transportation Authority's (VTA) Capitol Expressway Light Rail Transit Project, Santa Clara County

Dear Mr. Mossman:

Jones & Stokes is requesting a list of all species that are listed, proposed for listing, or candidates for listing as threatened or endangered under the Endangered Species Act that could occur within the proposed Capitol Expressway Light Rail Transit project area. The Santa Clara Valley Transportation Authority (VTA) is considering alternatives for improving direct transit service in the corridor containing the alignment of the Capitol Expressway. The alignment of the proposed project generally follows Interstate 680 and U.S. 101 in the City of San Jose. The proposed project corridor is located in the following USGS 7.5-minute topographic quadrangle maps:

- San Jose West
- San Jose East

Please send or fax the requested lists to me at 510.433.8961. Thank you for your prompt attention. If you have any questions or need additional information, please call me at 510.433.8962.

Sincerely,

Brook Vinnedge

Brook Vinnedge
Wildlife Biologist

268 Grand Avenue · Oakland, CA 94610 · tel. 510 433.8962 · fax 510 433.8961
www.jonesandstokes.com

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

VTA
ENVIR. ANALYSIS
2001 SEP 26 P 2: 15

IN REPLY REFER TO:
PPN 2878

September 20, 2001

Mr. Thomas Fitzwater
Environmental Planning Manager
Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, California 95134-1906

Dear Mr. Fitzwater:

Thank you for the opportunity to review the Notice of Preparation for a Draft Environmental Impact Report for the Capitol Expressway Light Rail Transit Project in San Jose, California. The enclosures are intended to assist you in the early environmental review of this proposal. Future consultation with the U.S. Fish and Wildlife Service (Service) may be required under the Fish and Wildlife Coordination Act if project activities are anticipated to impact jurisdictional wetlands, and/or the Endangered Species Act if project activities are anticipated to affect federally listed species.

Enclosure A provides a list of sensitive species that may occur in or near the project site. The Service recommends that surveys be completed by a qualified biologist on the proposed project site to confirm the presence or absence of special-status species or their habitats. Enclosure B recommends general guidelines for identifying and mitigating project impacts to fish, wildlife, and their habitats. The Council on Environmental Quality developed regulations for implementing the National Environmental Policy Act, and defines mitigation to include: (1) avoiding the impact; (2) minimizing the impact; (3) rectifying the impact; (4) reducing or eliminating the impact over time; and (5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain the best way to mitigate adverse biological impacts is avoidance when at all possible.

We encourage you to use these guidelines to develop a comprehensive environmental document that addresses these needs. If you have any questions regarding these comments, please contact Jerry Bielfeldt in the Wetlands Branch at (916) 414-6584.

Sincerely,

Dale A. Pierce

Dale A. Pierce
Acting Field Supervisor

Enclosures

cc:
ARD (ES), Portland, OR
Reg. Mgr., CDFG, Region III, Napa, CA
(w/o enclosures)

ENCLOSURE A

Endangered and Threatened Species that May Occur in
or be Affected by Projects in the Selected Quads Listed Below
Reference File No. PPN-2878

Capitol Expressway Light Rail

September 19, 2001

QUAD : 427C SAN JOSE WEST

Listed Species

Birds

California clapper rail, *Rallus longirostris obsoletus* (E)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

robust spineflower, *Chorizanthe robusta* (E) *

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Hom's microblind harvestman, *Microcina homi* (SC)

Jung's microblind harvestman, *Microcina juni* (SC)

unsilvered fritillary butterfly, *Speyeria adiaste adiaste* (SC)

QUAD : 427D SAN JOSE EAST

Listed Species

Mammals

riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

Critical habitat, bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

Santa Clara Valley dudleya, *Dudleya setchellii* (E)

Contra Costa goldfields, *Lasthenia conjugens* (E) *

Metcalf Canyon jewelflower, *Streptanthus albidus ssp. albidus* (E)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Birds

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

Lewis' woodpecker, *Melanerpes lewis* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

Edgewood blind harvestman, *Calicina minor* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Hom's microblind harvestman, *Microcina homi* (SC)

Jung's microblind harvestman, *Microcina juni* (SC)

Plants

Mt. Hamilton thistle, *Cirsium fontinale var. campylon* (SC)

South Bay clarkia, *Clarkia concinna ssp. automixa* (SC)

fragrant fritillary, *Fritillaria liliacea* (SC) pappose spikeweed [=Congdon's tarplant], *Hemizonia parryi ssp. congdonii* (SC) *?

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(MB)	*Migratory Bird*	Migratory bird
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
(*)	*Extirpated*	Possibly extirpated from this quad.
(**)	*Extinct*	Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

ENCLOSURE B

The goal of the U.S. Fish and Wildlife Service is to conserve, protect and enhance fish, wildlife, and their habitats by timely and effective provision of fish and wildlife information and recommendations. To assist us in accomplishing this goal, we would like to see the items described below discussed in your environmental documents for the proposed project.

Project Description. The document should very clearly state the purposes of, and document the needs for, the proposed project so that the capabilities of the various alternatives to meet the purposes and needs can be readily determined.

A thorough description of all permanent and temporary facilities to be constructed, and all work to be done as a part of the project should be included. The document should identify any associated new access roads, equipment staging areas, and gravel processing facilities. Figures accurately depicting proposed project features in relation to natural features (such as streams, wetlands, riparian areas, and other habitat types) in the project area should be included.

Affected Environment. The document should show the location of, and describe, all vegetative cover types in the areas potentially affected by all project alternatives and associated activities. Tables with acreages of each cover type with and without the project for each alternative would also be appropriate. We recommend that all wetlands in the project area be delineated and described according to the classification system found in the Service's Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979). The Service's National Wetland Inventory maps would be one starting point for this effort.

The document should present and analyze a full range of alternatives to the proposed project. At least one alternative should be designed to avoid all impacts to wetlands, including riparian areas. Similarly, within each alternative, measures to minimize or avoid impacts to wetlands should be included.

Lists of fish and wildlife species expected to occur in the project area should be in the document. The lists should also indicate whether or not each species is a resident or migrant, and the period(s) of the year it would be expected in the project area.

Environmental Consequences. The sections on impacts to fish and wildlife should discuss impacts from vegetation removal (both permanent and temporary), filling or degradation of wetlands, interruption of wildlife migration corridors, and disturbance from trucks and other machinery during construction and/or operation. These sections should also analyze possible impacts to streams from construction of outfall structures, pipeline crossings, and filling. Impacts on water quality, including nutrient loading, sedimentation, toxics, biological oxygen demand, and temperature in receiving waters should also be discussed in detail along with the resultant effects on fish and aquatic invertebrates. Discussion of indirect impacts to fish, wildlife, and their habitats, including impacts from growth induced by the proposed project, should also be addressed in the document. The impacts of each alternative should be discussed in sufficient detail to allow comparison between the alternatives.

Because of their very high value to migratory birds, and their ever-increasing scarcity in California, our mitigation goal for wetlands (including riparian and riverine wetlands) is no net loss of in-kind habitat value or acreage (whichever is greater).

In those situations where impacts are unavoidable, adequate mitigation should be provided to offset these impacts. To determine mitigation credits for a given mitigation project, we evaluate the expected future conditions on the mitigation site in the absence of mitigation actions, and then compare those conditions to conditions we expect to develop with implementation of the mitigation plan.

For unavoidable impacts, to determine the mitigation credits available for a given mitigation project, we evaluate what conditions would exist on the mitigation site in the future in the absence of the mitigation actions, and compare those conditions to the conditions we would expect to develop on the site with implementation of the mitigation plan.

Mitigation habitat should be equal to or exceed the quality of the habitat to be affected by the project. Baseline information would need to be gathered at the impact site to be able to quantify this goal in terms of plant species diversity, shrub and tree canopy cover, stems/acre, tree height, etc. The ultimate success of the project should be judged according to these same measurements at the mitigation site.

Criteria should be developed for assessing the progress of the project during its developmental stages as well. Assessment criteria should include rates of plant growth, plant health, and evidence of natural reproduction. Success criteria should be geared toward equaling or exceeding the quality of the highest quality habitat to be affected. In other words, the mitigation effort would be deemed a success in relation to this goal if the mitigation site met or exceeded habitat measurements at a "model" site (plant cover, density, species diversity, etc.).

The plan should present the proposed ground elevations at the mitigation site, along with elevations in the adjacent areas. A comparison of the soils of the proposed mitigation and adjacent areas should also be included in the plan, and a determination made as to the suitability of the soils to support habitats consistent with the mitigation goals.

Because wetland ecosystems are driven by suitable hydrological conditions, additional information must be developed on the predicted hydrology of the mitigation site. The plan should describe the depth of the water table, and the frequency, duration, areal extent, and depth of flooding which would occur on the site. The hydrologic information should include an analysis of extreme conditions (drought, flooding) as well as typical conditions.

The plan must include a timeframe for implementing the mitigation in relation to the proposed project. We recommend that mitigation be initiated prior to the onset of construction. If there will be a substantial time lag between project construction and completion of the mitigation, a net loss of habitat values would result, and more mitigation would be required to offset this loss.

Appendix E-3

National Marine Fisheries Service Correspondence

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

In response refer to:
July 1, 2003 151422SWR03SR8717:MEM

Jeff Kozlowski
Fisheries Biologist
Jones & Stokes
2600 V Street
Sacramento, California 95818-1914

Dear Mr. Kozlowski:

Thank you for your letter of June 9, 2003, regarding the presence of Federally listed (or proposed for listing) threatened or endangered species or critical habitat under the jurisdiction of the National Marine Fisheries Service (NOAA Fisheries) that may be affected by the Santa Clara Valley Transportation Authority's (VTA) proposed Capitol Expressway corridor light rail transit extension. The extension would require modifications to bridges crossing the following creeks in the Santa Clara Basin: Canoas Creek, a tributary of the Guadalupe River; Silver Creek and its tributary Thompson Creek; and Coyote Creek.

Endangered Species Act

Canoas, Silver, and Thompson Creeks are highly modified flood control channels. NOAA Fisheries has determined that listed species are unlikely to be present in these creeks. Typical conditions such as denuded banks, low flows, and high water temperatures in these channels act to limit or preclude salmonid presence. As a result, salmonids are not likely to be adversely affected at these locations. Available information indicates that the following listed species (Evolutionarily Significant Units) and designated critical habitat may occur in the project area on Coyote Creek:

Central California Coast steelhead (*Oncorhynchus mykiss*)
threatened (August 18, 1997, 62 FR 43937)

The U.S. Fish and Wildlife Service (USFWS) may also have listed species or critical habitat under its jurisdiction in the project area. Please contact Mr. Harry Mossman at USFWS, 2800 Cottage Way, W-2605, Sacramento, California 95825 or (916) 414-6600 regarding the presence of listed species or critical habitat under USFWS jurisdiction that might be affected by your project.

Magnuson-Stevens Act - Essential Fish Habitat

The Coyote Creek project site is located within an area identified as Essential Fish Habitat (EFH) for various life stages of fish species managed with the following Fishery Management Plans (FMP) under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA):

Pacific Coast Salmon FMP - (Chinook and coho salmon)

Amendments to the MSFCMA in 1996 require Federal agencies to consult with NOAA Fisheries regarding any action or proposed action that may adversely affect EFH for Federally-managed fish species. For more information on EFH, see our website at "http://swr.nmfs.noaa.gov". Please send an EFH assessment to NOAA Fisheries if the NPS determines that the proposed action may adversely affect EFH for any species in the FMPs listed above.

If you have questions concerning these comments, please contact Maura Eagan Moody at (707) 575-6092 or by email at maura.e.moody@noaa.gov.

Sincerely,

Patrick J. Rutten
Northern California Supervisor
Protected Resources Division

cc: James H. Lecky, NOAA Fisheries
Dan Buford, USFWS
Kristine Atkinson, CDFG

Appendix E-4

California Natural Diversity Database Search Results

California Department of Fish and Game
Natural Diversity Data Base

Milpitas, Calaveras Reservoir, San Jose East
and San Jose West Quadrangles

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
ALKALI MILK-VETCH *ASTRAGALUS TENER VAR TENER*	None/ None	G1T1/ S1.1	1B/ 3-2-3	
BAY CHECKERSPOT BUTTERFLY *EUPHYDRYAS EDITHA BAYENSIS*	Threatened/ None	G5T2/ S2		
BERKELEY KANGAROO RAT *DIPODOMYS HEERMANNI BERKELEYENIS*	None/ None	G3G4TH / SH		
BURROWING OWL *ATHENE CUNICULARIA*	None/ None	G4/ S2		SC
CALIFORNIA CLAPPER RAIL *RALLUS LONGIROSTRIS OBSOLETUS*	Endangered/ Endangered	G5T1/ S1		
CALIFORNIA RED-LEGGED FROG *RANA AURORA DRAYTONII*	Threatened/ None	G4T2T3 / S2S3		SC
CALIFORNIA TIGER SALAMANDER *AMBYSTOMA CALIFORNIENSE*	Endangered/ None	G2G3/ S2S3		SC
CAPER-FRUITED TROPIDOCARPUM *TROPIDOCARPUM CAPPARIDEUM*	None/ None	GH/ SH	1A/ *	
CONGDON'S TARPLANT *CENTROMADIA PARRYI SSP CONGDONII*	None/ None	G5T1/ S1.1	1B/ 3-3-3	
CONTRA COSTA GOLDFIELDS *LASTHENIA CONJUGENS*	Endangered/ None	G1/ S1.1	1B/ 3-3-3	
EDGEWOOD BLIND HARVESTMAN *CALICINA (=SITALCINA) MINOR*	None/ None	G1/ S1		
FOOTHILL YELLOW-LEGGED FROG *RANA BOYLII*	None/ None	G3/ S2S3		SC
FRAGRANT FRITILLARY *FRITILLARIA LILIACEA*	None/ None	G2/ S2.2	1B/ 2-2-3	

Milpitas, Calaveras Reservoir, San Jose East
and San Jose West Quadrangles

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
GOLDEN EAGLE *AQUILA CHRYSAETOS*	None/ None	G5/ S3		SC
GREAT BLUE HERON *ARDEA HERODIAS*	None/ None	G5/ S4		
HAIRLESS POPCORN-FLOWER *PLAGIOBOTHRYS GLABER*	None/ None	GH/ SH	1A/ *	
HALL'S BUSH MALLOW *MALACOTHAMNUS HALLII*	None/ None	G1Q/ S1.2	1B/ 3-2-3	
MAPLE-LEAVED CHECKERBLOOM *SIDALCEA MALACHROIDES*	None/ None	G2/ S2.2	1B/ 2-2-2	
METCALF CANYON JEWEL-FLOWER *STREPTANTHUS ALBIDUS SSP ALBIDUS*	Endangered/ None	G2T1/ S1.1	1B/ 3-3-3	
MT. HAMILTON THISTLE *CIRSIUM FONTINALE VAR CAMPYLON*	None/ None	G2T2/ S2.2	1B/ 2-2-3	
NORTHERN COASTAL SALT MARSH	None/ None	G3/ S3.2		
OPLER'S LONGHORN MOTH *ADELA OPLERELLA*	None/ None	G2G3/ S2S3		
POINT REYES BIRD'S-BEAK *CORDYLANTHUS MARITIMUS SSP PALUSTRIS*	None/ None	G3T2/ S2.2	1B/ 2-2-2	
ROBUST SPINEFLOWER *CHORIZANTHE ROBUSTA VAR ROBUSTA*	Endangered/ None	G2T1/ S1.1	1B/ 3-3-3	
SALT-MARSH HARVEST MOUSE *REITHRODONTOMYS RAVIVENTRIS*	Endangered/ Endangered	G1G2/ S1S2		
SALT-MARSH WANDERING SHREW *SOREX VAGRANS HALICOETES*	None/ None	G5T1/ S1		SC

Milpitas, Calaveras Reservoir, San Jose East
and San Jose West Quadrangles

Common/Scientific Name	Federal/ State Status	Global/ State Rank	CNPS/ R-E-D	CDFG Status
SALTMARSH COMMON YELLOWTHROAT *GEOTHLYPIS TRICHAS SINUOSA*	None/ None	G5T2/ S2		SC
SAN JOAQUIN KIT FOX *VULPES MACROTIS MUTICA*	Endangered/ Threatened	G4T2T3 / S2S3		
SAN JOAQUIN SALTBUSH *ATRIPLEX JOAQUINIANA*	None/ None	G2/ S2.1	1B/ 2-2-3	
SANTA CLARA VALLEY DUDLEYA *DUDLEYA SETCHELLII*	Endangered/ None	G1/ S1.1	1B/ 3-3-3	
STEELHEAD-CENTRAL CALIFORNIA COAST ESU *ONCORHYNCHUS MYKISS IRIDEUS*	Threatened/ None	G5T2/ S2		
TOWNSEND'S WESTERN BIG-EARED BAT *CORYNORHINUS TOWNSENDII TOWNSENDII*	None/ None	G4T3T4 / S2S3		SC
TRICOLORED BLACKBIRD *AGELAIUS TRICOLOR*	None/ None	G3/ S3		SC
VERNAL POOL TADPOLE SHRIMP *LEPIDURUS PACKARDI*	Endangered/ None	G2G3/ S2S3		
WESTERN POND TURTLE *CLEMMYS MARMORATA*	None/ None	G4/ S3		SC
WESTERN SNOWY PLOVER *CHARADRIUS ALEXANDRINUS NIVOSUS*	Threatened/ None	G4T3/ S2		SC
WHITE-TAILED KITE *ELANUS LEUCURUS*	None/ None	G5/ S3		

Appendix E-5

Biological Resources Survey Technical Memorandum

Jones & Stokes

Memorandum

Date: March 6, 2003

To: Debra Jones, Project Manager

cc: Seema Sairam, Project Coordinator

From: Marcia Semenoff-Irving, Project Biologist
Brook Vinnedge, Project Biologist

Subject: **Summary of reconnaissance survey conducted in the VTA Capitol Expressway Corridor study area**

Jones & Stokes biologists Marcia Semenoff-Irving and Brook Vinnedge conducted a reconnaissance-level survey of the VTA Capitol Expressway project area to determine potential for the proposed project to impact sensitive resources. This survey supported the initial survey conducted by Jones & Stokes biologists Shannon Bane and Keith Casey on October 16, 2001. The following is a summary of the methods and results of these surveys.

Pre-field Investigation

Prior to the field visit biologists reviewed information about special status species and habitats that could occur in the project vicinity. During the pre-field investigation, Jones & Stokes biologists conducted a records search of the California Natural Diversity Data Base (2002) and California Native Plant Society's Inventory of Rare and Endangered Plants in California for the 7.5-minute San Jose East, Milpitas, Calaveras Reservoir and San Jose West USGS 7.5-minute quadrangles to determine whether any special-status species were known to occur in the project vicinity. Based on the pre-field investigation, contacts with agency personnel, and knowledge of the project area, target species lists were created that summarize the status, distribution, habitats, and potential for occurrence of special-status plant and wildlife species in the area.

Survey Methods

Biologists conducted reconnaissance surveys of the general project area on October 16, 2001 and November 21, 2002. The purpose of the surveys was to collect information on the habitats present along the project route, to document the presence of wetlands (unverified) and streams, and to evaluate the potential for occurrence of special-status plants and wildlife species. During the surveys, biologists visually inspected the project area from a moving vehicle, with occasional stops to more closely inspect important features, including riparian habitats, drainages, and vacant lots. Habitat features were noted on an aerial photograph of the study area

Survey Results

The project area contains 5 vegetation communities (habitat types). These vegetation communities include: Central Coast cottonwood-sycamore riparian forest, freshwater marsh, ruderal, and aquatic habitats and potential (unverified) waters of the United States. Potential habitat for special status bats and raptors occurs at the Coyote Creek crossing. In addition, this creek may provide marginal dispersal habitat for the federally listed California red-legged frog and special status fish such as steelhead trout and chinook salmon. Potential habitat for the Western burrowing owl occurs throughout the project area. Focused surveys for these species are recommended.

Conclusions

Biologists recommend that focused surveys be conducted to determine the extent of the impact the proposed project may have on special status species. The recommended focused surveys include a preconstruction survey for nesting raptors (during the nesting season only), a preconstruction survey for burrowing owls (year-round), a survey for special status bat species at the coyote creek crossing, and special status fish surveys prior to construction. Analysis of impacts at coyote creek will determine whether or not protocol level surveys should be conducted for California red-legged frog.

Appendix E-6

Relevant Plans and Policies for Biological Resources

Definition of Special-Status Species

Special-status species include plants and animals that are legally protected under state and federal Endangered Species Acts (ESAs) or other regulations (described below), as well as species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species include the following categories of plants and animals:

- plants and animals listed or proposed for listing as threatened or endangered under the federal ESA and/or California Endangered Species Act (CESA);
- plants and animals that are candidates for possible future listing as threatened or endangered under the federal ESA and/or CESA;
- b/plants listed under the California Native Plant Protection Act (CNPPA);
- plants that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA), including those considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California;
- animal species of special concern to the California Department of Fish and Game (CDFG); and
- animals fully protected in California.

Federal Regulations

Endangered Species Act

The federal ESA protects fish and wildlife species listed as threatened or endangered, as well as their habitats. Endangered species, subspecies, or distinct population segments are those in danger of extinction through all or a significant portion of their range; threatened species, subspecies, or distinct population segments are likely to become endangered in the near future. The U.S. Fish and Wildlife Service (USFWS) (with jurisdiction over plants, wildlife, and resident fish) and National Oceanic and Atmospheric Administration (NOAA) Fisheries (with jurisdiction over anadromous fish and marine fish and mammals) administers the ESA.

Section 7

ESA Section 7 requires federal agencies consult with USFWS and NOAA Fisheries to ensure that their actions do not jeopardize the continued existence of a listed fish or wildlife species, or destroy or adversely modify that species' critical habitat as defined and designated by federal regulations. Under Section 7, federal agencies are also prohibited from jeopardizing the continued existence of any federally listed plant species in issuing any permit. For a proposed action to comply with Section 7, a biological assessment is typically prepared to document the action's expected impacts and proposed mitigation to compensate for those impacts.

Section 9

ESA Section 9 prohibits the take of any fish or wildlife species listed as endangered. Take of threatened species is also prohibited unless otherwise authorized by federal regulations. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the species, including significant habitat modification." Section 9 also prohibits removing, digging up, cutting, maliciously damaging, or destroying federally listed plants on sites under federal jurisdiction.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA), administered by USFWS, implements a series of treaties between the United States, Mexico, and Canada that provide for the international protection of migratory birds. The law contains no requirement to prove intent to violate any of its provisions. Wording in the MBTA makes it clear that most actions that result in "taking" or possession (permanent or temporary) of a protected species can be a violation of the act. The word take is defined as meaning "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." The provisions of the MBTA are nearly absolute; "except as permitted by regulations" is the only exception. Examples of permitted actions that do not violate the law are the possession of a hunting license to pursue specific gamebirds, legitimate research activities, display in zoological gardens, bird-banding, and similar activities.

Bald and Golden Eagle Protection Act

Bald eagle protection began in 1940 with the passage of the Eagle Protection Act, which was later amended to include golden eagle and was renamed. The Bald and Golden Eagle Protection Act makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, their parts, products, nests, or eggs. Take includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing. Exceptions may be granted by USFWS for scientific or exhibition use, or for traditional and cultural use by Native Americans. However, no permits may be issued for import, export, or commercial activities involving eagles.

Clean Water Act

The federal Clean Water Act (CWA) is an amendment to the Federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. Several sections of this act pertain to regulating impacts to wetlands. The discharge of dredged or fill material into waters of the United States is subject to permitting under Section 404. Section 401 specifies additional requirements for permit review, particularly at the state level. The CWA is administered by the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (Corps).

Section 401

CWA Section 401 gives individual states the authority to issue, waive, or deny certification that a proposed activity is in conformance with state water quality standards. Projects, including those that require permits from the Corps under Section 404 are reviewed by the state's Regional Water Quality Control Boards (RWQCBs). The Capitol Expressway Corridor is under the jurisdiction of the San Francisco Bay RWQCB .

Section 404

The Corps and EPA regulate the placement of fill and dredged materials into waters of the United States under CWA Section 404. Waters of the United States include lakes, rivers, streams, and their tributaries, as well as wetlands. Tributary waters subject to Corps jurisdiction extend to the ordinary high water mark on opposing channel banks. Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Project proponents must obtain a permit from the Corps for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed action.

The Corps may either issue individual permits on a case-by-case basis or general permits at a program level. General permits are pre-authorized and are issued to cover similar activities expected to cause only minimal adverse environmental effects. Nationwide permits (NWPs) are a type of general permit issued to cover particular fill activities. NWPs have a set of conditions that must be met for the permits to apply to a particular project and specific conditions that apply to each NWP.

State Regulations

California Endangered Species Act

CESA protects wildlife and plants listed as threatened and endangered by the California Fish and Game Commission. The act is administered by CDFG. CESA requires state agencies to conserve threatened and endangered species (California Fish and Game Code Section 2055), and thus restricts all persons from taking listed species except under certain circumstances. The CESA defines take as any action or attempt to “hunt, pursue, catch, capture, or kill.” CDFG may authorize take under California Fish and Game Code Section 2081 agreements, except for designated “fully protected species.” The requirements for an application for an incidental take permit under CESA are described in California Fish and Game Code Section 2081 and in final adopted regulations for implementing Sections 2080 and 2081.

California Native Plant Protection Act

The CNPPA prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. CESA defers to the CNPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects subject to CEQA. In this case, plants listed as rare under the CNPPA are not protected under CESA, but rather under CEQA. The following activities are exempt from the CNPPA:

- agricultural operations;
- fire control measures;
- timber harvest operations;
- mining assessment work;
- removal of plants by private landowners on private land for construction of canals, ditches, buildings, roads, or other rights-of-way; and
- removal of plants for performance of a public service by a public agency or a publicly or privately owned public utility.

California Fish and Game Code

The California Fish and Game Code (14 California Code of Regulations 1600–1607) provides protection from take for a variety of species. Section 5050 lists protected amphibians and reptiles. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, birds of prey under Section 3503.5, and fully protected birds under Section 3511. All birds that occur naturally in California and are not resident game birds, migratory game birds, or fully protected birds are considered non-game birds and are protected under Section 3800. Mammals are protected under Section 4700. Hawks, falcons, and owls that occur in the Capitol Expressway Corridor are thus protected under Section 3503.5 and non-game birds under Section 3800.

Section 1601 (or 1603 for private entities) requires that state or local government agencies notify CDFG and obtain a streambed alteration agreement before they begin any construction project that will:

- divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake;
- use materials from a streambed; or
- result in the disposal or disposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

In general. CDFG jurisdiction extends to the top of the stream or bank, or to the outer edge of riparian vegetation, whichever is wider.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, passed in 1975, provides State coordination with the CWA, which is described above. It provides a mechanism by which the RWQCBs certify federally-issued CWA permits to ensure the compatibility of federal and state water quality guidelines. The act provides for the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters. Basin plans are primarily implemented by using the National Pollution Discharge Elimination System permitting system to regulate waste discharges to ensure that water quality objectives are met.

Local Regulations

City of San Jose Heritage Tree Ordinance

The City of San Jose (City) heritage tree ordinance is designed to protect trees to provide aesthetic beauty, economic vitality, and environmental stability for city lands. Protected trees are identified in Resolution No. 69745, dated June 27, 2000. The ordinance requires that project proponents take into account the location of all heritage trees on a property when new building or outdoor space is planned. Development plans must preserve and minimize disturbance to as many trees as possible. Heritage trees can only be removed if approved by the City Council, and must be mitigated by planting replacement trees at a ratio determined at the time of approval. In addition to heritage trees, the removal of any tree with a circumference of 56 inches or more at the height of 24 inches above natural grade slope must be approved by the Planning Department via a tree removal permit.

City of San Jose Riparian Corridor Policy Study

In May 1994, the City Council adopted the riparian corridor policy study (RCPS) to guide the City's treatment of riparian corridors and protect biotic resource values when development occurs along creek systems. Riparian habitats are recognized as important natural resources because they support a great variety and abundance of aquatic and terrestrial species. Provisions of the adopted RCPS have been incorporated into the San Jose 2020 General Plan natural resource policies. These policy guidelines are being used in the development review process resulting in 50- to 100-foot setbacks from riparian corridors for new development as well as other techniques to protect water quality and fish and wildlife habitat.

Appendix F

Geotechnical Investigation Report

GEOTECHNICAL IMPACT REPORT
CAPITOL EXPRESSWAY
LIGHT RAIL TRANSIT PROJECT
SAN JOSE, CALIFORNIA

For

Jones & Stokes Associates
2600 V Street,
Sacramento, CA 95818

PARIKH CONSULTANTS, INC.
356 S. Milpitas Boulevard, Milpitas, CA 95035
(408) 945-1011

March 2003 (Revised October 2004)

Job No. 201162.10

TABLE OF CONTENTS

Page

GEOTECHNICAL IMPACT REPORT
CAPITOL EXPRESSWAY LIGHT RAIL TRANSIT PROJECT
SAN JOSE, CALIFORNIA

1. INTRODUCTION

The purpose of this report is to provide an evaluation of potential geotechnical impacts on the project, reasonable mitigation measures, and whether these mitigation measures can reduce the potential impacts to acceptable levels. Specifically, this report addresses the geotechnical and seismic impacts of the proposed project.

This report is based on research of available published and unpublished geological/geotechnical data and review of subsurface information in our files and elsewhere. No new borings were made for this study.

2. PROPOSED PROJECT

The proposed project consists of an 8.2 mile-long (13.2 km) light rail alignment extension along Capitol Expressway from the terminus of the Capitol Avenue LRT Line at the Alum Rock Station to the Eastridge Transit Center and connect with the existing Guadalupe LRT Line at SR 87. The new Capitol Expressway Corridor would have 9 stations, located near Story Road, Ocala/Cunningham Avenue, Eastridge Mall, Nieman Boulevard, McLaughlin Avenue, Senter Road, Monterey Highway, Vistapark Drive and Highway 87. The alternative includes a potential future station at Silver Creek Road. The proposed project alignment is presented on Plate 1, "Project Location Plan."

The proposed project alignment would operate primarily in the median of Capitol Expressway including grade-separation and at-grade intersection crossings. However, some short alignment sections and options would deviate from the median.

i. *From Alum Rock Station to Story Road*

The light rail alignment would begin at the existing Alum Rock Station on the Capitol Avenue LRT Line. In this segment, the alignment could be constructed in the median of

Capitol Expressway from the Alum Rock station until just north of Story Road. The light rail alignment would be constructed at-grade for most of its course along Capitol Expressway. However, in this section of the corridor, an aerial guideway would be constructed for the full distance from south of Alum Rock Station to south of Story Road. The guideway would be located in the median of Capitol Avenue and Capitol Expressway and would be approximately 4,000 feet long. At its northern end, the aerial structure would cross the northbound lanes of Capitol Avenue and Capitol Expressway and transition to an alignment in the median of Capitol Expressway. The light rail alignment would continue on the aerial structure over Story Road and resume a ground-level profile south of Story Road.

Two vertical profile options are under consideration. Both options include two bus bays on Story Road (east of Capitol Expressway) and a kiss-and-ride lot on the southeast corner of the intersection.

- **Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option:** Under this option, a 1,330-foot-long tunnel would be constructed from south of Alum Rock Station, under the intersection of Capitol Expressway and Capitol Avenue and the northbound lanes of Capitol Expressway, to a point 20 feet north of Silver Creek. At this point, the alignment would leave the tunnel and transition to a 2,600-foot-long aerial structure that would cross Story Road. The aerial structure would continue south past Story Road, where it would transition back to ground level. Both the tunnel and the aerial structure would be located in the median of Capitol Avenue and Capitol Expressway.
- **Capitol Avenue/Capitol Expressway/Story Road Tunnel Option:** A 3,950-foot tunnel would be constructed from north of Capitol Avenue/Capitol Expressway to south of Story Road. It would be constructed in the median. The tunnel would pass under Capitol Avenue/Capitol Expressway intersection, cross under Silver Creek and Story Road before returning to a ground-level profile 1,225 feet south of Story Road. The tunnel option would include a depressed, open-air station at Story Road.

ii. *From Story Road to Eastridge Transit Center*

From south of Story Road, the alignment would be at-grade through the Ocala and Cunningham Avenue intersections. Before reaching Tully Road, a tunnel would provide a grade-separated transition from the median-running configuration along Capitol Expressway to the side-running configuration of the new station at Eastridge Transit Center. The Tully Road tunnel would measure approximately 2,150 feet. In addition to removing light rail operations from the congested intersection of Tully Road, the grade separations in this area would serve to transition the light rail alignment between median- and side-running operations. One alignment and station option is being considered.

- **North of Eastridge Transit Center Aerial Crossing with Aerial Station Option:** An aerial guideway would be constructed to transition the alignment from median-running north of Tully Road to side-running south of Tully Road in the Eastridge Transit Center. The proposed station at the Eastridge Transit Center would be located on the aerial guideway.

iii. *From Eastridge Transit Center to Aborn Road*

South of the at-grade Eastridge Transit Center, the alignment would enter a retained cut section that would drop the tracks onto a tunnel structure carrying the light rail under the southbound Capitol Expressway lanes and Quimby Road. From that point, it would return to grade through another retained cut section in the median south of Quimby Road and remain at-grade until it reaches Aborn Road. The following four vertical alignment options are under consideration between the Eastridge Transit Center and Aborn Road.

- **South of Eastridge Transit Center Aerial Crossing Option (Only with Eastridge Aerial Station Option):** If the alignment comes into the Eastridge Transit Center on an aerial structure, it would remain on an aerial structure as it continues south across the southbound Capitol Expressway lanes and Quimby Road, where it would return to grade through another retained fill section in the median south of Quimby Road and remain at-grade to the vicinity of Aborn Road.

- **South of Eastridge Transit Center Side-Running/Tunnel at Nieman Boulevard Option:** South of the Eastridge Transit Center, the alignment would continue as side-running until the Nieman Station on the west side of the Capitol Expressway north of Nieman Boulevard, where it would transition back to the median via a cut section that would drop the tracks onto a tunnel structure under southbound Capitol Expressway. From that point, it would return to grade through another retained cut section in the median south of Nieman Boulevard and remain at-grade to the vicinity of Aborn Road.
- **South of Eastridge Transit Center Side-Running/Trench Option:** South of Eastridge Transit Center, the alignment would enter a retained cut section that would drop the tracks onto a trench structure carrying the light rail under the Eastridge Loop Road and Quimby Road, where it would return to grade through another retained cut section south of Quimby Road continuing at-grade through the Nieman Station. At this point, it would enter a retained cut section that would drop the tracks into a tunnel structure carrying the light rail under the southbound Capitol Expressway lanes, where it would return to grade through another retained cut section in the median south of Nieman Boulevard and remain at-grade to the vicinity of Aborn Road.
- **South of Eastridge Transit Center Side-Running At-Grade/Aerial Option:** South of the Eastridge Transit Center, the alignment would continue as at-grade, side-running until the Nieman Boulevard Station on the west side of Capitol Expressway north of Nieman Boulevard.

iv. *From Aborn Road to Silver Creek Road*

The alignment would cross Aborn Road at grade and Silver Creek Road via an aerial structure. The length of the aerial structure from the beginning of the first retained fill section to the end of the last retained fill section would be approximately 2,800 feet. There are two design options at Nieman Boulevard/Aborn Road. Each of these options would transition to an aerial structure for the alignment to cross Silver Creek Road.

- **Aerial Crossing at Aborn Road Option:** An aerial guideway would be constructed in the median from before the Aborn Road intersection through the Silver Creek Road intersection. The total length of the structure would be 8,000 feet.

- **Aerial Crossing at Aborn Road Option (Only with Side-Running Options):** If the aerial option at Aborn Road is from the side-running segment to the median, the aerial guideway would begin before Nieman Boulevard and continue through both Aborn Road and the Silver Creek intersection. The total length of the structure would be 9,500 feet.

v. *From Silver Creek Road to Coyote Creek*

The alignment would continue on the aerial structure through the potential future Silver Creek Station and transition back to the level of Capitol Expressway through another retained fill section just before the Capitol Expressway overpass of U.S. 101, then continue in the median of Capitol Expressway over U.S. 101 through McLaughlin Road to Coyote Creek. One design option is under consideration for the section between Silver Creek Road and Coyote Creek.

- **Aerial Crossing of U.S. Highway 101 Option:** The alignment would remain elevated through the optional future Silver Creek Station, as described above. However, in this option, the alignment would continue on a separate aerial structure across southbound Capitol Expressway on the north side of the overpass crossing of U.S. 101. After crossing U.S. 101, the alignment would proceed across the southbound Capitol Expressway lanes over McLaughlin Avenue, through the proposed McLaughlin Avenue Station, and transition back to grade level through another retained fill section just before Coyote Creek.

vi. *From Coyote Creek to Highway 87*

The alignment would proceed in the median of Capitol Expressway for the entire length of the section between Coyote Creek and the end of the alignment near SR 87.

Several sites exist along Capitol Expressway for park-and-ride facilities. Three existing park-and-ride lots are located along the alignment: Alum Rock Station, Eastridge Transit Center, and Capitol Station (at SR 87). A fourth park-and-ride lot within the corridor is located at the intersection of Monterey Highway and Fehren Drive. This facility serves the Caltrain Capitol station, which lies approximately 2,000 feet north of Capitol Expressway. To serve the Light Rail Alternative, two additional facilities are needed, including an expanded park-and-ride facility at the Eastridge Transit Center, and a site on the southwest corner of Ocala Avenue and Capitol Expressway to serve the Ocala Station.

In addition, the Light Rail Alternative would include options for two new park-and-ride facilities to meet the forecasted demand:

- **Expanded Eastridge Transit Center Park-and-Ride Option (Only if No Ocala Avenue Station Park-and-Ride):** If there is no park-and-ride at the Ocala Avenue Station, then the Eastridge Transit Center Park-and-Ride would need to be expanded to accommodate the demand.
- **Monterey Highway Station Park-and-Ride Options:** To serve the relocated Capitol Caltrain Station and the proposed Monterey Highway Station, three park-and-ride options with a bus transfer center are under consideration.
  - **Monterey Highway Cloverleaf Option:** Located in the center of the cloverleaf ramps on the east side of Monterey Highway both north and south of Capitol Expressway.
  - **Northwest of Monterey Highway Station Option:** This option would locate the park-and-ride facility at a site to the northwest of the Monterey Highway Station.
  - **Northeast of Monterey Highway Station Option:** This option would locate the park-and-ride facility at a site to the northeast of the Monterey Highway Station and north of the cloverleaf ramps at Capitol Expressway.

3. SETTING AND EXISTING CONDITIONS

3.1. Regional Geology

The alignment of the proposed project is located near the southeastern edge of the San Francisco Bay. The San Francisco Bay area is located within the Coast Range Geomorphic Province of California, a region shaped by complex and dynamic geologic processes. Deformation of the earth's crust has resulted from the interaction of mobile crustal plates ("tectonics"). Faulting, folding and erosion have produced the northwest-trending ridges and valleys, which characterize the Coast Ranges. The San Francisco Bay occupies a structural depression, which was formed between the uplifted Diablo Range and Berkeley Hills (along the east side of the depression) and the hills of the San Francisco Peninsula (along the west side of the downdropped block). The structural depression has been partially filled in with sediment and inundated by seawater to form the San Francisco Bay.

The dominant structural feature within the region is the San Andreas Fault System. This system includes several major fault zones, including the San Andreas, Hayward, and Calaveras fault zones. The San Andreas Fault System is the seismically active crustal boundary along which northwestward movement of the Pacific plate west of the fault is taking place relative to the North American plate (located east of the fault).

3.2. Local Geology

General geologic features pertaining to the site were evaluated by reference to the Preliminary Geologic Map of the San Jose 30 X 60-Minute Quadrangle, California (Carl M. Wentworth, M. Clark Blake, Robert J. McLaughlin, and Russell W. Graymer, 1999). Based on the map, the project site subsoils mainly consist of Holocene Basin Deposits (Qhb), Holocene Levee Deposits (Qhl) and Upper Pleistocene Alluvial Fan Deposits (Qpf). A geologic map of the general project area is shown on Plate 2. Descriptions of the main geologic units are as follows:

Qhb - Basin Deposits (Holocene) - dark-colored clay and very fine silty clay, rich in organic material.

Qhl - Levee Deposits (Holocene) - sandy and clayey silt ranging to sandy and silty clay, loose and moderately to well sorted, coarser along Coyote Creek than along the smaller streams, generally well drained.

Qpf - Alluvial Fan Deposits (Upper Pleistocene) - tan to reddish brown gravel, clast supported, clasts typically cobble sized, clayey and sandy matrix, crudely bedded.

Qht - Stream Terrace Deposits (Holocene) – Terrace deposits include sand, gravel, silt and minor clay, and are moderately to well sorted, and moderately to well bedded. Liquefaction susceptibility is high because of the presence of loose, granular deposits and shallow ground water. Should liquefaction occur, the presence of a free face and laterally extensive point bar deposits makes lateral spreading likely.

Qhf_2 - Old Alluvial Fan Deposits (Holocene) - brown gravelly sand and sandy/ clayey gravel, grading upward to sandy and silty clay, moderately dense to dense, coarser near the fan heads and upstream, deposited by flooding streams where they emerge from constrained channels of the uplands.

4. SEISMICITY

The project is located in a seismically active part of northern California. Many faults exist in the San Francisco Bay Area, which are capable of producing earthquakes, and they may cause strong ground shaking at the site. The attached Fault Map (Plate 3) presents the locations of the fault systems relative to the project site.

Maximum credible earthquake magnitudes for some of the major faults in the area determined by Mualchin (California Seismic Hazard Map 1996) are summarized below. These maximum credible earthquake magnitudes represent the largest earthquakes that could occur on the given fault based on the current understanding of the regional tectonic structure.

Fault	Estimated Closest Distance to Fault from Project Area	Maximum Credible Earthquake
San Andreas/North (strike-slip)	24.6 km	8.0
Hayward (strike-slip)	4.2 km	7.5
Monte Vista/East (Unknown/not published)	10.7 km	6.5
Calaveras-Pacines-San Benito (strike-slip)	8.4 km	7.5

Based on the seismic hazard map prepared by Mualchin (1996) and the attenuation relationship by Sadigh et Al. (1997) the controlling fault is the Hayward Fault (Mw = 7.5), and a peak bedrock acceleration of 0.6 g is anticipated at the site.

The Seismic Hazard Map by Mualchin (1996) was used in order to estimate the closest distance of the proposed project site from the faults. In addition, the Maximum Credible Earthquate (MCE) values were based on the same reference. The attenuation relationship by Sadigh, et. al. (1997) was used in order to estimate the Peak Bedrock Acceleration (PBA) for each fault. This relation uses as input the distance and the earthquake magnitude which were both based on the Hazard Map by Mualchin (1996), as described. There was no multiple usage of attenuation relationships. The data are summarized in the following table:

Fault	Estimated Closest Disance to Fault from Project Area	Maximum Credible Earthquake (MCE)	Peak Bedrock Acceleration (PBA)	Peak Ground Acceleration (PGA)
San Andreas/North (strike/slip)	24.6 km	8.0	0.30 g	0.36 g
Hayward (strike/slip)	4.2 km	7.5	0.60 g	0.60 g
Monte Vista/East (Unknown/not published)	10.7 km	6.5	0.30 g	0.36 g
Calaveras-Pacines-San Benito (strike/slip)	8.4 km	7.5	0.50 g	0.50 g

The Peak Ground Acceleration (PGA) was based on Caltrans SDC (Version 1.2, December 2001) and the assumption that the soil meets the criteria for Soil Profile D (based on the as-built soil information. This is tabulated in the table above. The most critical Peak Ground Acceleration (PGA) dictated the controlling fault. In this case, the controlling fault is the Hayward Fault, where PGA = 0.6 g.

Potential seismic hazards may arise from three sources: surface fault rupture, ground shaking, and liquefaction. Since no active faults pass through the site, the potential for fault rupture is relatively low. Based on available geological and seismic data, the possibility of the site to experience strong ground shaking may be considered moderate to high.

Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary but essentially total loss of shear strength under the reversing, cyclic shear stresses associated with earthquake shaking. Submerged cohesionless sands and silts of low relative density are the type of soils, which usually are susceptible to liquefaction. Clays are generally not susceptible to liquefaction. Based on the Preliminary Map of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California, by K. L. Knudsen, J. M. Sowers, R. C. Witter, C. M. Wentworth and E. L. Helley, U.S.G.S. Open File Report 00-444 (Fig. 4), the liquefaction potential generally ranges from moderate to high. The liquefaction potential at specific structure locations should be further addressed during the design phase.

5. SUBSURFACE CONDITIONS

Published and unpublished geotechnical exploration data along the proposed alignment were reviewed in order to obtain a general idea of the subsurface conditions underlying the project site.

According to the Log of Test Borings for Lower Silver Creek, Reach 4 (reference No. 5), the native soils at the vicinity of Capitol Expressway over Silver Creek in the upper 30 feet (explored depth) consist of predominantly firm to very stiff sandy lean clay, lean clay and fat clay, underlain by a layer of medium dense to dense clayey sand with gravel.

The clay layer becomes thinner towards the east side of Capitol Expressway. Groundwater was encountered at a depth of approximately 10 to 15 feet.

According to the Log of Test Borings for the Vehicular and Pedestrian Bridges over Silver Creek, near "Raging Waters" site at Lake Cunningham Park (reference No. 6), the native soil around the intersection of Capitol Expressway and Tully Road area in the upper 90 feet (explored depth) consist of predominantly firm to very stiff lean clay/fat clay, interbedded with lenses of loose to medium dense clayey sand/silty sand with occasional gravel. In addition, based on other borings drilled for Reid-Hill View Airport (west of Capitol Expressway), shallow groundwater table was encountered, at a depth of approximately three to five feet (reference No. 10).

The as-built Log of Test Borings for Capitol Expressway Overcrossing Route 101 (Bridge No. 37-0218, reference No. 7) by Caltrans, dated 1975 and 1962 were reviewed. Based on the above reference, the site is underlain by approximately 50 feet of firm to stiff lean clay/silty clay/sandy lean clay, interbedded with a layer of 7 to 10 feet of loose to medium dense silty sand. Underneath this layer, dense sand and gravel were encountered to the maximum explored depth of 60 to 65 feet below ground surface. These plans contain no information regarding groundwater elevation.

The as-built Log of Test Borings for Capitol Expressway Overcrossing Monterey Road (Bridge No. 37-0101, Hillsdale Capitol Overhead, reference No. 8) by Caltrans, dated 1996 were reviewed. Based on the above reference, the site is underlain by up to 35 feet of loose silty sand/sandy silt. Underneath this layer, medium dense to dense silty sand, sand and gravelly sand were encountered to the maximum explored depth of 75 feet below ground surface. These plans contain no information regarding groundwater elevation.

The as-built Log of Test Borings for Capitol Expressway Undercrossing Route 87 (Guadalupe Corridor, Bridge No. 37-0415R/L, reference No. 9) by Caltrans, dated 1992 and 1993 were reviewed Based on the above reference, the site is underlain by approximately 50 to 60 feet of firm to very stiff lean clay/silty clay/sandy lean clay, interbedded with lenses and layers of medium dense sand and silty sand. Underneath this layer, very stiff to hard clay/silty clay with occasional dense sand and gravel lenses were encountered to the maximum explored depth of 90 feet below ground surface. Groundwater was encountered at a depth of approximately 30 to 40 feet. The groundwater level is anticipated to vary with the passage of time due to seasonal groundwater fluctuation, surface and subsurface flows, ground surface run-off, water level in Guadalupe River, and other factors that may not have been present at the time of the investigation.

6. POTENTIAL GEOTECHNICAL, GEOLOGIC AND SEISMIC IMPACTS WITH PROPOSED MITIGATION MEASURES

6.1. Retaining Walls

Retaining walls are proposed for the transition of the LRT tracks from aerial structures to grade and from the tunnel to grade at various locations: tunnel between Alum Rock station and Silver Creek, Story Road bridge, Tully Road tunnel/bridge, Quimby Road tunnel/bridge, Nieman Road tunnel and Aborn Road/Silver Creek Road bridge. Shallow foundations may be feasible for relatively short retaining walls up to about 10 feet (3 m) in height. Special foundation such as piles may be required for taller walls or for soft ground conditions. Caltrans Standard retaining walls and MSE walls may be appropriate for applications on this project. Generally, MSE walls (in excess of 10 feet (3 m) height) are preferred in soft ground conditions since they can tolerate settlements. Right-of-Way restrictions and construction staging should be taken into consideration. Proper backfill compaction and drainage is imperative in the design and construction of these walls.

6.2. Cut and Cover Tunnels

According to the project plans and profiles, moderately deep excavation will be required for construction of cut-and-cover tunnels at various locations: tunnel between Alum Rock Station and Silver Creek, Tully Road tunnel, Quimby Road tunnel and Nieman Road tunnel. All the proposed tunnels are up to 35-40 feet (10 to 13m) below existing ground surface. Since the excavation is either in the median or crossing southbound Capitol Expressway, unshored cut slopes may not be feasible due to limited space and the need to maintain traffic operations on Capitol Expressway. Because of the expected shallow groundwater depth, it may be necessary to design for buoyant conditions. Since design ground water elevation is a very critical parameter, further investigation via a site-specific geotechnical exploration program is recommended.

6.3. Aerial Structures

According to the project plans and profiles, aerial structures are proposed at various locations: Story Road bridge, Tully Road bridge, Quimby Road bridge and Aborn Road/Silver Creek Road bridge. Aerial structures are proposed for tracks, platforms and stations.

Standard Caltrans driven piles may be used for the foundation of the aerial structures. According to the preliminary structural plans provided by Jones & Stokes (November 2002), 100-ton piles are assumed for bents and abutments. We anticipate the subsoils to be corrosive. These piles could be standard Class 625C (305 mm (12 inches) minimum, square, Alt. X) or Class 900C (355 mm (14 inches) minimum, square, Alt. X) Precast Prestressed Concrete Piles. Approximate lengths for these piles are given below (for estimating purposes only):

Pile Type	Compressive Capacity-Service (tons)	Approximate Length (feet)
Class 625 PC/PS Concrete Piles	70	50 to 60
Class 900 PC/PS Concrete Piles	100	70 to 80

Large diameter Cast-In-Drilled Hole (CIDH) piles or Cast In Steel Shell (CISS) piles may be considered on a case-by-case basis. However, CIDH option may not be feasible because of shallow groundwater and anticipated caving conditions. In this case, CISS piles may be considered.

6.4. Erosion and Sedimentation

New embankments are proposed for the project. Typically, the embankments will be retained. Normal maintenance of surface drainage and slope maintenance is important and should be incorporated in the project plans.

6.5. Park–and-Ride Facilities, Electrical Substations and Vehicle Maintenance and Storage Facilities

New Park-and-Ride Facilities, Electrical Substations and Vehicle Maintenance and Storage Facilities are proposed. However, further details are not available at this time. The foundation for these structures is anticipated to be supported on spread footings, thick concrete mat or pile foundation system.

7. STUDY LIMITATIONS

Our services consist of professional opinions based on our site reconnaissance, researched data and the assumption that the subsurface information does not deviate from observed/researched conditions. All work done is in accordance with generally accepted geotechnical engineering principles and practices. No warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work or by the furnishing of oral or written reports or findings.

The geotechnical evaluation provided in this report is intended for project design planning. The contents of this report are not intended for design input, nor directly form the basis in preparation of construction cost estimates for bidding purposes. The scope of our services did not include any detail geotechnical investigations (such as bridge foundation report or materials report, California Test Method 130), or any environmental assessment/investigation for the presence or absence of hazardous or toxic materials in structures, soil, surface water, groundwater or air, below or around this site. Unanticipated subsurface conditions are commonly encountered and cannot be fully determined without taking soil samples and drilling/excavating test borings. Additional expenditures should be allowed during the design phase for investigation services so that a properly designed project can be attained.

The findings in this report are valid as of the present date. However, changes in environmental conditions in the project area can occur with the passage of time, whether they are due to natural processes or to the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

Very truly yours,
PARIKH CONSULTANTS, INC.

Apostolos V. Kozompolis	Gary Parikh, P.E., G.E. 666
Project Engineer	Project Manager

201162.PGR.doc {2B}

REFERENCES

GEOLOGIC REFERENCES

1. Preliminary Geologic Map of the San Jose 30 X 60-Minute Quadrangle, California, by Carl M. Wentworth, M. Clark Blake, Robert J. McLaughlin, and Russell W. Graymer, 1999;

2. Preliminary Map of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California, by K. L. Knudsen, J. M. Sowers, R. C. Witter, C. M. Wentworth and E. L. Helley, U.S.G.S. Open File Report 00-444, 2000;

GEOTECHNICAL REFERENCES

3. California Seismic Hazard 1996, by L. Mualchin, California Department of Transportation, 1996, Scale 1:500,000, Revision 1.

OTHER REFERENCES

4. Project Study Report for Capitol Expressway Light Rail Transit Project, by Santa Clara Valley Transportation Authority, March 2003.

5. Log of Test Borings for Lower Silver Creek, Reach 4, by Parikh Consultants, Inc., dated 2001

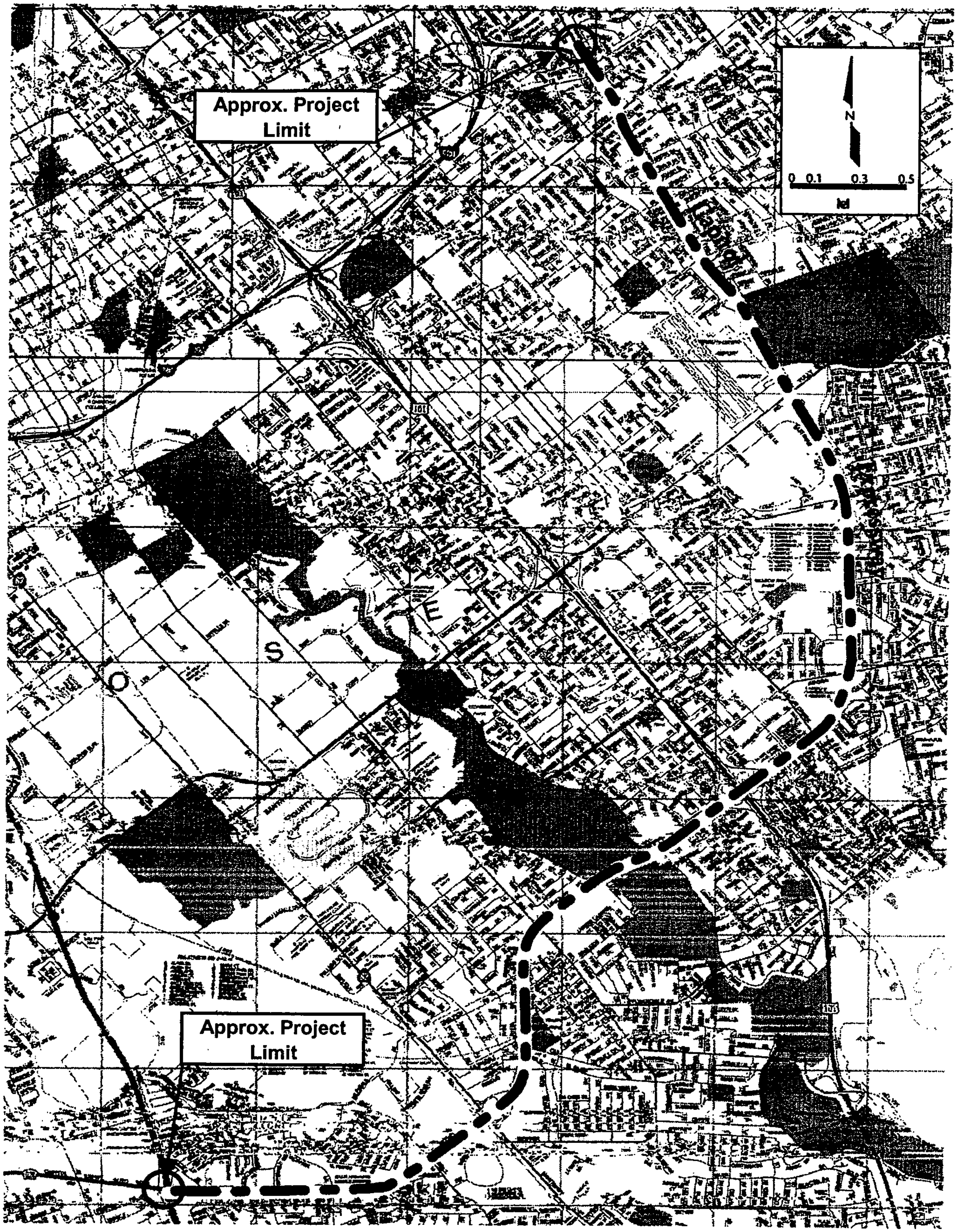
6. Log of Test Borings for the Vehicular and Pedestrian Bridges over Silver Creek, near “Raging Waters” site at Lake Cunningham Park by Parikh Consultants, Inc., dated 1996

7. Log of Test Borings for Capitol Expressway Overcrossing Route 101 (Bridge No. 37-0218) by Caltrans, dated 1975 and 1962

8. Log of Test Borings for Capitol Expressway Overcrossing Monterey Road (Bridge No. 37-0101, Hillsdale Capitol Overhead) by Caltrans, dated 1996

9. Log of Test Borings for Capitol Expressway Undercrossing Route 87 (Guadalupe Corridor, Bridge No. 37-0415R/L) by Caltrans, dated 1992 and 1993

10. Log of Test Borings for Reid-Hill View Airport, Santa Clara County, California, by Parikh Consultants, Inc., February 2000.

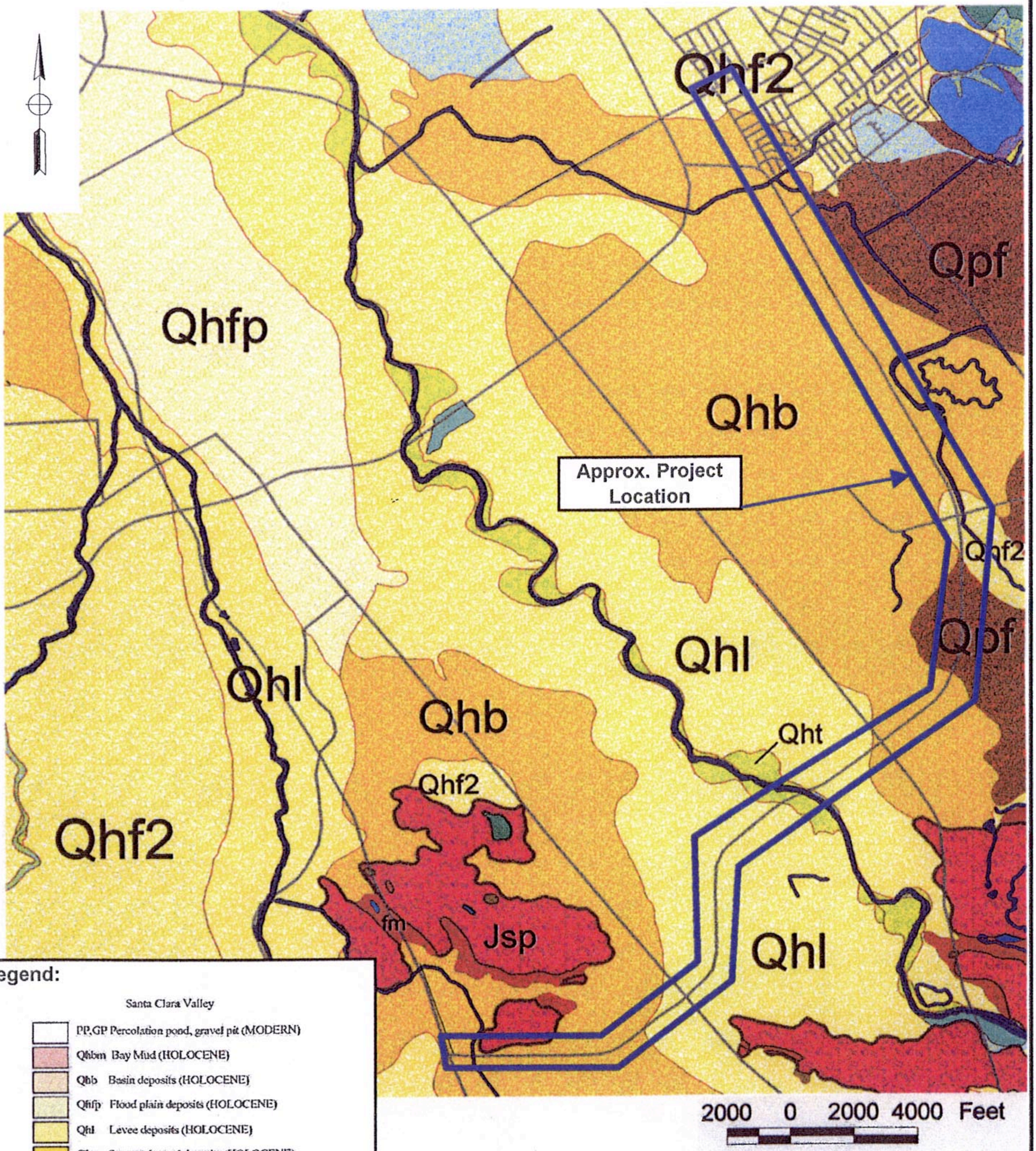


PROJECT LOCATION MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

CAPITOL EXPRESSWAY LIGHT RAIL TRANSIT
SAN JOSE, CALIFORNIA

JOB NO.: 201162.10	PLATE NO.: 1



Source: Preliminary Geologic Map of the San Jose 30 X 60-Minute Quadrangle, California, by Carl M. Wentworth, M. Clark Blake, Robert J. Mclaughlin, and Russell W. Graymer, 1999

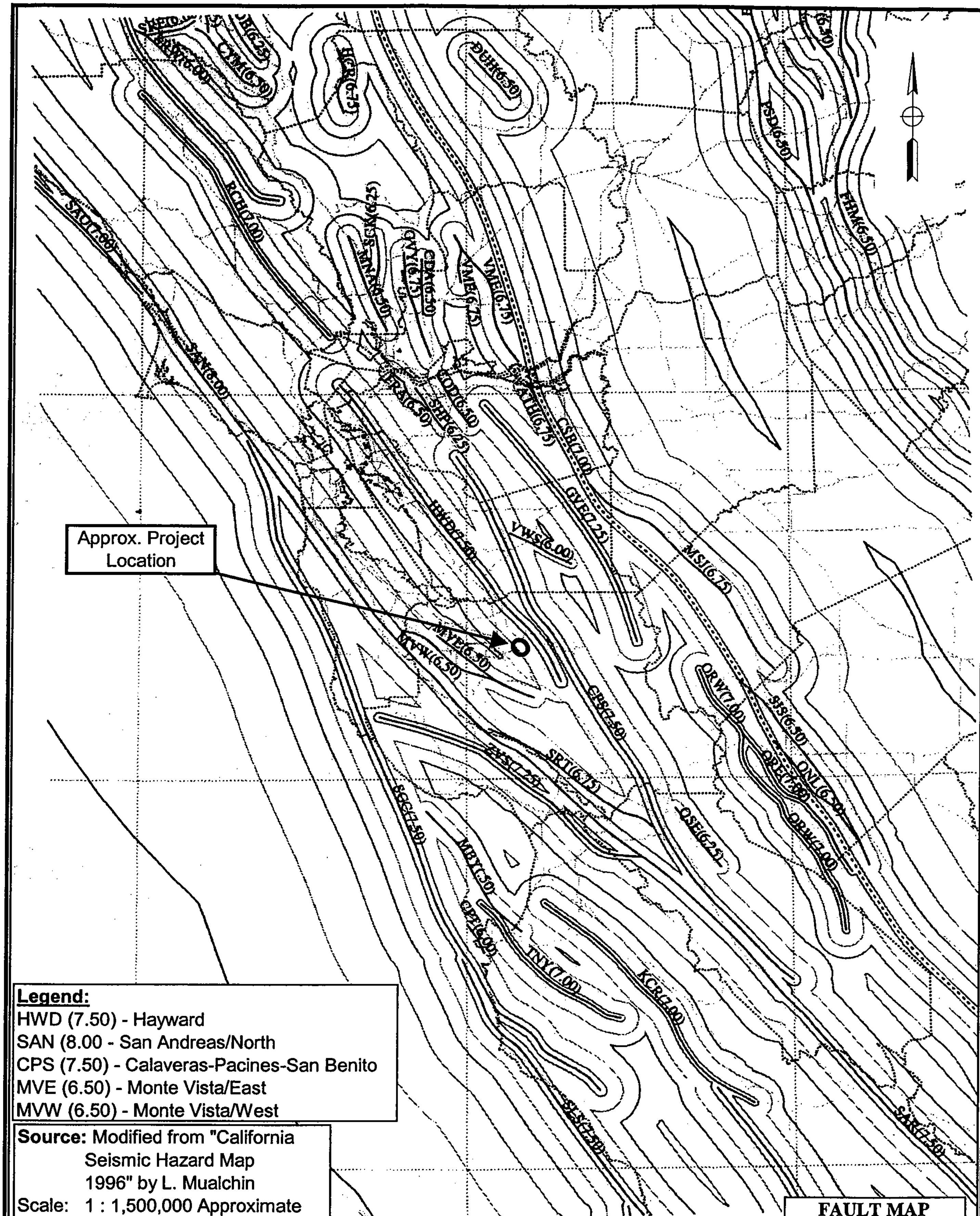
GEOLOGIC MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

CAPITOL EXPRESSWAY LIGHT RAIL TRANSIT
SAN JOSE, CALIFORNIA

JOB NO.: 201162.10

PLATE NO.: 2



Legend:
HWD (7.50) - Hayward
SAN (8.00 - San Andreas/North
CPS (7.50) - Calaveras-Pacines-San Benito
MVE (6.50) - Monte Vista/East
MVW (6.50) - Monte Vista/West

Source: Modified from "California Seismic Hazard Map 1996" by L. Mualchin
Scale: 1 : 1,500,000 Approximate

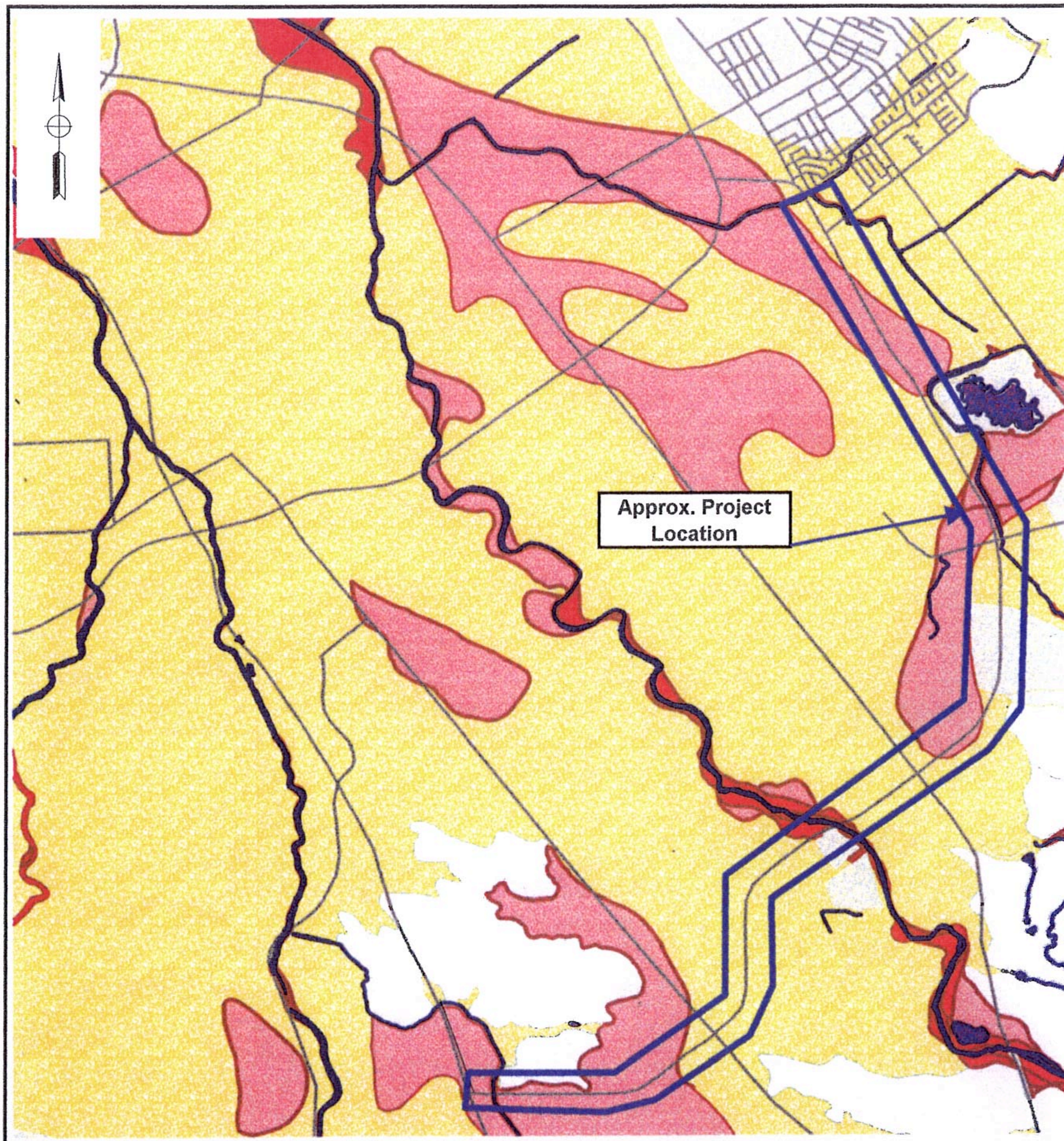
FAULT MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

CAPITOL EXPRESSWAY LIGHT RAIL TRANSIT
SAN JOSE, CALIFORNIA

JOB NO.: 201162.10

PLATE NO.: 3



Legend:

Liquefaction Susceptibility (USGS OF 00-444)

- Very High
- High
- Moderate
- Low
- Very Low
- water
- not mapped

2000 0 2000 4000 Feet

Source: Preliminary Map of Quaternary Deposits and Liquefaction Susceptibility, Nine-County San Francisco Bay Region, California, by K. L. Knudsen, J. M. Sowers, R. C. Witter, C. M. Wentworth and E. L. Helley, U.S.G.S. Open File Report 00-444, 2000

LIQUEFACTION SUSCEPTIBILITY MAP

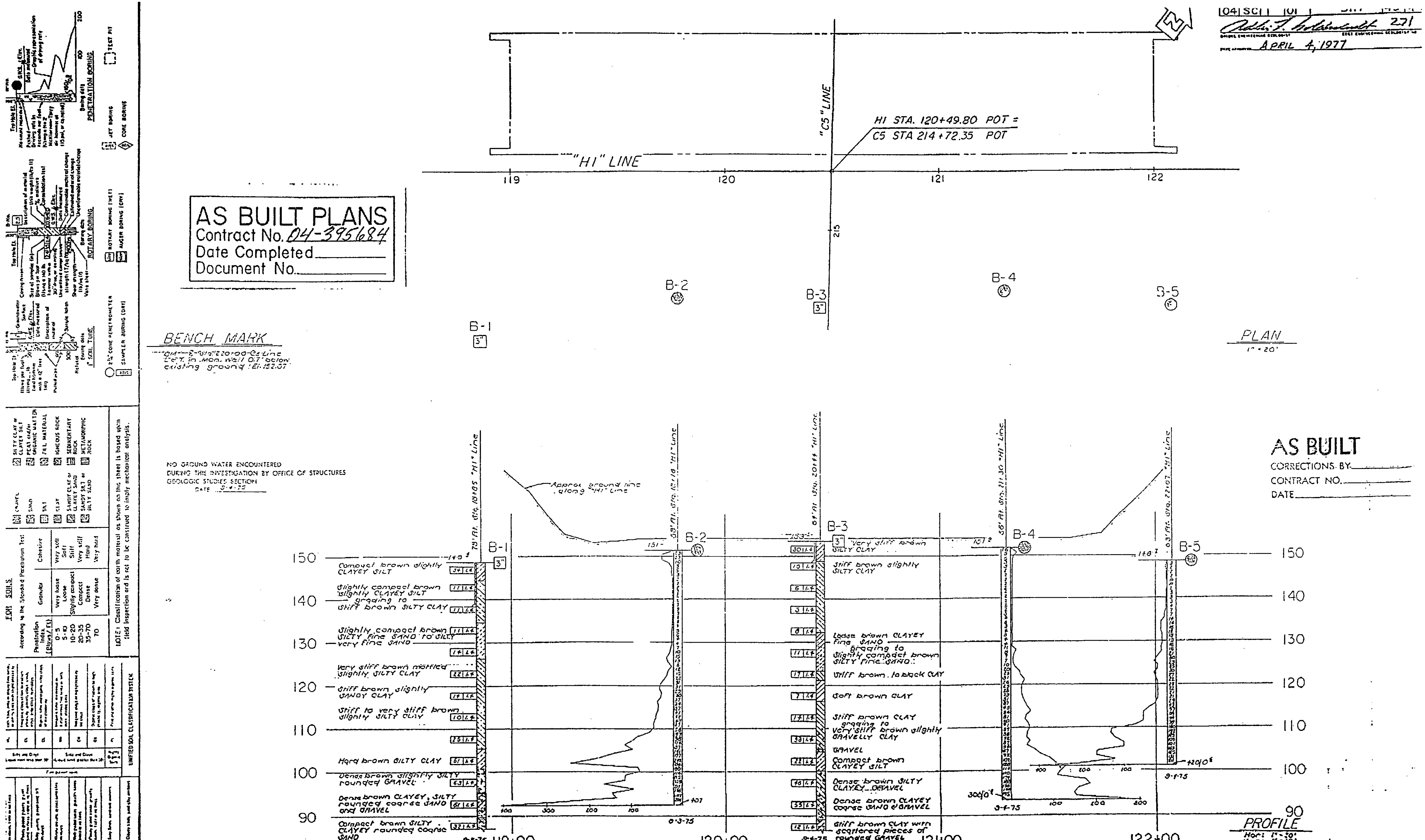
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

CAPITOL EXPRESSWAY LIGHT RAIL TRANSIT
SAN JOSE, CALIFORNIA

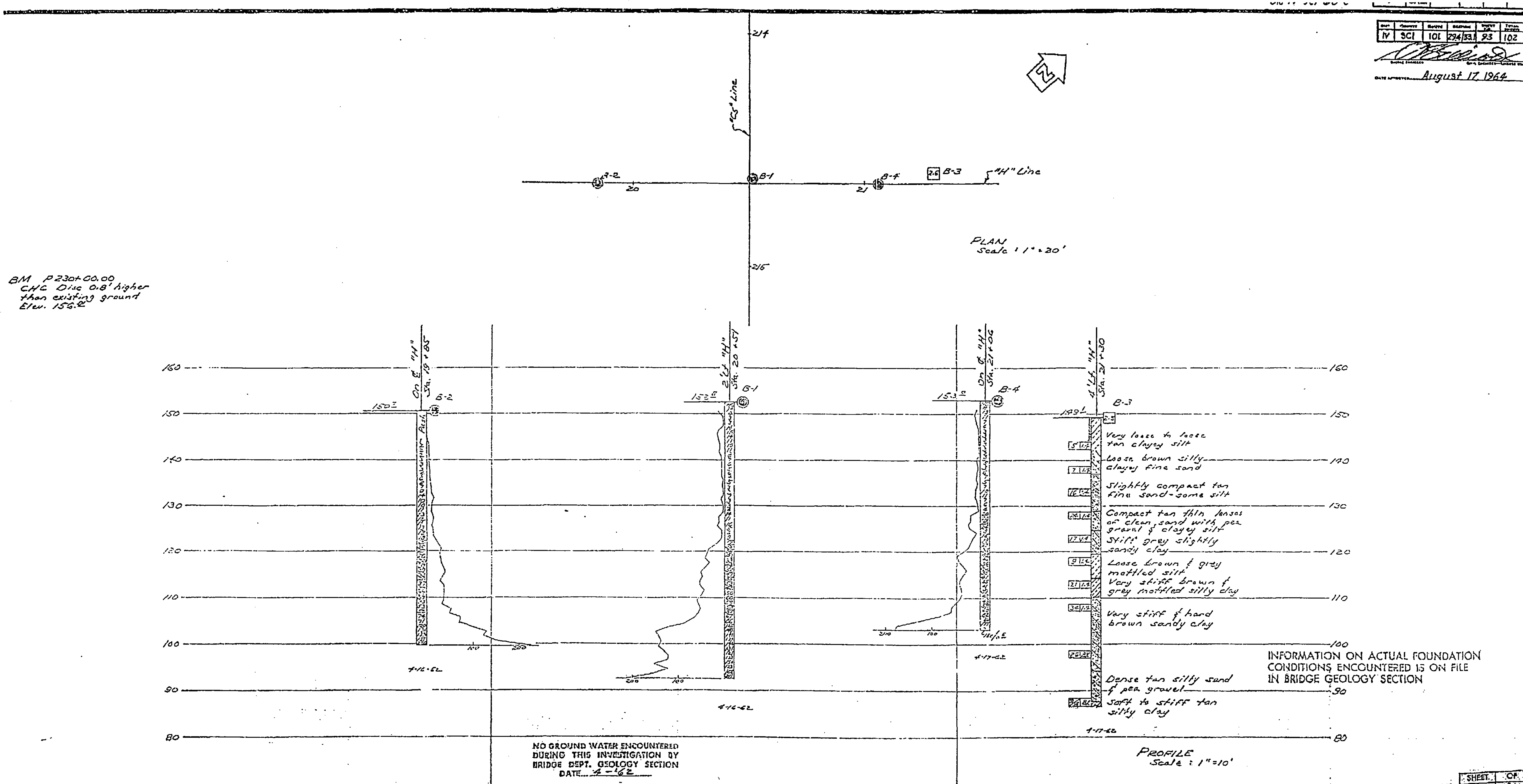
JOB NO.: 201162.10

PLATE NO.: 4

APPENDIX A



ENGINEERING GEOLOGY SECTION	State of CALIFORNIA DEPARTMENT OF TRANSPORTATION	OFFICE OF STRUCTURES DESIGN GROUP 3	BRIDGE NO. 37-218	CAPITOL EXPRESSWAY O.C. (WIDEN)
FIELD STUDY: R. Fox; DRAWN: ED FONG 1/76; CHECKED: R. Fox 1-12-76		PROJECT ENGINEER	POST MILE 31.7	LOG OF TEST BORINGS 1 OF 2
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 04220 WO 395681		SHEET 13



SHEET	OF
12	12

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

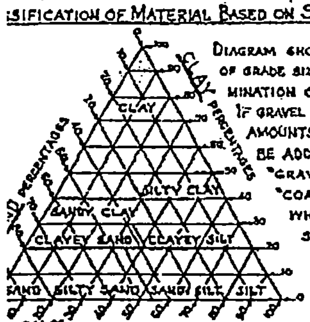


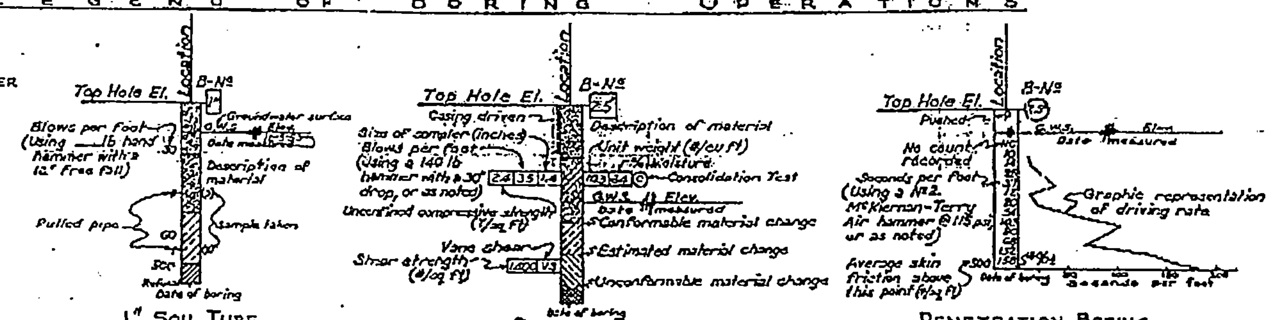
DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.
IF GRAVEL IS PRESENT IN APPRECIABLE AMOUNTS THE TERM "GRAVELLY" MAY BE ADDED TO THE CLASS NAME, VIZ. "GRAVELLY SAND". THE TERMS "COARSE", "MEDIUM" AND "FINE" WHEN USED TO DESCRIBE SAND, SILT AND GRAVEL REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- GRAVEL
- SAND
- SILT
- CLAY
- SANDY CLAY OR CLAYEY SAND
- SANDY SILT OR SILTY SAND
- SILTY CLAY OR CLAYEY SILT
- PEAT AND/OR ORGANIC MATTER
- FILL MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PENETROMETER
- 2¼" CONE PENETROMETER
- SAMPLER BORING (DRY)
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- JET BORING
- CORE BORING
- TEST PIT



NOTE

Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

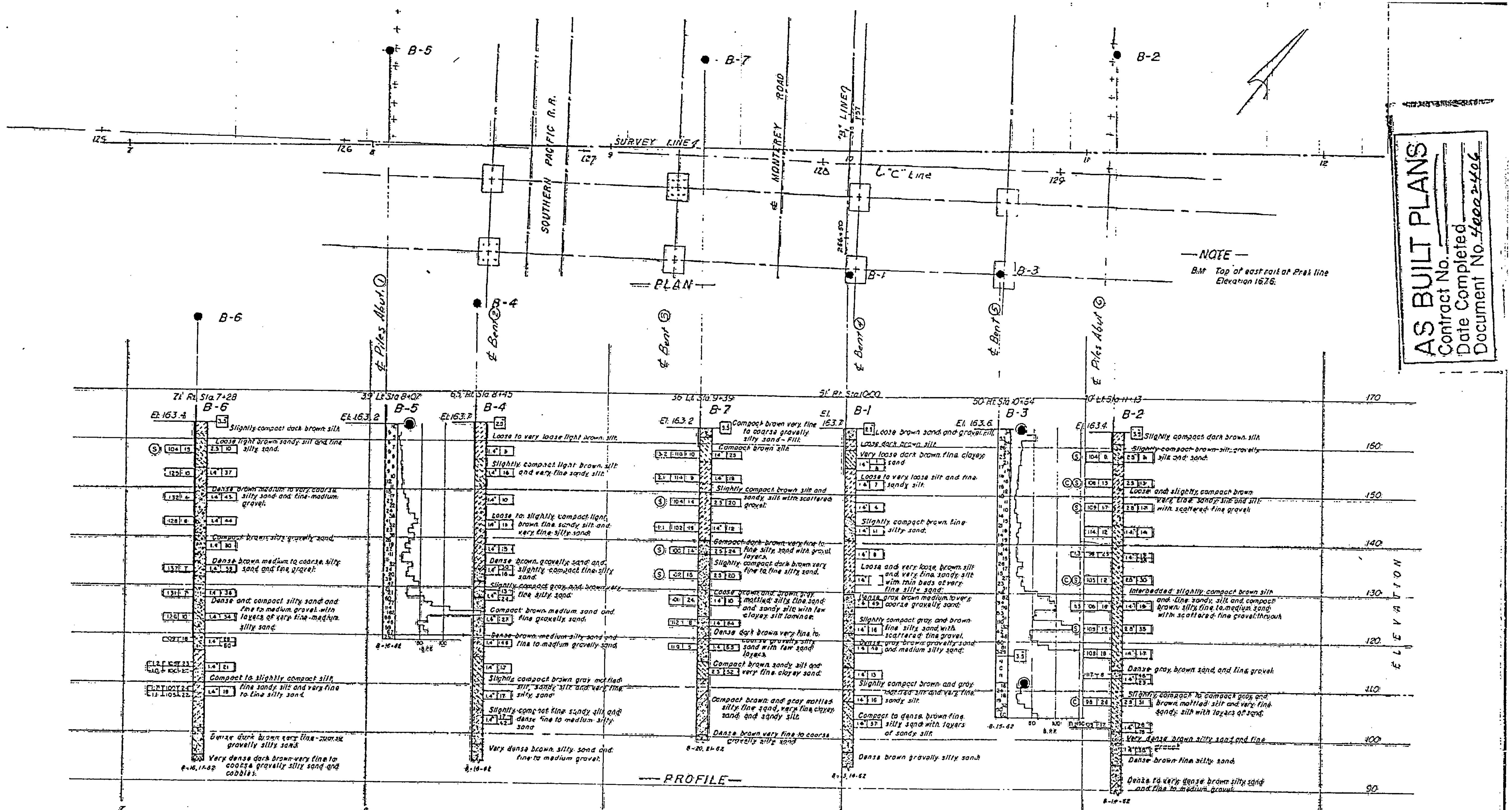
CAPITOL EXPRESSWAY O.C.

LOG OF TEST BORINGS

SCALE As Noted	BRIDGE 37-218	FILE	DRAWING 37218-12

PREL. DRAWING NO. P-37218-12

PR-37218-3.



LEGEND OF EARTH MATERIALS

SIZE CLASSIFICATION

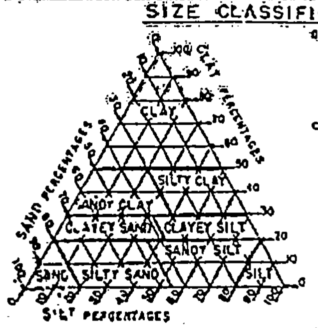


Diagram showing the basis of graphic distribution used to determine class names. Size classification is based on the Wentworth grade scale in field classification or the A.S.T.M. grade scale in the laboratory sieve analysis.

Classification of earth material shown on this sheet is based on field inspection and should not be construed to imply mechanical analysis unless so stated.

MATERIAL SYMBOLS

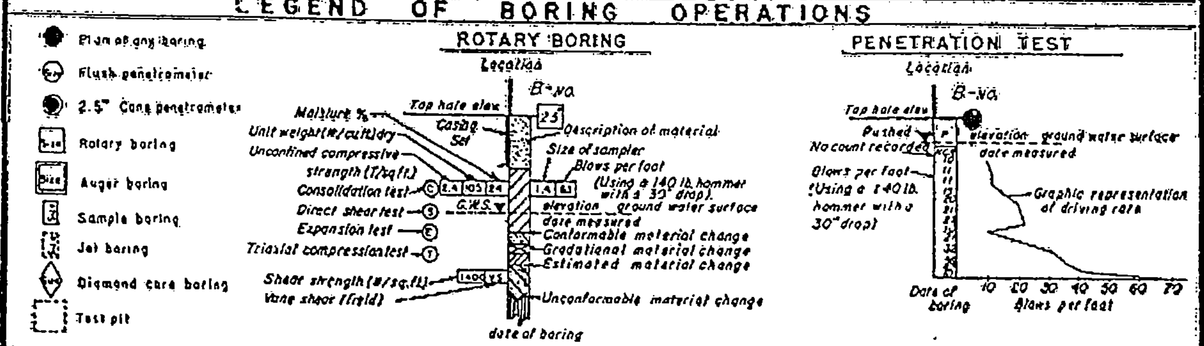
- Gravel
- Sand
- Silt
- Clay
- Sandy clay or clayey sand
- Sandy silt or silty sand
- Silty clay or clayey silt
- Peat or organic matter
- Fill material
- Shale
- Sandstone
- Limestone
- Metamorphic rock
- Igneous rock

CONSISTENCY CLASSIFICATION

According to the Standard Penetration Test.

No. of blows	Granular	Cohesive
0-5	very loose	very soft
6-10	loose	soft
11-20	slightly compact	stiff
21-35	compact	very stiff
36-70	dense	hard
70+	very dense	very hard

LEGEND OF BORING OPERATIONS



M. ORE and TABER
Engineers — Geologists

Job No. 3242F   APPROVED H.R. Taber 9-6-62
LICENSED CIVIL ENGINEER

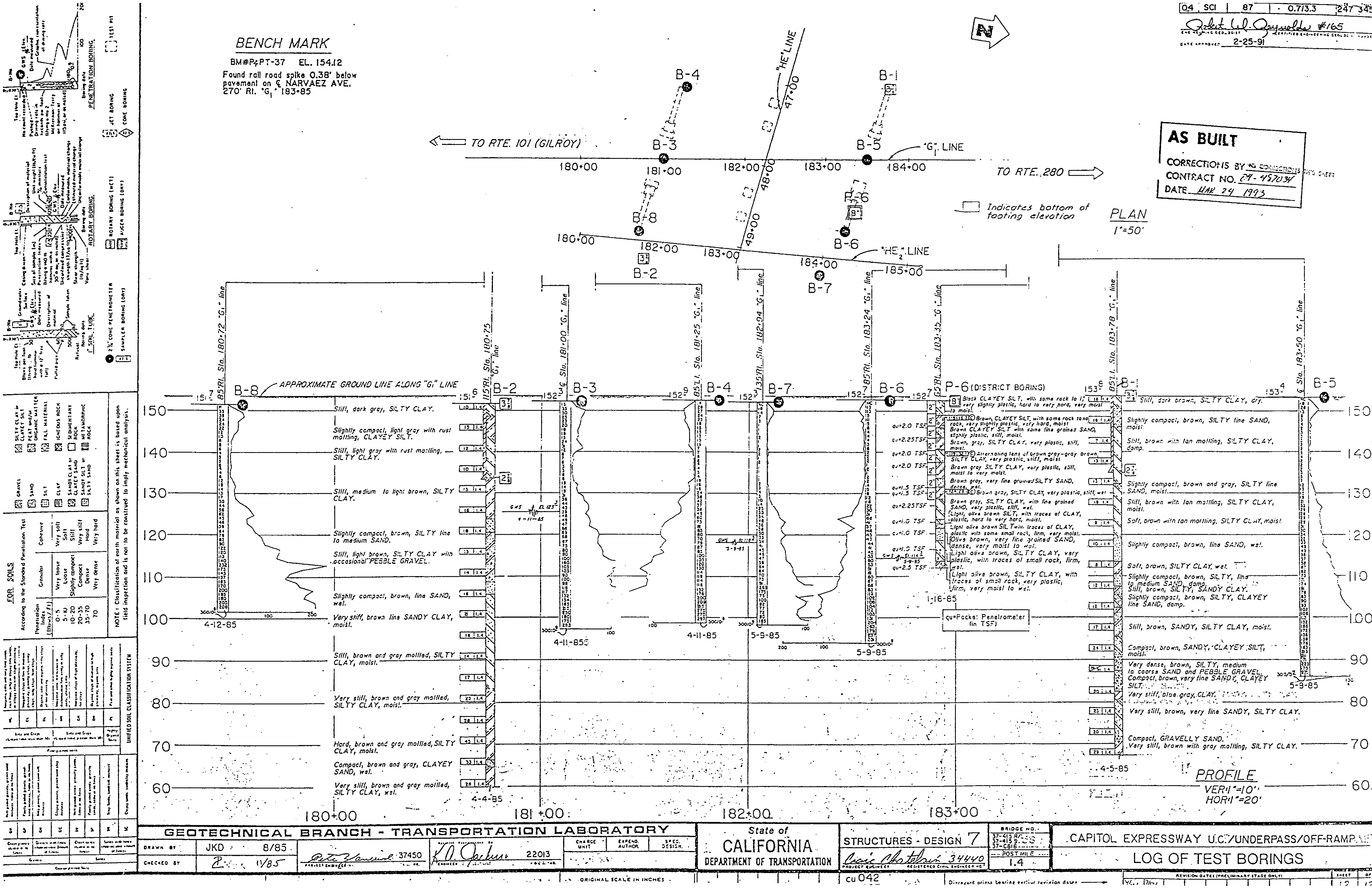
SANTA CLARA COUNTY

HILLSDALE OVERPASS
BR 37-101 Widen

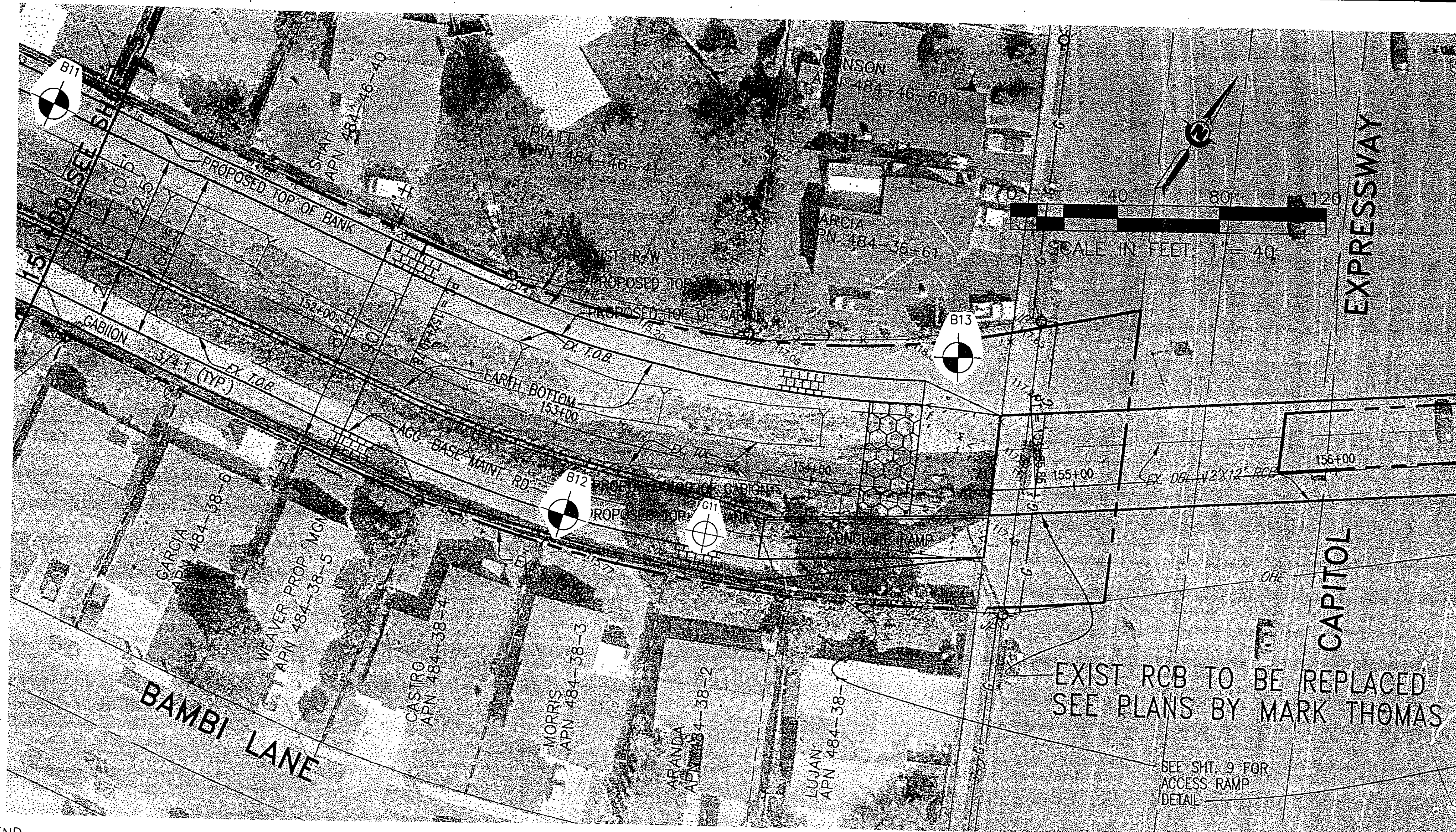
LOG OF TEST BORINGS.

Scale Horiz. 1" = 20' Vert. 1" = 10'	Date Aug. 27, 1962	File	Sheet 16 of 16 Sheets Drawing

W.O. 2622   Revised 7-4 als



04 | SCI | 87 | 0.7/3.3 | 247 | 345
Robert W. Reynolds #165
2-25-91
BENCH MARK
BM#P4PT-37 EL. 154.12
Found rail road spike 0.38' below pavement on ℄ NARVAEZ AVE. 270' Rt. "G1" 183+85
AS BUILT
CORRECTIONS BY
CONTRACT NO. 04-457034
DATE MAR 24 1993
TO RTE. 101 (GILROY)
TO RTE. 280
"HE" LINE
"G1" LINE
"HE2" LINE
Indicates bottom of footing elevation
PLAN
1"=50'
B-1
B-2
B-3
B-4
B-5
B-6
B-7
B-8
APPROXIMATE GROUND LINE ALONG "G1" LINE
P-6 (DISTRICT BORING)
qu=Pocket Penetrometer (in TSF)
PROFILE
VERT 1"=10'
HORIZ 1"=20'
FOR SOILS
NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.
UNIFIED SOIL CLASSIFICATION SYSTEM
GEOTECHNICAL BRANCH - TRANSPORTATION LABORATORY
DRAWN BY JKD 8/85
CHECKED BY 11/85
State of CALIFORNIA
DEPARTMENT OF TRANSPORTATION
STRUCTURES - DESIGN 7
POST MILE 1.4
CAPITOL EXPRESSWAY U.C./UNDERPASS/OFF-RAMP
LOG OF TEST BORINGS
ORIGINAL SCALE IN INCHES
CU 042
Disregard prints bearing earlier revision dates



LEGEND

Approx. Boring Location from previous subsurface investigation

Approx. Boring Location from 2000 subsurface investigation

Reference:
Modified from Preliminary Plans, dated May 2001, prepared by Ruggeri-Jensen-Azar & Associates

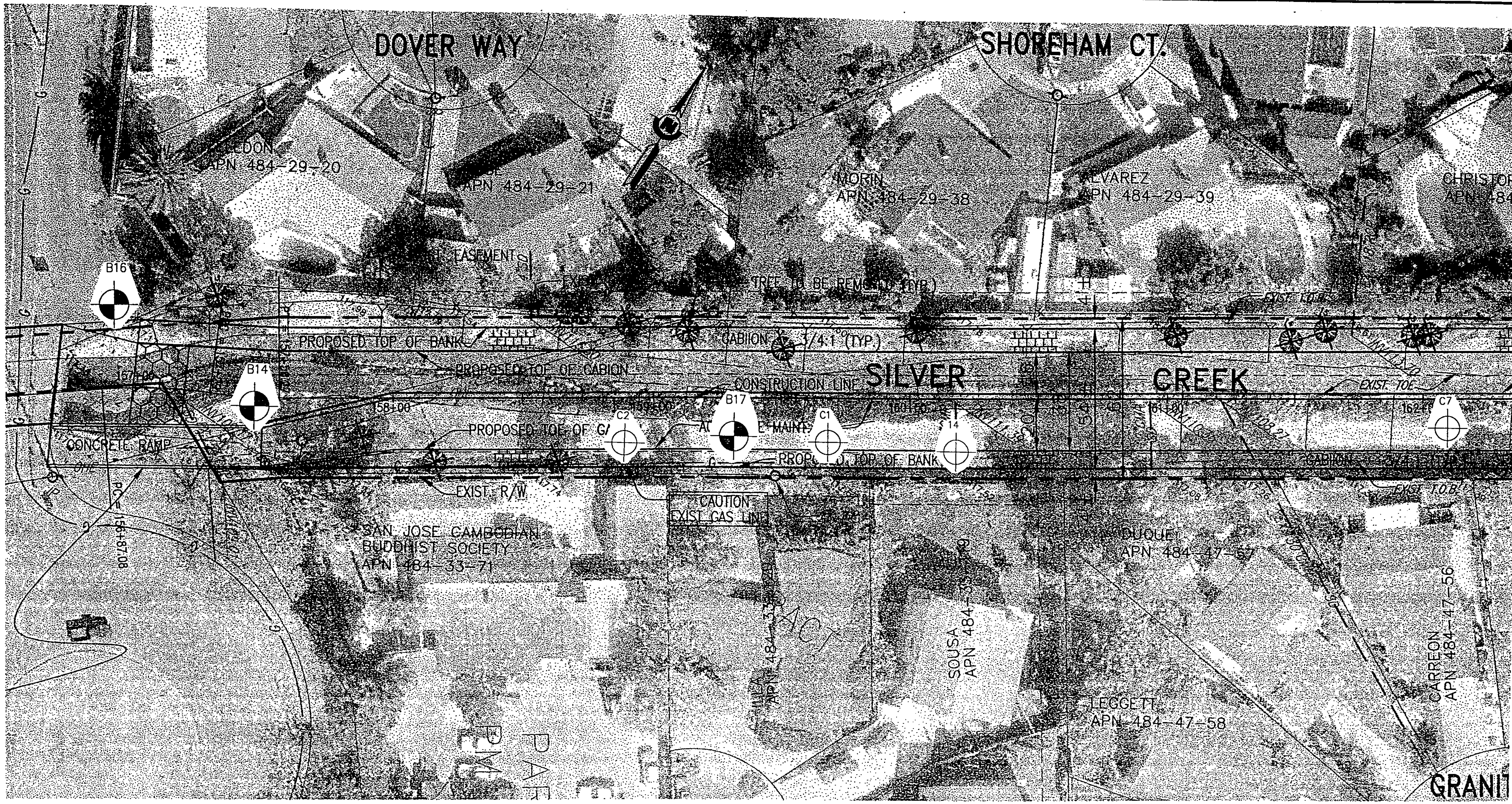
Scale: 1"=40'

SITE PLAN

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

JOB NO.: 200116.10	PLATE NO.: 3E



LEGEND

- Approx. Boring Location from previous subsurface investigation
- Approx. Boring Location from 2000 subsurface investigation

Reference:
Modified from Preliminary Plans, dated May 2001, prepared by Ruggeri-Jensen-Azar & Associates

Scale: 1"=40'

SITE PLAN

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

JOB NO.: 200116.10

PLATE NO.: 3F

Boring Location, Elevation & Date Drilled:	Drilling Method:	BORING NUMBER
Approximate Station 153+05. See Plate No. 3E for site plan; Elev. approx. 114.0 ft.; drilled on 12-27-00	8-inch dia. B-61 Mobile Rig Hollow Stem Auger	**B12**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 1 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description	
					0	CL	LEAN CLAY WITH SAND (CL), very stiff, dark brown, damp, trace gravel to 1 1/2 inch	
MC-1	121.0	13	30					pp=>4 tsf
MC-2	-	-	11		5		medium stiff	
						CL	LEAN CLAY (CL), medium stiff, light brown, moist, low plasticity	
MC-3	102.8	22	12		10			pp=2 tsf
							mottled light brown, gray and dark brown	
MC-4	-	-	11		15			
MC-5	-	-	21	2.05	20		stiff, gray, trace fine cemented sand	
						CH	FAT CLAY (CH), stiff, dark gray, moist, high plasticity	
MC-6	118.7	28	23	1.25	25			pp=2 tsf
MC-7	-	-	25		30			

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001 | Job No.: 200116.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-13A

LB 20116 2-12-01

Boring Location, Elevation & Date Drilled:	Drilling Method:	BORING NUMBER
Approximate Station 153+05. See Plate No. 3E for site plan; Elev. approx. 114.0 ft.; drilled on 12-27-00	8-inch dia. B-61 Mobile Rig Hollow Stem Auger	B12
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 2 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft) Soil Graph & U.S.C.S.	Description
					30	very stiff, gray and mottled brown
						Bottom of drillhole at 30.5 ft. Groundwater was encountered at 12.5 ft. during drilling Drillhole was grouted
					35	
					40	
					45	
					50	
					55	
					60	

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001 | Job No.: 200116.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-13B

LB 20116 2-12-01

Boring Location, Elevation & Date Drilled:
Approximate Station 154+55. See Plate No. 3E for site plan; Elev. approx. 117.0 ft.; drilled on 11-16-00

Drilling Method:
4-inch dia. B-24 Mobile Rig
Solid Stem Auger

Sampling Method:
2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.

BORING NUMBER
B13

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description	
					0	CL	SANDY LEAN CLAY (CL), very stiff, mottled dark brown and brown, moist, some fine sand, few gravel to 1/2 inch, medium plasticity	
MC-1	106.7	13	25					pp=4.5 tsf
MC-2	105.1	13	12	1.5				
					5	CL	LEAN CLAY (CL), stiff, mottled dark brown and brown, moist	pp=3.5 tsf LL=29 PL=16
						SC	CLAYEY SAND (SC), medium dense, brown, moist, mostly fine sand, low plasticity	
MC-3	113.7	12	13					+#4=1% -#200=39%
					10		increasing moisture content and plasticity at 12 ft.	
						CL	LEAN CLAY (CL), stiff, brown, moist, few very fine sand, medium plasticity	
MC-4	97.2	29	11					pp=1 tsf
					15		increasing plasticity to approximately 18 ft.	
MC-5	101.0	26	17					pp=1 tsf
					20		colour changes and increasing plasticity at 21 ft.	
						CH	FAT CLAY (CH), very stiff, mottled dark gray and brown, moist, few fine sand, high plasticity	
MC-6	103.0	24	27					pp=3 tsf
					25		increasing fine sand at approximately 26 ft.	
							little fine sand, few medium to coarse sand, trace gravel to 1/2 inch	
MC-7	109.1	20	30			SC	CLAYEY SAND (SC), medium dense, mottled brown and light brown, moist, mostly fine sand, few medium sand, trace coarse sand, medium plasticity	pp=3 tsf
					30			

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001

Job No.: 200116.10

Plate: A-14A

LB 20116 2-12-01

Boring Location, Elevation & Date Drilled:	Drilling Method:	BORING NUMBER
Approximate Station 154+55. See Plate No. 3E for site plan; Elev. approx. 117.0 ft.; drilled on 11-16-00	4-inch dia. B-24 Mobile Rig Solid Stem Auger	B13
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 2 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft) Soil Graph & U.S.C.S.	
					30	Bottom of drillhole at 29.5 ft. Groundwater was encountered at 15 ft. during drilling Drillhole was grouted
					35	
					40	
					45	
					50	
					55	
					60	

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001

Job No.: 200116.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-14B

LB 20116 2-12-01

Boring Location, Elevation & Date Drilled: Approximate Station 157+50. See Plate No. 3F for site plan; Elev. approx. 116.0 ft.; drilled on 12-28-00	Drilling Method: 8-inch dia. B-61 Mobile Rig Hollow Stem Auger	BORING NUMBER **B14**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 1 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description	
					0		Asphalt Concrete	
						CL	SANDY LEAN CLAY (CL), stiff, brown, moist	
MC-1	103.3	15	16					
					5	ML	SILT WITH SAND (ML), compact, brown, moist, mostly fine sand	+#4=0% -#200=73%
						CL	LEAN CLAY (CL), soft, brown, moist, few fine sand, medium plasticity	
MC-2	-	-	9	0.75				
					10			
MC-3	101.3	26	13					
					15		firm to medium stiff, mottled brown and gray, moist to wet, trace fine sand, low to medium plasticity	pp=1.75 tsf
MC-4	-	-	8					
					20		soft, wet, low plasticity, little fine sand, trace silt	
						SC	CLAYEY SAND WITH GRAVEL (SC), dense, brown and mottled light gray, wet, some fine to medium cemented sand, some rounded gravel to 1/2 inch, medium plasticity, pockets of fat clay	
MC-5	-	16	39					
					25			+#4=41% -#200=22%
						CL	SANDY LEAN CLAY (CL), firm to medium stiff, grayish brown and mottled brown, wet, few fine sand, medium plasticity	
MC-6	-	-	14					
					30			

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001 Job No.: 200116.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-15A

LB 20116 2-12-01

Boring Location, Elevation & Date Drilled:	Drilling Method:	BORING NUMBER
Approximate Station 157+50. See Plate No. 3F for site plan; Elev. approx. 116.0 ft.; drilled on 12-28-00	8-inch dia. B-61 Mobile Rig Hollow Stem Auger	B14
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 2 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft) Soil Graph & U.S.C.S.	
					30	Bottom of drillhole at 30 ft. Groundwater was encountered at 12.5 ft. during drilling Drillhole was grouted Monitoring well was installed with 2 inches pvc pipe (0.01 inch slots); 20 ft. of screen toppped with 10 ft. of blank; blanket of 2/12" sand to 9 ft. (below ground); bentonite to 6 ft.; cement mix to the top; 8 inches well box installed
					35	
					40	
					45	
					50	
					55	
					60	

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001 | Job No.: 200116.10

Plate: A-15B

LB 20116 2-12-01

Boring Location, Elevation & Date Drilled:	Drilling Method:	BORING NUMBER
Approximate Station 156+90. See Plate No. 3F for site plan; Elev. approx. 111.0 ft.; drilled on 11-29-00	4-inch dia. B-24 Mobile Rig Solid Stem Auger	B16
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 1 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description	Remarks
					0	CL	SANDY LEAN CLAY (CL), hard, brown and dark brown, damp	
MC-1	113.0	11	56					pp=4.5 tsf
						CL	LEAN CLAY (CL), very stiff, brown and dark brown, damp to moist	
MC-2	115.0	14	30		5			pp=4.5 tsf
MC-3	104.0	21	19	0.55	10		medium stiff to stiff, light brown, moist to wet, fine sand	pp=1.5 tsf LL=31 PL=22
MC-4	100.5	26	29		15	SP	POORLY GRADED SAND (SP), medium dense, gray, wet, mostly fine sand	
						CL	LEAN CLAY (CL), very stiff, brown and mottled gray, moist	pp=1.75 tsf
MC-5	103.5	24	19		20			
						CH	FAT CLAY (CH), stiff, dark gray, moist	pp=0.75 tsf
						SC	CLAYEY SAND WITH GRAVEL (SC), dense, gray and brown, wet, subangular to subrounded gravel to 1/2 inch, trace of sandstone	
MC-6	-	12	62		25			pp=4.5 tsf +#4=37% -#200=21%
						CH	FAT CLAY (CH), very stiff, brown and gray, moist	
					30			

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001 | Job No.: 200116.10

Plate: A-17A

LB 20116 2-12-01

Boring Location, Elevation & Date Drilled: Approximate Station 156+90. See Plate No. 3F for site plan; Elev. approx. 111.0 ft.; drilled on 11-29-00	Drilling Method: 4-inch dia. B-24 Mobile Rig Solid Stem Auger	BORING NUMBER **B16**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/2" I.D. Cal. (C)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 2 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft) Soil Graph & U.S.C.S.	Description	
MC-7	116.1	16	76		30		
					SC	CLAYEY SAND WITH GRAVEL (SC), dense, gray and brown, moist, subrounded gravel to 1 1/2 inches	pp=4.5 tsf
						Bottom of drillhole at 31.5 ft. Groundwater was encountered at 11 ft. during drilling Drillhole was grouted	
					35		
					40		
					45		
					50		
					55		
					60		

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

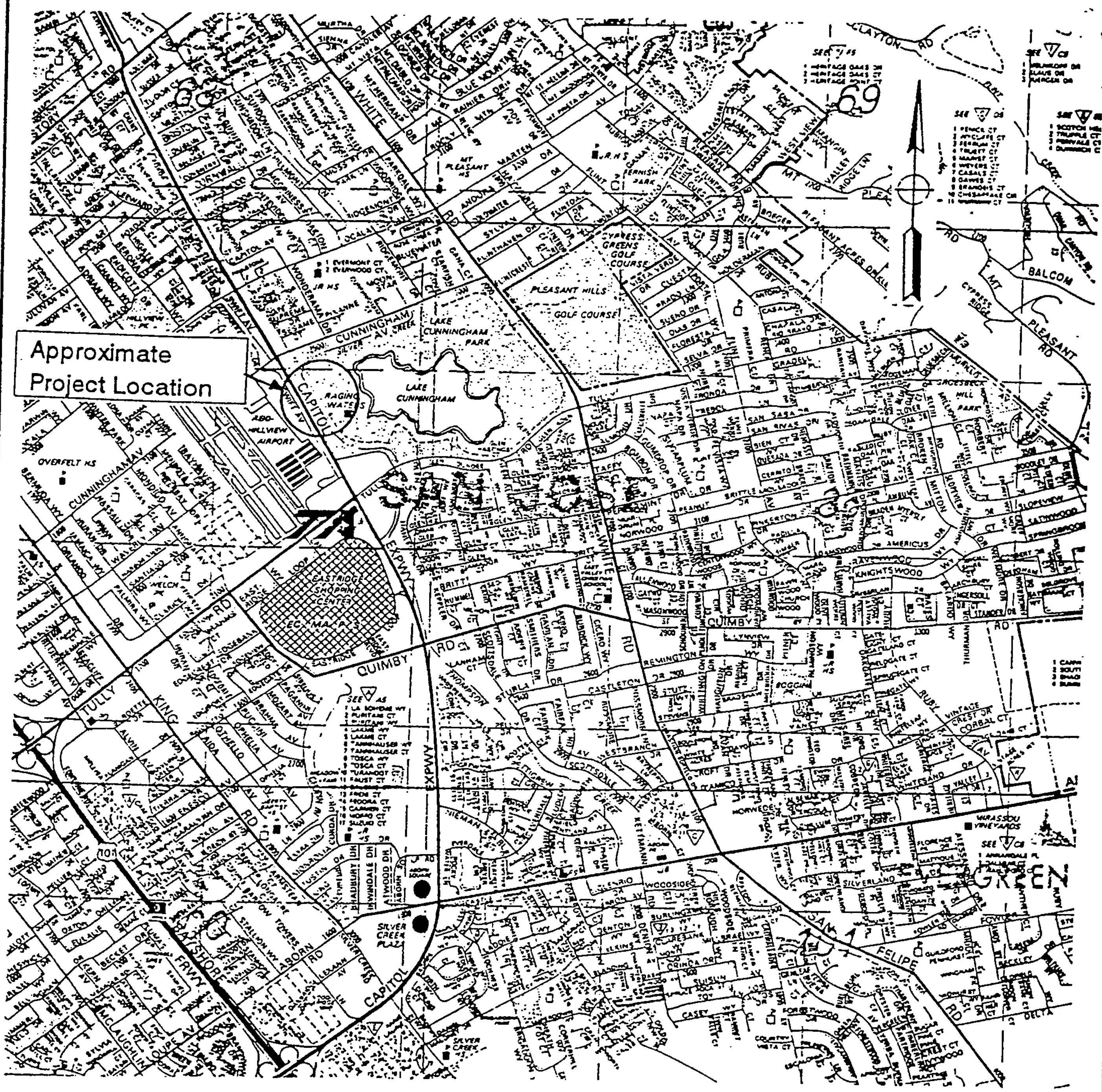
LOWER SILVER CREEK, REACH 4
SANTA CLARA COUNTY, CALIFORNIA

Date: 5/2001 | Job No.: 200116.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-17B

LB 20116 2-12-01



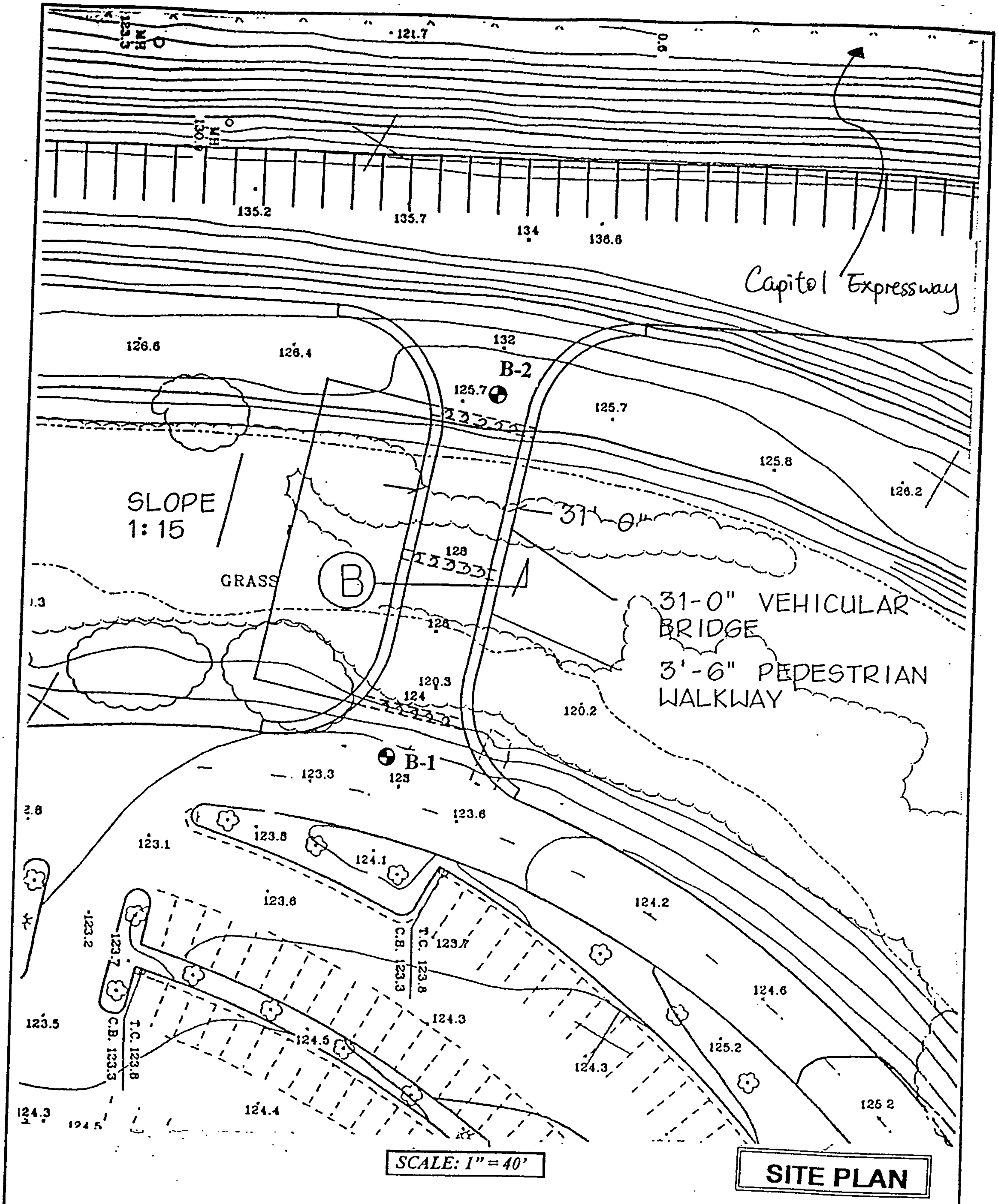
PROJECT LOCATION MAP

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

LAKE CUNNINGHAM BRIDGE
CITY OF SAN JOSE, CA

JOB NO.: 96132.10

PLATE NO.: 1



SITE PLAN

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

LAKE CUNNINGHAM BRIDGE
CITY OF SAN JOSE, CA

JOB NO.: 96132.10

PLATE NO.: 2

Boring Location, Elevation & Date Drilled: ; Elev. approx. 23.0 ft.; drilled on 1-13-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER **B1**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 1 of 3

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description
					0		4 inches of Asphalt Concrete over 8 inches of Aggregate Base
						SM	Brown SILTY SAND WITH GRAVEL, damp
						CL	Brown LEAN CLAY, medium, saturated
MC-1	100	25	8	-	5		
MC-2	96	28	9	0.81	10		Medium, trace fine sand
MC-3	91	32	9	-	15		Grayish brown with black mottling, medium
						SC	
MC-4	111	19	24	-	20		Brown CLAYEY SAND, medium dense, wet, fine sand
						CL	
SPT-5	-	32	12	-	25		Grayish blue LEAN CLAY, stiff
						CH	
					30		

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM BRIDGE
SAN JOSE, CALIFORNIA

Date: 3/96 | Job No.: 96132.10

Plate: A-2A

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

LB 96132 6-10-97

Boring Location, Elevation & Date Drilled: ; Elev. approx. 23.0 ft.; drilled on 1-13-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER **B1**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 2 of 3

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description
MC-6	90	32	21	1.01	30		grades to a FAT CLAY, stiff
MC-7	88	32	23	-	35		Black, stiff
MC-8	92	30	28	1.90	40		Blueish gray, very stiff
						CL	
SPT-9	-	17	14	-	45		Light blue LEAN CLAY WITH SAND, stiff
MC-10	94	28	17	0.81	50		Whitish gray, stiff, trace sand
					55		
					60		

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM BRIDGE
SAN JOSE, CALIFORNIA

Date: 3/96 | Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-2B

LB 96132 6-10-97

Boring Location, Elevation & Date Drilled: ; Elev. approx. 23.0 ft.; drilled on 1-13-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER **B1**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 3 of 3

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description
MC-11	104	22	23	0.85	60		Brown, stiff, with fine sand
					65		
MC-12	112	17	50/4"	-	70		
						SM	Brown SILTY SAND WITH GRAVEL, dense, saturated, well graded
							Boring terminated at 71.5 feet. Groundwater was encountered at a depth of 4 feet.
					75		
					80		
					85		
					90		

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM BRIDGE
SAN JOSE, CALIFORNIA

Date: 3/96

Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-2C

LB 96132 6-10-97

126'

Boring Location, Elevation & Date Drilled: ; Elev. approx. 26.0 ft.; drilled on 1-27-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER **B2**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 1 of 4

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description
					0	CL	Dark brown LEAN CLAY , slightly moist (FILL)
MC-1	100	21	35	-	5		Stiff
						CL	Light brown LEAN CLAY
MC-2	104	22	15	-	10		Medium, saturated
MC-3	97	26	23	0.41	15		Stiff, with lenses of SILTY SAND
MC-4	100	24	13	0.41	20		Grayish brown, medium
							Lens of SILTY SAND WITH GRAVEL
MC-5	103	24	38	-	25		Stiff, lenses of SILTY SAND
					30		

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM BRIDGE
SAN JOSE, CALIFORNIA

Date: 3/96

Job No.: 96132.10

Plate: A-3A

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

LB 96132 6-10-97

Boring Location, Elevation & Date Drilled:	Drilling Method:	BORING NUMBER
; Elev. approx. 26.0 ft.; drilled on 1-27-97	5-inch dia. Rotary Wash Failing 1500	B2
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 2 of 4

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	Soil Graph & U.S.C.S.	Description
MC-6	97	27	25	1.15	30		Grayish blue, stiff
						CH	
MC-7	88	33	25	1.25	35		Grayish blue FAT CLAY, stiff
MC-8	90	31	31	-	40		Brownish gray, stiff
						CL	
MC-9	104	22	37	1.05	45		Light blue LEAN CLAY, stiff, trace sand, trace organics
MC-10	107	19	39	-	50		Gray, trace sand
					55		
					60		

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM BRIDGE
SAN JOSE, CALIFORNIA

Date: 3/96

Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-3B

LB 96132 6-10-97

Boring Location, Elevation & Date Drilled: ; Elev. approx. 26.0 ft.; drilled on 1-27-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER B2
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 3 of 4

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft) Soil Graph & U.S.C.S.	Description
MC-11	97	26	25	0.91	60	Gray/brown, stiff, trace gravel
					65	
						Lens of SILTY SAND
SPT-12	-	23	21	-	70	Brown, stiff
					75	
MC-13	107	21	69	-	80	Hard
					85	
					90	

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM BRIDGE
SAN JOSE, CALIFORNIA

Date: 3/96

Job No.: 96132.10

Plate: A-3C

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

LB 96132 6-10-97

Boring Location, Elevation & Date Drilled: ; Elev. approx. 26.0 ft.; drilled on 1-27-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER **B2**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 4 of 4

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft) Soil Graph & U.S.C.S.	
SPT-14	-	22	33	-	90	Very stiff
						Boring terminated at 91.5 feet. Groundwater was encountered at a depth of 9 feet.
					95	
					100	
					105	
					110	
					115	
					120	

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM BRIDGE
SAN JOSE, CALIFORNIA

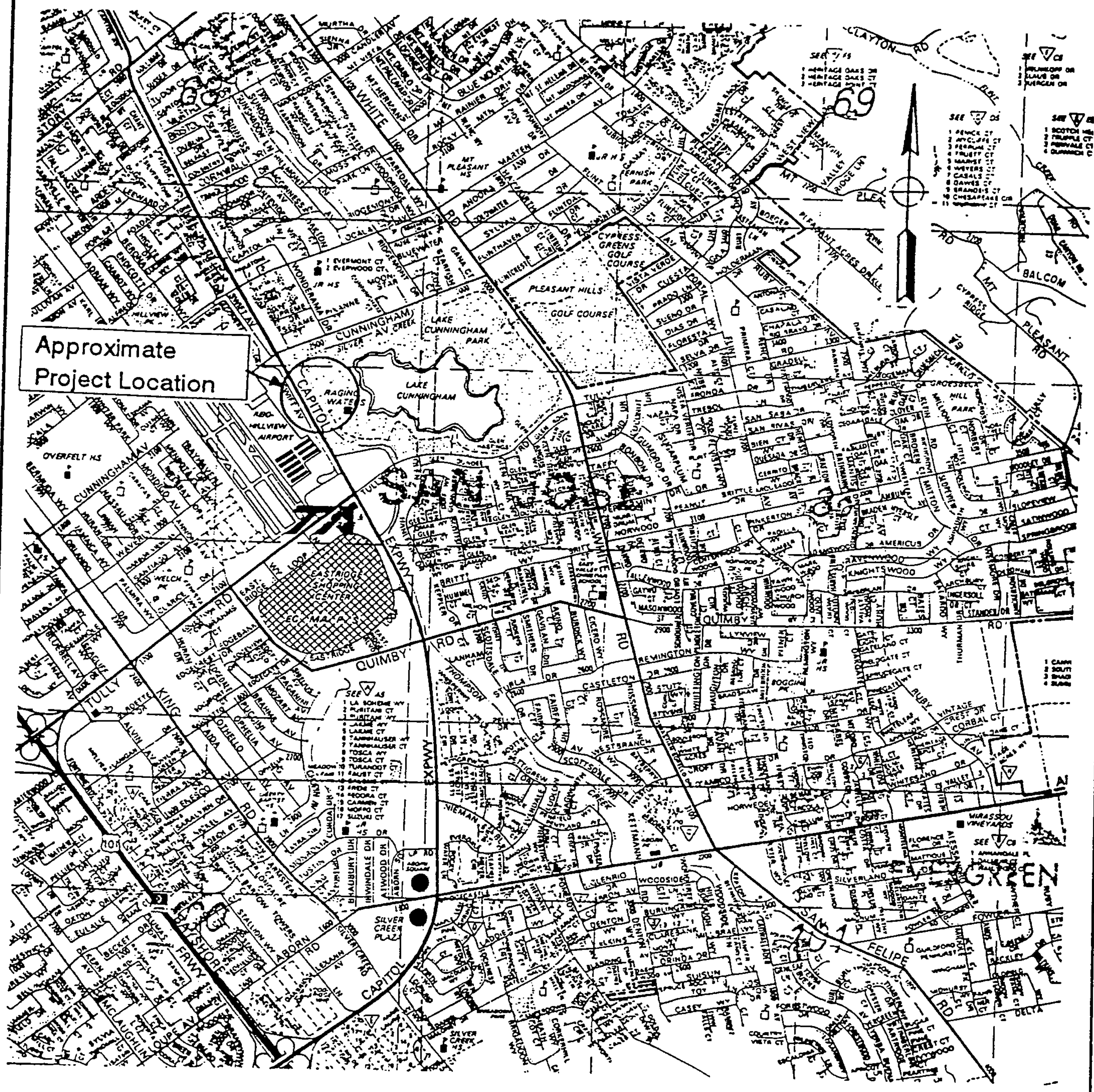
Date: 3/96

Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

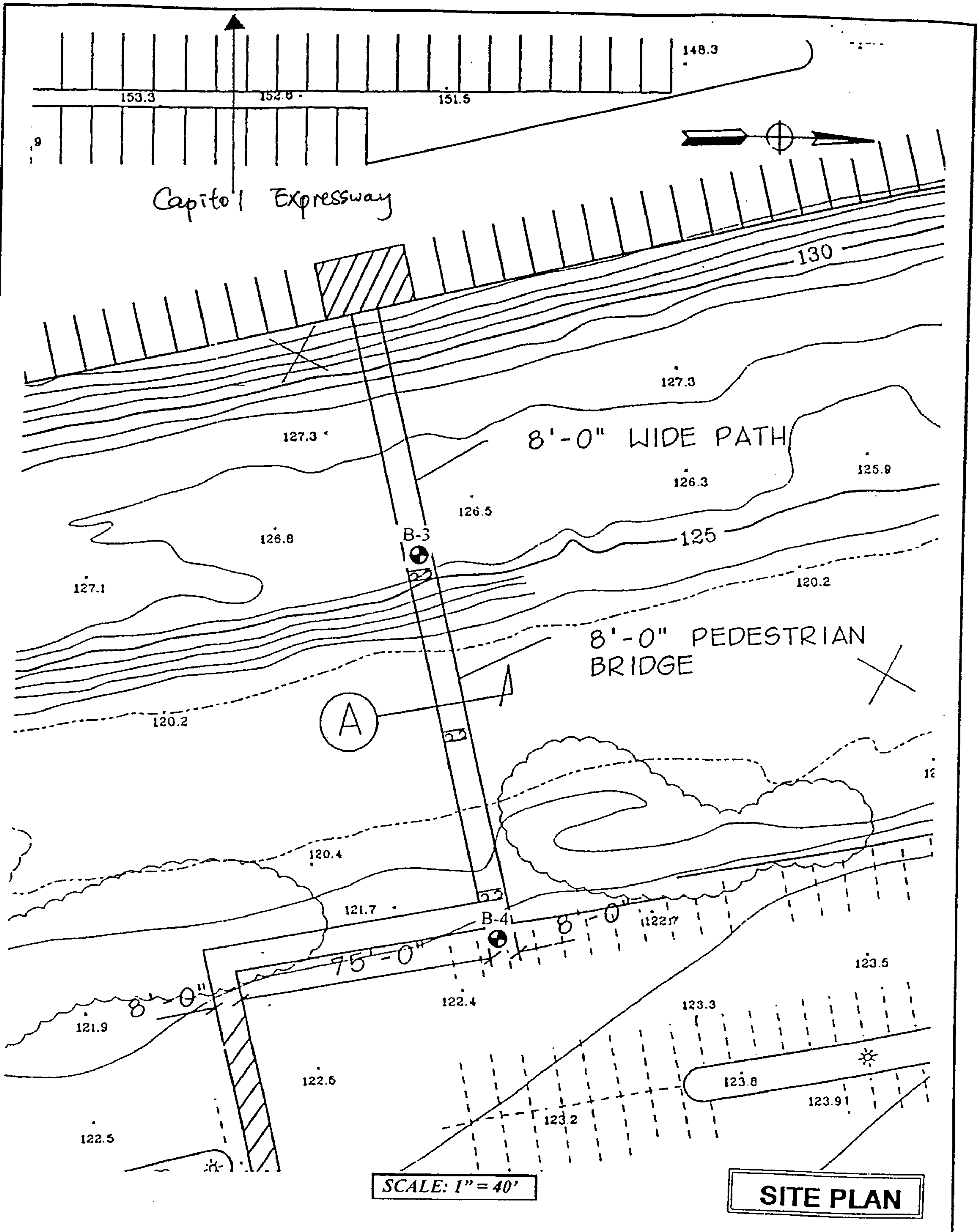
Plate: A-3D

LB 96132 6-10-97



PROJECT LOCATION MAP

PARIKH CONSULTANTS, INC. GEOTECHNICAL CONSULTANTS MATERIALS ENGINEERING	LAKE CUNNINGHAM POC CITY OF SAN JOSE, CA
JOB NO.: 96132.10	PLATE NO.: 1



PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

LAKE CUNNINGHAM POC
CITY OF SAN JOSE, CA

JOB NO.: 96132.10	PLATE NO.: 2

Boring Location, Elevation & Date Drilled: ; Elev. approx. 127.0 ft.; drilled on 1-27-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER B3
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 1 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description	
					0	CL	Dark brown LEAN CLAY, moist (FILL)	
MC-1	105	19	11	-	5	SM	Brown SILTY SAND, loose, saturated, fine sand	
						CL		
MC-2	99	25	18	0.45	10		Brown LEAN CLAY, medium	pp = 0.25 tsf
MC-3	96	27	13	0.50	15		Grayish brown, medium	pp = 0.25 tsf
MC-4	96	28	29	1.00	20		Stiff	pp = 1.5 tsf
MC-5	104	23	32	-	25		Stiff Lens of SILTY SAND at 26 feet.	
					30			

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM POC
SAN JOSE, CALIFORNIA

Date: 3/96 | Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-2A

LB 96132 2-10-97

Boring Location, Elevation & Date Drilled: ; Elev. approx. 127.0 ft.; drilled on 1-27-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER **B3**
	Sampling Method: 2 1/2" I.D. Mod. Cal. (MC)/1 3/8" I.D. Std. Pen., 140 lbs hammer, 30 inch drop.	Sheet 2 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description	
MC-6	98	27	33	-	30		Blueish gray, stiff	pp = 1.75 tsf
						CH		
MC-7	90	32	31	1.26	35		Blueish gray FAT CLAY, stiff, trace organics	pp = 2 tsf
					40			
						SM	Gray SILTY SAND, medium dense, wet	
MC-8	-	12	29	-				
						CL	Brown LEAN CLAY, stiff	
					45		Boring terminated at 45 feet. Groundwater was encountered at a depth of 4.5 feet during drilling.	
					50			
					55			
					60			

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM POC
SAN JOSE, CALIFORNIA

Date: 3/96 | Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-2B

Boring Location, Elevation & Date Drilled: ; Elev. approx. 123.0 ft.; drilled on 1-13-97	Drilling Method: 5-inch dia. Rotary Wash Failing 1500	BORING NUMBER B4
	Sampling Method: 2 1/2 " I.D. Mod. Calif. (MC), 140 lb hammer, 30 inch drop.	Sheet 1 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft)	U.S.C.S.	Description	
					0		4 inches of Asphalt Concrete over 8 inches of Aggregate Base	
						SM	Brown SILTY SAND WITH GRAVEL, damp	
						CL		
MC-1	111	18	26	-	5		Brown SANDY LEAN CLAY, stiff, saturated, fine sand	
						CL	Brown LEAN CLAY	
MC-2	-	-	14	-	10		(no recovery)	
							Dark brown, stiff	
MC-3	102	24	18	1.00				pp = 2 tsf
					15		Grayish brown, stiff	pp = 2 tsf
MC-4	96	28	18	1.05				
MC-5	112	18	26	-	20		Lens of SANDY LEAN CLAY, stiff, fine sand	
MC-6	91	31	21	1.50	25		Grayish brown, stiff	pp = 2 tsf
						CH		
					30			

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM POC
SAN JOSE, CALIFORNIA

Date: 3/96 | Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate: A-3A

LB 96132 2-10-97

Boring Location, Elevation & Date Drilled:
; Elev. approx. 123.0 ft.; drilled on 1-13-97

Drilling Method:
5-inch dia. Rotary Wash
Failing 1500

Sampling Method:
2 1/2 " I.D. Mod. Calif. (MC), 140 lb hammer, 30 inch drop.

BORING NUMBER
B4

Sheet 2 of 2

Sample Type & No.	Dry Density (pcf)	Water Content (%)	Blows Per Foot	Compress. Strength (tsf)	Depth (ft) Soil Graph & U.S.C.S.	Description
MC-7	85	36	20	-	30	Grayish blue FAT CLAY, stiff
						Boring terminated at 31.5 feet. Groundwater was encountered at a depth of 3 feet.
					35	
					40	
					45	
					50	
					55	
					60	

LOG OF BORING

PARIKH CONSULTANTS, INC.
Geotechnical & Materials Engineering

LAKE CUNNINGHAM POC
SAN JOSE, CALIFORNIA

Date: 3/96

Job No.: 96132.10

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:
A-3B

LB 96132 2-10-97

Appendix G

Hazardous Materials Assessment

HAZARDOUS MATERIALS ASSESSMENT REPORT
CAPITOL EXPRESSWAY LRT EXTENSION PROJECT
SAN JOSE, SANTA CLARA COUNTY, CALIFORNIA

For

Jones & Stokes
2600 V Street
Sacramento, California 95818-1914

PARIKH CONSULTANTS, INC.
356 S. Milpitas Blvd., Milpitas, CA 95035
(408) 945-1011

June 2003 Job No. 201162.ISA

TABLE OF CONTENTS

HAZARDOUS MATERIALS ASSESSMENT REPORT

CAPITOL EXPRESSWAY LIGHT RAIL TRANSIT PROJECT

SAN JOSE, SANTA CLARA COUNTY, CALIFORNIA

SUMMARY OF CONCLUSIONS

This Hazardous Materials Assessment Report was prepared by Parikh Consultants, Inc. to evaluate whether potential sources or indications of hazardous substance contamination are present in the areas of right-of-way and construction for the proposed 8.2-mile Capitol Expressway light rail transit (LRT) extension project along Capitol Expressway from Alum Rock Station to State Route 87. This investigation included a review of previous land uses in the area through review of historical aerial photographs, a field inspection of the project route, and a review of listings of Federal and State regulatory agencies that are responsible for recording incidents of spills, soil and ground water contamination and the transfer, storage, or disposal facilities that handle hazardous materials. This study was a ‘broad brush’ corridor study, with no site specific review and evaluation included in the analysis.

Previous land uses in the project area were primarily limited to agricultural and residential usage. The agricultural lands surrounding the project area were slowly converted to residential and commercial land usage from the mid 1960’s to present. A site reconnaissance of the project area was conducted to identify possible nearby sites or land uses that might adversely affect the corridor due to environmental hazards.

A review of previous land use and the site reconnaissance indicates that the Subject Area along Capitol Expressway has supported vehicular activity since the 1950's. It is highly likely that the surface soils along these areas are affected by deposition of aerial lead. Therefore it is recommended that surface samples of soil be collected and analyzed for total lead content.

There are buildings and structures (including overhead bridges) included in the proposed LRT extension project corridor. Due to the age of these structures there is a potential for presence of asbestos containing materials (ACM) and lead based paint. The ACM investigation should be performed by an AHERA certified inspector under TSCA Title II and Cal OSHA certified under State of California rules and regulations (California Code of Regulations, Section 1529). Surveys for lead based paint should be conducted prior to demolition of the structures within the right-of-way. Lead based paint and ACM should be abated by using a contractor certified to perform such work.

A review of the report from Environmental Data Resources, Inc. (EDR), which is included as Appendix A of this technical report, and the results of the Subject Area site visit identified two (2) dry cleaners and twelve (12) gasoline stations along the right-of-way. Of the 12 gas stations, seven (7) had active remediation systems operating on-site. Three additional stations were actively monitoring the groundwater. If the right-of-way is to expand entirely into any of these areas, the gas stations should be closed, and underground storage tanks must be removed. If the right-of-way expansion involves encroachment into any of the land within these services stations, soil and groundwater samples should be collected to determine if the portion of the properties that are to be converted, are impacted. For the sites with known active remediation systems or for locations adjacent to dry cleaners, soil and groundwater within the right-of-way, areas should be tested for potential presence of petroleum hydrocarbons, and volatile organic compounds (for dry cleaners only). Based on the results, mitigation measures should be devised to protect construction workers during construction activities. These sites are as follows:

Sparkle Cleaners (Map ID 4-29)
303 S Capital Avenue
Assessment: This site is listed in the FINDS and CLEANERS directory as a small quantity generator. This is a dry cleaning establishment. No additional information
is available on this site, however, due to the nature of its business, it is possible that the subsurface soils and groundwater may have been impacted with tetrachloroethene (PCE), which is used in the dry cleaning operations. Assessment of groundwater in the vicinity of this side is recommended.

Chevron #9-8247 (Map ID 4-56)
2710 Story Rd.
Assessment: This site is listed under the LUST, and Cortese lists for impacts to groundwater. According to the EDR, groundwater remediation is currently underway. During the site visit, groundwater remediation system was observed at the site. It is recommended to review site-specific documents to ensure contaminated soil and groundwater is not encountered during work in this area.

SAVEK & Capitol Car Wash (Map ID 4-56)
2701 Story Rd.
Assessment: This site is listed under the LUST, and Cortese lists for presence of MTBE and gasoline in the groundwater. This site is under investigation under supervision of SCVWD and RWQCB. Site soil and groundwater data should be reviewed prior to initiating construction activities.

Southland Company/Shell (Map ID 4-63)
2690 Story Rd.
Assessment: This site is listed under the LUST and Cortese lists for presence of petroleum hydrocarbons in the groundwater. Site is still under investigation and remediation. During the Subject Area visit, groundwater monitoring wells were observed in the Expressway and on-site.

USA Petroleum (Map ID 15-159)
1091 Capitol Expressway
Assessment: This site is listed under the LUST and Cortese list for releases to soil and groundwater discovered during UST removal operations in 1991. This site is still active. During site visit, a groundwater treatment system was observed to be operating on-site. Groundwater monitoring wells were observed on-site and boring locations were observed on Expressway. Reports from this site should be reviewed to determine if the Subject Area maybe impacted.

Rainbow Cleaners (Map ID 15-163)
1027 Capitol Expressway
Assessment: This site is listed under the FINDS and CLEANERS for processing PCE for dry-cleaning operations. There is potential for groundwater at the Subject Area to be impacted from the site operations.

World Oil #79 (Map ID 14-181)
3148 Senter Rd.
Assessment: This site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently in remediation under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Arco #6044 (Map ID 14-181)
3147 Senter Rd.
Assessment: Same as above, this site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently an ‘am/pm gas station’ and is being remediated under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Chevron Station #97686 (Map ID 14-181)
3151 Senter Rd.
Assessment: Same as the previous two sites, this site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently being remediated under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Shell Service Station (Map ID 19-235)
3939 Snell Avenue
Assessment: Located on the corner of Snell Avenue and Capitol Expressway, this site is listed under the LUST database for release of hydrocarbons to the groundwater. This site is currently under remediation under oversight of SCVWD. During the site visit, a remediation system was operating on-site. Files of this site should be reviewed to ensure that the groundwater is not impacting the Subject Area.

Mobil/BP Oil/Tosco Unocal (Map ID 19-235)
3951 Snell Avenue
Assessment: This site is also located in the corner of Snell and Capitol Expressway. It is listed under the LUST and Cortese lists for release of petroleum hydrocarbons. This site is currently under remediation under oversight of SCVWD. During the site visit, a remediation system was operating on-site. Files of this site should be reviewed to ensure that the groundwater is not impacting the Subject Area.

Other than those noted above during the site reconnaissance of the Subject Area, environmental areas of concern were not readily identified or apparent.

This conclusion, and any and all conclusions, recommendations and information included in this report, are based upon the information that was readily available to Parikh Consultants, Inc. at the time of the site visit, and on Parikh Consultants, Inc.'s professional judgment and reviews using accepted environmental site assessment practices.

1.0 INTRODUCTION

This Hazardous Materials Assessment was performed for the proposed Capitol Expressway LRT Extension Project along Capitol Expressway from Alum Rock Station to State Route 87 (Project Area) (Figure 1).

The purpose of this investigation was to identify and evaluate potential hazardous waste sites and evaluate environmental factors that may have impacted the soil and groundwater quality at the Subject Area due to past and present environmental and commercial activities.

The work for the assessment was performed between December 20, 2002 and February 9, 2003 and included the following scope of work:

- Site visit and visual inspection of exterior of the Subject Area
- Review of site background including aerial photographs
- Review of a computer database government record search of hazardous waste sites within 1-mile radius.
- Review of area hydrogeology.
- Review of available agency records for the Subject Area.
- Preparation of a written report summarizing the results.

This technical report includes the following sections, which present the details and findings of the hazardous materials site assessment:

- Section 2.0 - Project Description and Historic Information
- Section 3.0 - Physical Site Inspection
- Section 4.0 - Regulatory Review
- Section 5.0 - Conclusions and Recommendations
- Section 6.0 - Limitations

2.0 PROJECT DESCRIPTION AND HISTORIC INFORMATION

2.1 PROJECT DESCRIPTION

The existing Capitol Expressway is a heavy traffic route through San Jose. Since 1985, the Santa Clara Valley Transportation Authority (VTA) has been operating light rail service within Santa Clara County. The existing system is 30.5 miles long and has 46 stations. VTA is now proposing to extend the light rail system in the Downtown East Valley area of the City of San Jose. Planning for a light rail alignment along Capitol Expressway has been ongoing since the mid-1990s. In 1995, Barton-Aschman Associates and DeLeuw, Cather & Company completed the *Capitol Corridor LRT Extension Project* report for what was then known as the Santa Clara County Transportation Agency. The report provided an initial definition of the physical and operational aspects of an extension of the light rail system in the Capitol Corridor. The proposed alignment for the extension began at Hostetter Road and proceeded to the existing transit center at Eastridge Mall (Eastridge Transit Center).

The proposed project consists of an 8.2 mile-long (13.2 km) light rail alignment extension along Capitol Expressway from the terminus of the Capitol Avenue LRT Line at the Alum Rock Station to the Eastridge Transit Center and connect with the existing Guadalupe LRT Line at SR 87. The new Capitol Expressway Corridor would have 9 stations, located near Story Road, Ocala/Cunningham Avenue, Eastridge Mall, Nieman Boulevard, McLaughlin Avenue, Senter Road, Monterey Highway, Vistapark Drive and Highway 87. The alternative includes a potential future station at Silver Creek Road.

Alignment Description

The proposed light rail alignment would operate in exclusive and semi-exclusive rights-of-way and would include both grade-separated and at-grade intersection crossings. The alignment would operate primarily in the median of Capitol Expressway; however, some short alignment sections and options would deviate from the median.

The proposed Light Rail Alternative would be designed for high-speed service, with signal priority at intersections and grade separation at congested intersections. Crossings at freeways, expressways, and some major arterials would also be grade-separated (either elevated or depressed) to further support high-speed transit operations.

Construction of the light rail guideway and grade-separated structures under this alternative would alter the roadway geometry along some portions of Capitol Expressway. Perhaps the most dramatic change to the expressway would be the removal of existing HOV lanes between Capitol Avenue and U.S. 101. Since the existing roadway width could accommodate light rail if modified, the HOV lanes would be removed to provide the additional right-of-way. This minimizes the need to acquire additional property for the proposed Light Rail Alternative. Except for a slight reduction in lane width, no modifications to the remaining traffic lanes would be required. Left turns and through movements would not be affected, and all three existing through traffic lanes would remain in place.

Under the proposed Light Rail Alternative, the streetscape of Capitol Expressway would be redesigned to create an urban parkway. Pedestrian-friendly improvements—such as redesigning the right turn lanes to reduce their cross-section width to make pedestrian movements across the roadway shorter and easier—would be implemented at intersections. Additionally, the design would incorporate trees along the light rail median and along the curb edge of the roadway. A multi- use linear path along part of Capitol Expressway is also proposed. The path would be approximately 16 feet wide and would include a 10-foot-wide pedestrian/bicycle pathway, along with landscaping, soundwalls, benches, and trash receptacles. Curb lanes on both sides of Capitol Expressway will be 17 to 18 feet for the entire length to allow use of the shoulders of Capitol Expressway by bicycles.

The following sections describe the vertical and horizontal alignment options for each segment of the light rail corridor, and related track design and support systems.

Alum Rock Station to Story Road

The light rail alignment would begin at the existing Alum Rock Station on the Capitol Avenue LRT Line. In this segment, the alignment could be constructed in the median of Capitol Expressway from the Alum Rock station until just north of Story Road. The light rail alignment would be constructed at-grade for most of its course along Capitol Expressway. However, in this section of the corridor, an aerial guideway would be constructed for the full distance from south of Alum Rock Station to south of Story Road. The guideway would be located in the median of Capitol Avenue and Capitol Expressway and would be approximately 4,000 feet long. At its northern end, the aerial structure would cross the northbound lanes of Capitol Avenue and Capitol Expressway and transition to an alignment in the median of Capitol Expressway. The light rail alignment would continue on the aerial structure over Story Road and resume a ground-level profile south of Story Road.

Two vertical profile options are under consideration. Both options include two bus bays on Story Road (east of Capitol Expressway) and a kiss-and-ride lot on the southeast corner of the intersection.

- **Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option:** Under this option, a 1,330-foot-long tunnel would be constructed from south of Alum Rock Station, under the intersection of Capitol Expressway and Capitol Avenue and the northbound lanes of Capitol Expressway, to a point 20 feet north of Silver Creek. At this point, the alignment would leave the tunnel and transition to a 2,600-foot-long aerial structure that would cross Story Road. The aerial structure would continue south past Story Road, where it would transition back to ground level. Both the tunnel and the aerial structure would be located in the median of Capitol Avenue and Capitol Expressway.
- **Capitol Avenue/Capitol Expressway/Story Road Tunnel Option:** A 3,950-foot tunnel would be constructed from north of Capitol Avenue/Capitol Expressway to south of Story Road. It would be constructed in the median. The tunnel would pass under Capitol Avenue/Capitol Expressway intersection, cross under Silver Creek and Story Road before returning to a ground-level profile 1,225 feet south of Story Road. The tunnel option would include a depressed, open-air station at Story Road.

Story Road to Eastridge Transit Center

From south of Story Road, the alignment would be at-grade through the Ocala and Cunningham Avenue intersections. Before reaching Tully Road, a tunnel would provide a grade-separated transition from the median-running configuration along Capitol Expressway to the side-running configuration of the new station at Eastridge Transit Center. The Tully Road tunnel would measure approximately 2,150 feet. In addition to removing light rail operations from the congested intersection of Tully Road, the grade separations in this area would serve to transition the light rail alignment between median- and side-running operations. One alignment and station option is being considered.

- **North of Eastridge Transit Center Aerial Crossing with Aerial Station Option:** An aerial guideway would be constructed to transition the alignment from median-running north of Tully Road to side-running south of Tully Road in the Eastridge Transit Center. The proposed station at the Eastridge Transit Center would be located on the aerial guideway.

Eastridge Transit Center to Aborn Road

South of the at-grade Eastridge Transit Center, the alignment would enter a retained cut section that would drop the tracks onto a tunnel structure carrying the light rail under the southbound Capitol Expressway lanes and Quimby Road. From that point, it would return to grade through another retained cut section in the median south of Quimby Road and remain at-grade until it reaches Aborn Road. The following four vertical alignment options are under consideration between the Eastridge Transit Center and Aborn Road.

- **South of Eastridge Transit Center Aerial Crossing Option (Only with Eastridge Aerial Station Option):** If the alignment comes into the Eastridge Transit Center on an aerial structure, it would remain on an aerial structure as it continues south across the southbound Capitol Expressway lanes and Quimby Road, where it would return to grade through another retained fill section in the median south of Quimby Road and remain at-grade to the vicinity of Aborn Road.
- **South of Eastridge Transit Center Side-Running/Tunnel at Nieman Boulevard Option:** South of the Eastridge Transit Center, the alignment would continue as side-running until the Nieman Station on the west side of the Capitol Expressway north of Nieman Boulevard, where it would transition back to the median via a cut section that would drop the tracks onto a tunnel structure under southbound Capitol Expressway. From that point, it would return to grade through another retained cut section in the median south of Nieman Boulevard and remain at-grade to the vicinity of Aborn Road.
- **South of Eastridge Transit Center Side-Running/Trench Option:** South of Eastridge Transit Center, the alignment would enter a retained cut section that would drop the tracks onto a trench structure carrying the light rail under the Eastridge Loop Road and Quimby Road, where it would return to grade through another retained cut section south of Quimby Road continuing at-grade through the Nieman Station. At this point, it would enter a retained cut section that would drop the tracks into a tunnel structure carrying the light rail under the southbound Capitol Expressway lanes, where it would return to grade through another retained cut section in the median south of Nieman Boulevard and remain at-grade to the vicinity of Aborn Road.
- **South of Eastridge Transit Center Side-Running At-Grade/Aerial Option:** South of the Eastridge Transit Center, the alignment would continue as at-grade, side-running until the Nieman Boulevard Station on the west side of Capitol Expressway north of Nieman Boulevard.

Aborn Road to Silver Creek Road

The alignment would cross Aborn Road at grade and Silver Creek Road via an aerial structure. The length of the aerial structure from the beginning of the first retained fill section to the end of the last retained fill section would be approximately 2,800 feet. There are two design options at Nieman Boulevard/Aborn Road. Each of these options would transition to an aerial structure for the alignment to cross Silver Creek Road.

- **Aerial Crossing at Aborn Road Option:** An aerial guideway would be constructed in the median from before the Aborn Road intersection through the Silver Creek Road intersection. The total length of the structure would be 8,000 feet.
- **Aerial Crossing at Aborn Road Option (Only with Side-Running Options):** If the aerial option at Aborn Road is from the side-running segment to the median, the aerial guideway would begin before Nieman Boulevard and continue through both Aborn Road and the Silver Creek intersection. The total length of the structure would be 9,500 feet.

Silver Creek Road to Coyote Creek

The alignment would continue on the aerial structure through the potential future Silver Creek Station and transition back to the level of Capitol Expressway through another retained fill section just before the Capitol Expressway overpass of U.S. 101, then continue in the median of Capitol Expressway over U.S. 101 through McLaughlin Road to Coyote Creek. One design option is under consideration for the section between Silver Creek Road and Coyote Creek.

- **Aerial Crossing of U.S. Highway 101 Option:** The alignment would remain elevated through the optional future Silver Creek Station, as described above. However, in this option, the alignment would continue on a separate aerial structure across southbound Capitol Expressway on the north side of the overpass crossing of U.S. 101. After crossing U.S. 101, the alignment would proceed across the southbound Capitol Expressway lanes over McLaughlin Avenue, through the proposed McLaughlin Avenue Station, and transition back to grade level through another retained fill section just before Coyote Creek.

Coyote Creek to Highway 87

The alignment would proceed in the median of Capitol Expressway for the entire length of the section between Coyote Creek and the end of the alignment near SR 87.

Several sites exist along Capitol Expressway for park-and-ride facilities. Three existing park-and-ride lots are located along the alignment: Alum Rock Station, Eastridge Transit Center, and Capitol Station (at SR 87). A fourth park-and-ride lot within the corridor is located at the intersection of Monterey Highway and Fehren Drive. This facility serves the Caltrain Capitol station, which lies approximately 2,000 feet north of Capitol Expressway. To serve the Light Rail Alternative, two additional facilities are needed, including an expanded park-and-ride facility at the Eastridge Transit Center, and a site on the southwest corner of Ocala Avenue and Capitol Expressway to serve the Ocala Station.

In addition, the Light Rail Alternative would include options for two new park-and-ride facilities to meet the forecasted demand:

- **Expanded Eastridge Transit Center Park-and-Ride Option (Only if No Ocala Avenue Station Park-and-Ride):** If there is no park-and-ride at the Ocala Avenue Station, then the Eastridge Transit Center Park-and-Ride would need to be expanded to accommodate the demand.
- **Monterey Highway Station Park-and-Ride Options:** To serve the relocated Capitol Caltrain Station and the proposed Monterey Highway Station, three park-and-ride options with a bus transfer center are under consideration.
    - **Monterey Highway Cloverleaf Option:** Located in the center of the cloverleaf ramps on the east side of Monterey Highway both north and south of Capitol Expressway.
    - **Northwest of Monterey Highway Station Option:** This option would locate the park-and-ride facility at a site to the northwest of the Monterey Highway Station.
    - **Northeast of Monterey Highway Station Option:** This option would locate the park-and-ride facility at a site to the northeast of the Monterey Highway Station and north of the cloverleaf ramps at Capitol Expressway.

2.2 HISTORICAL OVERVIEW

Based on historical aerial photographs reviewed, it appears that majority of the Subject Area was in agricultural use or undeveloped or used as residential and commercial properties in the 1950's. The later aerial photos show development of freeways, railroads and Capitol Expressway. The area surrounding the Subject Area has been developed with residential and commercial properties through time.

Based on review of USGS maps (East San Jose, 7.5 Minute) the elevation of the Subject Area varies from 110 to 160 feet. Several creeks including Coyote Creek and Silver Creek cross and or run the Subject Area. These creeks cross under the expressway or run parallel with it. Regional depth to groundwater gradient is also generally towards the north but could vary on a site specific basis. Based on review of groundwater well data, depth to groundwater ranges from 6 to 40 feet in the Subject Area the corridor of Capital Expressway.

2.3 HISTORICAL AERIAL PHOTOGRAPH REVIEW

To examine the historical use of the Subject Area, a review of available aerial photographs from 1957 to 1999 was performed at Pacific Aerial Surveys in Alameda, California. Approximately 22 aerial photographs encompassing the Subject Area were examined. A summary description of the photographs reviewed is presented below.

Review of the 1957 through 1999 aerial photographs showed Subject Area is mostly occupied by agricultural or vacant land in the earlier years. The aerial photographs indicate development of commercial and residential properties through out the years. Development of Capitol Expressway into its current shape is visible from the early 1970's. Completion of the Expressway is seen in the mid 1990's.

The remaining aerial photographs do not show any significant changes in the Subject Area except for the construction of interchange and development of service stations that exist on the interchanges adjacent to the Subject Area. Remainder of the aerial photograph show the properties surrounding the interchange either as vacant land or in agricultural use.

Issues of environmental concern other than noted above were not observed during the aerial photograph review.

2.4 HISTORICAL U.S.G.S MAP REVIEW

Historical U.S.G.S. maps for San Jose and East San Jose from years 1899, 1953, 1961, 1968, 1973, and 1980 were reviewed. These maps are included as Appendix A. These maps indicate presence of Coyote Creek and Silver Creek. The 1899 San Jose U.S.G.S. map shows that the Silver Creek and Penitentia Creek merged to form a larger creek prior to joining Coyote Creek. It also shows presence of Southern Pacific Railroad in the current location of Union Pacific Railroad lines.

3.0 PHYSICAL SITE INSPECTION

Observations made during the site inspection walk through at the Subject Site are described in the following paragraphs. The site inspection was performed on Friday January 24, 2003.

3.1 SITE VISIT

Subject Area visit consisted of drive through of the area of study and observation of problem sites or visual contamination.

The Subject Area begins near the intersection of Capitol Expressway and Capitol Avenue just east of Route 680 and traverses 8.2 miles in the south/southwest direction until the intersection with Route 87.

Capitol Avenue to Story Road

The following paragraph describes the Subject Area from Capitol Avenue to Story Road. From Capitol Avenue until Story Road, majority of the property along the eastern and western portion of the Subject Area is occupied by residential properties. At the Story Road intersection are three service stations and an auto parts sales shop. To the north of the intersection right before the service stations to the west is a small retail area. To the east are a car wash and a church.

A world service station is located on the northwestern side of the Story Road intersection. One groundwater monitoring well (monitoring well) was observed in the traffic lanes of Capitol Expressway (Expressway). Several other monitoring wells were observed on the service station property away from those normally attributed to underground storage tanks (USTs). To the east across from the Expressway is Gas & Shop service station with several groundwater monitoring wells located on-site. To the south on the southwestern side of the intersection is a Chevron service station with several monitoring wells and an active groundwater remediation system.

Story Road to Eastridge Transit Center

From Story Road traveling south on the Expressway, the properties along the eastern and western side of the road are occupied by residential areas north of Ocala Road. From Ocala Road to Tully Road, the property to the western side is occupied by Reed Hillview Airport. South of Hillview Airport and north of Tully is a vacant lot. On the Hillview Airport 200-300 feet west of the Expressway is a Chevron Service station. On the East side of the Expressway south of Ocala road are residential properties, followed by Raging Waters, a commercial recreation facility, and a site under construction.

South of Tully Road to the west is an open field followed by Eastridge Mall. East of Eastridge Mall just next to the Expressway is a VTA transit stop. To the east of the Expressway south of Tully Road are a number of commercial and residential properties.

Eastridge Transit Center to Aborn Road

To the south of the Transit Center are a number of commercial properties. Further south, at the northwestern intersection of Quimby and Expressway is an Arco Service Station. Further to the west is Circuit City in a commercial mall. In the space between Circuit City and Arco, several monitoring wells were observed. To the south of Quimby on the western side of the intersection are a Public Storage Facility and more light commercial properties. From Quimby to Aborn Road, the west side of the Expressway is occupied by commercial properties. To the east are a number of residences.

Aborn Road to Coyote Creek

From Aborn Road to Coyote Creek, the Expressway travels through Silver Creek Road, traverses over US 101, and crosses McLaughlin and Tuers Road before reaching Coyote Creek. From Aborn Road to Silver Creek, the western side of the Expressway is occupied by a number of commercial properties. Of most interest with regards to environmental impacts is a Speedy Oil Change, however during the site visit, monitoring wells or other evidence of environmental impacts were not evident. On the east side is residential properties. On the southwestern side of the Silver Creek intersection is a Chevron service station and a car wash. Monitoring wells typically associated with environmental impacts were not observed on this site. On the southeastern side of the intersection is a retail area housing several small commercial stores and restaurants.

Traveling southwest over Route 101, before McLaughlin Road, are residential properties to the north and south of the Expressway. To the west of the McLaughlin interchange is a USA Gasoline service station with several groundwater monitoring wells and a remediation system. Traveling towards the southwest along the western side is a shopping mall including a Rite Aide Store before Tuers Road. Further to the southwest is Coyote Creek. To the southeast are residential properties.

Coyote Creek to Highway 87

From Coyote Creek to Highway 87, the Expressway crosses Senter Road, Monterey Road, UPRR tracks, and Monterey Highway, Snell Road, Vista Park Road, Copperfield Road, before reaching Route 87.

From Coyote Creek to Senter Road, the north side of the Expressway is occupied by residential properties followed by a World service station at the north side of the intersection. To the south is Andrew Hill High School. At the intersection of Senter Road and the Expressway are three service stations (including World). These stations are located on the northern, western and southern side of the intersection and are World, AM/PM, and Chevron. During the area reconnaissance monitoring wells and remediation systems were observed associated with all three service stations.

Past this intersection, the Expressway travels south and changes direction towards the southwest before crossing over Monterey Highway and reaching Snell Road. Along this stretch, the Expressway is surrounded mainly by residential properties. The commercial properties are located mostly along the smaller intersections and consist of retail shops. Once the Expressway travels over the Monterey Highway, a Drive-In theatre used for weekend Flea Market is to the northwest just before Snell Road.

At the intersection of the Expressway and Snell Road are three service stations. To the north is a Beacon, to the west a Shell and to the south a Union 76 station. Monitoring wells and remediation systems were observed on the Shell and the Union 76 stations. The east of the intersection is a residential property.

Traveling further west past Snell Road, the area on both the north and south side of the Expressway are occupied by vacant land under construction, residential developments, and commercial lots that house restaurants, video stores, and a Home Depot. Past the Home Depot across from Norvaez Road, on both the north and south side of the Expressway are VTA transit parking and stations.

Aside from the service stations, monitoring wells, and treatment systems identified, no other areas with potential environmental concern were noted.

3.2 AERIAL LEAD DEPOSITION

The Subject Area is a traffic bearing road in the Santa Clara County area. Historical aerial photographs show that the Subject Area has supported vehicular traffic from the early 1950's. Due to this vehicular activity the soils along the Subject Area are likely contaminated with lead from exhaust of cars burning leaded gasoline. The lead levels in surface soils along highways can reach concentrations in excess of the hazardous waste threshold, requiring disposal at either a Class I landfill or on-site stabilization. Special health and safety procedures should be in effect for the workers working near lead contaminated areas. A workplan for investigation of the ADL should be submitted and work should be performed according to an approved workplan.

3.3 ASBESTOS CONTAINING MATERIALS AND LEAD PAINT

There are buildings and structures within the proposed LRT extension corridor. Due to the age of these structures there is a potential for presence of asbestos containing materials (ACM) and lead based paint. The ACM investigation should be performed by an AHERA certified inspector under TSCA Title II and Cal OSHA certified under State of California rules and regulations (California Code of Regulations, Section 1529). Surveys for lead based paint should be conducted prior to demolition of the structures within the right-of-way. Lead based paint and ACM should be abated by using contractors certified to perform such work.

4.0 REGULATORY REVIEW

4.1 DATABASE AND REGULATORY REVIEWS

A search of environmental regulatory databases was conducted for the site and surrounding properties. The database search was conducted by Environmental Data Resources, Inc. (EDR) to determine whether documentation exists related to environmental incidents at the site or surrounding properties. The databases searched and respective search distances from the site as specified by ASTM guidelines are as follows:

- Federal Databases
    - National Priority List (NPL) – 1 mile
    - Proposed National Priority List (Proposed NPL) – 1 mile
    - Comprehensive Environmental Response Compensation, and Liability Information System (CERCLIS) – ½ mile
    - CERCLIS No Further Remedial Action Planned (CERCLIS – NFRAP) – ¼ mile
    - Corrective Action Report (CORRACTS) – 1 mile
    - Resource Conservation and Recovery Information System treatment, storage disposal facility (RCRIS-TSD) – ½ mile
    - RCRIS Large quantity generator – ¼ mile
    - RCRIS small quantity generator – ¼ mile
    - Emergency Response Notification System (ERNS) – Target Property
    - Superfund (CERCLA) Consent Decrees (CONSENT) – 1 mile
    - Records of Decision (ROD) – 1 mile
    - Delisted NPL – 1 mile

- Facility Index System/Facility Identification Initiative Program Summary Report (FINDS) – Target Property
- Hazardous Material Reporting System (HMIRS) – Target Property
- Material Licensing Tracking System (MLTS) – Target Property
- Mines master index file (MINES) – ¼ mile
- Federal Superfund liens (NPL liens) – Target Property
- PCB Activity Database System (PADS) – Target Property
- RCRA Administration Action Tracking System – Target Property
- Toxic Chemical Release Inventory System (TRIS) – Target Property
- Toxic Substance Control Act (TSCA) – Target Property
- Section 7 Tracking System (SSTS) – Target Property
- FIFRA/TSCA Tracking System (FTTS) – Target Property

- State of California, Regional and County Databases
  - Annual Workplan Sites (AWP) – 1 mile
  - Cal sites Databases (CAL-SITES) – 1 mile
  - California Hazardous Material Incident Report System (CHMIRS) – 1 mile
  - "Cortese" Hazardous Waste and Substance Sites List (CORTESE) – 1 mile
  - Proposition 65 Records (NOTIFY 65) – 1 mile
  - Toxic Pits Cleanup Act Sites (TOXIC PITS) – 1 mile
  - State Landfill – ½ mile
  - Waste Management Unit Database (WMUDS/SWAT) – ½ mile
  - Leaking Underground Storage Tank Information System (LUST) – ½ mile
  - Bond expenditure Plan (CA BOND EXP. PLAN) – 1mile
  - Active UST Facilities (UST) – ¼ mile
  - Facility Inventory Database (CA FID UST) – ¼ mile
  - Hazardous Substance Storage Container Database (HIST UST) – ¼ mile
  - Aboveground Petroleum Storage Tank Facilities (AST) – Target Property
  - Cleaner Facilities (CLEANERS) – ¼ mile
  - Waste Discharge System (CA WDS) – Target Property
  - List of Deed Restrictions (DEED) – Target Property
  - Spills, Leaks, Investigation and Cleanup Cost Recovery Listing (CAL SLIC) – ½ mile
  - Hazardous Waste Information System (HAZNET) – ¼ mile

The results of the EDR database search and descriptions of the environmental databases are provided in Appendix B. The sites identified in the EDR search were evaluated with respect to their potential to impact the Site adversely. Three main criteria were used to evaluate whether the EDR listed sites warranted further consideration: (1) proximity to the site (less than 1/8 mile); (2) hydraulically upgradient with respect to groundwater flow; and (3) hydraulically upgradient of the site with respect to surface water flow/storm water runoff.

No NPL, proposed NPL, CERCLIS, CORRACTS, RCRIS-TSD, AWP, Toxic Pits, CA Bond Expenditure, CA FID UST, CONSENT, ROD, Delisted NPL, HMRS, MLTS, MINES, NPL Liens, PADS, RAATS, TSCA, SSTS were identified within the 1 mile of the Subject Area. The single CERCLIS NF-RAP site that was identified is too far away and cross gradient and should not pose an environmental concern.

Five RCRIS sites were identified in the Database. These sites are too far away to pose an adverse environmental impact and are eliminated from further discussion.

A majority of the sites identified on the database are either small quantity waste generators, or those listed on the FINDS and Cortese databases. A majority of these sites were covered under the LUST sites. The remainders are too far away to pose an environmental concern.

198 LUST sites and several Cortese and sites listed on the Cleaners (dry cleaners) were identified within one mile of the Subject Area. A majority of these sites are either closed, too far upgradient, and/or downgradient of the Subject Area and should not pose an environmental concern. Only those with proximity to the Subject Area that could be of potential environmental concern are discussed below. Detail discussion of these sites for each segment of the road described during the Subject Area visit are as follows:

Capitol Avenue to Story Road

Exxon Service Station No. 7-3297 (Map ID 4-18)
2710 Alum Rock Ave/Capitol Expwy.
San Jose, CA 95127
Assessment: This site was listed for presence of petroleum hydrocarbons discovered during closure of a UST in 1992. This site was under RWQCB review in 1997 and closed in 1998. This site should not pose further environmental concern.

Sparkle Cleaners (Map ID 4-29)
303 S Capitol Avenue
San Jose, California

Assessment: This site is listed in the FINDS and CLEANERS directory as a small quantity generator. This is a dry cleaning establishment. No additional information is available on this site, however, due to the nature of its business, it is possible that the subsurface soils and groundwater may have been impacted with tetrachloroethene (PCE) that is used in the dry cleaning operations. Assessment of groundwater in the vicinity of this side is recommended.

Chevron #9-8247 (Map ID 4-56)
2710 Story Rd.
San Jose, California
Assessment: This site is listed under the LUST, and Cortese lists for impacts to groundwater. According to the EDR, groundwater remediation is currently underway. During the site visit, groundwater remediation system was observed at the site. It is recommended to review site specific documents to ensure contaminated soil and groundwater is not encountered during work in this area.

SAVEK & Capitol Car Wash (Map ID 4-56)
2701 Story Rd.
San Jose, California
Assessment: This site is listed under the LUST, and Cortese lists for presence of MTBE and gasoline in the groundwater. This site is under investigation under supervision of SCVWD and RWQCB. Site soil and groundwater data should be reviewed prior to initiating construction activities.

Southland Company/Shell (Map ID 4-63)
2690 Story Rd.
San Jose, California
Assessment: This site is listed under the LUST and Cortese lists for presence of petroleum hydrocarbons in the groundwater. Site is still under investigation. Additional assessment of the soil and groundwater in this site is recommended. During the Subject Area visit, groundwater monitoring wells were observed in the Expressway and on-site.

Story Road to Eastridge Transit Center

Airport Properties (Map ID 7-87)
20502 John Montgomery Dr.
San Jose, California
Assessment: This site is listed under the LUST and Cortese lists for discovery of groundwater impacts in 1991. Case was closed later on. This site should not pose an adverse environmental impact.

Gee Bee Aero (Map ID 7-91)
2660 John Montgomery Dr.
San Jose, California

Assessment: This site is listed under the LUST list for discovery of soil impacts during removal of a waste oil UST. This site was closed in 1995.

SCCTA – Reid-Hillview Airport (Map ID 7-94)
2500 Cunningham Avenue,
San Jose, California
Assessment: This site is listed under the LUST list for release of diesel to soil and groundwater. The case is closed. No further assessment is necessary.

Eastridge Transit Center to Aborn Road

ARCO #2187 (Map ID 10-116)
2375 Quimby Rd.
San Jose, California
Assessment: This site is listed on the LUST list for release of petroleum hydrocarbons. The case was closed in 1995. This site should not pose further environmental concern. During the site visit two monitoring wells were observed on the western side of the site.

Speedee Oil Change and Tune-up (Map ID 10-125)
1825 E. Capitol Expressway
San Jose, California
Assessment: This site is listed under the HAZNET list. No records of violations or releases are present. It should not pose an environmental concern.

Aborn Road to Coyote Creek

Silver Creek Carwash (Map ID 10-152)
3197 Silver Creek Rd.
San Jose, California
Assessment: This site is listed under the LUST and Cortese list for discovery of release of diesel to soil and groundwater. The case was closed in 1996. This site should not pose an environmental concern. During the site visit no groundwater monitoring wells were observed on-site, or on the Expressway.

USA Petroleum (Map ID 15-159)
1091 Capitol Expressway
San Jose, California
Assessment: This site is listed under the LUST and Cortese list for releases to soil and groundwater discovered during UST removal operations in 1991. This site is still active. During site visit, a groundwater treatment system was observed to be operating on-site. Groundwater monitoring wells were observed on-site and boring locations were observed on Expressway. Reports from this site should be reviewed to determine if the Subject Area maybe impacted.

Rainbow Cleaners (Map ID 15-163)
1027 Capitol Expressway
San Jose, California.
Assessment: This site is listed under the FINDS and CLEANERS for processing PCE for dry-cleaning operations. There is potential for groundwater at the Subject Area to be impacted from the site operations.

Coyote Creek to Highway 87

World Oil #79 (Map ID 14-181)
3148 Senter Rd.
San Jose, California
Assessment: This site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently in remediation under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Arco #6044 (Map ID 14-181)
3147 Senter Rd.
San Jose, California
Assessment: Same as above, this site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently an AM/PM gas station and is being remediated under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Chevron Station #97686 (Map ID 14-181)
3151 Senter Rd.
San Jose, California.
Assessment: Same as the previous two sites, this site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently being remediated under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Chevron #9-5921 (Map ID 19-228)
175 W. Capitol Expressway
San Jose, California
Assessment: This site is listed under the LUST database for release of petroleum hydrocarbons to soil and groundwater. This case is closed. This site should not pose an environmental concern.

Shell Service Station (Map ID 19-235)
3939 Snell Avenue
San Jose, California
Assessment: Located on the corner of Snell Avenue and Capitol Expressway, this site is listed under the LUST database for release of hydrocarbons to the groundwater. This site is currently under remediation under oversight of SCVWD. During the site visit, a remediation system was operating on-site. Files of this site should be reviewed to ensure that the groundwater is not impacting the Subject Area.

Mobil/BP Oil/Tosco Unocal (Map ID 19-235)
3951 Snell Avenue
San Jose, California
Assessment: This site is also located in the corner of Snell and Capitol Expressway. It is listed under the LUST and Cortese for release of petroleum hydrocarbons. This site is currently under remediation under oversight of SCVWD. During the site visit, a remediation system was operating on-site. Files of this site should be reviewed to ensure that the groundwater is not impacting the Subject Area.

South Bay Pontiac Cadillac (Map ID 18-242)
765 W. Capitol Expressway
San Jose, California
Assessment: This site is listed on the LUST and Cortese databases for release of gasoline to groundwater. This site is however on the west side of Route 87 and should not pose an environmental concern. This site is listed by mistake on the Facility ID Map on the eastern side of Route 87.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Review of previous land use and the site reconnaissance indicates that the Subject Area along Capitol Expressway area has supported vehicular activity since the 1950's. It is highly likely that the surface soils along these areas are affected by deposition of aerial lead. Therefore it is recommended that surface samples of soil be collected and analyzed for total lead.

There are buildings and structures (including overhead bridges) within the proposed LRT extension project. Due to the age of these structures there is a potential for presence of asbestos containing materials (ACM) and lead based paint. The ACM investigation should be performed by an AHERA certified inspector under TSCA Title II and Cal OSHA certified under State of California rules and regulations (California Code of Regulations, Section 1529).

Surveys for lead based paint should be conducted prior to demolition of the structures within the right-of-way. Lead based paint and ACM should be abated by using a contractor certified to perform such work.

A review of the EDR report, and the Subject Area site visit identified two dry cleaners and 12 gasoline stations along the right-of-way. Of the 12 gas stations, seven had active remediation systems operating on-site. Three additional stations were actively monitoring the groundwater. If the right-of-way is to expand into any of these areas, the gas stations should be closed, and underground storage tanks must be removed. If the right-of-way expansion involves encroachment into any of the land within these services stations, soil and groundwater samples should be collected to determine if the portion of the properties that are to be converted, are impacted. For the sites with known active remediation systems and for locations adjacent to dry cleaners, soil and groundwater within the right-of-way along these areas should be tested for potential presence of petroleum hydrocarbons, and volatile organic compounds (for dry cleaners only). Based on the results, mitigation measures should be devised to protect construction workers during construction activities. These sites are as follows:

Sparkle Cleaners (Map ID 4-29)
303 S Capitol Avenue
Assessment: This site is listed in the FINDS and CLEANERS directory as a small quantity generator. This is a dry cleaning establishment. No additional information is available on this site, however, due to the nature of its business, it is possible that the subsurface soils and groundwater may have been impacted with tetrachloroethene (PCE), which is used in the dry cleaning operations. Assessment of groundwater in the vicinity of this side is recommended.

Chevron #9-8247 (Map ID 4-56)
2710 Story Rd.
Assessment: This site is listed under the LUST, and Cortese lists for impacts to groundwater. According to the EDR, groundwater remediation is currently underway. During the site visit, groundwater remediation system was observed at the site. It is recommended to review site specific documents to ensure contaminated soil and groundwater is not encountered during work in this area.

SAVEK & Capitol Car Wash (Map ID 4-56)
2701 Story Rd.
Assessment: This site is listed under the LUST, and Cortese lists for presence of MTBE and gasoline in the groundwater. This site is under investigation under supervision of SCVWD and RWQCB. Site soil and groundwater data should be reviewed prior to initiating construction activities.

Southland Company/Shell (Map ID 4-63)
2690 Story Rd.
Assessment: This site is listed under the LUST and Cortese lists for presence of petroleum hydrocarbons in the groundwater. Site is still under investigation and remediation. During the Subject Area visit, groundwater monitoring wells were observed in the Expressway and on-site.

USA Petroleum (Map ID 15-159)
1091 Capitol Expressway
Assessment: This site is listed under the LUST and Cortese list for releases to soil and groundwater discovered during UST removal operations in 1991. This site is still active. During site visit, a groundwater treatment system was observed to be operating on-site. Groundwater monitoring wells were observed on-site and boring locations were observed on Expressway. Reports from this site should be reviewed to determine if the Subject Area maybe impacted.

Rainbow Cleaners (Map ID 15-163)
1027 Capitol Expressway
Assessment: This site is listed under the FINDS and CLEANERS for processing PCE for dry-cleaning operations. There is potential for groundwater at the Subject Area to be impacted from the site operations.

World Oil #79 (Map ID 14-181)
3148 Senter Rd.
Assessment: This site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently in remediation under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Arco #6044 (Map ID 14-181)
3147 Senter Rd.
Assessment: Same as above, this site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently an am/pm gas station and is being remediated under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Chevron Station #97686 (Map ID 14-181)
3151 Senter Rd.
Assessment: Same as the previous two sites, this site is listed under the LUST and Cortese lists for presence of soil and groundwater contamination from USTs. Site is currently being remediated under supervision of SCVWD. Groundwater is impacted with MTBE. During the site visit groundwater treatment system was observed on-site. This site is directly adjacent to the Subject Area and may have impacted the groundwater. Files of this site should be reviewed further.

Shell Service Station (Map ID 19-235)
3939 Snell Avenue
Assessment: Located on the corner of Snell Avenue and Capitol Expressway, this site is listed under the LUST database for release of hydrocarbons to the groundwater. This site is currently under remediation under oversight of SCVWD. During the site visit, a remediation system was operating on-site. Files of this site should be reviewed to ensure that the groundwater is not impacting the Subject Area.

Mobil/BP Oil/Tosco Unocal (Map ID 19-235)
3951 Snell Avenue
Assessment: This site is also located in the corner of Snell and Capitol Expressway. It is listed under the LUST and Cortese for release of petroleum hydrocarbons. This site is currently under remediation under oversight of SCVWD. During the site visit, a remediation system was operating on-site. Files of this site should be reviewed to ensure that the groundwater is not impacting the Subject Area.

Other than noted above during the site reconnaissance of the Subject Area, environmental areas of concern were not readily identified or apparent based on the scope of work performed in this project. Based on Parikh Consultants, Inc.'s findings, environmental conditions or issues of concerns, other than noted above, were not identified or indicated.

6.0 LIMITATIONS

The operations, facility conditions and information obtained and utilized in the preparation of this report have been obtained in part from the client, and their employees or agents, and various government officials and are assumed by Parikh Consultants, Inc. to be complete and correct. It should be noted that this information is subject to professional interpretation, which leads to conclusions, which may differ, based upon opinions specific to individuals.

This report has been presented in accordance with generally accepted environmental assessment practices, based upon the information set forth within the report narrative, for specific application to the proposed Capitol LRT Extension Project in San Jose, California. No warranty, expressed or implied, is made.

The conclusions in this report are qualitative opinions based on limited quantitative information. Soil and groundwater sampling and analysis were not a part of this scope of work. The scope of work was limited to observation of the surface at a specific time, a limited aerial survey review, and environmental database research. Review and evaluations of each specific site were not included in our scope of work. This assessment is not designed to predict future site or off-site conditions. Also, site conditions can differ at locations other than those observed across the Subject Area. Subsurface conditions can differ from those observed on the surface.

This investigation is not a risk assessment and is not intended to provide information needed for public health risk assessment purposes. The consultant has endeavored to determine as much as practical about the site conditions given what we consider to be a reasonable amount of analysis and research time. Additional investigation or sampling and analysis could result in information that would lead to revised conclusions. Additional search can usually turn up more information but frequently with a diminishing rate of information return for the effort spent. The degree of certainty of an environmental assessment is proportional to the time and effort spent. However, the degree of certainty cannot be 100% even with highly detailed exploratory drilling and testing work well beyond the scope of this study.

Respectfully submitted,

PARIKH CONSULTANTS, INC.

Gary Parikh, P.E., G.E.#666
Project Manager
201162ISA(2B)

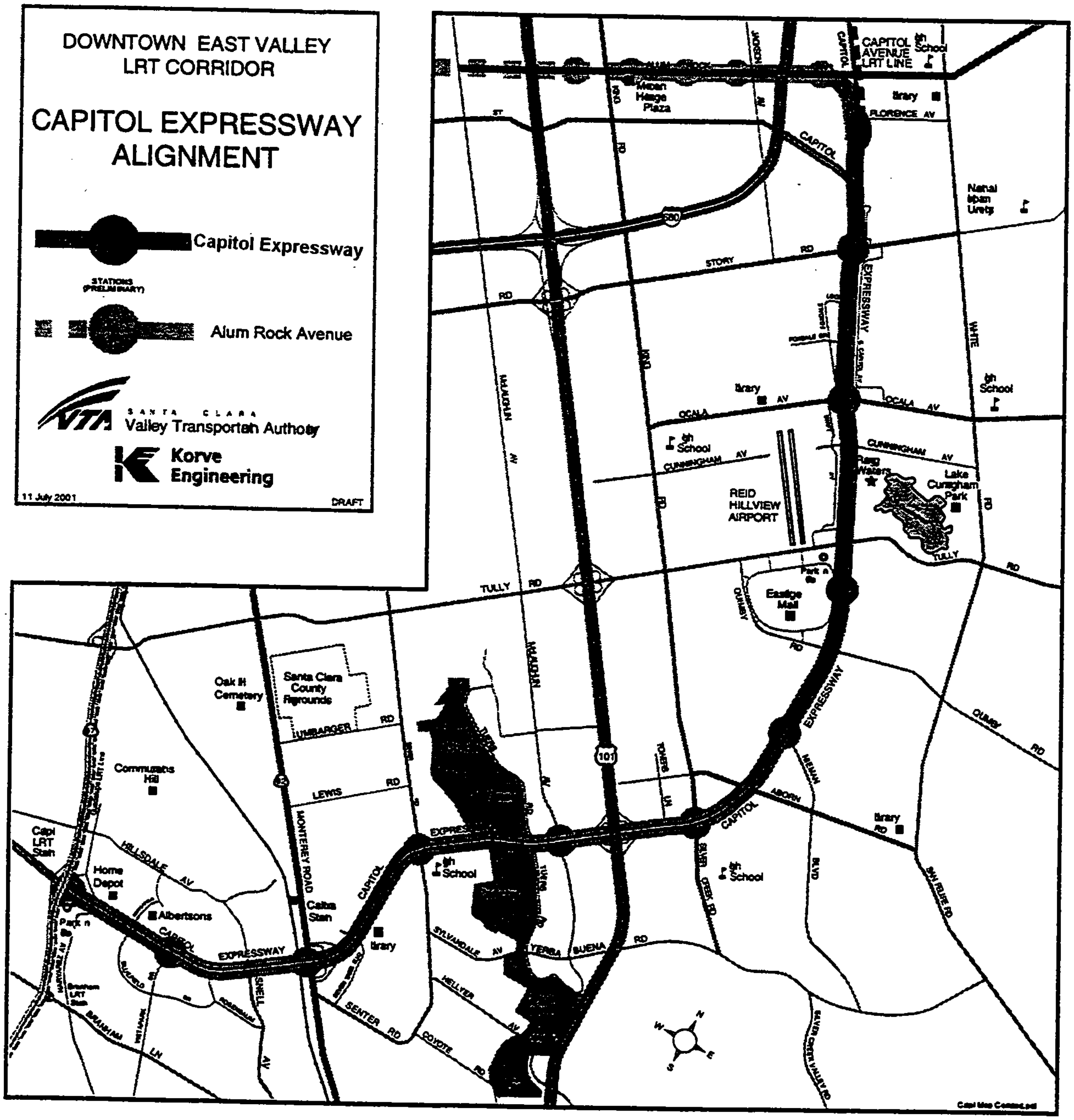
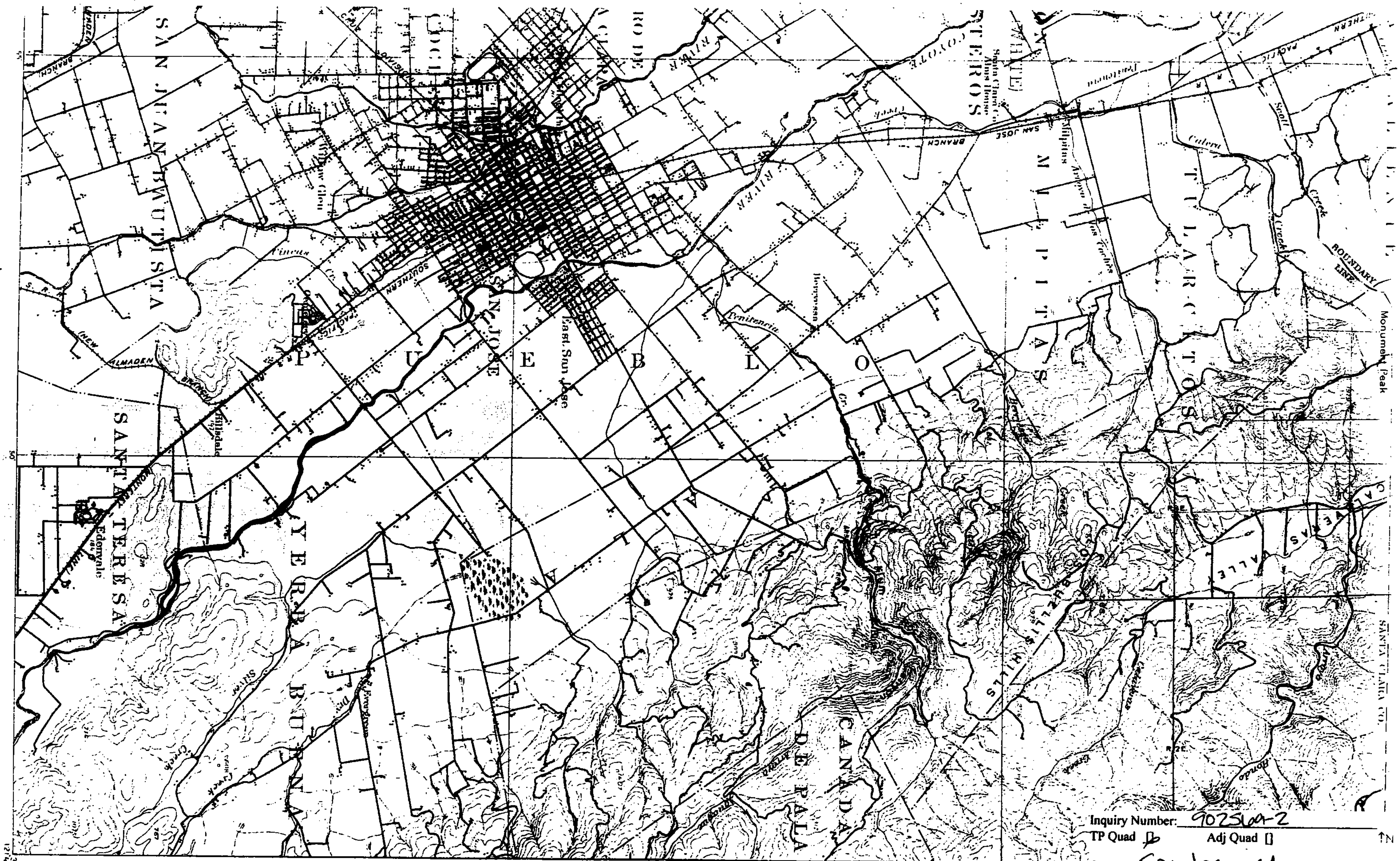

DOWNTOWN EAST VALLEY
LRT CORRIDOR
CAPITOL EXPRESSWAY
ALIGNMENT
Capitol Expressway
Alum Rock Avenue
Korve
Engineering
11 July 2001
DRAFT
CAPITOL AVENUE LRT LINE
FLORENCE AV
STORY
RD
OCALA
AV
CUNNINGHAM
AV
REID
HILLVIEW
AIRPORT
TULLY
RD
Eastridge Mall
EXPRESSWAY
CAPITOL
WHITE
Lake Cunningham Park
Santa Clara County Fairgrounds
UMBARGER
LEWIS
MONTEREY ROAD
HILLSDALE
AV
Home Depot
Albertsons
CAPITOL
EXPRESSWAY
SENTER
RD
COYOTE
HELLYER
AV
SYLVANDALE
AV
YERBA
BUENA
TOWERS
LN
ABORN
QUIMBY
RD
SAN FELIPE RD
SNELL
101
680
High School
Library
Communications Hill

Figure 1



Inquiry Number: 902569-2

TP Quad [x] Adj Quad []

↑N

Quad San Jose, CA

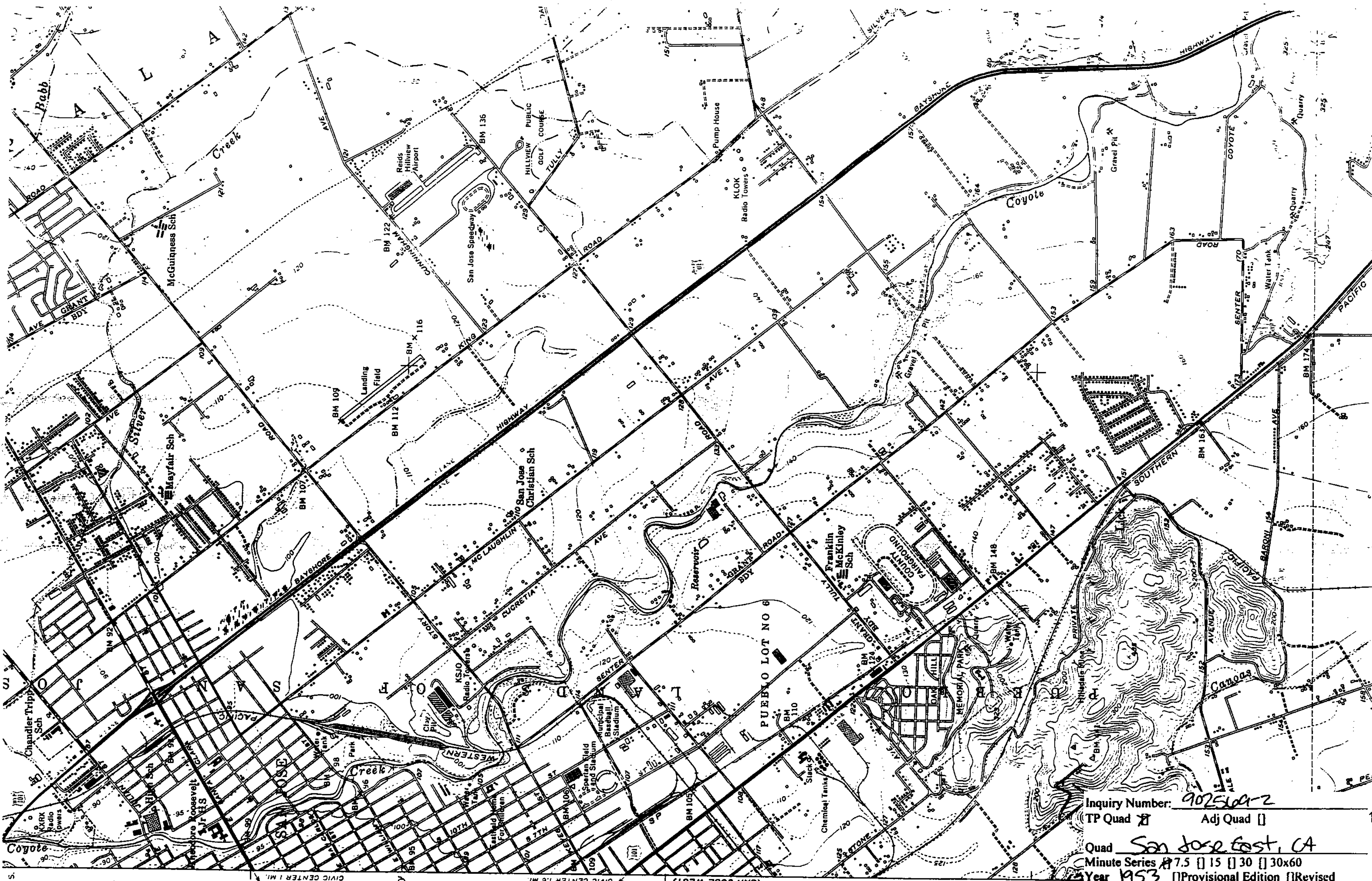
Minute Series [] 7.5 [x] 15 [] 30 [] 30x60

Year 1899 []Provisional Edition []Revised

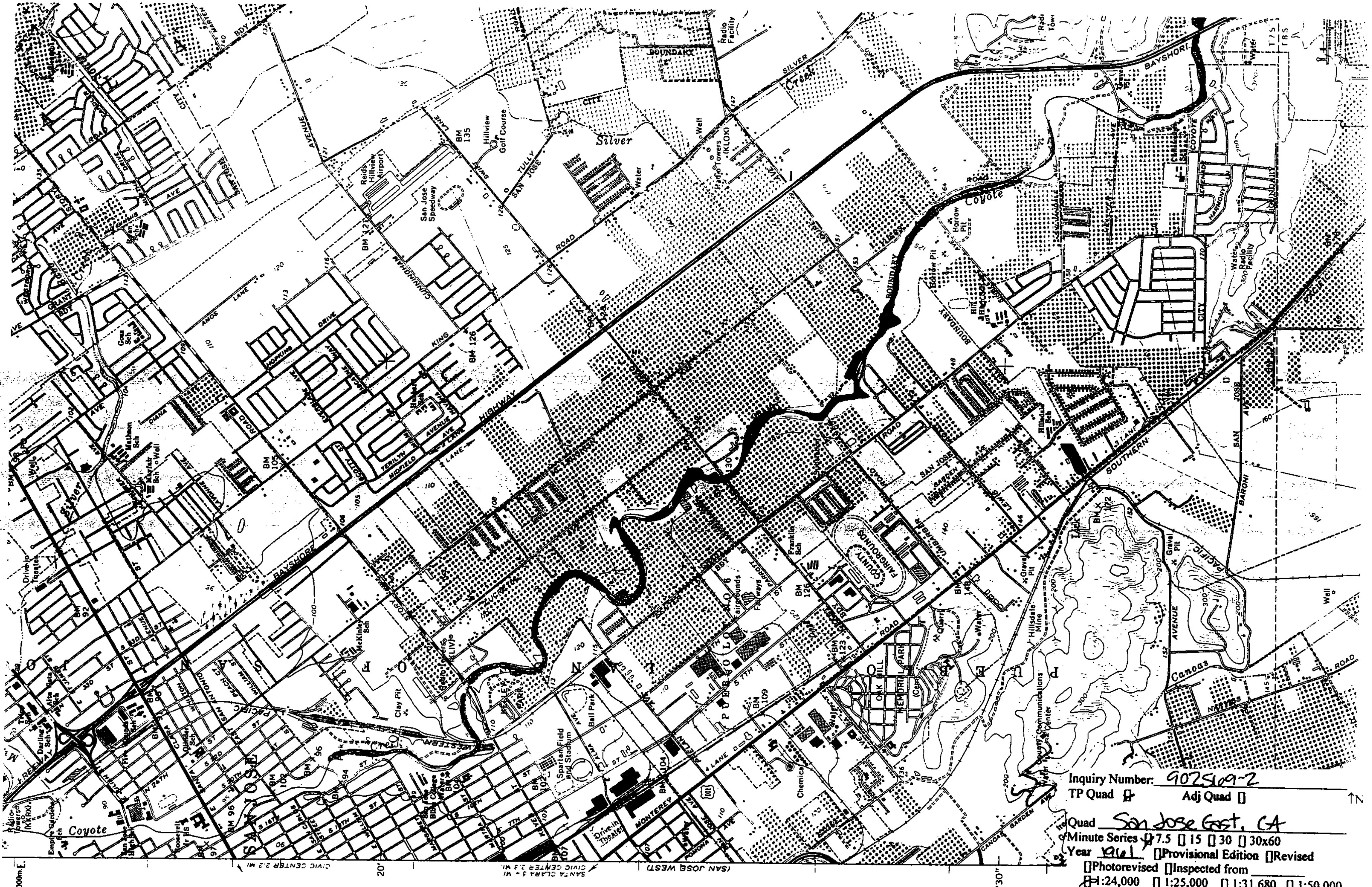
[]Photorevised []Inspected from ______

[] 1:24,000 [] 1:25,000 [] 1:31,680 [] 1:50,000

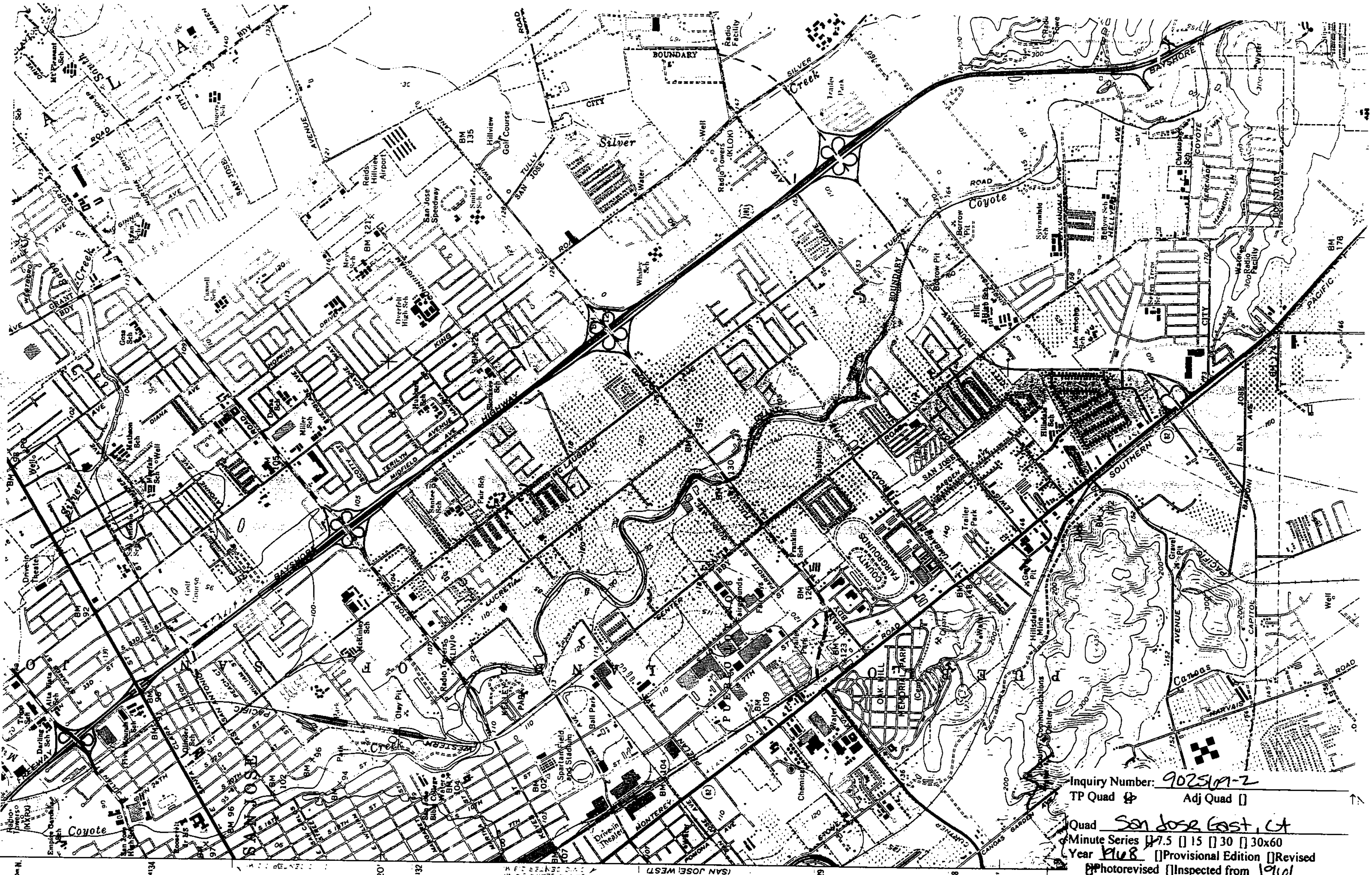
[x] 1:62,500 [] 1:100,000 [] 1:125,000



Inquiry Number: 902569-2
TP Quad [X] Adj Quad []
Quad San Jose East, CA
Minute Series [X] 7.5 [] 15 [] 30 [] 30x60
Year 1953 []Provisional Edition []Revised
[]Photorevised []Inspected from
[X] 1:24,000 [] 1:25,000 [] 1:31,680 [] 1:50,000
[] 1:62,500 [] 1:100,000 [] 1:125,000



Inquiry Number: 9025169-2
TP Quad ☒ Adj Quad []
Quad San Jose East, CA
Minute Series ☒ 7.5 [] 15 [] 30 [] 30x60
Year 1961 []Provisional Edition []Revised
[]Photorevised []Inspected from ____
☒ 1:24,000 [] 1:25,000 [] 1:31,680 [] 1:50,000
[] 1:62,500 [] 1:100,000 [] 1:125,000



Inquiry Number: 9025109-2

TP Quad [x] Adj Quad []

Quad San Jose East, CA

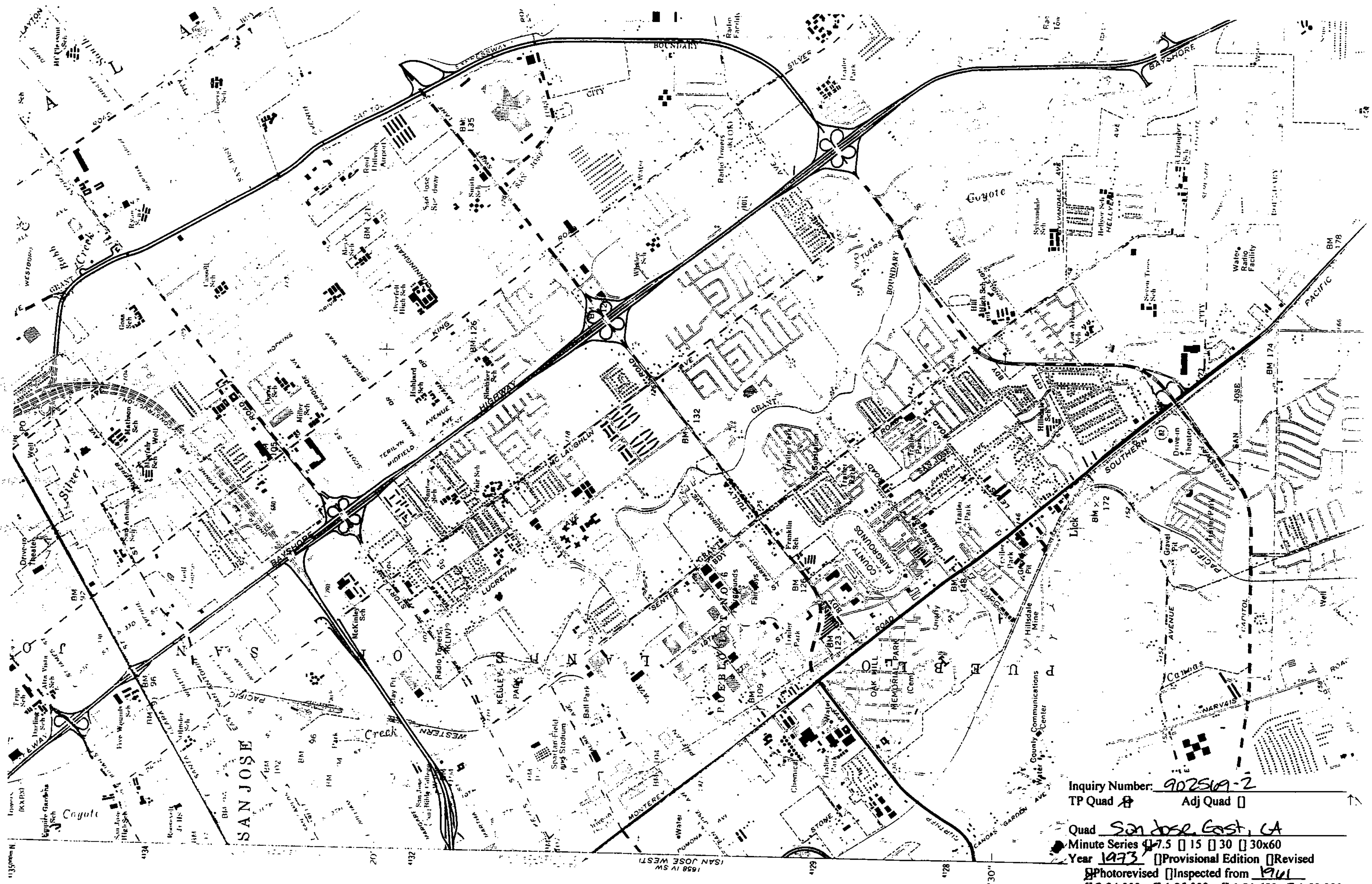
Minute Series [x] 7.5 [] 15 [] 30 [] 30x60

Year 1968 []Provisional Edition []Revised

[x]Photorevised []Inspected from 1961

[x] 1:24,000 [] 1:25,000 [] 1:31,680 [] 1:50,000

[] 1:62,500 [] 1:100,000 [] 1:125,000



Inquiry Number: 902569-2

TP Quad [X] Adj Quad []

Quad San Jose East, CA

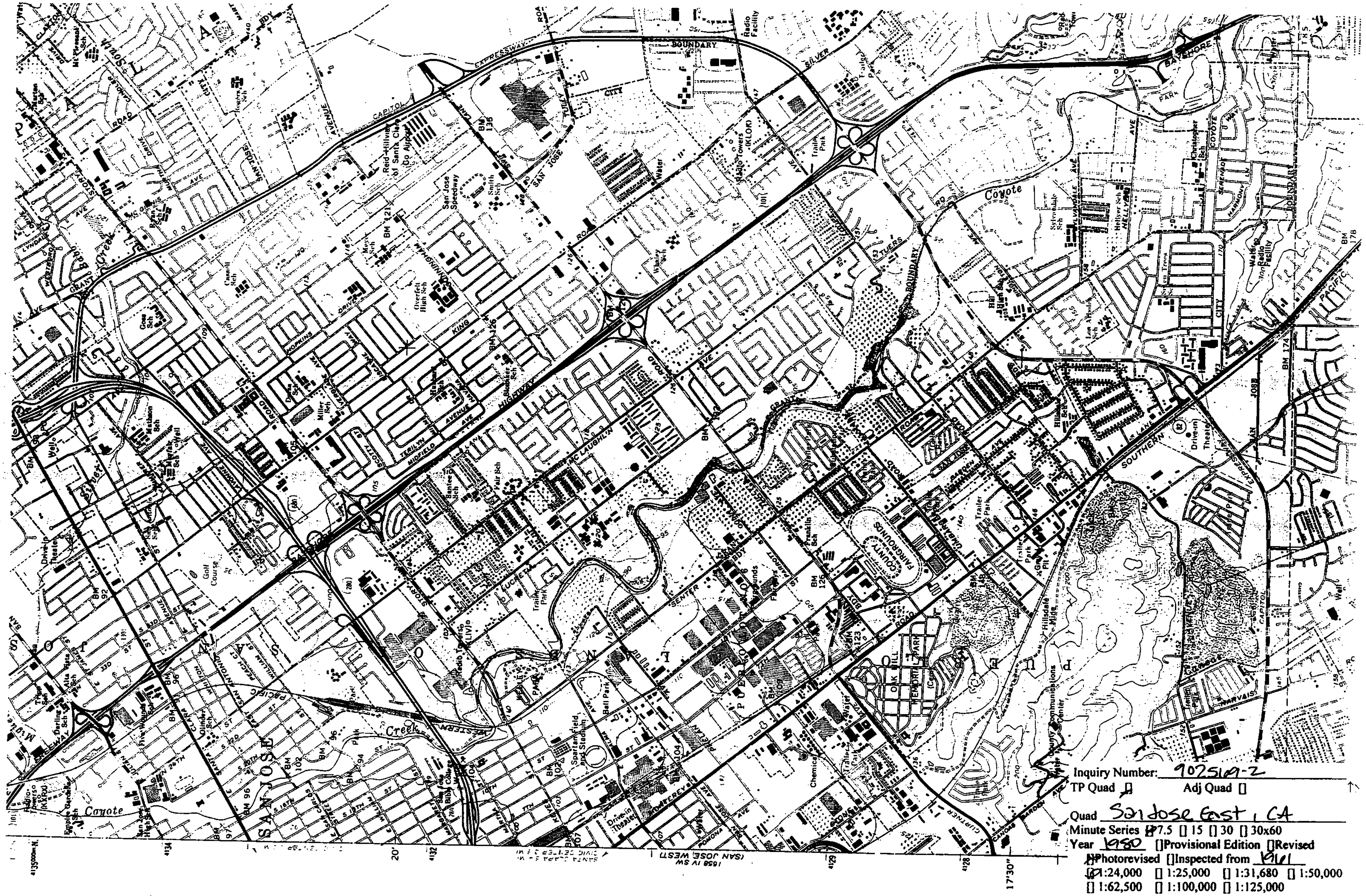
Minute Series [X] 7.5 [] 15 [] 30 [] 30x60

Year 1973 []Provisional Edition []Revised

[X]Photorevised []Inspected from 1961

[X] 1:24,000 [] 1:25,000 [] 1:31,680 [] 1:50,000

[] 1:62,500 [] 1:100,000 [] 1:125,000



Inquiry Number: 902569-2
TP Quad [✓] Adj Quad []
Quad San Jose East, CA
Minute Series [✓]7.5 [] 15 [] 30 [] 30x60
Year 1980 []Provisional Edition []Revised
[✓]Photorevised []Inspected from 1961
[✓]1:24,000 [] 1:25,000 [] 1:31,680 [] 1:50,000
[] 1:62,500 [] 1:100,000 [] 1:125,000

Appendix H

Relevant Land Use Plans and Policies

Introduction

The following discussion summarizes the relevant land use plans and policies pertaining to existing land uses in the Capitol Expressway Corridor. Each of the proposed alternatives was evaluated for its consistency with the following plans and policies in Section 4.13, *Land Use*.

San Jose 2020 General Plan and Land Use/Transportation Map

The City of San Jose (City) governs land use decisions within the Capitol Expressway Corridor. The San Jose 2020 General Plan (City of San Jose 1994) is the framework for guiding land use decisions through goals, policies, and land use designations. The general plan represents the City's assessment of the amount, type, and phasing of development needed to achieve the City's social, economic, and environmental goals. The general plan is based on seven major strategies that support compact, infill, and transit-oriented development (TOD).

The land use/transportation map of the general plan depicts the adopted land use designations within the City's sphere of influence. These designations dictate the general types and intensities of new development and redevelopment at each location. In San Jose, general plan land use designations take precedence over zoning designations when inconsistencies occur (City of San Jose 2001). In addition, any county land that may fall within the City's sphere of influence would be subject to conformance with City policies (Prevetti pers. comm.). Land uses along the corridor are shown in Table H-1.

The general plan has identified locations of TOD corridors, including Capitol Expressway from Interstate 680 to U.S. Highway 101. These corridors are "areas generally suitable for higher residential densities, for more intensive non-residential uses, and for mixed uses; these corridors are centered along existing or planned light rail transit (LRT) lines and/or major bus routes." According to the general plan, the general purpose of the TOD corridor is to

> acknowledge the natural tendency toward development intensification in prime urban areas and to channel that development into areas where the intensified uses and public transit will be mutually supportive and will help create vibrant pedestrian oriented neighborhoods.

Relevant Policies

Special Strategy Areas, Transit-Oriented Development Section

Development inconsistent with the objectives of the Transit-Oriented Development Corridors, for instance low intensity uses (e.g. one and two story office buildings), low density residential, and auto related uses (e.g. surface parking lots, automobile sales lots etc.), should be avoided particularly within 2000' of an existing or planned LRT station.

City of San Jose Zoning Ordinance and Map

The zoning ordinance is intended to "guide, control, and regulate future growth and development in the City in a sound and orderly manner, and to promote achievement of the goals and purposes of the San Jose General Plan" (City of San Jose 2001, 2003). The ordinance regulates development standards for properties, including permitted uses. This ordinance is complemented by the zoning maps, which designate various types of land use zoning throughout the City. Zoning designations along the project corridor are summarized in Table H-1.

Communications Hill Specific Plan

The Communications Hill Specific Plan (City of San Jose 1992) outlines the goals and policies for the development of a new 500-acre urbanized residential neighborhood. The southeast portion of the community borders Capitol Expressway. This portion of the planned community is designated as combined industrial/commercial.

Relevant Policies

Transportation Element

Encourage mass transit use by residents through easy access to Light Rail Transit and CalTrain stations.

East Valley/680 and West Evergreen Community Improvement Plans

Community improvement plans are being developed as part of the City's Strong Neighborhoods Initiative. The initiative, a partnership between the City, San Jose Redevelopment Agency, and local neighborhoods, was formed to focus public and private resources on creating high quality neighborhoods. The plans contain goals and action items for making quality of life improvements. Two of these planning areas fall within the project area: the East Valley/680 and West Evergreen Neighborhoods. Both of the plans are currently in draft form but could be approved before the completion of the LRT line.

Relevant Policies

East Valley—Objective of Goal 2

Improve connections within the area so community members can safely and easily travel to work, school, home, and leisure activity destinations.

East Valley—High Priority Improvement Item 5

Soundwalls on Capitol Avenue and Capitol Expressway.

West Evergreen—Action 15

Support the completion of a pedestrian overpass across Capitol Expressway as part of the light rail transit expansion.

Valley Transportation Plan 2020

Valley Transportation Plan 2020 (VTP 2020) (Santa Clara Valley Transportation Authority 2000) was adopted in December 2000 and provides policies and programs for roadways, transit, intelligent transportation systems, bicycle and pedestrian facilities, and land use for Santa Clara County. The plan discusses goals, services, programs, resources, and implementation of transportation improvements. Land use approvals and regulations are authorized by local government. Implementation of Santa Clara Valley Transportation Authority's transportation plans will influence land use densities and patterns. To address this influence, VTP 2020 includes programs to coordinate with local governments regarding land use and transportation decisions.

Relevant Policies

Land Use and Transportation Integration Section

- **Goal:** To provide transportation investments and services that support the maintenance and creation of vibrant urban communities and protect Santa Clara County's natural resources.
  - **Objective:** Concentrate development in cores and community corridors to support alternate modes and maximize productivity of transit investments.
  - **Objective:** Design and manage the transportation system to support concentrated development in selected locations.
  - **Objective:** Use land efficiently and support concentrated development with strategies including: land use intensification and reuse, transportation investments that minimize right-of-way requirements, and limiting land area dedicated to surface parking.

Santa Clara County Airports Master Plan

The Santa Clara County Airports Master Plan (Santa Clara County Airports Department 1982) is used as the basis for future development of Palo Alto, Reid-Hillview, and South County Airports. Reid-Hillview Airport is adjacent to a portion of the Capitol Expressway Corridor. The master plan includes airport activity forecasts, an impact management program, financial characteristics, and an individual examination of each of the three airports. An updated master plan is anticipated to be completed in 2003 (Bennett pers. comm.).

References Cited

Bennett, Jerome. Director, Santa Clara County Airports, County of Santa Clara, San Jose, CA. November 11, 2001—telephone conversation.

City of San Jose. 1992. *Communications Hill specific plan.* San Jose, CA.

———. 1994. *San Jose 2020 general plan.* San Jose, CA.

———. 2001. *Title 20, San Jose municipal code: zoning ordinance.* San Jose, CA.

———. 2003. *Zoning maps: middle section.* Available at URL: <http://www.ci.san-jose.ca.us/planning/sjplan/zonemap/images/maps/MidZone.html.> Last revised: February 18, 2003. Accessed: February 27, 2003.

Prevetti, Laurel. Acting deputy director, Planning Services Division, City of San Jose, San Jose, CA. October 24, 2001—interview.

Santa Clara County Airports Department. 1982. *Airports master plan.* San Jose, CA.

Santa Clara Valley Transportation Authority. 2000. *Valley transportation plan 2020.* December 2000. San Jose, CA.

Table H-1. City of San Jose General Plan Land Use and Zoning Designations

Segment	Existing Land Use	General Plan Land Use Designation	Zoning Designation
Capitol Avenue			
1a	Commercial: single-family residential houses converted	General Commercial	Commercial General (CG)
1b	Commercial: strip mall and shops	General Commercial	Agricultural/Planned Development (A [PD])
1c	Residential: apartments, family, and senior	Transit Corridor Residential	Commercial General (CG), Agricultural/Planned Development (A [PD])
1d	Residential: single-family, one-story	Medium Low Density Residential	Two-Family Residential (R-2)
1e	Commercial: small shopping center	Office	Agricultural/Planned Development (A [PD])
1f	Residential: single-family, one-story	Medium Density Residential	Single-family Residential (R-1-8)
1g	Residential: apartments	Medium Density Residential	Agricultural/Planned Development (A [PD])
1h	Residential: single-family, one-story	Medium Low Density Residential	Single-family Residential (R-1-8)
Capitol Expressway to Story Road			
2a	Residential: single-family, one-story	Medium Low Density Residential	Single-family Residential (R-1-8)
2b	Commercial: gas station, mini-mart	Medium Low Density Residential	Commercial Pedestrian (CP)
2c	Commercial	Medium Low Density Residential	Single-family Residential (R-1-8)
2d	Residential: single-family, one-story	Medium Low Density Residential	Single-family Residential (R-1-8)
2e	Commercial: strip mall, laundromat, ethnic restaurants	Medium Low Density Residential	Single-family Residential (R-1-8)
2f	Public: church	Medium Low Density Residential	Single-family Residential (R-1-8)
2g	Vacant: empty lot	Medium Low Density Residential	Single-family Residential (R-1-8)
2h	Commercial	General Commercial	Commercial Neighborhood (CN)
Story Road to Ocala Avenue			
3a	Commercial: auto retail	General Commercial	Commercial Pedestrian (CP), Agricultural/Planned Development (A [PD])
3b	Residential: single-family	Medium Low Density Residential	Single-family Residential (R-1-8)/Planned Development (PD)
3c	Vacant: abandoned building on property	High Density Residential	Commercial Pedestrian (CP)
3d	Residential: apartments, two-story	High Density Residential	Single-family Residential (R-1-8)/Planned Development (PD),

Segment	Existing Land Use	General Plan Land Use Designation	Zoning Designation
			Multi-Family Residential (R-M)/ Planned Development (PD)
3e	Residential: single-family, one-story	Medium Low Density Residential	Multi-Family Residential (R-M)
3f	Commercial: auto retail	Medium Low Density Residential	Commercial Pedestrian (CP)
3g	Residential: apartments	High Density Residential	Multi-Family Residential (R-M)
3h	Residential: single-family	Medium Low Density Residential Medium Density Residential	Single-family Residential (R-1-8), Multi-Family Residential (R-M)
Ocala Avenue to Tully Road			
4a	Public: Reid-Hillview Airport	Public/Quasi Public	Industrial Park (IP)
4b	Vacant: empty lot	Public/Quasi Public	Industrial Park (IP)
4c	Residential: single-family, (one and) two-story	Medium Low Density Residential, Medium Density Residential	Agricultural/Planned Development (A [PD]), Two-Family Residential (R-2)
4d	Public: Raging Waters Park	Public Park/Open Space	Agricultural (A)
4e	Vacant: empty lot	Neighborhood/Community Commercial	Commercial Pedestrian (CP)
Tully Road to Quimby Road			
5a	Commercial: Eastridge Mall, gas station, commercial building, VTA transfer station	Regional Commercial, Industrial Park	Agricultural (A), Commercial General (CG), Agricultural/Planned Development (A [PD])
5b	Commercial: new shopping center	Neighborhood/Community Commercial	Commercial Pedestrian (CP)
5c	Vacant: creek and emergent vegetation	Public Park/Open Space	None
Quimby Road to Nieman Boulevard			
6a	Commercial: public storage	Industrial Park	Agricultural/Planned Development (A [PD])
6b	Commercial/Light Industrial, Public: Vietnamese Cultural Center, School of Technology	Industrial Park	Agricultural/Planned Development (A [PD])
6c	Vacant: empty lot	Mixed Use Overlay, Industrial Park, Medium Low Density Residential	Single-family Residential (R-1-8)
6d	Residential: mobile home park	Industrial Park	Single-family Residential (R-1-8)/Planned Development (PD)

Segment	Existing Land Use	General Plan Land Use Designation	Zoning Designation
6e	Vacant: creek	Industrial Park, Public Park/Open Space	Agricultural (A)
6f	Residential: mobile home park	Medium Low Density Residential	Agricultural/Planned Development (A [PD])
6g	Residential: mobile home park	Medium High Density Residential	Agricultural/Planned Development (A [PD])
Nieman Boulevard to McLaughlin Avenue			
7a	Residential: mobile home park	Medium Low Density Residential	Single-family Residential (R-1-8)/Planned Development (PD)
7b	Commercial: restaurants, grocery store, office supplies	Neighborhood/Community Commercial General Commercial	Commercial Pedestrian (CP), Agricultural/Planned Development (A [PD]), Light Industrial/Planned Development (LI [PD])
7c	Residential: mobile home park	Medium Low Density Residential Medium Density Residential	Single-family Residential (R-1-8)/Planned Development (PD), Agricultural/Planned Development (A [PD])
7d	Residential: single-family	Medium Low Density Residential	Single-family Residential (R-1-8)/Planned Development (PD), Single-family Residential (R-1-8)
7e	Residential: apartments/duplexes	Medium High Density Residential	Agricultural/Planned Development (A [PD])
7f	Residential: duplexes	Medium High Density Residential	Agricultural/Planned Development (A [PD])
7g	Commercial: restaurant	General Commercial	Agricultural/Planned Development (A [PD])
7h	Residential: single-family	Medium Low Density Residential Medium Density Residential	Agricultural/Planned Development (A [PD]), Single-family Residential (R-1-8 [CL])
7i	Commercial: strip mall	General Commercial	Agricultural/Planned Development (A [PD])
7j	Residential: condos	Medium High Density Residential	Single-family Residential (R-1-8)/Planned Development (PD)
7k	Residential: mobile home park	Medium Density Residential	Residential: Mobile Home (R-MH)
7l	Residential: single-family	Medium Low Density Residential	Single-family Residential (R-1-8)
McLaughlin Avenue to Senter Road			
8a	Commercial: shopping center	Neighborhood/Community Commercial	Agricultural/Planned Development (A [PD])
8b	Public (Park): golf driving range, Coyote Creek County Park	Public Park/Open Space	Single-family Residential (R-1-8), Agricultural (A)

Segment	Existing Land Use	General Plan Land Use Designation	Zoning Designation
	Park		Agricultural (A)
8c	Residential: single-family	Medium Density Residential	Two-Family Residential (R-2)
8d	Commercial: gas station	Neighborhood/Community Commercial	Commercial Pedestrian (CP), Commercial Neighborhood (CN)
8e	Residential: single-family	Medium Low Density Residential	Single-family Residential (R-1-8)
8f	Public (Park): Coyote Creek County Park	Public Park/Open Space	Agricultural (A), Single-family Residential (R-1-8 and R-1-1)
8g	Residential: apartments	Medium Low Density Residential	Multi-Family Residential (R-M)
8h	Public: Andrew P. Hill High School	Public/Quasi Public	Single-family Residential (R-1-8)
Senter Road to Monterey Highway			
9a	Commercial: gas, fast food	Medium High Density Residential	Commercial Pedestrian (CP), Single-family Residential (R-1-8)/Planned Development (PD)
9b	Residential: single-family, one-story	Medium Low Density Residential	Single-family Residential (R-1-8)/Planned Development (PD), Single-family Residential (R-1-8) None
9c	Residential: apartments	Medium High Density Residential General Commercial	Multi-Family Residential (R-M), Commercial Neighborhood (CN)
9d	Commercial: strip mall	General Commercial	Commercial Pedestrian (CP)
9e	Public: church	Public/Quasi Public	Agricultural (A)
9f	Vacant lot: empty	Public/Quasi Public	Agricultural/Planned Development (A [PD])
9g	Residential: apartments	Medium High Density Residential	Multi-Family Residential (R-M [CL])
9h	Public/Park: Louis Solari Park	Public Park/Open Space	Single-family Residential (R-1-8)
9i	Commercial: strip mall, ethnic restaurants	Neighborhood/Community Commercial General Commercial	Commercial General (CG)

Segment	Existing Land Use	General Plan Land Use Designation	Zoning Designation
9j	Residential: apartments	Medium High Density Residential High Density Residential Neighborhood/Community Commercial	Multi-Family Residential/Planned Development (R-M [PD]), Commercial General (CG), Light Industrial (LI)
Monterey Highway to Vistapark Drive			
10a	Commercial: Capitol Theater Drive-In, flea market, gas station, public storage	Communications Hill Planned Community Combined Industrial/Commercial	Agricultural/Planned Development (A [PD]), Commercial Office/Planned Development (CO [PD])
10b	Commercial: golf driving range	Private Recreation	Agricultural/Planned Development (A [PD])
10c	Residential: apartments	Medium High Density Residential	Agricultural/Planned Development (A [PD])
10d	Commercial: gas station, public storage	Neighborhood/Community Commercial	Light Industrial, Agricultural/Planned Development (A [PD])
10e	Residential: apartments	Medium High Density Residential	Multi-Family Residential/Planned Development (R-M [PD]), Single-family Residential (R-1-8)/Planned Development (PD),
Vistapark Drive to State Route 87			
11a	Residential: apartments, three-story	General Commercial	Agricultural/Planned Development (A [PD])
11b	Commercial: shopping center	General Commercial	Agricultural/Planned Development (A [PD])
11c	Residential: apartments, three-story	General Commercial	Agricultural/Planned Development (A [PD])
11d	Commercial: Home Depot	General Commercial	Agricultural/Planned Development (A [PD])
11e	Commercial: day care	Industrial Park	Agricultural/Planned Development (A [PD])
11f	Public: VTA parking lot	Industrial Park	Agricultural/Planned Development (A [PD])
11g	Commercial: strip mall	General Commercial	Commercial Pedestrian (CP)
11h	Residential: single-family and mobile home parks	Medium Low Density Residential Medium Density Residential Medium High Density Residential	Single-family Residential (R-1-8)
11i	Public: VTA parking lot	Medium High Density Residential	Agricultural/Planned Development (A [PD])

Appendix I

Noise and Vibration Technical Report

NOISE AND VIBRATION IMPACT ASSESSMENT FOR THE CAPITOL EXPRESSWAY CORRIDOR

DRAFT

HMMH Report No. 298210-01

September 2003

Prepared for:

Jones & Stokes Associates, Inc.

NOISE AND VIBRATION IMPACT ASSESSMENT FOR THE CAPITOL EXPRESSWAY CORRIDOR

DRAFT

HMMH Report No. 298210-01

September 2003

Prepared for:

Jones & Stokes Associates, Inc.

Prepared by:

Lance D. Meister

Katherine S. Baus

Harris Miller Miller & Hanson Inc.
15 New England Executive Park
Burlington, MA 01803

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION AND SUMMARY

This report presents a noise and vibration impact assessment for the Capitol Expressway Corridor Light Rail Transit (LRT) Line. This assessment was carried out for the Santa Clara Valley Transportation Authority (VTA) by Harris Miller Miller & Hanson Inc. (HMMH) under subcontract to Jones and Stokes, Inc. The objective of the study was to assess the potential noise and vibration impacts of the planned LRT operations at community locations adjacent to the rail corridor.

The background and results of the assessment are described below. Section 2 provides a discussion of environmental noise and vibration basics, and Section 3 describes the existing noise and vibration conditions and measurement results. The criteria used to assess noise and vibration impact are presented in Section 4, and projections of future noise and vibration conditions are described in Section 5. Section 6 summarizes the impact assessment, and potential mitigation measures are outlined in Section 7. Appendix A includes measurement site photographs, and detailed noise and vibration data are provided in Appendix B and Appendix C, respectively.

1.1 Background

Since 1985, VTA has been operating light rail service within Santa Clara County. The system is 30.5 miles long and has 46 stations. VTA is now proposing to extend the light rail system in the Downtown East Valley area of the City of San Jose.

Planning for a light rail alignment along Capitol Expressway has been ongoing since the mid-1990s. In 1995, Barton-Aschman Associates and DeLeuw, Cather & Company completed the *Capitol Corridor LRT Extension Project* report for what was then known as the Santa Clara County Transportation Agency. The report provided an initial definition of the physical and operational aspects of an extension of the light rail system in the Capitol Corridor. The proposed alignment for the extension began at Hostetter Road and proceeded to the existing transit center at Eastridge Mall (Eastridge Transit Center).

Over time, the portion of the light rail alignment between Wilbur Avenue and the Eastridge Transit Center was removed from the Capitol Avenue light rail project to form the basis of a new, separate, light rail corridor alignment. The Capitol Expressway/Evergreen Corridor would cover an 8-mile alignment from Wilbur Avenue to Highway 87, linking the Capitol Avenue and Guadalupe light rail lines via a connection at the Eastridge Transit Center. In 2000, VTA completed a Major Investment Study (MIS) that identified transportation needs within the community and developed a major transit investment plan for the corridor.

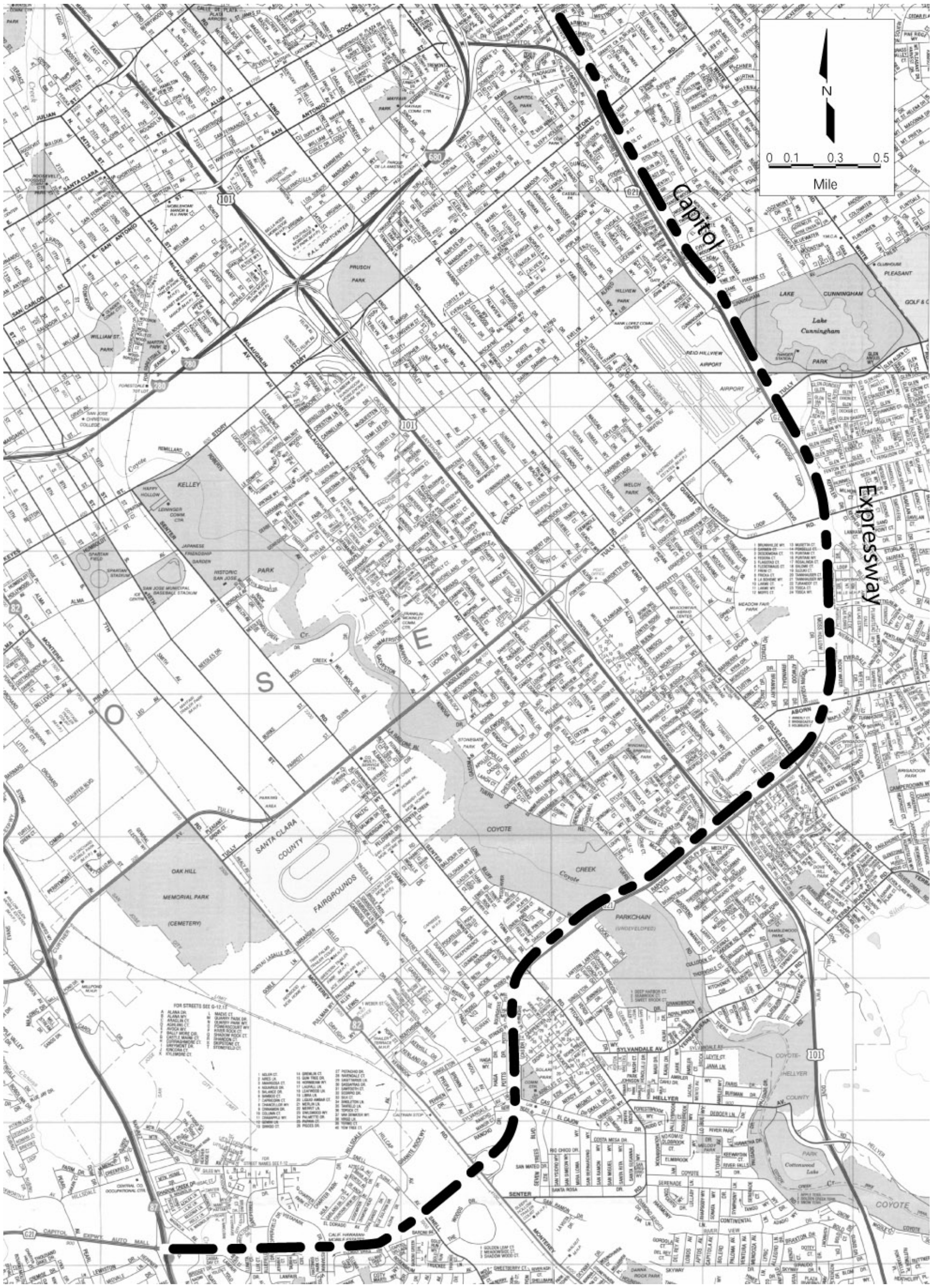


Figure 1. Capitol Expressway LRT Alignment

1.2 Summary of Results

1.2.1 Noise Impact Assessment

The results of the noise analysis indicate that the existing noise environment at locations near the project alignment is dominated by noise from motor vehicle traffic on the Capitol Expressway, general aviation aircraft traffic from Reid-Hillview Airport, commercial aircraft traffic from San Jose International Airport, and general community noise. Based on Federal Transit Administration (FTA) criteria, it is predicted that without mitigation, the proposed LRT operations for the light rail alternative will cause noise impact at a total of 27 residences along the corridor. In addition, Table 1 lists the noise impacts associated with various light rail alternative options.

A number of mitigation measures can be considered for the noise impacts. The most likely method of noise mitigation is noise barriers. In addition, sound insulation treatments may be applied to buildings in areas where barriers would not be effective. These areas are primarily located near grade crossings, where additional noise impact is caused by train horns and grade-crossing bells. The selection of mitigation will depend on more detailed analysis during final design, including input from abutting neighbors. VTA's policy is to provide noise mitigation for severe impacts. A summary of the recommended noise mitigation is provided in Chapter 7.

Table 1. Summary of Noise Impacts

Option	Number of Impacts	
	Impact	Severe
Light Rail Alternative	27	0
Alum Rock Avenue to Story Road		
Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option	5	0
Story Road to Eastridge Transit Center		
Story Road to Ocala Avenue (Tunnel/Aerial Option)	0	0
North of Eastridge Transit Center Tunnel with At-Grade Stn Option	0	0
North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option)	0	0
North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option)	0	0
Eastridge Transit Center to Aborn Road		
South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option)	0	0
South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option	4	0
South of Eastridge Transit Center Side-Running Trench Option	0	0
South of Eastridge Transit Center Side-Running At-Grade/Aerial Option	0	0
Quimby Road to Silver Creek Road	4	0
Quimby Road to Aborn Road	118	4
Aborn Road to Silver Creek Road		
Aerial Crossing at Aborn Road Option	10	0
Silver Creek Road to Coyote Creek		
Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101	0	0
U.S. 101 to Tuers Road	7	0
Coyote Creek to Highway 87		
At-grade, median-running between Coyote Creek and State Route 87	4	0

1.2.2 Vibration Impact Assessment

There are no significant sources of existing vibration along the alignment. Based on Federal Transit Administration (FTA) criteria, it is predicted that without mitigation, the LRT operations for the base alignment will cause vibration impact at a total of 187 residences along the corridor and 51 with the inclusion of shredded tires as a project feature where the vibration levels exceed the impact criterion. In addition, Table 2 lists the vibration and ground-borne noise impacts associated with various alternatives to the base alignment. All of these impacts are related to annoyance effects and not to building damage effects.

There are a number of options available for the mitigation of vibration impacts. The most common method is ballast mats. Ballast mats consist of pads made of rubberlike material placed on an asphalt or concrete base with the normal ballast, ties and rail on top. Because vibration reduction provided by ballast mats is dependent on the frequency content of vibration, they are not always effective at lower frequencies. Relocation of crossovers away from vibration-sensitive receptors would also reduce the vibration impact. Mitigation options will be evaluated in more detail during final design, and the most appropriate measures will be selected based on feasibility, cost effectiveness, and community input. A discussion of the vibration mitigation is included in Chapter 7.

Table 2. Summary of Vibration Impacts

Option	Ground-Borne Vibration Impacts	Ground-Borne Noise Impacts
Light Rail Alternative	187 (51)[1]	0
Alum Rock Avenue to Story Road		
Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option	8 (0)	14 (0)
Story Road to Eastridge Transit Center		
North of Eastridge Transit Center Tunnel with At-Grade Stn Option	5 (0)	0
North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option)	6 (0)	0
North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option)	4 (0)	0
Eastridge Transit Center to Aborn Road		
South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option)	8 (8)	0
South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option	107 (24)	66 (25)
South of Eastridge Transit Center Side-Running Trench Option	10 (0)	0
South of Eastridge Transit Center Side-Running At-Grade/Aerial Option	119 (26)	120 (60)
Quimby Road to Aborn Road	0	0
Quimby Road to Aborn Road	4 (0)	0
Aborn Road to Silver Creek Road		
Aerial Crossing at Aborn Road Option	0	0
Silver Creek Road to Coyote Creek		
Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101	0	0
U.S. 101 to Tuers Road	0	0
Coyote Creek to Highway 87		
At-grade, median-running between Coyote Creek and State Route 87	22 (4)	0
1. The numbers of vibration and ground-born noise impacts in parenthesis assume that shredded tires are a project feature where the vibration levels and ground-borne noise levels exceed the impact criteria.		

2. ENVIRONMENTAL NOISE AND VIBRATION BASICS

2.1 Noise Fundamentals and Descriptors

Noise is typically defined as unwanted or undesirable sound, where sound is characterized by small air pressure fluctuations above and below the atmospheric pressure. The basic parameters of environmental noise that affect human subjective response are (1) intensity or level, (2) frequency content and (3) variation with time. The first parameter is determined by how greatly the sound pressure fluctuates above and below the atmospheric pressure, and is expressed on a compressed scale in units of decibels. By using this scale, the range of normally encountered sound can be expressed by values between 0 and 120 decibels. On a relative basis, a 3-decibel change in sound level generally represents a barely-noticeable change outside the laboratory, whereas a 10-decibel change in sound level would typically be perceived as a doubling (or halving) in the loudness of a sound.

The frequency content of noise is related to the tone or pitch of the sound, and is expressed based on the rate of the air pressure fluctuation in terms of cycles per second (called Hertz and abbreviated as Hz). The human ear can detect a wide range of frequencies from about 20 Hz to 17,000 Hz. However, because the sensitivity of human hearing varies with frequency, the A-weighting system is commonly used when measuring environmental noise to provide a single number descriptor that correlates with human subjective response. Sound levels measured using this weighting system are called "A-weighted" sound levels, and are expressed in decibel notation as "dBA." The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise. To indicate what various noise levels represent, Figure 2 provides a comparison of representative noise levels for common noise sources and environments. While the extremes of noise are shown to range from 0 dBA (approximate threshold of hearing) to 120 dBA (jet aircraft at 500 feet), most commonly encountered noise levels are shown to fall within the range of 40 dBA to 90 dBA.

Because environmental noise fluctuates from moment to moment, it is common practice to condense all of this information into a single number, called the "equivalent" sound level (Leq). Leq can be thought of as the steady sound level that represents the same sound energy as the varying sound levels over a specified time period (typically 1 hour or 24 hours). Often the Leq values over a 24-hour period are used to calculate cumulative noise exposure in terms of the Day-Night Sound Level (Ldn). Ldn is the A-weighed Leq for a 24-hour period with an added 10-decibel penalty imposed on noise that occurs during the nighttime hours (between 10 P.M. and 7 A.M.). Many surveys have shown that Ldn is well correlated with human annoyance, and therefore this descriptor is widely used for environmental noise impact assessment. Figure 3 provides examples of typical noise environments and criteria in terms of Ldn. While the extremes of Ldn are shown to range from 35 dBA in a wilderness environment to 85 dBA in noisy urban environments, Ldn is generally found to range between 55 dBA and 75 dBA in most communities. As shown in Figure 3, this spans the range between an "ideal" residential environment and the threshold for an unacceptable residential environment according to U.S. Federal agency criteria.

Environmental noise can also be viewed on a statistical basis using percentile sound levels, Ln, which refer to the sound level exceeded "n" percent of the time. For example, the sound level exceeded 90 percent of the time, denoted as L90, is often taken to represent the "background" noise in a community. Similarly, the sound level exceeded 33 percent of the time (L33) is often used to approximate the Leq in the absence of loud, intermittent sources such as aircraft and trains.

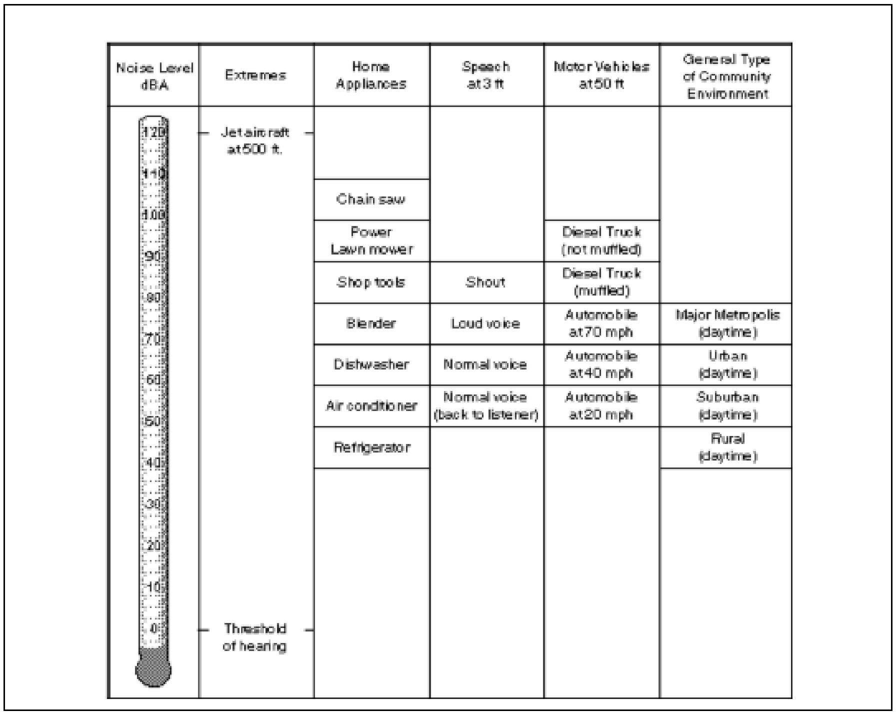


Figure 2. Comparison of Various Noise Levels

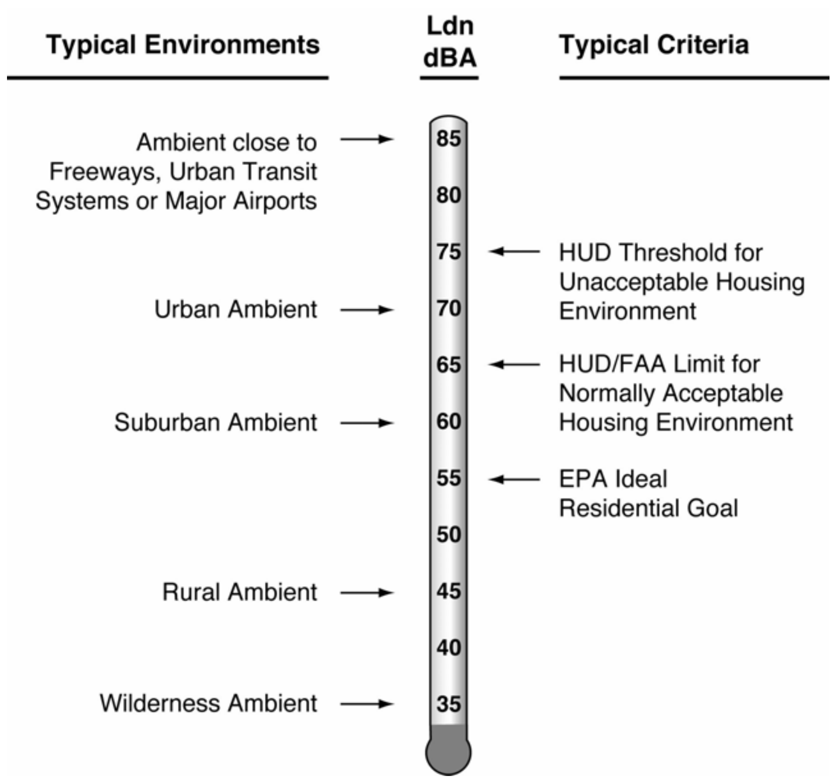


Figure 3. Examples of Typical Outdoor Noise Exposure

2.2 Vibration Fundamentals and Descriptors

Ground-borne vibration is the oscillatory motion of the ground about some equilibrium position, which can be described in terms of displacement, velocity or acceleration. Displacement refers to the distance an object moves away from its equilibrium position, velocity refers to the rate of change in displacement or the speed of this motion, and acceleration refers to the time rate of change in the velocity of the object. At any given frequency of oscillation, vibration displacement, velocity and acceleration are related by a constant factor. However, vibrations are often more complex in the environment, including components at many different frequencies. Therefore, the relationship between the overall vibration levels in terms of these descriptors depends on the frequency content of the vibration energy.

Although displacement is easier to understand than velocity or acceleration, it is rarely used for describing ground-borne vibration. One reason for this is that most sensors used for measuring ground-borne vibration are designed to provide output signals proportional to either velocity or acceleration. Even more important, the response of humans, buildings and equipment to vibration is more accurately described using velocity or acceleration. Because sensitivity to vibration has typically been found to correspond to a constant level of vibration velocity amplitude within the low frequency range of most concern for environmental vibration (roughly 5-100 Hz), vibration velocity is used in this analysis as the primary measure to evaluate the effects of vibration.

There are several different measures used to quantify vibration amplitude. One of the most common is the peak particle velocity (PPV), defined as the maximum instantaneous positive or negative peak of the vibratory motion. PPV is often used in monitoring blasting vibration since it is related to the stresses experienced by building components. Although PPV is appropriate for evaluating the potential for building damage, it is less suitable for evaluating human response, which is better related to an average vibration amplitude. Because the net average of a vibration signal about its equilibrium position is zero, the root mean square (rms) amplitude is often used to describe the "smoothed" vibration amplitude. The rms amplitude is defined as the average of the squared amplitude of the signal, and is typically evaluated over a one-second period of time.

Although vibration velocity is normally described in units of inches per second in the USA, the decibel notation, which acts to compress the range of numbers required to describe vibration, can also be used. In this notation, the vibration magnitude can be expressed in terms of velocity level, in decibels, defined as follows:

$$L_v = 20\log_{10}(v/v_{ref}), \text{ VdB}$$

where: v = rms velocity, in./sec

v_{ref} = $1\text{x}10^{-6}$ in./sec

Thus, the descriptor used for this assessment of ground-borne vibration is the rms vibration velocity level, L_v, expressed in decibels (VdB) relative to one micro-inch per second. Figure 4 illustrates typical ground-borne vibration levels for common sources as well as criteria for human and structural response to ground-borne vibration. As shown, the range of interest is from approximately 50 VdB to 100 VdB, from imperceptible background vibration to the threshold of damage. Although the threshold of human perception to vibration is approximately 65 VdB, annoyance is not usually significant unless the vibration exceeds 70 VdB.

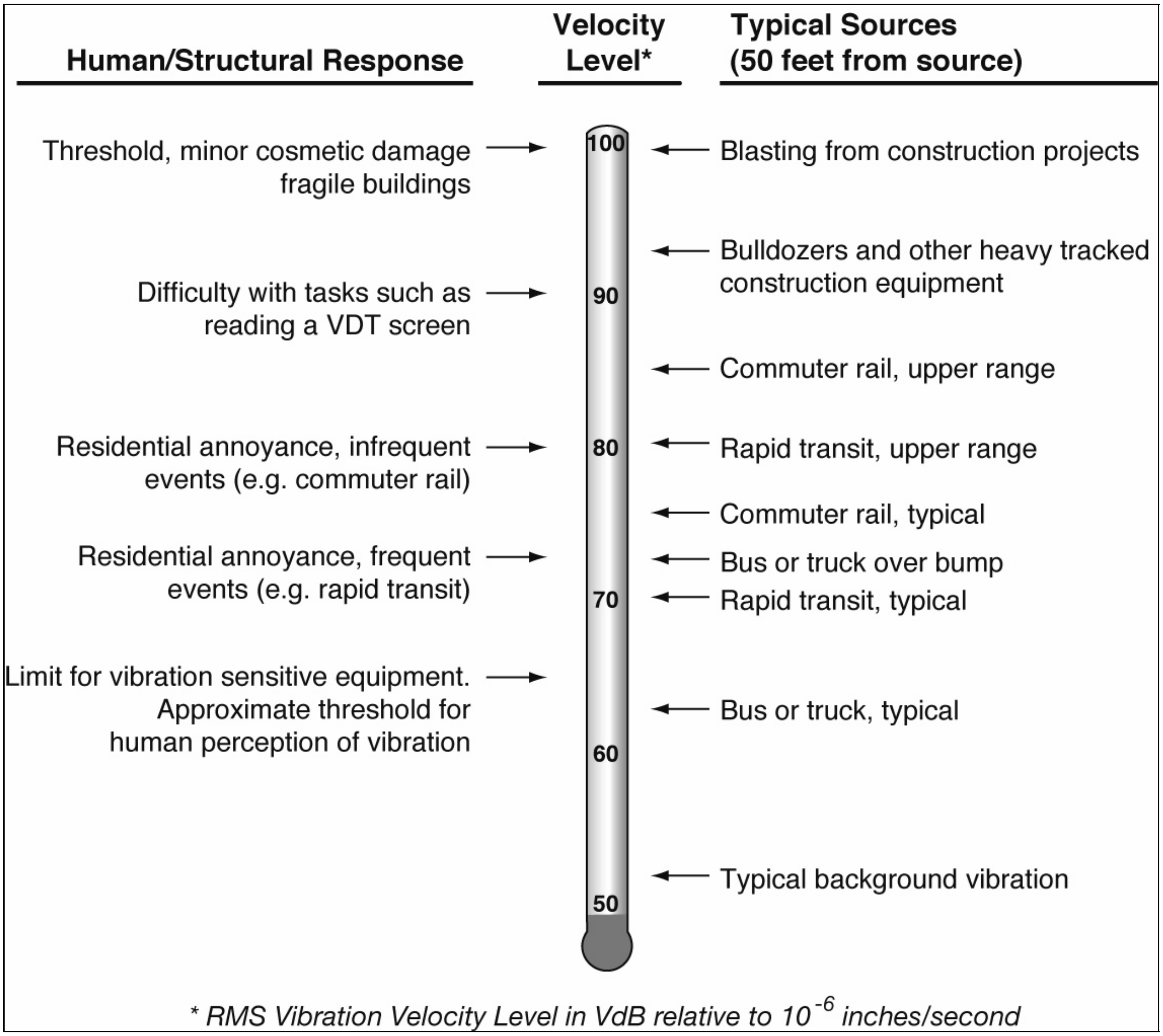


Figure 4. Typical Ground-Borne Vibration Levels and Criteria

3. EXISTING CONDITIONS

The primary sources that contribute to the existing noise environment along the Capitol Expressway Corridor are motor vehicle traffic on the Capitol Expressway, general aviation aircraft traffic from Reid-Hillview Airport, commercial aircraft traffic from San Jose International Airport, and general community activities. There are no significant sources of existing ground-borne vibration along the project corridor.

To characterize the existing baseline noise and vibration conditions in the communities along the corridor, a field measurement program was carried out during October and November 2001 and from March 10 to 12, 2003. The weather during much of this period was characterized by warm temperatures with conditions ranging from overcast to sunny.

The measurement program included monitoring of existing noise levels, as well as tests to characterize ground-borne vibration propagation at representative sites. The measurement locations, test procedures and results are described separately below for noise and for vibration.

3.1 Noise Measurements

3.1.1 Locations

Noise measurement sites were selected based on a review of aerial photographs, supplemented by a visual land-use survey of noise-sensitive receptors along the Capitol Expressway Corridor. Sixteen sites, designated as Sites N-1 through N-16, were selected for long-term (typically 24-hour) monitoring. The locations of these measurement sites are indicated in Figure 5, and are described below. Site photographs are included in Appendix A.

Site N-1: 4268 Bambi Lane. Site N1was located west of the proposed alignment, at 4268 Bambi Lane. The microphone was located in the yard of the single-family residence, on the corner of Bambi Lane and South Capitol Avenue. Traffic on the Capitol Expressway was the dominant source of noise at this site.

Site N-2: 1276 Capitol Court . Site N2 was located east of the proposed alignment, at 1276 Capitol Court. The microphone was located in the yard of the single-family residence, on the corner of Capitol Court and South Capitol Avenue, a frontage road to the Capitol Expressway. Dominant sources of noise at this site included traffic on the Capitol Expressway and general aviation aircraft from the Reid-Hillview Airport.

Site N-3: 2540 Greenstone Circle. Site N3 was located at 2540 Greenstone Circle, west of the proposed alignment. The microphone was located in the backyard of the single-family residence at the end of Greenstone Circle abutting the Capitol Expressway. Traffic on the Capitol Expressway and general aviation aircraft from the Reid-Hillview Airport contributed to the noise environment. An 8-foot high sound wall separates these residences from the Capitol Expressway.

Site N-4: 2015 Supreme Drive. Site N4 was located at 2015 Supreme Drive, east of the proposed alignment. The microphone was placed in the backyard of a single-family residence abutting the Capitol Expressway. Traffic on the Capitol Expressway and general aviation aircraft from the Red-Hillview Airport contributed to the noise environment. A 6- to 8-foot high sound wall separates this neighborhood from the Capitol Expressway.

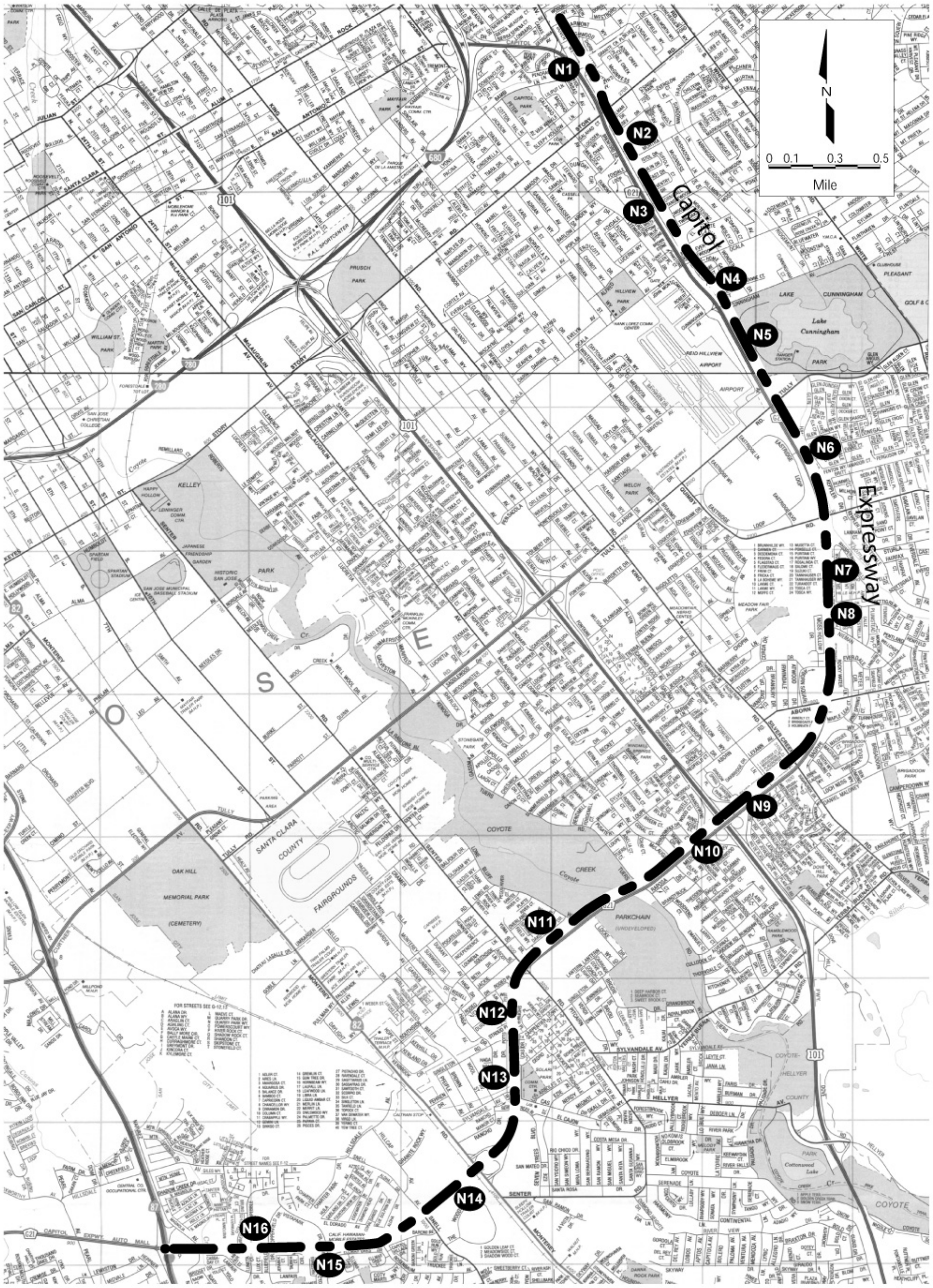


Figure 5. Existing Ambient Noise Measurement Locations

Site N-5: Lake Cunningham Park. Site N5 was located at Lake Cunningham Park east of the proposed alignment. The microphone was located approximately 20 feet behind an earth berm that separates the site from the Capitol Expressway. Noise sources at this site included traffic on the Capitol Expressway, aircraft activities associated with San Jose International Airport and general aviation aircraft.

Site N-6: 2655 Glen Hanleigh Drive. Site N6 was located east of the proposed alignment, at 2655 Glen Hanleigh Drive on the corner of Glen Hanleigh Drive, a frontage road to the Capitol Expressway, and Glen Doon Court. The microphone was located in the yard of the single-family residence. Traffic on the Capitol Expressway dominated the noise environment.

Site N-7: 2561 Whispering Hills Drive. Site N7 was located at 2561 Whispering Hills Drive, east of the proposed alignment. The microphone was located in the yard between two trailer homes at 2561 and 2562 Whispering Hills Drive. A sound wall approximately 8-10 feet high separates these homes from the Capitol Expressway. Traffic on the Capitol Expressway dominated the noise environment.

Site N-8: 2219 Pettigrew Drive. Site N8 was located at 2219 Pettigrew Drive east of the proposed alignment. The microphone was located in the backyard of the single-family residence, separated from the Capitol Expressway by an 8-foot sound wall. Noise sources at this site included traffic on the Capitol Expressway and general aviation aircraft approaching and departing from the Reid-Hillview Airport.

Site N-9: 5 Rio De Plata. Site N9 was located at 5 Rio De Plata, east of the proposed alignment and northeast of the intersection of U.S.Route 101 and the Capitol Expressway. The microphone was placed in the backyard of a single-family residence abutting the Capitol Expressway. Traffic from the Capitol Expressway and Route 101 contributed to the noise environment at this site. A 10-foot sound wall separates these residences from the Capitol Expressway and an off ramp from Route 101 to the Expressway.

Site N-10: 1275 Medley Drive. Site N10 was located at 1275 Medley Drive, east of the proposed alignment and southwest of the intersection of U.S. Route 101 and the Capitol Expressway. The microphone was located in the backyard of a single-family residence abutting the Capitol Expressway. An 8-foot sound wall separates the residences and the Capitol Expressway. The noise environment at this site is dominated by traffic on the Capitol Expressway.

Site N-11: 3211/3205 Lone Bluff Way. Site N11 was located at 3211/3205 Lone Bluff Way west of the proposed alignment. The microphone was located in the yard between two single-family residences. Traffic on the Capitol Expressway was the dominant source of noise at this site.

Site N-12: 3180 Welby Court. Site N12 was located at 3180 Welby Court, west of the proposed alignment. The microphone was located in the yard of a single-family residence, approximately 10 feet from a 6-foot sound wall that separates this neighborhood from the Capitol Expressway. Traffic on the Capitol Expressway and airplanes contribute to the noise environment.

Site N-13: 13184 Potts Drive. Site N13 was located at 13184 Potts Drive, west of the proposed alignment. The microphone was placed in the backyard of a single-family residence abutting the Capitol Expressway. Traffic on the Capitol Expressway dominated the noise environment. An 8-foot sound wall separates this neighborhood from the Expressway.

Site N-14: 916 The Woods Drive. Site N14 was located at 916 The Woods Drive east of the proposed alignment. The microphone was located on a second floor balcony. Noise sources at this site included traffic on the Capitol Expressway and Caltrain and Amtrak trains on the nearby train tracks.

Site N-15: 4111 Ellmar Oaks Drive. Site N15 was located at 4111 Ellmar Oaks Drive at the intersection of the Capitol Expressway and Vista Park east of the proposed alignment. The microphone was located on a second floor balcony facing Vista Park. Dominant noise sources at this site were the Capitol Expressway and Vista Park Drive.

Site N-16: 611 Copperfield Drive. Site N16 was located at 611 Copperfield Drive on the corner of Copperfield and Capitol Expressway west of the proposed alignment. The microphone was located on a third floor balcony. Traffic on the Capitol Expressway was the dominant source of noise at this site.

3.1.2 Instrumentation and Procedures

Long-term, ambient noise measurements were conducted at Sites N-1 through N-16, described above. At these locations, unattended Larson Davis Model 870 portable, automatic noise monitors were used to continuously sample the A-weighted sound level (with slow response), typically over one 24-hour period. The noise monitors were programmed to record hourly results, including the maximum sound level (Lmax), the equivalent sound level (Leq) and the statistical percentile sound levels (Ln). The day-night equivalent sound level (Ldn) was subsequently computed from the hourly Leq data.

The noise measurement equipment described above conforms to ANSI Standard S1.4 for Type 1 (Precision) sound level meters. Calibrations, traceable to the U.S. National Institute of Standards and Technology (NIST) were carried out in the field before and after each set of measurements using acoustical calibrators.

In all cases, the measurement microphone was protected by a windscreen, and supported on a tripod at a height of 4 to 6 feet above the ground. Furthermore, the microphone was positioned to characterize the exposure of the site to the dominant noise sources in the area. For example, microphones were located at the approximate setback lines of the receptors from the Capitol Expressway, and were positioned to avoid acoustic shielding by landscaping, fences or other obstructions.

3.1.3 Results

A summary of the existing ambient noise measurement results is provided in Table 3, and detailed data are included in Appendix B.

Table 3. Summary of Existing Ambient Noise Measurement Results

Site No.	Measurement Location Description	Start of Measurement		Meas. Time (hrs)	Noise Exposure (dBA)	
		Date	Time		Ldn	Leq
N-1	S.F. Res. @ 4268 Bambi Lane	10-31-01	12:27	24	72	--
N-2	S.F. Res. @ 1276 Capitol Court	10-31-01	13:16	24	73	--
N-3	S.F. Res. @ 2540 Greenstone Circle	10-31-01	14:10	24	67	--
N-4	S.F. Res. @ 2015 Supreme Drive	10-31-01	13:40	24	65	--
N-5	San Jose Lake Cunningham Park	11-01-01	15:00	24	59	--
N-6	S.F. Res. @ 2655 Glen Hanleigh Drive	10-30-01	13:30	24	65	--
N-7	S.F. Res. @ 2561 Whispering Hills Drive	10-30-01	12:59	24	66	--
N-8	S.F. Res. @ 2219 Pettigrew Drive	11-01-01	14:12	24	67	--
N-9	S.F. Res. @ 5 Rio De Plata	11-01-01	14:03	24	69	--
N-10	S.F. Res. @ 1275 Medley Drive	10-30-01	11:20	24	64	--
N-11	S.F. Res. @ 3211/3205 Lone Bluff Way	10-29-01	12:59	24	73	--
N-12	S.F. Res. @ 3180 Welby Court	10-30-01	12:33	24	66	--
N-13	S.F. Res. @ 13184 Potts Drive	11-01-01	13:09	24	63	--
N-14	S.F. Res. @ 916 The Woods Drive	10-29-01	11:26	24	65	--
N-15	S.F. Res. @ 4111 Ellmar Oaks Drive	10-29-01	11:12	24	72	--
N-16	S.F. Res. @ 611 Copperfield Drive	10-29-01	10:43	24	75	--

The long-term measurement results in Table 3 indicate Ldn's ranging from 59 dBA to 75 dBA along the corridor. These results were used as a basis for determining the existing noise conditions at all noise-sensitive receptors along the Capitol Expressway Corridor.

Along the east side of the alignment the existing noise levels were estimated to be the following, based on the long-term noise monitoring sites presented in Table 3:

<u>North End of Alignment to Ocala Avenue:</u> The Ldn was estimated to be 73 dBA, based on long-term noise measurement site N-2.

<u>Ocala Avenue to Cunningham Avenue:</u> The Ldn was estimated to be 65 dBA, based on long-term noise measurement site N-4.

<u>Quimby Road to Nieman Boulevard:</u> The Ldn was estimated to be 66 dBA, based on long-term noise measurement site N-7.

<u>Nieman Boulevard to Aborn Road:</u> The Ldn was estimated to be 67 dBA, based on long-term noise measurement site N-8.

Aborn Road to US101: The Ldn was estimated to be 69 dBA, based on long-term noise measurement site N-9.

US101 to Tuers Road: The Ldn was estimated to be 64 dBA, based on long-term noise measurement site N-10.

Tuers Road to Monterrey Highway: The Ldn was estimated to be 73 dBA, based on long-term noise measurement site N-11.

Monterrey Highway to Snell Avenue: The Ldn was estimated to be 65 dBA, based on long-term noise measurement site N-14.

Snell Avenue to End of Alignment: The Ldn was estimated to be 72 dBA, based on long-term noise measurement site N-15.

Along the west side of the alignment the existing noise levels were estimated to be the following, based on the long-term noise monitoring sites presented in Table 3:

Start of Alignment to Story Road: The Ldn was estimated to be 72 dBA, based on long-term noise measurement site N-1.

Story Road to Ocala Avenue: The Ldn was estimated to be 67 dBA, based on long-term noise measurement site N-3.

Quimby Road to Aborn Road: The Ldn was estimated to be 67 dBA, based on long-term noise measurement site N-8.

Aborn Road to US101: The Ldn was estimated to be 69 dBA, based on long-term noise measurement site N-9.

US101 to McLaughlin Avenue: The Ldn was estimated to be 64 dBA, based on long-term noise measurement site N-10.

Tuers Road to Senter Road: The Ldn was estimated to be 73 dBA, based on long-term noise measurement site N-11.

Senter Road to Singleton Road: The Ldn was estimated to be 66 dBA, based on long-term noise measurement site N-12.

Singleton Road to Monterrey Highway: The Ldn was estimated to be 63 dBA, based on long-term noise measurement site N-13.

Vista Park Drive to South End of Alignment: The Ldn was estimated to be 75 dBA, based on long-term noise measurement site N-16.

3.2 Vibration Measurements

3.2.1 Locations and Tests

Vibration measurement test sites were selected based on a review of aerial photographs, supplemented by a visual land-use survey. Four sites, designated as Sites V-1 through V-4, were originally selected to represent a range of soil conditions in areas along the rail corridor that include a significant number of vibration-sensitive receptors. The locations of these measurement sites are indicated in Figure 6, and are described below. Site photographs are included in Appendix A.

<u>Site V-1: Ryan Elementary School</u>. Site V1 was located east of the proposed alignment at the Ryan Elementary School adjacent to a baseball diamond. Several neighborhoods are located in the vicinity of this measurement site. This site is representative of the vibration-sensitive receptors in the northern portion of the proposed alignment.

<u>Site V-2: East Ridge Mall</u>. Site V2 was located west of the proposed alignment at the East Ridge Mall and a VTA bus station. The measurements were performed just south of the intersection of the Capitol Expressway and Tully Road. This site is representative of vibration-sensitive receptors in the vicinity of Tully Road.

<u>Site V-3: Brandybuck Way and Woody End Court</u>. Site V3 was located east of the proposed alignment at the intersection of Brandybuck Way and Woody End Court. This site is representative of vibration-sensitive receptors north of Coyote Creek Parkchain.

<u>Site V-4: Solari Park</u>. Site V4 was located east of the proposed alignment at Solari Park near a baseball field. This site is representative of vibration-sensitive sites in the southern portion of the proposed alignment.

3.2.2 Instrumentation and Procedures

The ground vibration measurements were made with high-sensitivity accelerometers mounted in the vertical direction on either paved surfaces, or on top of steel stakes driven into soil. The acceleration signals were recorded on a TEAC Model RD-130-TE 8-channel digital audio tape (DAT) recorder and subsequently analyzed in the HMMH laboratory.

The vibration propagation test procedure is shown schematically in Figure 7. As shown in the cross section view at the top, the test basically consists of dropping a 60 lb weight from a height of 3 to 4 feet onto the ground. A load cell is used to measure the force of the impact and accelerometers are used to measure the resulting vibration pulses at various distances from the ground. The relationship between the input force and the ground surface vibration, called the transfer mobility, characterizes vibration propagation at this location. It is possible to estimate the ground vibration that would be caused by another source, such as a train, by substituting the impact force with the train forces.

The bottom sketch in Figure 7 shows how the dropped weight point source is used to simulate a line vibration source such as a train. Impact tests are made at regular intervals in a line along the rail alignment. For these tests, impacts were done at eleven points, spaced 15 feet apart along a line perpendicular to the line of accelerometers.

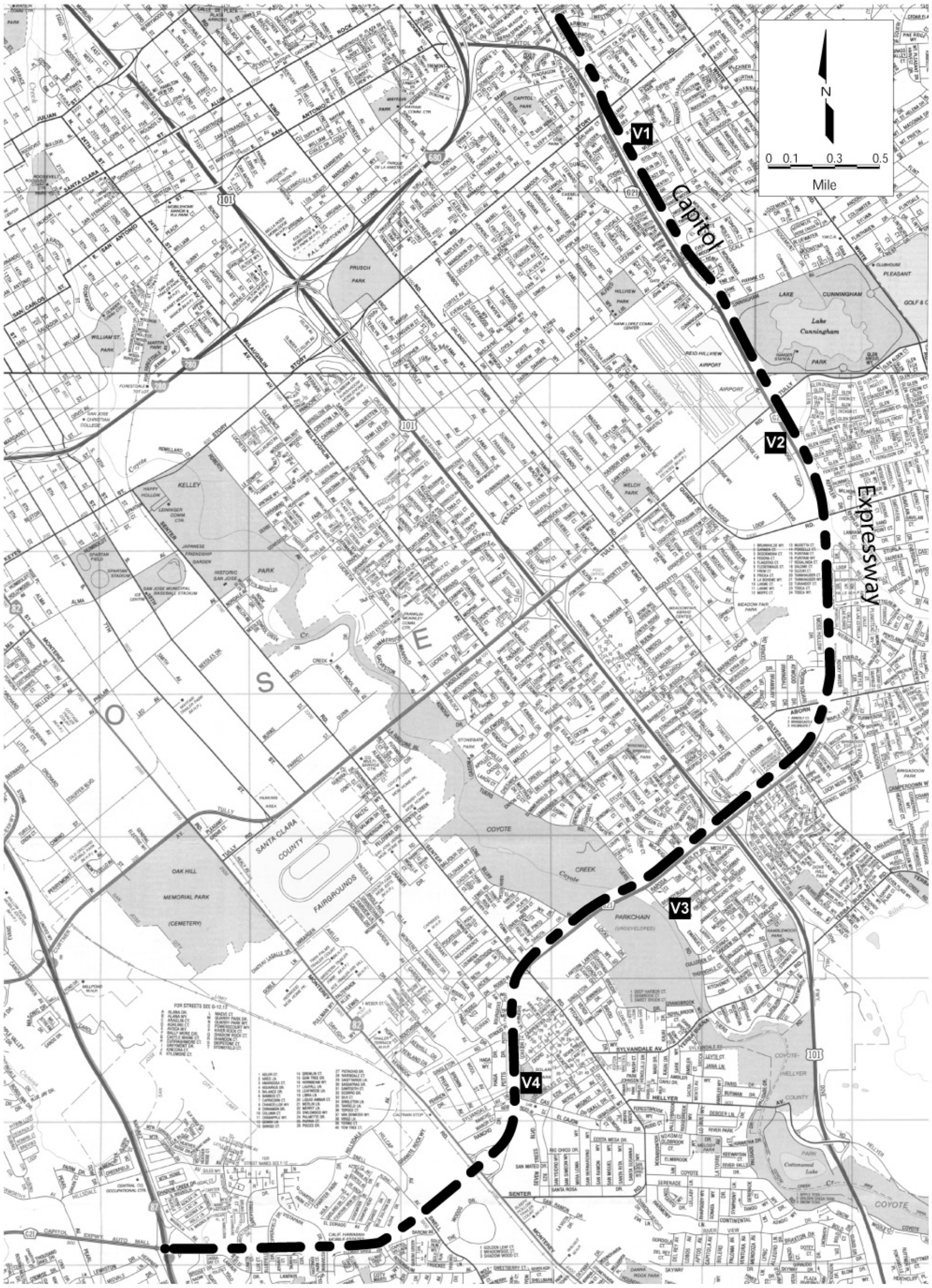
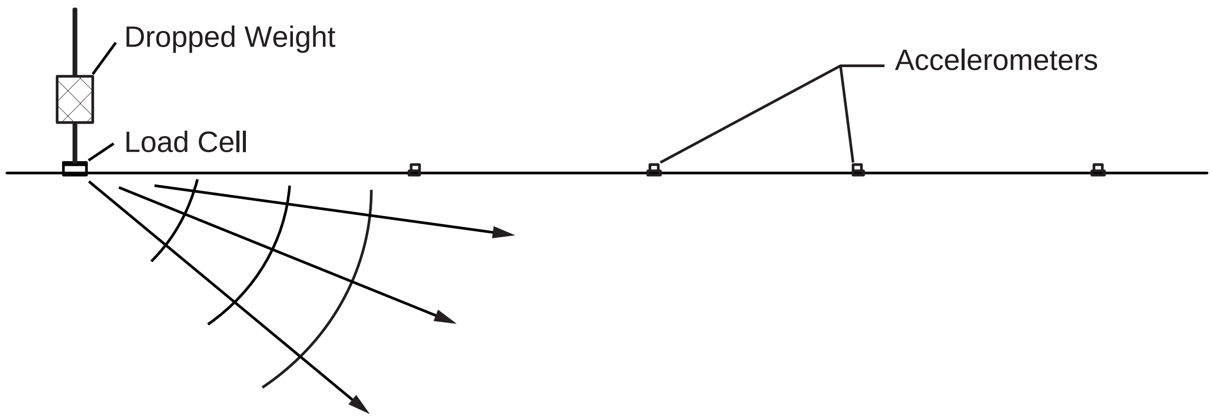


Figure 6. Vibration Measurement Test Locations

Cross Section of Vibration
Propagation Test Procedure



Plan View of Vibration
Propagation Test Procedure

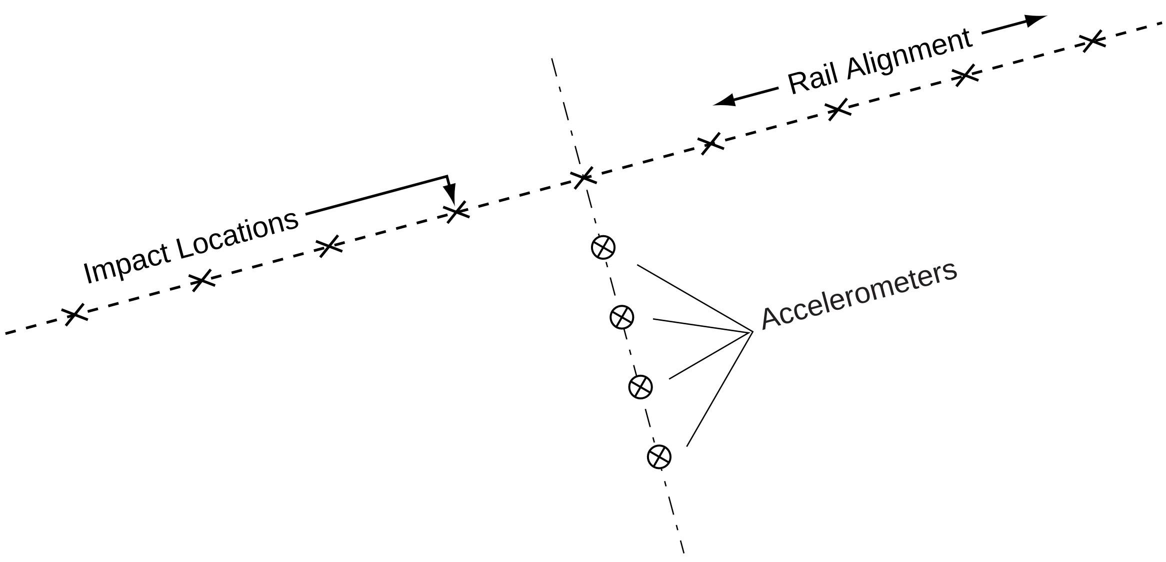


Figure 7. Vibration Propagation Test Procedure

3.2.3 Results

For laboratory analysis of the ground vibration propagation test data, a Tektronix Model 2630 multi-channel spectrum analyzer was used to obtain the transfer mobility relationship for each accelerometer/impact pair. The basic steps taken to calculate 1/3-octave band transfer functions are summarized below:

1. A multi-channel spectrum analyzer was used to get narrowband transfer functions. A minimum of 20 impacts was used to obtain signal-enhanced transfer functions for each impact site-accelerometer pair. Numerical integration was used to change from acceleration to velocity.

2. The 1/3-octave band transfer mobility was calculated for each accelerometer/impact pair.

3. Each set of 1/3-octave band point-source transfer mobilities was combined using Simpson's Rule for numerical integration to estimate the equivalent line-source transfer mobility.

4. For each 1/3-octave band, a smooth curve was fit to the line source transfer mobility values. The end result is an estimate of line source transfer mobility as a function of distance from the source.

Examples of the resulting smoothed line source transfer mobilities are given in Figure 8, which provides spectra at a distance of 100 feet for each of the four test sites. The results suggest that for equal vibration input at all frequencies, the ground vibration response peaks at 31.5 Hz for Site V-2, at 20 Hz for Sites V-1 and V-3, and at 12.5 Hz for Site V-4. More details on the propagation test and analysis procedures are given the U. S. Federal Transit Administration (FTA) guidance manual *Transit Noise and Vibration Impact Assessment* (FTA Report DOT-T-95-16, April 1995). Detailed test data for the Capitol Expressway Corridor are included in Appendix C of this report.

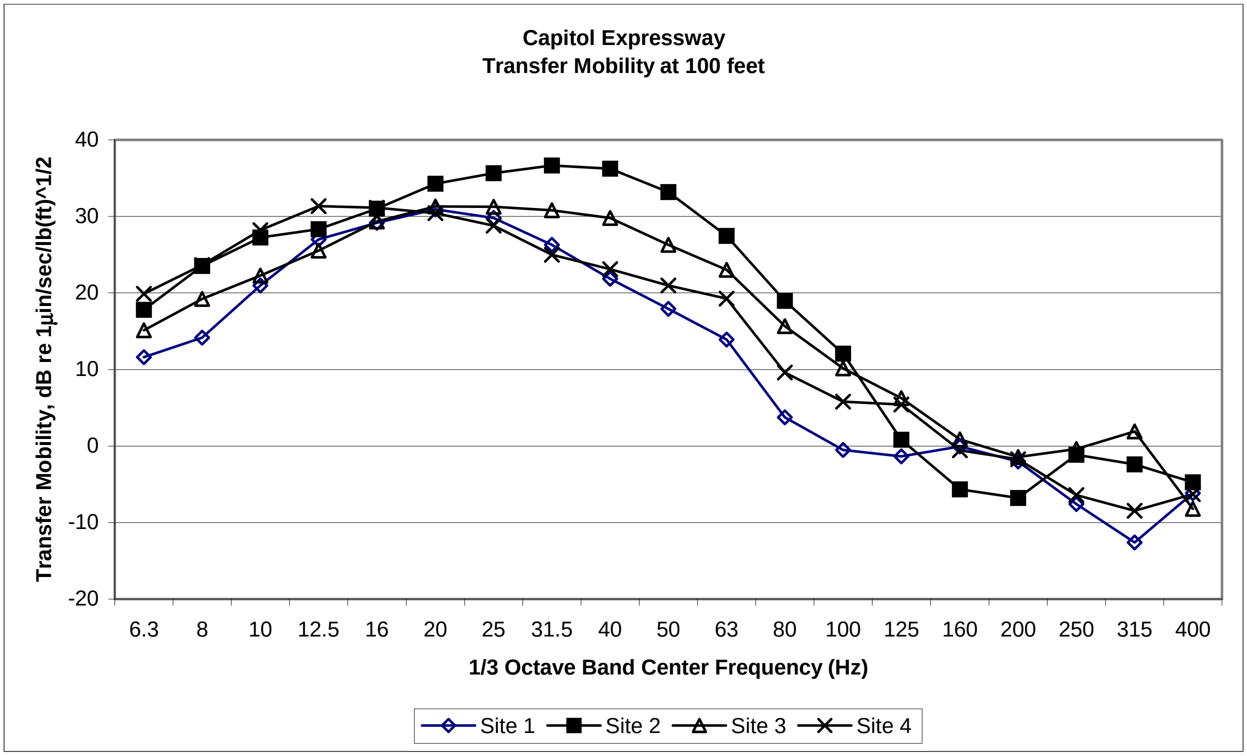


Figure 8. Line Source Transfer Mobilities for Capitol Expressway Corridor Sites

4. NOISE AND VIBRATION IMPACT CRITERIA

Experience suggests that noise and vibration can be major public concerns with regard to the effects of a rail transit project. This section summarizes the impact limits as applicable to the Capitol Expressway Corridor Project.

4.1 Transit Noise Criteria

Noise impact for this project is based on the criteria defined in the U. S. Federal Transit Administration (FTA) guidance manual *Transit Noise and Vibration Impact Assessment* (FTA Report DOT-T-95-16, April 1995). The FTA noise impact criteria are founded on well-documented research on community reaction to noise and are based on change in noise exposure using a sliding scale. Although more transit noise is allowed in neighborhoods with high levels of existing noise, smaller increases in total noise exposure are allowed with increasing levels of existing noise.

The FTA Noise Impact Criteria group noise sensitive land uses into the following three categories:

Category 1: Buildings or parks where quiet is an essential element of their purpose.

Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.

Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches and active parks.

Ldn is used to characterize noise exposure for residential areas (Category 2). For other noise sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum 1-hour Leq during the facility's operating period is used.

There are two levels of impact included in the FTA criteria. The interpretation of these two levels of impact is summarized below:

<u>Severe</u>: Severe noise impacts are considered "significant" as this term is used in the National Environmental Policy Act (NEPA) and implementing regulations. Noise mitigation will normally be specified for severe impact areas unless there is no practical method of mitigating the noise.

<u>Impact</u>: In this range of noise impact, sometimes referred to as moderate impact, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types and number of noise-sensitive land uses affected, existing outdoor-indoor sound insulation, and the cost effectiveness of mitigating noise to more acceptable levels.

The noise impact criteria are summarized in Table 4. The first column shows the existing noise exposure and the remaining columns show the additional noise exposure from the transit project that would cause either moderate or severe impact. The future noise exposure would be the combination of the existing noise exposure and the additional noise exposure caused by the transit project. Table 5 gives the information from Table 4 in terms of the allowable increase in cumulative noise exposure (noise from existing sources plus project noise) as a function of existing noise exposure. As the existing noise exposure increases, the amount that the rail project can increase the overall noise exposure before there is impact decreases.

Table 4. FTA Noise Impact Criteria

Existing Noise Exposure Leq or Ldn	Project Noise Exposure Impact Thresholds, Leq or Ldn (dBA)			
	Category 1 or 2 Sites		Category 3 Sites	
	Impact	Severe Impact	Impact	Severe Impact
<43	Amb.+10	Amb.+15	Amb.+15	Amb.+20
43	52	59	57	64
44	52	59	57	64
45	52	59	57	64
46	53	60	58	65
47	53	60	58	65
48	53	60	58	65
49	54	60	59	65
50	54	60	59	65
51	54	61	59	66
52	55	61	60	66
53	55	61	60	66
54	55	62	60	67
55	56	62	61	67
56	56	63	61	68
57	57	63	62	68
58	57	63	62	68
59	58	64	63	69
60	58	64	63	69
61	59	65	64	70
62	59	65	64	70
63	60	66	65	71
64	61	66	66	71
65	61	67	66	72
66	62	68	67	73
67	63	68	68	73
68	63	69	68	74
69	64	70	69	75
70	65	70	70	75
71	66	71	71	76
72	66	72	71	77
73	66	72	71	77
74	66	73	71	78
75	66	74	71	79
76	66	75	71	80
77	66	75	71	80
>77	66	76	71	81

Note: Ldn is used for land uses where nighttime sensitivity is a factor;
maximum 1-hour Leq is used for land use involving only daytime activities.

Table 5. Cumulative Noise Level Increase Allowed by FTA Criteria

Existing Noise Exposure Leq or Ldn	Impact Threshold for Increase in Cumulative Noise Exposure (dBA)			
	Category 1 or 2 Sites		Category 3 Sites	
	Impact	Severe Impact	Impact	Severe Impact
45	8	14	12	19
46	7	13	12	18
47	7	12	11	17
48	6	12	10	16
49	6	11	10	16
50	5	10	9	15
51	5	10	8	14
52	4	9	8	14
53	4	8	7	13
54	3	8	7	12
55	3	7	6	12
56	3	7	6	11
57	3	6	6	10
58	2	6	5	10
59	2	5	5	9
60	2	5	5	9
61	1.9	5	4	9
62	1.7	4	4	8
63	1.6	4	4	8
64	1.5	4	4	8
65	1.4	4	3	7
66	1.3	4	3	7
67	1.2	3	3	7
68	1.1	3	3	6
69	1.1	3	3	6
70	1.0	3	3	6
71	1.0	3	3	6
72	0.8	3	2	6
73	0.6	2	1.8	5
74	0.5	2	1.5	5
75	0.4	2	1.2	5

Note: Ldn is used for land uses where nighttime sensitivity is a factor;
maximum 1-hour Leq is used for land use involving only daytime activities.

4.2 Transit Vibration Criteria

The FTA ground-borne vibration impact criteria are based on land use and train frequency, as shown in Table 6. There are some buildings, such as concert halls, recording studios and theaters, which can be very sensitive to vibration but do not fit into any of the three categories listed in Table 6. Due to the sensitivity of these buildings, they usually warrant special attention during the environmental assessment of a transit project. Table 7 gives criteria for acceptable levels of ground-borne vibration for various types of special buildings.

It should also be noted that Tables 6 and 7 include separate FTA criteria for ground-borne noise, the “rumble” that can be radiated from the motion of room surfaces in buildings due to ground-borne vibration. Although expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are set significantly lower than for airborne noise to account for the annoying low-frequency character of ground-borne noise. Because airborne noise often masks ground-borne noise for above ground (i.e. at-grade or elevated) rail systems, ground-borne noise criteria are primarily applied to subway operations where airborne noise is not a factor. For the above-grade sections of the Capitol Expressway Corridor, ground-borne noise criteria are applied only to buildings that have sensitive interior spaces that are well insulated from exterior noise.

Table 6. Ground-Borne Vibration and Noise Impact Criteria by Land Use Category

Land Use Category	Ground-Borne Vibration Impact Levels (VdB re 1 micro-inch/sec)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[1]	Infrequent Events[2]	Frequent Events[1]	Infrequent Events[2]
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[3]	65 VdB[3]	-[4]	-[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	80 VdB	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	83 VdB	40 dBA	48 dBA

Notes:
1. “Frequent Events” is defined as more than 70 vibration events per day. Most transit projects fall into this category.
2. “Infrequent Events” is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
3. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
4. Vibration-sensitive equipment is not sensitive to ground-borne noise.

Table 7. Ground-Borne Vibration and Noise Impact Criteria for Special Buildings

Type of Building or Room	Ground-Borne Vibration Impact Levels (VdB re 1 micro-inch/sec)		Ground-Borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events[1]	Infrequent Events[2]	Frequent Events[1]	Infrequent Events[2]
Concert Halls	65 VdB	65 VdB	25 dBA	25 dBA
TV Studios	65 VdB	65 VdB	25 dBA	25 dBA
Recording Studios	65 VdB	65 VdB	25 dBA	25 dBA
Auditoriums	72 VdB	80 VdB	30 dBA	38 dBA
Theaters	72 VdB	80 VdB	35 dBA	43 dBA

Notes:
1. "Frequent Events" is defined as more than 70 vibration events per day. Most transit projects fall into this category.
2. "Infrequent Events" is defined as fewer than 70 vibration events per day. This category includes most commuter rail systems.
3. If the building will rarely be occupied when the trains are operating, there is no need to consider impact. As an example consider locating a commuter rail line next to a concert hall. If no commuter trains will operate after 7 pm, it should be rare that the trains interfere with the use of the hall.

4.3 Noise Criteria for Ancillary Equipment

The FTA Guidance Manual does not include any limits that are specifically applicable to substation noise. Common limits for this type of noise in residential areas is 10 dBA over the minimum hourly L90 (the sound level exceeded 90 percent of the time) or a maximum of 45 dBA at any residence, whichever is the most stringent.

4.4 Construction Noise Criteria

Construction noise criteria are based on the guidelines provided in the FTA Guidance Manual. These criteria, summarized in Table 8 below, are based on land use and time of day and are given in terms of Leq for an 8-hour work shift.

Table 8. FTA Construction Noise Criteria

Land Use	Noise Limit, 8-Hour Leq (dBA)	
	Daytime	Nighttime
Residential	80	70
Commercial	85	85
Industrial	90	90

5. FUTURE BUILD CONDITIONS

This section summarizes the models used to predict future noise and vibration levels for potential sources of community impact related to the Capitol Expressway Corridor Project. These sources include LRT train operation, bus and automobile traffic at stations, ancillary equipment and construction activities. The projection models for these sources are described below.

5.1 LRT Noise Projections

The primary component of wayside noise from LRT train operations is wheel/rail noise, which results from the steel wheels rolling on the steel rails. Secondary sources, such as vehicle air-conditioning and other ancillary equipment, will sometimes be audible, but are not expected to be significant factors. The projection of wayside noise from LRT train operations was based on the anticipated Capitol Expressway Corridor LRT operating plan and the prediction model specified in the FTA guidance manual. Significant factors are summarized below:

- Based on measured noise data and on the VTA vehicle dimensions, the predictions assume that a single 90-foot long vehicle operating at 40 mph on ballast and tie track with continuous welded rail (CWR) generates a maximum noise level of 79 dBA at a distance of 50 feet from the track centerline.

- The operating period of the VTA Capitol Expressway Corridor LRT was assumed to be between 4:30 a.m. and 1:30 a.m. The LRT was assumed to operate with headways of ten minutes between 6:00 a.m. and 7:30 p.m., fifteen minutes from 7:30 p.m. to 11:30 p.m., and thirty-minute headways between 11:30 p.m. and 1:30 a.m. and between 4:30 a.m. and 6:00 a.m.

- 2 car train consists are assumed to run during peak hours from 6:00 a.m. to 9:00 a.m. and from 3:30 p.m. to 7:30 p.m.; one car train consists are assumed to run during base hours from 9:00 a.m. to 3:30 p.m. and one car train consists are assumed to run during the evening and early/late periods from 7:30 p.m. to 1:30 a.m. and from 4:30 a.m. to 6:00 a.m.

- Vehicle operating speeds are based on maximum speeds along the Capitol Expressway Corridor, taking into account station locations. The speed limits range from 35 mph to 50 mph along the corridor.

- The projections near grade crossings include noise from train horns. The noise levels are based on typical LRT system audible warning signal equipment and practices.

- Wheel impacts at crossovers and other special trackwork typically cause a noise increase of about 6 dBA near such locations.

- The effects of existing noise walls along the corridor were included in the noise projections.

Because many of the inputs into the noise model, such as the operating periods, headways and detailed speed projections were not fully developed, a number of assumptions were made regarding these inputs.

When more detailed information is available, and if there are significant differences from the assumed parameters discussed above, the noise projections may need to be further refined.

The projected unshielded Lmax for a one car train, and the Ldn and peak-hour Leq(hr) for the above train schedule are shown in Figures 9, 10 and 11, respectively, as a function of distance for several LRT train speeds.

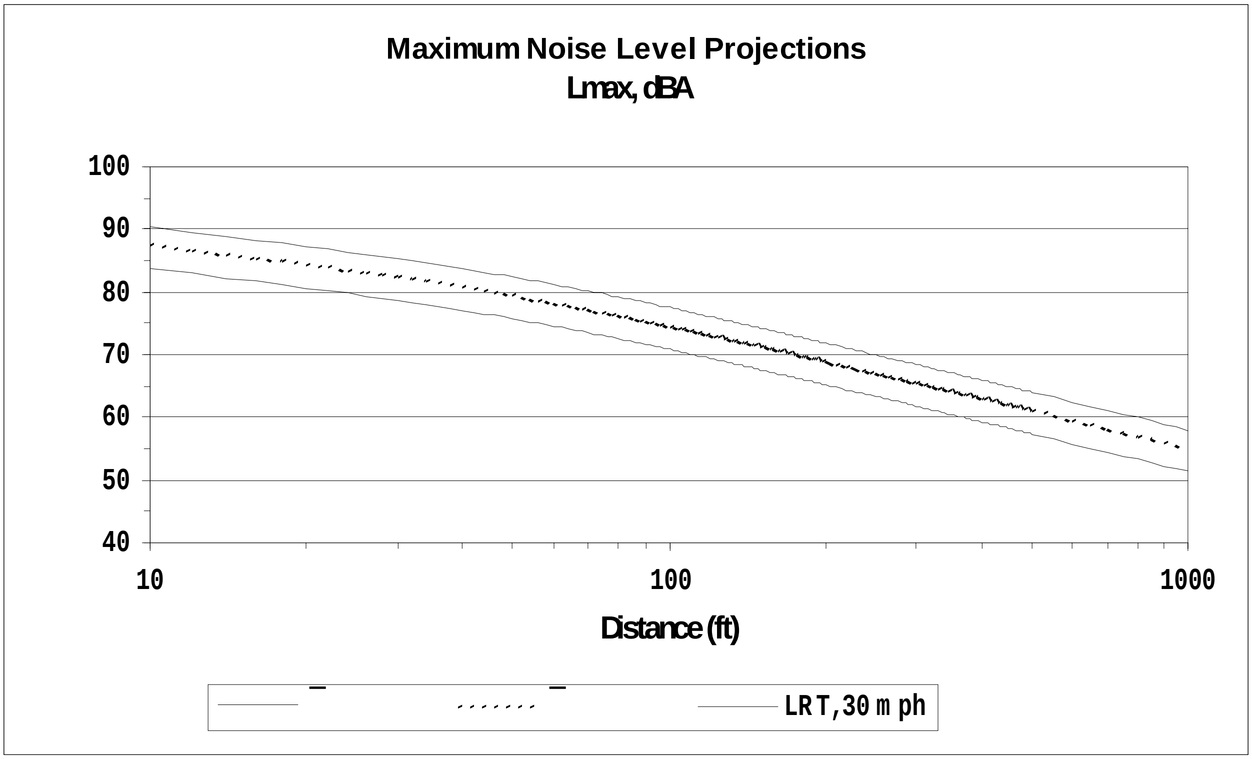


Figure 9. Projected Maximum LRT Noise Levels

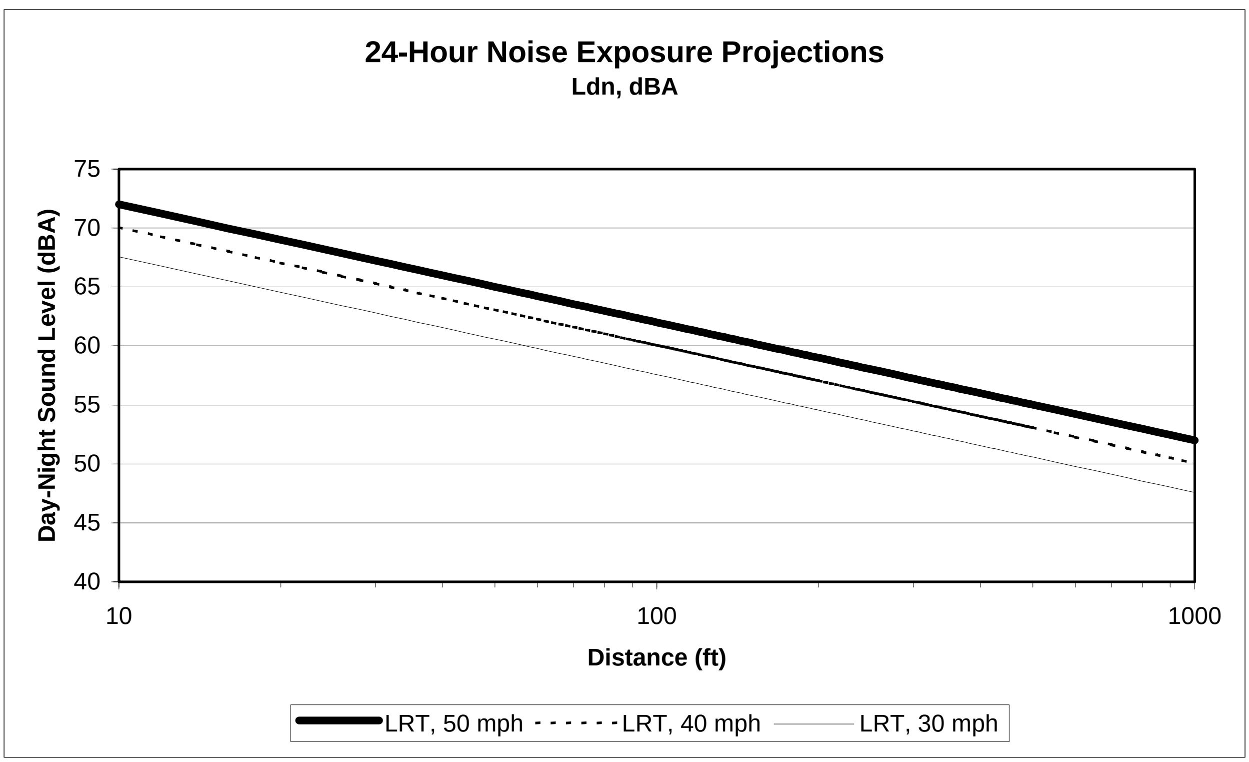


Figure 10. Projected 24-Hour Noise Exposure From LRT Operations

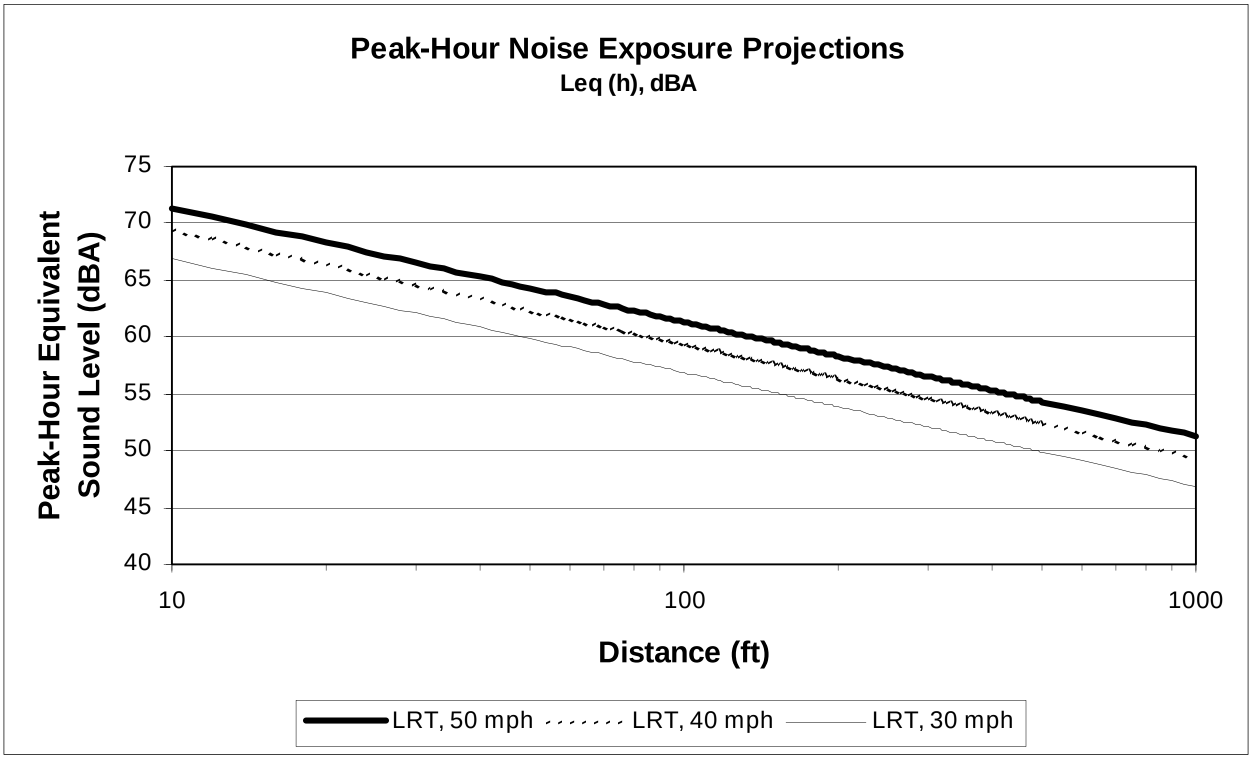


Figure 11. Projected Peak-Hour Noise Exposure From LRT Operations

5.2 LRT Vibration Projections

The potential vibration impact from LRT operation was assessed on an absolute basis using the FTA criteria. The following factors were used in determining potential vibration impacts along the Capitol Expressway Corridor:

- Vibration source levels for the VTA vehicles were based on direct measurements conducted by HMMH and Wilson Ihrig and Associates.
- Vibration propagation tests were conducted at four sites along the corridor near sensitive receptors. These tests measured the response of the ground to an input force. The results of these tests were combined with the vibration source levels to provide projections of vibration levels from vehicles operating on the Capitol Expressway Corridor.
- Vehicle operating speeds are based on maximum speeds along the Capitol Expressway Corridor, taking into account station locations. The speed limits range from 35 mph to 50 mph along the corridor.
- Wheel impacts at crossovers and other special trackwork typically cause a vibration increase of about 10 VdB near such locations.

The assumed vehicle vibration characteristics (represented by the force density spectrum in Figure 12) were combined with the ground vibration propagation test results (represented by transfer mobility spectra such as those shown in Figure 8) to project vibration levels as a function of distance for each of the four test sites. The results of these transfer mobility tests and the projected LRT vibration spectra at each site are presented in Appendix C. The results suggested dividing the rail corridor into four regions for the purposes of vibration projections, defined as follows:

- Region A – Start of Alignment to Cunningham Avenue (Represented by Test Site V1)
- Region B – Quimby Road to US101 (Represented by Test Site V2)
- Region C – US101 to Tuers Road (Represented by Test Site V3)
- Region D – Tuers Road to End of Alignment (Represented by Test Site V4)

The resulting projections of maximum ground vibration levels from LRT operations at 55 mph for each of the above four regions are provided in Figure 13. Each of the curves has a different level vs. distance characteristic, which determines the impact distance in each of the regions. The differences in the vibration propagation are typically due to differences in soil type, depth to bedrock and other localized conditions. The results suggest that Region C has the highest projected levels close to the track. Maximum ground vibration level projections at various LRT train speeds are provided separately for Regions A, B, C and D in Figures 14, 15, 16 and 17, respectively.

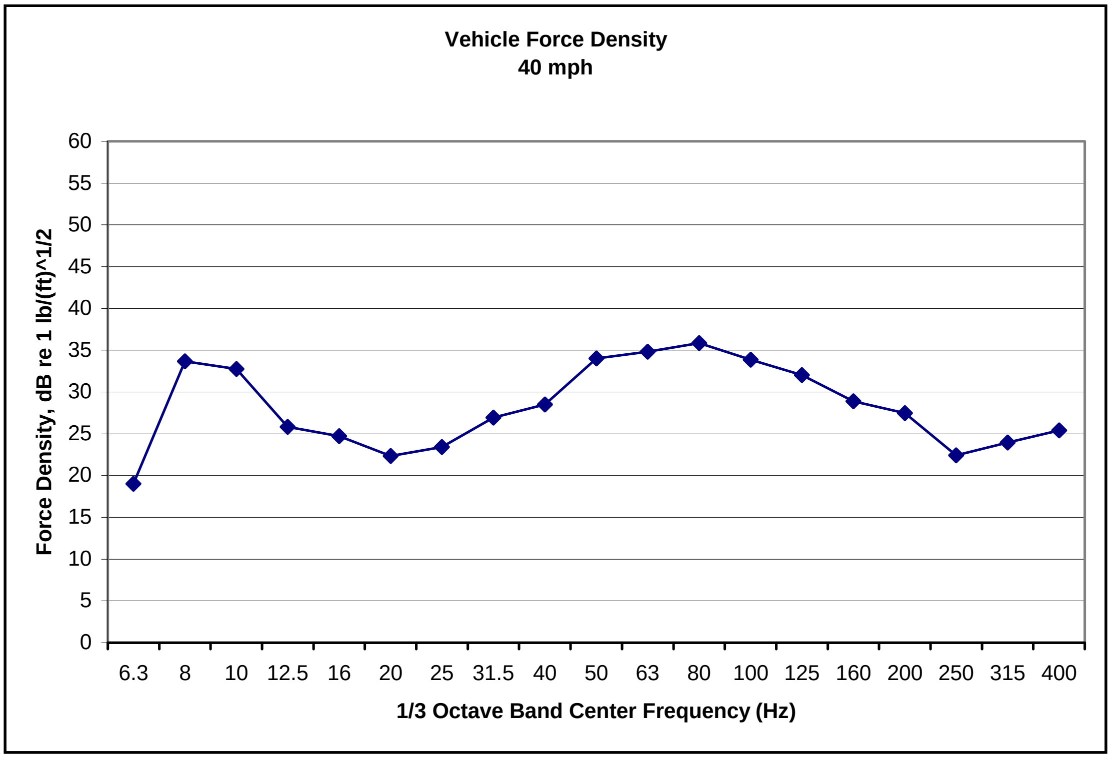


Figure 12. VTA LRT Vehicle Force Density Spectrum

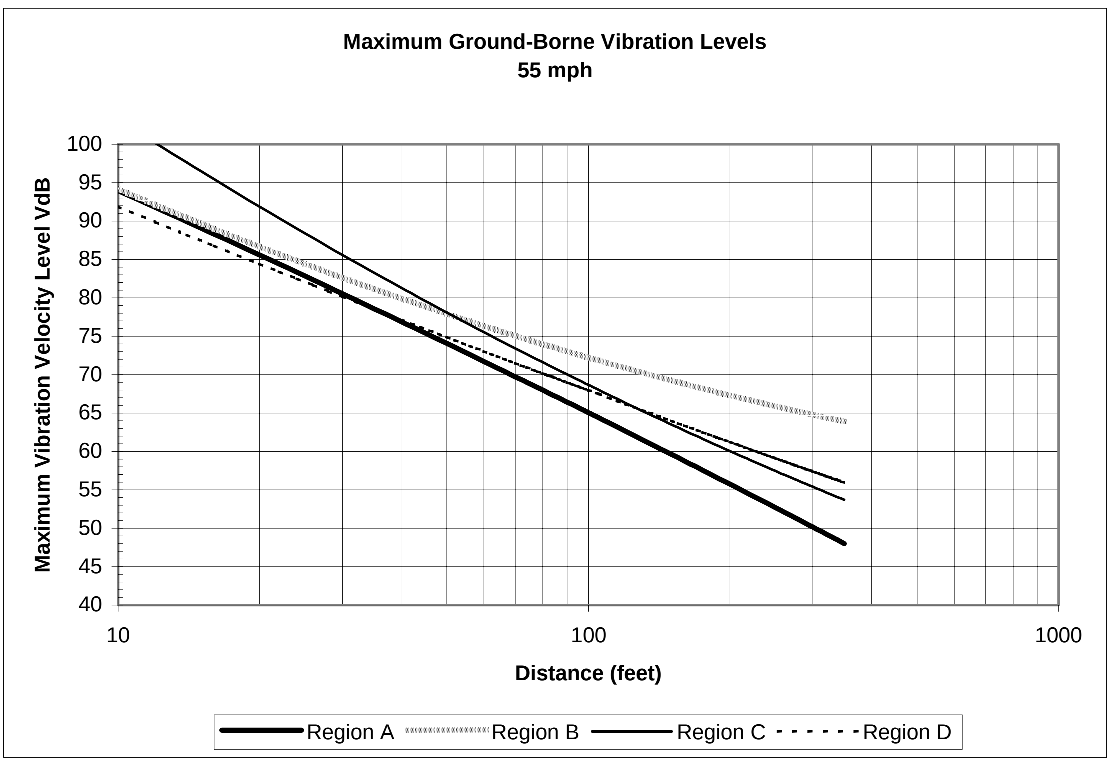


Figure 13. Projected Maximum Vibration Levels for LRT Operations at 55 mph

Figure 14. Projected Maximum Vibration Levels for LRT Operations in Region A

Figure 15. Projected Maximum Vibration Levels for LRT Operations in Region B

Figure 16. Projected Maximum Vibration Levels for LRT Operations in Region C

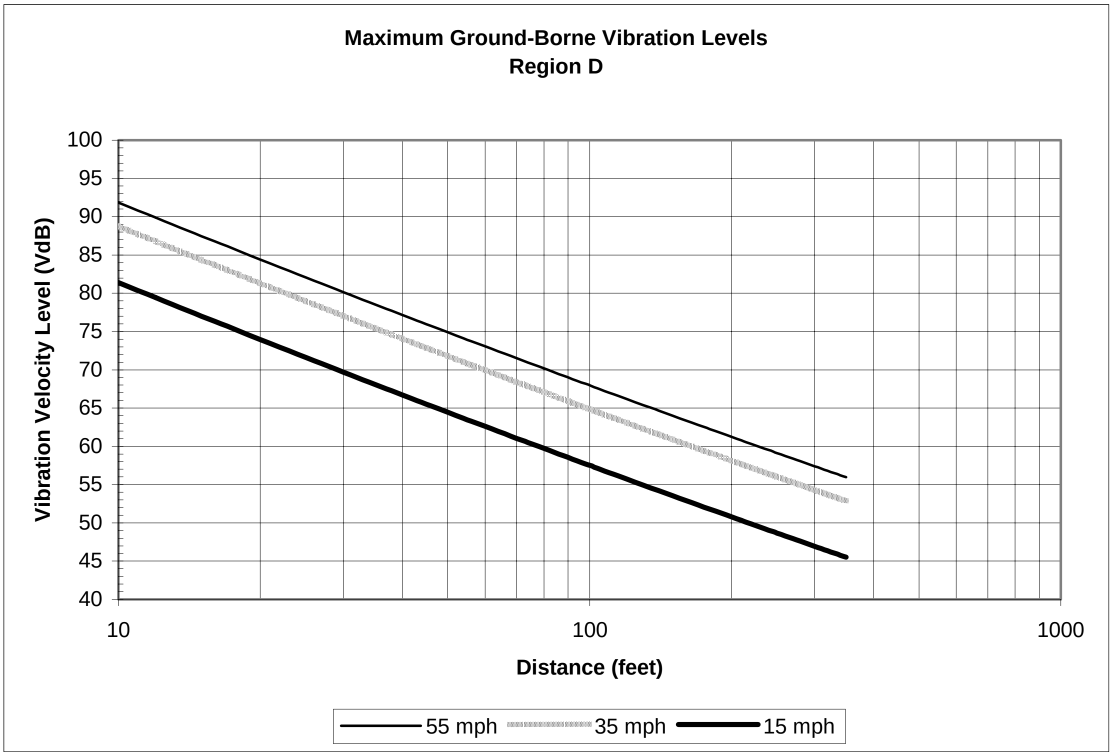


Figure 17. Projected Maximum Vibration Levels for LRT Operations in Region D

5.3 Station Noise Projections

In addition to noise impact from LRT train operations, noise impact may occur at sensitive receptors near LRT stations due to station-generated bus noise. However, the only station facility with bus activities is the Eastridge Transit Center, which is not located near any residential areas. Therefore, there is no need to assess the impact of bus noise at this station.

5.4 Ancillary Equipment Noise Projections

The traction power substations are the only ancillary equipment with much potential to cause noise impact. The major noise sources associated with substations are magnetostriction of the transformer core and cooling fans. It is generally possible to eliminate potential for noise impact from substations by including noise limits in the procurement documents.

The evaluation of noise from the substations is based on the method included in the FTA Guidance Manual. The basic relationship, based on measurements of substations on other LRT systems, is:

$L(d) = 76 - 20\,log(d)$ where "d" is the distance from the substation building in feet.

5.5 Audible Warning Device Noise Projections

For areas near grade crossings, noise exposure projections for train whistles and crossing bells were combined with the projections for LRT train noise. For the purpose of these projections, the whistles were modeled as moving point sources and the bells were modeled as stationary point sources. Based on experience on similar transit systems, the projections assume that the whistles generate a noise level of 78 dBA at 50 feet from the track for a five-second period as trains approach each crossing. The bells are estimated to generate a noise level of 72 dBA at 50 feet for twenty seconds prior to and ten seconds following each train.

5.6 Construction Noise Projections

Construction noise varies greatly depending on the construction process, type and condition of equipment used, and layout of the construction site. Many of these factors are traditionally left to the contractor's discretion, which makes it difficult to accurately estimate levels of construction noise. Overall, construction noise levels are governed primarily by the noisiest pieces of equipment. For most construction equipment, the engine, which is usually diesel, is the dominant noise source. This is particularly true of engines without sufficient muffling. For special activities such as impact pile driving and pavement breaking, noise generated by the actual process dominates.

Temporary noise during construction of the new tracks and the stations has the potential of being intrusive to residents near the construction sites. Most of the construction would consist of site preparation and laying new track, and would only occur during daytime hours.

It is recommended that consideration be given to: (1) including specific residential property line noise limits in the construction specifications for this project, and (2) performing noise monitoring during construction to verify compliance with the limits. This approach allows the contractor flexibility to meet the noise limits in the most efficient and cost effective manner. Experience suggests that community annoyance with construction noise will be minimal if: the Resident Engineer is committed to minimizing excessive noise; noise monitoring is performed to verify compliance with the noise limits; and a complaint resolution procedure is in place to rapidly address any problems that may develop.

Construction activities that could cause intrusive vibration include vibratory compaction, jackhammers, and use of tracked vehicles such as bulldozers. The most serious sources of construction vibration are blasting and pile driving. If these activities are planned, alternatives should be investigated to minimize the vibration impact. Avoiding vibration impacts during construction can be achieved through numeric limits in the construction specifications.

Table 9 summarizes some of the available data on noise emissions of construction equipment from the FTA Guidance Manual. Shown are the average of the Lmax values at a distance of 50 feet. Although the noise levels in the table represent typical values, there can be wide fluctuations in the noise emissions of similar equipment. Construction noise at a given noise-sensitive location depends on the magnitude of noise during each construction phase, the duration of the noise, and the distance from the construction activities.

Table 9. Construction Equipment Noise Emission Levels

Equipment Type	Typical Sound Level at 50 ft (dBA)
Backhoe	80
Bulldozer	85
Compactor	82
Compressor	81
Concrete Mixer	85
Concrete Pump	82
Crane, Derrick	88
Crane, Mobile	83
Loader	85
Pavement Breaker	88
Paver	89
Pile Driver, Impact	101
Pump	76
Roller	74
Truck	88
Source: Federal Transit Administration Guidance Manual.	

Projecting construction noise requires a construction scenario of the equipment likely to be used and the average utilization factors or duty cycles (i.e. the percentage of time during operating hours that the equipment operates under full power during each phase). Using the typical sound emission characteristics, as given in Table 9, it is then possible to estimate Leq or Ldn at various distances from the construction site.

The noise impact assessment for a construction site is based on:

- an estimate of the type of equipment that will be used during each phase of the construction and the average daily duty cycle for each category of equipment,

- typical noise emission levels for each category of equipment such as those in Table 9, and

- estimates of noise attenuation as a function of distance from the construction site.

Construction noise estimates are always approximate because of the lack of specific information available at the time of the environmental assessment. Decisions about the procedures and equipment to be used are made by the contractor. Project designers usually try to minimize constraints on how the construction will be performed and what equipment will be used so that contractors can perform construction in the most cost effective manner.

Table 10 is an example of the noise projections for equipment that is often used during tie-and-ballast track construction. For the calculations it is assumed that all the equipment is located at the geometric center of the construction work site. Based on this scenario, a 8-hour Leq of 88 dBA should be expected at a distance of 50 feet from the geometric center of the work site. This calculation in Table 10 does not assume any noise mitigation measures or any limits on the contractor about how much noise can be made. With at-grade track construction, the duration of the activities at a specific location along the alignment will be relatively limited, usually a matter of several weeks. As a result, even when there may be noise impacts, the limited duration of the construction can mean that mitigation is not cost effective.

Table 10. Typical Equipment List, At-Grade Track Construction

Equipment Item	Typical Maximum Sound Level at 50 ft (dBA)	Equipment Utilization Factor (%)	Leq (dBA)
Air Compressor	83	50%	80
Backhoe	80	40%	76
Crane, Derrick	82	10%	72
Dozer	85	40%	81
Generator	81	80%	80
Loader	85	40%	81
Pavement Breaker	84	4%	70
Shovel	80	40%	76
Dump Truck	88	16%	80
Total Workday Leq at 50 feet (8-hour workday)			88
Source: Federal Transit Administration Guidance Manual.			

6. NOISE AND VIBRATION IMPACT ASSESSMENT

A detailed noise and vibration impact assessment was performed based on the criteria discussed in Section 4 and on the projections described in Section 5. The assessment methods and results for the various project sources are described below.

6.1 LRT Noise Assessment

This section presents the analysis of potential noise impacts due to the operation of the Capitol Expressway LRT and discusses mitigation measures to minimize adverse impacts.

6.1.1 Approach

The assessment of noise impact from LRT train operations is based on a comparison of existing and projected future noise exposure for different land use categories. The following steps were performed to assess train noise impact:

- A detailed land-use survey was conducted along the project corridor to identify and classify all noise-sensitive receptors according to the categories defined in Section 4.1. The vast majority of these receptors are single and multi-family residences, falling under FTA Category 2. The remaining receptors were institutional sites falling under FTA Category 3, including three churches, a medical office, two parks and high school athletic fields.

- The receptors were clustered based on distance to the tracks, acoustical shielding between the receptors and the tracks, and location relative to crossovers and grade crossings.

- The existing noise exposure at each cluster of receptors was estimated based on the ambient noise measurements discussed in Section 3.1, and was used to determine the thresholds for impact and severe impact using the FTA criteria presented in Section 4.1.

- Projections of future LRT noise at each cluster of receptors were developed based on distance from the tracks, train schedule and train speed using the methods described in Section 5.1.

- In areas where the projections showed either degree of impact, mitigation options were evaluated and new projections were developed assuming mitigation of all impacts.

6.1.2 Noise Impact Assessment for Residential Land Use

6.1.2.1 No Build Alternative

The No Build Alternative is not expected to result in any noise impacts.

6.1.2.2 Baseline Alternative

The Baseline Alternative is not expected to result in any noise impacts.

6.1.2.3 LRT Alternative

For the LRT alternative, detailed comparisons of the existing and future noise levels are presented in Tables 11 and 12. Table 11 details the noise impacts for the light rail alternative and Table 12 details the impacts for the light rail alternative options. Tables 11 and 12 include results for the Category 2 receptors along the alignment with both daytime and nighttime sensitivity to noise (e.g. residences, hotels and hospitals). In addition to the civil station, distance to the near track and proposed LRT speed, each table includes the existing noise level, the projected noise level from LRT operations and the impact criteria for each receptor or receptor group. Based on a comparison of the predicted project noise level with the impact criteria, the impact category is listed, along with the predicted total noise level and projected noise increase due to the introduction of LRT service. Tables 11 and 12 also include an inventory of the number of impacts and severe impacts at each sensitive receptor location.

Table 11. Light Rail Alternative Noise Impacts for Category 2 Land Use

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Exist. Noise Level[1]	Project Noise Level[1]			Impact Category	Total Noise Level[1]	Noise Level Incr[1].	# of Impacts	
						Pred[2]	Impact Criteria						
							Imp	Sev				Imp	Sev
Light Rail Alternative													
Northern Terminus to Story Rd	21	E	45	45	73	69	65	72	Impact	75	1.4	9	0
	15	W	50	38	72	67	65	71	Impact	73	1.1	3[3]	0
Story Rd to Ocala Ave	50	E	120	45	73	63	65	72	None	74	0.3	0	0
	49	W	80	45	67	65	62	68	Impact	69	2.2	5	0
Ocala Ave to Cunningham Ave	94	E	110	35	65	54	61	66	None	66	0.3	0	0
	--[4]	W	--	--	--	--	--	--	--	--	--	--	--
Quimby Rd to Aborn Rd	189	E	65	35	67	61	62	67	None	68	0.9	0	0
	187	W	100	35	67	52	62	67	None	67	0.2	0	0
Aborn Rd to Silver Creek Rd	208	E	80	50	75	66	65	72	Impact	75	0.6	10	0
	--	W	--	--	--	--	--	--	--	--	--	--	--
Silver Creek Rd to US101	225	E	90	20	75	57	65	72	None	75	0.1	0	0
	224	W	95	20	75	57	65	72	None	75	0.1	0	0
US101 to Tuers Rd	246	E	105	55	72	56	65	71	None	72	0.1	0	0
	246	W	100	55	72	56	65	71	None	72	0.1	0	0
Tuers Rd to Senter Rd	279	E	110	55	72	61	65	71	None	72	0.3	0	0
	283	W	125	48	72	59	65	71	None	72	0.2	0	0
Senter Rd to US82	318	E	130	55	72	60	65	71	None	72	0.2	0	0
	336	W	150	40	72	58	65	71	None	72	0.2	0	0
US82 to Snell Ave	366	E	155	35	72	57	65	71	None	72	0.1	0	0
	--	W	--	--	--	--	--	--	--	--	--	--	--
Snell Ave to Vista Park Dr	382	E	120	53	72	61	65	71	None	72	0.3	0	0
	393	W	70	20	72	55	65	71	None	72	0.1	0	0
Vista Park Dr to Narvez Ave	410	E	160	39	72	59	65	71	None	72	0.2	0	0
	415	W	100	49	72	61	65	71	None	72	0.3	0	0
Narvez Ave to Southern Terminus	438	E	190	20	72	54	65	71	None	72	0.1	0	0
	--	W	--	--	--	--	--	--	--	--	--	--	--
Total for Light Rail Alternative												**27**	**0**

1. Noise levels are based on Ldn and are measured in dBA.
2. Predicted levels include a 5dBA penalty applied to audible signal noise, where applicable.
3. These residences are identified as right-of-way acquisitions in the conceptual engineering plans.
4. Dashes indicate that no noise sensitive receivers were located in this segment of the corridor, or that the LRT tracks are in a tunnel.

Table 12. Light Rail Alternative Options Noise Impacts for Category 2 Land Use

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Exist. Noise Level[1]	Project Noise Level[1]			Impact Category	Total Noise Level[1]	Noise Level Incr.[1]	# of Impacts	
						Pred[2]	Impact Criteria						
							Imp	Sev				Imp	Sev
Alum Rock Avenue to Story Road													
Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option	--[3]	E	--	--	--	--	--	--	--	--	--	--	--
	--	W	--	--	--	--	--	--	--	--	--	--	--
Story Road to Eastridge Transit Center													
Story Road to Ocala Avenue (Tunnel/Aerial Option)	50	E	120	45	73	63	65	72	None	74	0.3	0	0
	49	W	75	45	67	66	62	68	Impact	70	2.3	5	0
North of Eastridge Transit Center Tunnel with At-Grade Stn Option	74	E	140	55	73	59	65	72	None	74	0.2	0	0
	72	W	80	55	67	57	62	68	None	68	0.4	0	0
North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option)	74	E	140	55	73	59	65	72	None	74	0.2	0	0
	75	W	70	52	67	57	62	68	None	68	0.4	0	0
North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option)	74	E	140	55	73	59	65	72	None	74	0.2	0	0
	75	W	70	52	67	57	62	68	None	68	0.4	0	0
Eastridge Transit Center to Aborn Road													
South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option)	161	E	90	55	66	57	62	67	None	67	0.5	0	0
	--	W	--	--	--	--	--	--	--	--	--	--	--
South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option	189	E	75	50	67	63	62	67	Impact	68	1.4	4	0
	187	W	100	50	67	55	62	67	None	67	0.3	0	0
South of Eastridge Transit Center Side-Running Trench Option	163	E	160	55	66	54	62	67	None	67	0.3	0	0
	--	W	--	--	--	--	--	--	--	--	--	--	--
South of Eastridge Transit Center Side-Running At-Grade/Aerial Option	175	E	180	54	66	54	62	67	None	66	0.2	0	0
	--	W	--	--	--	--	--	--	--	--	--	--	--
Quimby Road to Silver Creek Road	189	E	70	29	67	62	62	67	Impact	68	1.3	4	0
	187	W	100	27	67	50	62	67	None	67	0.1	0	0
Quimby Road to Aborn Road	189	E	80	50	67	66	62	67	Impact	70	2.7	20	0
	178	W	40	53	67	71	62	67	Severe	72	5.8	98	4
Aborn Road to Silver Creek Road													
Aerial Crossing at Aborn Road Option	210	E	80	50	75	66	65	72	Impact	75	0.6	10	0
	--	W	--	--	--	--	--	--	--	--	--	--	--
Silver Creek Road to Coyote Creek													
Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101	228	E	75	28	75	62	65	72	None	75	0.2	0	0
	227	W	120	25	75	57	65	72	None	75	0.1	0	0

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Exist. Noise Level[1]	Project Noise Level[1]			Impact Category	Total Noise Level[1]	Noise Level Incr[1].	# of Impacts	
						Pred[2]	Impact Criteria					Imp	Sev
							Imp	Sev					
U.S. 101 to Tuers Road	246	E	100	55	75	65	65	72	Impact	73	0.8	4	0
	246	W	70	55	72	68	65	71	Impact	73	1.3	3	0
Coyote Creek to Highway 87													
At-grade, median-running between Coyote Creek and State Route 87 (With under Hwy 87 Station Option	422	E	150	45	72	67	62	71	Impact	73	1.1	4	0
	--	W	--	--	--	--	--	--	--	--	--	--	--

1. Noise levels are based on Ldn and are measured in dBA.
2. Predicted levels include a 5dBA penalty applied to audible signal noise, where applicable.
3. Dashes indicate that no noise sensitive receivers were located in this segment of the corridor, or that the LRT tracks are in a tunnel.

The assessment of impact is based on comparing the projected increase in L_{dn} with the impact thresholds listed in Table 3 (Section 4.1). Tables 11 and 12 include columns of the projected increase and the increase necessary for the two degrees of impact, *Impact* and *Severe Impact*. As discussed in Section 4.1, FTA states that in implementing these criteria, Severe Impacts should be mitigated unless there are no practical means to do so.

The results in Table 11 project noise impact at a total of 27 residences for the LRT alternative, all with moderate impact. The following are brief discussions of each impacted Category 2 land use area:

Northern Terminus to Story Rd (East) – There are nine residences at this location projected to have noise impact. The noise impacts are due to the proximity of the tracks (45 feet) to the residences and the presence of the elevated structure.

Northern Terminus to Story Rd (West) – There are three residences at this location projected to have noise impact. The noise impacts are due to the proximity of the tracks (50 feet) to the residences.

Story Rd to Ocala Ave (East) – No noise impact is projected at this location.

Story Rd to Ocala Ave (West) – There are five residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure and the speed of the LRT (45 mph).

Ocala Ave to Cunningham Ave (East) – No noise impact is projected at this location.

Ocala Ave to Cunningham Ave (West) – No noise impact is projected at this location.

Quimby Rd to Aborn Rd (East) – No noise impact is projected at this location.

Quimby Rd to Aborn Rd (West) – No noise impact is projected at this location.

Aborn Rd to Silver Creek Rd (East) – There are ten residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

Aborn Rd to Silver Creek Rd (West) – No noise impact is projected at this location.

Silver Creek Rd to US101 (East) – No noise impact is projected at this location.

Silver Creek Rd to US101 (West) – No noise impact is projected at this location.

US101 to Tuers Rd (East) – No noise impact is projected at this location.

US101 to Tuers Rd (West) – No noise impact is projected at this location.

Tuers Rd to Senter Rd (East) – No noise impact is projected at this location.

Tuers Rd to Senter Rd (West) – No noise impact is projected at this location.

Senter Rd to US82 (East) – No noise impact is projected at this location.

Senter Rd to US82 (West) – No noise impact is projected at this location.

US82 to Snell Ave (East) – No noise impact is projected at this location.

US82 to Snell Ave (West) – No noise impact is projected at this location.

Snell Ave to Vista Park Dr (East) – No noise impact is projected at this location.

Snell Ave to Vista Park Dr (West) – No noise impact is projected at this location.

Vista Park Dr to Narvez Ave (East) – No noise impact is projected at this location.

Vista Park Dr to Narvez Ave (West) – No noise impact is projected at this location.

Narvez Ave to Southern Terminus (East) – No noise impact is projected at this location.

Narvez Ave to Southern Terminus (West) – No noise impact is projected at this location.

The following are brief discussions for the light rail alternative options:

Alum Rock Avenue to Story Road

Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option (East) – No noise impact is projected at this location.

Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option (West) – No noise impact is projected at this location.

Story Road to Eastridge Transit Center
Story Road to Ocala Avenue (Tunnel/Aerial Option) (East) – No noise impact is projected at this location.

Story Road to Ocala Avenue (Tunnel/Aerial Option) (West) – There are five residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

North of Eastridge Transit Center Tunnel with At-Grade Stn Option (East) – No noise impact is projected at this location.

North of Eastridge Transit Center Tunnel with At-Grade Stn Option (West) – No noise impact is projected at this location.

North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option) (East) – No noise impact is projected at this location.

North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option) (West) – No noise impact is projected at this location.

North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option) (East) – No noise impact is projected at this location.

North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option) (West) – No noise impact is projected at this location.

Eastridge Transit Center to Aborn Road
South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option) (East) – No noise impact is projected at this location.

South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option) (West) – No noise impact is projected at this location.

South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option (East) –There are four residences at this location projected to have noise impact. The impacts are due to the speed of the LRT (50 mph) and the proximity of the tracks (75 feet).

South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option (West) – No noise impact is projected at this location.

South of Eastridge Transit Center Side-Running Trench Option (East) – No noise impact is projected at this location.

South of Eastridge Transit Center Side-Running Trench Option (West) – No noise impact is projected at this location.

South of Eastridge Transit Center Side-Running At-Grade/Aerial Option (East) – No noise impact is projected at this location.

South of Eastridge Transit Center Side-Running At-Grade/Aerial Option (West) – No noise impact is projected at this location.

Quimby Road to Silver Creek Road (East) – There are four residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

Quimby Road to Silver Creek Road (West) – No noise impact is projected at this location.

Quimby Road to Aborn Road (East) – There are twenty residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

Quimby Road to Aborn Road (West) – There are 98 residences at this location projected to have noise impact and four to have severe noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

Aborn Road to Silver Creek Road

Aerial Crossing at Aborn Road Option (East) – There are ten residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

Aerial Crossing at Aborn Road Option (West) – No noise impact is projected at this location.

Silver Creek Road to Coyote Creek

Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101 (East) – No noise impact is projected at this location.

Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101 (West) – No noise impact is projected at this location.

U.S. 101 to Tuers Road (East) – There are four residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

U.S. 101 to Tuers Road (West) – There are three residences at this location projected to have noise impact. The noise impacts are due to the presence of the elevated structure. Because of the elevated structure, the existing noise barrier at this location is ineffective at shielding the noise from LRT operations.

Coyote Creek to Highway 87
At-grade, median-running between Coyote Creek and State Route 87 (With under Hwy 87 Station Option (East) – There are two duplexes at this location (for a total of four residences) projected to have noise impact. The noise impacts are due to the presence of the crossover at Station 423.

At-grade, median-running between Coyote Creek and State Route 87 (With under Hwy 87 Station Option (West) – No noise impact is projected at this location.

6.1.3 Noise Impact Assessment for Institutional Land Use

Institutional land use near the corridor includes three churches, two parks, a medical office and a set of high school athletic fields. Table 13 summarizes the noise impact projections at these locations. The distances indicated in the table refer to either the location of the closest building, or the closest point of activity for sites with outdoor land use.

The analysis for the institutional receptors was identical to that for the residential receptors, except that the impact thresholds for noise increase are based on the energy-average Leq measured at representative nearby sites during the proposed hours or peak transit service.

Table 13 includes columns of the projected maximum LRT noise level and increase necessary for the two degrees of impact based on the FTA criteria (Impact and Severe Impact). The impact thresholds for noise increase are based on the energy-average Leq measured at representative nearby sites during the proposed hours of peak transit service.

Table 13. Noise Impacts for Category 3 Land Use

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Exist. Noise Level[1]	Project Noise Level[1]			Impact Category	Total Noise Level[1]	Noise Level Incr.[1]
						Pred[2]	Impact Criteria				
							Imp	Sev			
Light Rail Alternative											
Templo Juan	34	E	130	41	67	62	67	73	None	68	1.2
Crossroad Calvary Chapel	36	E	130	28	67	59	67	73	None	68	0.6
Eastridge Park	99	W	150	42	55	56	60	66	None	59	4.0
Medical Office	199	E	215	37	65	53	65	71	None	65	0.3
Andrew Hill HS fields	292	E	120	20	70	51	69	74	None	70	0.1
Apostolic Lighthouse Church	305	E	100	44	70	60	69	74	None	70	0.4
Monterey Park	326	E	120	55	70	60	69	74	None	70	0.5
Light Rail Alternative Options											

Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option										
Templo Juan	34	E	130	41	67	61	67	73	None	68	1.0
Crossroad Calvary Chapel	36	E	130	28	67	58	67	73	None	68	0.5
North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option)											
Eastridge Park	99	W	155	20	55	50	60	66	None	56	1.2
South of Eastridge Transit Center Side Running/Tunnel at Nieman Boulevard Option											
Medical Office	199	E	215	46	65	55	65	71	None	65	0.4
South of Eastridge Transit Center Aerial Crossing option (only with Eastridge Aerial Station Option)											
Medical Office	199	E	135	40	65	61	65	71	None	66	1.4
South of Eastridge Transit Center Side-Running At-Grade/Aerial Option											
Medical Office	199	E	200	46	65	60	65	71	None	66	1.0
1. Noise levels are based on Leq and are measured in dBA. 2. Predicted levels include a 5dBA penalty applied to audible signal noise, where applicable.											

No impacts are projected at any Category 3 (institutional) receptors for either the LRT Alternative or any of the options.

6.2 LRT Vibration Assessment

6.2.1 Approach

The approach used for assessing vibration impact generally follows the approach used for the noise impact, except that existing vibration is not considered when evaluating impact. The impact threshold for LRT operations is 72 VdB for residential buildings (Category 2) and 75 VdB for institutional buildings (Category 3).

6.2.1.1 No Build Alternative

The No Build Alternative is not expected to result in any vibration impacts.

6.2.1.2 Baseline Alternative

The Baseline Alternative is not expected to result in any vibration impacts.

6.2.1.3 LRT Alternative

For the LRT alternative, the estimated root mean square (RMS) velocity levels (VdB re 1 micro-in./sec.) for sensitive receptors at representative distances are provided in Tables 14 and 15. Table 14 details the vibration impacts for the light rail alternative and Table 15 details the impacts for the light rail alternative options. These tables summarize the results of the analysis in terms of anticipated exceedances of the FTA criteria for “frequent events” (defined as more than 70 events per day). The criteria are discussed in more detail above.

Vibration-sensitive locations along the alignment are listed in Tables 14 and 15 for Category 2 land use. The tables list the locations, the civil station, the distance to the near track, and the projected LRT speed at each location. In addition, the predicted project vibration level and the impact criterion level are indicated along with the number of impacts projected for each receptor or receptor group.

Table 14. Light Rail Alternative Land Use Category 2 Vibration Impacts

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Ground-Borne Vibration[1]			Ground-Borne Noise[2]		
					Project Level	Impact Criterion	# of Impacts	Project Level	Impact Criterion	# of Impacts
Light Rail Alternative										
Northern Terminus to Story Rd	10	E	55	35	75(70)[6]	72	1(0)[6]	--[4]	--	--
	13	W	40	35	79(73)	72	1(1)[5]	--	--	--
Story Rd to Ocala Ave	44	E	95	20	53	72	0	--	--	--
	52	W	75	45	73(69)	72	12(0)	--	--	--
Ocala Ave to Cunningham Ave	94	E	110	35	66	72	0	--	--	--
	--[3]	W	--	--	--	72	--	--	--	--
Quimby Rd to Aborn Rd	189	E	65	55	80(74)	72	73(33)	--	--	--
	188	W	110	35	73(68)	72	8(0)	--	--	--
Aborn Rd to Silver Creek Rd	204	E	90	45	77(71)	72	4(0)	--	--	--
	--	W	--	--	--	72	--	--	--	--
Silver Creek Rd to US101	228	E	70	28	75(69)	72	9(0)	--	--	--
	227	W	120	25	70	72	0	--	--	--
US101 to Tuers Rd	246	E	105	55	74(69)	72	3(0)	--	--	--
	250	W	75	28	73(67)	72	8(0)	--	--	--
Tuers Rd to Senter Rd	279	E	110	55	73(71)	72	4(0)	--	--	--
	283	W	125	48	70	72	0	--	--	--
Senter Rd to US82	311	E	75	51	76(73)	72	12(12)	--	--	--
	315	W	60	55	79(75)	72	32(6)	--	--	--
US82 to Snell Ave	366	E	155	35	66	72	0	--	--	--
	--	W	--	--	--	72	--	--	--	--
Snell Ave to Vista Park Dr	382	E	120	53	71	72	0	--	--	--
	393	W	70	20	69	72	0	--	--	--
Vista Park Dr to Narvez Ave	404	E	100	35	70	72	0	--	--	--
	415	W	100	49	73(70)	72	21(0)	--	--	--
Narvez Ave to Southern Terminus	438	E	190	20	59	72	0	--	--	--
	--	W	--	--	--	72	--	--	--	--
Total for LRT Alternative							**187(51)**			**0**

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Ground-Borne Vibration[1]			Ground-Borne Noise[2]		
					Project Level	Impact Criterion	# of Impacts	Project Level	Impact Criterion	# of Impacts

1. Vibration levels are measured in VdB referenced to 1 µin/sec.
2. Ground-borne noise levels are measured in dBA.
3. Dashes indicate that no vibration sensitive receivers were located in this segment of the corridor.
4. Ground-borne noise is only assessed for subway sections of the alignment.
5. This residence is identified as a right-of-way acquisition in the conceptual engineering plans and is not included in the total at the bottom of the table.
6. The vibration levels and numbers of impacts in parenthesis assume that shredded tires are a project feature where the vibration levels are above the impact criterion.

Table 15. Light Rail Alternative Options Land Use Category 2 Vibration Impacts

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Ground-Borne Vibration[1]			Ground-Borne Noise[2]		
					Project Level	Impact Criterion	# of Impacts	Project Level	Impact Criterion	# of Impacts
Alum Rock Avenue to Story Road										
Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option	10	E	55	35	75(70)[5]	72	4(0)[5]	41(32)[5]	35	11(0)
	13	W	60	35	74(69)	72	4(0)	40(27)	35	3(0)
Story Road to Eastridge Transit Center										
North of Eastridge Transit Center Tunnel with At-Grade Stn Option	44	E	120	20	50	72	0	--[4]	--	--
	52	W	70	45	74(70)	72	5(0)	--	--	--
North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option)	80	E	70	20	67	72	0	--	--	--
	75	W	70	48	74(70)	72	6(0)	--	--	--
North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option)	80	E	70	38	72(68)	72	2(0)	--	--	--
	75	W	70	52	75(71)	72	2(0)	--	--	--
Eastridge Transit Center to Aborn Road										
South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option)	161	E	90	55	79(73)	72	8(8)	--	--	--
	--[3]	W	--	--	--	--	--	--	--	--
South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option	189	E	75	50	80(74)	72	83(4)	45(34)	35	21(0)
	178	W	60	53	82(75)	72	24(20)	53(40)	35	45(25)
South of Eastridge Transit Center Side-Running Trench Option	161	E	160	55	75(70)	72	10(0)	--	--	--
	178	W	75	53	80(74)	72	24(22)	50(40)	35	24(24)

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Ground-Borne Vibration[1]			Ground-Borne Noise[2]		
					Project Level	Impact Criterion	# of Impacts	Project Level	Impact Criterion	# of Impacts
South of Eastridge Transit Center Side-Running At-Grade/Aerial Option	178	W	75	53	80(74)	72	24(22)	50(40)	35	24(24)
South of Eastridge Transit Center Side-Running At-Grade/Aerial Option / Quimby Road to Aborn Road	187	E	140	27	69	72	0	--	--	--
	189 / 188	W / E	150 / 175	38 / 20	80(74) / 77(71)	72	95(4) / 0	50(34) / --	35 / --	96(36) / --
Quimby Road to Aborn Road	164	E	160	24	67	72	0	--	--	--
	178	W	40	53	75(68)	72	4(0)	--	--	--
Aborn Road to Silver Creek Road										
Aerial Crossing at Aborn Road Option	210	E	80	50	69	72	0	--	--	--
	--	W	--	--	--	--	--	--	--	--
Silver Creek Road to Coyote Creek										
Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101	228	E	75	28	65	72	0	--	--	--
	227	W	120	25	60	72	0	--	--	--
U.S. 101 to Tuers Road	248	E	90	41	63	72	0	--	--	--
	246	W	70	55	69	72	0	--	--	--
Coyote Creek to Highway 87										
	422	E	150	45	78(76)	72	4(4)	--	--	--
	415	W	100	49	73(70)	72	18(0)	--	--	--

1. Vibration levels are measured in VdB referenced to 1 μin/sec.
2. Ground-borne noise levels are measured in dBA.
3. Dashes indicate that no vibration sensitive receivers were located in this segment of the corridor.
4. Ground-borne noise is only assessed for subway sections of the alignment.
5. The vibration levels, ground-borne noise levels and numbers of impacts in parenthesis assume that shredded tires are a project feature where the vibration levels are above the impact criterion.

The results in Table 14 project ground-borne vibration impact at a total of 187 residences for the LRT alternative and 51 vibration impacts assuming the use of shredded tires as a project feature where the vibration levels are above the impact criterion. The following are brief discussions of each impacted Category 2 land use area for the light rail alternative:

Northern Terminus to Story Rd (East) – There is one residence (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impact is due to the proximity of the tracks (55 feet) to the residences.

Northern Terminus to Story Rd (West) – There is one residence (one with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impact is due to the proximity of the tracks (40 feet) to the residences. This residence identified as a right-of-way acquisition in the conceptual engineering plans.

Story Rd to Ocala Ave (East) – No vibration impact is projected at this location.

Story Rd to Ocala Ave (West) – There are twelve residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (75 feet) to the residences and the speed of the LRT vehicles (45 mph).

Ocala Ave to Cunningham Ave (East) – No vibration impact is projected at this location.

Ocala Ave to Cunningham Ave (West) – No vibration impact is projected at this location.

Quimby Rd to Aborn Rd (East) – There are 73 residences (33 with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (65 feet) to the residences and the speed of the LRT vehicles (55 mph).

Quimby Rd to Aborn Rd (West) – There are eight residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (110 feet) to the residences and the speed of the LRT vehicles (35 mph).

Aborn Rd to Silver Creek Rd (East) – There are four residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (90 feet) to the residences and the speed of the LRT vehicles (45 mph).

Aborn Rd to Silver Creek Rd (West) – No vibration impact is projected at this location.

Silver Creek Rd to US101 (East) – There are nine residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (70 feet) to the residences.

Silver Creek Rd to US101 (West) – No vibration impact is projected at this location.

US101 to Tuers Rd (East) – There are three residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (105 feet) to the residences and the speed of the LRT vehicles (55 mph).

US101 to Tuers Rd (West) – There are eight residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (75 feet) to the residences.

Tuers Rd to Senter Rd (East) – There are four residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (70 feet) to the residences and the speed of the LRT vehicles (50 mph).

Tuers Rd to Senter Rd (West) – No vibration impact is projected at this location.

Senter Rd to US82 (East) – There are twelve residences (twelve with the inclusion of shredded tires as a project feature) in three multi-family buildings at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (75 feet) to the residences and the speed of the LRT vehicles (51 mph).

Senter Rd to US82 (West) – There are 32 residences (six with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (60 feet) to the residences and the speed of the LRT vehicles (55 mph).

US82 to Snell Ave (East) – No vibration impact is projected at this location.

US82 to Snell Ave (West) – No vibration impact is projected at this location.

Snell Ave to Vista Park Dr (East) – No vibration impact is projected at this location.

Snell Ave to Vista Park Dr (West) – No vibration impact is projected at this location.

Vista Park Dr to Narvez Ave (East) – No vibration impact is projected at this location.

Vista Park Dr to Narvez Ave (West) – There are 21 residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (100 feet) to the residences and the speed of the LRT vehicles (49 mph).

Narvez Ave to Southern Terminus (East) – No vibration impact is projected at this location.

Narvez Ave to Southern Terminus (West) – No vibration impact is projected at this location.

The following are brief discussions of each impacted Category 2 land use area for the light rail alternative options:

Alum Rock Avenue to Story Road
Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option (East) – There are four residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. In addition, there are eleven ground-borne noise impacts (none with the inclusion of shredded tires as a project feature) at this location. The impacts are due to the proximity of the tracks (55 feet) to the residences.

Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option (West) – There are four residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. In addition, there are three ground-borne noise impacts (none with the inclusion of shredded tires as a project feature) at this location. The impacts are due to the proximity of the tracks (60 feet) to the residences.

Story Road to Eastridge Transit Center
North of Eastridge Transit Center Tunnel with At-Grade Stn Option (East) – No vibration impact is projected at this location.

North of Eastridge Transit Center Tunnel with At-Grade Stn Option (West) – There are five residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (70 feet) to the residences and the speed of the LRT vehicles (45 mph).

North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option) (East) – No vibration impact is projected at this location.

North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Ave Stn Option) (West) – There are six residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (70 feet) to the residences and the speed of the LRT vehicles (48 mph).

North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option) (East) – There are two residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (70 feet) to the residences.

North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option) (West) – There are two residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (70 feet) to the residences and the speed of the LRT vehicles (52 mph).

Eastridge Transit Center to Aborn Road

South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option) (East) – There are eight residences (eight with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (90 feet) to the residences and the speed of the LRT vehicles (55 mph).

South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option) (West) – No vibration impact is projected at this location.

South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option (East) – There are 83 residences (four with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. In addition, there are 21 ground-borne noise impacts (none with the inclusion of shredded tires as a project feature) at this location. The impacts are due to the proximity of the tracks (75 feet) to the residences and the speed of the LRT vehicles (50 mph).

South of Eastridge Transit Center Side Running/Tunnel at Nieman Blvd Option (West) – There are 24 residences (twenty with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. In addition, there are 45 ground-borne noise impacts (25 with the inclusion of shredded tires as a project feature) at this location. The impacts are due to the speed of the LRT vehicles (55 mph).

South of Eastridge Transit Center Side-Running Trench Option (East) – There are ten residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (90 feet) to the residences and the speed of the LRT vehicles (55 mph).

South of Eastridge Transit Center Side-Running At-Grade/Aerial Option (East) – There are 24 residences (22 with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. In addition, there are 24 ground-borne noise impacts (24 with the inclusion of shredded tires as a project feature) at this location. The impacts are due to the proximity of the tracks (75 feet) to the residences and the speed of the LRT vehicles (53 mph).

South of Eastridge Transit Center Side-Running At-Grade/Aerial Option (West) – There are 95 residences (four with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. In addition, there are 96 ground-borne noise impacts (36 with the inclusion of shredded tires as a project feature) at this location. The impacts are due to the proximity of the tracks (75 feet) to the residences and the speed of the LRT vehicles (50 mph).

Quimby Road to Aborn Road (East) – No vibration impact is projected at this location.

Quimby Road to Aborn Road (West) – No vibration impact is projected at this location.

Quimby Road to Aborn Road (East) – No vibration impact is projected at this location.

Quimby Road to Aborn Road (West) – There are four residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (40 feet) to the residences and the speed of the LRT vehicles (53 mph).

Aborn Road to Silver Creek Road
Aerial Crossing at Aborn Road Option (East) – No vibration impact is projected at this location.

Aerial Crossing at Aborn Road Option (West) – No vibration impact is projected at this location.

Silver Creek Road to Coyote Creek
Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101 (East) – No vibration impact is projected at this location.

Aerial Crossing of Hwy 101 Option (includes McLaughlin Aerial Stn) - Silver Creek Rd to U.S. 101 (West) – No vibration impact is projected at this location.

U.S. 101 to Tuers Road (East) – No vibration impact is projected at this location.

U.S. 101 to Tuers Road (West) – No vibration impact is projected at this location.

Coyote Creek to Highway 87
At-grade, median running between Coyote Creek and State Route 87 (East) – There are four residences (four with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the presence of the crossover at station 423.

At-grade, median running between Coyote Creek and State Route 87 (West) – There are eighteen residences (none with the inclusion of shredded tires as a project feature) at this location projected to have vibration impact. The vibration impacts are due to the proximity of the tracks (100 feet) to the residences and the speed of the LRT vehicles (49 mph).

Institutional land use near the corridor includes three churches, two parks, a medical office and a set of high school athletic fields. Table 16 summarizes the vibration impact projections at these locations. Vibration impact is only assessed for indoor usage; parks are not included in the vibration assessment. The analysis for the institutional receptors was identical to that for the residential receptors, except that the impact thresholds for vibration are higher than those for residential receptors.

Table 16. Land Use Category 3 Vibration Impacts

Location	Civil Stn	Side of Track	Dist to Near Track (ft)	Speed (mph)	Ground-Borne Vibration[1]			Ground-Borne Noise[2]		
					Project Level	Impact Criterion	Impact?	Project Level	Impact Criterion	Impact?
Light Rail Alternative										
Templo Juan	34	E	130	41	55	75	No	--[3]	--	--
Crossroad Calvary Chapel	36	E	130	28	52	75	No	--	--	--
Medical Office	199	E	215	37	69	75	No	--	--	--
Apostolic Lighthouse Church	305	E	100	44	72	75	No	--	--	--
Alternatives										
Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option										
Templo Juan	34	E	130	41	55	75	No	--	--	--
Crossroad Calvary Chapel	36	E	130	28	52	75	No	--	--	--
North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option)										
Medical Office	199	E	215	46	71	75	No	38 (28)[4]	35	No
South of Eastridge Transit Center Side Running/Tunnel at Nieman Boulevard Option										
Medical Office	199	E	135	40	63	75	No	--	--	--
South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option)										
Medical Office	199	E	200	46	62	75	No	--	--	--

1. Vibration levels are measured in VdB referenced to 1 μin/sec.
2. Ground-borne noise levels are measured in dBA.
3. Ground-borne noise is only assessed for subway sections of the alignment.
4. The ground-borne noise level in parenthesis assumes that shredded tires are a project feature where the vibration levels are above the impact criterion.

The only institutional impact is for a medical office on the North of Eastridge Transit Center Tunnel option. Ground-borne noise impact is projected at this location (no impact is projected with the inclusion of shredded tires as a project feature). There are no other vibration impacts at institutional receptors.

6.3 Station Noise Assessment

The primary sources of noise at stations are buses entering and exiting the station, bus idling, and traffic associated with park-and-ride lots. Since the stations with these types of activities are not located near any sensitive receptors, there are no noise impacts projected at any of the stations along the Capitol Expressway Corridor.

6.4 Ancillary Equipment Noise Assessment

As described in Section 4.3, the noise criteria for ancillary equipment are based on common guidelines for these types of facilities. There are five substations located within 250 feet of residences. Based on the noise monitoring data, the minimum nighttime ambient L90s range from 38 dBA to 50 dBA, which implies that criterion of 45 dBA would apply at all locations. Using the prediction equation in Section 5.4 for electrical substations, no noise impact is projected for any of the substation locations. However, the substations located at Stations 400 and 438 are located within 40 and 60 feet, respectively, of residences. The projected noise levels at the closest residences for the substations at these two locations are close to the noise criterion and consideration should be given to moving them to locations further from noise sensitive receptors.

6.5 Construction Noise Assessment

Based on the criteria in Section 4.4 and the noise projection in Table 10, and assuming that construction noise is reduced by 6 decibels for each doubling of distance from the center of the site, screening distances for potential construction noise impact can be estimated. These estimates suggest that the potential for construction noise impact will be minimal for commercial and industrial land use, with impact screening distances of 70 feet and 40 feet, respectively. Even for residential land use, the potential for temporary construction noise impact would be limited to locations within about 125 feet of the corridor. However, the potential for noise impact from nighttime construction could extend to residences as far as 400 feet. Potential construction noise impacts will be reevaluated during final design.

7. MITIGATION OF NOISE AND VIBRATION IMPACTS

7.1 LRT Noise Mitigation Measures

Potential mitigation measures for reducing noise impacts from LRT operation are described below.

- **Noise Barriers -** This is a common approach to reducing noise impacts from surface transportation sources. The primary requirements for an effective noise barrier are that (1) the barrier must be high enough and long enough to break the line-of-sight between the sound source and the receiver, (2) the barrier must be of an impervious material with a minimum surface density of 4 lb/sq. ft. and (3) the barrier must not have any gaps or holes between the panels or at the bottom. Because numerous materials meet these requirements, the selection of materials for noise barriers is usually dictated by aesthetics, durability, and cost and maintenance considerations. Depending on the proximity of the barrier to the tracks and on the track elevation, transit system noise barriers typically range in height from between four and eight feet and typically reduce noise levels by 8 – 10 dBA.

- **Building Sound Insulation -** Sound insulation of residences and institutional buildings to improve the outdoor-to-indoor noise reduction has been widely applied around airports and has seen limited application for transit projects. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where noise barriers are not feasible or desirable, and for buildings where indoor sensitivity is of most concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dBA) can often be achieved by adding an extra layer of glazing to the windows, by sealing any holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air-conditioning so that windows do not need to be opened. Building sound insulation can provide 10 – 20 dBA of noise reduction, depending on the existing condition of the structure and the extent of treatments.

- **Special Trackwork at Crossovers -** Because the impacts of LRT wheels over rail gaps at track crossover locations increases LRT noise by about 6 dBA, crossovers are a major source of noise impact when they are located in sensitive areas. If crossovers cannot be relocated away from sensitive areas, another approach is to use spring rail or moveable point frogs in place of standard rigid frogs at turnouts. These devices allow the flangeway gap to remain closed in the main traffic direction for revenue service trains and typically reduce noise levels by 6 dBA.

- **LRT Speed Reductions in Sensitive Areas -** Speed reductions will always lower community noise levels, but they are not often implemented for noise control because of the negative impact on the LRT travel time. Thus, their impact on the travel time would need to be evaluated with respect to their potential noise mitigation benefits.

As discussed above, FTA states that in implementing noise impact criteria, severe impacts should be mitigated unless there are no practical means to do so. VTA's policy is to mitigate severe noise impacts; therefore the mitigation recommendations only include those locations with severe impact.

Based on the results of the noise assessment, potential mitigation measures have been identified. The primary mitigation measure would be the construction of sound barrier walls to shield areas where impact is projected. Table 17 indicates the approximate noise barrier locations, lengths, and side of track as well as the number of severe impacts that would be mitigated. Table 17 provides locations of noise barriers to mitigate only severe impacts.

All severe noise impacts are primarily due to the presence of elevated structures, which reduce the effectiveness of existing noise barriers at shielding residences from noise from LRT operations. Because the noise impacts are due to the elevated structures, the most effective location for noise barriers would be on the elevated structures. If noise barriers can be located on the structures, they would only need to be approximately 4 to 5 feet high to provide effective shielding for sensitive receptors. Detailed design of noise barriers (including height, length and location) will be completed during the engineering phase of the project.

Table 17. Potential Noise Barrier Mitigation Treatment

Segment	Side of Track	Civil Station	Length (Feet)	Impacts
Alternative D3				
Quimby Rd to Aborn Rd	West	175+50 to 180+50	500	4

7.2 LRT Vibration Mitigation Measures

The assessment assumes that the LRT vehicle wheels and track are maintained in good condition with regular wheel truing and rail grinding. Beyond this, there are several approaches to reduce ground-borne vibration from LRT operation, as described below.

- **LRT Speed Reductions in Sensitive Areas -** Speed reductions will always lower ground-borne vibration levels, but they are not always a feasible vibration control measure because of the negative impact on the LRT travel times. Thus, their impact on the travel times will need to be evaluated with respect to their potential vibration mitigation benefits.

- **Ballast Mats** - A ballast mat consists of a pad made of rubber or rubber-like material placed on an asphalt or concrete base with the normal ballast, ties and rail on top. The reduction in ground-borne vibration provided by a ballast mat is strongly dependent on the frequency content of the vibration and design and support of the mat, and can typically range from 3 – 5 VdB.

- **Tire Shred or Recycled Rubber Chip Underlay -** A 12-inch-thick resilient layer of recycled rubber chips placed beneath the sub-ballast layer of standard open ballast and tie track could be incorporated into the track design. This mitigation method would provide results similar to ballast mats, providing a 3–5 VdB reduction.

- **Floating Slabs -** Floating slabs consist of thick concrete slabs supported by resilient pads on a concrete foundation; the tracks are mounted on top of the floating slab. Most successful floating slab installations are in subways, and their use for at-grade track is less common. Although floating slabs are designed to provide vibration reduction at lower frequencies than ballast mats, they are extremely expensive. Floating slabs can typically provide 5 – 13 VdB of reduction, depending on the thickness.

- **Special Trackwork at Crossovers -** Because the impacts of LRT wheels over rail gaps at track crossover locations increases LRT vibration by about 10 VdB, crossovers are a major source of vibration impact when they are located in sensitive areas. If crossovers cannot be relocated away from sensitive areas, another approach is to use spring rail or moveable point frogs in place of standard rigid frogs at turnouts. These devices allow the flangeway gap to remain closed in the main traffic direction for revenue service trains and typically reduce vibration by 10 VdB.

- **Property Acquisitions or Easements** – Additional options for avoiding vibration impacts (and noise impacts also) are for the transit agency to purchase residences likely to be impacted by train operations or to acquire easements for such residences by paying the homeowners to accept the future train vibration conditions. These approaches are usually taken only in isolated cases where other mitigation options are infeasible, impractical, or too costly.

Vibration impacts that exceed FTA severe impact criteria are considered to be significant and to warrant mitigation, if reasonable and feasible. Tables 18 and 19 indicate the civil stations along the corridor where mitigation is recommended to reduce the vibration levels. Table 18 identifies mitigation locations for the light rail alternative and Table 19 identifies mitigation locations for the light rail alternative options. The mitigation locations take into account the removal of vibration impacts at residences identified as right of way acquisitions in the conceptual engineering documents.

At a minimum, mitigation would require the installation of ballast mats. However, other measures (e.g. undertie pads or shredded tires) or a combination of measures may be required to mitigate impacts at some locations. In addition, the vibration impacts on the at-grade, median running between Coyote Creek and State Route 87 option are due to the presence of the crossover at Station 423. The crossover should be moved to the south of Narvez Avenue to mitigate the impacts.

Because of the relatively high number of ground-borne vibration and ground-borne noise impacts along the Capitol Expressway corridor, additional vibration testing may be warranted. The vehicle source vibration levels are higher than expected, and higher than other LRT vehicles in service around the country. Much of the impact along the corridor is due to the high source levels from the vehicles. Additional testing should be performed at an additional location on the existing system to determine if the source level measurements are accurate, or if there is an environmental factor at the test site that is influencing the source vibration levels. Additional vibration propagation tests should also be performed along the corridor to help refine the vibration projections. With additional testing of the vehicles, and more vibration propagation tests, it is possible that the number and magnitude of the vibration impacts could be reduced, resulting in the need for less vibration mitigation.

VTA will use vibration-dampening track construction materials at the impacted locations identified in Tables 18 and 19. The areas identified in Tables 18 and 19 will have shredded tires as a project design feature to mitigate vibration. Areas that may require additional or alternative types of vibration mitigation are noted in the table. The use of ballast mats, special trackwork at crossovers, tire shred or recycled rubber chip underlay, floating slabs, or other measures will be incorporated into the final design to reduce vibration impacts to below the FTA criteria.

Table 18. Light Rail Alternative Recommended Locations for Vibration Mitigation

Segment	Civil Station	Length (Feet)	Residual Impacts[1]	
			Vibration	Ground-Borne Noise
Northern Terminus to Story Road	8+50 to 14+50	600	0	--
Story Rd to Ocala Ave	49+00 to 54+00	500	0	--
	66+00 to 77+50	1,150	0	--
Quimby Rd to Aborn Rd	158+50 to 179+50	2,100	33	--
	185+00 to 196+00	1,250	0	--
Aborn Rd to Silver Creek Rd	200+50 to 206+00	550	0	--
Silver Creek Rd to US101	226+00 to 233+00	700	0	--
US101 to Senter Road	244+00 to 252+00	800	0	
	276+00 to 281+00	500	0	
Senter Rd to US82	302+00 to 332+00	3,000	18	--
	413+00 to 419+00	600	0	--
Total for Light Rail Alternative		**10,450**	**51**	**0**
1. Impacts remaining with the inclusion of shredded tires as a project design feature.				

Table 19. Light Rail Alternative Options Recommended Locations for Vibration Mitigation

Option	Civil Station	Length (Feet)	Residual Impacts[1]	
			Vibration	Ground-Borne Noise
Alum Rock Avenue to Story Road				
Capitol Avenue/Capitol Expressway Tunnel/Story Road Aerial Option	8+50 to 20+00	1,150	0	0
Story Road to Eastridge Transit Center				
Story Road to Ocala Avenue (Tunnel/Aerial Option)	49+00 to 54+00	500	0	--
North of Eastridge Transit Center Tunnel with At-Grade Station Option	68+00 to 74+50	950	0	--
North of Eastridge Transit Center Tunnel (includes Between Ocala and Cunningham Avenue Station Option)	73+50 to 82+00	850	0	--
North of Eastridge Transit Center Tunnel (includes Cunningham Avenue Station Option)	73+50 to 82+00	850	0	--
Eastridge Transit Center to Aborn Road				
South of Eastridge Transit Center Side Running/Tunnel at Nieman Boulevard Option	158+50 to 162+50	400	0	--
	170+50 to 192+50	2,200	24	25
South of Eastridge Transit Center Side-Running Trench Option	158+00 to 165+00	700	0	--
Tunnel Structure Through Aborn Option				
Quimby Road to Silver Creek Road	175+50 to 205+50	3,000	26	60[2]
South of Eastridge Transit Center Aerial Crossing Option (only with Eastridge Aerial Station Option)	175+50 to 179+50	400	4	--
South of Eastridge Transit Center Side-Running At-Grade/Aerial Option	175+00 to 180+00	500	0	--
Eastridge Station Aerial Option				
Eastridge Station Area	158+00 to 164+50	650	8	--
Coyote Creek to Highway 87				
At-grade, median-running between Coyote Creek and State Route 87 (With under Highway 87 Station Option)	413+00 to 416+50	350	0	--
1. Impacts remaining with the inclusion of shredded tires as a project design feature. 2. Total includes one institutional receptor (medical office).				

7.3 Station Noise Mitigation Measures

No station noise impacts are projected and therefore no mitigation measures are required at any of the LRT station sites.

7.4 Ancillary Equipment Noise Mitigation Measures

The substations located at Stations 400 and 438 are located within 40 and 60 feet, respectively, of residences. The projected noise levels at the closest residences for the substations at these two locations are close to the noise criterion and consideration should be given to moving them to locations further from noise sensitive receptors. No other ancillary facility noise impacts are projected and therefore no mitigation measures are necessary.

7.5 Construction Noise Mitigation Measures

Specific residential property line noise limits will be developed during final design and included in the construction specifications for the project. This approach allows the contractor flexibility to meet the noise criteria in the most efficient and cost-effective manner. Noise control measures will be applied as needed to meet the noise criteria and may include the following:

- Avoiding nighttime construction in residential neighborhoods.
- Using specially quieted equipment with enclosed engines and/or high-performance mufflers.
- Locating stationary construction equipment as far as possible from noise-sensitive sites.
- Constructing noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.
- Re-routing construction-related truck traffic along roadways would cause the least disturbance to residents.
- Avoiding impact pile driving near noise-sensitive areas, where possible. Drilled piles or the use of a sonic or vibratory pile driver are quieter alternatives where the geological conditions permit their use. If impact pile drivers must be used, their use would be limited to the periods between 8:00 a.m. and 5:00 p.m. on weekdays.

With the incorporation of the appropriate noise mitigation measures, impacts from construction-generated noise should not be significant. To provide added assurance, a complaint resolution procedure should also be put in place to rapidly address any noise problems that may develop during construction

APPENDIX A. MEASUREMENT SITE PHOTOGRAPHS

Figure A-1. Site N-1, 4268 Bambi Lane

Figure A-2. Site N-2, 1276 Capitol Court

Figure A-3. Site N-3, 2540 Greenstone Circle

Figure A-4. Site N-4, 2015 Supreme Drive

Figure A-5. Site N-5, San Jose Lake Cunningham Park

Figure A-6. Site N-6, 2655 Glen Hanleigh Drive

Figure A-7. Site N-7, 2561 Whispering Hills Drive

Figure A-8. Site N-8, 2219 Pettigrew Drive

Figure A-9. Site N-9, 5 Rio De Plata

Figure A-10. Site N-10, 1275 Medley Drive

Figure A-11. Site N-11, 3211/3205 Lone Bluff Way

Figure A-12. Site N-12, 3180 Welby Court

Figure A-13. Site N-13, 13184 Potts Drive

Figure A-14. Site N-14, 916 The Woods Drive

Figure A-15. Site N-15, 4111 Ellmar Oaks Drive

Figure A-16. Site N-16, 611 Copperfield Drive

Figure A-17. Site V-1, Ryan Elementary School

Figure A-18. Site V-2, East Ridge Mall

Figure A-19. Site V-3, Brandybuck Way and Woody End Court

Figure A-20. Site V-4, Monterey Park

APPENDIX B. NOISE MEASUREMENT DATA

Site N-1: 4268 Bambi Lane

Ldn: 72.1 dBA

Table B-20. Noise Survey Results, Site N-1

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
12:00:00	68.6	79.5	51.2	75.5	71.3	69.1	67.8	61.0	54.1
13:00:00	68.2	81.5	48.6	73.7	71.1	69.1	67.6	60.7	54.2
14:00:00	69.9	93.6	51.7	76.9	71.7	69.9	68.6	62.3	56.6
15:00:00	69.5	92.6	50.9	74.8	71.2	69.4	68.2	62.4	55.2
16:00:00	67.9	81.1	54.4	74.2	70.0	68.2	67.3	63.7	58.6
17:00:00	70.1	91.6	57.5	77.4	70.5	68.7	67.7	64.1	59.9
18:00:00	69.6	92.7	50.9	74.5	70.5	68.8	67.8	64.1	57.4
19:00:00	68.1	82.4	50.2	73.6	70.8	68.8	67.5	61.2	54.8
20:00:00	67.8	75.6	52.3	72.8	70.7	68.6	67.1	61.3	55.7
21:00:00	67.8	77.1	51.3	72.6	70.7	68.7	67.3	61.2	55.1
22:00:00	67.2	76.1	47.6	73.4	70.4	67.9	66.2	58.9	52.1
23:00:00	65.3	78.6	45.1	71.6	68.8	66.0	64.1	54.9	47.7
0:00:00	63.9	80.7	44.0	71.4	67.6	63.9	61.5	51.6	46.4
1:00:00	61.7	76.8	42.6	70.4	65.7	61.4	58.4	49.3	45.4
2:00:00	61.5	75.7	44.8	70.3	65.7	60.9	57.6	49.3	46.3
3:00:00	60.4	72.7	43.0	68.5	64.7	60.2	57.1	47.6	45.0
4:00:00	62.5	76.6	43.7	70.3	66.0	62.7	60.3	50.6	46.0
5:00:00	66.6	78.5	48.6	73.0	69.5	67.0	65.5	59.0	50.7
6:00:00	68.1	83.1	53.0	74.3	70.8	68.4	67.1	61.5	56.8
7:00:00	68.0	78.5	51.4	74.5	70.9	68.7	67.1	60.3	55.0
8:00:00	68.1	78.9	52.6	73.1	71.0	69.0	67.6	60.8	55.4
9:00:00	69.0	86.7	47.2	75.9	71.4	69.3	68.1	62.3	53.7
10:00:00	68.1	76.0	48.9	73.5	71.2	68.8	67.3	60.9	53.6
11:00:00	68.9	85.6	53.2	74.6	71.5	69.3	67.9	61.8	56.7

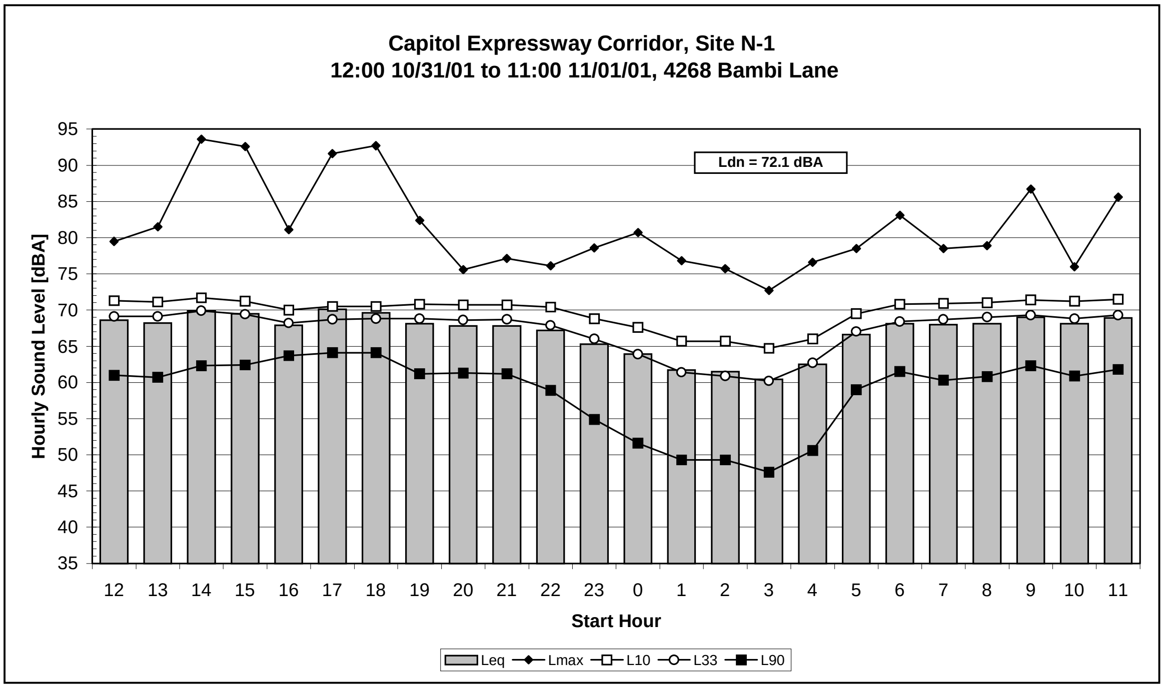


Figure B-1. Noise Survey Results, Site N-1

Site N-2: 1276 Capitol Court

Ldn: 73.4 dBA

Table B-21. Noise Survey Results, Site N-2

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
13:00:00	71.1	89.2	51.9	77.7	73.4	71.1	69.8	63.7	55.6
14:00:00	71.1	89.7	55.4	77.0	73.7	71.4	70.1	65.3	59.0
15:00:00	71.3	88.0	58.4	78.0	73.6	71.3	70.1	66.0	62.0
16:00:00	70.6	86.0	53.6	76.1	73.1	70.9	69.7	66.0	62.1
17:00:00	71.0	90.4	56.7	75.6	73.3	71.3	70.1	66.5	62.5
18:00:00	70.4	80.4	59.7	76.8	73.1	70.8	69.3	65.7	62.5
19:00:00	69.5	85.8	54.8	75.4	72.4	69.9	68.7	63.6	58.1
20:00:00	69.2	81.0	53.1	75.1	72.4	69.6	68.1	62.2	56.4
21:00:00	69.0	79.5	53.2	75.5	72.4	69.6	67.7	60.2	55.4
22:00:00	67.5	80.1	43.9	74.5	70.9	67.9	65.8	57.7	48.5
23:00:00	65.1	76.9	45.3	72.7	69.0	65.5	63.1	52.7	47.0
0:00:00	63.0	75.2	43.3	71.5	67.1	62.8	60.1	49.3	45.1
1:00:00	61.5	76.5	41.6	70.8	65.5	60.6	57.5	48.3	45.0
2:00:00	60.4	73.9	44.8	70.0	64.5	59.0	55.3	48.5	46.4
3:00:00	61.3	80.4	42.8	71.7	65.3	58.7	54.4	46.3	43.9
4:00:00	64.4	79.3	45.6	72.7	68.8	64.3	60.4	50.1	46.9
5:00:00	69.5	85.3	49.3	76.0	72.9	70.1	68.1	58.7	51.9
6:00:00	70.3	78.8	50.0	76.1	73.1	71.0	69.6	65.0	55.0
7:00:00	67.0	81.0	52.9	73.6	70.1	67.5	65.8	59.7	55.7
8:00:00	69.6	81.3	51.4	75.4	72.8	70.3	68.6	61.9	54.5
9:00:00	70.5	79.7	48.0	75.6	73.5	71.4	69.9	63.2	56.9
10:00:00	69.9	82.5	49.3	75.5	72.8	70.7	69.2	62.6	55.3
11:00:00	70.0	82.9	54.2	75.8	72.8	70.5	69.2	63.4	57.2
12:00:00	70.8	88.3	50.4	77.0	73.3	71.1	69.6	63.0	56.2

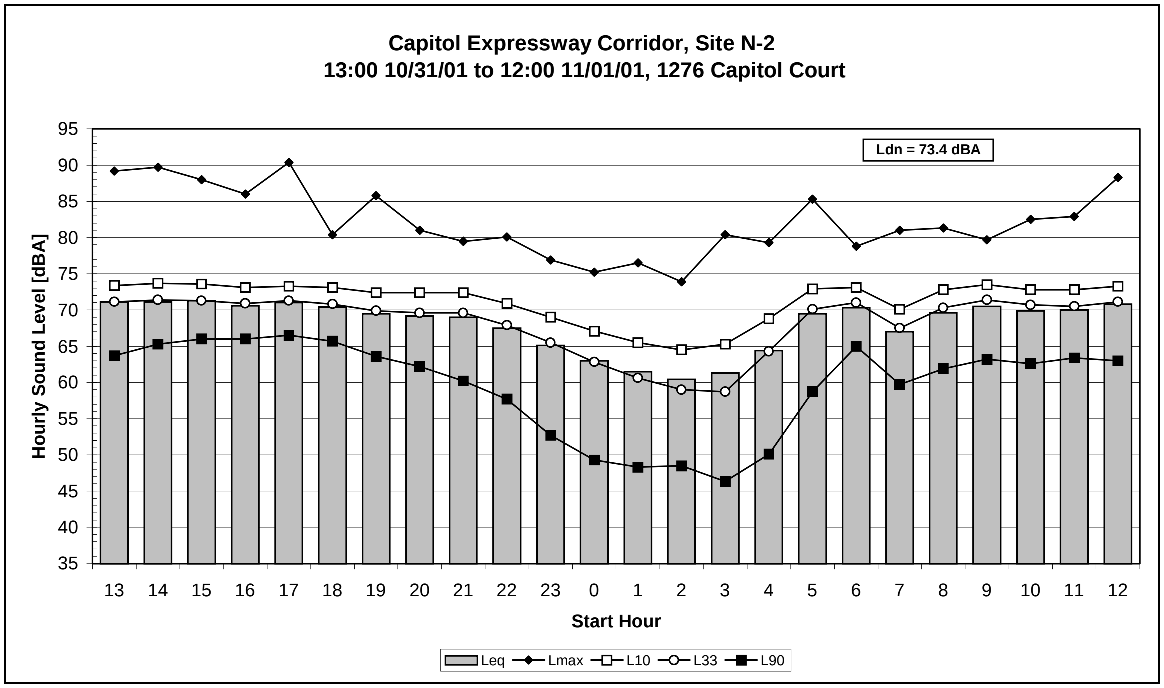


Figure B-2. Noise Survey Results, Site N-2

Site N-3: 2540 Greenstone Circle

Ldn: 67.2 dBA

Table B-22. Noise Survey Results, Site N-3

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
15:00:00	65.6	82.6	49.6	72.3	68.0	66.0	64.6	57.8	52.4
16:00:00	65.2	74.9	46.7	71.5	67.7	65.8	64.4	59.6	53.8
17:00:00	65.7	86.3	52.2	70.9	67.5	65.6	64.4	60.1	55.3
18:00:00	65.3	78.4	49.5	74.2	67.3	65.4	64.2	59.8	54.9
19:00:00	64.2	74.5	45.9	69.8	67.3	65.1	63.2	56.4	50.5
20:00:00	63.3	71.4	45.8	69.8	66.8	64.0	62.0	54.6	48.9
21:00:00	63.1	77.2	46.6	68.8	66.4	63.6	61.7	55.7	50.1
22:00:00	62.0	75.0	44.3	69.1	65.4	62.2	60.2	53.5	46.0
23:00:00	59.9	71.6	40.0	67.1	63.9	59.8	57.5	48.4	42.4
0:00:00	58.0	69.1	38.6	65.9	62.1	58.1	55.2	47.0	42.5
1:00:00	56.6	72.1	39.5	64.9	60.6	56.1	53.4	45.3	41.4
2:00:00	55.6	69.4	39.1	64.7	59.8	54.5	51.4	44.4	41.4
3:00:00	54.4	70.0	37.9	63.6	58.6	53.2	49.9	42.9	39.7
4:00:00	57.0	72.9	39.1	65.8	60.4	56.6	54.4	46.0	41.0
5:00:00	61.1	74.4	44.8	68.1	64.3	61.3	59.7	54.0	46.6
6:00:00	63.7	71.7	47.8	69.4	66.6	64.1	62.8	58.8	52.5
7:00:00	63.8	72.0	49.4	69.7	66.9	64.3	62.8	57.9	54.2
8:00:00	64.0	72.6	49.5	69.0	66.8	64.6	63.3	59.2	54.0
9:00:00	63.5	74.5	47.3	69.6	66.4	64.0	62.6	57.6	52.7
10:00:00	64.6	85.5	47.4	73.7	66.8	64.0	62.4	56.3	51.1
11:00:00	64.6	82.6	48.6	70.8	67.1	64.7	63.1	57.4	52.3
12:00:00	64.6	85.6	47.3	71.3	66.9	64.5	62.7	57.1	52.6
13:00:00	63.5	73.9	48.8	69.0	66.6	64.0	62.4	56.7	52.2
14:00:00	66.1	92.7	47.3	72.9	67.7	65.4	63.7	57.3	51.8

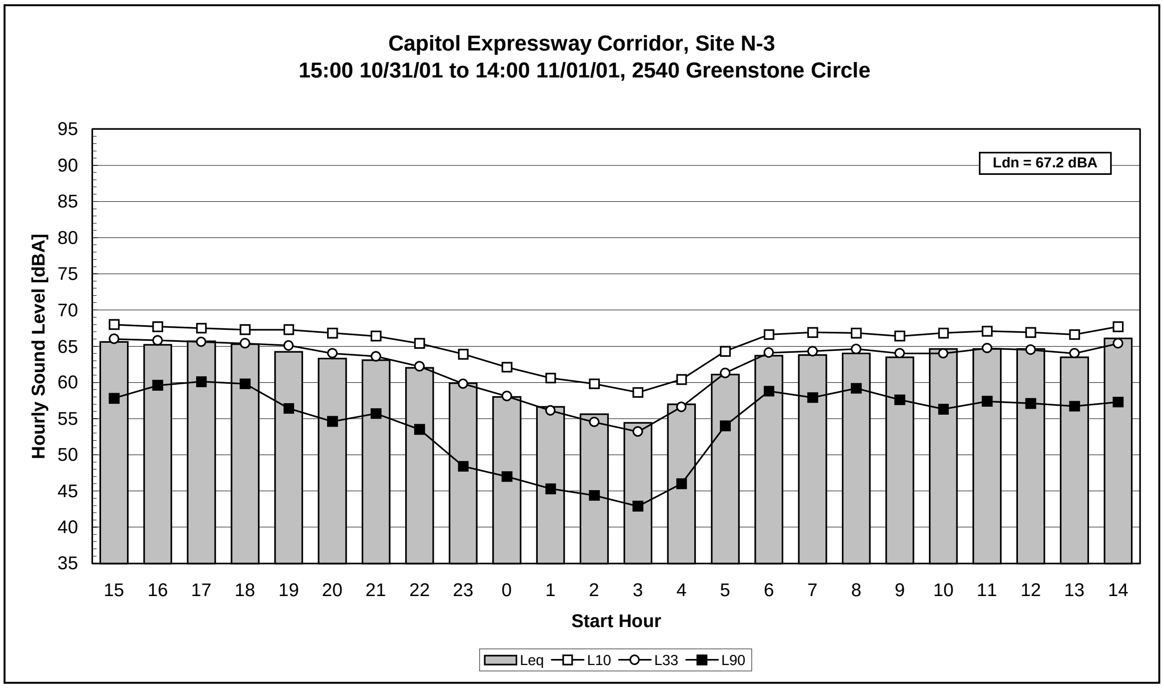


Figure B-3. Noise Survey Results, Site N-3

Site N-4: 2015 Supreme Drive

Ldn: 65.0 dBA

Table B-23. Noise Survey Results, Site N-4

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
14:00:00	62.6	80.9	49.0	69.9	65.3	62.9	61.4	55.5	51.4
15:00:00	63.3	85.3	48.0	69.4	65.4	63.3	61.9	54.9	50.7
16:00:00	63.7	84.8	47.5	70.5	66.0	64.1	62.9	55.2	49.5
17:00:00	63.1	70.5	49.7	68.0	65.8	64.1	63.0	55.8	51.7
18:00:00	62.7	74.2	46.9	68.0	65.5	63.6	62.3	54.4	49.3
19:00:00	61.7	70.9	47.2	67.9	64.6	62.5	61.0	54.1	49.1
20:00:00	62.1	86.8	42.6	67.0	63.6	61.0	59.2	53.1	45.8
21:00:00	59.8	68.9	47.2	65.5	62.9	60.6	58.9	53.2	49.3
22:00:00	58.8	76.7	40.9	67.6	61.6	58.4	56.4	49.2	43.1
23:00:00	56.3	66.2	41.1	63.1	60.1	56.7	54.1	47.3	42.8
0:00:00	55.0	66.9	41.3	62.2	58.6	55.0	53.2	47.3	43.4
1:00:00	54.0	70.5	39.3	62.5	57.6	53.7	51.3	44.2	41.1
2:00:00	53.4	73.9	40.7	62.3	56.6	52.6	50.0	44.7	41.7
3:00:00	52.2	70.6	40.1	61.6	55.6	51.0	48.3	43.1	41.1
4:00:00	54.9	70.7	39.9	63.8	58.6	54.3	51.7	44.7	40.5
5:00:00	59.3	72.2	43.0	65.9	62.9	59.6	57.4	50.3	44.6
6:00:00	62.4	70.8	42.4	68.4	65.5	63.2	61.7	54.0	44.4
7:00:00	62.3	71.1	41.5	67.5	65.1	63.2	62.0	54.3	48.1
8:00:00	62.5	76.3	48.0	67.8	65.4	63.4	62.0	54.9	50.3
9:00:00	61.9	72.8	44.0	67.9	65.4	62.6	60.8	52.5	46.5
10:00:00	62.5	82.5	45.9	70.0	65.2	62.7	60.9	53.4	49.0
11:00:00	62.0	78.3	44.9	68.6	65.1	62.3	60.7	53.9	48.9
12:00:00	61.9	75.4	45.5	68.3	64.9	62.3	60.7	54.3	49.2
13:00:00	61.7	73.1	45.7	68.1	65.0	62.3	60.5	53.1	48.1

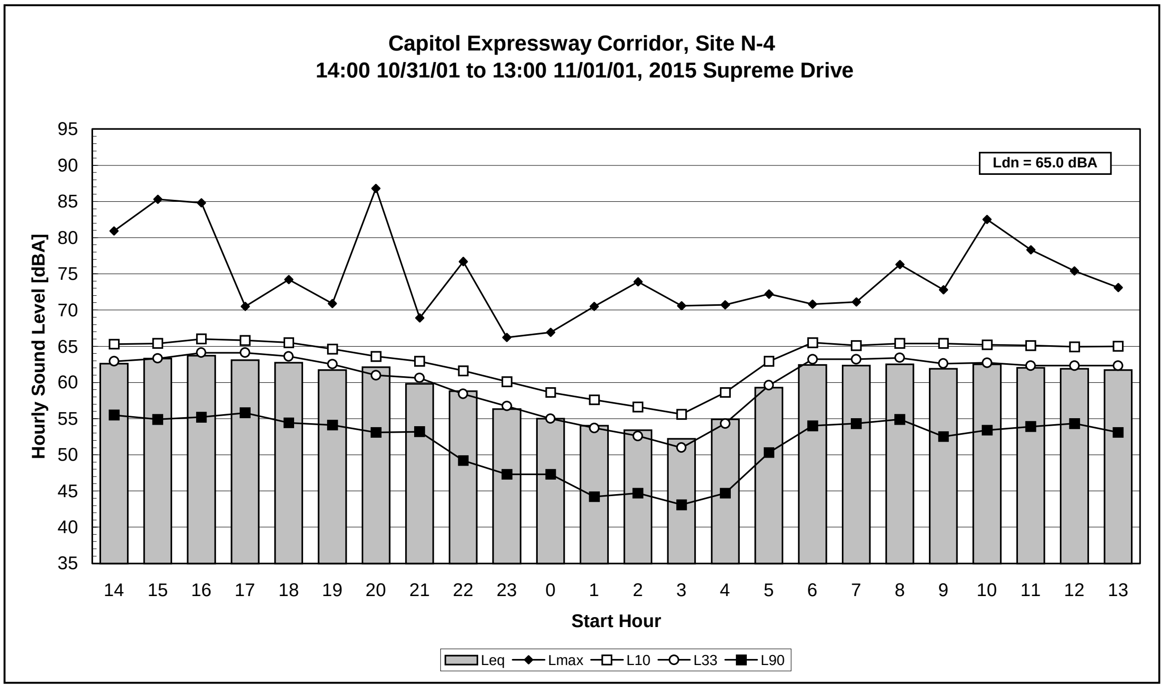


Figure B-4. Noise Survey Results, Site N-4

Site N-5: San Jose Lake Cunningham Park

Ldn: 58.5 dBA

Table B-24. Noise Survey Results, Site N-5

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
15:00:00	52.6	69.9	40.4	58.9	54.6	52.3	51.1	47.5	43.5
16:00:00	55.6	76.0	41.6	65.0	57.3	54.3	53.1	48.8	44.8
17:00:00	54.8	67.7	41.7	62.2	57.8	54.4	53.1	49.3	44.1
18:00:00	54.6	69.8	43.5	63.6	57.0	53.8	52.6	48.9	45.3
19:00:00	57.1	74.3	45.9	66.1	59.5	56.2	54.9	50.7	47.7
20:00:00	55.0	73.4	40.6	62.9	56.7	53.8	52.2	47.5	43.0
21:00:00	54.3	66.0	39.9	61.3	57.6	54.6	52.8	47.1	42.7
22:00:00	54.9	69.8	43.7	63.1	57.1	54.5	53.1	49.6	46.6
23:00:00	51.1	64.6	41.3	57.8	53.8	51.3	49.8	45.7	42.5
0:00:00	48.7	60.9	39.4	55.5	51.7	48.9	47.4	42.5	40.0
1:00:00	45.6	64.8	33.6	51.8	48.6	45.6	43.9	39.3	37.0
2:00:00	45.6	58.8	32.8	53.7	48.8	45.2	43.4	38.3	34.6
3:00:00	45.6	58.1	33.9	54.1	48.9	44.7	42.9	38.1	35.4
4:00:00	47.3	58.8	36.0	54.6	50.6	47.4	45.6	40.3	37.5
5:00:00	51.8	62.7	43.3	57.6	54.4	52.1	50.9	47.4	44.7
6:00:00	56.0	66.1	44.2	63.7	59.0	56.1	54.5	50.2	46.7
7:00:00	55.3	66.6	42.8	62.7	57.8	55.2	54.0	49.2	45.9
8:00:00	56.9	81.2	41.9	64.9	58.3	54.5	53.0	48.5	43.9
9:00:00	53.9	66.0	38.4	63.2	57.0	53.4	51.5	45.6	40.9
10:00:00	53.2	65.0	40.1	62.5	56.5	52.3	50.6	45.5	42.1
11:00:00	54.9	72.4	39.8	64.7	57.8	53.7	51.7	46.6	43.1
12:00:00	55.4	69.9	41.2	63.9	58.6	54.8	53.1	48.4	44.2
13:00:00	55.2	67.2	40.3	64.2	58.2	54.6	52.8	48.3	44.1
14:00:00	55.2	68.0	43.8	64.6	58.1	54.4	52.4	48.8	46.3

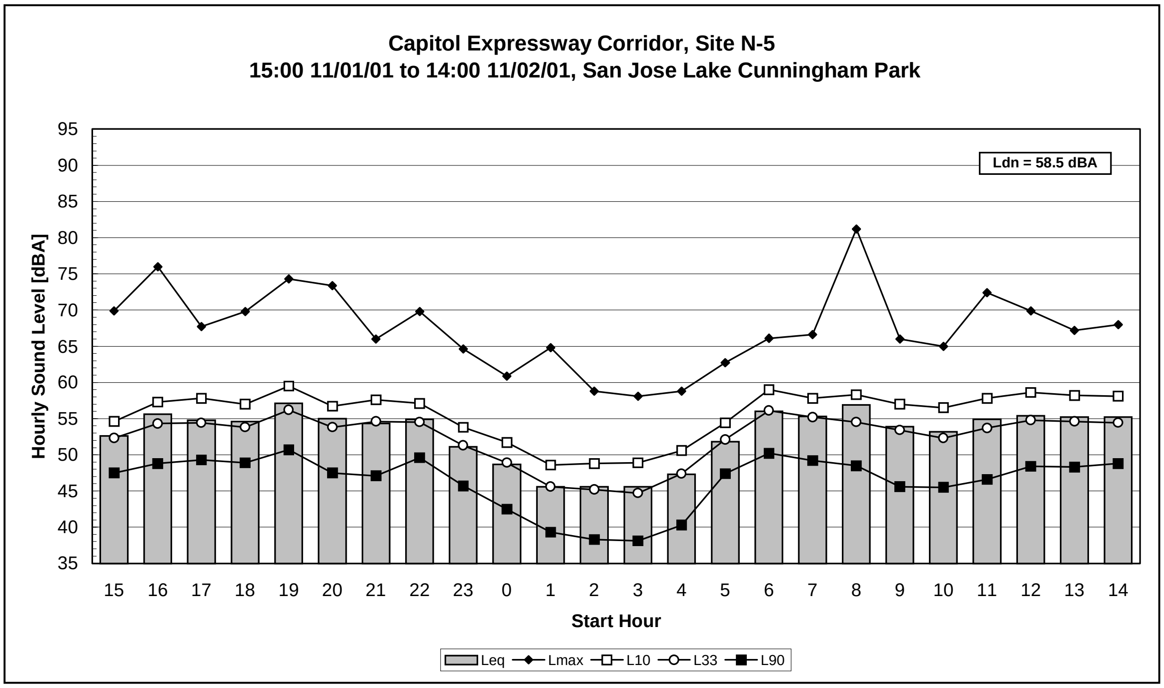


Figure B-5. Noise Survey Results, Site N-5

Site N-6: 2655 Glen Hanleigh Drive

Ldn: 65.3 dBA

Table B-25. Noise Survey Results, Site N-6

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
14:00:00	62.6	80.9	52.4	68.7	65.1	62.7	61.3	57.1	54.5
15:00:00	63.2	82.4	53.5	69.7	65.5	62.8	61.5	57.4	54.5
16:00:00	64.1	84.5	54.0	72.8	66.0	63.4	62.0	57.8	55.3
17:00:00	63.6	87.9	52.1	70.2	65.2	62.3	60.7	57.0	54.4
18:00:00	61.3	77.3	48.2	68.1	64.5	61.3	59.6	54.5	50.6
19:00:00	60.7	78.6	47.9	67.7	63.5	60.8	59.5	55.0	50.4
20:00:00	60.9	78.3	49.9	70.9	63.2	60.1	58.5	54.3	51.3
21:00:00	59.6	79.8	48.2	68.2	62.0	58.8	57.0	52.2	49.2
22:00:00	58.5	73.9	47.0	68.3	61.2	57.7	56.1	51.6	48.5
23:00:00	58.1	80.7	42.4	67.5	57.4	54.2	52.6	47.9	44.8
0:00:00	53.9	71.7	40.1	63.0	56.7	53.3	51.2	45.6	41.9
1:00:00	50.7	63.1	37.8	58.7	54.4	50.3	48.3	42.9	39.6
2:00:00	50.0	65.9	37.2	58.1	53.1	49.6	47.6	43.0	39.0
3:00:00	49.5	66.6	38.5	58.7	52.8	48.0	45.8	41.3	39.5
4:00:00	53.2	70.1	37.9	61.7	56.7	52.8	50.6	43.4	39.5
5:00:00	58.9	73.2	47.5	66.1	62.1	58.9	57.0	51.7	49.2
6:00:00	64.4	86.3	53.2	72.8	65.3	62.9	61.5	57.3	54.5
7:00:00	64.1	82.9	50.9	72.6	65.9	63.9	62.2	56.9	53.1
8:00:00	63.8	85.6	49.6	70.9	65.7	63.3	61.5	55.7	52.1
9:00:00	61.6	77.9	46.6	68.7	64.7	61.9	59.8	54.7	51.6
10:00:00	60.9	85.1	47.5	69.3	62.8	59.6	57.7	53.0	49.5
11:00:00	59.3	68.8	48.6	65.8	62.4	59.6	57.9	53.3	50.1
12:00:00	62.7	88.4	50.7	73.6	63.7	60.6	59.2	55.4	52.6
13:00:00	61.9	76.4	49.1	68.1	62.4	59.6	58.3	53.6	50.3

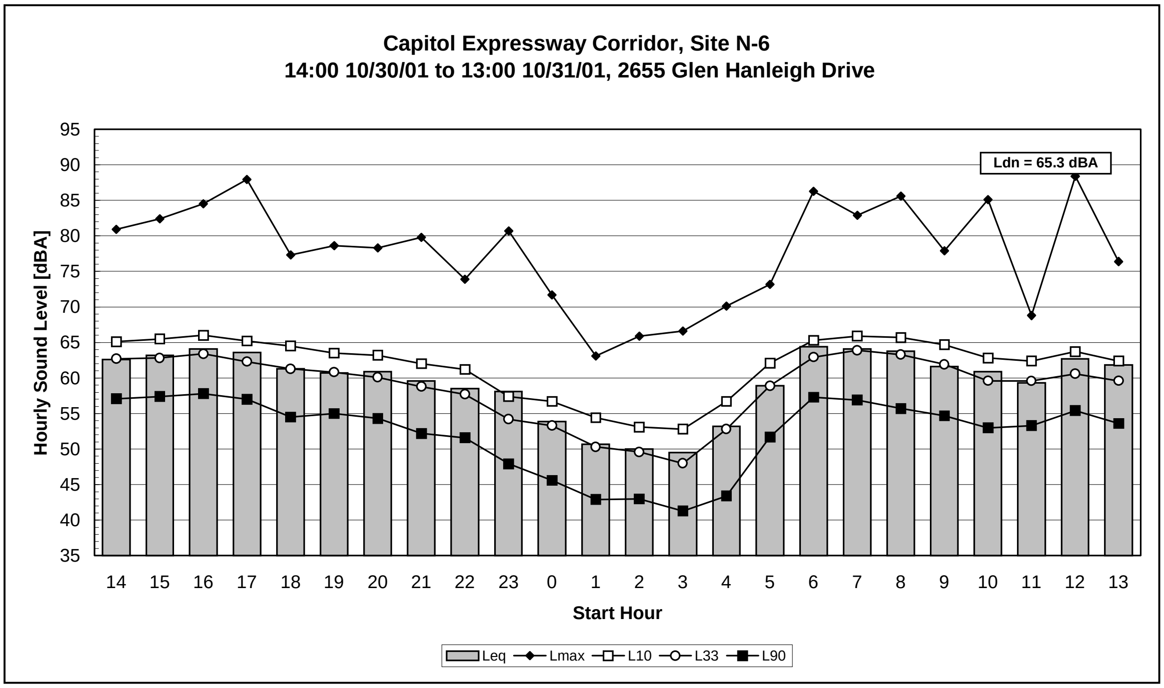


Figure B-6. Noise Survey Results, Site N-6

Site N-7: 2561 Whispering Hills Drive

Ldn: 66.2 dBA

Table B-26. Noise Survey Results, Site N-7

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
13:00:00	65.0	79.7	50.4	71.4	67.5	65.3	63.7	58.4	53.8
14:00:00	64.7	79.7	49.9	69.5	67.4	65.2	63.9	58.9	52.3
15:00:00	65.0	73.9	48.4	69.6	67.6	65.6	64.4	59.1	53.3
16:00:00	65.0	77.5	49.0	69.9	67.7	65.6	64.3	59.4	53.0
17:00:00	64.5	84.7	45.7	69.2	67.0	64.8	63.5	58.7	53.8
18:00:00	64.0	79.3	48.3	69.8	66.5	64.1	62.9	58.1	52.2
19:00:00	63.6	73.8	47.7	69.0	66.6	64.2	62.6	57.2	51.2
20:00:00	62.7	79.1	45.8	69.9	66.0	62.7	60.9	54.2	48.4
21:00:00	61.6	76.2	43.9	68.5	65.3	61.7	59.6	52.7	46.8
22:00:00	60.3	73.8	41.1	68.3	64.2	60.0	58.0	49.7	44.4
23:00:00	58.0	80.5	39.4	65.6	61.1	56.7	54.0	45.1	41.0
0:00:00	54.8	70.2	34.7	64.0	59.2	53.7	50.0	40.2	36.3
1:00:00	53.1	71.6	33.5	63.0	57.6	50.2	46.3	38.7	34.7
2:00:00	51.7	68.2	34.7	62.5	55.8	48.2	44.5	38.6	35.9
3:00:00	50.9	66.3	34.4	62.8	54.6	46.4	43.3	37.9	35.1
4:00:00	53.4	66.2	35.2	63.0	58.0	51.4	48.0	40.1	36.2
5:00:00	59.0	72.0	42.5	67.1	63.0	59.0	56.5	48.0	43.6
6:00:00	63.9	72.2	47.6	70.0	67.2	64.5	62.9	56.2	50.2
7:00:00	66.1	80.6	52.0	70.7	68.6	66.6	65.2	60.7	55.0
8:00:00	65.4	80.7	49.9	70.5	68.2	66.0	64.5	59.2	53.3
9:00:00	64.4	77.6	46.0	70.5	67.6	65.0	63.2	57.3	51.3
10:00:00	63.1	79.6	41.3	69.0	66.2	63.5	61.8	55.5	48.0
11:00:00	63.5	73.3	42.9	69.9	66.8	64.0	62.4	56.1	49.9
12:00:00	65.7	82.8	49.2	72.2	68.6	66.0	64.6	59.1	53.1

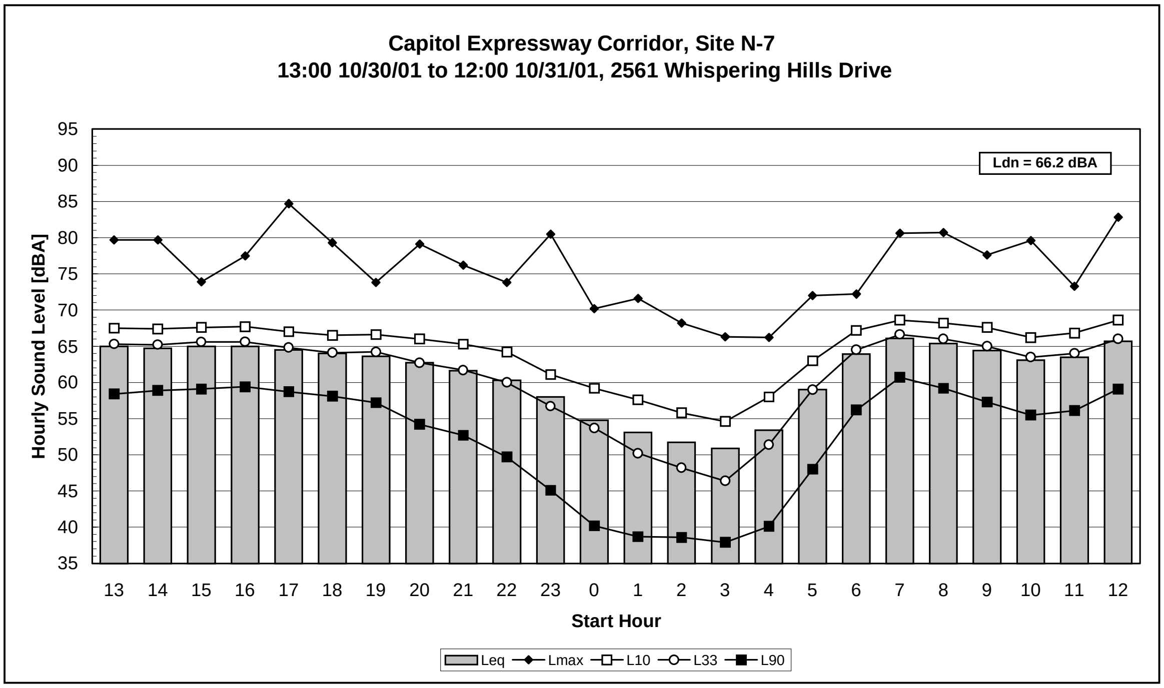


Figure B-7. Noise Survey Results, Site N-7

Site N-8: 2219 Pettigrew Drive

Ldn: 66.8 dBA

Table B-27. Noise Survey Results, Site N-8

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
14:00:00	64.9	77.3	46.7	70.4	67.6	65.1	63.2	56.3	50.2
15:00:00	64.9	75.0	46.4	70.9	68.0	65.6	63.8	57.2	50.2
16:00:00	65.4	78.2	47.5	70.9	68.4	66.0	64.5	58.1	52.5
17:00:00	65.3	73.9	45.8	70.3	68.3	66.2	64.7	58.7	52.8
18:00:00	65.1	78.2	51.4	70.7	68.2	65.7	64.1	58.6	54.3
19:00:00	65.0	88.1	47.2	71.5	67.3	64.8	63.2	57.7	50.1
20:00:00	63.8	81.9	49.5	71.0	67.2	63.3	61.3	54.7	50.9
21:00:00	62.1	72.4	48.1	69.2	65.6	62.3	60.4	53.8	50.2
22:00:00	60.8	78.3	47.0	68.7	64.2	60.3	58.3	51.6	47.8
23:00:00	58.3	71.1	44.8	66.7	62.1	57.8	55.3	48.6	46.3
0:00:00	57.1	74.9	42.0	67.0	60.7	55.5	52.5	45.6	43.6
1:00:00	53.8	68.0	39.1	63.3	58.1	52.6	48.6	41.7	39.4
2:00:00	54.0	79.2	39.1	62.9	57.2	50.1	46.4	41.7	39.7
3:00:00	52.5	68.8	39.6	63.0	56.2	49.9	47.0	43.2	41.0
4:00:00	53.9	68.7	43.1	62.9	58.0	52.6	49.6	45.5	43.5
5:00:00	60.0	73.7	47.1	68.1	63.3	59.8	58.1	51.1	48.2
6:00:00	64.2	72.9	49.4	70.6	67.9	64.6	62.6	56.2	51.0
7:00:00	66.4	82.8	52.8	71.4	69.3	67.1	65.5	60.7	55.8
8:00:00	66.2	84.4	50.4	71.7	68.7	66.5	65.2	60.7	55.8
9:00:00	64.4	74.3	46.3	69.9	67.6	65.0	63.3	57.7	51.0
10:00:00	64.1	74.4	49.8	70.0	67.1	64.7	63.2	57.4	52.6
11:00:00	64.2	74.6	48.8	70.0	67.3	64.8	63.3	57.8	52.1
12:00:00	64.9	82.7	50.0	70.3	67.7	65.2	63.7	58.5	53.6
13:00:00	65.4	81.2	51.2	71.4	67.9	65.6	64.2	58.6	54.0

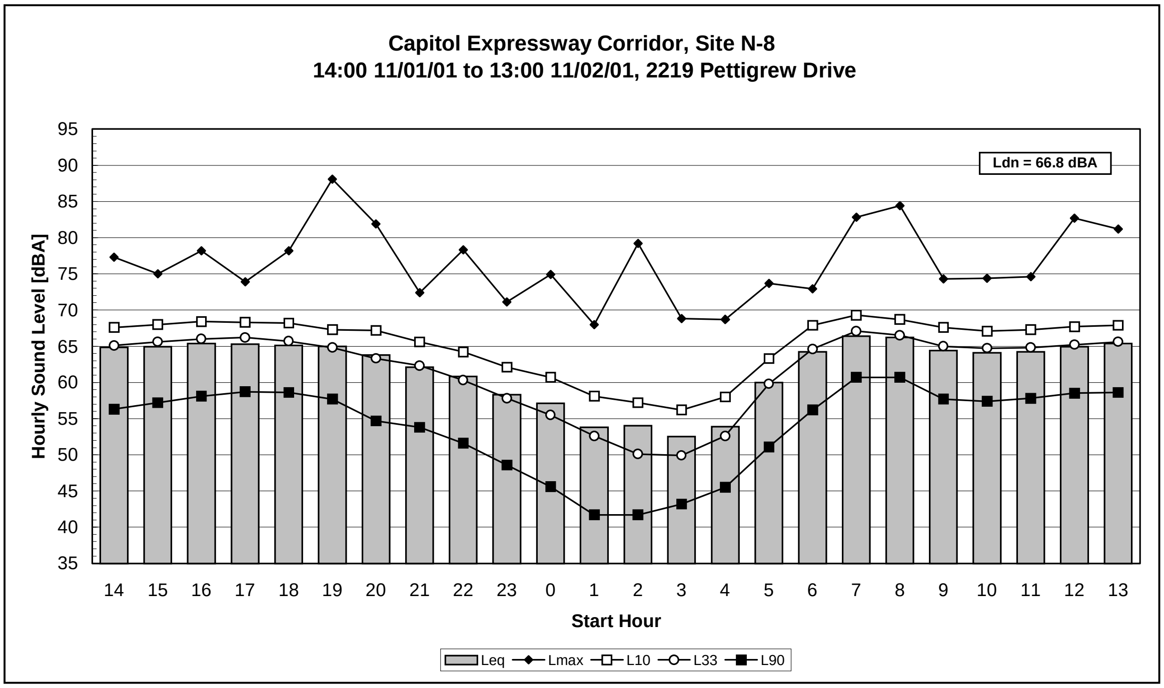


Figure B-8. Noise Survey Results, Site N-8

Site N-9: 5 Rio De Plata

Ldn: 68.7 dBA

Table B-28. Noise Survey Results, Site N-9

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
14:00:00	65.8	85.5	56.0	70.0	67.6	66.0	65.2	62.3	59.0
15:00:00	66.2	80.7	57.0	70.3	67.8	66.5	65.8	63.4	60.7
16:00:00	66.5	75.1	60.2	70.4	68.0	66.8	66.2	64.2	61.8
17:00:00	65.9	78.4	59.3	69.3	67.4	66.2	65.6	63.5	61.2
18:00:00	65.5	76.6	58.4	69.0	67.1	65.9	65.2	62.9	60.4
19:00:00	65.5	75.7	58.8	70.1	67.3	65.9	65.2	62.7	60.6
20:00:00	65.2	74.7	58.2	69.1	67.0	65.7	65.0	62.6	60.0
21:00:00	65.6	87.5	58.2	70.2	67.0	65.6	64.7	61.9	59.6
22:00:00	64.3	75.7	52.0	68.8	66.6	64.9	64.0	59.9	54.2
23:00:00	62.2	70.7	51.0	67.6	65.0	62.9	61.6	56.6	53.6
0:00:00	60.7	71.7	46.9	67.5	64.0	61.1	59.2	53.0	50.1
1:00:00	58.4	70.6	43.8	65.8	62.2	58.5	56.0	49.2	45.7
2:00:00	57.7	77.6	42.5	65.7	61.3	56.6	53.5	47.0	43.9
3:00:00	56.1	71.7	40.9	64.8	60.2	54.7	52.5	47.2	43.6
4:00:00	56.9	70.6	44.1	65.0	60.5	56.3	54.5	48.5	45.6
5:00:00	61.4	75.4	47.2	68.3	64.6	61.5	59.7	54.9	50.0
6:00:00	64.9	78.6	52.5	70.4	67.5	65.3	64.1	60.0	56.6
7:00:00	66.1	80.0	56.3	70.6	68.1	66.8	65.9	62.2	59.1
8:00:00	65.5	73.3	56.0	70.0	67.7	66.2	65.2	61.4	58.3
9:00:00	64.8	77.3	54.1	69.8	67.1	65.3	64.3	60.3	56.7
10:00:00	64.7	72.7	53.9	69.9	66.9	65.2	64.3	60.8	57.3
11:00:00	65.1	79.0	55.7	70.1	67.0	65.5	64.6	61.8	58.3
12:00:00	65.7	78.8	56.0	71.0	67.6	66.0	65.3	62.6	59.8
13:00:00	66.2	76.1	58.0	70.5	67.8	66.6	65.9	63.6	61.0

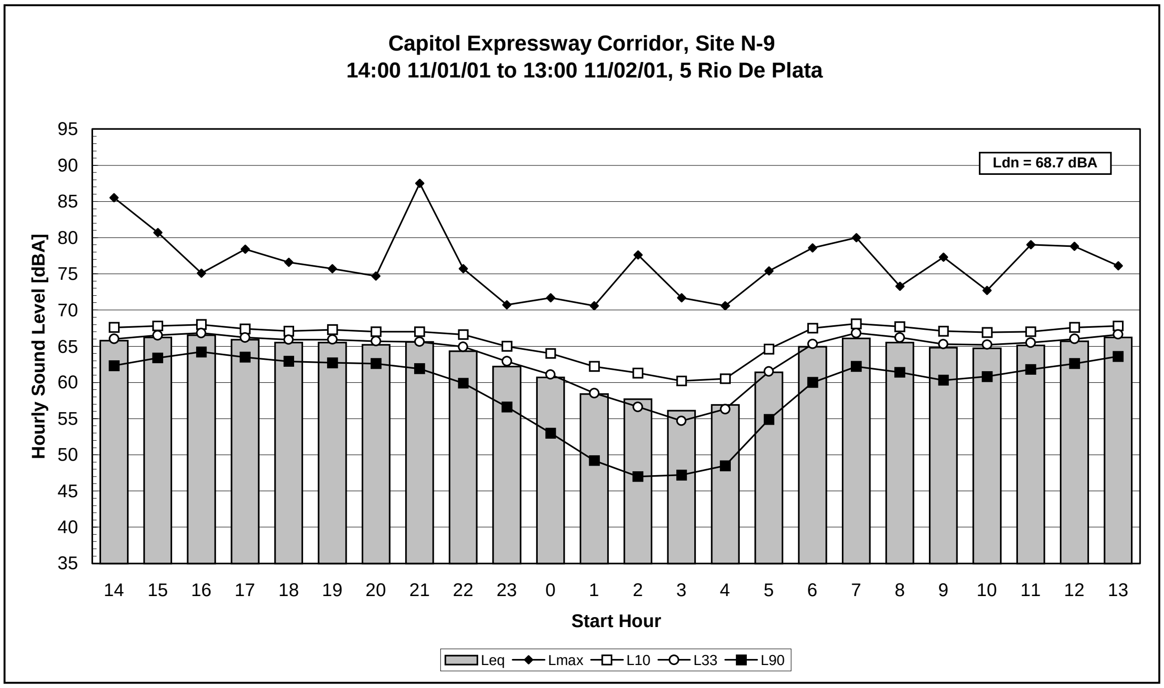


Figure B-9. Noise Survey Results, Site N-9

Site N-10: 1275 Medley Drive

Ldn: 64.3 dBA

Table B-29. Noise Survey Results, Site N-10

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
12:00:00	61.7	73.9	49.4	69.4	65.1	61.9	59.9	54.2	51.4
13:00:00	59.8	71.7	49.5	66.4	62.9	60.5	58.6	53.3	50.9
14:00:00	59.9	70.1	45.0	66.3	63.2	60.7	58.7	52.5	48.1
15:00:00	60.8	72.6	49.3	66.0	64.0	61.8	59.9	53.2	50.6
16:00:00	62.6	76.1	50.8	68.0	65.3	63.3	62.1	55.6	52.8
17:00:00	62.7	82.6	52.0	69.2	64.6	62.7	61.3	55.5	53.1
18:00:00	60.8	67.8	50.5	65.0	63.7	62.1	60.5	54.8	52.1
19:00:00	60.3	71.1	47.7	66.9	63.6	61.1	59.1	53.4	50.5
20:00:00	59.1	69.8	50.0	65.5	62.4	59.5	57.4	53.4	51.4
21:00:00	59.2	70.2	49.6	65.2	62.5	59.5	57.6	53.4	51.1
22:00:00	58.2	70.0	48.4	64.8	61.4	58.5	56.6	52.7	51.1
23:00:00	57.4	78.6	48.6	64.0	59.9	56.4	54.6	51.2	49.4
0:00:00	55.1	67.1	43.7	62.3	58.2	55.0	53.2	49.1	46.6
1:00:00	52.2	66.4	40.7	60.4	55.7	51.5	49.7	45.7	42.5
2:00:00	52.0	64.6	41.6	60.2	55.2	51.6	49.7	45.9	43.5
3:00:00	52.5	67.5	39.7	61.2	55.5	51.6	50.1	45.9	42.8
4:00:00	54.7	63.9	43.4	61.5	57.8	54.9	53.4	49.3	46.2
5:00:00	59.5	70.5	51.0	65.3	62.1	59.8	58.6	54.6	52.5
6:00:00	61.7	81.4	54.6	67.3	64.0	61.6	60.2	57.1	55.3
7:00:00	60.8	69.7	50.1	66.6	63.7	61.5	59.8	54.4	51.5
8:00:00	60.0	69.7	46.9	66.5	63.1	60.8	58.7	52.1	49.2
9:00:00	59.3	68.6	47.8	65.6	62.7	60.0	57.7	52.2	49.5
10:00:00	59.6	70.2	47.1	65.9	63.0	60.2	57.7	52.4	49.8
11:00:00	60.5	69.9	47.8	66.0	63.1	60.6	58.3	52.4	49.3

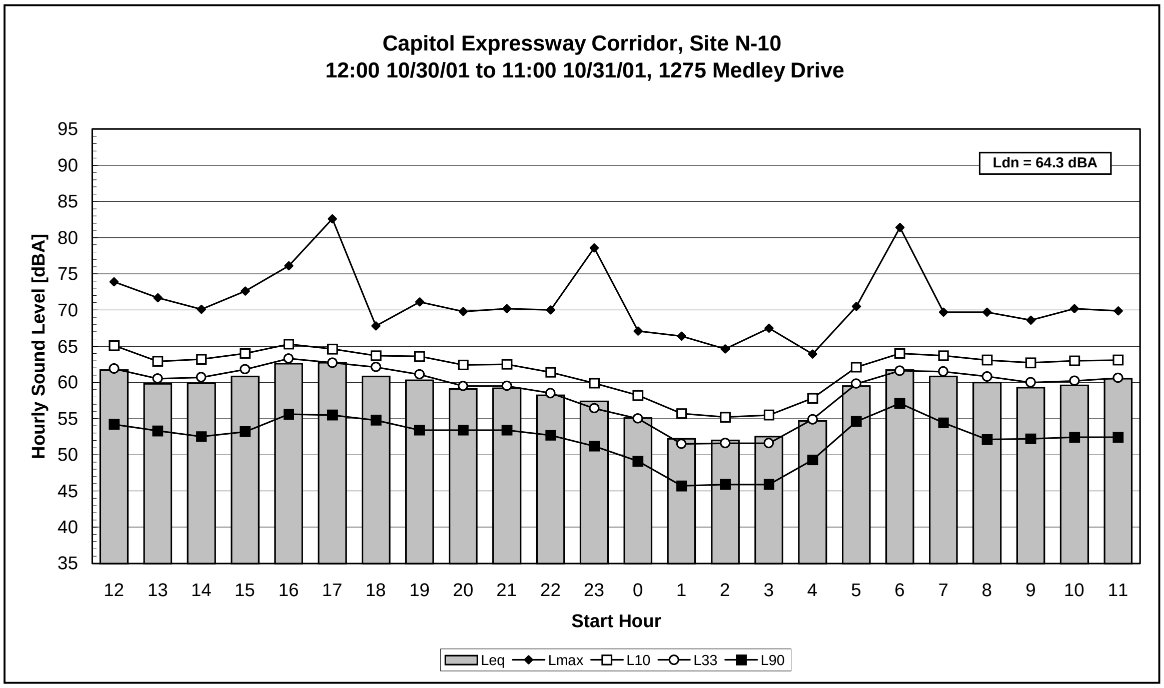


Figure B-10. Noise Survey Results, Site N-10

Site N-11: 3211/3205 Lone Bluff Way

Ldn: 73.0 dBA

Table B-30. Noise Survey Results, Site N-11

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
13:00:00	69.5	79.8	46.9	75.1	72.8	70.5	68.7	59.9	49.7
14:00:00	69.2	76.2	49.1	74.3	72.3	70.3	68.6	60.8	51.9
15:00:00	69.4	79.0	46.6	74.0	72.4	70.6	68.9	62.2	55.5
16:00:00	69.5	78.0	50.9	74.2	72.4	70.3	68.8	63.6	56.1
17:00:00	69.6	76.9	49.7	73.9	72.2	70.4	69.3	63.5	56.5
18:00:00	69.7	83.4	49.0	74.2	72.5	70.8	69.2	62.3	54.3
19:00:00	69.1	78.7	47.9	74.3	72.3	70.0	68.4	60.7	52.3
20:00:00	68.5	77.5	46.9	74.0	72.0	69.3	67.4	58.2	49.3
21:00:00	68.2	76.4	45.9	73.9	71.9	69.2	67.0	56.8	47.7
22:00:00	66.6	78.1	43.6	73.1	70.5	67.2	64.7	53.6	46.6
23:00:00	64.9	73.5	42.5	71.9	69.1	65.3	62.5	50.0	44.6
0:00:00	63.7	75.7	42.0	71.4	68.1	63.8	60.1	46.9	43.0
1:00:00	60.9	75.5	39.6	69.9	65.7	59.4	53.7	43.5	41.0
2:00:00	60.2	74.3	38.8	69.7	65.4	57.4	51.0	42.5	40.1
3:00:00	59.7	76.2	38.9	69.1	64.5	57.4	51.2	43.3	41.1
4:00:00	62.4	75.7	43.1	70.8	67.0	61.8	58.0	48.3	44.2
5:00:00	66.6	76.2	47.7	73.7	70.7	67.1	64.4	54.8	50.1
6:00:00	70.8	77.9	49.9	76.7	74.5	71.5	69.4	61.0	53.6
7:00:00	72.6	79.4	55.5	76.9	75.1	73.5	72.4	67.0	60.7
8:00:00	72.2	85.7	53.8	77.0	75.0	73.1	71.7	65.6	58.0
9:00:00	71.6	81.0	51.3	76.8	74.8	72.6	71.0	63.4	55.1
10:00:00	71.9	79.4	53.7	77.0	75.1	72.9	71.0	62.8	55.5
11:00:00	71.6	85.1	52.1	76.9	74.8	72.8	70.6	62.3	54.1
12:00:00	71.2	79.1	48.3	77.2	74.4	72.3	70.4	62.6	53.6

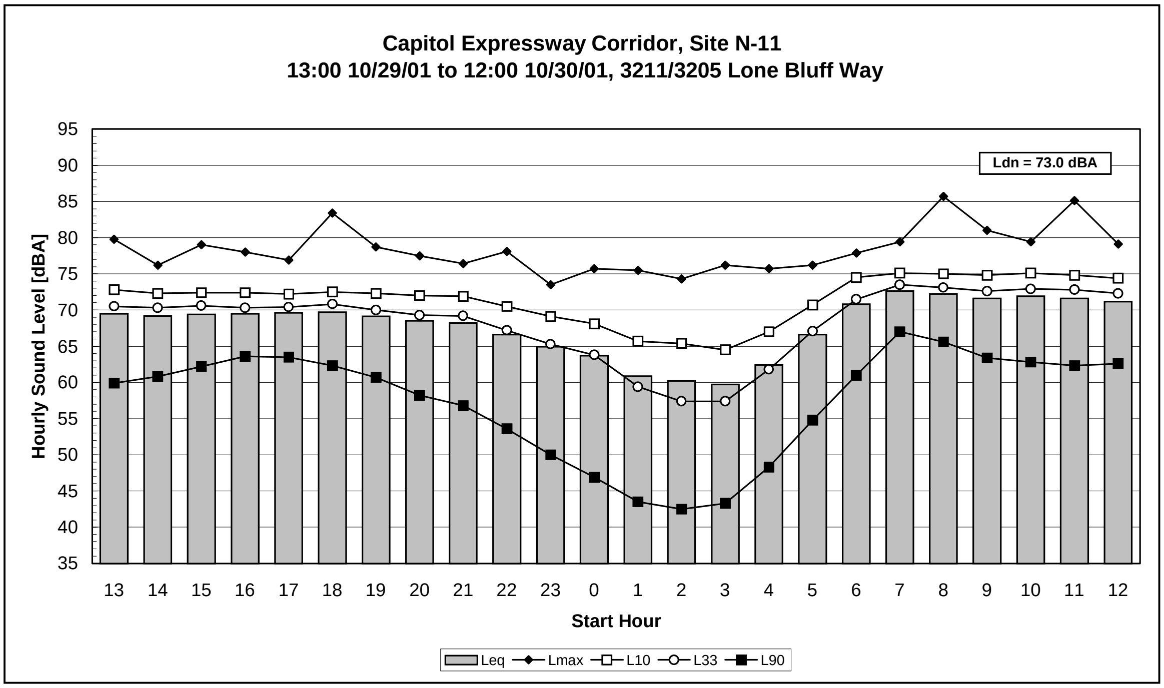


Figure B-11. Noise Survey Results, Site N-11

Site N-12: 3180 Welby Court

Ldn: 66.3 dBA

Table B-31. Noise Survey Results, Site N-12

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
13:00:00	63.0	72.4	50.9	69.4	66.1	63.3	61.7	57.2	53.5
14:00:00	62.8	72.0	45.1	68.5	65.8	63.4	61.9	56.3	50.1
15:00:00	62.2	76.6	45.9	68.4	65.0	62.8	61.2	54.7	49.5
16:00:00	62.1	70.3	49.2	67.5	65.0	62.8	61.2	55.6	51.2
17:00:00	63.0	83.8	50.5	70.1	65.3	63.1	61.1	56.1	52.9
18:00:00	62.4	70.8	50.5	67.7	65.3	63.3	61.7	56.1	52.5
19:00:00	61.9	72.2	43.8	66.9	64.9	62.6	60.9	55.4	48.8
20:00:00	62.2	71.4	48.8	68.0	65.5	62.7	61.1	55.7	51.7
21:00:00	61.9	77.1	47.9	67.6	65.1	62.4	60.7	55.2	51.0
22:00:00	60.4	72.9	44.7	67.0	63.7	60.6	58.9	52.6	46.7
23:00:00	69.0	84.5	44.0	80.9	73.5	60.2	57.9	51.2	46.3
0:00:00	56.2	69.7	40.3	64.1	59.5	56.2	54.0	46.6	42.2
1:00:00	54.1	70.7	36.7	63.0	57.8	53.9	51.4	42.5	38.1
2:00:00	52.7	63.3	33.6	61.0	56.7	52.7	49.7	40.6	35.6
3:00:00	53.3	64.8	34.4	62.1	57.6	53.1	49.6	39.9	36.2
4:00:00	54.9	68.2	37.4	63.9	58.5	54.8	52.3	43.3	39.5
5:00:00	58.8	70.2	42.9	65.6	61.9	59.1	57.4	51.9	45.1
6:00:00	64.9	87.6	51.4	70.7	66.8	63.4	61.9	57.9	53.6
7:00:00	64.9	73.2	55.5	70.7	68.0	65.4	63.4	59.9	56.5
8:00:00	64.2	75.3	49.3	70.3	67.3	64.6	62.9	58.6	54.7
9:00:00	62.6	73.0	44.7	69.9	65.8	62.7	60.9	56.3	48.8
10:00:00	61.8	76.2	42.5	68.8	65.0	61.8	59.9	54.1	46.8
11:00:00	62.0	79.8	40.8	69.7	65.1	61.6	59.7	53.9	45.3
12:00:00	63.0	72.9	45.5	68.7	64.6	61.5	59.5	53.8	48.8

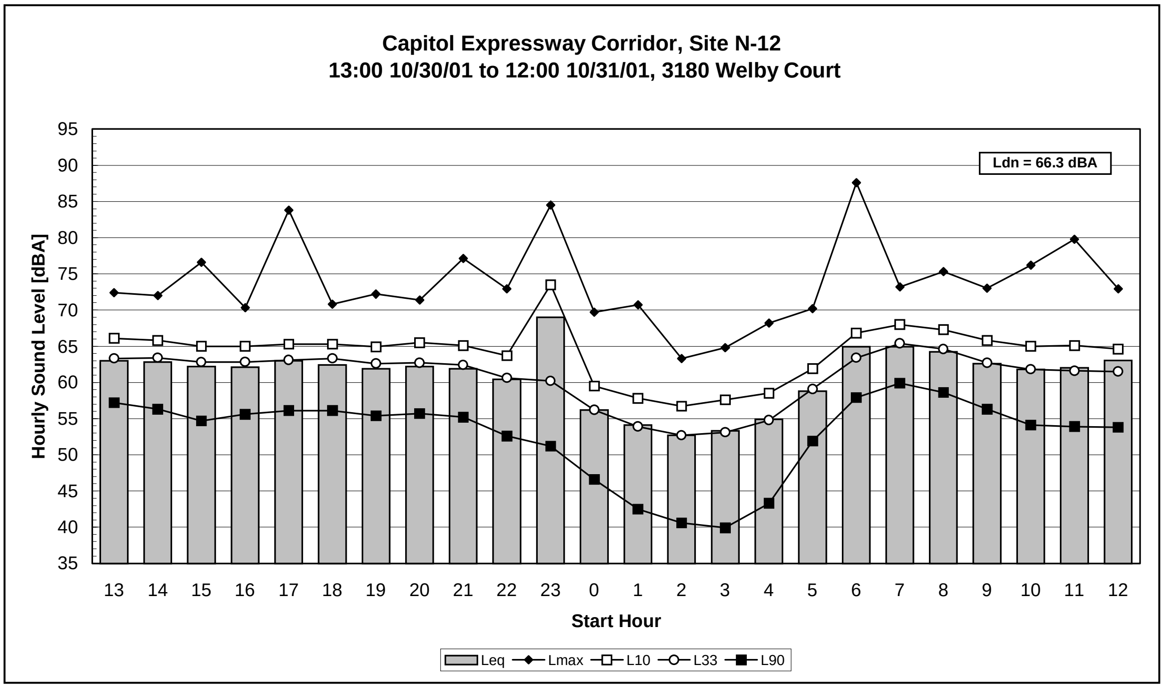


Figure B-12. Noise Survey Results, Site N-12

Site N-13: 13184 Potts Drive

Ldn: 62.9 dBA

Table B-32. Noise Survey Results, Site N-13

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
14:00:00	60.1	69.6	39.9	66.7	63.5	60.8	58.6	50.7	44.5
15:00:00	80.4	103.9	43.3	89.4	64.5	61.5	59.0	51.6	46.3
16:00:00	60.2	69.2	42.3	67.1	63.4	61.1	59.0	50.9	45.3
17:00:00	62.7	93.0	45.2	67.8	64.1	62.0	60.0	53.5	49.3
18:00:00	60.2	77.8	45.9	66.1	63.3	61.2	58.9	51.7	47.9
19:00:00	60.1	76.9	44.8	66.4	63.0	60.4	58.8	53.1	48.5
20:00:00	59.6	74.8	43.1	66.7	63.0	59.9	58.1	50.2	45.4
21:00:00	59.4	76.6	43.0	66.4	62.6	59.6	57.7	50.3	45.1
22:00:00	57.8	71.0	43.1	65.7	61.0	58.0	55.8	48.3	44.1
23:00:00	54.8	65.2	41.3	61.7	58.2	55.1	53.1	46.1	43.1
0:00:00	53.8	75.7	37.4	60.6	57.0	53.6	51.1	43.2	40.3
1:00:00	52.4	74.7	36.3	62.2	55.8	51.0	47.9	40.3	37.6
2:00:00	50.7	66.9	33.8	59.9	54.9	49.9	46.0	38.4	35.4
3:00:00	50.4	71.2	33.4	60.6	54.0	47.9	43.8	38.0	34.4
4:00:00	51.9	68.9	37.1	61.1	55.6	51.2	47.5	40.3	37.8
5:00:00	55.4	66.8	40.1	62.8	58.9	55.7	53.7	46.5	43.0
6:00:00	60.0	77.9	45.1	68.7	63.0	59.8	58.1	52.5	48.6
7:00:00	61.7	75.7	50.1	69.4	64.0	61.6	60.4	56.3	52.5
8:00:00	60.3	71.0	44.0	66.9	63.4	60.6	59.2	54.0	47.6
9:00:00	60.1	70.2	43.3	66.5	63.4	60.5	59.0	53.5	47.9
10:00:00	59.8	71.2	44.1	66.9	62.9	60.1	58.6	52.7	47.3
11:00:00	62.1	88.5	43.1	67.5	63.5	60.4	58.9	53.3	46.9
12:00:00	59.8	76.2	43.2	67.0	62.7	59.7	58.3	52.6	47.4
13:00:00	60.3	73.8	46.9	68.1	62.5	59.9	58.5	53.4	48.6

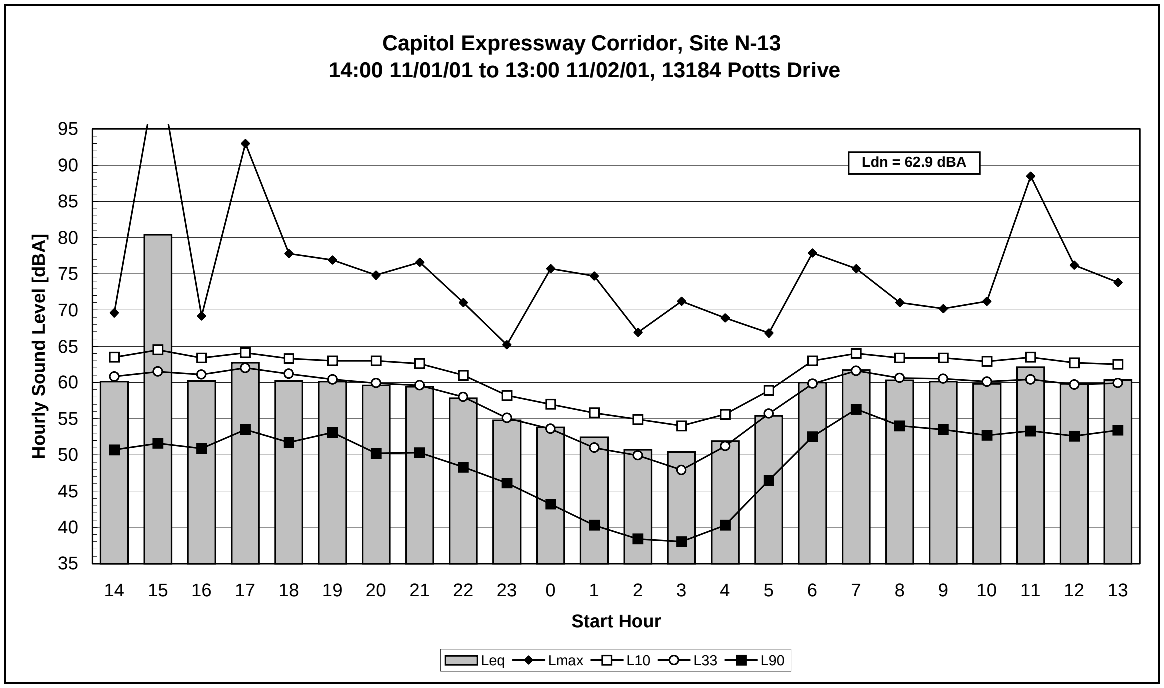


Figure B-13. Noise Survey Results, Site N-13

Site N-14: 916 The Woods Drive

Ldn: 65.4 dBA

Table B-33. Noise Survey Results, Site N-14

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
12:00:00	65.0	82.4	49.7	74.8	67.5	63.5	61.7	56.8	53.1
13:00:00	63.4	76.8	49.3	72.4	65.9	63.2	61.5	56.6	52.1
14:00:00	64.4	75.3	53.7	72.0	67.0	64.3	63.1	59.6	56.6
15:00:00	64.5	77.2	54.5	72.2	66.9	64.4	63.2	59.5	56.9
16:00:00	64.5	76.0	53.2	70.4	66.6	65.0	64.0	60.2	57.0
17:00:00	66.8	95.3	54.3	71.2	66.7	64.8	63.8	59.9	56.7
18:00:00	63.6	78.4	50.7	73.5	65.4	63.1	61.9	57.9	53.6
19:00:00	63.2	76.1	50.0	73.3	65.7	62.1	60.2	55.4	52.3
20:00:00	60.5	74.5	46.0	70.3	63.3	59.9	58.1	53.1	48.8
21:00:00	60.4	74.4	46.5	70.4	63.0	60.2	58.4	52.5	49.0
22:00:00	58.4	75.5	41.1	68.3	61.4	57.7	55.6	50.1	45.7
23:00:00	54.8	67.3	38.9	62.7	58.0	54.9	52.9	46.5	41.3
0:00:00	53.4	69.9	36.9	62.5	57.1	52.4	49.8	41.5	37.7
1:00:00	53.4	68.7	36.5	65.7	55.3	49.2	46.3	39.2	36.9
2:00:00	49.2	63.5	36.5	59.1	53.3	47.7	44.7	38.2	36.7
3:00:00	52.2	68.0	36.8	64.5	53.5	47.3	44.2	38.6	37.2
4:00:00	53.3	67.8	37.3	61.9	56.7	52.8	50.6	43.6	39.0
5:00:00	55.5	66.1	41.8	62.2	59.1	55.7	53.6	48.4	43.8
6:00:00	63.1	74.3	49.3	70.7	66.1	63.5	61.8	56.1	53.0
7:00:00	65.1	73.4	56.4	69.8	67.1	65.6	64.7	61.3	58.7
8:00:00	64.9	80.8	55.4	72.4	67.1	64.9	63.7	59.5	56.6
9:00:00	64.6	80.8	51.3	73.7	66.9	64.2	62.6	57.9	53.3
10:00:00	63.5	78.1	52.0	69.8	66.3	64.0	62.4	57.7	53.9
11:00:00	64.7	82.3	50.8	71.3	66.5	63.8	62.1	57.0	53.1

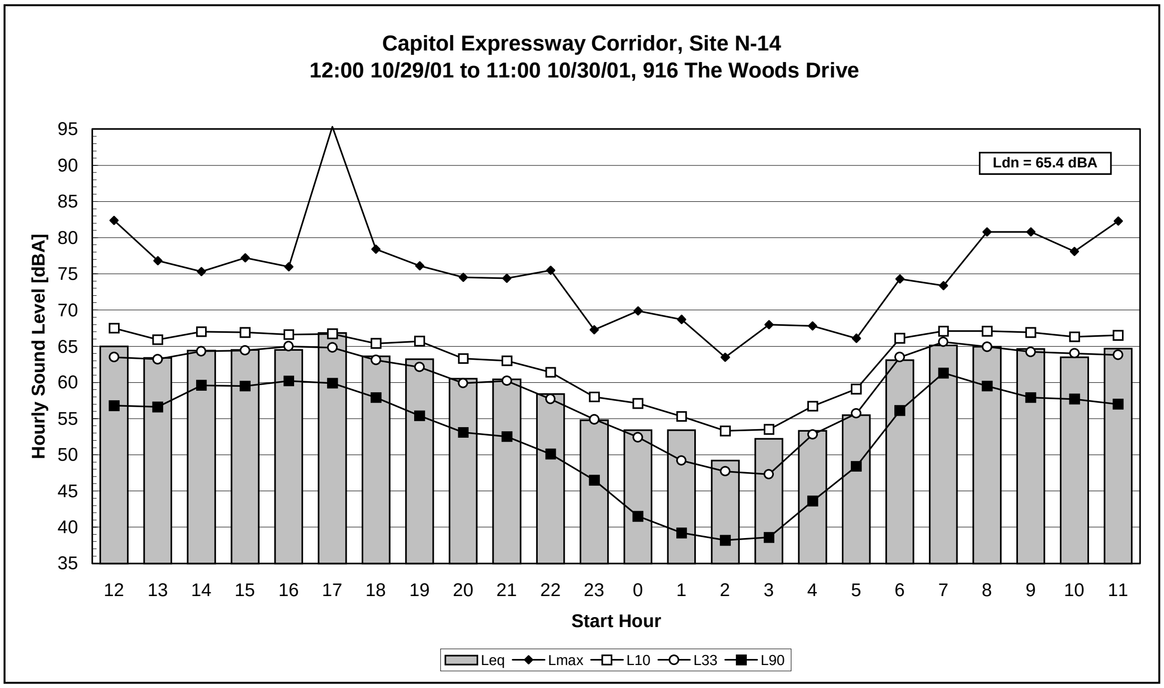


Figure B-14. Noise Survey Results, Site N-14

Site N-15: 4111 Ellmar Oaks Drive

Ldn: 72.0 dBA

Table B-34. Noise Survey Results, Site N-15

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
11:00:00	69.6	82.9	53.2	75.2	71.8	69.0	66.3	59.1	54.3
12:00:00	68.5	88.3	52.1	75.3	71.8	68.9	66.7	59.5	54.9
13:00:00	68.7	80.9	52.7	75.2	72.1	69.3	67.0	59.2	55.0
14:00:00	69.1	79.4	56.0	75.3	72.5	69.7	67.8	62.0	58.3
15:00:00	69.4	79.0	53.5	75.5	72.8	70.4	68.3	60.9	56.9
16:00:00	69.1	79.0	54.4	75.0	72.7	70.1	67.7	60.8	57.0
17:00:00	69.0	79.5	54.1	75.0	72.3	70.0	67.8	61.0	56.7
18:00:00	68.3	78.1	54.2	74.4	71.7	69.2	66.6	60.2	56.3
19:00:00	67.2	77.3	53.0	74.3	71.0	67.8	64.9	58.1	54.4
20:00:00	67.2	90.5	50.4	74.4	70.3	66.9	63.6	56.6	53.3
21:00:00	65.7	77.5	49.4	72.7	70.0	66.0	63.0	56.0	52.4
22:00:00	65.0	83.1	44.0	72.9	68.7	64.3	61.1	53.9	49.2
23:00:00	62.7	77.0	41.2	70.6	67.0	62.3	59.2	51.0	43.8
0:00:00	61.8	75.8	37.0	70.6	66.5	60.7	56.6	44.2	39.1
1:00:00	58.4	75.7	35.8	68.4	62.9	55.3	50.7	40.5	37.0
2:00:00	57.2	72.3	35.2	68.1	61.8	52.6	46.4	39.2	36.2
3:00:00	56.2	70.9	34.2	67.4	60.8	51.2	45.6	38.1	36.0
4:00:00	58.9	72.5	36.3	69.0	63.3	57.0	53.2	42.0	37.2
5:00:00	63.6	74.8	41.0	72.2	67.7	63.1	60.4	52.1	44.1
6:00:00	71.5	96.3	50.3	77.3	74.4	70.7	68.5	61.4	55.6
7:00:00	71.8	81.0	55.3	77.2	75.0	72.7	71.0	64.4	59.6
8:00:00	71.1	79.7	56.6	76.8	74.6	72.1	70.1	62.4	58.3
9:00:00	70.0	80.4	53.6	76.3	73.7	70.9	68.4	60.8	56.5
10:00:00	70.8	79.7	55.1	77.0	74.6	71.6	69.2	61.5	57.0

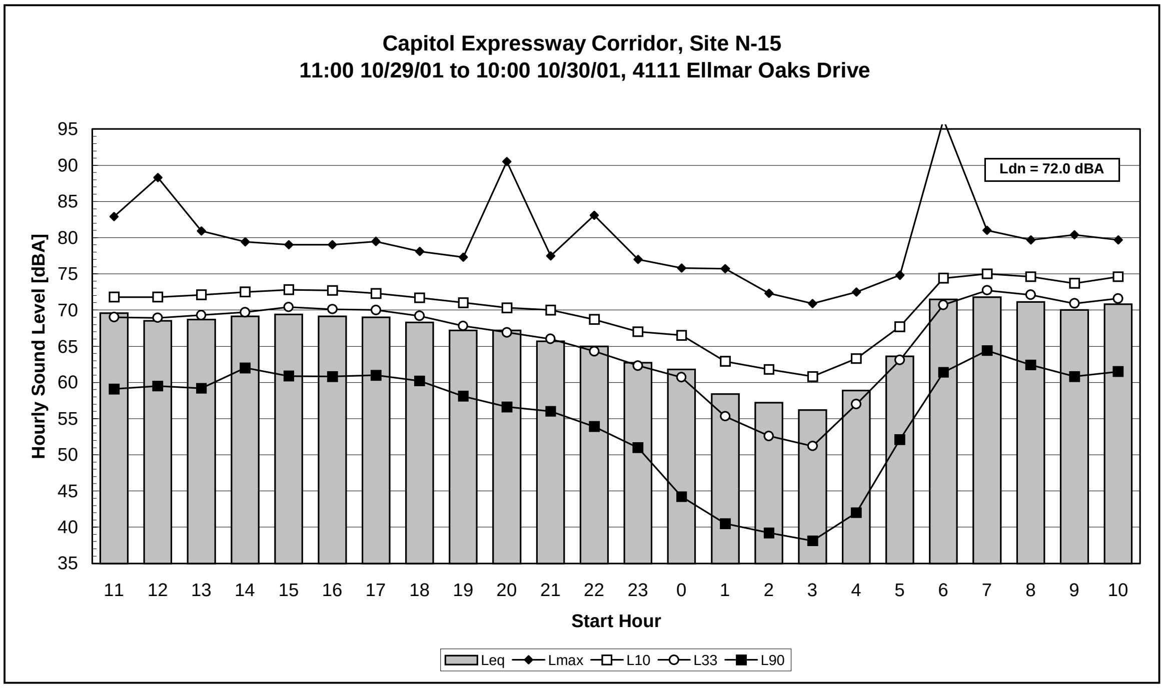


Figure B-15. Noise Survey Results, Site N-15

Site N-16: 611 Copperfield Drive

Ldn: 74.5 dBA

Table B-35. Noise Survey Results, Site N-16

Start Hour	Leq	Lmax	Lmin	L1	L10	L33	L50	L90	L99
11:00:00	63.6	89.1	51.0	74.2	66.2	61.8	59.4	53.7	51.6
12:00:00	66.9	77.0	52.6	73.8	70.5	67.3	65.0	58.4	54.1
13:00:00	72.2	83.0	55.5	79.7	76.6	71.7	69.3	61.5	56.8
14:00:00	74.8	83.9	62.5	80.3	77.7	75.7	74.2	68.0	64.2
15:00:00	76.1	89.8	61.9	81.2	79.0	77.2	75.7	68.9	64.6
16:00:00	76.3	87.3	61.4	82.5	79.7	77.0	75.5	67.9	63.8
17:00:00	75.0	87.4	61.6	80.8	77.9	75.9	74.2	67.4	64.2
18:00:00	72.9	83.9	56.9	78.4	76.1	73.8	72.2	65.2	59.3
19:00:00	74.5	89.6	57.9	80.7	77.7	75.1	72.9	66.1	61.1
20:00:00	73.3	87.8	54.8	80.5	76.8	73.5	71.3	63.9	58.3
21:00:00	74.0	88.1	56.9	80.2	77.5	74.5	72.4	65.3	59.2
22:00:00	70.6	84.6	52.8	78.8	74.3	70.6	68.1	60.4	55.8
23:00:00	69.0	80.9	51.9	76.5	73.0	69.3	66.7	57.7	54.2
0:00:00	70.4	84.0	52.8	78.8	74.3	69.9	67.3	59.5	54.6
1:00:00	64.4	82.7	51.2	73.4	68.8	62.3	58.3	52.5	51.2
2:00:00	59.1	83.3	50.1	69.9	60.4	53.6	51.9	50.3	50.1
3:00:00	58.6	85.4	50.1	67.3	57.5	52.4	51.3	50.2	50.1
4:00:00	56.1	78.6	50.3	63.7	59.5	55.3	52.9	50.4	50.3
5:00:00	61.9	85.9	51.0	70.8	64.5	61.0	58.6	52.7	51.2
6:00:00	65.6	78.7	52.1	71.8	69.3	66.0	64.0	57.7	53.6
7:00:00	64.5	82.0	52.2	71.1	67.7	64.7	62.8	55.7	53.0
8:00:00	63.8	74.4	51.9	69.4	67.1	64.5	62.7	56.5	53.1
9:00:00	63.8	79.9	52.0	69.3	67.1	64.6	62.5	56.0	53.1
10:00:00	65.9	74.9	54.6	69.3	67.0	64.1	62.3	56.8	55.1

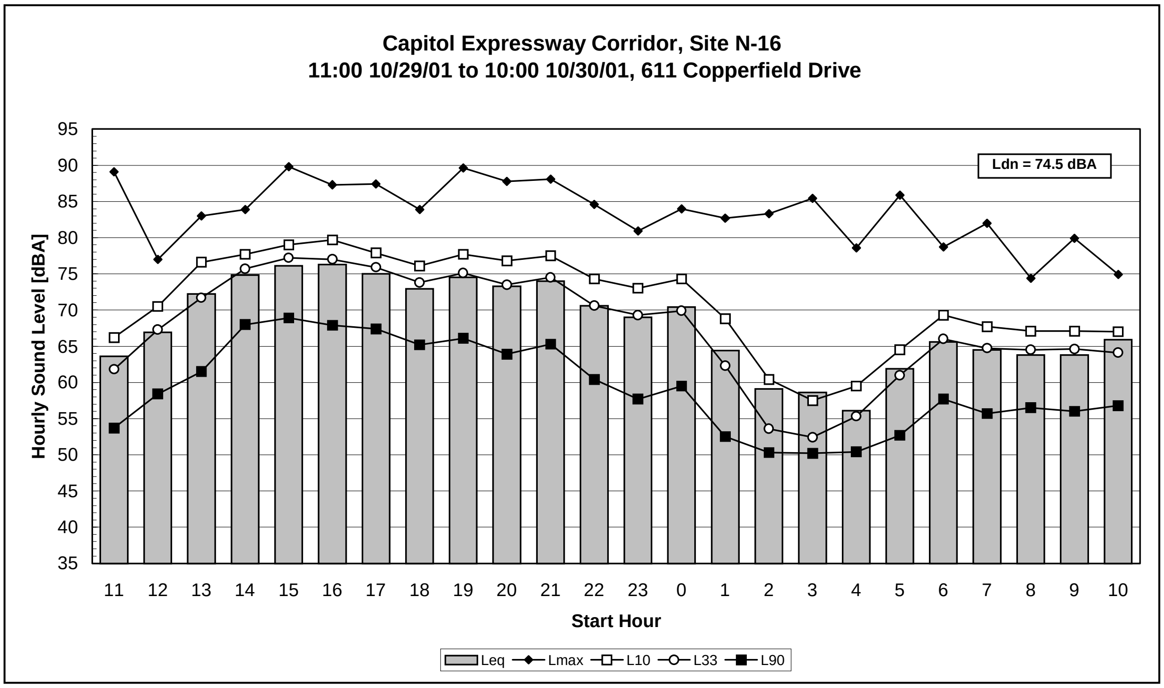


Figure B-16. Noise Survey Results, Site N-16

APPENDIX C. VIBRATION MEASUREMENT DATA AND PROJECTIONS

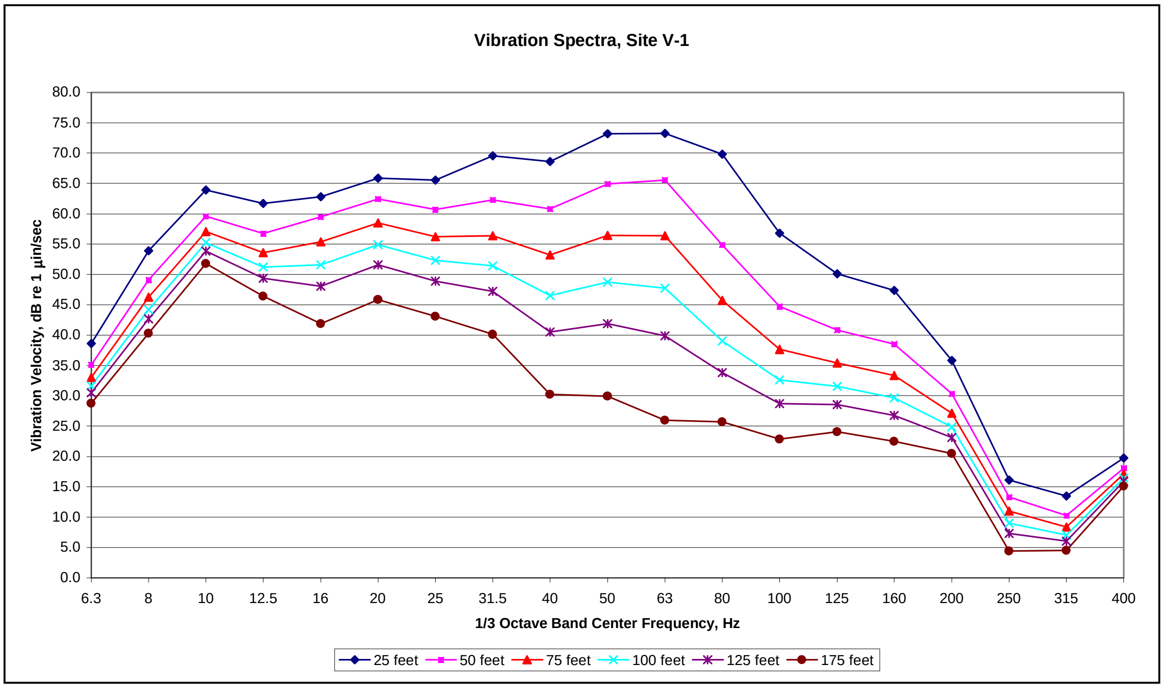


Figure C-1. Projected LRT Vibration Spectra, Site V-1, 40 mph

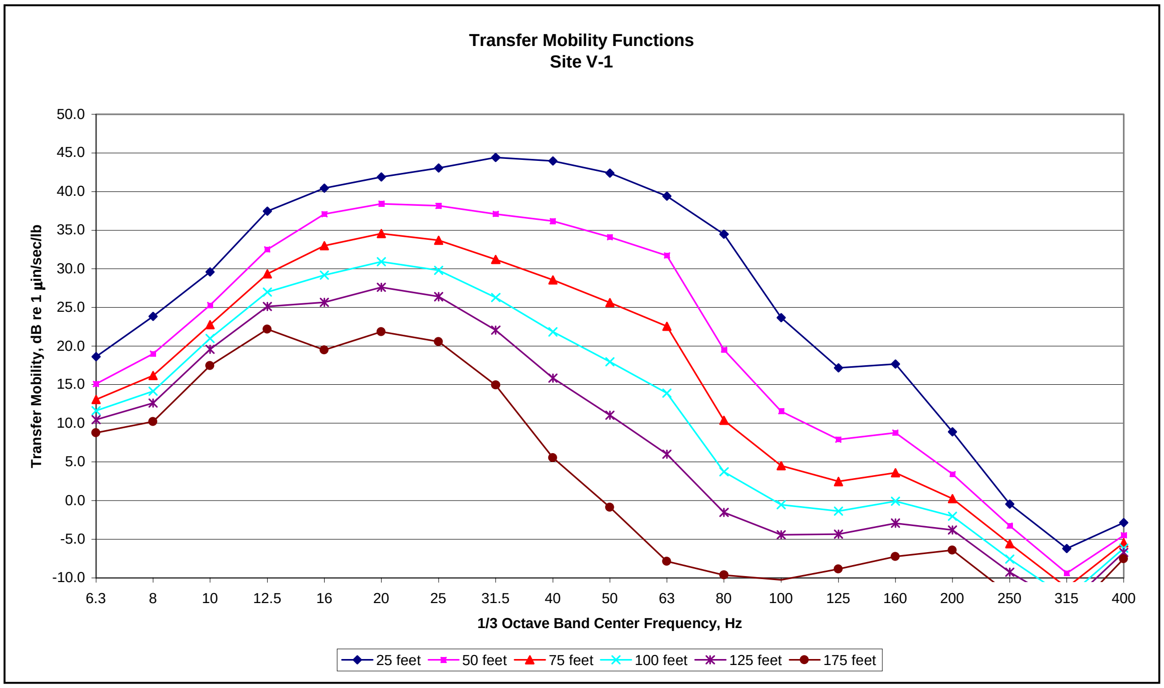


Figure C-2. Representative Transfer Mobility Functions, Site V-1

Table C-36. Line Source Transfer Mobility Coefficients, Site V-1

Frequency (Hz)	A	B	C
6.3	34.9	-11.6	0.0
8	46.4	-16.1	0.0
10	49.7	-14.4	0.0
12.5	53.6	-7.5	-2.9
16	-3.4	66.3	-25.0
20	4.6	58.1	-22.5
25	20.3	43.0	-19.1
31.5	31.8	36.3	-19.5
40	-4.7	84.9	-35.8
50	-22.3	107.0	-43.4
63	-57.8	147.7	-55.9
80	92.7	-35.1	-4.7
100	79.8	-40.1	0.0
125	60.2	-30.8	0.0
160	58.8	-29.5	0.0
200	34.2	-18.1	0.0
250	-7.2	16.5	-8.3
315	8.6	-10.6	0.0
400	4.8	-5.5	0.0

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2

d = Distance in feet

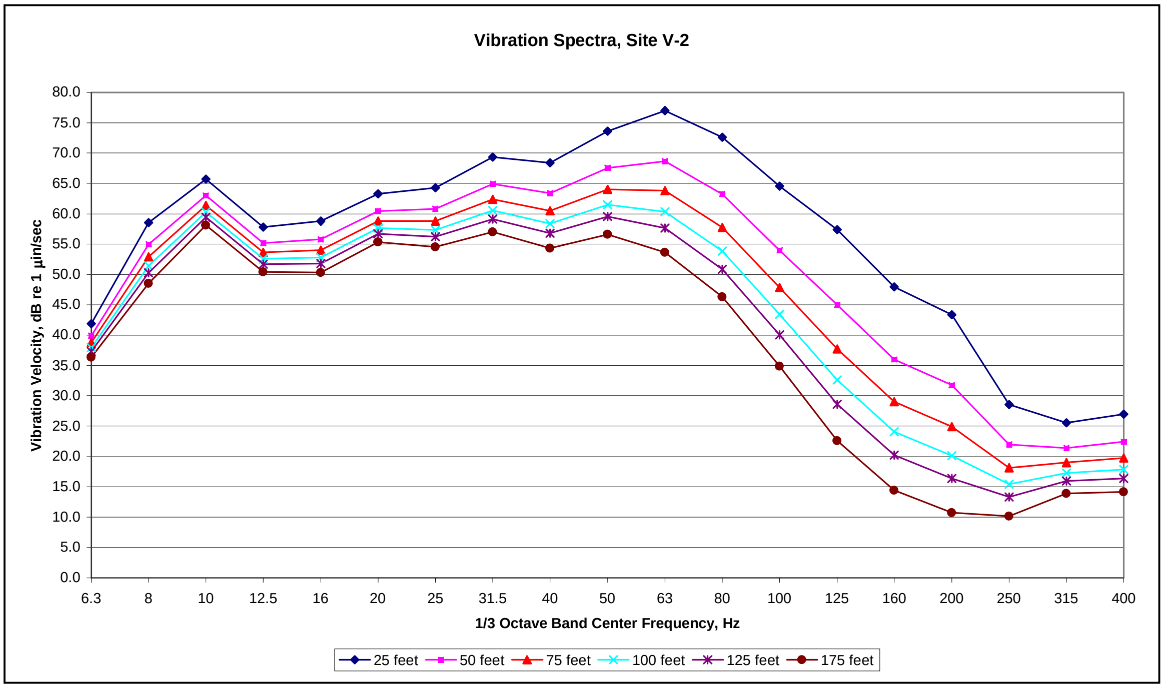


Figure C-3. Projected LRT Vibration Spectra, Site V-2, 40 mph

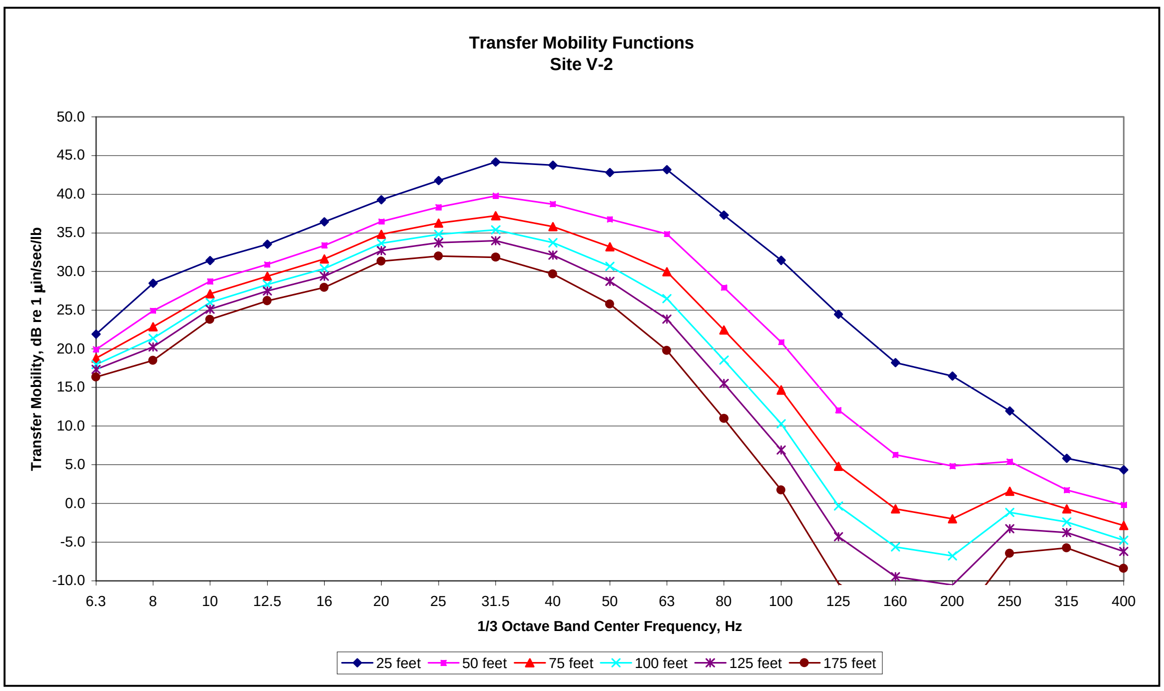


Figure C-4. Representative Transfer Mobility Functions, Site V-2

Table C-37. Line Source Transfer Mobility Coefficients, Site V-2

Frequency (Hz)	A	B	C
6.3	31.0	-6.5	0.0
8	45.0	-11.8	0.0
10	44.0	-9.0	0.0
12.5	45.6	-8.7	0.0
16	50.4	-10.0	0.0
20	52.4	-9.4	0.0
25	57.9	-11.6	0.0
31.5	64.6	-14.6	0.0
40	67.0	-16.6	0.0
50	71.0	-20.2	0.0
63	81.9	-27.7	0.0
80	80.8	-31.1	0.0
100	80.5	-35.1	0.0
125	81.9	-41.1	0.0
160	73.6	-39.6	0.0
200	70.5	-38.6	0.0
250	42.4	-21.8	0.0
315	25.1	-13.7	0.0
400	25.5	-15.1	0.0

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1μin/sec/lb/(ft)^1/2

d = Distance in feet

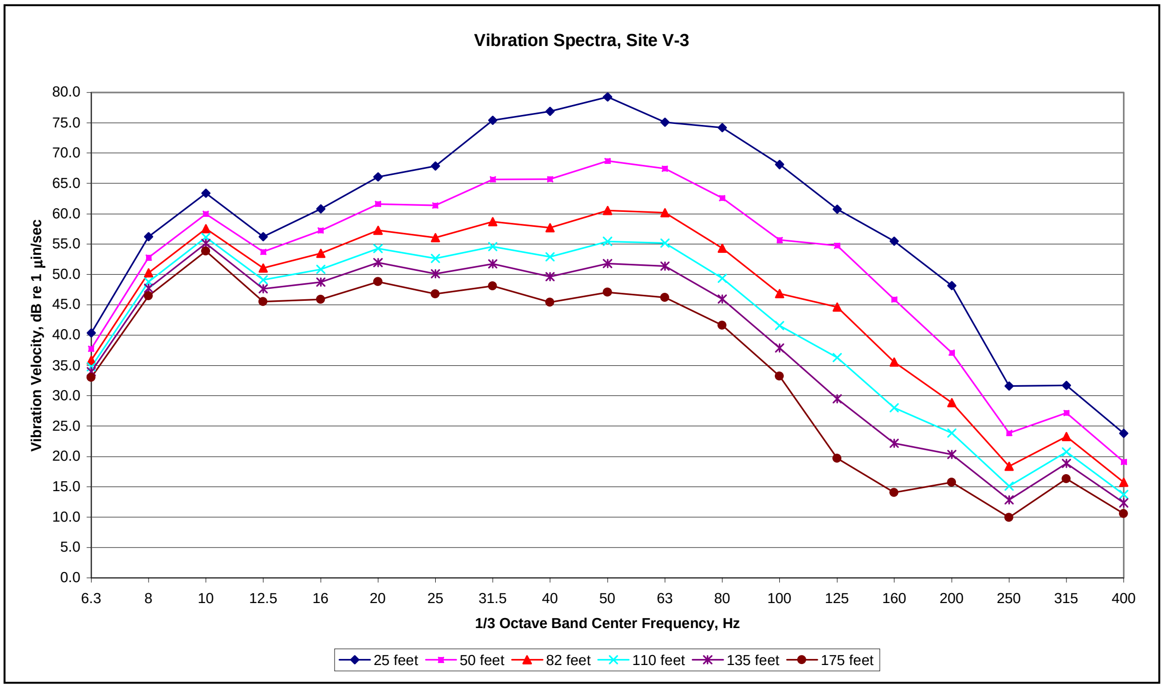


Figure C-5. Projected LRT Vibration Spectra, Site V-3, 40 mph

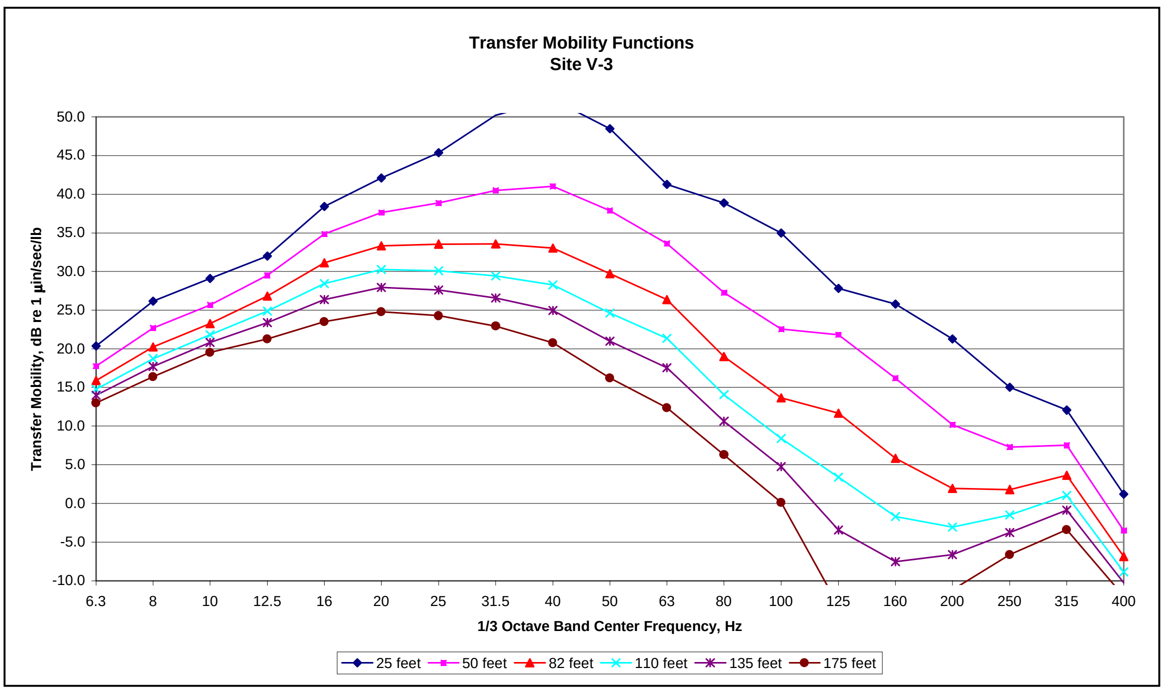


Figure C-6. Representative Transfer Mobility Functions, Site V-3

Table C-38. Line Source Transfer Mobility Coefficients, Site V-3

Frequency (Hz)	A	B	C
6.3	32.6	-8.7	0.0
8	42.4	-11.6	0.0
10	44.9	-11.3	0.0
12.5	24.2	16.9	-8.1
16	29.6	21.2	-10.7
20	38.1	17.4	-10.4
25	60.7	-2.2	-6.2
31.5	95.5	-32.4	0.0
40	104.2	-37.2	0.0
50	84.6	-18.2	-5.5
63	38.5	24.5	-16.1
80	92.8	-38.5	0.0
100	92.6	-41.2	0.0
125	-69.3	143.1	-52.6
160	-4.5	65.7	-31.5
200	66.2	-28.3	-2.8
250	50.9	-25.7	0.0
315	19.5	2.7	-5.8
400	23.1	-15.7	0.0

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2

d = Distance in feet

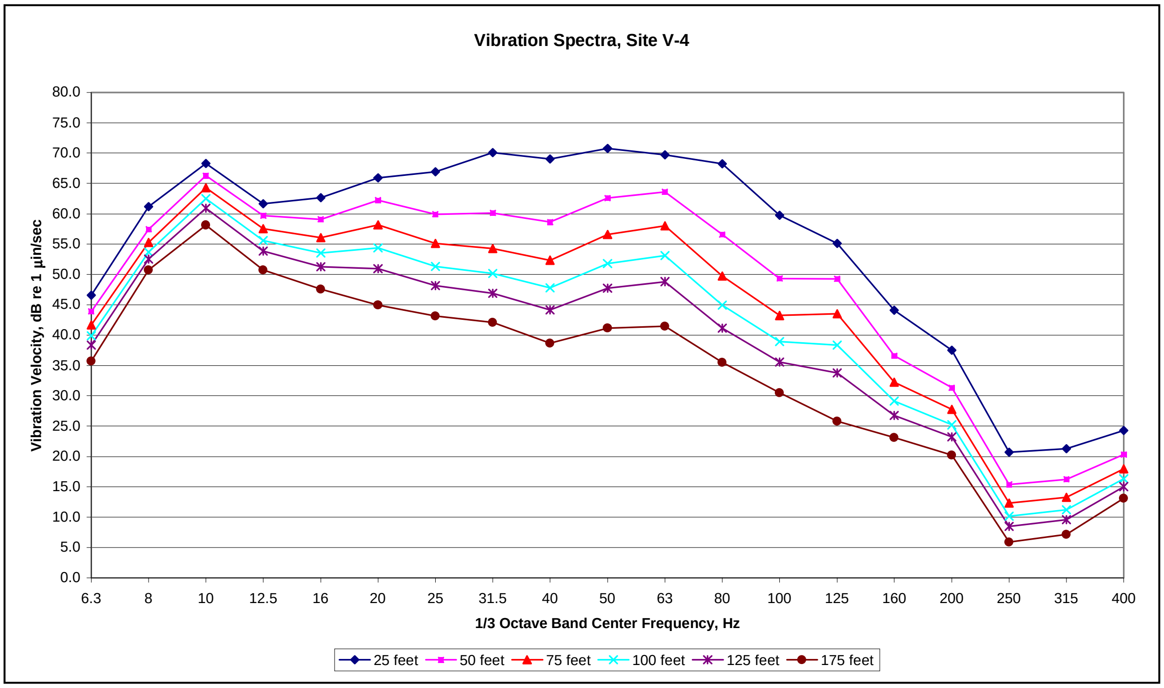


Figure C-7. Projected LRT Vibration Spectra, Site V-4, 40 mph

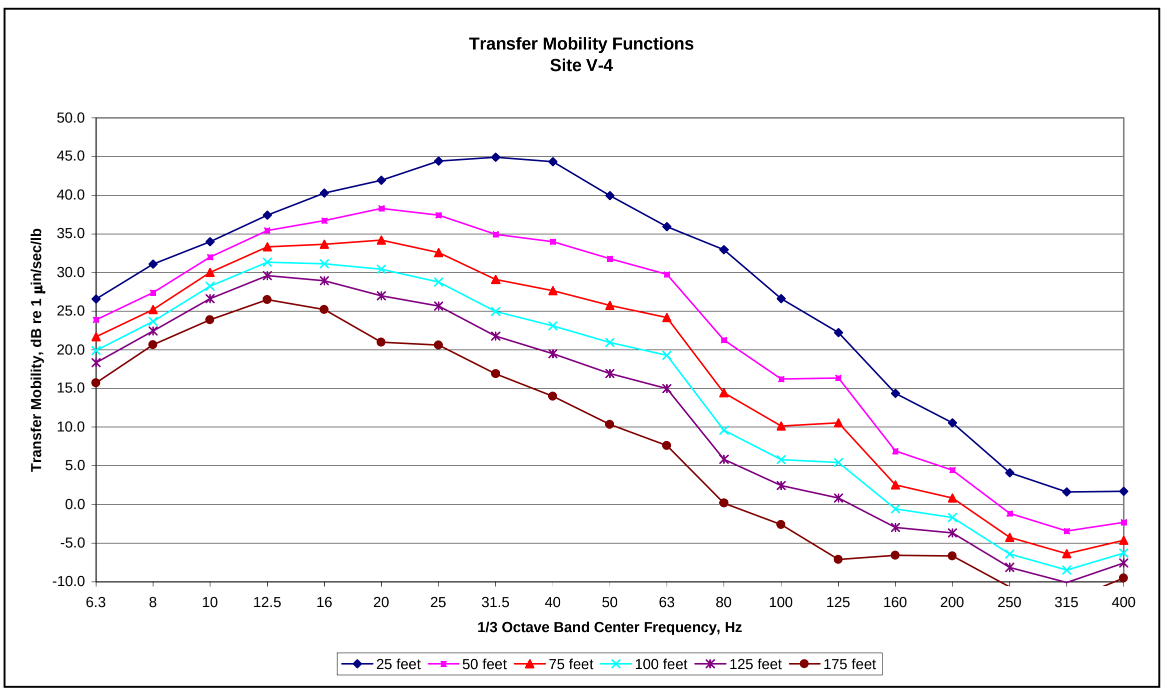


Figure C-8. Representative Transfer Mobility Functions, Site V-4

Table C-39. Line Source Transfer Mobility Coefficients, Site V-4

Frequency (Hz)	A	B	C
6.3	22.5	12.8	-7.0
8	48.4	-12.3	0.0
10	20.2	23.5	-9.8
12.5	18.5	30.0	-11.8
16	31.2	21.7	-10.9
20	3.2	60.3	-23.4
25	55.3	4.9	-9.1
31.5	91.3	-33.2	0.0
40	86.2	-26.2	-2.7
50	44.0	17.2	-14.3
63	7.5	53.8	-24.0
80	87.1	-38.8	0.0
100	75.0	-34.6	0.0
125	-17.1	67.2	-28.0
160	49.0	-24.8	0.0
200	39.1	-20.4	0.0
250	28.6	-17.5	0.0
315	25.0	-16.7	0.0
400	20.3	-13.3	0.0

TM = A + B*log (d) + C*(log (d))^2

Where:

TM = Transfer Mobility in dB re 1µin/sec/lb/(ft)^1/2

d = Distance in feet

Appendix J

Consultation and Coordination

resources, air quality, noise, water quality, geology, visual); changes in the social environment (land use, business and neighborhood disruptions); changes in traffic and pedestrian circulation; changes in transit service and patronage; associated changes in traffic congestion; and impacts on parklands and historic resources. Impacts will be identified both for the construction period and for the long-term operation of the alternatives. The proposed evaluation criteria include transportation, environmental, social, economic, and financial measures, as required by current federal (NEPA) and state (CEQA) environmental laws and current Council on Environmental Quality and FTA guidelines.

To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS/EIR should be directed to VTA as noted above.

V. FTA Procedures

The EIS/EIR for the Santa Clara/Alum Rock LRT Project will be prepared simultaneously with conceptual engineering for station and alignment options. The EIS/EIR/conceptual engineering process will address the potential use of federal funds for the proposed project, as well as assess the social, economic, and environmental impacts of station and alignment alternatives. Station designs and alignment alternatives will be refined to minimize and mitigate any adverse impacts identified. After publication, the Draft EIS/EIR will be available for public and agency review and comment, and a public hearing will be held. Based on the Draft EIS/EIR and comments received, VTA will select a preferred alternative, which will be described in full detail in the Final EIS/EIR.

Issued on: September 14, 2001.

F. James Kenna,

Deputy Regional Administrator.

[FR Doc. 01–23317 Filed 9–17–01; 8:45 am]

BILLING CODE 4910–57–M

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

Environmental Impact Statement on the Capitol Expressway Light Rail Transit Project in San Jose, CA

AGENCY: Federal Transit Administration, DOT.

ACTION: Notice of intent to prepare an Environmental Impact Statement (EIS)

SUMMARY: The Federal Transit Administration (FTA) and the Santa Clara Valley Transportation Authority (VTA) intend to prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) and an Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) for a proposed Light Rail Transit (LRT) line in the Capitol Expressway corridor. The proposed line and technology were selected following completion of the Downtown East Valley Major Investment Study (MIS) in August 2000. The MIS considered alternative modes of travel, alignment, and station locations in a 30-square mile study area. The MIS process resulted in a Preferred Investment Strategy that includes LRT improvements in the Capitol Expressway Corridor to improve direct transit service in an approximately 8-mile-long corridor in southeast San Jose, California. The Capitol Expressway Project will be further evaluated during the conceptual engineering phase of the project and carried forward in the EIS/EIR. The EIS/EIR will evaluate a No-Action alternative, LRT alignment and station options, and additional alternatives that emerge from the scoping process. Scoping will be accomplished through correspondence and discussions with interested persons; organizations; federal, state and local agencies; and through a public meeting.

DATES: *Comment Due Date:* Written comments on the scope of alternatives and impacts to be considered in the EIS/EIR must be received no later than November 2, 2001, and must be sent to VTA at the address indicated below. *Scoping Meeting:* A public scoping meeting will be held on September 26, 2001, from 6:00 p.m. to 8:00 p.m. at St. Francis of Assisi Catholic Church, 5111 San Felipe Road, San Jose, CA 95135. Phone: (408) 223–1562. The project purpose and alternatives will be presented at this meeting. The building used for the scoping meeting is accessible to persons with disabilities. Any individual who requires special assistance, such as a sign language interpreter, to participate in the scoping meeting should contact Jennifer Rielly, Public Communications Specialist, VTA Community Outreach, at (408) 321–7575 or TDD only at (408) 321–2330. Scoping material will be available at the meeting and may be obtained in advance of the meeting by contacting Mr. Fitzwater at the address or phone number given below.

ADDRESSES: Written comments should be sent to Mr. Thomas Fitzwater, Environmental Planning Manager, VTA, 3331 North First Street, San Jose, CA 95134–1906. Phone: (408) 321–5789. Fax: (408) 321–5787. E-mail: *scoping.capitolexpressway@vta.org.*

FOR FURTHER INFORMATION CONTACT: Mr. Thomas Fitzwater, Environmental Planning Manager, VTA, 3331 North First Street, San Jose, CA 95134–1906. Phone (408) 321–5789 or Mr. Jerome Wiggins, Office of Planning and Program Development, FTA, 201 Mission Street, Room 2210, San Francisco, CA 94105. Phone: (415) 744–3115. People with special needs should contact Jennifer Rielly, Public Communications Specialist, VTA Community Outreach, at (408) 321–7575 or TDD only at (408) 321–2330.

SUPPLEMENTARY INFORMATION:

I. Scoping

The FTA and VTA invite all interested individuals and organizations, and federal, state, regional, and local agencies to provide comments on the scope of the project. A summary of the MIS, Downtown East Valley Major Investment Study—Project Summary Report (December 2000), is available for public review at the following public libraries: (1) Dr. Martin Luther King, Jr. Main Library, 180 West San Carlos Street, San Jose, CA 95113; (2) Hillview Branch Library, 2255 Ocala Avenue, San Jose, CA 95122; (3) Evergreen Branch Library, 2635 Aborn Road, San Jose, CA 95121; and (4) Seventrees Branch Library, 3597 Cas Drive, San Jose, CA 95111. The MIS summary is also available by contacting Mr. Fitzwater at the address and phone number given above. Mr. Fitzwater should also be contacted to be placed on the project mailing list and to receive additional information about the project. Written comments on the alternatives and potential impacts to be considered should be sent to Mr. Fitzwater.

II. Project Purpose and Need

The project purpose is to improve public transit service in the downtown and East Valley areas of the City of San Jose by addressing the following specific goals established in the MIS: improve mobility; increase transit ridership; target the highest commute corridors with emphasis on work and school trips; promote livable neighborhoods and community support.

In general, the project would provide residents of southeast San Jose more efficient access to the light rail system and improved connections and greater mobility options throughout the Silicon Valley. For example, residents could travel to south San Jose, downtown San Jose, and to the cities of Santa Clara, Sunnyvale, and Mountain View via the Guadalupe, Tasman, and Capitol LRT lines. Linkages to the Caltrain commuter rail line, which provides service to San Francisco and to communities along the Peninsula, may also be accessed at intermodal connections throughout the system.

The project would also alleviate heavy traffic congestion in the Interstate 680 and U.S. 101 corridors and on major arterials; reduce the circulation impacts of increased peak-hour traffic; improve regional air quality by reducing automobile emissions; improve mobility options to employment, education, medical, and retail centers for corridor residents, in particular low-income, youth, elderly, disabled, and ethnic minority populations; and support local economic and land development goals.

III. Alternatives

The Capitol Expressway Light Rail Project is examining alternatives to be carried forward into the environmental analysis process. The No-Action Alternative will consist of the existing conditions, in accordance with both NEPA and CEQA requirements. The Build or LRT Alternative is the Capitol Expressway LRT Project.

The proposed alignment of the LRT project begins at the end of the Capitol [Avenue] LRT line, currently under construction. Starting on Capitol Avenue, at the intersection of Capitol and Wilbur Avenues in east San Jose, the LRT would transition to operate in the median of Capitol Expressway, at grade in an exclusive right-of-way with some potential for grade separation at locations to be determined during conceptual engineering. The line would extend to the Eastridge Mall area as the terminus of the first phase. The next phase(s) would continue along Capitol Expressway to the Capitol Station on the Guadalupe LRT line. In this portion of the alignment, the roadway would need to be widened to accommodate the LRT median. Along the alignment, nine conceptual station locations have been identified. More precise station locations and alignment options will be developed during preparation of the Draft EIS/EIR.

The EIS/EIR will also address any additional alternatives identified in the scoping process.

IV. Probable Effects

The purpose of the EIS/EIR is to fully disclose the environmental consequences of building and operating the Capitol Expressway LRT Project in advance of any decisions to commit substantial financial or other resources towards its implementation. The EIS/EIR will explore the extent to which project alternatives and design options result in environmental impacts and will discuss actions to reduce or eliminate such impacts.

Environmental issues to be examined in the EIS/EIR include: changes in the physical environment (natural resources, air quality, noise, water quality, geology, visual); changes in the social environment (land use, business and neighborhood disruptions); changes in traffic and pedestrian circulation; changes in transit service and patronage; associated changes in traffic congestion; and impacts on parklands and historic resources. Impacts will be identified both for the construction period and for the long-term operation of the alternatives. The proposed evaluation criteria include transportation, environmental, social, economic, and financial measures, as required by current federal (NEPA) and state (CEQA) environmental laws and current Council on Environmental Quality and FTA guidelines.

To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS/EIR should be directed to VTA as noted above.

V. FTA Procedures

The EIS/EIR for the Capitol Expressway LRT Project will be prepared simultaneously with conceptual engineering for station and alignment options. The EIS/EIR/ conceptual engineering process will address the potential use of federal funds for the proposed project, as well as assess the social, economic, and environmental impacts of station and alignment alternatives. Station designs and alignment alternatives will be refined to minimize and mitigate any adverse impacts identified.

After publication, the Draft EIS/EIR will be available for public and agency review and comment, and a public hearing will be held. Based on the Draft EIS/EIR and comments received, VTA will select a preferred alternative, which will be described in full detail in the Final EIS/EIR.

Issued on: September 14, 2001.

F. James Kenna,

Deputy Regional Administrator.

[FR Doc. 01–23318 Filed 9–17–01; 8:45 am]

BILLING CODE 4910–57–M

DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

Over-the-road Bus Accessibility Program Announcement of Project Selection

AGENCY: Federal Transit Administration, DOT.

ACTION: Notice.

SUMMARY: The U.S. Department of Transportation (DOT) Federal Transit Administration (FTA) announces the Fiscal Year 2001 selection of projects to be funded under the Over-the-road Bus (OTRB) Accessibility Program, authorized by Section 3038 of the Transportation Equity Act for the 21st Century (TEA–21). The OTRB Accessibility Program makes funds available to private operators of over-the-road buses to help finance the incremental capital and training costs of complying with DOT's over-the-road bus accessibility rule, published in a **Federal Register** notice on September 24, 1998.

FOR FURTHER INFORMATION CONTACT: The appropriate FTA Regional Administrator for grant-specific issues; or Sue Masselink, Office of Program Management, 202–366–2053 for general information about the OTRB Accessibility Program.

SUPPLEMENTARY INFORMATION: In fiscal year 2001, a total of $4.7 million was available for allocation: $3 million for intercity fixed-route providers and $1.7 million for all other providers, such as commuter, charter, and tour operator. A total of 84 applicants requested $15.1 million: $8.2 million was requested by intercity fixed-route providers, and $6.9 million was requested by all other providers. Project selections were made on a discretionary basis, based on each applicant's responsiveness to statutory project selection criteria, fleet size, and level of funding received in previous years. Because of the high demand for the funds available, most applicants received less funding than they requested, although with the exception of some applicants that received funding in previous years, all qualified applicants received some funding. Each of the following 61 awardees, as well as the 23 applicants who were not selected for funding, will receive a letter that explains how funding decisions were made.

Notice of Preparation

To: ______________________________
(Agency)

____
(Address)

____

From: Santa Clara Valley Transportation Authority
(Agency)

3331 North First Street
(Address)

San Jose, CA 95134-1906

Subject: Notice of Preparation of an Environmental Impact Statement/Environmental Impact Report

The Santa Clara Valley Transportation Authority will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project. In accordance with National Environmental Policy Act (NEPA) requirements, an environmental impact statement also will be prepared. The Federal Transit Administration will be the Lead Agency under NEPA.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the initial study (☐ is ☒ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but ***not later than 30 days*** after receipt of this notice.

Please send your response to Mr. Thomas Fitzwater, Environmental Planning Manager, at the address shown above. We will need the name for a contact person in your agency.

Project Title: Environmental Impact Statement/Environmental Impact Report for the Capitol Expressway Light Rail Transit Project in San Jose, CA

Project Applicant, if any: Santa Clara Valley Transportation Authority

Date: 8/30/2001

Signature: [signature]

Title: Environmental Planning Manager

Telephone: (408) 321-5789

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Notice of Preparation

Environmental Impact Report: Capitol Expressway Light Rail Transit Project in San Jose, CA

Lead Agency: Santa Clara Valley Transportation Authority

Project Overview

The Federal Transit Administration (FTA) and the Santa Clara Valley Transportation Authority (VTA) intend to prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) and an Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) for a proposed Light Rail Transit (LRT) line in the Capitol Expressway corridor. The proposed line and technology were selected following completion of the Downtown East Valley Major Investment Study (MIS) in August 2000. The MIS considered alternative modes of travel, alignments, and station locations in a 30-square mile study area. The MIS process resulted in a Preferred Investment Strategy that includes LRT improvements in the Capitol Expressway Corridor to improve direct transit service in an approximately 8-mile-long corridor in southeast San Jose, California (see attached map). The Capitol Expressway Project will be further evaluated during the conceptual engineering phase of the project and carried forward in the EIS/EIR. The EIS/EIR will evaluate a No-Action alternative, LRT alignment and station options, and additional alternatives that emerge from the scoping process. Scoping will be accomplished through correspondence and discussions with interested persons; organizations; federal, state and local agencies; and through a public meeting.

The project purpose is to improve public transit service in the downtown and East Valley areas of the City of San Jose by addressing the following specific goals established in the MIS: improve mobility; increase transit ridership; target the highest commute corridors with emphasis on work and school trips; promote livable neighborhoods and community support.

In general, the project would provide residents of southeast San Jose more efficient access to the light rail system and improved connections and greater mobility options throughout the Silicon Valley. For example, residents could travel to south San Jose, downtown San Jose, and to the cities of Santa Clara, Sunnyvale, and Mountain View via the Guadalupe, Tasman, and Capitol LRT lines. Linkages to the Caltrain commuter rail line, which provides service to San Francisco and to communities along the Peninsula, may also be accessed at intermodal connections throughout the system.

The project would also alleviate heavy traffic congestion in the Interstate 680 and U.S. 101 corridors and on major arterials; reduce the circulation impacts of increased peak-hour traffic; improve regional air quality by reducing automobile emissions; improve mobility options to employment, education, medical, and retail centers for corridor residents, in particular low-income, youth, elderly, disabled, and ethnic minority populations; and support local economic and land development goals.

Alternatives

The Capitol Expressway Light Rail Project is examining alternatives to be carried forward into the environmental analysis process. The No-Action Alternative will consist of the existing conditions, in accordance with both NEPA and CEQA requirements. The Build or LRT Alternative is the Capitol

Expressway LRT Project.

The proposed alignment of the LRT project begins at the end of the Capitol [Avenue] LRT line, currently under construction. Starting on Capitol Avenue, at the intersection of Capitol and Wilbur Avenues in east San Jose, the LRT would transition to operate in the median of Capitol Expressway, at grade in an exclusive right-of-way with some potential for grade separation at locations to be determined during conceptual engineering. The line would extend to the Eastridge Mall area as the likely terminus of the first phase. The future phase(s) would continue along Capitol Expressway to the Capitol Station on the Guadalupe LRT line. In this portion of the alignment, the roadway would need to be widened to accommodate the LRT median.

Along the alignment, nine conceptual station locations have been identified. More precise station locations and alignment options will be developed during preparation of the Draft EIS/EIR.

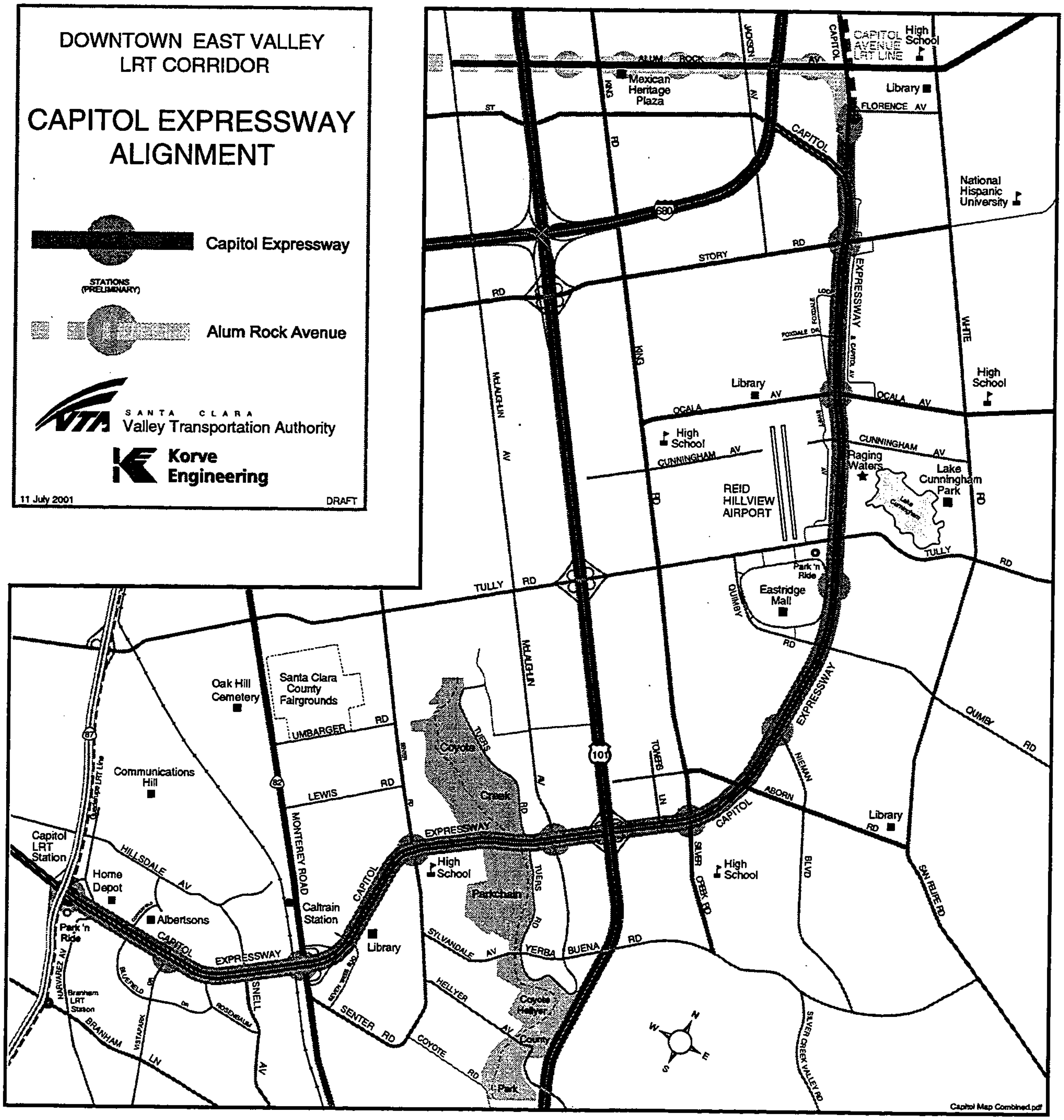
The EIS/EIR will also address any additional alternatives identified in the scoping process.

Probable Environmental Effects

The purpose of the EIS/EIR is to fully disclose the environmental consequences of building and operating the Capitol Expressway LRT Project in advance of any decisions to commit substantial financial or other resources towards its implementation. The EIS/EIR will explore the extent to which project alternatives and design options result in environmental impacts and will discuss actions to reduce or eliminate such impacts. Environmental issues to be examined in the EIS/EIR include: changes in the physical environment (natural resources, air quality, noise, water quality, geology, visual); changes in the social environment (land use, business and neighborhood disruptions); changes in traffic and pedestrian circulation; changes in transit service and patronage; associated changes in traffic congestion; and impacts on parklands and historic resources. Impacts will be identified both for the construction period and for the long-term operation of the alternatives. The proposed evaluation criteria include transportation, environmental, social, economic, and financial measures, as required by current federal (NEPA) and state (CEQA) environmental laws and current Council on Environmental Quality and FTA guidelines.

To ensure that the full range of issues related to this proposed action are addressed and all significant issues identified, comments and suggestions are invited from all interested parties. Comments or questions concerning this proposed action and the EIS/EIR should be directed to VTA as noted above.

For further information, contact: Mr. Thomas Fitzwater, Environmental Planning Manager, VTA, 3331 North First Street, San Jose, CA 95134-1906. Phone: (408) 321-5789. Fax: (408) 321-5787. People with special needs should contact Jennifer Rielly, Public Communications Specialist, VTA Community Outreach, at (408) 321-7575 or TDD only at (408) 321-2330.


DOWNTOWN EAST VALLEY
LRT CORRIDOR
CAPITOL EXPRESSWAY
ALIGNMENT
Capitol Expressway
STATIONS (PRELIMINARY)
Alum Rock Avenue
SANTA CLARA
Valley Transportation Authority
Korve Engineering
11 July 2001
DRAFT
ALUM ROCK AV
CAPITOL AVENUE LRT LINE
High School
Mexican Heritage Plaza
Library
FLORENCE AV
CAPITOL
National Hispanic University
STORY RD
EXPRESSWAY
WHITE
KING RD
MCLAUGHLIN AV
Library
OCALA AV
High School
CUNNINGHAM AV
Raging Waters
Lake Cunningham Park
REID HILLVIEW AIRPORT
TULLY RD
Park 'n Ride
Eastridge Mall
QUIMBY RD
CAPITOL EXPRESSWAY
Oak Hill Cemetery
Santa Clara County Fairgrounds
UMBARGER RD
Coyote Creek
TULLY
101
TOWERS LN
NIEMAN
ABORN RD
Library
Communications Hill
LEWIS RD
82
MONTEREY ROAD
87
Capitol LRT Station
HILLSDALE AV
Home Depot
Albertsons
Caltrain Station
CAPITOL EXPRESSWAY
High School
Parkchain
TUERS RD
SILVER CREEK RD
High School
BLVD
SAN FELIPE RD
Library
SYLVANDALE AV
YERBA BUENA RD
Park 'n Ride
CAPITOL EXPRESSWAY
SNELL AV
BLUEFIELD DR
ROSENBAUM
SENTER RD
HELLYER AV
Coyote Hellyer County Park
COYOTE RD
Branham LRT Station
BRANHAM LN
VISTAPARK
HARWARD AV
SILVER CREEK VALLEY RD
N
E
S
W
Capitol Map Combined.pdf

U.S Department
of Transportation

**Federal Aviation
Administration**

Western-Pacific Region
Airports Division

Airports District Office
831 Mitten Road, Room 210
Burlingame, CA 94010

September 13, 2001

Mr. Thomas Fitzwater
Environmental Planning Manager
Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, CA 95134-1906

Dear Mr. Fitzwater:

Our office has reviewed the Notice of Preparation (NOP) for the proposed Light Rail Transit (LRT), line in the Capital Expressway corridor for impacts to Federal Aviation Administration (FAA) programs. We note that the NOP indicates that the proposed right-of-way for the project runs parallel to the San Jose Ried-Hillview Airport runway system.

The San Jose Reid-Hillview Airport airspace should remain clear of any light rail structures. The proposed at grade light rail transit system does not appear to be penetrate the airport airspace as defined by Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace. The lead project agency should require that a FAA airspace evaluation be completed prior to approval of site development plans. The enclosed FAA form 7460-1, Notice of Proposed Construction or Alteration, should be utilized to notify the FAA. The FAA will evaluate the data submitted with the form 7460-1 to determine if the project is or is not a hazard to aviation. Please note the notification requirements specified in paragraph 77.13 on FAA form 7460-1. I have enclosed a copy of FAR Part 77 and Advisory Circular 70/7460-1K, Obstruction Marking and Lighting for your information.

The FAA has recently issued a grant to the County for an Airport Master Plan Update. Any information you can provide regarding transit or surface access improvements within the airport area would be greatly appreciated. We ask that your office include the Airports District Office on the mailing list for future notification of proposed project alternatives for the transient station and railway alignment.

If you have any questions regarding airport design and the joint planning efforts of the FAA/Santa Clara County please contact Ms. Tara Tighe, Airport Planner, at (650) 876-2748.

Sincerely,

Joseph R. Rodriguez

Joseph R. Rodriguez
Supervisor, Planning and Programming Section

VTA
ENV. ANALYSIS
2001 SEP 14 P 2:07

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 – Fax
www.nahc.ca.gov – web site

September 20, 2001

Tom Fitzwater
Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, Ca 95134-1906

RE: SCH# 2001092014 - Capitol Expressway Light Rail Transit project

Dear Mr. Fitzwater:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess the project-related impact on archaeological resources, the Commission recommends the following action be required:

1. Contact the appropriate Information Center for a records search. The record search will determine:
   - Whether a part or all of the project area has been previously surveyed for cultural resources.
   - Whether any known cultural resources have already been recorded on or adjacent to the project area.
   - Whether the probability is low, moderate, or high that cultural resources are located within the project area.
   - Whether a survey is required to determine whether previously unrecorded cultural resources are present.

2. The final stage of the archaeological inventory survey is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
   - Required the report containing site significance and mitigation be submitted immediately to the planning department.
   - Required site forms and final written report be submitted within 3 months after work has been completed to the Information Center.

3. Contact the Native American Heritage Commission for:
   - A Sacred Lands File Check.
   - A list of appropriate Native American Contacts for consultation concerning the project site and assist in the mitigation measures.

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should include provisions for accidentally discovered archeological resources during construction per California Environmental Quality Act (CEQA) §15064.5 (f). Health and Safety Code §7050.5 and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery and should be included in all environmental documents. If you have any questions, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway

Debbie Pilas-Treadway
Associate Governmental Program Analyst

cc: State Clearinghouse

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

VTA ENV ANALYSIS
2001 SEP 26 P 2: 15

IN REPLY REFER TO:
PPN 2878

September 20, 2001

Mr. Thomas Fitzwater
Environmental Planning Manager
Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, California 95134-1906

Dear Mr. Fitzwater:

Thank you for the opportunity to review the Notice of Preparation for a Draft Environmental Impact Report for the Capitol Expressway Light Rail Transit Project in San Jose, California. The enclosures are intended to assist you in the early environmental review of this proposal. Future consultation with the U.S. Fish and Wildlife Service (Service) may be required under the Fish and Wildlife Coordination Act if project activities are anticipated to impact jurisdictional wetlands, and/or the Endangered Species Act if project activities are anticipated to affect federally listed species.

Enclosure A provides a list of sensitive species that may occur in or near the project site. The Service recommends that surveys be completed by a qualified biologist on the proposed project site to confirm the presence or absence of special-status species or their habitats. Enclosure B recommends general guidelines for identifying and mitigating project impacts to fish, wildlife, and their habitats. The Council on Environmental Quality developed regulations for implementing the National Environmental Policy Act, and defines mitigation to include: (1) avoiding the impact; (2) minimizing the impact; (3) rectifying the impact; (4) reducing or eliminating the impact over time; and (5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain the best way to mitigate adverse biological impacts is avoidance when at all possible.

We encourage you to use these guidelines to develop a comprehensive environmental document that addresses these needs. If you have any questions regarding these comments, please contact Jerry Bielfeldt in the Wetlands Branch at (916) 414-6584.

Sincerely,

Dale A. Pierce

Dale A. Pierce
Acting Field Supervisor

Enclosures

cc:
ARD (ES), Portland, OR
Reg. Mgr., CDFG, Region III, Napa, CA
(w/o enclosures)

ENCLOSURE A

Endangered and Threatened Species that May Occur in or be Affected by Projects in the Selected Quads Listed Below

Reference File No. PPN-2878

Capitol Expressway Light Rail

September 19, 2001

QUAD : 427C SAN JOSE WEST

Listed Species

Birds

California clapper rail, *Rallus longirostris obsoletus* (E)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

robust spineflower, *Chorizanthe robusta* (E) *

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Birds

tricolored blackbird, *Agelaius tricolor* (SC)

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

saltmarsh common yellowthroat, *Geothlypis trichas sinuosa* (SC)

Lewis' woodpecker, *Melanerpes lewis* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Hom's microblind harvestman, *Microcina homi* (SC)

Jung's microblind harvestman, *Microcina juni* (SC)

unsilvered fritillary butterfly, *Speyeria adiaste adiaste* (SC)

QUAD : 427D SAN JOSE EAST

Listed Species

Mammals

riparian brush rabbit, *Sylvilagus bachmani riparius* (E) *

San Joaquin kit fox, *Vulpes macrotis mutica* (E)

Amphibians

California red-legged frog, *Rana aurora draytonii* (T)

Fish

delta smelt, *Hypomesus transpacificus* (T)

Central California Coastal steelhead, *Oncorhynchus mykiss* (T)

Central Valley steelhead, *Oncorhynchus mykiss* (T)

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)

Central Valley spring-run chinook salmon, *Oncorhynchus tshawytscha* (T)

Sacramento splittail, *Pogonichthys macrolepidotus* (T)

Invertebrates

Critical habitat, bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

bay checkerspot butterfly, *Euphydryas editha bayensis* (T)

Plants

Santa Clara Valley dudleya, *Dudleya setchellii* (E)

Contra Costa goldfields, *Lasthenia conjugens* (E) *

Metcalf Canyon jewelflower, *Streptanthus albidus ssp. albidus* (E)

Candidate Species

Amphibians

California tiger salamander, *Ambystoma californiense* (C)

Fish

Central Valley fall/late fall-run chinook salmon, *Oncorhynchus tshawytscha* (C)

Species of Concern

Mammals

Pacific western big-eared bat, *Corynorhinus (=Plecotus) townsendii townsendii* (SC)

greater western mastiff-bat, *Eumops perotis californicus* (SC)

small-footed myotis bat, *Myotis ciliolabrum* (SC)

long-eared myotis bat, *Myotis evotis* (SC)

fringed myotis bat, *Myotis thysanodes* (SC)

long-legged myotis bat, *Myotis volans* (SC)

Yuma myotis bat, *Myotis yumanensis* (SC)

San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (SC)

Birds

grasshopper sparrow, *Ammodramus savannarum* (SC)

Bell's sage sparrow, *Amphispiza belli belli* (SC)

short-eared owl, *Asio flammeus* (SC)

western burrowing owl, *Athene cunicularia hypugaea* (SC)

ferruginous hawk, *Buteo regalis* (SC)

white-tailed (=black shouldered) kite, *Elanus leucurus* (SC)

little willow flycatcher, *Empidonax traillii brewsteri* (CA)

American peregrine falcon, *Falco peregrinus anatum* (D)

Lewis' woodpecker, *Melanerpes lewis* (SC)

rufous hummingbird, *Selasphorus rufus* (SC)

Allen's hummingbird, *Selasphorus sasin* (SC)

Reptiles

silvery legless lizard, *Anniella pulchra pulchra* (SC)

northwestern pond turtle, *Clemmys marmorata marmorata* (SC)

southwestern pond turtle, *Clemmys marmorata pallida* (SC)

California horned lizard, *Phrynosoma coronatum frontale* (SC)

Amphibians

foothill yellow-legged frog, *Rana boylii* (SC)

western spadefoot toad, *Scaphiopus hammondii* (SC)

Fish

longfin smelt, *Spirinchus thaleichthys* (SC)

Invertebrates

Opler's longhorn moth, *Adela oplerella* (SC)

Edgewood blind harvestman, *Calicina minor* (SC)

Ricksecker's water scavenger beetle, *Hydrochara rickseckeri* (SC)

Hom's microblind harvestman, *Microcina homi* (SC)

Jung's microblind harvestman, *Microcina juni* (SC)

Plants

Mt. Hamilton thistle, *Cirsium fontinale var. campylon* (SC)

South Bay clarkia, *Clarkia concinna ssp. automixa* (SC)

fragrant fritillary, *Fritillaria liliacea* (SC) pappose spikeweed [=Congdon's tarplant], *Hemizonia parryi ssp. congdonii* (SC) *?

KEY:

(E)	*Endangered*	Listed (in the Federal Register) as being in danger of extinction.
(T)	*Threatened*	Listed as likely to become endangered within the foreseeable future.
(P)	*Proposed*	Officially proposed (in the Federal Register) for listing as endangered or threatened.
(PX)	*Proposed Critical Habitat*	Proposed as an area essential to the conservation of the species.
(C)	*Candidate*	Candidate to become a *proposed* species.
(SC)	*Species of Concern*	May be endangered or threatened. Not enough biological information has been gathered to support listing at this time.
(MB)	*Migratory Bird*	Migratory bird
(D)	*Delisted*	Delisted. Status to be monitored for 5 years.
(CA)	*State-Listed*	Listed as threatened or endangered by the State of California.
(*)	*Extirpated*	Possibly extirpated from this quad.
(**)	*Extinct*	Possibly extinct.
	Critical Habitat	Area essential to the conservation of a species.

ENCLOSURE B

The goal of the U.S. Fish and Wildlife Service is to conserve, protect and enhance fish, wildlife, and their habitats by timely and effective provision of fish and wildlife information and recommendations. To assist us in accomplishing this goal, we would like to see the items described below discussed in your environmental documents for the proposed project.

Project Description. The document should very clearly state the purposes of, and document the needs for, the proposed project so that the capabilities of the various alternatives to meet the purposes and needs can be readily determined.

A thorough description of all permanent and temporary facilities to be constructed, and all work to be done as a part of the project should be included. The document should identify any associated new access roads, equipment staging areas, and gravel processing facilities. Figures accurately depicting proposed project features in relation to natural features (such as streams, wetlands, riparian areas, and other habitat types) in the project area should be included.

Affected Environment. The document should show the location of, and describe, all vegetative cover types in the areas potentially affected by all project alternatives and associated activities. Tables with acreages of each cover type with and without the project for each alternative would also be appropriate. We recommend that all wetlands in the project area be delineated and described according to the classification system found in the Service's <u>Classification of Wetlands and Deepwater Habitats of the United States</u> (Cowardin 1979). The Service's National Wetland Inventory maps would be one starting point for this effort.

The document should present and analyze a full range of alternatives to the proposed project. At least one alternative should be designed to avoid all impacts to wetlands, including riparian areas. Similarly, within each alternative, measures to minimize or avoid impacts to wetlands should be included.

Lists of fish and wildlife species expected to occur in the project area should be in the document. The lists should also indicate whether or not each species is a resident or migrant, and the period(s) of the year it would be expected in the project area.

Environmental Consequences. The sections on impacts to fish and wildlife should discuss impacts from vegetation removal (both permanent and temporary), filling or degradation of wetlands, interruption of wildlife migration corridors, and disturbance from trucks and other machinery during construction and/or operation. These sections should also analyze possible impacts to streams from construction of outfall structures, pipeline crossings, and filling. Impacts on water quality, including nutrient loading, sedimentation, toxics, biological oxygen demand, and temperature in receiving waters should also be discussed in detail along with the resultant effects on fish and aquatic invertebrates. Discussion of indirect impacts to fish, wildlife, and their habitats, including impacts from growth induced by the proposed project, should also be addressed in the document. The impacts of each alternative should be discussed in sufficient detail to allow comparison between the alternatives.

The cumulative impacts of the project, when viewed in conjunction with other past, existing, and foreseeable projects, need to be addressed. Cumulative impacts to fish, wildlife, wetlands and other habitats, and water quality should be included.

Mitigation Planning. Under provisions of the Fish and Wildlife Coordination Act (Coordination Act), the Service advises the U.S. Army Corps of Engineers on projects involving dredge and fill activities in "waters of the United States", of which wetlands and some riparian habitats are subcategories. Since portions of this proposal may ultimately require a Corps permit, the Service will subsequently be involved under the Coordination Act. Therefore, if you have not done so already, we suggest you or your representative consult the Corps regarding onsite wetlands and related habitats that may fall under their jurisdiction, and include this information in the draft document. When reviewing Corps public notices, the Service generally does not object to projects meeting the following criteria:

1. They are ecologically sound;

2. The least environmentally damaging reasonable alternative is selected;

3. Every reasonable effort is made to avoid or minimize damage or loss of fish and wildlife resources and uses;

4. All important recommended means and measures have been adopted, with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and

5. For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

The Service may recommend the "no project" alternative for those projects which do not meet all of the above criteria, and where there is likely to be a significant fish and wildlife resource loss.

When projects impacting waterways or wetlands are deemed acceptable to the Service, we recommend full mitigation for any impacts to fish and wildlife. The Council on Environmental Quality regulations for implementing the National Environmental Policy Act define mitigation to include: 1) Avoiding the impact; 2) minimizing the impact; 3) rectifying the impact; 4) reducing or eliminating the impact over time; and 5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. Accordingly, we maintain the best way to mitigate adverse biological impacts is to avoid them altogether.

The document should describe all measures proposed to avoid, minimize, or compensate for impacts to fish and wildlife and their habitats. The measures should be presented in as much detail as possible to allow us to evaluate their probable effectiveness.

Because of their very high value to migratory birds, and their ever-increasing scarcity in California, our mitigation goal for wetlands (including riparian and riverine wetlands) is no net loss of in-kind habitat value or acreage (whichever is greater).

In those situations where impacts are unavoidable, adequate mitigation should be provided to offset these impacts. To determine mitigation credits for a given mitigation project, we evaluate the expected future conditions on the mitigation site in the absence of mitigation actions, and then compare those conditions to conditions we expect to develop with implementation of the mitigation plan.

For unavoidable impacts, to determine the mitigation credits available for a given mitigation project, we evaluate what conditions would exist on the mitigation site in the future in the absence of the mitigation actions, and compare those conditions to the conditions we would expect to develop on the site with implementation of the mitigation plan.

Mitigation habitat should be equal to or exceed the quality of the habitat to be affected by the project. Baseline information would need to be gathered at the impact site to be able to quantify this goal in terms of plant species diversity, shrub and tree canopy cover, stems/acre, tree height, etc. The ultimate success of the project should be judged according to these same measurements at the mitigation site.

Criteria should be developed for assessing the progress of the project during its developmental stages as well. Assessment criteria should include rates of plant growth, plant health, and evidence of natural reproduction. Success criteria should be geared toward equaling or exceeding the quality of the highest quality habitat to be affected. In other words, the mitigation effort would be deemed a success in relation to this goal if the mitigation site met or exceeded habitat measurements at a "model" site (plant cover, density, species diversity, etc.).

The plan should present the proposed ground elevations at the mitigation site, along with elevations in the adjacent areas. A comparison of the soils of the proposed mitigation and adjacent areas should also be included in the plan, and a determination made as to the suitability of the soils to support habitats consistent with the mitigation goals.

Because wetland ecosystems are driven by suitable hydrological conditions, additional information must be developed on the predicted hydrology of the mitigation site. The plan should describe the depth of the water table, and the frequency, duration, areal extent, and depth of flooding which would occur on the site. The hydrologic information should include an analysis of extreme conditions (drought, flooding) as well as typical conditions.

The plan must include a timeframe for implementing the mitigation in relation to the proposed project. We recommend that mitigation be initiated prior to the onset of construction. If there will be a substantial time lag between project construction and completion of the mitigation, a net loss of habitat values would result, and more mitigation would be required to offset this loss.

Generally, monitoring of the mitigation site should occur annually for at least the first five years, biennially for years 6 through 11, and every five years thereafter until the mitigation has met all success criteria. Remediation efforts and additional monitoring should occur if success criteria are not met during the first five years. Some projects will require monitoring throughout the life of the project. Reports should be prepared after each monitoring session.

The plan should require the preparation of "as-built" plans. Such plans provide valuable information, especially if the mitigation effort fails. Similarly, a "time-zero" report should be mandated. This report would describe exactly what was done during the construction of the mitigation project, what problems were encountered, and what corrections or modifications to the plans were undertaken.

The plan should detail how the site is to be maintained during the mitigation establishment period, and how long the establishment period will be. It will also be important to note what entity will perform the maintenance activities, and what entity will ultimately own and manage the site. In addition, a mechanism to fund the maintenance and management of the site should be established and identified. A permanent easement should be placed on the property used for the mitigation that would preclude incompatible activities on the site in perpetuity.

Finally, in some cases, a performance bond may be required as part of the mitigation plan. The amount of the bond should be sufficient to cover the costs of designing and implementing an adequate mitigation plan (and purchasing land if needed) should the proposed plan not succeed.

Reference

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service, Washington, D.C. 103 pp.

SANTA CLARA
VTA. Valley Transportation Authority **Environmental Planning**

3331 North First St., Building B • San Jose, CA 95134-1906 • (408) 321-5789 Fax (408) 321-5787 • scoping.capitolexpressway@vta.org

CAPITOL EXPRESSWAY CORRIDOR SCOPING MEETING COMMENT CARD

(Please print clearly)

Name: DAN WAGENET Date: 9/26/01

Address: 2264 SILVER TERRACE WAY

SAN JOSE CA 95138

City State Zip

Home Phone: 408 532-0355 Work Phone: —

Area Code Main Number Area Code Main Number

Organization or Affiliation: —

Please check one of the following choices:

☐ I would like to speak

OR

☐ I would like to have the following comment/question read aloud by the moderator:

CURRENT THINKING ON NIEMAN BLVD STOP VS A STOP AT ABORN ROAD.

Fold Here

WILL THERE BE AN IMPACT ON TRANSFERS BETWEEN ~~[illegible]~~ CAPITOL AVE/EXPWY LRT AND ALUM ROCK LRT WITH STATION LOCATION AS PLANNED?

OR

☐ I would like to make the following written comment:
(this will not be read out loud)

Would you like a response? Yes ☐ No ☐

Comments must be received by Monday, October 15, 2001.

Please fold this form in half and seal with tape before mailing.

County of Santa Clara

Environmental Resources Agency
Parks and Recreation Department

298 Garden Hill Drive
Los Gatos, California 95032-7669
(408) 358-3741 FAX 358-3245
Reservations (408) 358-3751 TDD (408) 356-7146
www.parkhere.org

September 28, 2001

Mr. Thomas Fitzwater, Environmental Planner Manager
Valley Transportation Agency
3331 North First Street
San Jose, CA 95134-1906

RE: Notice of Preparation of an Environmental Impact Statement/Environmental Impact Report

Dear Mr. Fitzwater:

Thank you for the opportunity to comment on the Notice of Preparation of this EIS/EIR for the Capitol Expressway Light Rail Transit Project in San Jose, CA. The County of Santa Clara Parks and Recreation Department comments are focused on the following:

TRAILS:

- **Regional Trail Route R5-C (Bay Area Ridge Trail: El Sombroso/Penitencia) and Sub-regional Trail Route S5 (Coyote Creek/Llagas Creek Trail)**

These trails share the same alignment in the project area, so comments are the same for both trail routes. According to the map enclosed with the NOP, the Capitol Expressway Light Rail Alignment crosses Trail Routes R5-C and S5 between McLaughlin Ave and Senter Rd. Designated as a regional trail in the *Countywide Trails Master Plan*, Trail Route R5-C is roughly 40 miles long. It extends from Almaden Quicksilver County Park in south San Jose to Santa Teresa County Park, and then northward along Coyote and Penitencia Creeks to Alum Rock Park in north San Jose. Sub-regional Trail Route S5 is approximately 50 miles from the Alameda County border in Milpitas to the San Benito County border south of Gilroy. The segment of trail in the project vicinity is intended for hiking, off-road bicycle, and equestrian use, and is under the jurisdiction of the City of San Jose. Any development in the vicinity of these two trails should take into account existing and future uses and be coordinated with the City of San Jose.

- **Trail Route C22- Silver Creek Loop Trail**

This trail route is roughly 10 miles long and is located near Lake Cunningham Park. The segment of trail in the project vicinity is located along Lower Silver Creek and Thompson Creek, adjacent to Capitol Expressway, and is under the jurisdiction of the City of San Jose. According to the Countywide Trails Master Plan, this trail segment is intended for hiking, on-road, and off-road bicycle use. Any development in the vicinity of this trail should take into account existing and future uses and be coordinated with the City of San Jose.

Overall, we commend the VTA in its efforts to provide an improved transportation network that will create livable communities for the future. If you have any questions regarding the above noted comments, please contact me at (408) 358-3741 x192 or via EMAIL at kelly.gibson@mail.prk.co.scl.ca.us

Respectfully,

Kelly Gibson

Kelly Gibson
Park Planner

cc: Mark Frederick. Manager, Planning & Development

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
P O BOX 23660
OAKLAND, CA 94623-0660
Tel: (510) 286-4444
Fax: (510) 286-5513
TDD (510) 286-4454

October 2, 2001

SCL-General
SCL000136
SCH 2001092014

Mr. Tom Fitzwater, Environmental Planning Manager
Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, CA 95134-1906

Dear Mr. Fitzwater:

Capitol Expressway Light Rail Transit Project – Notice of Preparation (NOP)

Thank you for including the California Department of Transportation (Department) in the environmental review process for the above referenced project. We have examined the NOP and have the following comments to submit:

1. This project proposes to improve public transit service in the downtown and East Valley areas of the City of San Jose by extending the Capitol Avenue Light Rail Transit Line to the Eastridge Mall area. Within these limits the Department has existing Traffic Operations Systems (TOS) and Ramp Metering equipment. Enclosed is a list of the existing Ramp Meter locations with Mainline Traffic Monitoring Stations and a list of TOS equipment. These TOS/ Ramp Metering locations need to be kept operational during all phases of construction.

2. The Environmental Impact Report (EIR) should address any temporary construction-related and post-construction Water Quality impacts, and include mitigation measures for these impacts. The following are requirements that are applicable to all construction/ improvement projects within the Departments' right-of-way:

   - Projects shall adhere to the conditions of the Departments' statewide NPDES Permit CAS #000003, Order #99-06-DWQ, issued by the State Water Resources Control Board (SWRCB). Adherence to the compliance requirements of the NPDES General Permit CAS #000002, Order #99-08-DWQ, for General Construction Activities is also required. Copies of these permits may be obtained from the SWRCB web site at http://www.swrcb.ca.gov.

   - Incorporation of Permanent Control Measures (PCM) or drainage improvements for water quality benefit shall be considered for all highway/ transportation improvements, as required by section F.4 of the Departments' statewide NPDES permit.

- Incorporation of Treatment Best Management Practices into the design and operations of all highway/ transportation projects is also required under Section 4.4 of the Storm Water Management Plan which implements the Departments' statewide NPDES permit.

- The proposed projects' work limits are close to water sensitive areas (Silver Creek, Coyote Creek, Guadalupe River) that may be affected during construction activities. If that is the case, U.S. Army Corps of Engineers and/or California Department of Fish and Game permits, and a 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (RWQCB) may be required.

3. An Initial Site Investigation (ISA) and a Preliminary Site Investigation (PSI) for hazardous materials will need to be conducted and reviewed by the Department.

4. For your information, the proposed project will cross through and near State right-of-way (ROW) at the intersections of Capitol Expressway with U.S. Highway 101, State Route (SR) 82, and SR 87.

5. An encroachment permit will be required for performing work and/or traffic control within State right-of-way (ROW). To apply for an encroachment permit, submit a completed application with appropriate environmental documentation and five (5) sets of plans (in metric units) which also show State ROW to the following address:

Mr. Sean Nozzari, District Office Chief
Office of Permits
Department of Transportation, District 04
P. O. Box 23660
Oakland, CA 94623-0660

Should you require further information or have any questions regarding this letter, please call Maija Cottle, of my staff at (510) 286-5737.

Sincerely,

RANDELL H. IWASAKI
Acting District Director

By Jean CR Finney

JEAN C. R. FINNEY
District Branch Chief
IGR/CEQA

c: Katie Shulte Joung (State Clearinghouse)

NORTH BOUND RAMP METER LOCATIONS

COUNTY	ROUTE	DIR.	PM	LOCATION
SCL	101	N	31.820	Capitol Expwy. (eb)
SCL	101	N	31.830	Capitol Expwy. (wb)

NORTH BOUND TOS EQUIPMENT LOCATIONS

COUNTY	ROUTE	DIR.	PM	LOCATION	TYPE
SCL	101	N	31.74	Capitol Expressway	Surv/RM/TV

SOUTH BOUND RAMP METER LOCATIONS

COUNTY	ROUTE	DIR.	PM	LOCATION
SCL	87	S	9.004	Guadalupe Pkwy/N 1st
SCL	101	S	31.300	Capitol Expwy.

SOUTH BOUND TOS EQUIPMENT LOCATIONS

COUNTY	ROUTE	DIR.	PM	LOCATION	TYPE
SCL	101	S	31.47	Capitol Expressway	Surv/RM

Santa Clara Valley Water District

5750 ALMADEN EXPWY
SAN JOSE, CA 95118-3614
TELEPHONE (408) 265-2600
FACSIMILE (408) 266-0271
www.scvwd.dst.ca.us
AN EQUAL OPPORTUNITY EMPLOYER

ENV. ANALYSIS

2001 OCT -9 P 2:01

October 4, 2001

Mr. Thomas Fitzwater
Environmental Planning Manager
Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, CA 95134-1906

Dear Mr. Fitzwater:

Subject: Notice of Preparation for an Environmental Impact Report for the Capitol Expressway Light Rail Transit Project

The Santa Clara Valley Water District (District) has reviewed the subject document, received by the District on September 4, 2001. The proposed project may affect any or all of the following District facilities:

- Lower Silver Creek
- Coyote Creek
- Thompson Creek
- Norwood Creek
- Canoas Creek
- Guadalupe River

Our comments in our letter dated April 25, 2001, are still applicable. A copy of that letter is enclosed.

The District has the following additional comments:

1. As part of the design for bank stabilization, consideration must be given to the potential effects of the project on other parts of the creek, such as the bank opposite the proposed work and the banks immediately upstream and downstream. As streambanks are changed, even by slope protection, water flows can change, resulting in changes to the stream channel.

2. Water flows in the creek must be maintained during construction. Any flow diversion for proposed work in the channel must be coordinated with District groundwater recharge activities.

3. Construction activities can easily impact water quality. Specific measures should be proposed to address these impacts at the various locations of this project. In addition, post-construction measures should be considered. There should be measures to direct runoff from parking lots

and roofs to appropriate landscaping to allow pollutants to be reduced in the water that eventually is discharged to the adjacent District facilities.

4. Any proposed work within a creek is also subject to review by the U.S. Army Corps of Engineers, the California Department of Fish and Game, and the California Regional Water Quality Control Board, San Francisco Bay Region.

In accordance with District Ordinance 83-2, any plans for construction over or adjacent to the District's facilities should be sent to us for review and issuance of a permit.

Please reference File No. 28140 on further correspondence regarding the project. If you have any questions or comments, please call me at (408) 265-2607, extension 2494.

Sincerely,

Theodore Hipol

Theodore Hipol
Assistant Engineer
Community Projects Review Unit

Enclosure: April 25, 2001, Letter

Cfile

File: 28140
Various

Re: Request for Facilities Information for the Capitol Light Rail Project

April 25, 2001

Mr. Michael Lightstone
Utility Coordinator
Valley Transportation Authority
3331 North First Street
San Jose, CA 95134-1906

Dear Mr. Lightstone:

Subject: Request for Facilities Information for the Capitol Light Rail Project

The Santa Clara Valley Water District (District) has reviewed your request for information regarding the location of District facilities affected by the proposed project, received February 14, 2000. We apologize for the delay in our response.

The proposed project crosses the following three District facilities: Lower Silver Creek, Coyote Creek, and Canoas Creek. Enclosed are as-builts and construction plans to assist in any improvement plans. As-builts for Thompson Creek and additional construction plans for Lower Silver Creek have also been enclosed to show any improvements adjacent and longitudinal to the creeks. All information taken from the plans should be verified in the field.

Currently, proposed improvements for Lower Silver Creek are scheduled for year 2003.

The proposed light rail alignment will cross Canoas Creek, which is contained in a 12- by 9-foot double reinforced concrete box culvert under Capital Expressway. Canoas Creek currently experiences flooding during events as frequent as 7-year floods. It will be important for the Valley Transportation Authority (VTA) to work closely with the District during the design of any project improvements which may affect flooding in the Canoas Creek watershed or impact our ability to construct flood control improvements in the future.

Improvements that may affect the existing flooding include lengthening, widening, or replacement of the existing box culvert; changes to the existing drainage patterns; and increasing the existing storm drain capacity. Existing drainage patterns should not be altered as part of this project. Any increases in runoff or alteration of the existing storm drain capacity must be mitigated. Proposed improvements to the box culvert should be submitted to the District early in the design so that we can work together with the VTA to make sure that the improvements do not impact flooding, delay the light rail project, or hinder our ability to construct flood control improvements in the future.

In accordance with District Ordinance 83-2, plans for any construction over or adjacent to the District's facilities should be sent to us for review and issuance of a permit.

Please reference File No. 28140 on further correspondence regarding the project. If you have any questions or comments, please call me at (408) 265-2607, extension 2494.

Sincerely,

STippets for

ORIGINAL SIGNED BY

Theodore Hipol
Assistant Engineer
Community Projects Review Unit

Enclosure: As-Builts and Construction Plans

cc: S. Tippets, L. Jaimes, T. Hipol, V. Stephens, C. Haggerty, D. Chesterman, J. Aldean, L. Melton, M. Klemencic, File (2)

TH:lcg:0424c

CITY OF
SAN JOSE
CAPITAL OF SILICON VALLEY

Department of Planning, Building and Code Enforcement

JOSEPH HORWEDEL, ACTING DIRECTOR

October 30, 2001

Roy Molseed, Senior Environmental Planner
Santa Clara Valley Transportation Authority
3331 North First Street, Building B
San Jose, CA 95134-1906

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL IMPACT STATEMENT (EIR/EIS) FOR THE CAPITOL EXPRESSWAY LIGHT RAIL TRANSIT PROJECT (FILE NO. OA01-09-019)

Dear Mr. Molseed:

Thank you for the opportunity to review and comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Capitol Expressway Light Rail Transit (LRT) Project. We anticipate that the EIR/EIS will address all appropriate environmental issues such as Land Use, Traffic and Circulation, Parking, Noise, Air Quality, Cultural Resources, Hazardous Materials, Water Quality, Riparian/Biological Resources, Geology and Soils, Visual/Aesthetics, Energy, Cumulative Impacts and Construction Impacts. The EIR/EIS should include a "Uses of the EIR/EIS" section within the document to address future project approvals that may be required by the VTA and by other agencies with regulatory authority. City staff requests that the following specific environmental issues be addressed in the EIR/EIS.

Maps: Please include detailed project maps.

Noise and Vibration: Analysis of noise and vibration impacts on adjacent and nearby properties should also include noise and vibration impacts on all approved and pending development projects in San Jose. Noise and vibration impacts generated by construction activities and LRT operations upon sensitive receptors, historic buildings, residences and commercial/retail properties should be included in the EIR analysis.

Traffic: The EIR/EIS should analyze potential transportation impacts, including impacts on emergency vehicle access and response times, parallel transportation corridors, potential for generating cut-through traffic in residential neighborhoods, as well as traffic control and mitigation during construction and commute periods. The EIR/EIS should recognize the efforts of the City's Traffic Calming Policy and the Strong Neighborhoods Initiative in the development traffic impacts mitigation alternatives. Operational delays to traffic movement should be reviewed at all signalized intersections affected by LRT crossings. Turning movement studies at affected signalized intersections should also be included in the EIR/EIS.

Impacts to on street parking and loading zones should be quantified and mitigated to the extent possible.

Operational information such as the daily hours of LRT project operation as well as changes to bus routes and stops should be included.

The EIR/EIS should also recognize that all work performed on City streets would be required to adhere to City of San Jose Standard Plans and Specifications (7/92 rev.), including all revisions and amendments to the City's Standard Plans and Specifications, and all related policies, ordinances and codes. The EIR/EIS should also address pedestrian and bicycle access and safety issues. Appropriate mitigation measures should be identified in the document, as warranted.

Light and Glare: The EIR/EIS should specify that all lighting for the proposed project is in accordance with lighting levels and shielding pertaining to the U.C. Lick Observatory light bounce-back guidelines.

Biological Resources: The EIR/EIS should include a thorough analysis of impacts on biological resources, including impacts on local creeks and riparian corridors as well as impacts on wetlands, special status plants and animals, etc. as warranted. There may be potential impacts to heritage and ordinance-sized trees along the proposed corridor; therefore, tree removal and biological resource impact mitigation should also be addressed in the EIR/EIS. The VTA should coordinate with the City of San Jose Arborist (277-2762) for tree replacement and enhancement guidelines.

Water Quality: The EIR/EIS should address non-point source protection measures and design mitigation for any new non-permeable surfaces and for bridge crossings over creeks.

Utilities and Services: The EIR/EIS should address utility relocation and coordination and interruption of services. In accordance with City policy, all overhead utilities should be undergrounded with the project.

Construction: The EIR/EIS should address construction impacts such as noise and dust control and storm water runoff during construction activities. Non-point source water pollution caused by construction run-off should be prevented from entering street storm drains and natural waterways. The daily hours of construction activities and construction impact mitigation should be identified in the EIR/EIS. The EIR should require the preparation of a Construction Mitigation Plan to address the following:

- VTA should assign full time staff to deal with business and resident complaints during construction.

- Business disruption should be minimized during construction. This could be achieved by requiring nighttime work when businesses are not open. Nighttime work may require special noise and vibration mitigation conditions. Residential and commercial impacts should be mitigated and should be closely monitored.

- A traffic diversion plan should be required.

- A business retention plan should be required.

If possible, we would appreciate receiving four copies of the Draft EIR/EIS including all technical appendices when you refer the document to us for review and comment. We will then provide copies to the City of San Jose Department of Public Works, the Department of Transportation and the Redevelopment Agency for their review. We would also ask that you please include a copy of any Initial Studies that may have been prepared for the project.

Thank you for the opportunity to review and comment on the NOP for the Capitol Expressway Light Rail Transit Project. The City of San Jose looks forward to reviewing the Draft EIR/EIS as soon as it becomes available for public agency review.

Sincerely,

Janis Moore
Planner II

c: Ray Salvano
Dennis Korabiak

OA01-09-019 NOP VTA Cap Ex LRT Ltr.doc/JAM

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

November 1, 2001
Jerome Wiggins, Office of Planning and Program Development
Federal Transit Administration
201 Mission Street, Room 2210
San Francisco, CA 94105

Dear Mr. Wiggins:

The U.S. Environmental Protection Agency (EPA) has reviewed the Notice of Intent (NOI) to prepare an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the **Capitol Expressway Light Rail Transit Project** in San Jose, California. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementation Regulations at 40 CFR 1500 – 1508, and Section 309 of the Clean Air Act.

The Federal Transit Administration (FTA) and the Santa Clara Valley Transportation Authority (VTA) propose a Light Rail Transit (LRT) line in the Capitol Expressway corridor. The proposed line and technology were selected following the completion of the Downtown East Valley Major Investment Study (MIS) in August, 2000. The MIS resulted in a Preferred Investment Strategy that includes LRT improvements in the Capitol Expressway Corridor to improve direct transit service in an approximately 8-mile long corridor. The purpose of the project is to improve public transit service in the downtown and East Valley areas of the City of San Jose. The NOI identifies a No Build and a Build Alternative. The Build Alternative under consideration is the Capitol Expressway LRT. This alternative would begin at the end of the Capitol Avenue LRT line and would transition to operate in the median of Capitol Expressway, at grade in an exclusive right-of-way with some potential for grade separation. Nine conceptual stations have been identified. The NOI also indicates that more precise station locations and alignment options will be developed during preparation of the EIS/EIR.

We appreciate this opportunity for early involvement in the environmental impact assessment of the Capitol Expressway LRT project. EPA applauds the project objectives to increase transit ridership, reduce congestion, improve regional air quality, and promote livable neighborhoods. To assist in the scoping process, we have identified several issues we would like to draw to your attention in the preparation of the EIS. Our specific comments are listed below.

<u>Range of Alternatives</u>

The NOI identifies a No Action Alternative, a single No Build Alternative, and nine conceptual stations. The NOI also indicates that more precise station locations and alignment options will be developed during preparation of the EIS/EIR. This investigation of additional alternatives is an essential, and required, component of the NEPA process. *Forty Most Asked Questions Concerning CEQ's NEPA Regulations (1981, 1986)* (1a.) states, "The phrase 'range of alternatives' refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored and objectively evaluated, as well as those other alternatives, which are eliminated from detailed study with a brief discussion of the reasons for eliminating them." The EIS/EIR should consider and discuss a broad range of alternatives that meets the project Purpose and Need.

Park and Ride Lots

The map provided with the Notice of Preparation seems to indicate that two park-and-ride lots are under consideration along the alignment. While EPA understands the operational importance of providing easy patron access to the transit facility, EPA strongly encourages strategies to reduce vehicle miles traveled. Therefore, EPA recommends minimizing park-and-ride lots to the greatest extent possible and providing strong justification for the need for park-and-ride lots in the environmental document. The EIS/EIR should:

- Provide a clear summary of the methodology used to determine daily transit ridership, mode of access, and the split between auto-based trips (park-and-ride and kiss-and-ride).
- Discuss who the park-and-ride facilities would serve, i.e. where do the park-and-ride riders originate. Consider whether there is a disproportionate impact to the surrounding community from the park-and-ride lots.
- Include an analysis of the potential for induced parking demand and associated traffic circulation and air quality impacts.
- Discuss in detail the multi-modal options for linking to the proposed project.
- Consider using park-and-ride funds to improve multi-modal options for linking to the proposed project.
- Any park-and-ride facility that is provided should include features to reduce non-point source pollution from the parking facilities, such as specific landscape designs and techniques that will reduce stormwater runoff and provide on-site treatment.

Water Quality

The map provided with the Notice of Preparation indicates that the alignment under consideration crosses Coyote Creek. Coyote Creek is listed as an impaired water body under the Total Daily Maximum Load (TMDL) Program established under Section 303(d) of the Clean Water Act. Diazanon from stormwater runoff is found in Coyote Creek.

While the area around Coyote Creek is urbanized and is subject to stormwater runoff from surrounding development, all efforts should be taken to reduce polluted stormwater runoff from the project into this creek. The EIS/EIR should:

- Describe the TMDL status for Coyote Creek. (Refer to the State of California's Water Resources Control Board Web page for the 1998 TMDL listing for Coyote Creek. (http://www.swrcb.ca.gov/plnspols/wqplans/303d98.pdf)
- Describe current efforts to reduce pollutants in Coyote Creek and how this project will be coordinated with those efforts.
- Describe required permits for project construction and operation.
- Provide examples of the Best Management Practices that will be implemented during project construction and operation to protect water quality.
- Describe any water quality monitoring programs that may be implemented.

Air

EPA recognizes that this project provides significant air quality benefits by providing alternatives to driving. However, potential air quality impacts must also be addressed. The proposed project is located in the Bay Area Air Quality Management District, which has been designated a moderate nonattainment area for the one-hour ozone standard. Because the new eight-hour ozone standard is more stringent than the one-hour standard, it is very likely that the Bay Area will also be in nonattainment for the new eight-hour ozone standard. In the course of development of this project, the new eight-hour standard may have bearing on the project. Therefore, it would be useful, and appropriate under the public disclosure requirements of NEPA, to include a discussion of the implications of the new eight-hour ozone standard with respect to this project. The existing nonattainment designation for the Bay Area also directs that the EIS/EIR demonstrate that the project meets Transportation Conformity requirements.

While the project area is in attainment for the federal standard for particulate matters less than 10 microns (PM10), the Bay Area is in violation of the State PM10 standard. In addition, the State recently approved standards to further reduce diesel emissions. EPA is also aware of the serious health effects "fine" particulates can cause, as reflected in EPA's new standard for particulate matter less than 2.5 microns in diameter (PM2.5). While EPA has not designated areas as nonattainment for PM2.5, EPA urges project proponents to reduce particulate emissions to the greatest extent possible. The EIS/EIR will need to disclose whether federal and State air quality standards are exceeded, even if those exceedences are temporary. In such instances, the EIS/EIR needs to include appropriate mitigation measures. The EIS/EIR should:

Affected Environment

- In the "Affected Environment" chapter, include a discussion of the new eight-hour ozone standard, as well as the new PM2.5 standard. To the extent that monitoring data is available on these two criteria pollutants, include that information in the EIS/EIR.

Construction

- Reduce the use of diesel-powered equipment.
- Specify the duration and concentration of air emissions by pollutant and location

for each phase of project construction.

- Identify sensitive receptors in the project area, such as children, elderly, infirm, and athletes, and schedule construction to minimize impact to these populations.
- Include mitigation measures that detail how diesel emissions will be minimized for each phase of project construction. For example, require contractors to keep the equipment fine-tuned or use alternative fueled vehicles.
- Include a fugitive dust control plan.
- Address how traffic congestion related to project construction can contribute to increased levels of carbon monoxide, especially at already congested intersections.

Operation

- Since the project area is in nonattainment for ozone, the project should be included in a conforming Transportation Plan and Transportation Improvement Program before the NEPA process is completed.

Transit Operation

One of the greatest benefits of this project is to improve transit service and to reduce vehicle miles traveled. EPA supports further efforts to improve non-motorized access to the proposed project, such as:

- Design the new facilities to be pedestrian and bicycle-friendly.
- Support policies that will increase density and mixed-use around the transit stations..

Environmental Justice

Executive Order 12898 requires an analysis of environmental justice issues associated with the proposed project. Clearly document the implementation of Executive Order 12898.

Pollution Prevention

The Resource Conservation and Recovery Act (RCRA) Section 6002 requires federal, State, local agencies, and their contractors, that use appropriated federal funds, to purchase EPA-designated recycled materials, including EPA-designated transportation, construction and landscaping products. In the EIS/EIR, describe how the project will meet these pollution prevention requirements. For further information, see EPA's Web site at http://www.epa.gov/cpg.

Invasive Species

Executive Order 13112 on Invasive Species calls for the restoration of native plant and tree species. To the extent that this project will entail new landscaping, the EIS/EIR should describe how the project will meet the requirements of Executive Order 13112 by using native species.

Thank you for this opportunity to comment. When the Draft EIS/EIR is complete, please send two copies to the address above (mail code: CMD-2). If you have any questions or comments, please feel free to contact me at 415-972-3846 or blazej.nova@epa.gov

Sincerely,

for Nova Blazej
Transportation Coordinator/NEPA Reviewer

cc: Thomas Fitzwater, VTA

County of Santa Clara

Roads & Airports Department

101 Skyport Drive
San Jose, CA 95110-1302
(408) 573-2400 FAX 441-0142

November 2, 2001

Mr. Thomas Fitzwater
Environmental Planning
VTA
3331 North First Street, Bldg. B
San Jose CA 95134-1906

Subject: Notice of Preparation
Capitol Expressway Light Rail Transit (LRT) Project

Dear Mr. Fitzwater,

We have reviewed the Notice of Preparation of an Environmental Impact Statement/Environmental Impact Report for the subject project. Our comments are as follows.

1) Attached is our May 15, 2000 letter from Mr. Michael Murdter, Director of Roads and Airports Department expressing our views/concerns on the planned LRT project along Capitol Expressway.

2) Obviously, there are discussions on this project at different levels. At staff level, we feel it important to note that the LRT project should not reduce the number of existing lanes, nor reduce the length of, or eliminate the left turn lanes on Capitol Expressway, unless supported by a traffic analysis as indicated in the above-mentioned letter.

3) The EIR should discuss the alternatives to grade crossings along Capitol Expressway intersections and the LRT impacts and necessary mitigations.

Thank you for the opportunity to review and comment on this project. If you have any questions, please call me at (408) 573-2463.

Sincerely,

Sean Quach
Project Engineer

Attachment

cc: MJM, RBP, MA/SK, DEC, TH, AKC, RVE, File vta10.doc

Dan

County of Santa Clara

Roads and Airports Department

101 Skyport Drive
San Jose, California 95110-1302

May 15, 2000

Ms. Julie Render
Principal Transportation Planner
Santa Clara Valley Transportation Authority
3331 North First Street
San Jose, CA 95134-1906

Subject: Downtown/East Valley Major Investment Study

Dear Ms. Render:

We appreciate the time you and your staff have taken advising us of the subject study. We are in receipt of your letters of March 30, 2000 and April 10, 2000, transmitting various related documents. Our comments follow:

As you are aware, Capitol Expressway is an important transportation facility that is operated and maintained by the County. The County has long planned for HOV lanes on Capitol, and participated in the design and construction of the currently existing HOV lanes east of US101 as part of the Evergreen Development traffic mitigation.

Given our in place HOV facilities, we have reviewed your documents with interest to see how these existing investments play a part in the planned transportation improvements. Conceptual Alternatives 8, 9, 10, and 16 have elements that include use of the existing HOV lanes. None of the options appears to include full build out of the planned Capitol HOV lanes (Alternative 16 is so vaguely described it is difficult to tell what might be included), none include direct HOV connector ramps at Capitol, and none discuss HOV connection to northbound I-680. Despite this, it is noted that in "Working Paper: Evaluation of Conceptual Alternatives (December 1999)" Alternate 8 has as many positive scorings as the LRT options, and is recommended for further study. Alternative 10 is also recommended for further study, but not Alternative 9, which appears from the scoring to be the better alternative. We look forward to review of whatever further analysis is done.

Based on our meetings, communication, and the documents reviewed to date we are concerned there may be a desire to conclude positively for the LRT option regardless of quantifiable study results. The preliminary ridership numbers don't seem to justify the removal of existing transportation capacity at a time when transportation demand is growing. Our preferred alternative is the alternative which best uses the reasonable rights-of-way limits of Capitol to provide the most effective transportation corridor (effective= expressway person capacity/ expressway person delay) with the most efficient use of transportation funds (efficient= expressway person capacity/ improvement costs).

As discussed at our recent meetings, we share your concern with traffic service levels at Capitol and Story Road and look forward on working with VTA, the City of San Jose, and the local community on identification of possible improvements.

If VTA proceeds with further development of the LRT option, we feel it is important that the expressway be studied intersection by intersection for appropriate safety auxiliary lane/ turning pocket storage provisions. Impacts of removal of a lane on Capitol to add LRT will be worsened if provisions for turning movements are not carefully considered and backups block through lanes.

The LRT cross section developed in "Refined Definition of Conceptual Alternatives SUMMARY WORKING PAPER" (Figure 11) does not address the prior comment. We look forward to working with your designers as more specific plans are developed. At present we have the following concerns with the proposed section and aerial concept sketch:

- Median trees will not be permitted in the narrow median strips without additional safety provisions. At our meeting we discussed aligning the rail off center to allow a wider one-sided median landscape area.

- Shoulder areas on Capitol should be delineated.

- We have committed to improving pedestrian provisions along Capitol, and over the last few years have spent a considerable amount of time and money installing both asphalt and portland cement concrete walks. The LRT work should improve on the sidewalk along Capitol.

- Trees will not be permitted immediately behind the curb as shown in the sketch. Safety setback will be required.

- Maintenance of landscaping will need to be resolved. County cannot supply resources for any new expressway landscaping.

- Prior commitments have been made that LRT will be responsible for improvement of sound walls along Capitol Expressway

We appreciate this opportunity to review VTA's plans for Capitol Expressway.

Sincerely,

Rollo Parsons

for Michael J. Murdter
Director

Cc: Rollo Parsons, Jim Randall, Dan Collen, Masoud Akbarzadeh

United States Department of the Interior

FISH AND WILDLIFE SERVICE
911 NE 11th Avenue
Portland Oregon 97232-4181

IN REPLY REFER TO:
AES/HC

DEC 20 2001

Mr. Thomas Fitzwater
Environmental Planning Manager, VTA
3331 North First Street
San Jose, California 95134-1906

Subject: Review of ER-01/0884 NOI for the Capitol Expressway Light Rail Transit Project in San Jose

Dear Mr. Fitzwater:

In response to your September 18, 2001, Federal Register Notice, the U.S. Fish and Wildlife Service has no comment on the subject document. Please refer any comments to Julie Concannon, Regional Environmental Specialist at (503) 231-2068.

Sincerely,

Mark Brown

for Regional Director

CAPITOL EXPRESSWAY CORRIDO LIGHT RAIL PROJECT

WEDNESDAY, SEPTEMBER 26, 2001

Page 1 to Page 25

Complimentary Condensed

CONDENSED TRANSCRIPT AND CONCORDANCE
PREPARED BY:

ADVANTAGE REPORTING SERVICES
1083 Lincoln Avenue
San Jose, CA 95125
Phone: 408-920-0222
FAX: 408-920-0188

DOWNTOWN EAST VALLEY

CAPITOL EXPRESSWAY CORRIDO
LIGHT RAIL PROJECT

PUBLIC SCOPING MEETING

DATE:	SEPTEMBER 26, 2001
TIME:	6:44 p.m.
LOCATION:	St. Francis of Assisi Catholic Church 5111 San Felipe Road San Jose, California 95135

#5836

Advantage ARS Reporting
Services, LLC
1083 Lincoln Avenue, San Jose, California 95125, Telephone (408) 920-0222, Fax (408) 920-0188

A P P E A R A N C E S

JENNIFER RILEY

EILEEN GOODWIN
MODERATOR

GAIL PRICE

PROJECT MANAGER

THOMAS FITZWATER
ENVIRONMENTAL PROGRAM MANAGER

The Reporter: ADVANTAGE REPORTING SERVICES
BY: ALICIA PLANCARTE, CSR 12161
1083 Lincoln Avenue
San Jose, CA 95125
(408)920-0222

---o0o---

Page 1

DOWNTOWN EAST VALLEY

CAPITOL EXPRESSWAY CORRIDO
LIGHT RAIL PROJECT

PUBLIC SCOPING MEETING

Date: September 26, 2001

Time: 6:44 p.m.

Location: St. Francis of Assisi Catholic Church
5111 San Felipe Road
San Jose, California 95135

#5836

Page 2

A P P E A R A N C E S

JENNIFER RILEY

EILEEN GOODWIN
MODERATOR

GAIL PRICE
PROJECT MANAGER

THOMAS FITZWATER
ENVIRONMENTAL PROGRAM MANAGER

The Reporter: ADVANTAGE REPORTING SERVICES
BY: ALICIA PLANCARTE, CSR 12161
1083 Lincoln Avenue
San Jose, CA 95125
(408)920-0222

---oOo---

Page 3

MS. GOODWIN: Good evening. My name is Eileen Goodwin. You are here to hear about the Capitol Expressway Downtown East Valley. We do have a meeting agenda hopefully everyone had a chance to get the packet.

Does anybody need a packet? I know many of you were here earlier and had an opportunity to look around of the diagrams. Some of the information that we have there is also going be a power point presentation this evening. So if you want to move up. If you can't read where you are sitting please feel free to move forward. I want to introduce your interpreter Judith. I ask if anybody needs interpretive services. If you do need the bathroom they are behind you by the exit sign. If you haven't had a chance to sign in we would appreciate it if you do. So we will put you on our mailing list and we are in the process of producing an issue of the news letter which is going out at our next community meeting.

Tonight is a formal scoping meeting for the environmental process to accept the accumulating discussion, which is really more of an opportunity for the public to give us input not so much for us to have all the answers as a project. We do have a consultant working on engineering questions and some of the urban

Page 4

planning issues and we'll be having a serious of meetings in the next month, end of October and beginning of November. We want to make sure that you get a copy of that.

How did hear about tonight's meeting? How many of you got a yellow flyer in the mail? And then how about -- great. And how about the ad in the Mercury News or one of the newspapers? And then also I understand that e-mail notification had gone out some people at our last week's meeting got the e-mail notification. It seems like the flyer was really -- the flyer in the Mercury were both the two main reasons why people heard about tonight's meeting.

I also want to acknowledge something. Here in the meeting Javier Alvarado is from our office. A great champion of this project. Javier is becoming a regular on all our community meetings to see what the public has to say and where the support is and what the issues might be to make sure that he's had that directly and takes that into account as he makes the policy decisions related to this project along with the other members of the VTA board. And several of the members of the City of San Jose Counsel are also on a Policy Advisory Board that gives advise to the VTA board about this project.

So with that I would like to walk through the

Page 5

agenda and turn the meeting over to the technical people who will be your real experts here this evening and then we will have a facilitating input session in about a half an hour when the formal presentations are over because we're such a small group I expect that can be very, very informal. Although it says here at the end the public comment needs to be on the speaker cards, which are these yellow sheets that you've been given. If you are more comfortable writing it down and take your comment written or if you just like to stick your hand up as long as you say your name clearly and speak clearly. We are having a court reporter here to actually keep formal minutes of this meeting tonight and we just need to catch who speak and to get the formal record. If you can remember to speak clearly and I may even ask you to say your name so I can get all that information.

As you can see we are going to have top speakers this evening Tom Fitzwater is the environmental planning manager for VTA, and he'll be joined by Gail Price, who is project manager for the planning conceptual engineer who is as I mentioned will take a little less than half and hour we do plan on having a break.

Although again with such a small group we may

Page 6

just have a very short break. And then get right into the comments and get you out of here if we are way ahead of schedule probably this evening, unless you have a lot of comments.

MR. FITZWATER: On behalf of VTA I would like to welcome you to the scoping meeting for the Capitol Expressway environmental document. I am the environmental planning manager and with me at the desk up front is Gail Price. She's the project manager for the overall effort for the civil engineering and environmental studies that is being prepared. Also with us tonight are the environmental consulting firm that is involved with helping us prepare the document that included Deborah Jones and Mike Davis sitting up front and they are also here to listen to your concerns. And to ensure that those issues that you raised today are addressed in the environmental document.

What we will be doing is going through a presentation on how – on the project as it is perceived today and I will talk about the environmental compliance process. The purpose of scoping and at the conclusion of that and we'll open it up for questions and we understand what your issues are. And what your concerns are regarding this project.

And please make sure you sign in so we keep a

Page 7

record of your name. And so you can be informed of information for future meetings. And information that we shared throughout the duration of this project. So with that I'll it turn it over to Gail.

MS. PRICE: Thank you. My name is Gail Price. I am the project manager for the Downtown East Valley Project. This project is – is currently within. The conceptual engineering phase of the study.

What you see before you is a map of existing and future transit corridors in Santa Clara County. The downtown East Valley Project is a portion of the improvements that Santa Clara County will be undertaking. This project is sponsored by the Valley Transportation Authority. And if you look at the map you will see that the lower right quadrant is where the study area is for the Downtown East Valley.

The Downtown East Valley study the – what predated the conceptual engineering phase was the major investment study that was completed in August of 2000. And at that time, a preferred investment strategy was selected prior to that period of August 2000, 16 or 17 propositions were examined and the preferred investment strategy was preferred as I mentioned in August of last year. And that is what – that is the map that you see before you. The preferred investment strategy is the

Page 8

Downtown East Valley plan. And it consists of several components. Light rail from downtown San Jose or Santa Clara/Alum Rock continuing along the Capitol Expressway corridor. Another component or element of this project is the Monterey Highway element which we'll have a bus route transit program. The meeting we will have tonight will be focusing on the Capitol Expressway corridor.

The conceptual engineering for this study is being conducted by engineering along the Capitol Expressway corridor, which is about eight miles. We are proposing approximately 10 stations. And the station locations that you will see tonight are as a result of the major investment studies. These are preliminary station locations. And we are in the process of getting community input and conducting technical studies in order to determine if these are the station locations that will be part of the project.

The overall project time line the major investment study was completed in 2000. We are currently in conceptual engineering and we expect that work to be done by summer of 2002. The environmental analysis is being conducted concurrently and will be completed by the summer 2003. Then we will proceed in terms of preliminary engineering, final design and acquisition. We will anticipate the construction of

Page 9

this project could begin as late at 2004 or early 2005 with the construction period of at least three to four years, the project process is as I've mentioned before. The major investment study was completed in this particular graphic. The environmental review should be placed underneath conceptual engineering because those two elements are being conducted concurrently.
The conceptual engineering phase will have various elements to it. We will look at traffic engineering, structural analysis with various structure along those lines. The operating plan, station location, and design, expensive intercoordination and public investment. The next phase of the conceptual engineering will include cost estimation for the alignment. And continuing environmental review which will be discussed later. Refined engineering and the implementation plan phase for this project is not determined and that will be determined at the end of the conceptual engineering process.
In terms of LRT operation and designs there are various considerations, center running or side running exclusive or shared right-of-way are being considered for various portions of alignment, but in this particular area of the Capitol Expressway it will be a center running exclusive operation.

Page 10

The cross section that you see before you is an example of the center running, exclusive operation for light rail. And you can see in this example that the light rail vehicles have their own track way and they cannot share that track way with any other vehicles.
This is an example of light rail operation in the center of a road. This is from North First Street in San Jose. When we examined the station location we considered various criteria and they are noted here. Station spacing, the right-of-way impacts, what the surrounding uses are currently and proposed, what the traffic and parking impacts will be. We are mindful of the connections to bus and rail both current and future. We are concerned about station access, safety for the patrons, station visibility and the support that we have on public support and discussion about the project.
Now, I'm going to very quickly go through the portion of the alignment that is not going to be discussed tonight in downtown San Jose.
Okay. The beginning of the station locations along the Capitol corridor will begin at the end of the Capitol line which is currently under construction. And the slide before you shows that the end of the Capitol line construction is the end of the dash reline. And the end of that particular line will be the Alum Rock

Page 11

station, which is located in the vicinity of Florence.
As we continue along the Capitol Expressway in the vicinity of Capitol Avenue and Capitol Expressway there will be a potential situation and continuing south to the intersection of Story. There will also be a potential gate of separation at that location.
The next proposed station location will be at Ocala. And the next station location proposed will be in the vicinity of Tully and Eastridge. And there will be a potential separation in that area as well.
Continuing south and slightly west, the next station proposal location is Nieman continuing to Silver Creek. And then the alignment process 101 to Mclaughlin continuing to Senter. The next proposed location for a station will be in the vicinity of Monterey Highway. Continuing west to Vista Park and the next proposed location for a station will be at the Guadalupe line where the Downtown East Valley line meets the Guadalupe line.
If you would like additional information about the Downtown East Valley Project we have a web site, downtown east valley at VTA.ORG. I can be reached at 321-5744. Thank you.
MR. FITZWATER: I'm going to talk about the compliance process.

Page 12

And this process really involves compliance with rules and regulations, gathering public input, and provide decision makers environmental information.
There are two primarily acts that identify what kind of environmental document we need to prepare. And they are the California Environmental Quality Act and the National Environmental Policy Act. And these were both passed in the early 1970s. They helped define the information theory required to prepared to address this project. There are also various congressional acts and the executive orders that deal with specialized issues. And we also have to deal with a number of permitting agencies that have special interests in resources. Here is a list of several of the permitting agencies that would be involved with engineer. They will have to deal with mitigating that impact to satisfy their concerns before a permit would be issued.
Gathering public input involves a rather long process. And the scoping meeting tonight is really the first step in that process we have circulated what is called a notice of preparation and that provides additional preparation in the project that is circulated for a 30-day period so we are hoping that people would provide their other concerns to us by October 9th.
We are also circulating a notice of intent,

Page 13

which is a federal process and that also identifies, helps, publicized the fact that there is a project being considered. In terms of early consultation and coordination Gail has already organized a number of open houses and community meetings that are going to occur over the last couple of months and actually occurred prior to this so there is additional opportunity to comment.

We will be preparing a draft environmental document. And this will go out for circulation for 45 days. And that will allow to review the information compiled. While the draft of the EIS will be circulating we'll hold a public hearing that will be an opportunity for the public to voice their concerns or submit concerns in writing.

We will eventually get to a point where we will prepare to find an environmental impact report and that will include what was prepared as part of the draft plus all the comments that were received in response to those comments. There is actually time to provide comments and that is when this goes to the board of directors, VTA board of directors, for their consideration of the project.

To conclude the process we prepare what is called a notice of determination and a record of

Page 14

decision. The real purpose of the environmental document is to provide a full disclosure of what impacts would occur if the project were to proceed, and any information needed be to supplied to decision makers prior to the making a decision, but it's really not only the one. There will be like financial issues and other concerns beyond environmental.

The decision makers in this case are the VTA board of directors. And they will be reviewing the environmental document. We also have the federal transit administration they will review and approve the document or ask us to revise the document until they are completely satisfied and addressed all the issues.

Once we get beyond that approval of the environmental document we still have to deal with regular – regulatory permitting agencies such as those that were listed before. We have to satisfy their needs before the project could actually begin construction.

The environmental process does involve a number of technical studies. We just listed a few here, there is probably close to 20 technical studies which will be prepared as part the EIS/EIR.

The EIR/EIS that we are going to prepare is going to comply with most State and Federal requirements and if any of you have seen these types of documents

Page 15

they will be very sizeable, and that is required to address all the concerns for the public and various agencies that have issues that can be addressed.

Also we do have the potential permits and approving that we need to do this actually to have to secure these permits as I said before. What we are doing today is part of the scoping process. And scoping is defined as the process of determining the focus of the document of the EIR that is where we are today. Our environmental consultants have not embarked upon doing detailed analysis as yet. They are waiting to hear from us, and hear from you what the issues are and what needs to be addressed in the document.

Scoping initiates the environmental document preparation process. It provides an opportunity for the public to provide input and it insures that the impacts are not overlooked and it also insures important mitigation issues are not overlooked and mitigation measures are simply conditional steps to try and reduce and impact that has been identified.

In terms of scoping goals we are not concerned with ultimate decision. This is not for the project. We are simply here to identify what impact would occur in the project other than to go forward. Therefore we are going to concentrate on the impacts and the

Page 16

mitigation measures to reduce those effects. And we are going to ensure that we prepared an adequate document that addresses all of those concerns.

There are a number of environmental issues that will be addressed. I'll just touch upon for that or some of the more important ones that identify to this date those include traffic and parking, noise and vibration, visual quality, and economic impacts.

There is a lot of traffic and parking issues that will occur as part of putting light rail in the median or side or Capitol Expressway. There will be changes in traffic volume and pattern and stations. We'll be concerned with pedestrian and bicycle safety. We will be looking at impact of key intersections and how light rail will affect those intersections. We will begin looking at onstreet parking and we will be identifying detours and lane closures during construction.

Noise and vibration is also an issue that is raised quite frequently in transportation projects with the light rail vehicles. We will be looking at train bells and horns. We will looking at wheels from squeals and this primally occurs at turns of the track. We will looking at vibration effect and also construction related to noise.

Page 17

Provisional quality, we will looking at visual effects at the stations and overhead catenary system. Guadalupe, any of the other locations and the county where there is currently operating light rail vehicles. We will be looking at visual effects and possibly grade separations. And grade separations will be location where we think that grade facility would interfere usually surround essential traffic circulation. We will also be looking at visual effects of tree removal and landscaping issues.

And finally economic issues, we are going to be looking at access to businesses during construction, access to parking during construction, lack of parking due to lack of trains. And as I said there is a number of environmental issues that can be addressed as far as this document here there is several of the ones that we are going to be discussing in the environmental document. We want to make sure we have complete cooperation.

The preparation of any EIS and EIR is a long process. It's going to take us quite a bit of time to come to a conclusion and the scoping meeting tonight, but it's going to actually take us 'till the summer of this year to get to the point where we have a draft of the environmental document that is available for public

Page 18

review. And that's primarily because consultants have to do their analysis and research and review their work, and then once we are satisfied with the work efforts we have to circulate it to the federal transit administration for them to review and be satisfied before it actually goes for public review.

We are looking at a final EIS/EIR some time in the spring of 2003 and with a record decision sometime in summer of 2003. So this is a long process, this is the first opportunity you have to voice your concerns. As part of the environmental document. And there is certainly additional opportunities as we go through this process.

That concludes the presentation we had planned. And you are entitled to take a break, but if you prefer to provide your comments now we can go forward and get you out earlier.

MS. GOODWIN: Anybody have any comments, sir? Do you want me to read your comments? How do you want to do it? Let's see we are so small tonight. Do want me to do it? I'd be happy to.

You are currently thinking on the Nieman Boulevard stop versus the stop at Aborn Road. In other words, I think the question is are these – where are they going to be located? What is was the analysis done

Page 19

and whether there will be an impact on the transfers between Capitol Avenue Expressway and Alum Rock station location as of when?

So – and to begin the fact that we are small tonight so do you want to take a stab at it, to put some or you can just take it down. I think we don't have a lot of people that are going to make comments so you got some light to shed I think it's probably appropriate.

MS. PRICE: Okay. The question is about the Nieman Boulevard stop versus the Aborn stop. There a lot of factors that were considered in the major investment study of the intersections, capacities of those intersections what some of the current land uses are, so based on some of the technical analysis and of the early community input the initial pass on this was that Nieman Boulevard stop made some sense in this process. During the conceptual engineering we will be examining locations and looking at it if there are another alternatives that may be make more sense. In terms of the transfers you mentioned Capitol line as well as the what was the second, Alum Rock? And operating plan is being developed in conjunction with this project during conceptual engineering, and the relationship in the interlining among the various lines current in those are being examined as part of the

Page 20

technical studies.

AUDIENCE: I guess that station is pretty well looked in with a statement of the Capitol line already under construction.

Another station and we are not really at Alum Rock some distance away from that one.

MS. PRICE: You are technically correct.

AUDIENCE: That says somebody is going to miss the connection in the time it takes to go from the exact interstate to the station representing that intersection to move.

MS. PRICE: That station there is – there will be – it is currently virtually completed. And you are quite right technically that is not at Alum Rock but the current station name is Alum Rock.

AUDIENCE: The other thing I read is a station that is – I haven't look at it at Bay Point, in connection with the Guadalupe. How is that working with that?

MS. PRICE: The Bay Point station has the platforms which are located parallel to each other. A time determination hasn't been made regarding station design location. In the vicinity of Alum station that is to examined as part of the technical study of conceptual engineering.

Page 21

MS. GOODWIN: Do have announcement on how it is going to work? I think that is part of this gentleman's question.
AUDIENCE: The ability to make transfers without missing their – missing their connection.
MS. PRICE: Did you want to make a comment about that?
SPEAKER: We will be looking at that. We don't have any answers, yet.
MS. GOODWIN: I appreciate it. Any other comments that you have or some of the other people.
AUDIENCE: On the study you made for those issues that are raised there a lot of them that are not all on the project, right? The time thing you go through the process, so you don't to spend an enormous amount of time on any specific project on stuff that has on the unique consideration like Reid Hillview Airport and those high powered tension lines.
SPEAKER: Those are somewhat unique. It's just a since we do have a federal aviation involved. We have to make sure that we satisfy their concerns.
THE COURT: I just want to make sure we capture this. Any other thoughts? Other folks who want to make a comment for the record. Sir, in the blue. State your name for the record, if you would.

Page 22

MR. CHIVER: Tom Chiver.
What are we expecting the traffic time to be on the Nieman route at Alum Rock to Lawrence to Guadalupe Light Rail Station. Can we –
MS. PRICE: Dennis, I'm going to need a little help on this. That travel time to vicinity of Eastridge is about – I anticipate about 20 minutes, but from the Alum Rock station along the entire Capitol Expressway door is anticipated to be approximately what?
MR. DENNIS: I don't know. I'd be guessing. We can provide that information if you would like to, I guess e-mail, but it's about eight miles so, in vehicles go about 35 miles per hour – per hour I think if I believe. So...
THE COURT: Can I get – what was the other one?
MR. CHIVER: Guadalupe.
MR. DENNIS: That will definitely be information that will be in the environmental document which will be available before that.
MS. GOODWIN: Do you have one of those orange cards? Let me give you one. Other comments, questions, things to put on record, sir.
AUDIENCE: Do you have any endangered species that are considered endangered that you are aware of?

Page 23

MS. PRICE: At this point I don't think we are aware of any endangered species. Currently we are not crossing a lot of creek that could have endangered species crossing Coyote Creek, but we are trying to stay away from as much as we can. I think in this case it's a little simple than in some projects.
MS. GOODWIN: Anything else?
AUDIENCE: And this is a question regarding the Alum Rock and Story station. You indicated the separation. Where would that entire stretch be?
MS. PRICE: We just started to work with the structural engineers on that. So that the stretch in the vicinity of Story there is options that are being looked at and we are at the beginning of that phase right now.
MS. GOODWIN: Do you have any thoughts about that?
AUDIENCE: Just curious.
MS. GOODWIN: Any other comments? Well we have lots of and lots of cookies for you to take home. Please do take some. Maybe take one of the cards with you if you think of something you think ah-hah I should have asked about that when think about it when I was in the shower or whenever fax it in or get it to us via the numerous ways that you got the information to do that,

Page 24

via e-mail or fax or give us a call. And we are taking comments through then October 9th.
So some of your family or other people that you know might have questions or comments that will be the time to let people get their comments in by October 9th. And then as I said please sign up. We can get that you number and we'll be doing a lot of community meetings in the next couple of months. And we'd like to have you come to those that we are going to be interactively. Thank you for your time this evening everybody. Thank you to Gail and Tom. Nice job.
(Whereupon, the public scoping meeting was concluded at 7:14 p.m.)

---o0o---

I, ALICIA PLANCARTE, C.S.R. #12161, a Certified Shorthand Reporter in and for the State of California, do hereby certify:

That said public scoping meeting was taken before me at the time and place set forth and was taken down by me in shorthand and thereafter reduced to computerized transcription under by direction and supervision, and I hereby certify the foregoing public scoping meeting is a full, true and correct transcript of my shorthand notes so taken.

I further certify that I am neither counsel for nor related to any party to said action nor in anywise interested in the outcome thereof.

IN WITNESS WHEREOF, I have hereunto subscribed my name this day of , 2001.

Alicia Plancarte
Certified Shorthand Reporter
No. 12161

Look-See Concordance Report

UNIQUE WORDS: **776**
TOTAL OCCURRENCES: **1,828**
NOISE WORDS: **384**
TOTAL WORDS IN FILE: **4,797**

SINGLE FILE CONCORDANCE

CASE SENSITIVE

COVER PAGES = 2

INCLUDES ALL TEXT OCCURRENCES

DATES **ON**

INCLUDES PURE NUMBERS

POSSESSIVE FORMS **ON**

– Y –